

WILLOW BROOK GOLF COMMUNITY TIS

ADA COUNTY, IDAHO

Updated January 25, 2023



Willow Brook Golf Community TIS Ada County, Idaho

Prepared for:
Willowbrook Development Inc.
210 E Murray Street
Boise, ID, 83614

Prepared by:
Kittelson & Associates, Inc.
101 South Capitol Boulevard, Suite 600
Boise, ID 83702
208.338.2683

Project Manager:
Jamie Markosian, PE
Senior Engineer

Project Principal:
Sonia Hennem Daleiden, PE
Senior Principal Engineer

Project Analysts:
Sam Mantsch
Engineering Associate
McKenna Milacek
Transportation Analyst

Project Number 25407

Updated January 25, 2023



CONTENTS

Executive Summary	1
Findings.....	1
Recommendations	18
Introduction	26
Project Description	26
Scope of the Report.....	30
Study Area	31
Intersection Performance measures	32
Traffic Analysis Methodology	33
Performance Measures	33
Existing Conditions	37
Site Conditions and Adjacent Land Uses.....	37
Transportation Facilities.....	37
Existing Traffic Operations.....	38
Crash History	44
Transportation Impact Analysis.....	47
Year 2030 Background Traffic Conditions.....	53
Year 2045 Background Traffic Conditions.....	58
Year 2045 Background (With Select Roadway Improvements) Traffic Conditions	71
Proposed Development Plan.....	86
Year 2030 Total Traffic Conditions.....	90
Year 2045 Total Traffic Conditions.....	97
Year 2045 Total Traffic Conditions (With Select Roadway Improvements)	113
Mitigation Timing & Threshold Evaluation	136
Year 2045 Total Traffic Queuing.....	138
Site Access Evaluation.....	141
Pedestrian and Bicycle Considerations	146
Findings and Recommendations	148
Findings.....	148
Recommendations	164
References	172

LIST OF FIGURES

Figure 1. Site Vicinity Map.....	27
Figure 2. Proposed Site Plan Phase 1	28
Figure 3. Proposed Site Plan Full Buildout.....	29
Figure 4A: Year 2022 Existing Traffic Volumes AM	41
Figure 4B: Year 2022 Existing Traffic Volumes PM	42
Figure 5: Aerie Way & SH 16 Future Lane Configuration.....	52
Figure 6A: Year 2030 Background Traffic Volumes AM.....	54
Figure 6B: Year 2030 Background Traffic Volumes PM.....	55
Figure 7A: Year 2045 Background Traffic Volumes AM.....	61
Figure 7B: Year 2045 Background Traffic Volumes PM.....	62
Figure 8A: Year 2045 Background (with Select Roadway Improvements) Traffic Volumes AM.....	75
Figure 8B: Year 2045 Background (with Select Roadway Improvements) Traffic Volumes PM	76
Figure 9: Estimated Trip Distribution Pattern Phase 1 2030	88
Figure 10: Estimated Trip Distribution Pattern Full Build-out 2045	89
Figure 11A: Year 2030 Trip Assignment Volumes AM	91
Figure 11B: Year 2030 Trip Assignment Volumes PM.....	92
Figure 12A: Year 2030 Total Traffic Volumes AM	93
Figure 12B: Year 2030 Total Traffic Volumes PM	94
Figure 13A: Year 2045 Trip Assignment Volumes AM	100
Figure 13B: Year 2045 Trip Assignment Volumes PM.....	101
Figure 14A: Year 2045 Total Traffic Volumes AM	102
Figure 14B: Year 2045 Total Traffic Volumes PM	103
Figure 15A: Year 2045 Trip Assignment (with select roadway improvements) Volumes AM	117
Figure 15B: Year 2045 Trip Assignment (with select roadway improvements) Volumes PM	118
Figure 16A: Year 2045 Total Traffic (with select roadway improvements) Volumes AM	119
Figure 16B: Year 2045 Total Traffic (with select roadway improvements) Volumes PM	120
Figure 17A: Redirected Volumes from Disconnecting Deep Canyon Drive from SH 16 AM	131
Figure 17B: Redirected Volumes from Disconnecting Deep Canyon Drive from SH 16 PM.....	132
Figure 18: Site Access Locations.....	142

LIST OF TABLES

Table 1. Study Intersections and Corresponding Operational Standards.....	34
Table 2. Existing Study Transportation Facilities and Roadways.....	37
Table 3. Year 2022 Existing Intersection Operations.....	38
Table 4. Year 2022 Existing Roadway Segment Operations.....	43
Table 5. Study Intersection Crash Type and Severity Summary, 2017-2021.....	44
Table 6. Roadway Segment Crash Type and Severity Summary, 2017-2021.....	44
Table 7 Annually Compounded Growth Rates.....	50
Table 8. Year 2030 Background Intersection Operations.....	53
Table 9 SH 44 / Can Ada Rd Intersection Mitigation Operations – 2030 Background Conditions.....	56
Table 10. Year 2030 Background Roadway Segment Operations.....	56
Table 11. Year 2045 Background Intersection Operations.....	58
Table 12 Beacon Light Road / Pollard Road Intersection Mitigation Operations – 2045 Background Conditions.....	63
Table 13. Beacon Light Rd / SH 16 Intersection Mitigation Operations – 2045 Background Conditions.....	64
Table 14 Beacon Light Road / Palmer Lane Intersection Mitigation Operations – 2045 Background Conditions.....	64
Table 15 Floating Feather Road / Star Road Intersection Mitigation Operations – 2045 Background Conditions.....	65
Table 16 Floating Feather Road / Plummer Road Intersection Mitigation Operations – 2045 Background Conditions.....	66
Table 17 SH 44 / Can Ada Rd Intersection Mitigation Operations – 2045 Background Conditions.....	66
Table 18. SH 44 / Star Rd Intersection Mitigation Operations – 2045 Background Conditions.....	67
Table 19. SH 44 / Plummer Rd Intersection Mitigation Operations – 2045 Background Conditions.....	68
Table 20. Year 2045 Background Conditions Roadway Segment Operations.....	68
Table 21. Year 2045 Background (with Select Roadway Improvements) Intersection Operations.....	72
Table 22 Beacon Light Road / Pollard Road Intersection Mitigation Operations – 2045 Background (with select roadway improvements) Conditions.....	77
Table 23. Beacon Light Rd / SH 16 Intersection Mitigation Operations – 2045 Background (with select roadway improvements) Conditions.....	78
Table 24 Beacon Light Road / Palmer Lane Intersection Mitigation Operations – 2045 Background (with select roadway improvements) Conditions.....	79
Table 25 Floating Feather Road / Star Road Intersection Mitigation Operations – 2045 Background (with select roadway improvements) Conditions.....	79
Table 26 Floating Feather Road / Plummer Road Intersection Mitigation Operations – 2045 Background (with select roadway improvements) Conditions.....	80
Table 27 SH 44 / Can Ada Rd Intersection Mitigation Operations – 2045 Background (with select roadway improvements) Conditions.....	80
Table 28. SH 44 / Star Rd Intersection Mitigation Operations – 2045 Background (with select roadway improvements) Conditions.....	81
Table 29. SH 44 / Plummer Rd Intersection Mitigation Operations – 2045 Background (with select roadway improvements) Conditions.....	82
Table 30. Year 2045 Background (With Select Roadway Improvements) Conditions Roadway Segment Operations.....	82
Table 31. Willow Brook Golf Course Only Estimated Trip Generation.....	86
Table 32. Phase 1 Willow Brook Golf Community Estimated Trip Generation.....	86
Table 33. Phase 1 Willow Brook Golf Community Estimated Trip Generation.....	87
Table 34. Year 2030 Total Traffic Intersection Operations.....	90
Table 35 SH 44 / Can Ada Rd Intersection Mitigation Operations – 2030 Total Traffic Conditions.....	95
Table 36. Year 2030 Total Traffic Roadway Segment Operations.....	96
Table 37. Year 2045 Total Traffic Intersection Operations.....	97
Table 38 Purple Sage Road / Can Ada Road Intersection Mitigation Operations – 2045 Total Traffic Conditions.....	104
Table 39 Deep Canyon Dr / SH 16 Intersection Mitigation Operations – 2045 Total Traffic Conditions.....	105
Table 40. Beacon Light Rd / SH 16 Intersection Mitigation Operations – 2045 Total Traffic Conditions.....	106
Table 41 Beacon Light Road / Palmer Lane Intersection Mitigation Operations – 2045 Total Traffic Conditions.....	106
Table 42 SH 44 / Can Ada Rd Intersection Mitigation Operations – 2045 Total Traffic Conditions.....	107
Table 43. SH 44 / Star Rd Intersection Mitigation Operations – 2045 Total Traffic Conditions.....	108
Table 44. SH 44 / Plummer Rd Intersection Mitigation Operations – 2045 Total Traffic Conditions.....	108
Table 45. Year 2045 Total Traffic Conditions Roadway Segment Operations.....	109
Table 46. Year 2045 Total Traffic (with Select Roadway Improvements) Intersection Operations.....	113
Table 47 Purple Sage Road / Can Ada Road Intersection Mitigation Operations – 2045 Total Traffic (with select roadway improvements) Conditions.....	121

Table 48 Beacon Light Rd / Pollard Ln Intersection Mitigation Operations – 2045 Total Traffic (with select roadway improvements) Conditions	122
Table 49. Beacon Light Rd / SH 16 Intersection Mitigation Operations – 2045 Total Traffic (with select roadway improvements) Conditions	123
Table 50 Beacon Light Road / Palmer Lane Intersection Mitigation Operations – 2045 Total Traffic (with select roadway improvements) Conditions	123
Table 51 Floating Feather Road / Star Road Intersection Mitigation Operations – 2045 Total Traffic (with select roadway improvements) Conditions	124
Table 52 Floating Feather Road / Plummer Road Intersection Mitigation Operations – 2045 Total Traffic (with select roadway improvements) Conditions	125
Table 53 SH 44 / Can Ada Rd Intersection Mitigation Operations – 2045 Total Traffic (with select roadway improvements) Conditions	125
Table 54. SH 44 / Star Rd Intersection Mitigation Operations – 2045 Total Traffic (with select roadway improvements) Conditions	126
Table 55. SH 44 / Plummer Rd Intersection Mitigation Operations – 2045 Total Traffic (with select roadway improvements) Conditions	127
Table 56. Year 2045 Total Traffic (With Select Roadway Improvements) Conditions Roadway Segment Operations.....	127
Table 57. Deep Canyon Dr / SH 16 Disconnected Intersection Mitigation Operations – 2045 Total Traffic (with select roadway improvements) Conditions	129
Table 58 Mitigation Threshold Evaluation	136
Table 59. Year 2045 Total Traffic Conditions 95th Percentile Queuing Analysis	138
Table 60. Turn Lane Analysis Results	141
Table 61. 2045 Daily Traffic Estimates on Internal Roadways (with Select Roadway Improvements).....	145

APPENDICES

Appendix A	Proposed Scope of Work Memo and Confirmation Emails
Appendix B	Signal Timing Sheets
Appendix C	Existing Intersection Traffic Count Data
Appendix D	Year 2022 Existing Traffic Operation Worksheets
Appendix E	Year 2022 Mitigated Existing Traffic Operation Worksheets
Appendix F	Existing 48-Hour Segment Traffic Count Data
Appendix G	Crash Data
Appendix H	Proposed Growth Rate Email Discussions
Appendix I	COMPASS Model for the Willow Brook Development
Appendix J	Year 2030 Background Traffic Operation Worksheets
Appendix K	Year 2030 Mitigated Background Traffic Operation Worksheets
Appendix L	Year 2045 Background Traffic Operation Worksheets
Appendix M	Year 2045 Mitigated Background Traffic Operation Worksheets
Appendix N	Year 2045 Background (with Select Roadway Improvements) Traffic Operation Worksheets
Appendix O	Year 2045 Mitigated Background (with Select Roadway Improvements) Traffic Operation Worksheets
Appendix P	Internal Trip Capture Worksheets
Appendix Q	Year 2030 Total Traffic Operation Worksheets
Appendix R	Year 2030 Mitigated Total Traffic Operation Worksheets
Appendix S	Year 2045 Total Traffic Operation Worksheets
Appendix T	Year 2045 Mitigated Total Traffic Operation Worksheets
Appendix U	Year 2045 Total Traffic (with Select Roadway Improvements) Operation Worksheets
Appendix V	Year 2045 Mitigated Total Traffic (with Select Roadway Improvements) Operation Worksheets
Appendix W	Mitigation Timing and Threshold Evaluation Worksheets
Appendix X	Turn Lane Warrants



Section 1

Executive Summary

EXECUTIVE SUMMARY

Willowbrook Development Inc. is proposing to develop the Willow Brook Golf Community, a mixed-use development situated on approximately 720 acres of currently vacant land in Ada County, Idaho. The site is loosely bounded by SH 16 to the east, Can Ada Road to the west, Deep Canyon Drive to the north, and Lanktree Gulch Road to the south. The development will fill areas of vacant land around existing residential developments. Currently the site is in unincorporated Ada County but will be annexed into the City of Star upon development approval.

The Willow Brook Golf Community will be constructed in phases throughout the next 20+ years. The first phase of construction will consist of the following land uses:

- 285 Single Family Houses
- 45 Townhomes
- 18-hole Public Golf Course

Full buildout of the Willow Brook Golf Community will consist of the following land uses:

- 948 Single Family Houses
- 146 Townhomes
- 75,000 Sq. Ft. of Commercial Shopping Plaza
- 18-hole Public Golf Course

Access to the development is proposed via Can Ada Road, Purple Sage Road, Deep Canyon Drive, and Lanktree Gulch Road. Additionally, there are potential planned access connections at Wing Road and Aerie Way. Due to the infill nature of the development, site accesses are not exclusive to the proposed development and will carry traffic from adjacent existing residences. The main internal collector of the development will connect Deep Canyon Drive to Can Ada Road. The proposed site plan for phase 1 of development is shown in Figure 2. The site plan for full buildout of the Willow Brook Golf Community is shown in Figure 3.

The development is planned to be fully built-out by the year 2045, with phase 1 being completed by 2030. The TIS addresses the existing traffic conditions, background (2030 & 2045) traffic conditions, and the development's impacts in the build-out years (2030 & 2045) and necessary mitigation measures.

The TIS for Willow Brook Golf Community resulted in the following findings and recommendations.

FINDINGS

EXISTING CONDITIONS

The study evaluated 19 off-site intersections and 23 roadway segments during the AM and PM peak period of a typical weekday. All study intersections and roadway segments were found to meet ACHD and ITD operating standards under 2022 existing conditions during the AM and PM peak hours.

YEAR 2030 BACKGROUND CONDITIONS

The 2030 phase 1 portion of the study evaluated 5 off-site intersections and 8 roadway segments during the AM and PM peak period of a typical weekday.

All study intersections were found to meet ACHD and ITD operating standards under 2030 background conditions during the AM and PM peak hours except for:

■ **SH 44 & Can Ada Road**

- The southbound approach operates over capacity and at LOS F during the weekday AM and PM peak hours.
- This intersection is in the Mid-Star CIP as a future traffic signal to be constructed by 2025. ITD's SH 44 Corridor Plan shows this intersection as a future RCUT with SH 44 widened to 4 lanes. The City of Star is leading a project that will widen SH 44 to the east of Can Ada Road in 2023
- The CHD4 identified improvement of a traffic signal with left and right turn lanes will serve as acceptable mitigation for the intersection. Alternatively, the ITD identified improvement of an RCUT will also serve as acceptable mitigation for the intersection.

All ACHD study roadway segments operate at acceptable levels of service under 2030 background conditions except for:

■ **Beacon Light Road (SH 16 to Palmer)**

- The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the AM and PM peak hours.
- The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.
- To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section.

YEAR 2045 BACKGROUND CONDITIONS

The 2045 background conditions analysis evaluated 19 off-site intersections and 23 roadway segments during the AM and PM peak period of a typical weekday assuming no background roadway improvements were completed.

The following study intersections were found to exceed ACHD and ITD operating standards under 2045 background conditions during the AM and/or PM peak hours:

■ **Beacon Light Road & Pollard Road**

- The minor street approaches operate over capacity and at LOS F during the weekday PM peak hour.
- The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040. This improvement does not bring the intersection to within ACHD operating standards.
- A multi-lane roundabout with 2 lanes on Beacon Light Road will serve as acceptable mitigation for the intersection. Alternatively, a traffic signal with left turn lanes and a westbound right turn lane will also serve as acceptable mitigation for the intersection.

■ **Beacon Light Road & SH 16**

- The intersection operates over capacity and at LOS E during the weekday AM and PM peak hours.
- The Spring Valley development was conditioned with making capacity improvements to this intersection.
- Widening SH 16 at the intersection and adding a westbound right turn overlap will serve as acceptable mitigation for the intersection.

■ **Beacon Light Road & Palmer Lane**

- The northbound approach operates over capacity and at LOS F during the weekday PM peak hour.
- The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040. This improvement does not bring the intersection to within ACHD operating standards.
- A multi-lane roundabout with 2 lanes on Beacon Light Road will serve as acceptable mitigation for the intersection. Alternatively, a traffic signal with left and right turn lanes and Beacon Light Road widened to 2 through lanes will also serve as acceptable mitigation for the intersection.

■ **Floating Feather Road & Star Road**

- The northbound approach operates over capacity and at LOS F during the weekday AM and PM peak hours.
- The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040.
- The ACHD identified improvement of a single-lane roundabout will serve as acceptable mitigation for the intersection. Alternatively, a traffic signal with left turn lanes will also serve as acceptable mitigation for the intersection.

■ **Floating Feather Road & Plummer Road**

- The northbound approach operates over capacity and at LOS F during the weekday PM peak hour.
- The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040.
- The ACHD identified improvement of a single-lane roundabout will serve as acceptable mitigation for the intersection. Alternatively, a traffic signal with left turn lanes will also serve as acceptable mitigation for the intersection.

■ **SH 44 & Can Ada Road**

- The southbound approach operates over capacity and at LOS F during the weekday AM and PM peak hours.
- This intersection is in the Mid-Star CIP as a future traffic signal to be constructed by 2025. ITD's SH 44 Corridor Plan shows this intersection as a future RCUT with SH 44 widened to 4 lanes. The City of Star is leading a project that will widen SH 44 to the east of Can Ada Road in 2023.
- The CHD4 identified improvement of a traffic signal with left and right turn lanes will serve as acceptable mitigation for the intersection. Alternatively, the ITD identified improvement of an RCUT will also serve as acceptable mitigation for the intersection.

■ **SH 44 & Star Road**

- The intersection operates over capacity and at LOS E during the weekday AM and PM peak hours.
- This intersection is in the ACHD CIP to have the signal replaced/modified and approaches widened. The lane configuration identified by ACHD does not fully mitigate the intersection.
- Widening SH 44 at the intersection and adding dual northbound left turn lanes will serve as acceptable mitigation for the intersection.

■ **SH 44 & Plummer Road**

- The intersection operates over capacity and at LOS F during the weekday AM and PM peak hours.
- This intersection is not currently programmed for improvements by ACHD. ITD's draft SH 44 Corridor Plan shows this intersection as signalized with SH 44 widened to 4 lanes. The lane configuration shown in the Corridor Plan does not fully mitigate the intersection.
- A traffic signal with left and right turn lanes, the eastbound and westbound approaches widened to two through lanes, and dual southbound left turn lanes will serve as acceptable mitigation for the intersection.

The following study roadway segments operate above ACHD level of service volume thresholds under 2045 background conditions:

■ **Deep Canyon Drive (Aerie Way to SH 16)**

- The segment is projected to exceed the ACHD local road ADT volume threshold.
- This segment would meet the AM and PM peak hour LOS D volume thresholds if Deep Canyon Drive were upgraded to a collector roadway.
- Constructing Aerie Way and the Wing Road extension would bring Deep Canyon Drive to within the ACHD local road ADT threshold as shown in the 2045 background (with select roadway improvements) conditions scenario.

■ **Lanktree Gulch Road (Can Ada to Wing)**

- The segment is projected to exceed the ACHD local road ADT volume threshold.
- This segment would meet the AM and PM peak hour LOS D volume thresholds if Lanktree Gulch Road were upgraded to a collector roadway.

■ **Wing Road (Lanktree Gulch to Beacon Light)**

- The segment is projected to exceed the ACHD local road ADT volume threshold.
- This segment would meet the AM and PM peak hour LOS D volume thresholds if Wing Road were upgraded to a collector roadway.

■ **Beacon Light Road (Wing to Pollard)**

- The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the PM peak hour.
- The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.
- To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section.

■ **Beacon Light Road (Pollard to SH 16)**

- The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the PM peak hour.
- The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.
- To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section.

■ **Beacon Light Road (SH 16 to Palmer)**

- The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the AM and PM peak hours.
 - The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.
 - To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section.
- **Beacon Light Road (Palmer to Linder)**
- The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the AM and PM peak hours.
 - The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.
 - To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section.
- **Pollard Road (Beacon Light to Floating Feather)**
- The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the PM peak hour.
 - The roadway segment is not currently listed in the ACHD CIP to be widened.
 - To bring this segment to within standards, Pollard Road would need to be widened to a 3-lane section.
- **Floating Feather Road (Star to Plummer)**
- The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the PM peak hour.
 - The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.
 - To bring this segment to within standards, Floating Feather Road would need to be widened to a 5-lane section.
- **Star Road (Floating Feather to SH 44)**
- The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the AM and PM peak hours.
 - The roadway segment is not currently listed in the ACHD CIP to be widened.
 - To bring this segment to within standards, Star Road would need to be widened to a 5-lane section.
- **Star Road (SH 44 to Joplin)**
- The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the AM and PM peak hours.
 - The roadway segment is listed in the ACHD CIP to be widened to a 5-lane section in the 2031-2035 timeframe. This would bring the segment to within standards.
- **Plummer Road (Floating Feather to SH 44)**
- The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the PM peak hour.
 - The roadway segment is not currently listed in the ACHD CIP to be widened.

- To bring this segment to within standards, Plummer Road would need to be widened to a 3-lane section.

YEAR 2045 BACKGROUND (WITH SELECT ROADWAY IMPROVEMENTS) CONDITIONS

The 2045 background (with select roadway improvements) conditions analysis evaluated 19 off-site intersections and 23 roadway segments during the AM and PM peak period of a typical weekday assuming select background roadway improvements were constructed. The assumed improvements include:

- Floating Feather Road constructed between Munger Road and Can Ada Road
- Floating Feather Road realignment constructed between Pollard Road and Palmer Lane
- Wing Road constructed between Beacon Light Road and Lanktree Gulch Road
- Aerie Way constructed between SH 16 and Deep Canyon Drive

The following study intersections were found to exceed ACHD and ITD operating standards under 2045 background (with select roadway improvements) conditions during the AM and/or PM peak hours:

■ **Beacon Light Road & Pollard Road**

- The minor street approaches operate over capacity and at LOS F during the weekday PM peak hour.
- The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040. This improvement does not bring the intersection to within ACHD operating standards.
- A multi-lane roundabout with 2 lanes on Beacon Light Road will serve as acceptable mitigation for the intersection. Alternatively, a traffic signal with left turn lanes and a westbound right turn lane will also serve as acceptable mitigation for the intersection.

■ **Beacon Light Road & SH 16**

- The intersection operates over capacity and at LOS E during the weekday AM and PM peak hours.
- The Spring Valley development was conditioned with making capacity improvements to this intersection.
- Widening SH 16 at the intersection and adding a westbound right turn overlap will serve as acceptable mitigation for the intersection.

■ **Beacon Light Road & Palmer Lane**

- The northbound approach operates over capacity and at LOS F during the weekday PM peak hour.
- The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040. This improvement does not bring the intersection to within ACHD operating standards.
- A multi-lane roundabout with 2 lanes on Beacon Light Road will serve as acceptable mitigation for the intersection. Alternatively, a traffic signal with left and right turn lanes and Beacon Light Road widened to 2 through lanes will also serve as acceptable mitigation for the intersection.

■ **Floating Feather Road & Star Road**

- The northbound approach operates over capacity and at LOS F during the weekday AM and PM peak hours.

- The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040.
- The ACHD identified improvement of a single-lane roundabout will serve as acceptable mitigation for the intersection. Alternatively, a traffic signal with left turn lanes will also serve as acceptable mitigation for the intersection.
- **Floating Feather Road & Plummer Road**
 - The northbound approach operates over capacity and at LOS F during the weekday PM peak hour.
 - The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040.
 - The ACHD identified improvement of a single-lane roundabout will serve as acceptable mitigation for the intersection. Alternatively, a traffic signal with left turn lanes will also serve as acceptable mitigation for the intersection.
- **SH 44 & Can Ada Road**
 - The southbound approach operates over capacity and at LOS F during the weekday AM and PM peak hours.
 - This intersection is in the Mid-Star CIP as a future traffic signal to be constructed by 2025. ITD's SH 44 Corridor Plan shows this intersection as a future RCUT with SH 44 widened to 4 lanes. The City of Star is leading a project that will widen SH 44 to the east of Can Ada Road in 2023.
 - The CHD4 identified improvement of a traffic signal with left and right turn lanes and SH 44 widened to 4 lanes will serve as acceptable mitigation for the intersection. Alternatively, the ITD identified improvement of an RCUT will also serve as acceptable mitigation for the intersection.
- **SH 44 & Star Road**
 - The intersection operates over capacity and at LOS E during the weekday AM and PM peak hours.
 - This intersection is in the ACHD CIP to have the signal replaced/modified and approaches widened. The lane configuration identified by ACHD does not fully mitigate the intersection.
 - Widening SH 44 at the intersection and adding dual northbound left turn lanes will serve as acceptable mitigation for the intersection.
- **SH 44 & Plummer Road**
 - The intersection operates over capacity and at LOS F during the weekday AM and PM peak hours.
 - This intersection is not currently programmed for improvements by ACHD. ITD's draft SH 44 Corridor Plan shows this intersection as signalized with SH 44 widened to 4 lanes. The lane configuration shown in the Corridor Plan does not fully mitigate the intersection.
 - A traffic signal with left and right turn lanes, the eastbound and westbound approaches widened to two through lanes, and dual southbound left turn lanes will serve as acceptable mitigation for the intersection.

The following study roadway segments operate above ACHD level of service volume thresholds under 2045 background (with select roadway improvements) conditions:

- **Wing Road (Lanktree Gulch to Beacon Light)**
 - The segment is projected to exceed the ACHD local road ADT volume threshold.

- This segment would meet the AM and PM peak hour LOS D volume thresholds if Wing Road were upgraded to a collector roadway.
- **Beacon Light Road (Wing to Pollard)**
 - The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the PM peak hour.
 - The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.
 - To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section.
- **Beacon Light Road (Pollard to SH 16)**
 - The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the PM peak hour.
 - The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.
 - To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section.
- **Beacon Light Road (SH 16 to Palmer)**
 - The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the AM and PM peak hours.
 - The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.
 - To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section.
- **Beacon Light Road (Palmer to Linder)**
 - The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the AM and PM peak hours.
 - The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.
 - To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section.
- **Pollard Road (Beacon Light to Floating Feather)**
 - The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the PM peak hour.
 - The roadway segment is not currently listed in the ACHD CIP to be widened.
 - To bring this segment to within standards, Pollard Road would need to be widened to a 3-lane section.
- **Floating Feather Road (Star to Plummer)**
 - The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the PM peak hour.
 - The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.

- To bring this segment to within standards, Floating Feather Road would need to be widened to a 5-lane section.
- **Floating Feather Road (Plummer to Pollard)**
 - The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the PM peak hour.
 - The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe. This would bring the segment to within standards.
- **Star Road (Floating Feather to SH 44)**
 - The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the AM and PM peak hours.
 - The roadway segment is not currently listed in the ACHD CIP to be widened.
 - To bring this segment to within standards, Star Road would need to be widened to a 5-lane section.
- **Star Road (SH 44 to Joplin)**
 - The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the AM and PM peak hours.
 - The roadway segment is listed in the ACHD CIP to be widened to a 5-lane section in the 2031-2035 timeframe. This would bring the segment to within standards.
- **Plummer Road (Floating Feather to SH 44)**
 - The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the PM peak hour.
 - The roadway segment is not currently listed in the ACHD CIP to be widened.
 - To bring this segment to within standards, Plummer Road would need to be widened to a 3-lane section.

TRIP GENERATION & DISTRIBUTION

- The golf course only of the proposed Willow Brook Golf Community is estimated to generate a total of 526 daily net new trip ends, of these, 30 are estimated to occur in the weekday a.m. peak hour (24 inbound / 6 outbound), and 52 are estimated to occur in the weekday p.m. peak hour (27 inbound / 25 outbound).
- Phase 1 of the proposed Willow Brook Golf Community is estimated to generate a total of 3,535 daily net new trip ends, of these, 260 are estimated to occur in the weekday a.m. peak hour (83 inbound / 177 outbound), and 358 are estimated to occur in the weekday p.m. peak hour (220 inbound / 138 outbound).
- Full buildout of the proposed Willow Brook Golf Community is estimated to generate a total of 12,821 daily net new trip ends, of these, 789 are estimated to occur in the weekday a.m. peak hour (262 inbound / 527 outbound), and 1,097 are estimated to occur in the weekday p.m. peak hour (658 inbound / 439 outbound).
- The distribution pattern for site-generated trips was developed by evaluating a select zone analysis from COMPASS' regional travel demand model.

YEAR 2030 TOTAL TRAFFIC CONDITIONS

The 2030 phase 1 portion of the study evaluated 5 off-site intersections and 8 roadway segments during the AM and PM peak period of a typical weekday with the inclusion of phase 1 trips from the Willow Brook Golf Community.

All study intersections were found to meet ACHD and ITD operating standards under 2030 background conditions during the AM and PM peak hours except for:

■ **SH 44 & Can Ada Road**

- The southbound approach operates over capacity and at LOS F during the weekday AM and PM peak hours.
- This intersection is in the Mid-Star CIP as a future traffic signal to be constructed by 2025. ITD's SH 44 Corridor Plan shows this intersection as a future RCUT with SH 44 widened to 4 lanes. The City of Star is leading a project that will widen SH 44 to the east of Can Ada Road in 2023.
- The CHD4 identified improvement of a traffic signal with left and right turn lanes will serve as acceptable mitigation for the intersection. Alternatively, the ITD identified improvement of an RCUT will also serve as acceptable mitigation for the intersection.

All ACHD study roadway segments operate at acceptable levels of service under 2030 total traffic conditions except for:

■ **Deep Canyon Drive (Purple Sage to SH 16)**

- The segment is projected to exceed the ACHD local road ADT volume threshold.
- This segment would meet the AM and PM peak hour LOS D volume thresholds if Deep Canyon Drive were upgraded to a collector roadway.
- To limit through traffic on this local road, Deep Canyon Drive would need to be disconnected from SH 16. This option is discussed in the 2045 total traffic (with select roadway improvements) conditions scenario.

■ **Beacon Light Road (SH 16 to Palmer)**

- The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the AM and PM peak hours.
- The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.
- To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section.

YEAR 2045 TOTAL TRAFFIC CONDITIONS

The 2045 total traffic conditions analysis evaluated 19 off-site intersections and 23 roadway segments during the AM and PM peak period of a typical weekday assuming no background roadway improvements were completed and includes site traffic from full buildout of the Willow Brook Golf Community.

The following study intersections were found to exceed ACHD and ITD operating standards under 2045 total traffic conditions during the AM and/or PM peak hours:

■ **Purple Sage Road & Can Ada Road**

- The minor street approaches operate over capacity and at LOS F during the weekday PM peak hour.

- The Mid-Star CIP includes adding turn lanes to this intersection in the 2030-2040 timeframe, but that will not mitigate the intersection in this scenario.
- A single lane roundabout or a traffic signal with left turn lanes will serve as acceptable mitigation for the intersection.
- **Deep Canyon Drive & SH 16**
 - The eastbound approach operates over capacity and at LOS F during the weekday AM peak hour.
 - The future configuration of this section of SH 16 is currently being determined by an ITD Corridor Plan. A traffic signal with one through lane in the northbound and southbound direction does not mitigate the intersection.
 - A traffic signal with left and right turn lanes and SH 16 widened to two through lanes in each direction will serve as acceptable mitigation for the intersection.
- **Beacon Light Road & Pollard Road**
 - No Willow Brook site trips are assigned to this intersection under 2045 total traffic conditions. Therefore, the mitigations needed at this intersection are the same as identified in 2045 background conditions.
- **Beacon Light Road & SH 16**
 - The intersection operates over capacity and at LOS E during the weekday AM and PM peak hours.
 - The Spring Valley development was conditioned with making capacity improvements to this intersection.
 - Widening SH 16 at the intersection and adding a second westbound right turn lane will serve as acceptable mitigation for the intersection.
- **Beacon Light Road & Palmer Lane**
 - The northbound approach operates over capacity and at LOS F during the weekday PM peak hour.
 - The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040. This improvement does not bring the intersection to within ACHD operating standards.
 - A multi-lane roundabout with 2 lanes on Beacon Light Road will serve as acceptable mitigation for the intersection. Alternatively, a traffic signal with left and right turn lanes and Beacon Light Road widened to 2 through lanes will also serve as acceptable mitigation for the intersection.
- **Floating Feather Road & Star Road**
 - No Willow Brook site trips are assigned to this intersection under 2045 total traffic conditions. Therefore, the mitigations needed at this intersection are the same as identified in 2045 background conditions.
- **Floating Feather Road & Plummer Road**
 - No Willow Brook site trips are assigned to this intersection under 2045 total traffic conditions. Therefore, the mitigations needed at this intersection are the same as identified in 2045 background conditions.
- **SH 44 & Can Ada Road**
 - The southbound approach operates over capacity and at LOS F during the weekday AM and PM peak hours.

- This intersection is in the Mid-Star CIP as a future traffic signal to be constructed by 2025. ITD's SH 44 Corridor Plan shows this intersection as a future RCUT with SH 44 widened to 4 lanes. The City of Star is leading a project that will widen SH 44 to the east of Can Ada Road in 2023. The ITD identified improvement of an RCUT does not bring the intersection to within ACHD or ITD operating standards.
- The CHD4 identified improvement of a traffic signal with left and right turn lanes and SH 44 widened to 4 lanes will serve as acceptable mitigation for the intersection.
- **SH 44 & Star Road**
 - The intersection operates over capacity and at LOS E during the weekday AM and PM peak hours.
 - This intersection is in the ACHD CIP to have the signal replaced/modified and approaches widened. The lane configuration identified by ACHD does not fully mitigate the intersection.
 - Widening SH 44 at the intersection and adding dual northbound left turn lanes will serve as acceptable mitigation for the intersection.
- **SH 44 & Plummer Road**
 - The intersection operates over capacity and at LOS F during the weekday AM and PM peak hours.
 - This intersection is not currently programmed for improvements by ACHD. ITD's draft SH 44 Corridor Plan shows this intersection as signalized with SH 44 widened to 4 lanes. The lane configuration shown in the Corridor Plan does not fully mitigate the intersection.
 - A traffic signal with left and right turn lanes, the eastbound and westbound approaches widened to two through lanes, and dual southbound left turn lanes will serve as acceptable mitigation for the intersection.

The following study roadway segments receive site traffic and operate above ACHD level of service volume thresholds under 2045 total traffic conditions:

- **Deep Canyon Drive (Aerie to SH 16)**
 - The segment is projected to exceed the ACHD local road ADT volume threshold.
 - This segment would meet the AM and PM peak hour LOS D volume thresholds if Deep Canyon Drive were upgraded to a collector roadway.
 - To limit through traffic on this local road, Deep Canyon Drive would need to be disconnected from SH 16. This option is discussed in the total traffic (with select roadway improvements) conditions scenario.
- **Lanktree Gulch Road (Can Ada to Wing)**
 - The segment is projected to exceed the ACHD local road ADT volume threshold.
 - This segment would meet the AM and PM peak hour LOS D volume thresholds if Lanktree Gulch Road were upgraded to a collector roadway.
- **Purple Sage Road (Blessinger to Can Ada)**
 - The segment is projected to exceed the CHD4 LOS D volume threshold for collectors in the PM peak hour.
 - To bring this segment to within standards, Purple Sage Road would need to be widened to a 3-lane section.
- **Can Ada Road (Purple Sage to Lanktree Gulch)**

- The segment is projected to exceed the ACHD LOS D volume threshold for collectors in the PM peak hour.
- To bring this segment to within standards, Can Ada Road can be designated as a minor arterial, which it is already classified as between SH 44 and New Hope Road.
- **Can Ada Road (Lanktree Gulch to New Hope)**
 - The segment is projected to exceed the ACHD LOS D volume threshold for collectors in the PM peak hour.
 - To bring this segment to within standards, Can Ada Road can be designated as a minor arterial, which it is already classified as between SH 44 and New Hope Road.
- **Beacon Light Road (SH 16 to Palmer)**
 - The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the AM and PM peak hours.
 - The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.
 - To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section.
- **Beacon Light Road (Palmer to Linder)**
 - The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the AM and PM peak hours.
 - The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.
 - To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section.
- **Star Road (SH 44 to Joplin)**
 - The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the AM and PM peak hours.
 - The roadway segment is listed in the ACHD CIP to be widened to a 5-lane section in the 2031-2035 timeframe. This would bring the segment to within standards.

YEAR 2045 TOTAL TRAFFIC (WITH SELECT ROADWAY IMPROVEMENTS) CONDITIONS

The 2045 total traffic (with select roadway improvements) conditions analysis evaluated 19 off-site intersections and 23 roadway segments during the AM and PM peak period of a typical weekday assuming select background roadway improvements were constructed and includes site traffic from full buildout of the Willow Brook Golf Community. The assumed background improvements include:

- Floating Feather Road constructed between Munger Road and Can Ada Road
- Floating Feather Road realignment constructed between Pollard Road and Palmer Lane
- Wing Road constructed between Beacon Light Road and Lanktree Gulch Road
- Aerie Way constructed between SH 16 and Deep Canyon Drive

The following study intersections were found to exceed ACHD and ITD operating standards under 2045 total traffic (with select roadway improvements) conditions during the AM and/or PM peak hours:

- **Purple Sage Road & Can Ada Road**

- The minor street approaches operate over capacity and at LOS F during the weekday PM peak hour.
 - The Mid-Star CIP includes adding turn lanes to this intersection in the 2030-2040 timeframe, but that will not mitigate the intersection in this scenario.
 - A single lane roundabout or a traffic signal with left turn lanes will serve as acceptable mitigation for the intersection.
- **Beacon Light Road & Pollard Road**
- The minor street approaches operate over capacity and at LOS F during the weekday PM peak hour.
 - The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040. This improvement does not bring the intersection to within ACHD operating standards.
 - A multi-lane roundabout with 2 lanes on Beacon Light Road will serve as acceptable mitigation for the intersection. Alternatively, a traffic signal with left turn lanes and a westbound right turn lane will also serve as acceptable mitigation for the intersection.
- **Beacon Light Road & SH 16**
- The intersection operates over capacity and at LOS E during the weekday AM and PM peak hours.
 - The Spring Valley development was conditioned with making capacity improvements to this intersection.
 - Widening SH 16 at the intersection and adding a second westbound right turn lane will serve as acceptable mitigation for the intersection.
- **Beacon Light Road & Palmer Lane**
- The northbound approach operates over capacity and at LOS F during the weekday PM peak hour.
 - The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040. This improvement does not bring the intersection to within ACHD operating standards.
 - A multi-lane roundabout with 2 lanes on Beacon Light Road will serve as acceptable mitigation for the intersection. Alternatively, a traffic signal with left and right turn lanes and Beacon Light Road widened to 2 through lanes will also serve as acceptable mitigation for the intersection.
- **Floating Feather Road & Star Road**
- The northbound approach operates over capacity and at LOS F during the weekday AM and PM peak hours.
 - The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040.
 - The ACHD identified improvement of a single-lane roundabout will serve as acceptable mitigation for the intersection. Alternatively, a traffic signal with left turn lanes will also serve as acceptable mitigation for the intersection.
- **Floating Feather Road & Plummer Road**
- The northbound approach operates over capacity and at LOS F during the weekday PM peak hour.

- The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040.
- The ACHD identified improvement of a single-lane roundabout will serve as acceptable mitigation for the intersection. Alternatively, a traffic signal with left turn lanes will also serve as acceptable mitigation for the intersection.
- **SH 44 & Can Ada Road**
 - The southbound approach operates over capacity and at LOS F during the weekday AM and PM peak hours.
 - This intersection is in the Mid-Star CIP as a future traffic signal to be constructed by 2025. ITD's SH 44 Corridor Plan shows this intersection as a future RCUT with SH 44 widened to 4 lanes. The City of Star is leading a project that will widen SH 44 to the east of Can Ada Road in 2023. The ITD identified improvement of an RCUT does not bring the intersection to within ACHD or ITD operating standards.
 - The CHD4 identified improvement of a traffic signal with left and right turn lanes and SH 44 widened to 4 lanes will serve as acceptable mitigation for the intersection.
- **SH 44 & Star Road**
 - The intersection operates over capacity and at LOS E during the weekday AM and PM peak hours.
 - This intersection is in the ACHD CIP to have the signal replaced/modified and approaches widened. The lane configuration identified by ACHD does not fully mitigate the intersection.
 - Widening SH 44 at the intersection and adding dual northbound left turn lanes will serve as acceptable mitigation for the intersection.
- **SH 44 & Plummer Road**
 - The intersection operates over capacity and at LOS F during the weekday AM and PM peak hours.
 - This intersection is not currently programmed for improvements by ACHD. ITD's draft SH 44 Corridor Plan shows this intersection as signalized with SH 44 widened to 4 lanes. The lane configuration shown in the Corridor Plan does not fully mitigate the intersection.
 - A traffic signal with left and right turn lanes, the eastbound and westbound approaches widened to two through lanes, and dual southbound left turn lanes will serve as acceptable mitigation for the intersection.

The following study roadway segments operate above ACHD level of service volume thresholds under 2045 background conditions:

- **Deep Canyon Drive (Aerie to SH 16)**
 - The segment is projected to exceed the ACHD local road ADT volume threshold.
 - This segment would meet the AM and PM peak hour LOS D volume thresholds if Deep Canyon Drive were upgraded to a collector roadway.
 - With the construction of Aerie Way and the Wing Road extension, Deep Canyon Drive could be disconnected from SH 16. This would limit through traffic on the roadway and would allow it to meet the ACHD local road ADT volume threshold.
 - Disconnecting Deep Canyon Drive from SH 16 will not require any additional intersection mitigations beyond those already identified under 2045 total traffic (with select roadway improvements) conditions.

■ **Purple Sage Road (Blessinger to Can Ada)**

- The segment is projected to exceed the CHD4 LOS D volume threshold for collectors in the PM peak hour.
- To bring this segment to within standards, Purple Sage Road would need to be widened to a 3-lane section.

■ **Can Ada Road (Purple Sage to Lanktree Gulch)**

- The segment is projected to exceed the ACHD LOS D volume threshold for collectors in the PM peak hour.
- To bring this segment to within standards, Can Ada Road can be designated as a minor arterial, which it is already classified as between SH 44 and New Hope Road.

■ **Can Ada Road Lanktree Gulch to New Hope)**

- The segment is projected to exceed the ACHD LOS D volume threshold for collectors in the PM peak hour.
- To bring this segment to within standards, Can Ada Road can be designated as a minor arterial, which it is already classified as between SH 44 and New Hope Road.

■ **Wing Road (Lanktree Gulch to Beacon Light)**

- The segment is projected to exceed the ACHD local road ADT volume threshold.
- This segment would meet the AM and PM peak hour LOS D volume thresholds if Wing Road were upgraded to a collector roadway.

■ **Beacon Light Road (Wing to Pollard)**

- The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the PM peak hour.
- The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.
- To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section.

■ **Beacon Light Road (Pollard to SH 16)**

- The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the PM peak hour.
- The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.
- To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section.

■ **Beacon Light Road (SH 16 to Palmer)**

- The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the AM and PM peak hours.
- The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.
- To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section.

■ **Beacon Light Road (Palmer to Linder)**

- The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the AM and PM peak hours.
- The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.
- To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section.
- **Pollard Road (Beacon Light to Floating Feather)**
 - The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the PM peak hour.
 - The roadway segment is not currently listed in the ACHD CIP to be widened.
 - To bring this segment to within standards, Pollard Road would need to be widened to a 3-lane section.
- **Floating Feather Road (Star to Plummer)**
 - The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the PM peak hour.
 - The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.
 - To bring this segment to within standards, Floating Feather Road would need to be widened to a 5-lane section.
- **Floating Feather Road (Plummer to Pollard)**
 - The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the PM peak hour.
 - The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe. This would bring the segment to within standards.
- **Star Road (Floating Feather to SH 44)**
 - The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the AM and PM peak hours.
 - The roadway segment is not currently listed in the ACHD CIP to be widened.
 - To bring this segment to within standards, Star Road would need to be widened to a 5-lane section.
- **Star Road (SH 44 to Joplin)**
 - The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the AM and PM peak hours.
 - The roadway segment is listed in the ACHD CIP to be widened to a 5-lane section in the 2031-2035 timeframe. This would bring the segment to within standards.
- **Plummer Road (Floating Feather to SH 44)**
 - The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the PM peak hour.
 - The roadway segment is not currently listed in the ACHD CIP to be widened.
 - To bring this segment to within standards, Plummer Road would need to be widened to a 3-lane section.

SITE ACCESSES

- With approval from ACHD, construct all accesses to the development to allow full access on the public street approaches with the following designations:
 - All local streets within the development should be constructed with one travel lane in each direction.
 - Site driveways with access to public streets should provide sufficient stacking distance for four vehicles (100 feet) to ensure acceptable operation and accommodate larger vehicles, including utility service and delivery vehicles.
 - Site accesses should match the existing grade of road to which they access to ensure the best possible sight distance.
 - All accesses and internal streets should be designed to provide adequate intersection site distance. Shrubbery and landscaping near the intersection and site access point should be maintained to ensure adequate sight distance is maintained.
- Site Access A on Can Ada Road just north of Purple Sage Road should be relocated to the north to allow for at least 280' of clear sight distance before any horizontal curve.
- Site Access C on Deep Canyon Drive does not provide adequate intersection spacing for a 35 mph local road. The segment of Deep Canyon Drive that is currently posted at 35 mph is recommended to be reduced to 25 mph to provide adequate intersection spacing and improve safety as development increases.

RECOMMENDATIONS

Based on the report's analyses and evaluation findings, recommendations were developed accordingly for each analysis scenario.

EXISTING CONDITIONS

No mitigations are recommended to accommodate the year 2022 existing traffic volumes and meet ACHD and ITD standards.

YEAR 2030 BACKGROUND CONDITIONS

The following mitigations are recommended to accommodate the year 2030 background traffic volumes and meet ACHD and ITD standards:

- **SH 44 & Can Ada Road**
 - Construct an RCUT with SH 44 widened to a 4-lane section or a traffic signal with left and right turn lanes.
- **Beacon Light Road (SH 16 to Palmer)**
 - Widen to a 5-lane section.

YEAR 2045 BACKGROUND CONDITIONS

The following mitigations are recommended to accommodate the year 2045 background traffic volumes and meet ACHD and ITD standards:

- **Beacon Light Road & Pollard Road**

- Construct a multi-lane roundabout with 2 lanes on Beacon Light Road or a traffic signal with left turn lanes and a westbound right turn lane.
- **Beacon Light Road & SH 16**
 - Widen SH 16 at the intersection and add a westbound right turn overlap.
- **Beacon Light Road & Palmer Lane**
 - Construct a multi-lane roundabout with 2 lanes on Beacon Light Road or a traffic signal with left and right turn lanes and Beacon Light Road widened to 2 through lanes.
- **Floating Feather Road & Star Road**
 - Construct a single-lane roundabout or a traffic signal with left turn lanes.
- **Floating Feather Road & Plummer Road**
 - Construct a single-lane roundabout or a traffic signal with left turn lanes.
- **SH 44 & Can Ada Road**
 - Construct an RCUT with SH 44 widened to a 4-lane section or a traffic signal with left and right turn lanes.
- **SH 44 & Star Road**
 - Widen SH 44 at the intersection and add dual northbound left turn lanes
- **SH 44 & Plummer Road**
 - Expand the traffic signal to include left and right turn lanes, the eastbound and westbound approaches widened to two through lanes, and dual southbound left turn lanes.
- **Deep Canyon Drive (Aerie to SH 16)**
 - Construct Aerie Way and the Wing Road extension.
- **Lanktree Gulch Road (Can Ada to Wing)**
 - Upgrade to a collector roadway.
- **Wing Road (Lanktree Gulch to Beacon Light)**
 - Upgrade to a collector roadway.
- **Beacon Light Road (Wing to Pollard)**
 - Widen to a 5-lane section.
- **Beacon Light Road (Pollard to SH 16)**
 - Widen to a 5-lane section.
- **Beacon Light Road (SH 16 to Palmer)**
 - Widen to a 5-lane section.
- **Beacon Light Road (Palmer to Linder)**
 - Widen to a 5-lane section.
- **Pollard Road (Beacon Light to Floating Feather)**
 - Widen to a 3-lane section.
- **Floating Feather Road (Star to Plummer)**
 - Widen to a 5-lane section.

- **Star Road (Floating Feather to SH 44)**
 - Widen to a 5-lane section.
- **Star Road (SH 44 to Joplin)**
 - Widen to a 5-lane section.
- **Plummer Road (Floating Feather to SH 44)**
 - Widen to a 3-lane section.

YEAR 2045 BACKGROUND (WITH SELECT ROADWAY IMPROVEMENTS) CONDITIONS

The following mitigations are recommended to accommodate the year 2045 background (with select roadway improvements) traffic volumes and meet ACHD and ITD standards:

- **Beacon Light Road & Pollard Road**
 - Construct a multi-lane roundabout with 2 lanes on Beacon Light Road or a traffic signal with left turn lanes and a westbound right turn lane.
- **Beacon Light Road & SH 16**
 - Widen SH 16 at the intersection and add a westbound right turn overlap.
- **Beacon Light Road & Palmer Lane**
 - Construct a multi-lane roundabout with 2 lanes on Beacon Light Road or a traffic signal with left and right turn lanes and Beacon Light Road widened to 2 through lanes.
- **Floating Feather Road & Star Road**
 - Construct a single-lane roundabout or a traffic signal with left turn lanes.
- **Floating Feather Road & Plummer Road**
 - Construct a single-lane roundabout or a traffic signal with left turn lanes.
- **SH 44 & Can Ada Road**
 - Construct an RCUT with SH 44 widened to a 4-lane section or a traffic signal with left and right turn lanes.
- **SH 44 & Star Road**
 - Widen SH 44 at the intersection and add dual northbound left turn lanes
- **SH 44 & Plummer Road**
 - Expand the traffic signal to include left and right turn lanes, the eastbound and westbound approaches widened to two through lanes, and dual southbound left turn lanes.
- **Wing Road (Lanktree Gulch to Beacon Light)**
 - Upgrade to a collector roadway.
- **Beacon Light Road (Wing to Pollard)**
 - Widen to a 5-lane section.
- **Beacon Light Road (Pollard to SH 16)**
 - Widen to a 5-lane section.
- **Beacon Light Road (SH 16 to Palmer)**

- Widen to a 5-lane section.
- **Beacon Light Road (Palmer to Linder)**
 - Widen to a 5-lane section.
- **Pollard Road (Beacon Light to Floating Feather)**
 - Widen to a 3-lane section.
- **Floating Feather Road (Star to Plummer)**
 - Widen to a 5-lane section.
- **Floating Feather Road (Plummer to Pollard)**
 - Widen to a 3-lane section.
- **Star Road (Floating Feather to SH 44)**
 - Widen to a 5-lane section.
- **Star Road (SH 44 to Joplin)**
 - Widen to a 5-lane section.
- **Plummer Road (Floating Feather to SH 44)**
 - Widen to a 3-lane section.

YEAR 2030 TOTAL TRAFFIC CONDITIONS

The following mitigations beyond those identified in 2030 background conditions are recommended to accommodate the year 2030 total traffic volumes and meet ACHD and ITD standards:

- **Deep Canyon Drive (Aerie to SH 16)**
 - Construct Aerie Way and the Wing Road extension.

YEAR 2045 TOTAL TRAFFIC CONDITIONS

The following mitigations beyond those identified in 2045 background conditions are recommended to accommodate the year 2045 total traffic volumes and meet ACHD and ITD standards:

- **Purple Sage Road & Can Ada Road**
 - Construct a single lane roundabout or a traffic signal with left turn lanes.
- **Deep Canyon Drive & SH 16**
 - Construct Aerie Way and the Wing Road extension or add a traffic signal with left and right turn lanes and SH 16 widened to two through lanes in each direction.
- **Beacon Light Road & SH 16**
 - Add a second westbound right turn lane
- **SH 44 & Can Ada Road**
 - Construct a traffic signal with left and right turn lanes and SH 44 widened to 4 lanes.
 - An RCUT was recommended under 2045 background conditions but is no longer recommended under 2045 total traffic conditions
- **Purple Sage Road (Blessinger to Can Ada)**
 - Widen to a 3-lane section.

- **Can Ada Road (Purple Sage to Lanktree Gulch)**

- Upgrade to a minor arterial.

- **Can Ada Road (Lanktree Gulch to New Hope)**

- Upgrade to a minor arterial.

YEAR 2045 TOTAL TRAFFIC (WITH SELECT ROADWAY IMPROVEMENTS) CONDITIONS

The following mitigations beyond those identified in 2045 background (with select roadway improvements) conditions are recommended to accommodate the year 2045 total traffic (with select roadway improvements) volumes and meet ACHD and ITD standards:

- **Purple Sage Road & Can Ada Road**

- Construct a single lane roundabout or a traffic signal with left turn lanes.

- **Beacon Light Road & SH 16**

- Add a second westbound right turn lane

- **SH 44 & Can Ada Road**

- Construct a traffic signal with left and right turn lanes and SH 44 widened to 4 lanes.
- An RCUT was recommended under 2045 background (with select roadway improvements) conditions but is no longer recommended under 2045 total traffic (with select roadway improvements) conditions.

- **Purple Sage Road (Blessinger to Can Ada)**

- Widen to a 3-lane section.

- **Can Ada Road (Purple Sage to Lanktree Gulch)**

- Upgrade to a minor arterial.

- **Can Ada Road (Lanktree Gulch to New Hope)**

- Upgrade to a minor arterial.

SITE ACCESSES

- **Purple Sage Road & Can Ada Road**

- This intersection should be constructed as a two way stop control in the near term. A single lane roundabout or a traffic signal with left turn lanes is warranted in 2043. Right of way should be preserved now for a future roundabout.

- **Deep Canyon Drive & Aerie Way**

- Although shown as a dogbone roundabout on the site plan, a two way stop controlled intersection is shown to operate acceptably for this intersection. The roundabout may be preferred to provide proper alignment with Aerie Way and the main internal collector.

- **Site Access A**

- Relocate to the north to allow for at least 280' of clear sight distance before any horizontal curve.

- **Site Access C**

- Reduce speed limit on this section of Deep Canyon Drive to 25 mph.

RECOMMENDED NEW CONNECTIONS

■ Aerie Way

- Recommended to be constructed between Deep Canyon Drive and SH 16 to provide alternate access to SH 16 from the development and to reduce demand on Deep Canyon Drive. This connection should be constructed in conjunction with the Wing Road extension described below.
- Deep Canyon Drive is projected to exceed ACHD's local road ADT threshold by 2024. Constructing these new connections will extend the timeline of reaching this threshold to 2027. Operations at the intersection of Deep Canyon Drive / SH 16 are not projected to exceed capacity until 2040.
- The timing of constructing Aerie Way should be determined with the understanding that the local road ADT threshold of Deep Canyon Drive will be exceeded by 2024 but there are no capacity deficiencies in the near term.
- The construction of Aerie Way and the Wing Road extension alone will not relieve pressure from Deep Canyon Drive beyond 2027. It is also recommended that Deep Canyon Drive be disconnected from SH 16 upon completion of these connections as described below.
- The construction of Aerie Way will require land acquisition from the Bureau of Land Management and private landowners. The developer is currently in discussions with these landowners regarding logistics of making this land acquisition for right of way.

■ Wing Road Extension

- Recommended to be constructed between Lanktree Gulch Road and Beacon Light Road to provide alternate access to SH 16 from the development and to reduce demand on Deep Canyon Drive. This connection should be constructed in conjunction with Aerie Way described above.
- Deep Canyon Drive is projected to exceed ACHD's local road ADT threshold by 2024. Constructing these new connections will extend the timeline of reaching this threshold to 2027. Operations at the intersection of Deep Canyon Drive / SH 16 are not projected to exceed capacity until 2040.
- The timing of constructing the Wing Road extension should be determined with the understanding that the local road ADT threshold of Deep Canyon Drive will be exceeded by 2024 but there are no capacity deficiencies in the near term.
- The construction of Aerie Way and the Wing Road extension alone will not relieve pressure from Deep Canyon Drive beyond 2027. It is also recommended that Deep Canyon Drive be disconnected from SH 16 upon completion of these connections as described below.
- The construction of the Wing Road extension will require land acquisition from private landowners. Some of the land required for this extension is already owned by Willow Brook Development.

■ Can Ada Road

- Recommended to be improved between Purple Sage Road and New Hope Road. Improvements should include upgrading Can Ada Road to a minor arterial, flattening steep grades, and improving sight distance. The road should be improved to accommodate design standards for a minor arterial where possible and should include advisory sections where necessary.

■ Deep Canyon Drive Recommendations

- Deep Canyon Drive is projected to exceed ACHD's local road ADT threshold of 2,000 by 2024 (with 9% of the Willow Brook site built out). Constructing Aerie Way and the Wing Road extension will extend the timeline of reaching this threshold to 2027.

- With the construction of Aerie Way and the Wing Road extension, it becomes feasible to disconnect Deep Canyon Drive from SH 16. Traffic will divert to Aerie Way or Beacon Light Road to reach SH 16. This will bring the 2045 total traffic ADT on Deep Canyon Drive to within ACHD local road thresholds and will not further impact operations on other intersections and roadway segments.



Section 2 Introduction

INTRODUCTION

Kittelson & Associates, Inc. (Kittelson) has conducted a Transportation Impact Study (TIS) for the proposed Willow Brook Golf Community in Ada County, Idaho. The study was prepared in accordance with requirements of the Ada County Highway District's (ACHD) *Policy Manual Section 7106* (Reference 1) and the Idaho Transportation Department (ITD) *Rules Governing Right-of-Way Encroachments on State Rights-of-Way* (Reference 2). The TIS examines the current transportation network and addresses the transportation impacts associated with background growth and the proposed development.

PROJECT DESCRIPTION

Willowbrook Development Inc. is proposing to develop the Willow Brook Golf Community, a mixed-use development situated on approximately 720 acres of currently vacant land in Ada County, Idaho. The site is loosely bounded by SH 16 to the east, Can Ada Road to the west, Deep Canyon Drive to the north, and Lanktree Gulch Road to the south. The development will fill areas of vacant land around existing residential developments. Currently the site is in unincorporated Ada County but will be annexed into the City of Star upon development approval. Figure 1 illustrates the site's vicinity and project boundaries.

The Willow Brook Golf Community will be constructed in phases throughout the next 20+ years. The first phase of construction will consist of the following land uses:

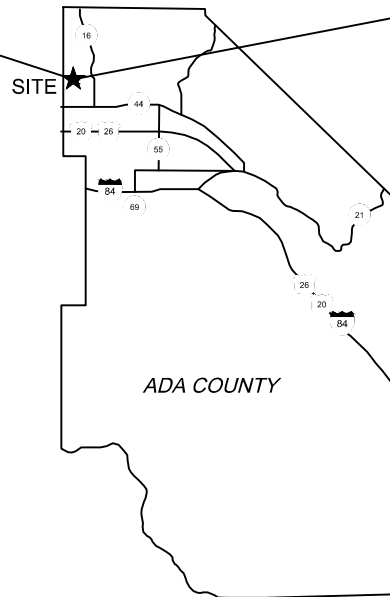
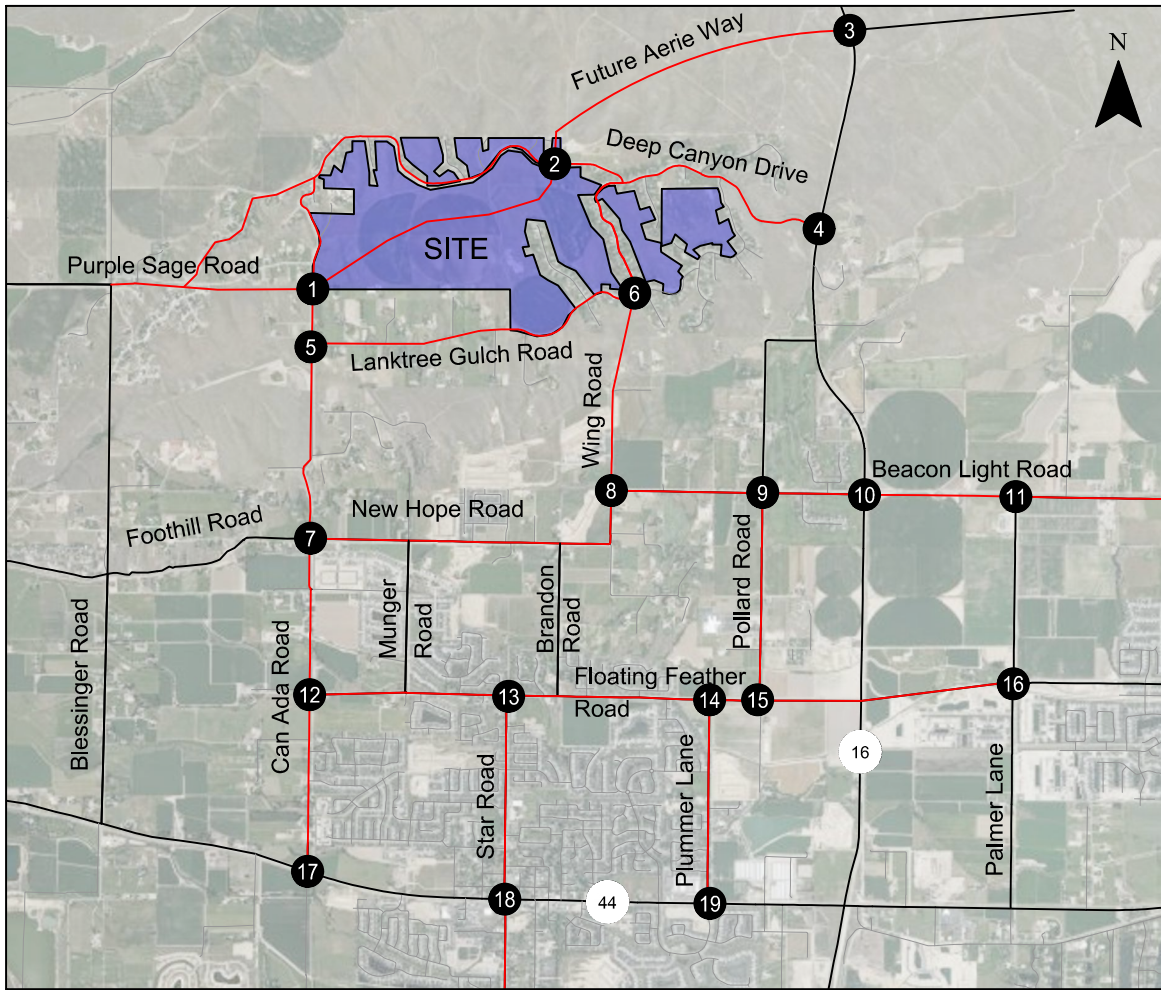
- 285 Single Family Houses
- 45 Townhomes
- 18-hole Public Golf Course

Full buildout of the Willow Brook Golf Community will consist of the following land uses:

- 948 Single Family Houses
- 146 Townhomes
- 75,000 Sq. Ft. of Commercial Shopping Plaza
- 18-hole Public Golf Course

Access to the development is proposed via Can Ada Road, Purple Sage Road, Deep Canyon Drive, and Lanktree Gulch Road. Additionally, there are potential planned access connections at Wing Road and Aerie Way. Due to the infill nature of the development, site accesses are not exclusive to the proposed development and will carry traffic from adjacent existing residences. The main internal collector of the development will connect Deep Canyon Drive to Can Ada Road. The proposed site plan for phase 1 of development is shown in Figure 2. The site plan for full buildout of the Willow Brook Golf Community is shown in Figure 3.

The development is planned to be fully built-out by the year 2045, with phase 1 being completed by 2030. The TIS addresses the existing traffic conditions, background (2030 & 2045) traffic conditions, and the development's impacts in the build-out years (2030 & 2045) and necessary mitigation measures.



- Study Intersections
- Study Roadway

Site Vicinity
Willow Brook Golf Community
Ada County, Idaho

Figure
1

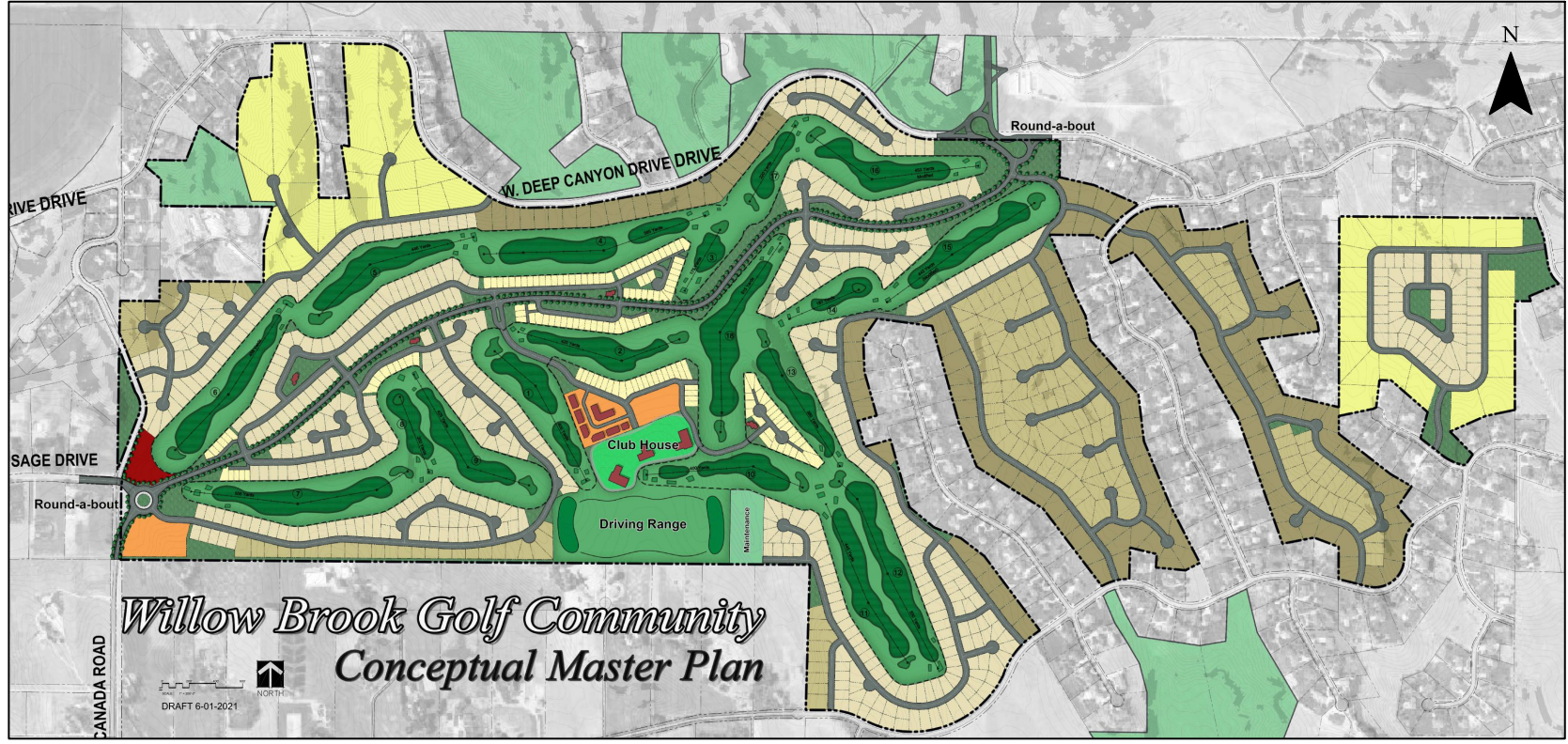
H:\25\25407 - Willow Brook Community TIS\report\figs\25407_fig1.dwg Jan 24, 2023 - 11:11am - smantsch Layout Tab: Fig_1_Vicinity



Proposed Site Plan
 2030 Phase 1
 Ada County, Idaho

Figure
 2

H:\25\25407 - Willow Brook Community TIS\report\figs\25407_figs.dwg Jan 24, 2023 - 11:11am - smantsch Layout Tab: Fig2_Site_Ph1



H:\25\25407 - Willow Brook Community TIS\report\figs\25407_figs.dwg Jan 24, 2023 - 11:11am - smartisch Layout Tab: Fig3_Site_Ada

Proposed Site Plan
2045 Full Build-out
Ada County, Idaho

Figure
3

SCOPE OF THE REPORT

ACHD and ITD reviewed and agreed with the scope, methodology and key assumptions within this TIS in July 2022. *Appendix A includes the Proposed Scope of Work for the Transportation Impact Analysis memorandum and response emails from ITD and ACHD.*

This report evaluates these transportation issues:

- Existing land use and transportation system conditions, including intersections and roadways within the site vicinity for the typical weekday AM and PM peak periods;
- Estimated local and regional growth in the study area for future year background analyses based on annual compounded growth rates applied to existing traffic volumes;
- Intersection and segment analysis under year 2030 background traffic conditions (existing counts plus 8 years of regional growth but not including the project) during the weekday AM and PM peak periods;
- Intersection and segment analysis under year 2045 background traffic conditions (existing counts plus 23 years of regional growth but not including the project) during the weekday AM and PM peak periods;
- Intersection and segment analysis under year 2045 background traffic conditions with select roadway improvements (existing counts plus 23 years of regional growth and select background roadway improvements but not including the project) during the weekday AM and PM peak periods;
- Trip generation and distribution estimates for phase 1 and full buildout of the proposed project;
- Intersection and segment analysis under year 2030 total traffic conditions (year 2030 background traffic plus phase 1 site-generated trips) during the weekday AM and PM peak periods;
- Intersection and segment analysis under year 2045 total traffic conditions (year 2045 background traffic plus full buildout site-generated trips) during the weekday AM and PM peak periods;
- Intersection and segment analysis under year 2045 total traffic conditions with select roadway improvements (year 2045 background traffic with select roadway improvements plus full buildout site-generated trips) during the weekday AM and PM peak periods;
- Identified transportation mitigations at the study intersections and roadways for all existing, background, and total traffic scenarios, including timing for when mitigations become necessary;
- Evaluation of site access intersections; and
- Summary of findings and recommendations.

STUDY AREA

The following study intersections and roadways were identified during the scoping process and included in the analysis:

- Phase 1 Intersections:
 1. Purple Sage Road & Can Ada Road
 4. Deep Canyon Drive & SH 16
 5. Lanktree Gulch Road & Can Ada Road
 7. New Hope Road & Can Ada Road
 17. SH 44 & Can Ada Road
 - All site access intersections

- Full Buildout Intersections:
 1. Purple Sage Road & Can Ada Road
 2. Deep Canyon Drive & Aerie Way
 3. Aerie Way & SH 16
 4. Deep Canyon Road & SH 16
 5. Lanktree Gulch Road & Can Ada Road
 6. Lanktree Gulch Road & Wing Road
 7. New Hope Road & Can Ada Road
 8. Beacon Light Road & Wing Road
 9. Beacon Light Road & Pollard Road
 10. Beacon Light Road & SH 16
 11. Beacon Light Road & Palmer Lane
 12. Floating Feather Road & Can Ada Road
 13. Floating Feather Road & Star Road
 14. Floating Feather Road & Plummer Road
 15. Floating Feather Road & Pollard Road
 16. Floating Feather Road & Palmer Lane
 17. SH 44 & Can Ada Road
 18. SH 44 & Star Road
 19. SH 44 & Plummer Road
 - All site access intersections

- Phase 1 Roadway Segments:
 - Deep Canyon Drive
 - Purple Sage Road to Can Ada Road
 - Can Ada Road to Aerie Way
 - Aerie Way to SH 16
 - Lanktree Gulch Road
 - Can Ada Road to High Country Way
 - Purple Sage Road
 - Blessinger Road to Can Ada Road
 - Can Ada Road
 - Deep Canyon Drive to Purple Sage Road
 - Purple Sage Road to Lanktree Gulch Road
 - Lanktree Gulch Road to New Hope Road
 - New Hope Road to SH 44

- Beacon Light Road
 - SH 16 to Palmer Lane
- Main internal collector
- Full Buildout Roadway Segments:
 - Deep Canyon Drive
 - Purple Sage Road to Can Ada Road
 - Can Ada Road to Aerie Way
 - Aerie Way to SH 16
 - Aerie Way
 - Deep Canyon Drive to SH 16
 - Lanktree Gulch Road
 - Can Ada Road to Wing Road
 - Purple Sage Road
 - Blessinger Road to Can Ada Road
 - Can Ada Road
 - Deep Canyon Drive to Purple Sage Road
 - Purple Sage Road to Lanktree Gulch Road
 - Lanktree Gulch Road to New Hope Road
 - New Hope Road to Floating Feather Road
 - Floating Feather Road to SH 44
 - Wing Road
 - Beacon Light Road to Lanktree Gulch Road
 - New Hope Road
 - Can Ada Road to Wing Road
 - Beacon Light Road
 - Wing Road to Pollard Road
 - Pollard Road to SH 16
 - SH 16 to Palmer Lane
 - Palmer Lane to Linder Road
 - Pollard Road
 - Beacon Light Road to Floating Feather Road
 - Floating Feather Road
 - Can Ada Road to Star Road
 - Star Road to Plummer Road
 - Plummer Road to Pollard Road
 - Pollard Road to SH 16
 - SH 16 to Palmer Lane
 - Star Road
 - Floating Feather Road to SH 44
 - SH 44 to Joplin Road
 - Plummer Road
 - Floating Feather Road to SH 44
 - Main internal collector

INTERSECTION PERFORMANCE MEASURES

Intersection performance measures reported in this study include level of service (LOS), volume-to-capacity ratio (V/C), delay and 95th percentile queues.

The performance measures are used to gauge the performance of the transportation system and overall quality of the travel experience through an intersection or roadway segment as it is perceived by the traveler:

- *Level-of-service (LOS)* is currently the most commonly used performance measure. LOS uses an “A” to “F” ranking based on the average control delay experienced by motorists. LOS “A” conditions have very low vehicles delay times (10 seconds or less), while LOS “F” conditions have high delay times (over 80 seconds on average per vehicle at the signalized intersection) that are considered unacceptable to most drivers.
- *Volume-to-capacity (v/c)* compares the volume of traffic to the theoretical capacity of the facility to accommodate traffic. A v/c ratio of 1.0 indicates an intersection, or movement at an intersection, is operating at capacity. A v/c ratio over 1.0 indicates the intersection's capacity is exceeded.
- *95th percentile queue* is the queue length that has only a 5 percent probability of being exceeded during the analysis time-period. It is used to help determine turn lane storage, but not what the typical driver would experience. This performance measure is helpful in assessing access spacing from adjacent unsignalized and signalized intersections.

Overall intersection performance is calculated for signalized intersections. For two-way stop-controlled intersections, performance measures are reported for the critical movement.

TRAFFIC ANALYSIS METHODOLOGY

The intersection operational analysis was performed using the *Highway Capacity Manual (HCM) 6th Edition* analysis procedures (Reference 3). To ensure that this analysis is based on a reasonable worst-case scenario, the peak 15-minute flow rate during all peak hours was used in the evaluation of all intersection LOS and V/C ratios. This analysis reflects conditions that are only likely to occur for 15-minutes out of each average peak hour. The transportation system will likely operate better than the conditions described in this report during all other time periods. The intersection operations analyses conducted for the TIS were prepared using Synchro 10.

The roadway segment analysis was performed using the ACHD Street Capacity Guidelines Table in ACHD's *2020 Capital Improvements Plan* (Reference 4) for all ACHD roadways.

The *HCM 2000* (Reference 5) was utilized due to the ability to report overall intersection V/C ratios for a signalized intersection as required by ACHD Policy Manual, since the *HCM 6th Edition* does not report overall intersection V/C ratio.

Additionally, the guidance in the *Manual on Uniform Traffic Control Devices (MUTCD), 2009 Edition* (Reference 6) was used for signal warrant analyses when determining the appropriate mitigation for an impacted study intersection. Traffic signal warrants were based on the peak hour traffic volumes at the intersection and hourly traffic volumes were estimated with standard volume profiles. The volume profiles used in this study are from NCHRP Report 03-110 (Reference 7) and are based on the national averages for nine different roadway types: urban/rural freeways, urban/rural major/minor arterials, and urban/rural major/minor collectors.

SIGNAL TIMING AND OTHER PARAMETERS

ACHD provided current signal timing via signal timing sheets. *Appendix B contains these signal timing sheets.* ACHD required values were used for the ideal saturation flow rate (1800 vehicles per hour per lane), while other inputs were gathered from field data including truck percentages, peak hour factors, posted speeds, and storage lengths.

Per ACHD Policy Manual, peak hour factor adjustments were input for each intersection by approach under existing conditions. This is not consistent with HCM procedures (which outlines one peak hour factor for the overall intersection) but is outlined in the ACHD policy manual for existing conditions analysis. Inputting peak hour factors by approach models a scenario that does not actually occur in the field and, as such, the existing conditions analysis may reflect operations that are worse than occurs on the system today.

PERFORMANCE MEASURES

The operating standards of ITD and ACHD were used to assess the traffic operations of the study intersections and roadways.

ACHD INTERSECTION AND ROADWAY STANDARDS

The analysis was performed in accordance with the methodologies stated in Section 7106.6 of the *ACHD Policy Manual* (Reference 2). Intersection and segment LOS are reported per ACHD thresholds.

ACHD requires that signalized intersections operate at a minimum of LOS E for Principal Arterials and Minor Arterials and LOS D for Collectors. The acceptable V/C ratio for signalized intersection is 0.90 for the overall intersection and 1.0 for each lane group. The acceptable V/C ratio is 1.0 for the critical lane group at unsignalized intersections. All unsignalized intersections that have a projected LOS D or worse shall be evaluated to determine if a signal or roundabout is warranted. Additionally, Section 5108.6.4 identifies a maximum volume-to-capacity ratio at a roundabout to be 0.85, which is also reviewed for mitigations involving roundabouts.

ITD INTERSECTION STANDARDS

According to ITD District 3 Memo No. 39 (Reference 8), ITD's desired thresholds are LOS E or better for all intersections and a V/ ratio of 0.90 or better for the overall intersections as well as each lane group.

Table 1 summarizes the LOS standards for the study area intersections (signalized and unsignalized).

Table 1. Study Intersections and Corresponding Operational Standards

ID	Study Intersection	Agency	Traffic Control	ITD Operating Standard ¹	ACHD Operating Standard ²
1	Purple Sage Road & Can Ada Road	ACHD	TWSC	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> LOS E or better Critical Movement v/c ≤ 1.00 Evaluate signal warrant if ≤ LOS D
2	Deep Canyon Drive & Aerie Way	ACHD	Future Intersection		
3	Aerie Way & SH 16	ACHD/ITD	Future Intersection		
4	Deep Canyon Drive & SH 16	ACHD/ITD	TWSC	<ul style="list-style-type: none"> LOS D or better Lane Group v/c ≤ 0.90 	<ul style="list-style-type: none"> LOS E or better Critical Movement v/c ≤ 1.00 Evaluate signal warrant if ≤ LOS D
5	Lanktree Gulch Road & Can Ada Road	ACHD	TWSC	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> LOS E or better Critical Movement v/c ≤ 1.00 Evaluate signal warrant if ≤ LOS D
6	Lanktree Gulch Road & Wing Road	ACHD	Future Intersection		
7	New Hope Road & Can Ada Road	ACHD	AWSC	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> LOS E or better Critical Movement v/c ≤ 1.00 Evaluate signal warrant if ≤ LOS D
8	Beacon Light Road & Wing Road	ACHD	TWSC	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> LOS E or better Critical Movement v/c ≤ 1.00 Evaluate signal warrant if ≤ LOS D
9	Beacon Light Road & Pollard Road	ACHD	TWSC	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> LOS E or better Critical Movement v/c ≤ 1.00 Evaluate signal warrant if ≤ LOS D
10	Beacon Light Road & SH 16	ACHD/ITD	Traffic Signal	<ul style="list-style-type: none"> LOS E or better Intersection v/c ≤ 0.90 Lane Group v/c ≤ 0.90 	<ul style="list-style-type: none"> LOS E or better Intersection v/c ≤ 0.90 Lane Group v/c ≤ 1.00
11	Beacon Light Road & Palmer Lane	ACHD	TWSC	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> LOS E or better Critical Movement v/c ≤ 1.00 Evaluate signal warrant if ≤ LOS D

12	Floating Feather Road & Can Ada Road	ACHD	Future Intersection		
13	Floating Feather Road & Star Road	ACHD	TWSC	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • LOS E or better • Critical Movement v/c ≤ 1.00 • Evaluate signal warrant if ≤ LOS D
14	Floating Feather Road & Plummer Road	ACHD	TWSC	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • LOS E or better • Critical Movement v/c ≤ 1.00 • Evaluate signal warrant if ≤ LOS D
15	Floating Feather Road & Pollard Road	ACHD	TWSC	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • LOS E or better • Critical Movement v/c ≤ 1.00 • Evaluate signal warrant if ≤ LOS D
16	Floating Feather Road & Palmer Lane	ACHD	TWSC	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • LOS E or better • Critical Movement v/c ≤ 1.00 • Evaluate signal warrant if ≤ LOS D
17	SH 44 & Can Ada Road	ACHD/ ITD	TWSC	<ul style="list-style-type: none"> • LOS D or better • Lane Group v/c ≤ 0.90 	<ul style="list-style-type: none"> • LOS E or better • Critical Movement v/c ≤ 1.00 • Evaluate signal warrant if ≤ LOS D
18	SH 44 & Star Road	ACHD/ ITD	Traffic Signal	<ul style="list-style-type: none"> • LOS E or better • Intersection v/c ≤ 0.90 • Lane Group v/c ≤ 0.90 	<ul style="list-style-type: none"> • LOS E or better • Intersection v/c ≤ 0.90 • Lane Group v/c ≤ 1.00
19	SH 44 & Plummer Road	ACHD/ ITD	TWSC	<ul style="list-style-type: none"> • LOS D or better • Lane Group v/c ≤ 0.90 	<ul style="list-style-type: none"> • LOS E or better • Critical Movement v/c ≤ 1.00 • Evaluate signal warrant if ≤ LOS D

¹ITD District 3 Memo No. 39 (Reference 8)

²ACHD Policy Manual (Reference 1)



Section 3 Existing Conditions

EXISTING CONDITIONS

The existing conditions analysis identifies the site conditions and current operational and geometric characteristics of the roadways within the study area. These conditions will be compared with future conditions later in this report. Information regarding site conditions, adjacent land uses, existing traffic operations and transportation facilities in the study area was collected.

SITE CONDITIONS AND ADJACENT LAND USES

The proposed development is located in unincorporated Ada County, Idaho and is currently vacant land. The property will be annexed into the City of Star during the development approval process.

TRANSPORTATION FACILITIES

The transportation system inventory identifies the current characteristics of roadways within the study area. Major roadways within the study area were identified and catalogued, including transit facilities and pedestrian and bicycle infrastructure.

ROADWAY FACILITIES

Table 2 provides a summary of the existing roadway facilities included in this study within the site vicinity.

Table 2. Existing Study Transportation Facilities and Roadways

Roadway	Functional Classification ¹	Number of Lanes	Posted Speed (MPH) ²	Sidewalks	Bicycle Lanes	On-Street Parking
Beacon Light Road	Minor Arterial	2	40/50	No	No	No
Can Ada Road	Minor Arterial / Collector	2	35	No	No	No
Deep Canyon Drive	Local	2	25/35	No	No	No
Floating Feather Road	Minor Arterial	2	35/45	Partial ³	No	No
Lanktree Gulch Road	Local	2	35	No	No	No
New Hope Road	Minor Arterial	2/3	40	Partial ³	No	No
Palmer Lane	Collector	2	45	Partial ³	No	No
Plummer Road	Collector	2	35	Partial ³	No	No
Pollard Road	Collector	2	40	No	No	No
Purple Sage Road	Collector	2	35	No	No	No
Star Road	Minor Arterial / Collector	3/2	30/35	Yes	Yes	No
Wing Road	Local	2	35	No	No	No
SH 16	Expressway	3/2	55	No	No	No
SH 44	Principal Arterial	2	55/35	Partial ³	No	No

¹ Per Ada County Long Range Highway & Street Map 2040 Functional Street Classification Map (Reference 9). ² MPH represents miles per hour. ³ Along new residential developments.

PEDESTRIAN AND BICYCLE FACILITIES

Within the site's vicinity, most roads are rural in nature and there are no pedestrian and bicycle facilities with the exception of sidewalks along recently developed properties where half street improvements have been completed. There are sidewalks present in the commercial areas of Star.

TRANSIT FACILITIES

Valley Regional Transit (VRT) is a public transportation service provider that provides fixed route buses and paratransit services within Ada and Canyon County. VRT's central bus station is located downtown Boise and provides county and intercounty connections within the Treasure Valley. There are no bus routes servicing the immediate vicinity of the site. There are future plans to provide commuter bus services along SH 44 but those are not funded at this time.

EXISTING TRAFFIC OPERATIONS

Peak hour turning movement counts were collected for the project in July 2022 during AM peak (7:00 AM – 9:00 AM) and PM peak (4:00 PM – 6:00 PM) periods.

Appendix C includes the weekday AM and PM period counts utilized at each of the study intersections.

WEEKDAY AM AND PM PEAK HOUR INTERSECTION OPERATIONS

Existing peak hour traffic operations were analyzed for a typical mid-weekday AM peak period and PM peak period. Individual peak hours for each intersection were used to provide a conservative analysis per ACHD Policy Manual. Per ACHD Policy Manual, peak hour factor adjustments were input for each intersection by approach for the existing conditions analysis. This is not consistent with HCM procedures (which outlines one peak hour factor for the overall intersection) but is outlined in the ACHD policy manual for existing conditions analysis. Inputting peak hour factors by approach models a scenario that does not actually occur in the field and, as such, the existing conditions analysis may reflect operations that are worse than occurs on the system today.

Table 3 presents the traffic operation results for each intersection and its corresponding lane groups during existing weekday AM and PM peak periods. Figures 4A and 4B present lane configurations, traffic control devices and the AM and PM peak hour traffic volumes at each of the study intersections. *Appendix D includes the year 2022 existing conditions Synchro worksheets.*

Table 3. Year 2022 Existing Intersection Operations

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
1	Purple Sage Road & Can Ada Road	TWSC	-	-	-	NBL	0.02	A	7.3	0.07	A	7.4
						EBLR	0.08	A	8.6	0.05	A	8.4
2	Deep Canyon Drive & Aerie Way	Potential Future Intersection										
3	Aerie Way & SH 16	Future Intersection										
4	Deep Canyon Drive & SH 16	TWSC	-	-	-	NBL	0.03	A	9.8	0.05	A	8.4
						EBLR	0.15	C	17.5	0.07	B	12.0
5	Lanktree Gulch Road & Can Ada Road	TWSC	-	-	-	WBLR	0.02	A	9.2	0.04	A	9.4
						SBL	0.01	A	7.3	0.01	A	7.5
6	Lanktree Gulch Road & Wing Road	Potential Future Intersection										
7	New Hope Road & Can Ada Road	AWSC	-	A/A	7.8/8.2	NBLTR	0.07	A	7.7	0.09	A	7.8
						EBLTR	0.06	A	7.5	0.04	A	7.6
						WBLTR	0.06	A	8.5	0.21	A	8.4

						SBLTR	0.12	A	7.8	0.12	A	8.2
8	Beacon Light Road & Wing Road	TWSC	-	-	-	NBT	0.01	A	7.4	0.02	A	7.9
						SBLT	0.06	A	9.9	0.07	B	11.0
						NBLTR	0.08	B	10.1	0.47	C	18.0
9	Beacon Light Road & Pollard Road	TWSC	-	-	-	EBL	0.01	A	7.5	0.01	A	7.8
						WBL	0.02	A	7.7	0.05	A	7.5
						SBLTR	0.13	B	11.6	0.10	B	14.7
						EBL	0.05	D	40.2	0.14	D	39.3
10	Beacon Light Road & SH 16	Traffic Signal	0.68/0.72	C/C	29.6/32.8	EBT	0.45	D	45.1	0.20	D	43.1
						EBR	0.08	D	41.4	0.03	D	41.7
						WBL	0.23	C	32.1	0.25	D	35.1
						WBT	0.14	D	37.3	0.66	D	48.8
						WBR	0.03	D	36.2	0.39	D	42.6
						NBL	0.25	B	19.3	0.20	B	14.0
						NBT	0.37	C	23.6	0.81	C	33.8
						NBR	0.09	C	20.3	0.04	B	17.1
						SBL	0.32	B	13.6	0.26	B	18.2
						SBT	0.81	C	33.4	0.44	C	22.5
11	Beacon Light Road & Palmer Lane	TWSC	-	-	-	SBR	0.01	B	16.7	0.02	B	17.7
						NBLR	0.05	B	11.7	0.07	B	13.5
11						WBL	0.01	A	8.1	0.01	A	7.5
						Future Intersection						
12	Floating Feather Road & Can Ada Road											
13	Floating Feather Road & Star Road	TWSC	-	-	-	NBL	0.15	B	13.2	0.25	C	18.1
						NBR	0.11	A	9.4	0.11	A	9.2
						WBL	0.10	A	7.9	0.16	A	7.9
14	Floating Feather Road & Plummer Road	TWSC	-	-	-	NBLR	0.11	B	10.0	0.32	B	13.2
						WBL	0.01	A	7.7	0.03	A	7.7
15	Floating Feather Road & Pollard Road	TWSC	-	-	-	WBLR	0.10	A	9.7	0.15	B	10.3
						SBL	0.02	A	7.5	0.01	A	7.4
16	Floating Feather Road & Palmer Lane	TWSC	-	-	-	NBL	0.06	A	7.4	0.06	A	7.4
						EBLR	0.11	A	8.9	0.04	A	8.5
17	SH 44 & Can Ada Road	TWSC	-	-	-	EBL	0.03	A	8.4	0.05	A	9.6
						SBLR	0.30	C	20.0	0.55	F	50.7
18	SH 44 & Star Road	Traffic Signal	0.63/0.79	C/D	31.0/35.8	EBL	0.10	B	17.1	0.38	C	22.9
						EBT	0.55	C	29.2	0.54	C	31.7

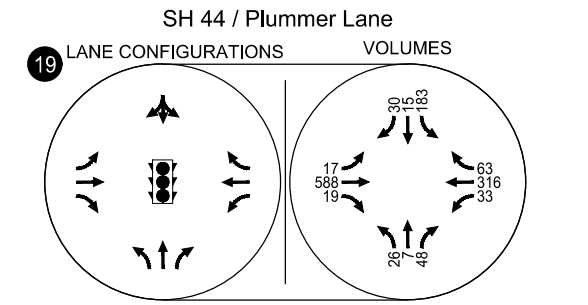
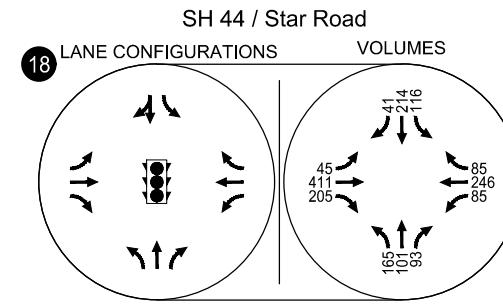
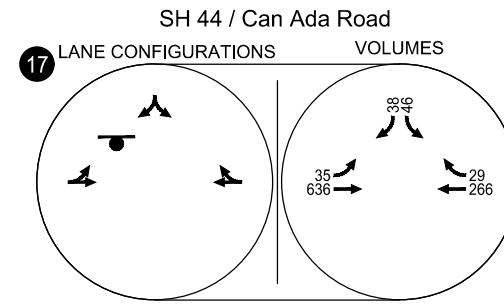
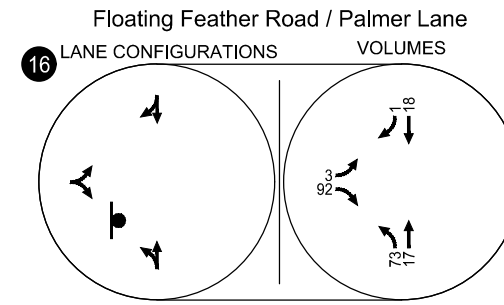
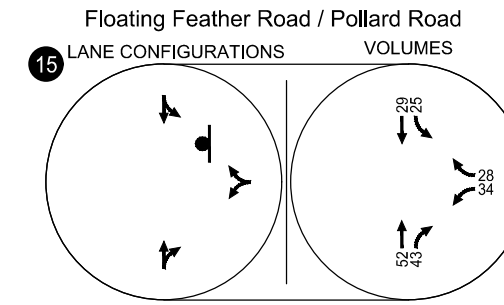
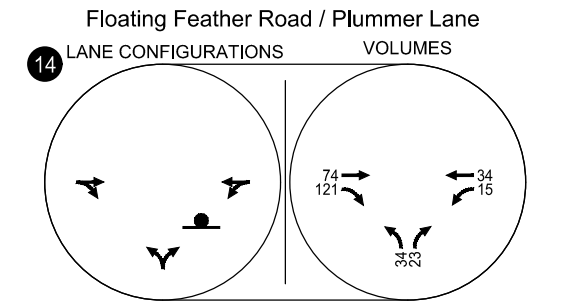
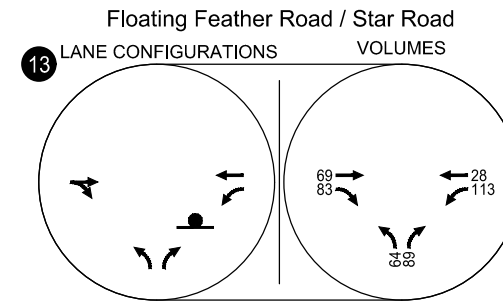
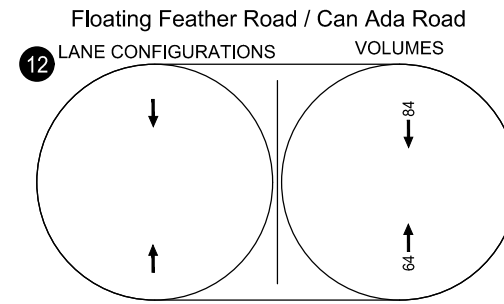
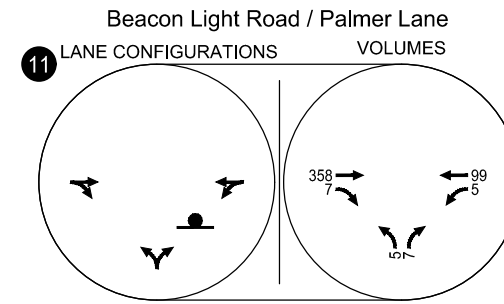
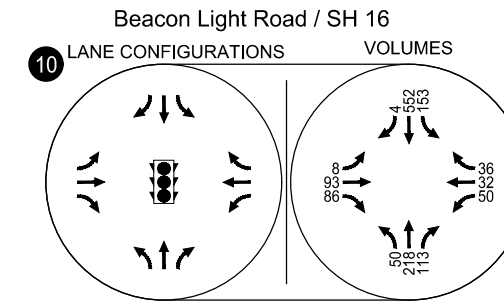
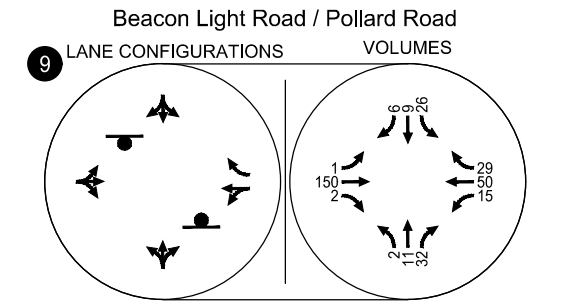
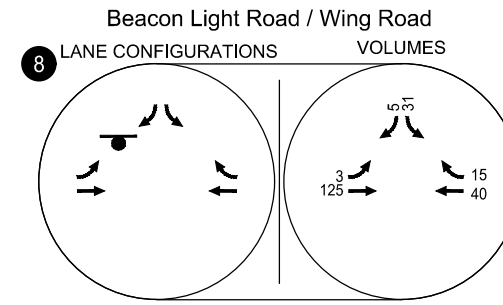
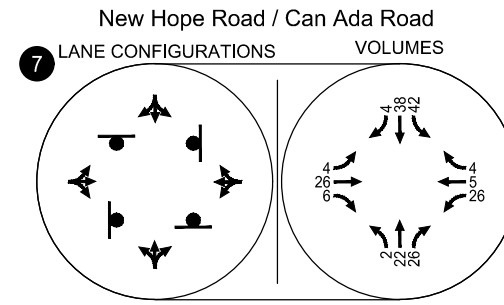
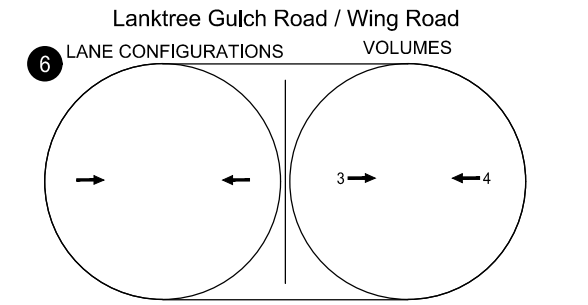
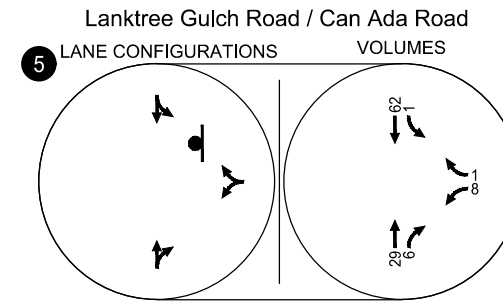
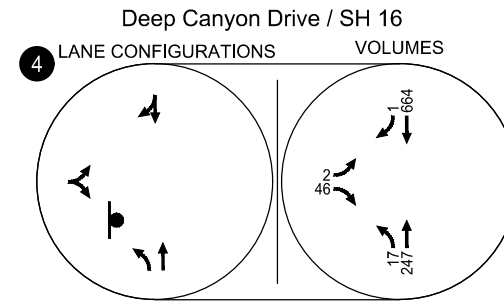
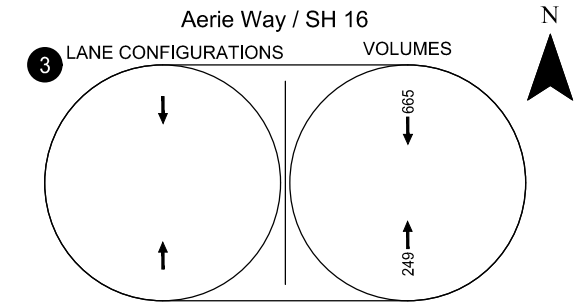
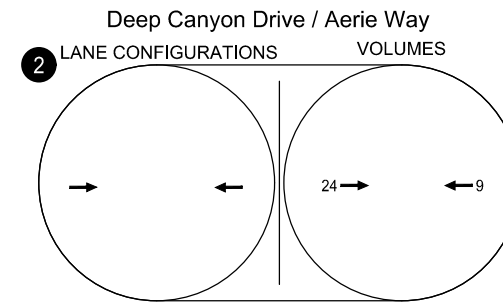
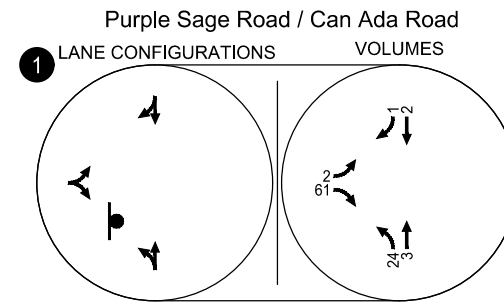
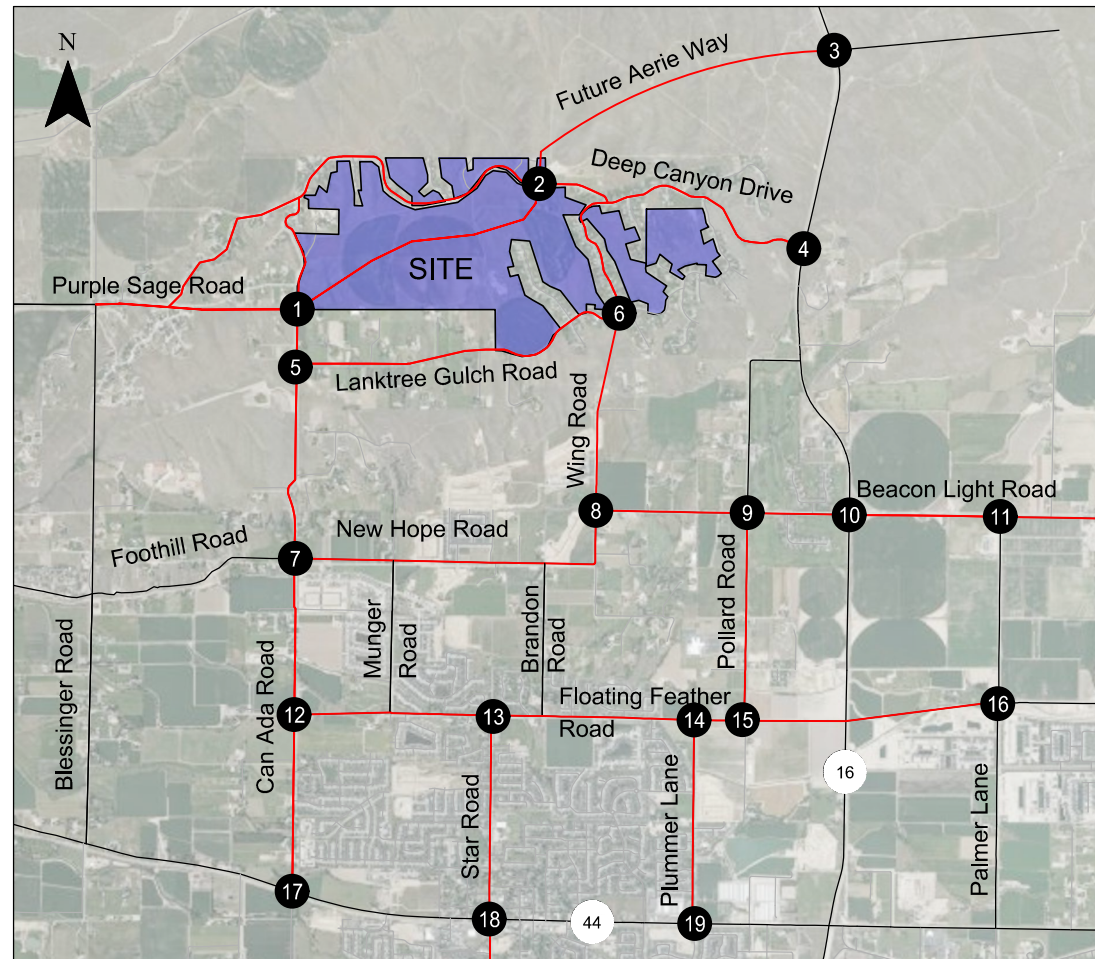
						EBR	0.31	C	22.2	0.24	C	26.0
						WBL	0.28	B	14.6	0.30	B	19.2
						WBT	0.35	B	20.0	0.77	D	36.7
						WBR	0.13	B	17.1	0.05	C	22.2
						NBL	0.69	D	43.3	0.83	D	49.6
						NBT	0.31	D	43.3	0.46	D	40.7
						NBR	0.35	D	6.6	0.06	D	36.1
						SBL	0.33	D	36.6	0.24	C	34.9
						SBTR	0.89	E	70.6	0.65	D	54.7
19	SH 44 & Plummer Road	Traffic Signal	0.69/ 0.71	B/ B	15.6/ 16.1	EBL	0.04	A	8.7	0.15	B	11.4
						EBT	0.78	B	16.1	0.55	B	12.6
						EBR	0.03	A	9.0	0.05	A	8.8
						WBL	0.12	B	10.8	0.13	A	8.6
						WBT	0.42	B	10.9	0.79	B	16.1
						WBR	0.10	A	8.8	0.21	A	9.4
						NBL	0.06	B	18.6	.014	C	23.4
						NBT	0.02	B	18.3	0.14	C	23.1
						NBR	0.15	B	19.0	0.24	C	23.7
						SBLTR	0.60	C	23.2	0.62	C	28.3

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and **highlighted** indicate an intersection and/or lane group operating below the jurisdictional standards.

As Table 3 shows, all study intersections operate acceptably during the year 2022 existing weekday AM and PM peak hours.

The following intersections operate acceptably during year 2022 existing conditions but have one or more lane groups operating at LOS D or worse and require a signal warrant analysis:

17. SH 44 & Can Ada Road

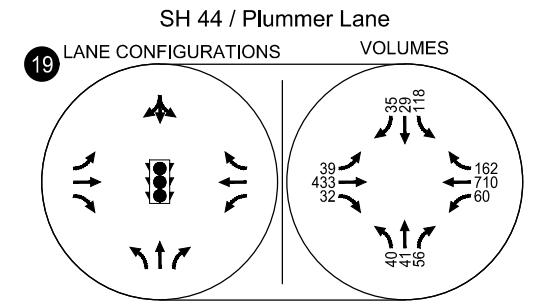
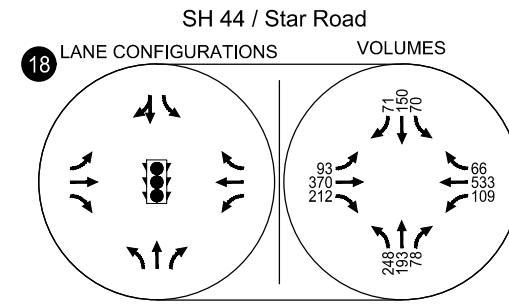
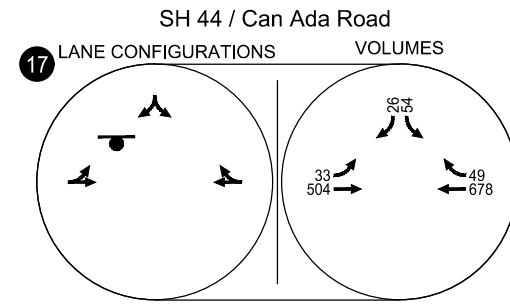
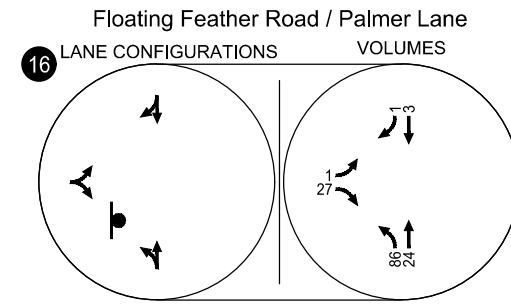
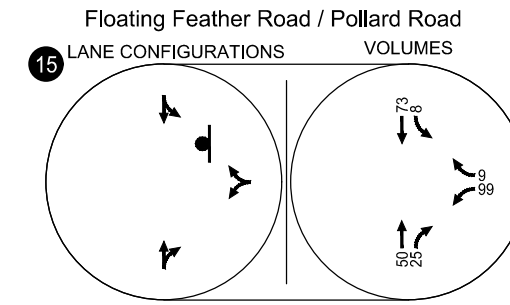
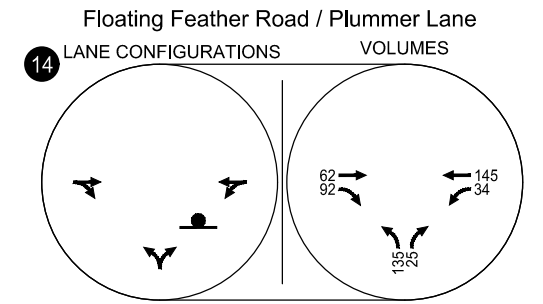
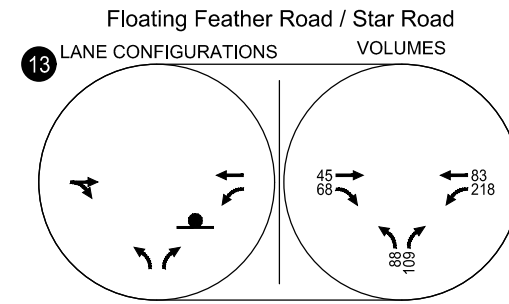
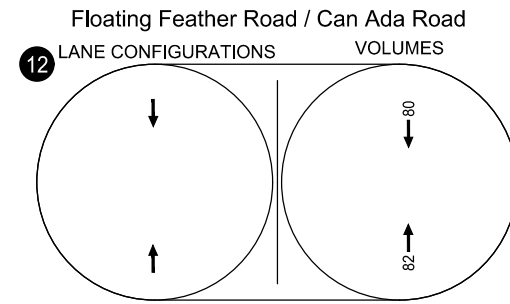
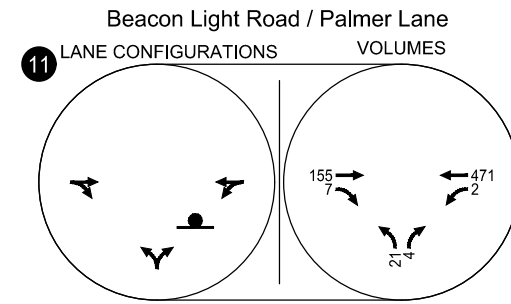
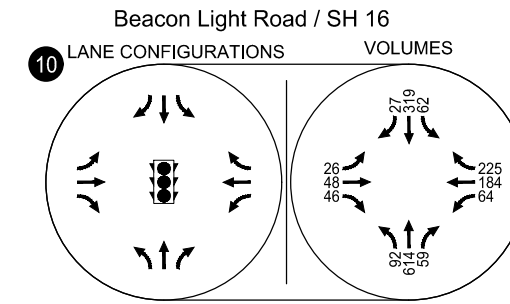
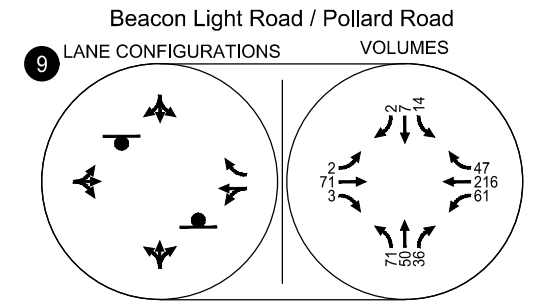
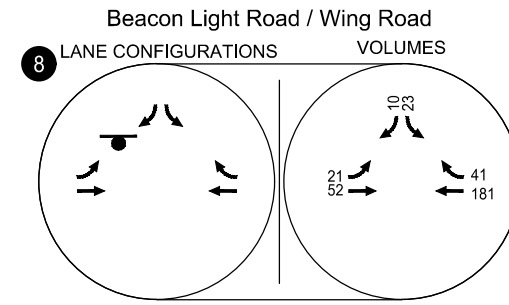
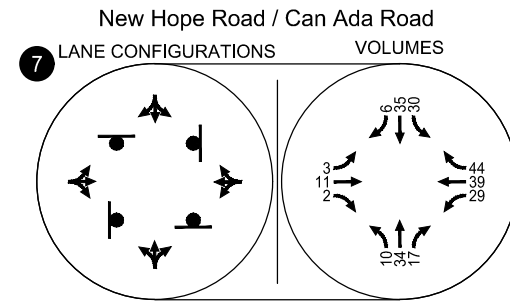
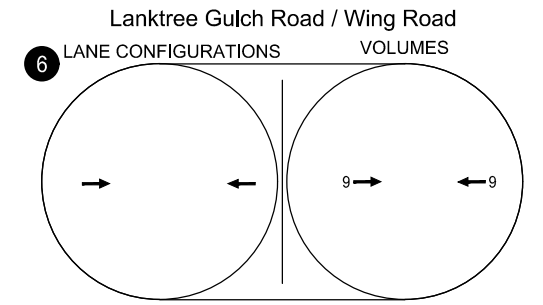
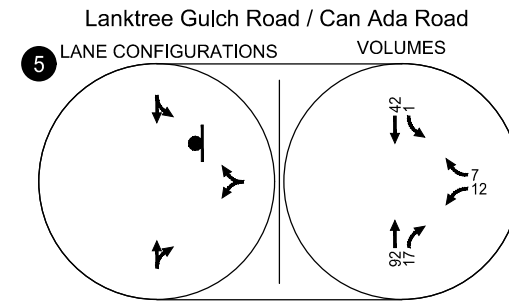
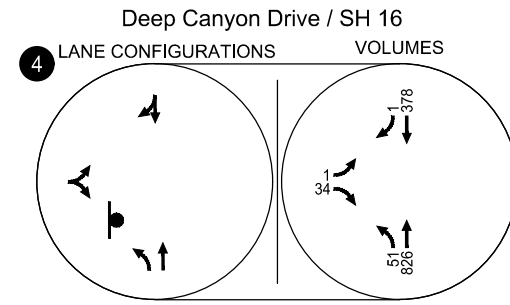
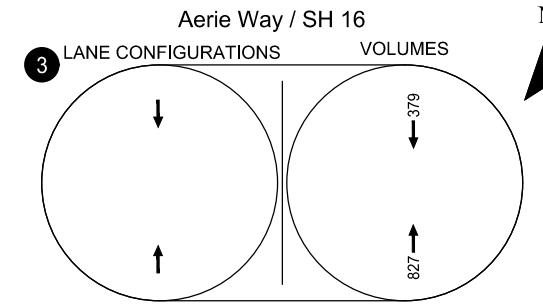
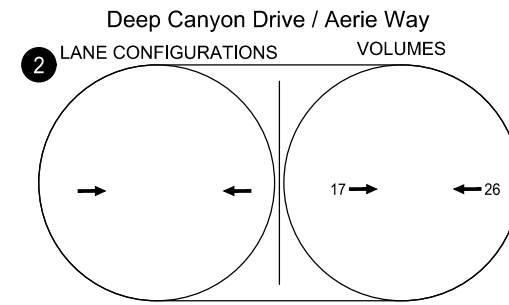
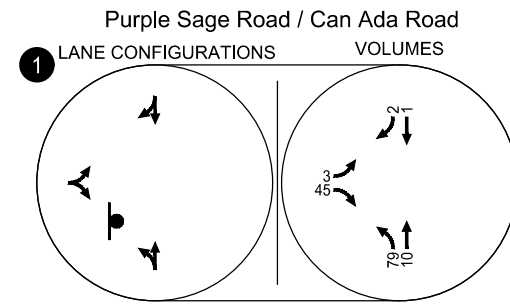
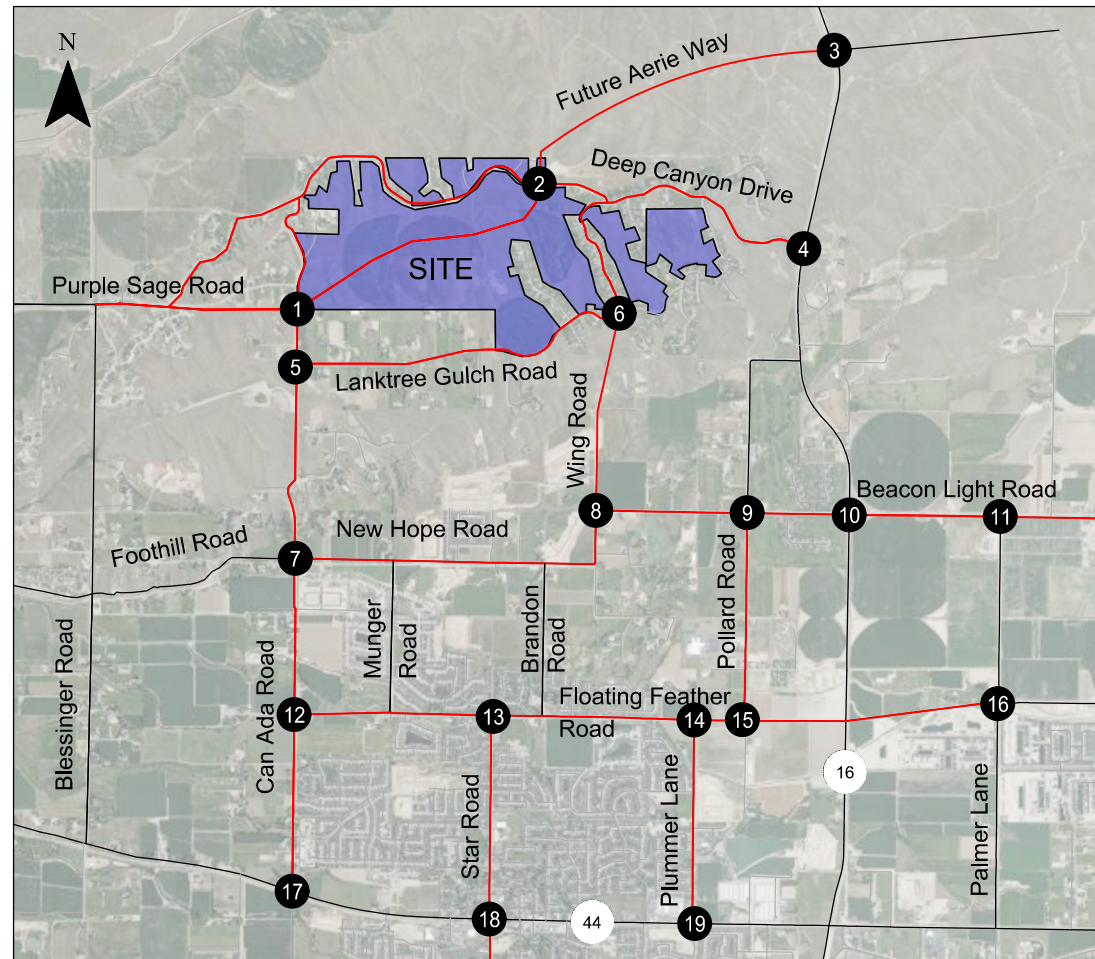


- STOP SIGN
 - TRAFFIC SIGNAL

Year 2022 Existing Traffic Volumes
Weekday AM Peak Hour
Ada County, Idaho

Figure 4A

H:\25\25407 - Willow Brook Community TIS\report\figs\25407_fig4a.dwg Jan 24, 2023 - 11:11am - smaitisch Layout Tab: Fig4A_Ext_AM



- STOP SIGN
 - TRAFFIC SIGNAL

Year 2022 Existing Traffic Volumes
Weekday PM Peak Hour
Ada County, Idaho

Figure
4B

H:\25\25407 - Willow Brook Community TIS\report\figs\25407_fig4b.dwg Jan 24, 2023 - 11:11am - smaitisch Layout Tab: Fig4B_Ext_PM

EXISTING CONDITIONS MITIGATION

This section highlights the mitigations needed to address each of the intersections not meeting traffic operation standards under the year 2022 existing traffic conditions. Appendix E contains the year 2022 mitigated existing traffic operational worksheets including findings from the signal warrant analysis.

17. SH 44 / Can Ada Road

The SH 44 / Can Ada Road intersection operates acceptably under existing conditions during the weekday AM and PM peak hour, however the critical movement at the intersection is operating at LOS F in the weekday PM peak hour. ACHD policy requires an evaluation of traffic signal warrants if the critical movement at an unsignalized intersection operates at LOS D or worse.

The intersection meets the 4-hour and peak hour traffic signal volume warrants, but not the 8-hour signal volume warrant under existing conditions. This intersection is in the Canyon Highway District 4 Capital Improvements Program (Mid-Star CIP) as a future traffic signal to be constructed by 2025. ITD's SH 44 Corridor Plan (Reference 10) shows this intersection as a future RCUT with SH 44 widened to 4 lanes.

EXISTING CONDITIONS ROADWAY SEGMENT ANALYSIS

Peak hour roadway segment volumes were collected at the study intersections and roadway segments in June 2022. The peak hour, peak direction roadway segment volumes, and resultant LOS per ACHD Policy Manual 7106.4.1 for the existing study roadway segments are summarized in Table 4. Appendix F includes the 48-hour segment counts utilized on each of the study roadway segments.

Table 4. Year 2022 Existing Roadway Segment Operations

Roadway	Segment	Classification ¹	Travel Lanes ²	ADT	ACHD Peak Hour Std. Volume (One-Way)	Weekday AM Peak Hour		Weekday PM Peak Hour	
						One-Way Volume/Direction	Meets Std.	One-Way Volume/Direction	Meets Std.
Deep Canyon Drive	Purple Sage to Can Ada	Local	2	170	None	10 (NB)	Yes	10 (SB)	Yes
	Can Ada to Aerie Way			25 (EB)		Yes	25 (WB)	Yes	
	Aerie Way to SH 16			50 (EB)		Yes	50 (WB)	Yes	
Aerie Way	Deep Canyon to SH 16	Not Constructed for this Scenario							
Lanktree Gulch Road	Can Ada to Wing	Local	2	500	None	10 (WB)	Yes	20 (WB)	Yes
Purple Sage Road	Blessinger to Can Ada	Collector	2	1,420	D / 340 (CHD4)	65 (EB)	Yes	80 (WB)	Yes
Can Ada Road	Deep Canyon to Purple Sage	Local	2	175	None	5 (NB)	Yes	15 (NB)	Yes
	Purple Sage to Lanktree Gulch	Collector		1,490	D / 425	65 (SB)	Yes	100 (NB)	Yes
	Lanktree Gulch to New Hope	Minor Arterial		1,860	E / 575	70 (SB)	Yes	110 (NB)	Yes
	New Hope to Floating Feather			2,140	85 (SB)	Yes	80 (NB)	Yes	
	Floating Feather to SH 44			2,835	85 (SB)	Yes	80 (NB)	Yes	
Wing Road	Lanktree Gulch to Beacon Light	Local	2	1,020	None	35 (NB)	Yes	55 (SB)	Yes
New Hope Road	Can Ada to Wing	Minor Arterial	2	2,150	E / 575	95 (EB)	Yes	110 (WB)	Yes
Beacon Light Road	Wing to Pollard	Minor Arterial	2	3,270	E / 575	155 (EB)	Yes	290 (WB)	Yes
	Pollard to SH 16			4,825		210 (EB)	Yes	325 (WB)	Yes
	SH 16 to Palmer			6,370		365 (EB)	Yes	490 (WB)	Yes
	Palmer to Linder			6,220		365 (EB)	Yes	475 (WB)	Yes
Pollard Road	Beacon Light to Floating Feather	Collector	2	1,390	D / 425	80 (NB)	Yes	155 (NB)	Yes
	Can Ada to Star	Not Constructed for this Scenario							

Floating Feather Road	Star to Plummer	Minor Arterial	2	5,005	E / 575	195 (EB)	Yes	300 (WB)	Yes
	Plummer to Pollard			2,585		95 (EB)	Yes	180 (WB)	Yes
	Pollard to SH 16			1,495		70 (EB)	Yes	110 (WB)	Yes
	SH 16 to Palmer			1,630		95 (EB)	Yes	85 (WB)	Yes
Star Road	Floating Feather to SH 44	Collector	2/3	9,685	D / 425	370 (SB)	Yes	350 (NB)	Yes
	SH 44 to Joplin	Minor Arterial	2/3	12,975	E / 575	505 (SB)	Yes	520 (NB)	Yes
Plummer Road	Floating Feather to SH 44	Collector	2	5,380	D / 425	230 (SB)	Yes	240 (NB)	Yes

¹Per COMPASS 2040 Functional Street Classification Map (Reference 9)

²Travel lanes include the total number of lanes across the roadway's respective cross section

As shown in Table 4, all the roadway segments meet ACHD roadway segment LOS thresholds under 2022 existing conditions in the weekday AM and PM peak hours.

CRASH HISTORY

Crash data for the 2030 phase 1 study intersections and roadways was provided by ITD for the previous five years on record (2017-2021). This data was used to evaluate and document any potential crash trends occurring at the study intersections and along study roadways. The full buildout study area was not analyzed for crash trends because of the 2045 timeframe and expected changes in traffic which will likely impact the crash trends compared to existing conditions. *Appendix G contains the crash data reports provided by ITD.*

Table 5 presents the number of crashes, by crash type and severity, at each 2030 phase 1 study intersection.

Table 5. Study Intersection Crash Type and Severity Summary, 2017-2021

No.	Intersection	Crash Type					Total	Severity			Crash Rate (Crashes/MEV)
		Rear-End	Turning	Fixed Object	Angle	Other		PDO	Injury	Fatality	
1	Can Ada Road / Purple Sage Road	-	-	-	-	-	0	-	-	-	0
4	Deep Canyon Drive / SH 16	-	-	-	-	-	0	-	-	-	0
5	Can Ada Road / Lanktree Gulch Road	-	-	-	-	-	0	-	-	-	0
7	Can Ada Road / New Hope Road	-	-	1	-	-	1	1	-	-	0.29
17	Can Ada Road / SH 44	2	3	-	1	1	7	4	3	-	0.21

Table 6 presents the number of crashes, by crash type and severity, at each 2030 phase 1 study roadway segment.

Table 6. Roadway Segment Crash Type and Severity Summary, 2017-2021

Roadway	Crash Type						Total	Severity			Crash Rate (Crashes/MEV)
	Rear-End	Fixed Object	Turning	Head-On	Animal	Overturn		PDO	Injury	Fatality	
Purple Sage Road – Blessinger to Can Ada	-	-	-	-	-	-	0	-	-	-	0
Deep Canyon Drive – Purple Sage to SH 16	-	-	-	1	-	2	3	2	1	-	0.34

Lanktree Gulch Road – Can Ada to High Country	-	-	-	-	-	1	1	-	1	-	0.63
Can Ada Road – Purple Sage to Lanktree Gulch	-	-	-	-	-	-	0	-	-	-	0
Can Ada Road – Lanktree Gulch to New Hope	-	1	-	-	-	-	1	-	1	-	0.31
Can Ada Road – New Hope to SH 44	1	-	1	-	-	1	3	1	2	-	0.35
Beacon Light Road – SH 16 to Palmer	-	-	-	-	1	1	2	1	1	-	0.40

As shown in Tables 5 and 6, based on the most recent 5 years of available crash data, no intersection or segment in the 2030 phase 1 study area shows crash trends or high crash rates.



Section 4 Transportation Impact Analysis

TRANSPORTATION IMPACT ANALYSIS

The transportation impact analysis identifies how the study area's transportation system will operate in the study years that were identified for phase 1 and full buildout of the proposed development. An evaluation of the impact of traffic generated by the proposed project during the typical weekday AM and PM peak hours as follows:

- Transportation improvements planned in the site vicinity were identified.
- Background conditions were developed by applying a percent annual compounded growth rate on roadways. These growth rates account for anticipated regional growth in the site vicinity from 2022-2030 and 2031-2045.
- Background weekday AM and PM peak hour traffic conditions for build-out year 2030 were analyzed at each of the study intersections.
- Background weekday AM and PM peak hour traffic conditions for build-out year 2045 were analyzed at each of the study intersections.
- Background weekday AM and PM peak hour traffic conditions for build-out year 2045 with select roadway improvements were analyzed at each of the study intersections.
- Site-generated trips were estimated for phase 1 and full buildout of the site.
- Site trip distribution patterns for phase 1 and full buildout were estimated for the site-generated trips based on the existing traffic patterns, the major trip origins and destinations in the area, and COMPASS modeling.
- The phase 1 year 2030 total traffic conditions were analyzed at each of the study intersections and site-access points during the weekday AM and PM peak hours.
- The full buildout year 2045 total traffic conditions were analyzed at each of the study intersections and site-access points during the weekday AM and PM peak hours.
- The full buildout year 2045 total traffic conditions with select roadway improvements were analyzed at each of the study intersections and site-access points during the weekday AM and PM peak hours.
- On-site circulation issues and site-access operations were evaluated.

PLANNED INTERSECTION AND ROADWAY IMPROVEMENTS

Based on a review of ACHD's Integrated Five Year Work Plan (IFYWP, Reference 11), ACHD's Capital Improvement Plan (ACHD CIP, Reference 4), CHD4's Capital Improvement Plan (Mid-Star CIP, Reference 12), and ITD's Statewide Transportation Improvement Program (ITIP, Reference 13), the following improvements are planned in the study area:

ACHD's Integrated Five Year Work Plan (IFYWP)

No projects in study area

ACHD's Capital Improvement Plan (ACHD CIP)

- **2026-2030**
 - IN2020-83: SH 44 / Star Road. Replace/modify signal. Reconstruct/widen approaches.
- **2031-2035**
 - RD2020-121: Star Road (US 20/26 to SH 44). Reconstruct/widen to 5 lanes.
- **2036-2040**
 - RD2020-7: Beacon Light Road Extension (Munger Road to Pollard Road). New Road. Construct new 3-lane roadway.
 - RD2020-8: Beacon Light Road (Pollard Road to SH 16). Reconstruct/widen to 3-lanes.
 - RD2020-9: Beacon Light Road (SH 16 to Palmer Lane). Reconstruct/widen to 3-lanes.
 - RD2020-51: Floating Feather Road Extension (Can Ada Road to Star Road). New Road. Construct new 3-lane roadway.
 - RD2020-52: Floating Feather Road (Star Road to Plummer Road). Reconstruct/widen to 3-lanes.
 - RD2020-53: Floating Feather Road Realignment. (Plummer Road to SH 16). New Road. Construct new 3-lane roadway.
 - RD2020-54: Floating Feather Road Realignment. (SH 16 to Palmer Lane). New Road. Construct new 3-lane roadway.
 - RD2020-107: New Hope Road (Can Ada Road to Munger Road). Reconstruct/widen to 3-lanes.
 - IN2020-71: New Hope Road / Munger Road. Add roundabout. Reconstruct/widen approaches to construct a Single-lane Roundabout.
 - IN2020-17: Beacon Light Road / Pollard Road. Add roundabout. Reconstruct/widen approaches to construct a Single-lane Roundabout.
 - IN2020-13: Beacon Light Road / SH 16. Replace/modify signal. Reconstruct/widen approaches.
 - IN2020-15: Beacon Light Road / Palmer Lane. Add roundabout. Reconstruct/widen approaches to construct a Single-lane Roundabout.
 - IN2020-40: Floating Feather Road / Palmer Lane. Add roundabout. Reconstruct/widen approaches to construct a Single-lane Roundabout.
 - IN2020-42: Floating Feather Road / Plummer Road. Add roundabout. Reconstruct/widen approaches to construct a Single-lane Roundabout.
 - IN2020-43: Floating Feather Road / Star Road. Add roundabout. Reconstruct/widen approaches to construct a Single-lane Roundabout.

CHD4's Capital Improvements Plan (Mid-Star CIP)

- 2020-2025
 - I-26: SH 44 / Can Ada Road. Install Traffic Signal
- 2025-2030
 - Can Ada Road / Foothill Road. Add Single-Lane Roundabout.
 - R-10. Can Ada Road (SH 44 to Willis Road). Add left turn lanes at intersections.
- 2030-2035
 - R-11. Can Ada Road (Willis Road to Purple Sage Road). Add left turn lanes at intersections.
 - R-14 Willis Road (Blessinger Road to Can Ada Road). Construct new two lane roadway.
- 2035-2040
 - R-7: Purple Sage Road (Kingsbury Road to Can Ada Road). Add left turn lanes at intersections.
 - R-13. Blessinger Road (Willis Road to Purple Sage Road). Construct new two lane roadway with left turn lanes at intersections.

ITD's Statewide Transportation Improvement Program (STIP)

There are currently no projects in the STIP within the study area.

ITD's draft State Highway 44 Corridor Plan includes planned improvements on SH 44 at the south end of the study area. SH 44 is planned to have traffic signals at SH 16, Star Road, and Plummer Road and an RCUT intersection at Can Ada Road. These projects are currently unfunded.

ITD Plans to connect SH16 to I-84. This project is under design and was assumed as in place for the purpose of 2045 traffic patterns in this study. The portion of SH 16 north of SH 44 will likely see improvements in the timeframe of this study, but the details of which are still being determined by an ITD Corridor Plan for SH 16.

City of Star Projects

The City of Star is currently leading a project that will widen SH 44 between Star Road and Can Ada Road. Construction is expected to begin in 2023.

Project Specific Improvements

The developer of the Willow Brook Golf Community has identified key roadway improvements that would increase connections in the area and provide traffic relief to some existing roadways. The proposed improvements include:

- Can Ada Road (Purple Sage Road to New Hope Road): Roadway improvements.
- Wing Road (Lanktree Gulch Road to Beacon Light Road): New road constructed.
- Aerie Way (Deep Canyon Drive to SH 16). New road constructed.

Background Roadway Improvements Timing and Assumptions

For the purpose of this traffic study, the existing roadway network was analyzed for background traffic scenarios. No ITD, ACHD IFYWP, ACHD CIP, or project specific roadway improvements that were identified above were assumed as in place for base scenarios of analysis. Roadway and intersection improvements identified in these documents will be used as a starting point for mitigating any intersections or roadway segments that do not fall within agency standards.

However, to address the impacts of traffic pattern changes related to new potential connections, an additional scenario was analyzed for this study. The Year 2045 Background and Total Traffic (with Select Roadway Improvements) Conditions assumes the following new connections were added to the existing roadway network:

- Floating Feather Road constructed between Munger Road and Can Ada Road
- Floating Feather Road realignment constructed between Pollard Road and Palmer Lane
- Wing Road extension constructed between Beacon Light Road and Lanktree Gulch Road
- Aerie Way constructed between SH 16 and Deep Canyon Drive. The lane configuration for Aerie Way / SH 16 that was assumed in this study is shown in Figure 5. This is consistent with the lane configuration developed in the TIS for the Spring Valley Development.

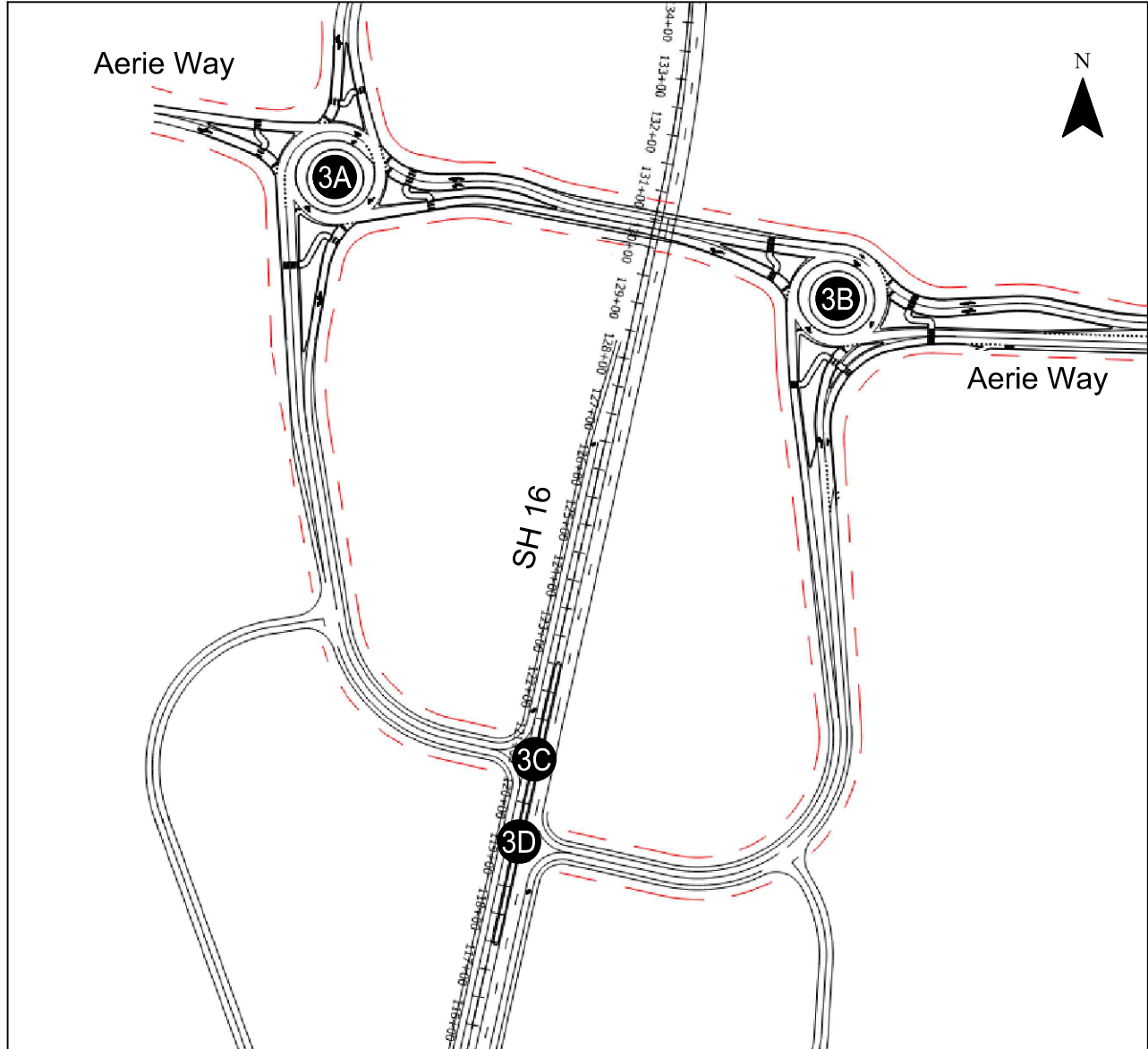
BACKGROUND GROWTH

Due to the lengthy build-out timeline and large study area, growth of traffic in the area was calculated using growth rates by roadway. Table 7 shows the annually compounded growth rates that were gathered from the COMPASS model for growth from 2022-2030 and 2031-2045. These rates were applied directly to existing traffic volumes to arrive at background traffic volumes for year 2030 and year 2045. *Appendix H contains the email discussions with ACHD regarding the proposed growth rates, including their approval of this methodology for estimating traffic growth.*

Table 7 Annually Compounded Growth Rates

Proposed Growth Rates		
Roadway	2022-2030	2031-2045
Deep Canyon Drive	2%	2%
Purple Sage Road	8%	4%
Lanktree Gulch Road	5%	9%
New Hope Road	6%	2%
Beacon Light Road	9%	2%
Wing Road	9%	2%
Floating Feather Road	7%	3%
Can Ada Road	8%	4%
Star Road	2%	2%
Plummer Road	11%	1%
Pollard Road	18%	1%
Palmer Lane	17%	3%
SH 44	5%	1%
SH 16	4%	1%

The growth derived from the COMPASS model include general growth in the area, so traffic from individual in-process developments was not included in this study. *Appendix I contains the most recent select zone analysis provided by COMPASS which was used to develop these proposed growth rates.*



H:\25\25407 - Willow Brook Community TIS\report\figs\25407_fig5.dwg Jan 24, 2023 - 11:11am - smantsch Layout Tab: Fig5_Aerie Way Config

- Study Intersections

SH 16 / Aerie Way
Future Lane Configuration
Ada County, Idaho

Figure
5

YEAR 2030 BACKGROUND TRAFFIC CONDITIONS

The year 2030 background traffic analysis identifies how the study area's transportation system will operate in the future year 2030 without phase 1 of the proposed Willow Brook Golf Community in place. This analysis includes traffic attributed to planned developments within the study area and to general growth in the region but does not include traffic from the proposed development.

YEAR 2030 BACKGROUND TRAFFIC VOLUMES

Year 2030 background traffic volumes reflect existing traffic counts plus eight years of general growth as described in Table 8 of the background growth section. These volumes represent background traffic during the year when phase 1 of the Willow Brook Golf Community is expected to be completed but does not include the site generated traffic.

Per the ACHD Policy Manual, intersections with an existing peak hour factor of less than 0.90 were adjusted to 0.90 in the future year analysis to account for the likely increase in traffic throughout the entire peak hour in the future.

YEAR 2030 BACKGROUND INTERSECTION OPERATIONS

Table 8 presents the traffic operations results for each study intersection and its lane groups under year 2030 background conditions during the weekday AM and PM peak hours. Figures 6A and 6B present the lane configurations, traffic control devices, and the weekday AM and PM 2030 background traffic volumes at each of the study intersections. *Appendix J includes the year 2030 background conditions Synchro worksheets.*

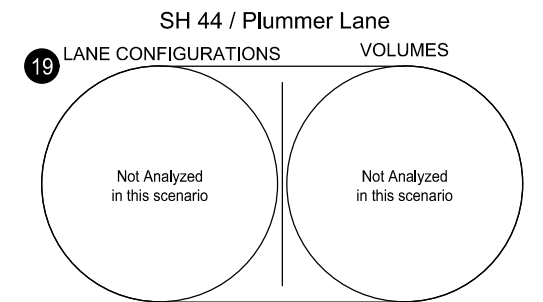
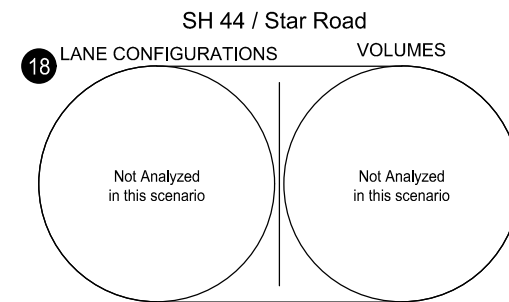
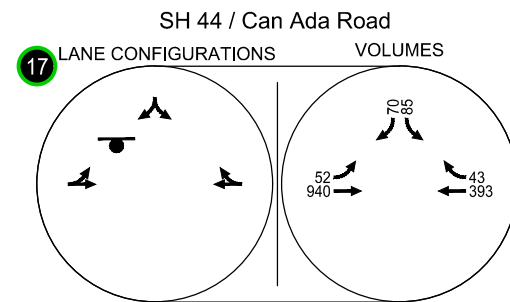
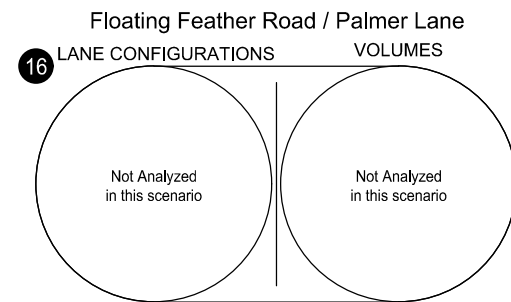
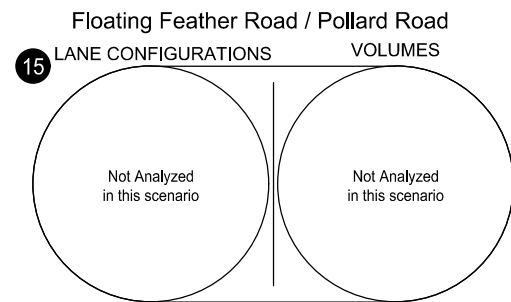
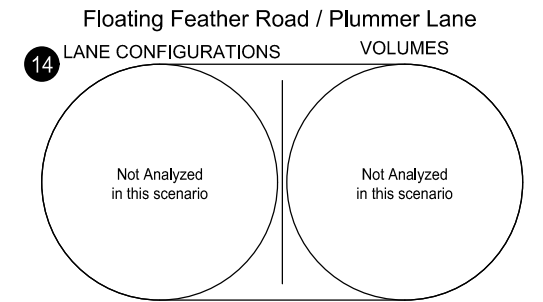
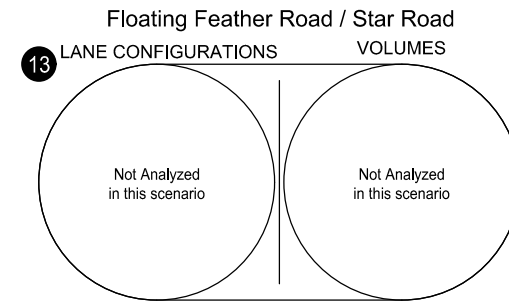
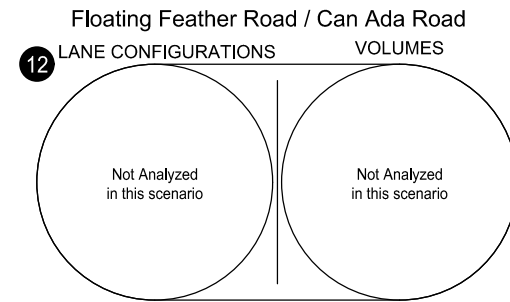
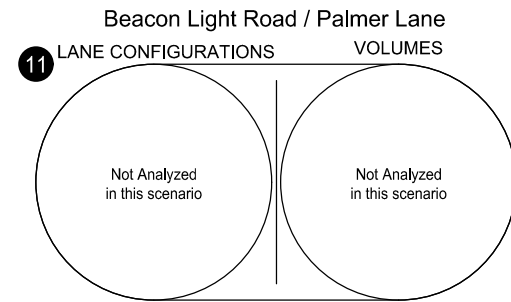
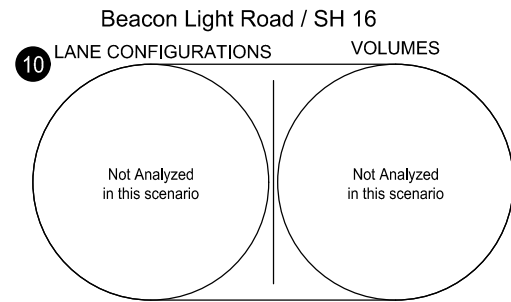
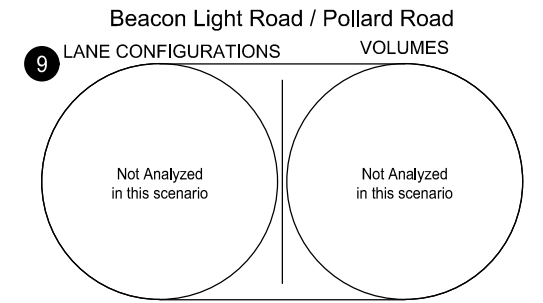
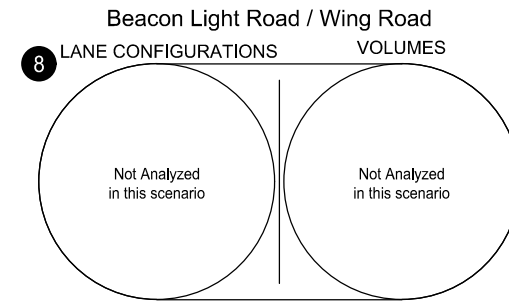
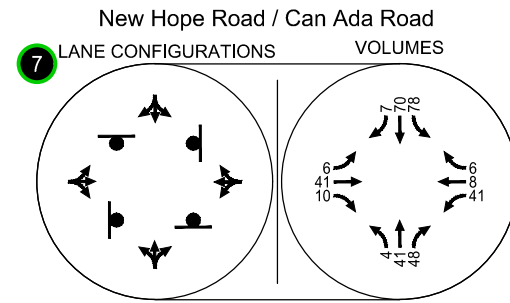
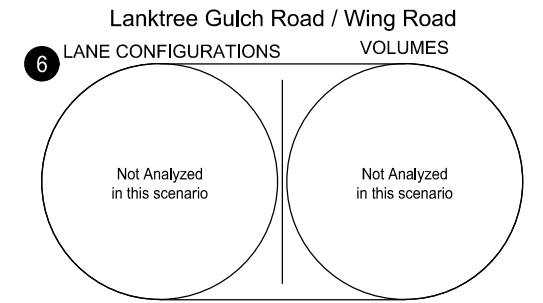
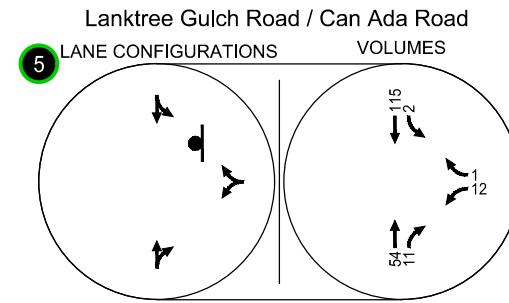
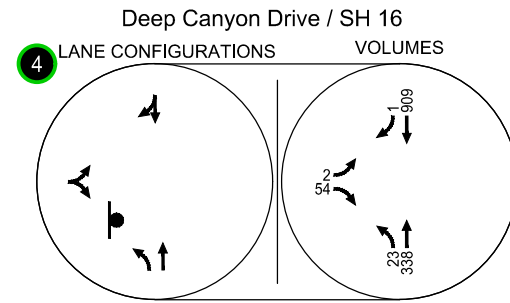
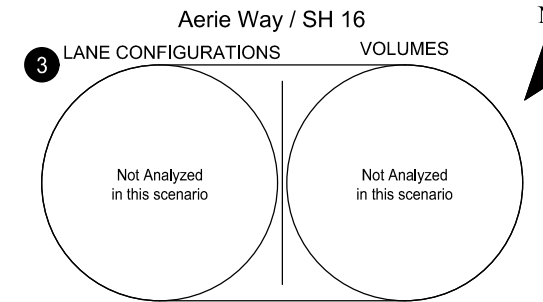
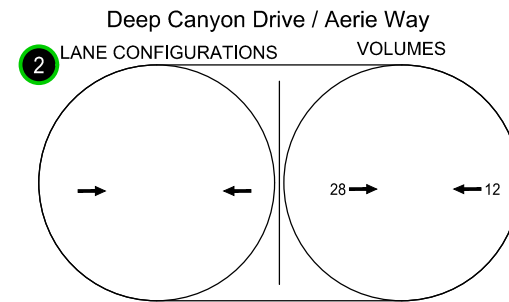
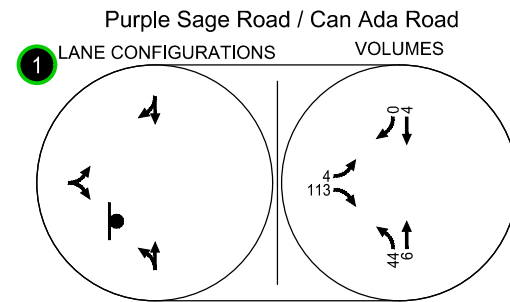
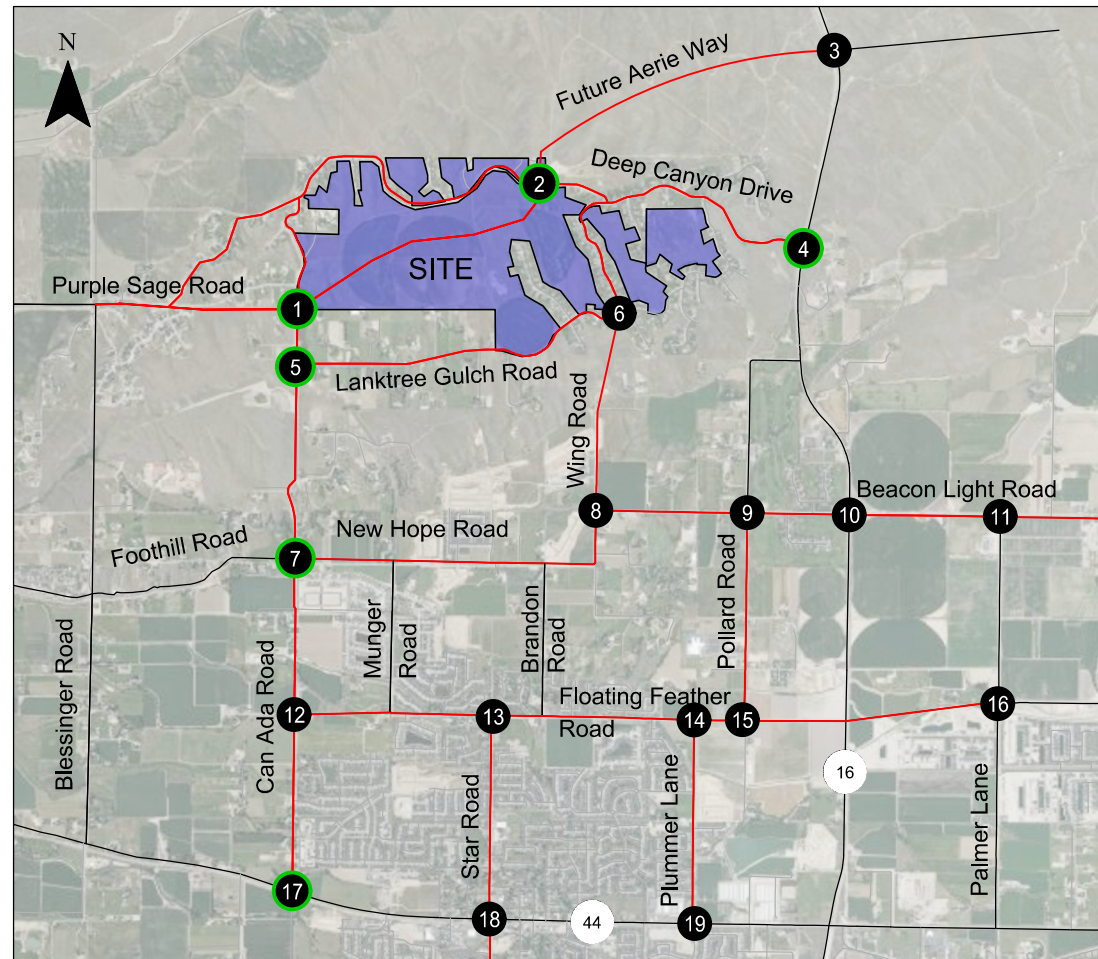
Table 8. Year 2030 Background Intersection Operations

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
1	Purple Sage Road & Can Ada Road	TWSC	-	-	-	NBL	0.03	A	7.3	0.10	A	7.5
						EBLTR	0.12	A	8.8	0.10	A	8.9
4	Deep Canyon Drive & SH 16	TWSC	-	-	-	NBL	0.04	B	10.4	0.08	A	8.9
						EBLR	0.22	C	21.3	0.10	B	13.9
5	Lanktree Gulch Road & Can Ada Road	TWSC	-	-	-	WBLR	0.02	A	9.5	0.04	B	10.1
						SBL	0.01	A	7.3	0.01	A	7.7
7	New Hope Road & Can Ada Road	AWSC	-			NBLTR	0.12	A	8.1	0.16	A	8.3
						EBLTR	0.08	A	7.9	0.04	A	8.0
						WBLTR	0.09	A	9.0	0.25	A	9.0
						SBLTR	0.20	A	8.5	0.19	A	8.8
17	SH 44 & Can Ada Road	TWSC	-	-	-	EBL	0.06	A	9.0	0.09	B	12.0
						SBLR	0.95	F	108.6	>1.50	F	>300.0

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and highlighted indicate an intersection and/or lane group operating below the jurisdictional standards.

As Table 8 shows, all study intersections operate acceptably during the year 2030 background conditions weekday AM and PM peak hours except for:

- 17. SH 44 & Can Ada Road

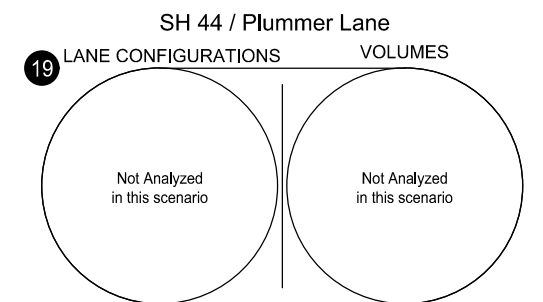
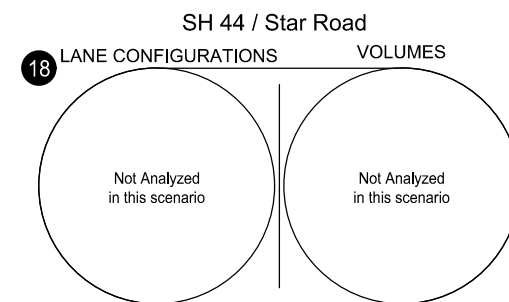
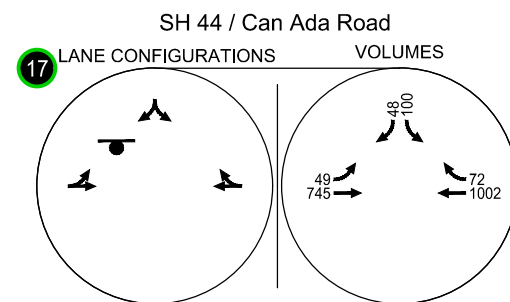
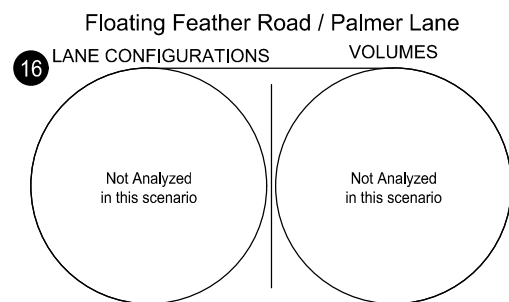
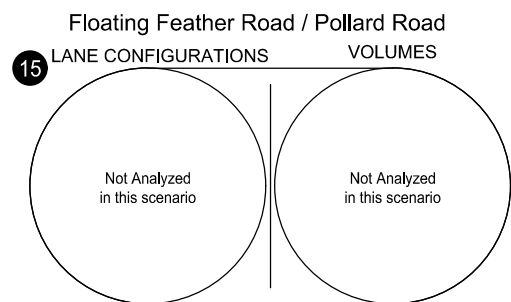
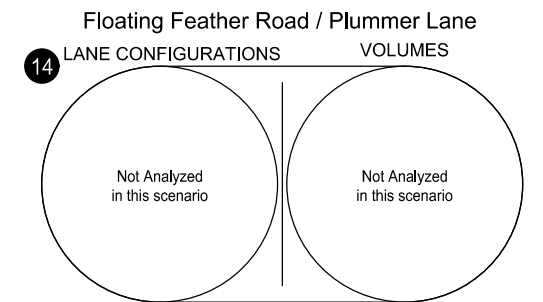
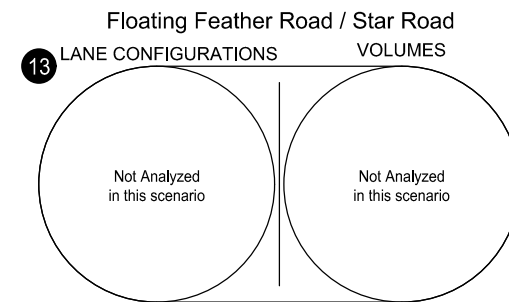
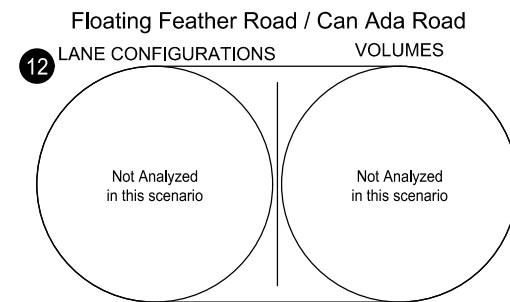
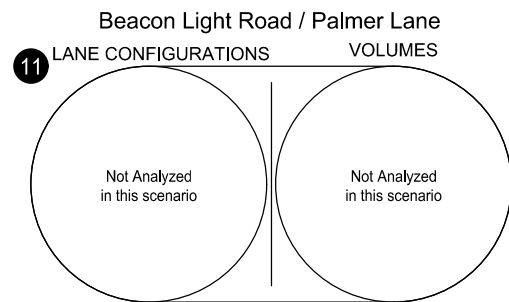
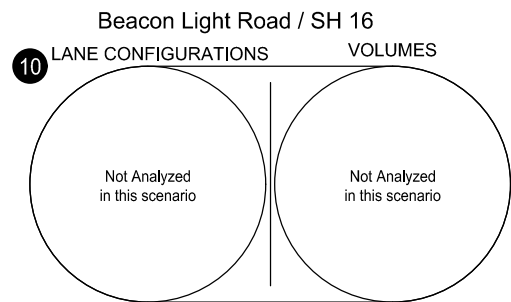
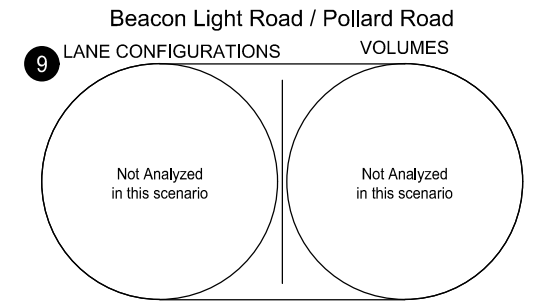
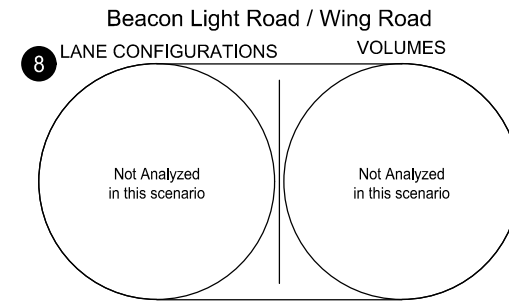
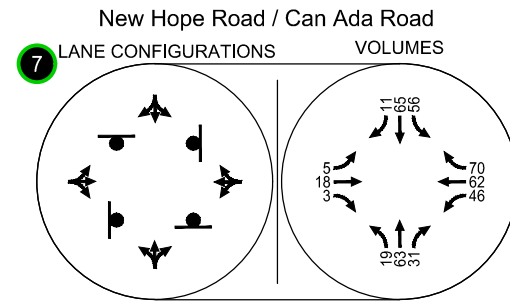
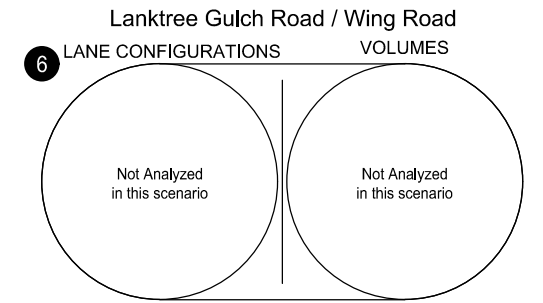
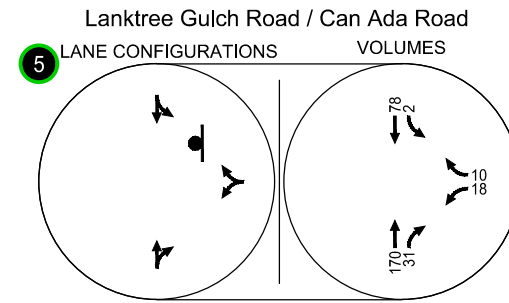
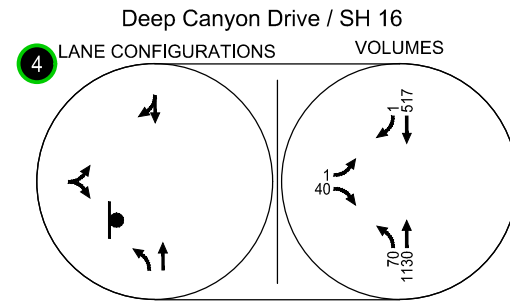
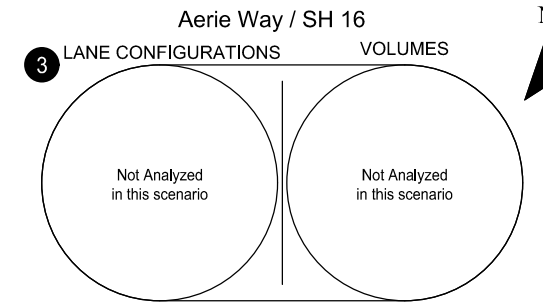
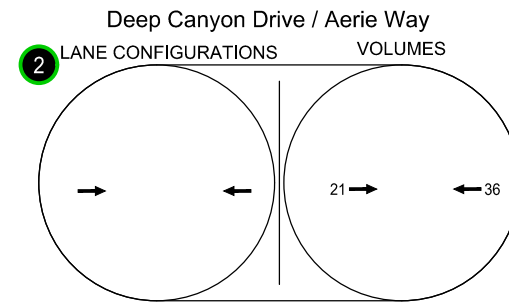
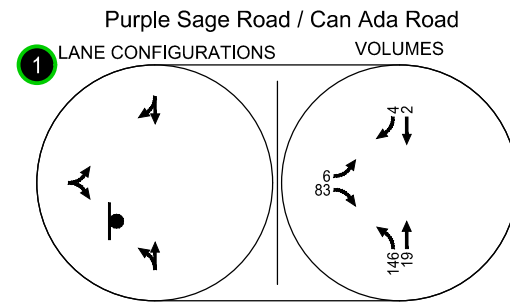
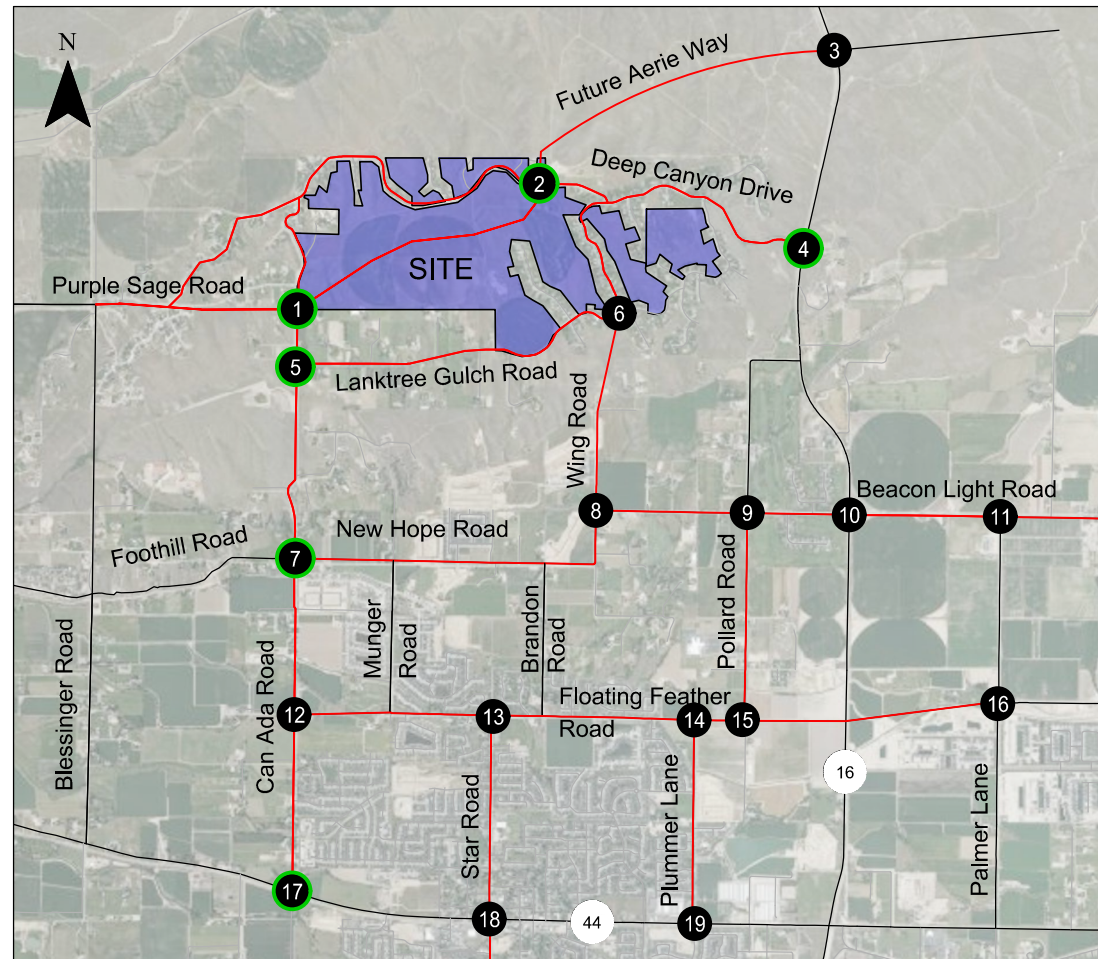


- STOP SIGN
- TRAFFIC SIGNAL
- 2030 BACKGROUND CONDITIONS STUDY INTERSECTION

Year 2030 Background AM
Weekday AM Peak Hour
Ada County, Idaho

Figure
6A

H:\25125407 - Willow Brook Community TIS\report\figs\25407_fig6a.dwg Jan 24, 2023 - 11:11am - smartisch Layout Tab: Fig6A_2030BG_AM



- STOP SIGN
- TRAFFIC SIGNAL
- 2030 BACKGROUND CONDITIONS STUDY INTERSECTION

Year 2030 Background PM
Weekday PM Peak Hour
Ada County, Idaho

Figure
6B

H:\25125407 - Willow Brook Community TIS\report\figs\25407_fig6B.dwg Jan 24, 2023 - 11:11am - smartisch Layout Tab: Fig6B_2030BG_PM

YEAR 2030 BACKGROUND CONDITIONS MITIGATION

This section highlights the mitigations needed to address each of the intersections not meeting traffic operation standards under the year 2030 background traffic conditions. *Appendix K contains the year 2030 mitigated background traffic operational worksheets including findings from the signal warrant analysis.*

17. SH 44 / Can Ada Road

The minor street approach of the SH 44 / Can Ada Road intersection operates over capacity and at LOS F under 2030 background conditions during the weekday AM and PM peak hours. The intersection meets the 4-hour and peak hour traffic signal volume warrants under existing conditions and meets the 8-hour traffic signal volume warrant under 2030 background conditions. This intersection is in the Mid-Star CIP as a future traffic signal to be constructed by 2025. ITD's SH 44 Corridor Plan shows this intersection as a future RCUT with SH 44 widened to 4 lanes. The City of Star is leading a project that will widen SH 44 to the east of Can Ada Road in 2023, which will not improve operations on the southbound approach of Can Ada Road. Table 9 shows how the intersection operates as a traffic signal with left turn lanes or as an RCUT with SH 44 widened to 4 lanes under 2030 background conditions.

Table 9 SH 44 / Can Ada Rd Intersection Mitigation Operations – 2030 Background Conditions

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
17	SH 44 & Can Ada Road	Traffic Signal	0.82/ 0.84	A/ B	8.6/ 12.8	EBL	0.11	A	4.3	0.20	B	13.6
						EBT	0.84	A	7.9	0.58	A	3.6
						WBT	0.46	A	7.0	0.90	B	17.3
						WBR	0.06	A	5.2	0.08	A	4.2
						SBL	0.45	B	19.5	0.66	C	34.4
						SBR	0.47	C	20.0	0.39	C	30.8
		RCUT	-	-	-	EBL	0.05	A	8.5	0.08	B	11.2
						SBR	0.21	B	10.7	0.32	C	15.8

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and highlighted indicate an intersection and/or lane group operating below the jurisdictional standards.

As shown in Table 9, the intersection operates within ACHD and ITD standards as a traffic signal with turn lanes or as an RCUT with SH 44 widened to 4 lanes under 2030 background conditions.

YEAR 2030 BACKGROUND CONDITIONS ROADWAY SEGMENT ANALYSIS

Peak hour roadway segment volumes were based on the traffic count data collected at the study intersections. The peak hour, peak direction roadway segment volumes, and resultant LOS per ACHD Policy Manual 7106.4.1 for the 2030 background conditions study roadway segments are summarized in Table 10.

Table 10. Year 2030 Background Roadway Segment Operations

Roadway	Segment	Classification ¹	Travel Lanes ²	ADT	ACHD Peak Hour Std. Volume (One-Way)	Weekday AM Peak Hour		Weekday PM Peak Hour	
						One-Way Volume/Direction	Meets Std.	One-Way Volume/Direction	Meets Std.
Deep Canyon Drive	Purple Sage to Can Ada	Local	2	200	None	15 (NB)	Yes	15 (SB)	Yes
	Can Ada to Aerie			405		30 (EB)	Yes	30 (WB)	Yes
	Aerie to AH 16			1,615		55 (EB)	Yes	70 (WB)	Yes

Lanktree Gulch Road	Can Ada to Wing	Local	2	740	None	15 (WB)	Yes	35 (EB)	Yes
Purple Sage Road	Blessinger to Can Ada	Collector	2	2,630	D / 340 (CHD4)	115 (EB)	Yes	150 (WB)	Yes
Can Ada Road	Deep Canyon to Purple Sage	Local	2	330	None	10 (NB)	Yes	25 (NB)	Yes
	Purple Sage to Lanktree Gulch	Collector		2,760	D / 425	115 (SB)	Yes	180 (NB)	Yes
	Lanktree Gulch to New Hope			3,445		155 (SB)	Yes	200 (NB)	Yes
	New Hope to Floating Feather	Minor Arterial		3,960	E / 575	155 (SB)	Yes	150 (SB)	Yes
	Floating Feather to SH 44			5,245		155 (SB)	Yes	150 (SB)	Yes
Beacon Light Road	SH 16 to Palmer	Minor Arterial	2	12,695	E / 575	725 (EB)	No	1,010 (WB)	No

¹Per COMPASS 2040 Functional Street Classification Map (Reference 9)

²Travel lanes include the total number of lanes across the roadway's respective cross section

As shown in Table 10, the roadway segments meet ACHD roadway segment LOS thresholds under 2030 background conditions weekday AM and PM peak hours except for:

- Beacon Light Road (SH 16 to Palmer) – AM and PM Peak Hours

YEAR 2030 BACKGROUND CONDITIONS ROADWAY SEGMENT MITIGATION

Beacon Light Road (SH 16 to Palmer)

This segment of Beacon Light Road exceeds the ACHD LOS E volume threshold for minor arterials under 2030 background conditions in the AM and PM peak hours. The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe. This would bring the LOS E threshold to 720 VPH, which would still be exceeded by 2030 background traffic volumes. To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section (LOS E threshold of 1,540 VPH).

YEAR 2045 BACKGROUND TRAFFIC CONDITIONS

The year 2045 background traffic analysis identifies how the study area's transportation system will operate in the future year without the proposed Willow Brook Golf Community in place. This analysis includes traffic attributed to planned developments within the study area and to general growth in the region but does not include traffic from the proposed development.

YEAR 2045 BACKGROUND TRAFFIC VOLUMES

Year 2045 background traffic volumes reflect existing traffic counts plus 23 years of general growth as described in Table 7 of the background growth section. These volumes represent background traffic during the year when the Willow Brook Golf Community is expected to be completed but does not include the site generated traffic.

Per the ACHD Policy Manual, intersections with an existing peak hour factor of less than 0.90 were adjusted to 0.90 in the future year analysis to account for the likely increase in traffic throughout the entire peak hour in the future.

YEAR 2045 BACKGROUND INTERSECTION OPERATIONS

Table 11 presents the traffic operations results for each study intersection and its lane groups under year 2045 background conditions during the weekday AM and PM peak hours. Figures 7A and 7B present the lane configurations, traffic control devices, and the weekday AM and PM 2045 background traffic volumes at each of the study intersections. *Appendix L includes the year 2045 background conditions Synchro worksheets.*

Table 11. Year 2045 Background Intersection Operations

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
1	Purple Sage Road & Can Ada Road	TWSC	-	-	-	NBL	0.06	A	7.4	0.18	A	7.7
						EBLR	0.22	A	9.3	0.19	A	9.6
2	Deep Canyon Drive & Aerie Way	Not constructed for this scenario. Intersection is analyzed in the 2045 Background (With Select Roadway Improvements) Conditions scenario										
3	Aerie Way & SH 16	Not constructed for this scenario. Intersection is analyzed in the 2045 Background (With Select Roadway Improvements) Conditions scenario										
4	Deep Canyon Drive & SH 16	TWSC	-	-	-	NBL	0.06	B	11.3	0.11	A	9.4
						EBLR	0.38	D	30.5	0.24	C	23.7
5	Lanktree Gulch Road & Can Ada Road	TWSC	-	-	-	WBLR	0.03	B	10.5	0.07	B	11.9
						SBL	0.01	A	7.4	0.01	A	8.1
6	Lanktree Gulch Road & Wing Road	Not constructed for this scenario. Intersection is analyzed in the 2045 Background (With Select Roadway Improvements) Conditions scenario										
7	New Hope Road & Can Ada Road	AWSC	-	A/ B	9.9/ 10.8	NBLTR	0.24	A	9.3	0.31	B	10.2
						EBLTR	0.12	A	8.8	0.06	A	8.9
						WBLTR	0.13	A	10	0.38	B	11.2

						SBLTR	0.38	B	10.5	0.37	B	11.1
8	Beacon Light Road & Wing Road	TWSC	-	-	-	NBT	0.01	A	7.5	0.07	A	9.1
						SBLT	0.02	A	9.0	0.06	B	12.6
9	Beacon Light Road & Pollard Road	TWSC	-	-	-	NBLTR	0.46	C	19.1	>1.50	F	>300.0
						EBL	0.01	A	7.7	0.01	A	9.3
						WBL	0.04	A	8.5	0.13	A	8.1
						SBLTR	0.82	F	63.4	>1.50	F	>300.0
10	Beacon Light Road & SH 16	Traffic Signal	1.08/ 1.15	E/ E	69.4/ 107.0	EBL	0.10	D	51.2	0.62	D	53.6
						EBT	0.97	F	107.3	0.31	D	45.5
						EBR	1.05	F	135.2	0.34	D	46.0
						WBL	1.14	F	180.7	0.45	D	39.8
						WBT	0.38	D	54.4	0.97	F	83.4
						WBR	0.39	D	54.5	1.39	F	241.3
						NBL	0.84	E	75.8	0.43	C	24.4
						NBT	0.44	C	25.6	1.18	F	131.7
						NBR	0.27	C	23.0	0.14	C	21.4
						SBL	0.54	B	17.9	0.93	F	99.1
						SBT	1.02	F	68.8	0.65	C	32.9
SBR	0.01	B	15.5	0.06	C	22.7						
11	Beacon Light Road & Palmer Lane	TWSC	-	-	-	NBLR	0.46	E	45.7	1.43	F	>300.0
						WBL	0.04	B	10.8	0.01	A	8.2
12	Floating Feather Road & Can Ada Road	Not constructed for this scenario. Intersection is analyzed in the 2045 Background (With Select Roadway Improvements) Conditions scenario										
13	Floating Feather Road & Star Road	TWSC	-	-	-	NBL	0.68	F	62.9	>1.50	F	>300.0
						NBR	0.25	B	11.5	0.23	B	10.8
						WBL	0.31	A	9.7	0.52	B	11.1
14	Floating Feather Road & Plummer Road	TWSC	-	-	-	NBLR	0.31	C	15.0	>1.50	F	>300.0
						WBL	0.04	A	8.8	0.09	A	8.6
15	Floating Feather Road & Pollard Road	TWSC	-	-	-	WBLR	0.40	C	18.3	0.97	F	75.5
						SBL	0.11	A	8.6	0.04	A	8.2
16	Floating Feather Road & Palmer Lane	TWSC	-	-	-	NBL	0.30	A	8.5	0.32	A	8.3
						EBLR	0.36	B	12.1	0.10	A	9.8
17	SH 44 & Can Ada Road	TWSC	-	-	-	EBL	0.11	A	9.6	0.19	A	14.2
						SBLR	>1.50	F	>300.0	>1.50	F	>300.0
18	SH 44 & Star Road	Traffic Signal	1.10/1.18	E/F	62.6/80.2	EBL	0.24	C	23.8	1.25	F	192.5
						EBT	1.03	F	80.8	0.81	D	44.3

						EBR	0.59	D	35.1	0.55	C	33.1
						WBL	0.93	F	87.7	0.84	D	52.7
						WBT	0.58	C	28.9	1.14	F	115.4
						WBR	0.13	C	22.0	0.16	C	23.3
						NBL	1.12	F	135.2	1.23	F	171.6
						NBT	0.38	D	43.0	0.62	D	47.6
						NBR	0.42	D	43.7	0.29	D	41.5
						SBL	0.51	D	40.0	0.42	D	46.9
						SBTR	1.12	F	136.8	1.23	F	189.6
19	SH 44 & Plummer Road	Traffic Signal	1.25/ 1.31	F/ F	110.1/ 119.4	EBL	0.11	C	22.1	0.69	D	52.4
						EBT	1.24	F	158.5	0.80	C	32.6
						EBR	0.05	B	19.7	0.07	B	16.1
						WBL	0.59	D	38.4	0.46	C	26.4
						WBT	0.66	C	29.9	1.31	F	181.1
						WBR	0.15	C	20.4	0.35	B	19.3
						NBL	0.08	C	30.0	0.28	D	40.1
						NBT	0.02	C	29.2	0.21	D	38.6
						NBR	0.15	C	30.8	0.35	D	40.6
						SBLTR	1.19	F	151.5	1.40	F	254.9

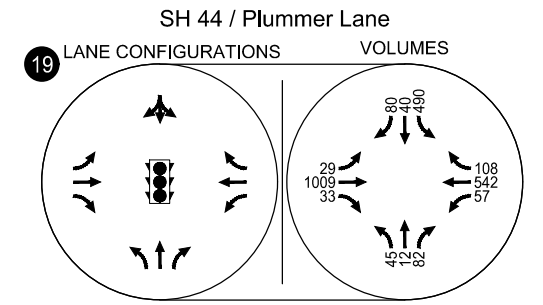
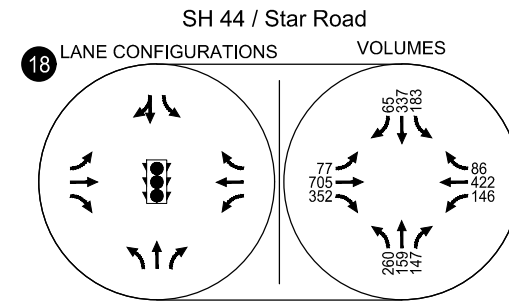
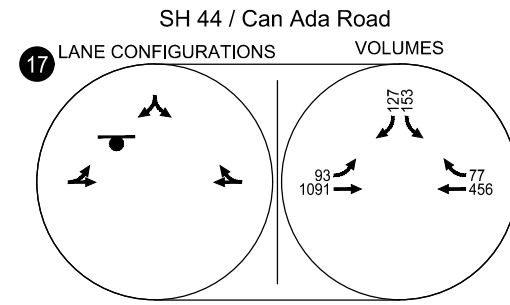
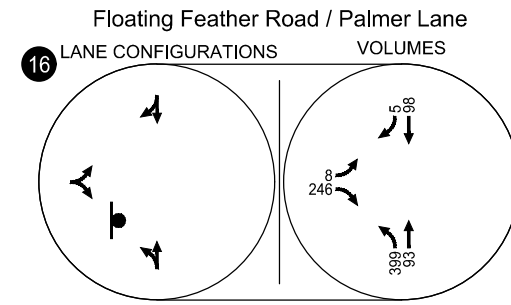
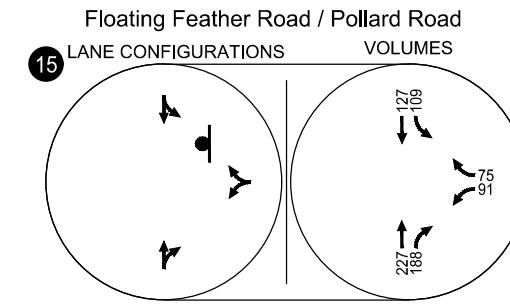
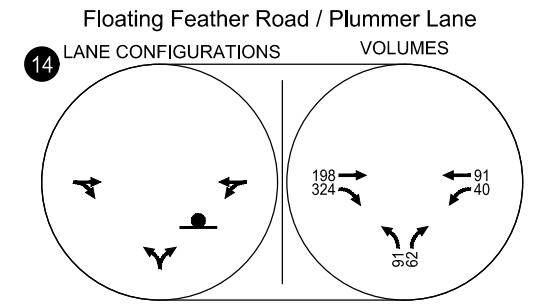
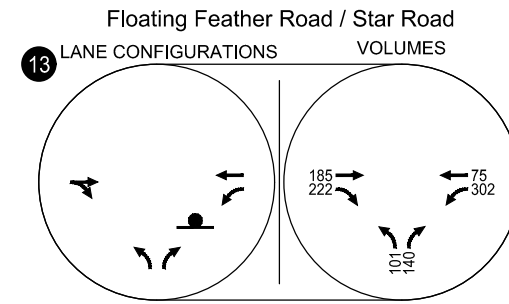
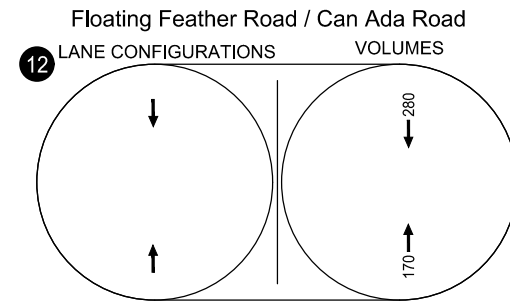
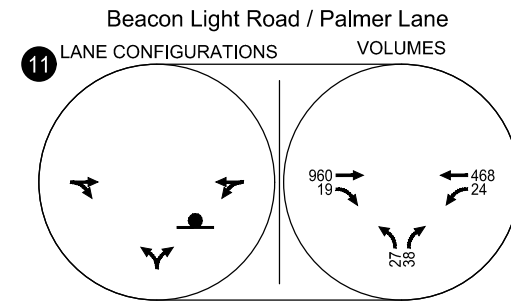
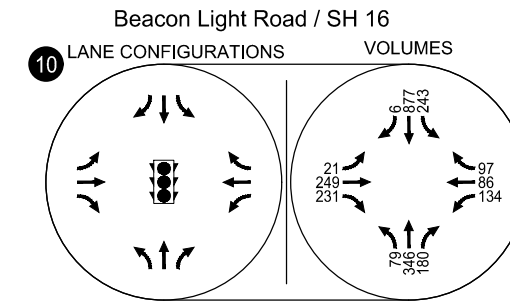
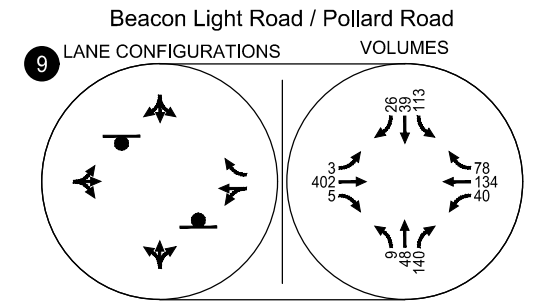
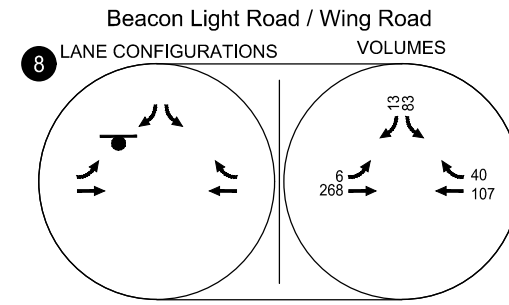
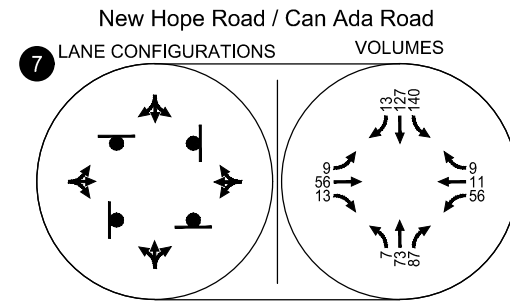
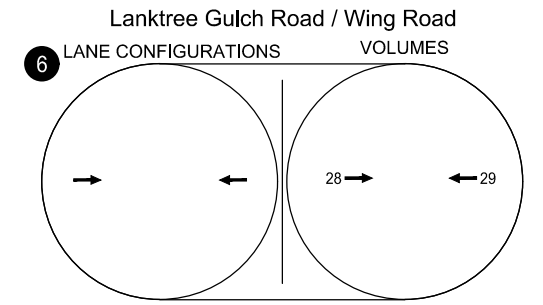
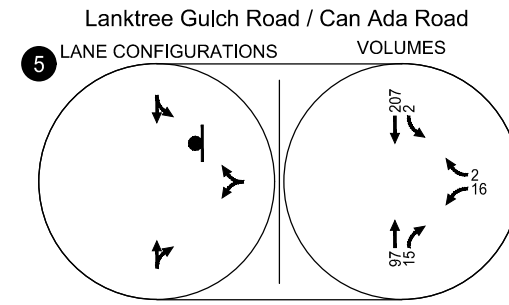
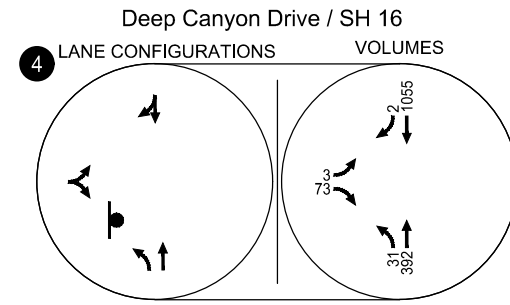
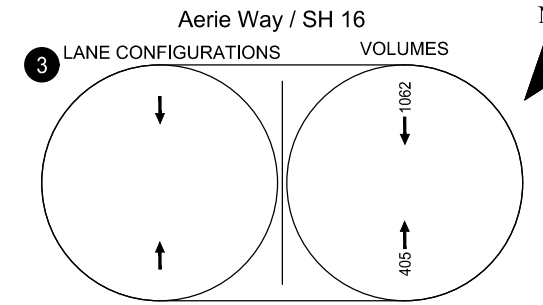
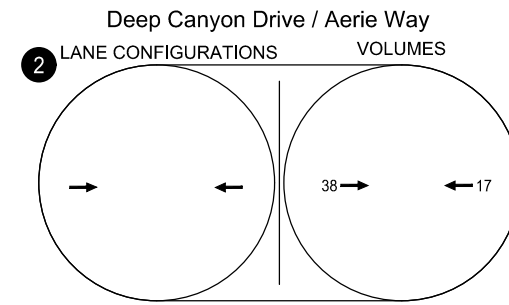
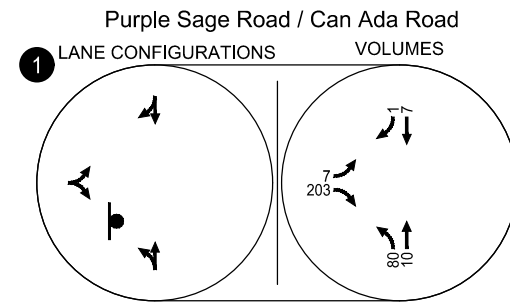
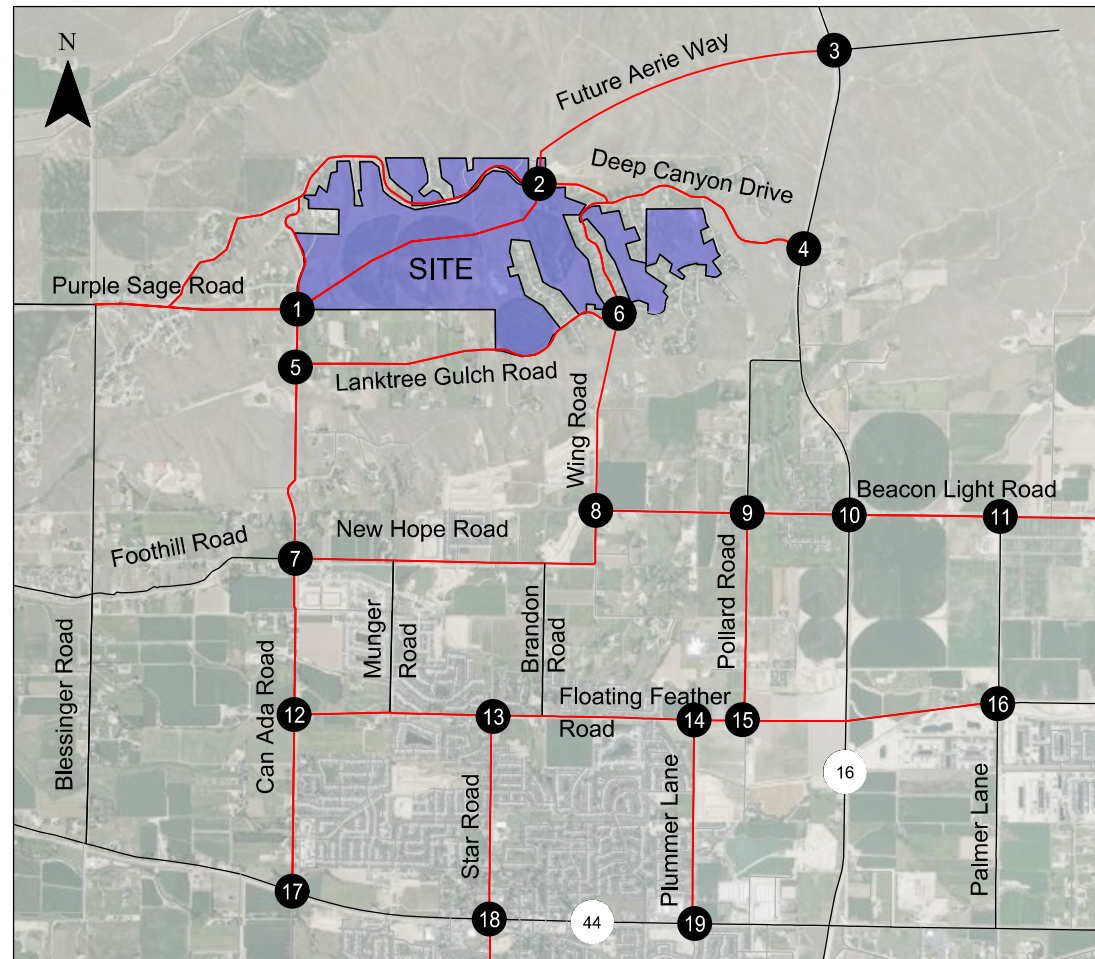
V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and highlighted indicate an intersection and/or lane group operating below the jurisdictional standards.

As Table 11 shows, all study intersections operate acceptably during the year 2045 background weekday AM and PM peak hours except for:

9. Beacon Light Road & Pollard Road
10. Beacon Light Road & SH 16
11. Beacon Light Road & Palmer Lane
13. Floating Feather Road & Star Road
14. Floating Feather Road & Plummer Road
17. SH 44 & Can Ada Road
18. SH 44 & Star Road
19. SH 44 & Plummer Road

The following intersections operate acceptably during year 2045 background conditions but have one or more lane groups operating at LOS D or worse and require a signal warrant analysis:

4. Deep Canyon Drive & SH 16
15. Floating Feather Road & Pollard Road

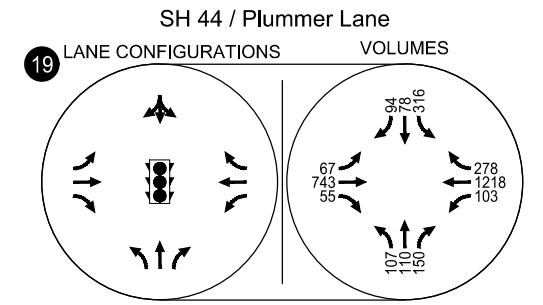
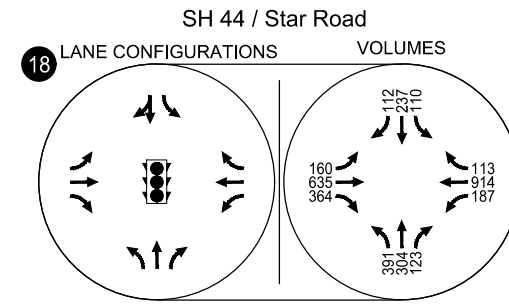
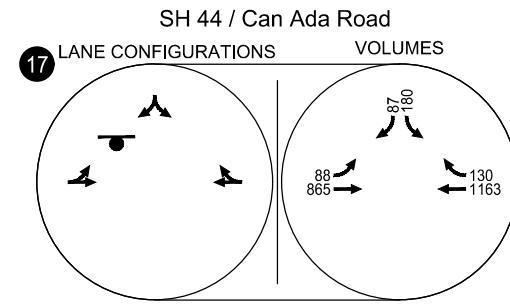
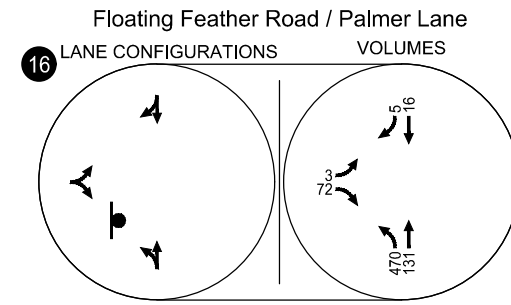
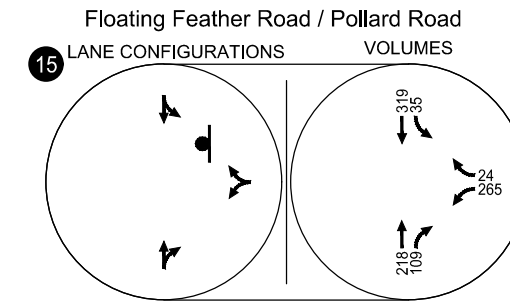
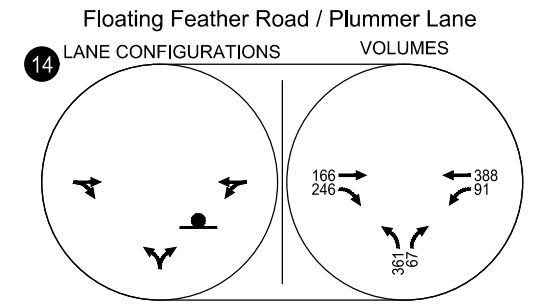
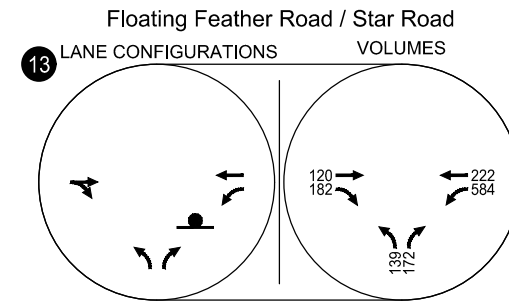
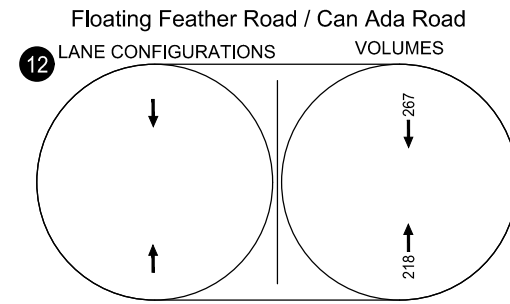
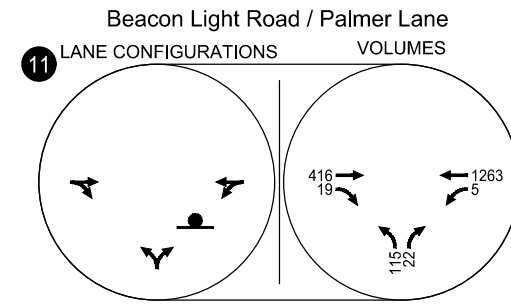
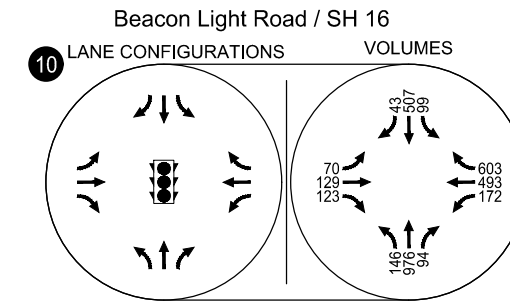
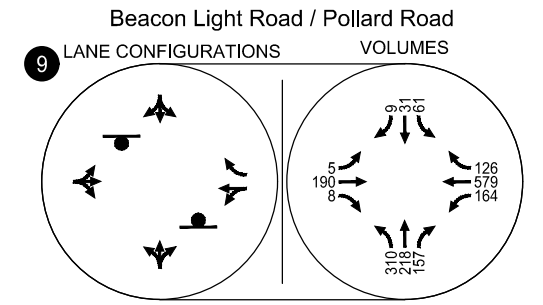
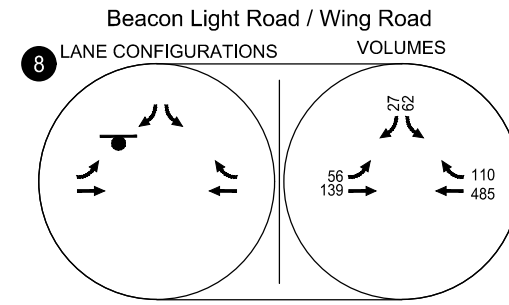
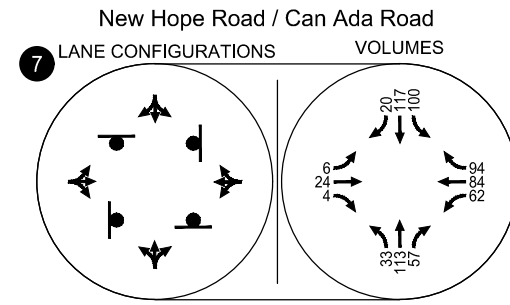
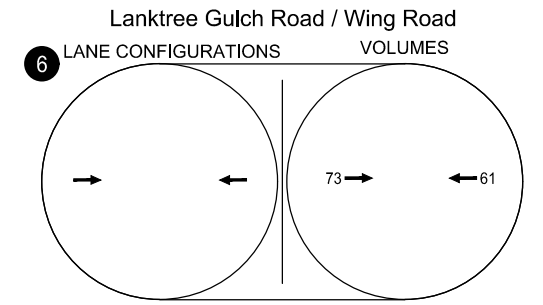
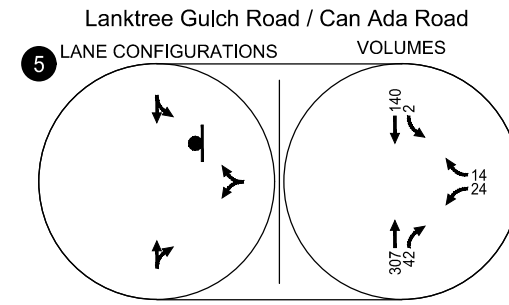
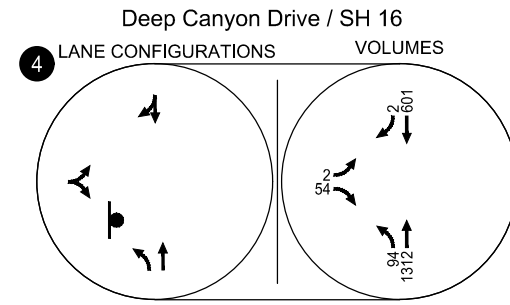
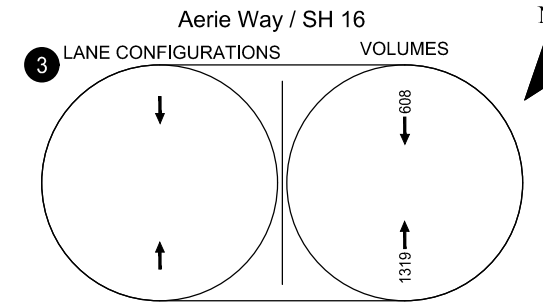
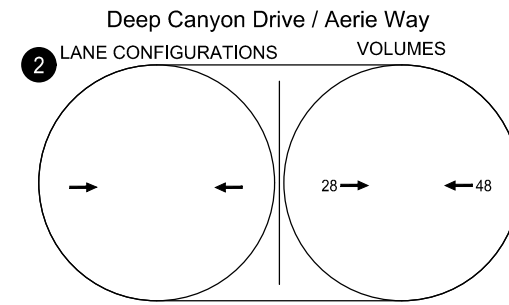
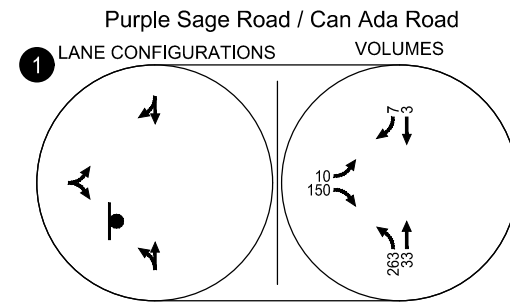
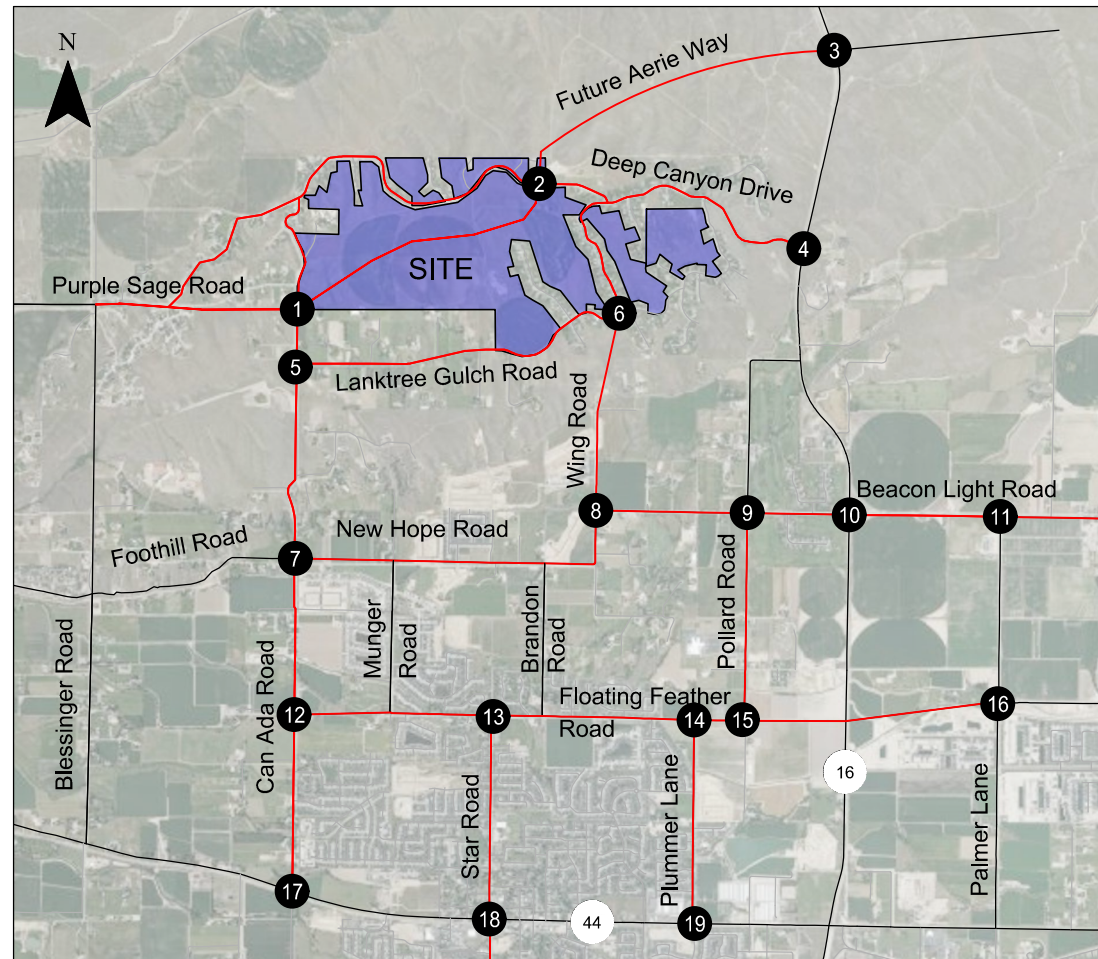


- STOP SIGN
 - TRAFFIC SIGNAL

Year 2045 Background Traffic Volumes
Weekday AM Peak Hour
Ada County, Idaho

Figure
7A

H:\25\25407 - Willow Brook Community TIS\report\figs\25407_fig.dwg Jan 24, 2023 - 11:11am - smaitisch Layout Tab: Fig7A_2045BG_NB_AM



- STOP SIGN
 - TRAFFIC SIGNAL

Year 2045 Background Traffic Volumes
Weekday PM Peak Hour
Ada County, Idaho

Figure
7B

H:\25\25407 - Willow Brook Community TIS\report\figs\25407_fig.dwg Jan 24, 2023 - 11:11am - smaitisch Layout Tab: Fig7B_2045BG_NB_PM

YEAR 2045 BACKGROUND CONDITIONS MITIGATION

This section highlights the mitigations needed to address each of the intersections not meeting traffic operation standards under the year 2045 background traffic conditions. *Appendix M contains the year 2045 mitigated background traffic operational worksheets including findings from the signal warrant analysis.*

Deep Canyon Drive & SH 16

The Deep Canyon Drive / SH 16 intersection operates acceptably under 2045 background conditions during the weekday AM and PM peak hour, however the critical movement at the intersection is operating at LOS D in the weekday AM peak hour. ACHD policy requires an evaluation of traffic signal warrants if the critical movement at an unsignalized intersection operates at LOS D or worse.

The intersection meets the peak hour traffic signal volume warrant, but not the 4-hour and 8-hour traffic signal volume warrants under 2045 background conditions. The future configuration of this section of SH 16 is currently being determined by an ITD Corridor Plan.

Beacon Light Road & Pollard Road

The minor street approaches of the Beacon Light Road / Pollard Road intersection operate over capacity and at LOS F under 2045 background conditions during the weekday PM peak hour. The intersection meets the 8-hour, 4-hour, and peak hour traffic signal volume warrants under 2045 background conditions. The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040. This identified improvement does not bring the intersection to within ACHD standards in this scenario. A multi-lane roundabout with two lanes in the eastbound and westbound direction is required to bring the intersection within standards. Table 12 shows how the intersection of Beacon Light Road / Pollard Road operates as a multi-lane roundabout or a traffic signal with left turn lanes and a westbound right turn lane under 2045 background conditions.

Table 12 Beacon Light Road / Pollard Road Intersection Mitigation Operations – 2045 Background Conditions

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
9	Beacon Light Road / Pollard Road	Multi-Lane Roundabout	0.30/ 0.74	A/ B	5.3/ 13.4	NBLTR	0.30	A	8.4	0.74	C	16.4
						WBLTR	0.11	A	3.7	0.59	B	13.3
						SBLTR	0.18	A	4.9	0.27	B	13.2
						EBLTR	0.20	A	5.0	0.10	A	4.2
		Traffic Signal with LT lanes and a WB RT lane	0.59/ 0.87	B/ C	18.2/ 25.5	EBL	0.01	B	11.3	0.03	B	18.2
						EBTR	0.84	C	22.8	0.38	B	19.0
						WBL	0.15	B	11.9	0.34	B	13.3
						WBT	0.25	B	11.3	0.87	C	26.5
						WBR	0.16	B	10.8	0.22	B	13.9
						NBL	0.02	B	15.5	0.61	C	21.4
						NBTR	0.72	C	21.7	0.89	D	41.0
						SBL	0.34	B	14.2	0.30	C	22.5
						SBTR	0.17	B	14.0	0.12	C	23.5

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and **highlighted** indicate an intersection and/or lane group operating below the jurisdictional standards.

As shown in Table 12, the intersection operates within ACHD standards as a multi-lane roundabout or a traffic signal with left turn lanes and a westbound right turn lane under 2045 background conditions.

Beacon Light Road & SH 16

The intersection of Beacon Light Road / SH 16 is projected to operate over capacity and at LOS E under 2045 background conditions during the weekday AM and PM peak hour. In addition, several movements/lane groups are projected to operate over capacity and at LOS F during the weekday AM and PM peak hours. The Spring Valley development was conditioned with improvements to this intersection. Table 13 shows how the intersection of Beacon Light Road / SH 16 operates as with the northbound and southbound approaches widened to two through lanes and a westbound right turn overlap phase added under 2045 background conditions.

Table 13. Beacon Light Rd / SH 16 Intersection Mitigation Operations – 2045 Background Conditions

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
10	Beacon Light Road & SH 16	Traffic Signal	0.77/ 0.87	C/ D	33.4/ 40.8	EBL	0.07	C	31.9	0.36	C	30.2
						EBT	0.77	D	43.7	0.21	C	30.7
						EBR	0.84	D	49.0	0.23	C	31.0
						WBL	0.62	C	34.4	0.34	C	23.8
						WBT	0.28	C	31.7	0.71	D	37.4
						WBR	0.19	C	21.7	0.89	D	47.9
						NBL	0.41	C	26.8	0.44	C	29.9
						NBT	0.39	C	30.4	0.88	D	49.7
						NBR	0.45	C	32.0	0.19	C	32.2
						SBL	0.60	C	21.6	0.58	D	36.9
SBT	0.80	C	33.2	0.48	D	37.1						
SBR	0.01	C	20.9	0.09	C	32.1						

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and **highlighted** indicate an intersection and/or lane group operating below the jurisdictional standards.

As shown in Table 13, the intersection operates within ACHD and ITD standards with the northbound and southbound approaches widened to two through lanes and a westbound right turn overlap phase added under 2045 background conditions.

Beacon Light Road & Palmer Lane

The minor street approach of the Beacon Light Road / Palmer Lane intersection operates over capacity and at LOS F under 2045 background conditions during the weekday PM peak hour. The intersection meets the 8-hour, 4-hour, and peak hour traffic signal volume warrants under 2045 background conditions. The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040. Due to the high eastbound and westbound volumes, the intersection does not operate within standards as a single lane roundabout or a traffic signal with turn lanes. In order to meet standards, Beacon Light Road would need to be widened to two through lanes at the intersection. Table 14 shows how the intersection of Beacon Light Road / Palmer Lane operates as a multi-lane roundabout or a traffic signal with turn lanes and the eastbound and westbound approaches widened to two through lanes under 2045 background conditions.

Table 14 Beacon Light Road / Palmer Lane Intersection Mitigation Operations – 2045 Background Conditions

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
11	Beacon Light Road / Palmer Lane	Multi-Lane Roundabout	0.40/ 0.53	A/ A	5.8/ 7.4	NBLR	0.17	B	11.0	0.17	A	6.0
						WBLT	0.20	A	4.2	0.53	A	8.7
						EBLR	0.40	A	6.3	0.16	A	3.9

						EBT	0.68	A	8.2	0.29	A	6.0
						EBR	0.03	A	5.4	0.03	A	5.2
						WBL	0.07	A	5.6	0.01	A	4.3
						WBT	0.25	A	3.2	0.66	A	5.1
						NBL	0.13	B	14.3	0.50	B	15.0
						NBR	0.23	B	14.8	0.10	B	12.8

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and **highlighted** indicate an intersection and/or lane group operating below the jurisdictional standards.

As shown in Table 14, the intersection operates within ACHD standards as a multi-lane roundabout or a traffic signal with turn lanes and the eastbound and westbound approaches widened to two through lanes under 2045 background conditions.

Floating Feather Road & Star Road

The minor street approach of the Floating Feather Road / Star Road intersection operates over capacity and at LOS F under 2045 background conditions during the weekday AM and PM peak hour. The intersection meets the 8-hour, 4-hour, and peak hour traffic signal volume warrants under 2045 background conditions. The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040. Table 15 shows how the intersection of Floating Feather Road / Star Road operates as a single-lane roundabout or a traffic signal with turn lanes under 2045 background conditions.

Table 15 Floating Feather Road / Star Road Intersection Mitigation Operations – 2045 Background Conditions

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
13	Floating Feather Road / Star Road	Single Lane Roundabout	0.48/ 0.76	A/ B	7.5/ 12.8	NBLR	0.25	A	5.6	0.28	A	5.6
						WBTR	0.35	A	6.5	0.76	C	15.9
						EBLT	0.48	A	9.6	0.47	B	12.0
		Traffic Signal	0.53/ 0.78	B/ B	10.8/ 13.0	EBT	0.47	B	11.9	0.39	B	16.9
						EBR	0.66	B	13.7	0.70	C	20.4
						EBL	0.51	A	6.8	0.75	A	9.9
						EBT	0.08	A	3.4	0.22	A	3.8
						NBL	0.39	B	13.6	0.50	B	18.3
						NBR	0.60	B	15.5	0.70	C	20.9

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and **highlighted** indicate an intersection and/or lane group operating below the jurisdictional standards.

As shown in Table 15, the intersection operates within ACHD standards as a single lane roundabout or a traffic signal with turn lanes under 2045 background conditions.

Floating Feather Road & Plummer Road

The minor street approach of the Floating Feather Road / Plummer Road intersection operates over capacity and at LOS F under 2045 background conditions during the weekday PM peak hour. The intersection meets the 8-hour, 4-hour, and peak hour traffic signal volume warrants under 2045 background conditions. The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040. Table 16 shows how the intersection of Floating Feather Road / Plummer Road operates as a single-lane roundabout or a traffic signal with turn lanes under 2045 background conditions.

Table 16 Floating Feather Road / Plummer Road Intersection Mitigation Operations – 2045 Background Conditions

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour					
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay			
14	Floating Feather Road / Plummer Road	Single Lane Roundabout	0.43/ 0.58	A/ A	6.1/ 8.8	NBLR	0.15	A	4.7	0.42	A	7.5			
						WBLT	0.12	A	4.1	0.58	B	12.1			
						EBTR	0.43	A	7.0	0.37	A	6.4			
		Traffic Signal				0.32/ 0.69	A/ B	9.0/ 11.6	EBT	0.37	A	8.0	0.40	B	12.1
									EBR	0.70	B	10.5	0.70	B	14.9
									WBL	0.08	A	5.2	0.20	A	7.8
									WBT	0.11	A	3.5	0.52	A	7.6
									NBL	0.35	B	11.7	0.79	B	14.8
									NBR	0.26	B	11.3	0.16	A	9.9

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and **highlighted** indicate an intersection and/or lane group operating below the jurisdictional standards.

As shown in Table 16, the intersection operates within ACHD standards as a single lane roundabout or a traffic signal with turn lanes under 2045 background conditions.

Floating Feather Road & Pollard Road

The Floating Feather Road / Pollard Road intersection operates acceptably under 2045 background conditions during the weekday AM and PM peak hour, however the critical movement at the intersection is operating at LOS F in the weekday PM peak hour. ACHD policy requires an evaluation of traffic signal warrants if the critical movement at an unsignalized intersection operates at LOS D or worse.

The intersection meets the 4-hour and peak hour traffic signal volume warrants, but not the 8-hour traffic signal volume warrant under 2045 background conditions.

SH 44 & Can Ada Road

The minor street approach of the SH 44 / Can Ada Road intersection operates over capacity and at LOS F under 2045 background conditions during the weekday AM and PM peak hour. The intersection meets the 4-hour and peak hour traffic signal volume warrants under existing conditions and meets the 8-hour traffic signal volume warrant under 2045 background conditions. This intersection is in the Mid-Star CIP as a future traffic signal to be constructed by 2025. ITD's draft SH 44 Corridor Plan shows this intersection as a future RCUT with SH 44 widened to 4 lanes. The City of Star is leading a project that will widen SH 44 to the east of Can Ada Road in 2023, which will not improve operations on the southbound approach of Can Ada Road. Table 17 shows how the intersection operates as a traffic signal with the eastbound and westbound approaches widened to two through lanes and with turn lanes or as an RCUT with SH 44 widened to 4 lanes under 2045 background conditions.

Table 17 SH 44 / Can Ada Rd Intersection Mitigation Operations – 2045 Background Conditions

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
17	SH 44 & Can Ada Road	Traffic Signal	0.65/ 0.71	A/ A	7.5/ 9.7	EBL	0.14	A	5.4	0.19	A	7.7
						EBT	0.63	A	5.4	0.43	A	4.3
						WBT	0.42	A	8.5	0.78	B	11.8
						WBR	0.10	A	7.4	0.13	A	6.7
						SBL	0.54	B	13.8	0.68	C	20.2
						SBR	0.56	B	14.4	0.40	B	17.6
		RCUT				-	-	-	EBL	0.10	A	9.0	0.19	B	14.0

						SBR	0.40	B	12.8	0.66	D	27.9
--	--	--	--	--	--	-----	------	---	------	------	---	------

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and **highlighted** indicate an intersection and/or lane group operating below the jurisdictional standards.

As shown in Table 17, the intersection operates within ACHD and ITD standards as a traffic signal with the eastbound and westbound approaches widened to two through lanes and with turn lanes or as an RCUT with SH 44 widened to 4 lanes under 2045 background conditions.

SH 44 & Star Road

The intersection of SH 44 / Star Road operates over capacity and at LOS F under 2045 background conditions during the weekday AM and PM peak hour. Additionally, several lane groups are over capacity and at LOS F during the AM and PM peak hours. This intersection is in the ACHD CIP to have the signal replaced/modified and approaches widened. The lane configuration identified in the CIP does not fully mitigate the intersection in this scenario. Table 18 shows how the intersection operates as a traffic signal with left and right turn lanes, two through lanes in the eastbound and westbound direction, and dual left turn lanes in the northbound direction under 2045 background conditions.

Table 18. SH 44 / Star Rd Intersection Mitigation Operations – 2045 Background Conditions

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
18	SH 44 & Star Road	Traffic Signal	0.74/ 0.78	C/ C	27.2/ 28.9	EBL	0.21	B	17.0	0.71	C	31.5
						EBT	0.72	C	28.4	0.48	C	22.9
						EBR	0.78	D	36.9	0.46	A	5.9
						WBL	0.54	B	18.7	0.66	D	36.9
						WBT	0.40	B	19.7	0.77	C	29.1
						WBR	0.17	B	18.0	0.21	C	21.5
						NBL	0.60	C	24.9	0.84	D	46.8
						NBT	0.42	C	26.1	0.71	C	33.8
						NBR	0.47	C	26.6	0.34	B	17.6
						SBL	0.54	C	25.1	0.42	C	31.1
						SBT	0.87	D	36.8	0.84	D	40.9
SBR	0.20	C	24.6	0.46	D	36.4						

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and **highlighted** indicate an intersection and/or lane group operating below the jurisdictional standards.

As shown in Table 18, the intersection operates within ACHD and ITD standards with the eastbound and westbound approaches widened to two through lanes and dual northbound left turn lanes under 2045 background conditions.

SH 44 & Plummer Road

The intersection of SH 44 / Plummer Road operates over capacity and at LOS F under 2045 background conditions during the weekday AM and PM peak hours. This intersection is not currently programmed for improvements by ACHD. ITD's draft SH 44 Corridor Plan shows this intersection as signalized with SH 44 widened to 4 lanes. The lane configuration shown in the Corridor Plan does not fully mitigate the intersection. Table 19 shows how the intersection operates as an expanded traffic signal with left and right turn lanes, two through lanes in the eastbound and westbound direction, and dual left turn lanes in the southbound direction under 2045 background conditions.

Table 19. SH 44 / Plummer Rd Intersection Mitigation Operations – 2045 Background Conditions

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
19	SH 44 & Plummer Road	Traffic Signal	0.68/ 0.73	C/ C	20.7/ 22.9	EBL	0.08	B	11.4	0.32	B	16.4
						EBT	0.80	C	20.2	0.52	B	15.8
						EBR	0.06	B	12.4	0.09	B	12.5
						WBL	0.24	B	14.0	0.29	B	11.9
						WBT	0.41	B	13.9	0.84	C	22.5
						WBR	0.18	B	12.4	0.43	B	14.8
						NBL	0.16	C	25.9	0.29	C	25.7
						NBT	0.08	C	27.9	0.47	C	31.7
						NBR	0.64	C	34.2	0.77	D	37.6
						SBL	0.81	C	30.2	0.80	D	41.7
						SBT	0.10	B	19.8	0.24	C	26.2
SBR	0.23	C	20.7	0.35	C	27.5						

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and highlighted indicate an intersection and/or lane group operating below the jurisdictional standards.

As shown in Table 19, the intersection operates within ACHD and ITD standards as a traffic signal with left and right turn lanes, the eastbound and westbound approaches widened to two through lanes, and dual southbound left turn lanes under 2045 background conditions.

YEAR 2045 BACKGROUND CONDITIONS ROADWAY SEGMENT ANALYSIS

Peak hour roadway segment volumes were based on the traffic count data collected at the study intersections. The peak hour, peak direction roadway segment volumes, and resultant LOS per ACHD Policy Manual 7106.4.1 for the study roadway segments are summarized in Table 20.

Table 20. Year 2045 Background Conditions Roadway Segment Operations

Roadway	Segment	Classification ¹	Travel Lanes ²	ADT	ACHD Peak Hour Std. Volume (One-Way)	Weekday AM Peak Hour		Weekday PM Peak Hour	
						One-Way Volume/Direction	Meets Std.	One-Way Volume/Direction	Meets Std.
Deep Canyon Drive	Purple Sage to Can Ada	Local	2	270	None	20 (NB)	Yes	20 (SB)	Yes
	Can Ada to Aerie			40 (EB)		Yes	40 (WB)	Yes	
	Aerie to SH 16			2,175		75 (EB)	Yes	95 (WB)	Yes
Aerie Way	Deep Canyon to SH 16	Not constructed for this scenario. Segment is analyzed in the 2045 Background (With Select Roadway Improvements) Conditions scenario							
Lanktree Gulch Road	Can Ada to Wing	Local	2	995	None	20 (WB)	Yes	45 (EB)	Yes
Purple Sage Road	Blessinger to Can Ada	Collector	2	4,735	D / 340 (CHD4)	210 (EB)	Yes	270 (WB)	Yes
Can Ada Road	Deep Canyon to Purple Sage	Local	2	590	None	15 (NB)	Yes	45 (NB)	Yes
	Purple Sage to Lanktree Gulch	Collector		4,965	D / 425	215 (SB)	Yes	345 (NB)	Yes
	Lanktree Gulch to New Hope			6,200		280 (SB)	Yes	420 (NB)	Yes
	New Hope to Floating Feather	Minor Arterial	2	7,135	E / 575	280 (SB)	Yes	265 (SB)	Yes
Floating Feather to SH 44	9,450		280 (SB)	Yes		265 (SB)	Yes		
Wing Road	Lanktree Gulch to Beacon Light	Local	2	2,735	None	95 (SB)	Yes	165 (NB)	Yes

New Hope Road	Can Ada to Wing	Minor Arterial	2	4,610	E / 575	280 (EB)	Yes	240 (WB)	Yes
Beacon Light Road	Wing to Pollard	Minor Arterial	2	8,770	E / 575	410 (EB)	Yes	900 (WB)	No
	Pollard to SH 16			12,940		500 (EB)	Yes	870 (WB)	No
	SH 16 to Palmer			17,085		980 (EB)	No	1,380 (WB)	No
	Palmer to Linder			16,680		1,000 (EB)	No	1,270 (WB)	No
Pollard Road	Beacon Light to Floating Feather	Collector	2	6,065	D / 425	300 (NB)	Yes	685 (NB)	No
Floating Feather Road	Can Ada to Star	Not constructed for this scenario. Segment is analyzed in the 2045 Background (With Select Roadway Improvements) Conditions scenario							
	Star to Plummer	Minor Arterial	2	13,400	E / 575	520 (EB)	Yes	805 (WB)	No
	Plummer to Pollard			6,920		260 (EB)	Yes	480 (WB)	Yes
	Pollard to SH 16			4,000		295 (EB)	Yes	290 (WB)	Yes
	SH 16 to Palmer			4,365		405 (WB)	Yes	475 (WB)	Yes
Star Road	Floating Feather to SH 44	Collector	2/3	15,270	D / 425	585 (SB)	No	765 (SB)	No
	SH 44 to Joplin	Minor Arterial	2/3	20,460	E / 575	835 (SB)	No	820 (NB)	No
Plummer Road	Floating Feather to SH 44	Collector	2	14,395	D / 425	610 (SB)	Yes	485 (SB)	Yes

¹Per COMPASS 2040 Functional Street Classification Map (Reference 9)

²Travel lanes include the total number of lanes across the roadway's respective cross section

As shown in Table 20, all the roadway segments meet ACHD roadway segment LOS thresholds under 2045 background conditions weekday AM and PM peak hours except for:

- Deep Canyon Drive (Purple Sage to SH 16) – ADT
- Wing Road (Lanktree Gulch to Beacon Light) – ADT
- Beacon Light Road (Wing to Pollard) – PM Peak Hour
- Beacon Light Road (Pollard to SH 16) – PM Peak Hour
- Beacon Light Road (SH 16 to Palmer) – AM and PM Peak Hour
- Beacon Light Road (Palmer to Linder) – AM and PM Peak Hour
- Pollard Road (Beacon Light to Floating Feather) – PM Peak Hour
- Floating Feather Road (Star to Plummer) - PM Peak Hour
- Star Road (Floating Feather to SH 44) – AM and PM Peak Hour
- Star Road (SH 44 to Joplin) – AM and PM Peak Hour
- Plummer Road (Floating Feather to SH 44) – AM and PM Peak Hour

YEAR 2045 BACKGROUND CONDITIONS ROADWAY SEGMENT MITIGATION

Deep Canyon Drive (Purple Sage to SH 16)

This segment of Deep Canyon Drive exceeds the ACHD local road ADT threshold under 2045 background conditions. This segment would meet the AM and PM peak hour LOS D volume thresholds under 2045 background conditions if Deep Canyon Drive were upgraded to a collector roadway.

Due to the residential nature of Deep Canyon Drive and the significant front-on housing with driveway access, it is desired to keep Deep Canyon Drive as a local street. Constructing Aerie Way and the Wing Road extension would bring Deep Canyon Drive to within the ACHD local road ADT threshold as shown in the 2045 background (with select roadway improvements) conditions scenario.

Wing Road (Lanktree Gulch to Beacon Light)

This segment of Wing Road exceeds the ACHD local road ADT threshold under 2045 background conditions. This segment would meet the AM and PM peak hour LOS D volume thresholds under 2045

background conditions if Wing Road were upgraded to a collector roadway. Upgrading Wing Road to a collector roadway is an option as development continues in the area. This segment serves as a key connection between Beacon Light Road and planned residential areas.

Beacon Light Road (Wing to Pollard)

This segment of Beacon Light Road exceeds the ACHD LOS E volume threshold for minor arterials under 2045 background conditions in the PM peak hour. This roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe. This would bring the LOS E threshold to 720 VPH, which would still be exceeded by 2045 background traffic volumes. To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section (LOS E threshold of 1,540 VPH).

Beacon Light Road (Pollard to SH 16)

This segment of Beacon Light Road exceeds the ACHD LOS E volume threshold for minor arterials under 2045 background conditions in the PM peak hour. This roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe. This would bring the LOS E threshold to 720 VPH, which would still be exceeded by 2045 background traffic volumes. To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section (LOS E threshold of 1,540 VPH).

Beacon Light Road (SH 16 to Palmer)

This segment of Beacon Light Road exceeds the ACHD LOS E volume threshold for minor arterials under 2045 background conditions in the AM and PM peak hours. This roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe. This would bring the LOS E threshold to 720 VPH, which would still be exceeded by 2045 background traffic volumes. To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section (LOS E threshold of 1,540 VPH).

Beacon Light Road (Palmer to Linder)

This segment of Beacon Light Road exceeds the ACHD LOS E volume threshold for minor arterials under 2045 background conditions in the AM and PM peak hours. This roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe. This would bring the LOS E threshold to 720 VPH, which would still be exceeded by 2045 background traffic volumes. To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section (LOS E threshold of 1,540 VPH).

Pollard Road (Beacon Light to Floating Feather)

This segment of Pollard Road exceeds the ACHD LOS E volume threshold for minor arterials under 2045 background conditions in the PM peak hour. The roadway segment is not currently listed for widening in the ACHD CIP. To bring this segment to within standards, Pollard Road would need to be widened to a 3-lane section (LOS E threshold of 720 VPH).

Floating Feather Road (Star to Plummer)

This segment of Floating Feather Road exceeds the ACHD LOS E volume threshold for minor arterials under 2045 background conditions in the PM peak hour. The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe. This would bring the LOS E threshold to 720 VPH, which would still be exceeded by 2045 background traffic volumes. To bring this segment to within standards, Floating Feather Road would need to be widened to a 5-lane section (LOS E threshold of 1,540 VPH).

Star Road (Floating Feather to SH 44)

This segment of Star Road exceeds the ACHD LOS E volume threshold for minor arterials under 2045 background conditions in the AM and PM peak hours. The roadway segment is not currently listed for widening in the ACHD CIP. To bring this segment to within standards, this segment of Star Road would need to be widened to a 5-lane section (LOS E threshold of 1,540 VPH).

Star Road (SH 44 to Joplin)

This segment of Star Road exceeds the ACHD LOS E volume threshold for minor arterials under 2045 background conditions in the AM and PM peak hours. The roadway segment is listed in the ACHD CIP to be widened to a 5-lane section in the 2031-2035 timeframe. This would bring the LOS E threshold to 1,540 VPH, which would accommodate 2045 background conditions traffic volumes.

Plummer Road (Floating Feather to SH 44)

This segment of Plummer Road exceeds the ACHD LOS E volume threshold for minor arterials under 2045 background conditions in the PM peak hour. The roadway segment is not currently listed for widening in the ACHD CIP. To bring this segment to within standards, Plummer Road would need to be widened to a 3-lane section (LOS E threshold of 720 VPH).

YEAR 2045 BACKGROUND (WITH SELECT ROADWAY IMPROVEMENTS) TRAFFIC CONDITIONS

The year 2045 background (with select roadway improvements) traffic analysis identifies how the study area's transportation system will operate in the future year without the proposed Willow Brook Golf Community in place, but with select roadway improvements constructed. This analysis includes traffic attributed to planned developments within the study area and to general growth in the region but does not include traffic from the proposed development.

YEAR 2045 BACKGROUND (WITH SELECT ROADWAY IMPROVEMENTS) TRAFFIC VOLUMES

Year 2045 background (with select roadway improvements) traffic volumes reflect existing traffic counts plus 23 years of general growth as described in Table 7 of the background growth section. These volumes represent background traffic during the year when the Willow Brook Golf Community is expected to be completed but does not include the site generated traffic. This scenario includes the following roadway improvements:

- Floating Feather Road constructed between Munger Road and Can Ada Road
- Floating Feather Road realignment constructed between Pollard Road and Palmer Lane
- Wing Road constructed between Beacon Light Road and Lanktree Gulch Road
- Aerie Way constructed between SH 16 and Deep Canyon Drive

Background traffic volumes were adjusted to account for the change in travel patterns with the new connections in place.

Per the ACHD Policy Manual, intersections with an existing peak hour factor of less than 0.90 were adjusted to 0.90 in the future year analysis to account for the likely increase in traffic throughout the entire peak hour in the future.

YEAR 2045 BACKGROUND (WITH SELECT ROADWAY IMPROVEMENTS) INTERSECTION OPERATIONS

Table 21 presents the traffic operations results for each study intersection and its lane groups under year 2045 background (with select roadway improvements) conditions during the weekday AM and PM peak hours. Figures 8A and 8B present the lane configurations; traffic control devices and the weekday AM and PM 2045 background (with select roadway improvements) traffic volumes at each of the study intersections. Appendix N includes the year 2045 background (with select roadway improvements) conditions Synchro worksheets.

Table 21. Year 2045 Background (with Select Roadway Improvements) Intersection Operations

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
1	Purple Sage Road & Can Ada Road	TWSC	-	-	-	NBL	0.06	A	7.4	0.18	A	7.7
						EBLR	0.22	A	9.3	0.19	A	9.6
2	Deep Canyon Drive & Aerie Way	TWSC	-	-	-	EBL	0.01	A	7.3	0.01	A	7.3
						SBLR	0.01	A	8.6	0.02	A	8.5
3A	Aerie Way & SH 16 West Rdbt	Roundabout	0.20/ 0.12	A/ A	3.6/ 3.1	NBLTR	0.07	A	2.9	0.12	A	3.2
						WBLTR	0.20	A	3.7	0.08	A	3.0
						SBLTR	0.01	A	4.1	0.01	A	3.1
						EBLTR	0.02	A	4.3	0.03	A	3.2
3B	Aerie Way & SH 16 East Rdbt	Roundabout	0.39/ 0.61	A/ A	2.0/ 1.8	NBL	0.01	A	2.9	0.05	A	3.5
						NBR	0.39	A	0.0	0.61	A	0.0
						WBLT	0.22	A	3.8	0.19	A	3.9
						EBTR	0.08	A	3.4	0.15	A	4.7
3C	Aerie Way & SH 16 SB Ramp	Free										
3D	Aerie Way & SH 16 NB Ramp	TWSC	-	-	-	WBR	0.09	B	10.5	0.66	D	30.6
4	Deep Canyon Drive & SH 16	TWSC	-	-	-	NBL	0.04	B	11.3	0.07	A	9.2
						EBLR	0.23	D	26.4	0.12	C	17.9
5	Lanktree Gulch Road & Can Ada Road	TWSC	-	-	-	WBLR	0.02	B	10.5	0.06	B	11.7
						SBL	0.01	A	7.4	0.01	A	8.0
6	Lanktree Gulch Road & Wing Road	TWSC	-	-	-	NBLR	0.02	A	8.7	0.06	A	9.1
						WBL	0.01	A	7.3	0.02	A	7.4
7	New Hope Road & Can Ada Road	AWSC	-	A/ B	9.6/ 10.2	NBLTR	0.18	A	8.9	0.30	A	9.9
						EBLTR	0.11	A	8.6	0.06	A	8.7
						WBLTR	0.12	A	9.7	0.32	B	10.5
						SBLTR	0.36	B	10.1	0.34	B	10.5
8		TWSC	-	-	-	NBT	0.01	A	7.6	0.11	A	9.4

	Beacon Light Road & Wing Road					SBLT	0.03	A	9.1	0.12	B	13.2
9	Beacon Light Road & Pollard Road	TWSC	-	-	-	NBLTR	0.47	C	19.7	>1.50	F	>300.0
						EBL	0.01	A	7.7	0.01	A	9.4
						WBL	0.04	A	8.5	0.14	A	8.2
						SBLTR	0.85	F	70.5	>1.50	F	>300.0
10	Beacon Light Road & SH 16	Traffic Signal	1.06/ 1.20	E/ F	70.7/ 129.8	EBL	0.10	D	51.2	0.68	E	61.5
						EBT	0.97	F	107.3	0.36	D	51.6
						EBR	1.11	F	153.4	0.43	D	52.8
						WBL	1.14	F	180.9	0.50	D	41.3
						WBT	0.38	D	54.5	1.08	F	121.6
						WBR	0.39	D	54.5	>1.50	F	>300.0
						NBL	0.89	F	90.4	0.50	C	26.7
						NBT	0.43	C	25.5	1.20	F	141.7
						NBR	0.27	C	23.0	0.14	C	23.6
						SBL	0.54	B	17.7	0.96	F	112.0
						SBT	1.01	F	64.6	0.67	D	37.9
SBR	0.01	B	15.5	0.07	C	25.7						
11	Beacon Light Road & Palmer Lane	TWSC	-	-	-	NBLR	0.46	E	45.7	1.43	F	316.3
						WBL	0.04	B	10.8	0.01	A	8.2
12	Floating Feather Road & Can Ada Road	TWSC	-	-	-	WBLR	0.04	B	12.3	0.11	B	11.9
						SBL	0.03	A	7.7	0.02	A	7.8
13	Floating Feather Road & Star Road	TWSC	-	-	-	NBL	0.67	F	62.9	>1.50	F	>300.0
						NBR	0.22	B	11.5	0.23	B	10.8
						WBL	0.31	A	9.7	0.52	B	11.1
14	Floating Feather Road & Plummer Road	TWSC	-	-	-	NBLR	0.31	C	15.0	>1.50	F	>300.0
						WBL	0.04	A	8.8	0.09	A	8.6
15	Floating Feather Road & Pollard Road	TWSC	-	-	-	EBL	0.17	A	8.1	0.19	A	8.6
						SBL	0.57	C	23.3	0.64	C	20.8
16	Floating Feather Road & Palmer Lane	TWSC	-	-	-	NBL	0.30	A	8.5	0.32	A	8.3
						EBLR	0.37	B	12.4	0.10	A	9.9
17	SH 44 & Can Ada Road	TWSC	-	-	-	EBL	0.11	A	9.6	0.19	B	14.2
						SBLR	>1.50	F	>300.0	>1.50	F	>300.0
18	SH 44 & Star Road	Traffic Signal	1.17/1.25	E/F	69.0/95.1	EBL	0.25	C	22.0	1.23	F	192.5
						EBT	1.04	F	80.9	0.81	D	44.3
						EBR	0.59	C	32.4	0.55	C	33.1
						WBL	1.04	F	117.9	0.84	D	52.7

						WBT	0.61	C	28.7	1.14	F	115.4
						WBR	0.14	C	21.5	0.16	C	23.3
						NBL	1.11	F	125.3	1.23	F	171.6
						NBT	0.37	D	37.7	0.62	D	47.6
						NBR	0.41	D	38.3	0.29	D	41.5
						SBL	0.51	D	36.4	0.42	D	46.9
						SBTR	1.11	F	126.1	1.23	F	189.6
19	SH 44 & Plummer Road	Traffic Signal	1.25/ 1.31	F/ F	110.1/ 119.4	EBL	0.11	C	22.1	0.69	D	52.4
						EBT	1.25	F	158.5	0.80	C	32.6
						EBR	0.05	B	19.7	0.07	B	16.1
						WBL	0.59	D	38.4	0.46	C	26.4
						WBT	0.66	C	29.9	1.31	F	181.1
						WBR	0.15	C	20.4	0.35	B	19.3
						NBL	0.08	C	30.0	0.28	D	40.1
						NBT	0.02	C	29.2	0.21	D	38.6
						NBR	0.15	C	30.8	0.35	D	40.6
						SBLTR	1.19	F	151.5	1.40	F	254.9

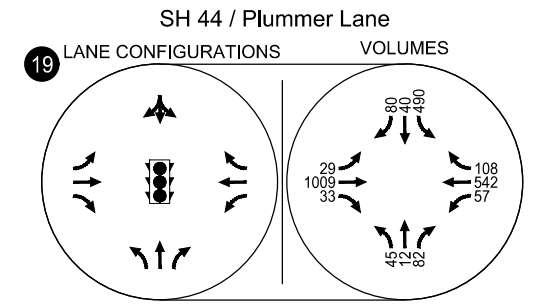
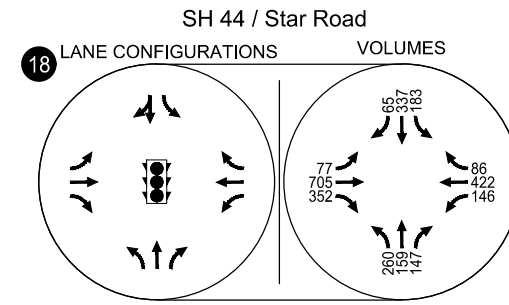
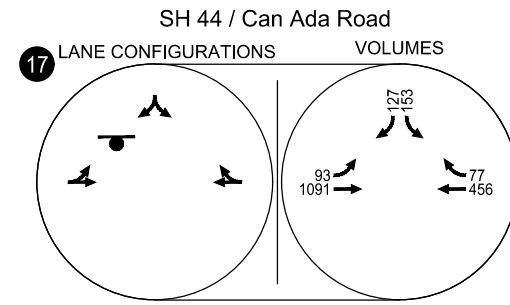
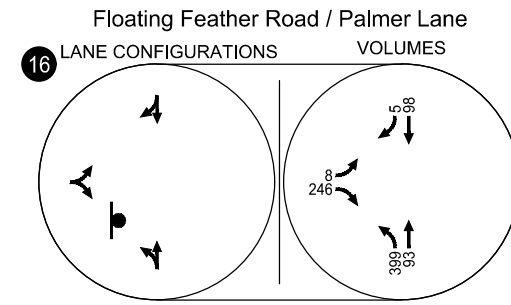
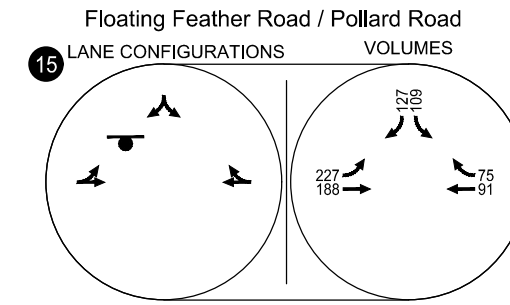
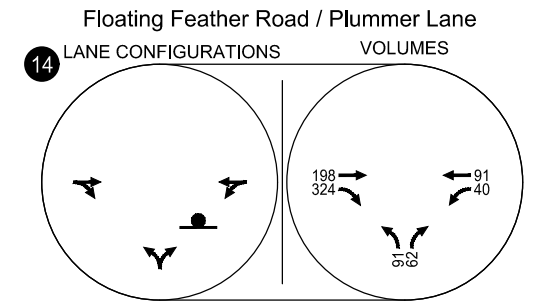
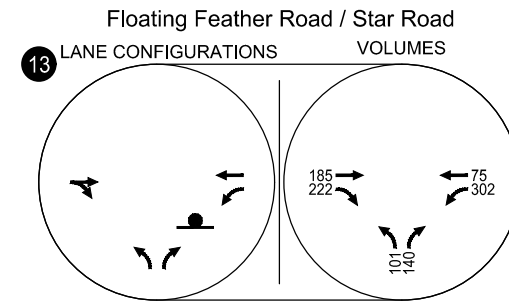
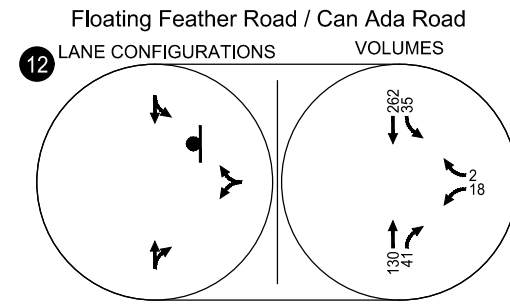
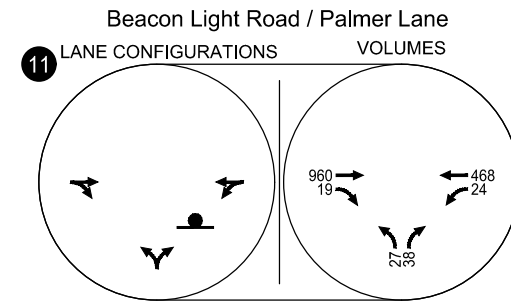
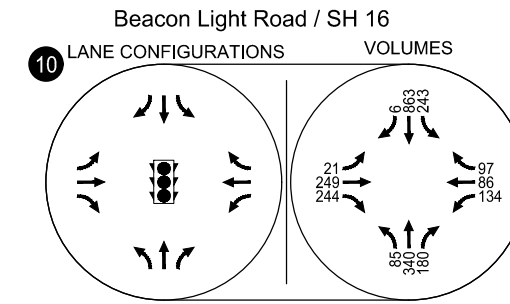
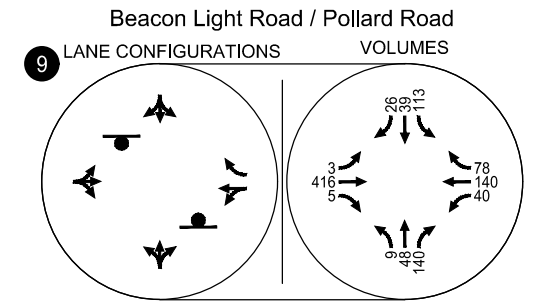
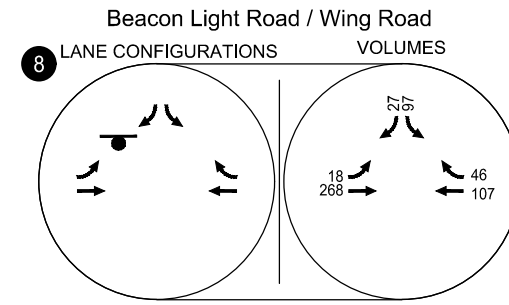
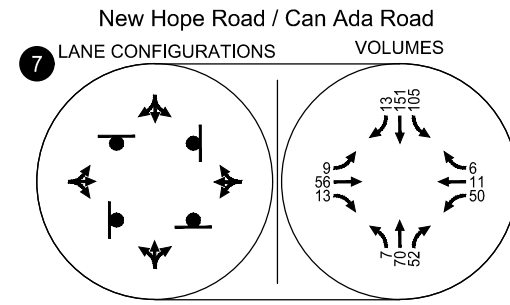
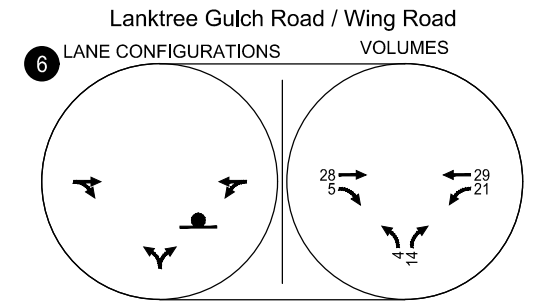
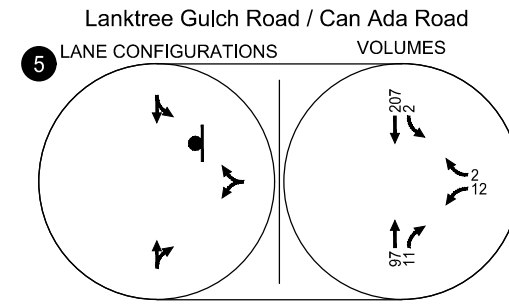
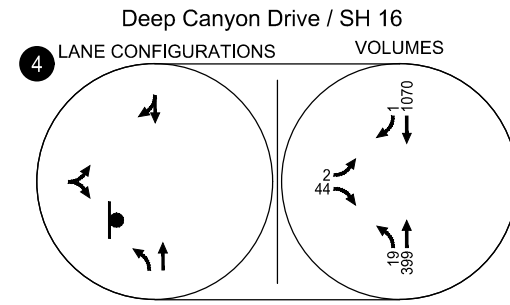
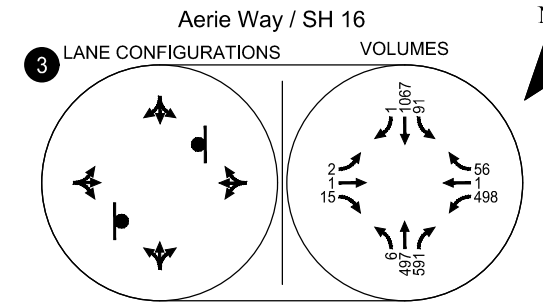
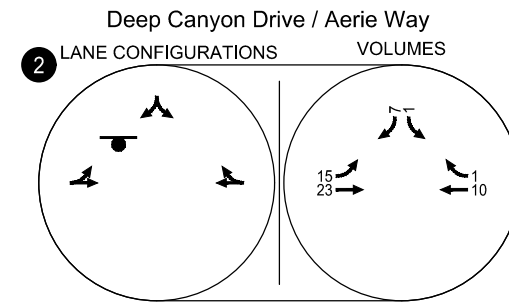
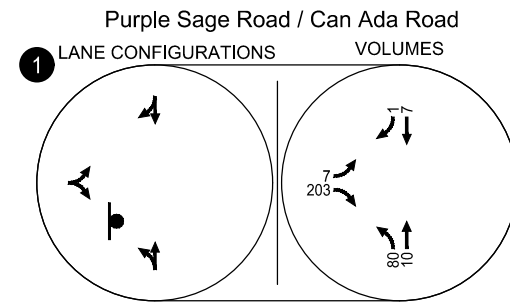
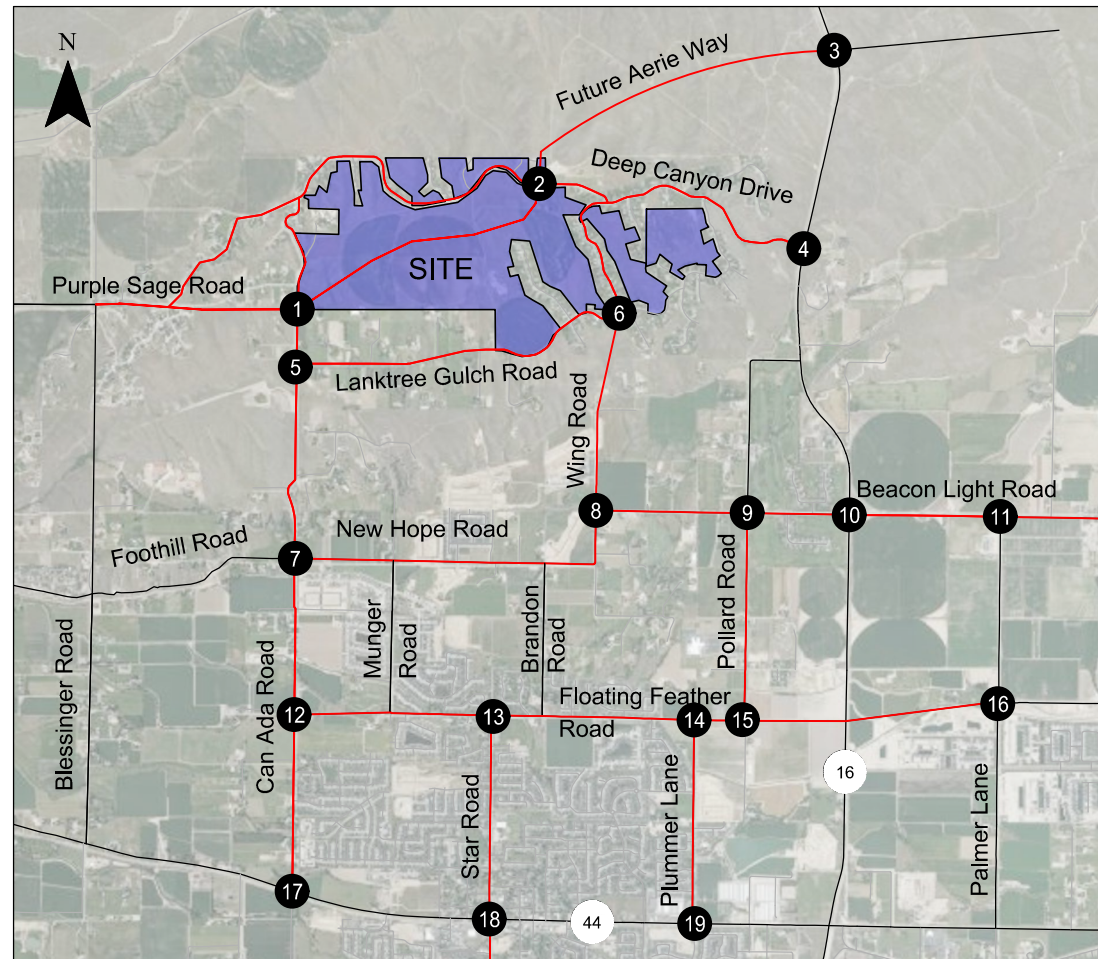
V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and highlighted indicate an intersection and/or lane group operating below the jurisdictional standards.

As Table 21 shows, all study intersections operate *acceptably* during the year 2045 background (with select roadway improvements) weekday AM and PM peak hours except for:

9. Beacon Light Road & Pollard Road
10. Beacon Light Road & SH 16
11. Beacon Light Road & Palmer Lane
13. Floating Feather Road & Star Road
14. Floating Feather Road & Plummer Road
17. SH 44 & Can Ada Road
18. SH 44 & Star Road
19. SH 44 & Plummer Road

The following intersections operate *acceptably* during year 2045 background conditions but have one or more lane groups operating at LOS D or worse and require a signal warrant analysis:

4. Deep Canyon Drive & SH 16

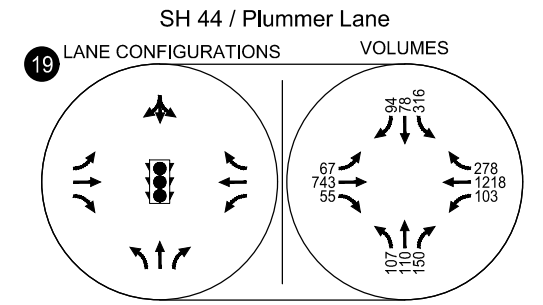
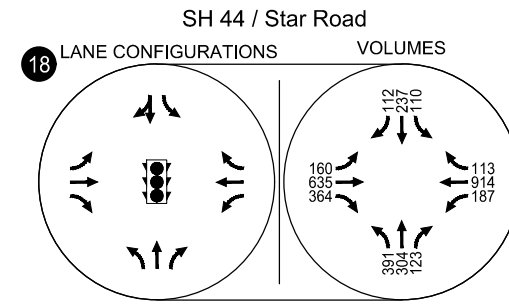
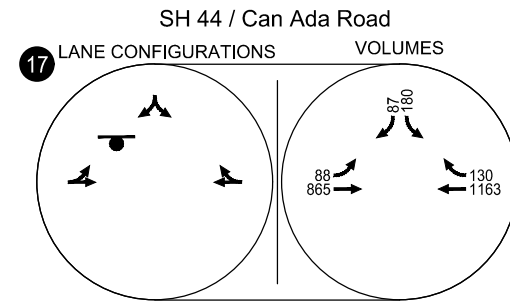
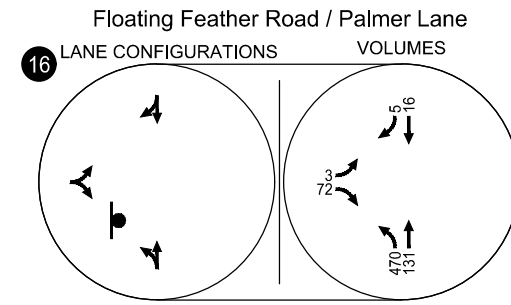
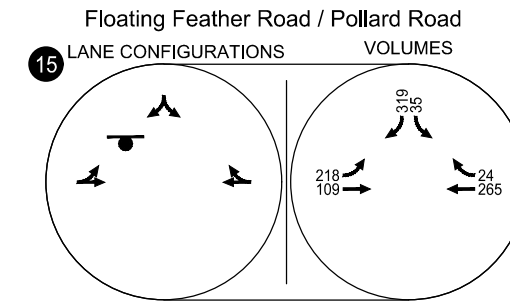
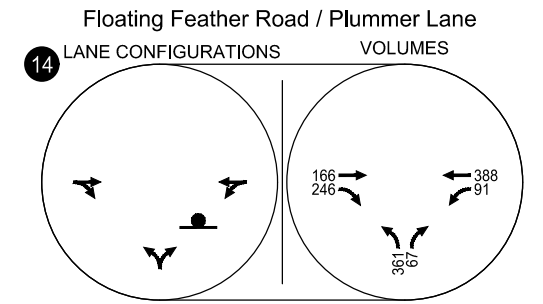
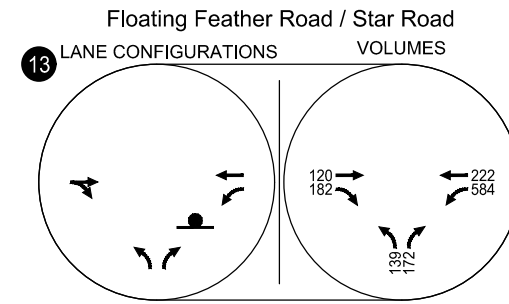
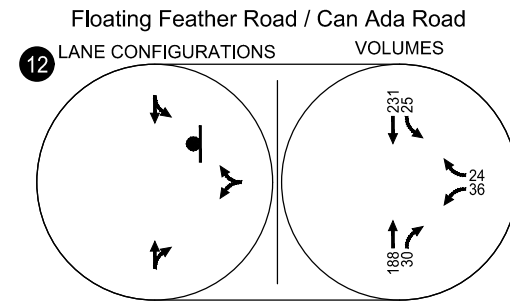
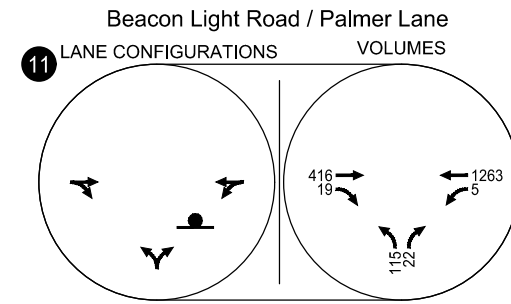
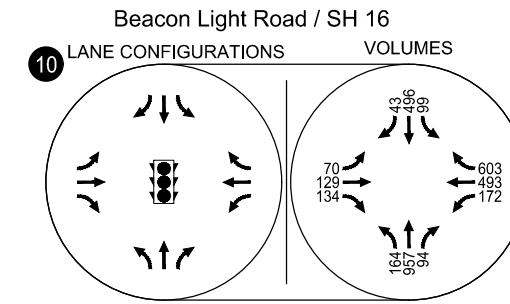
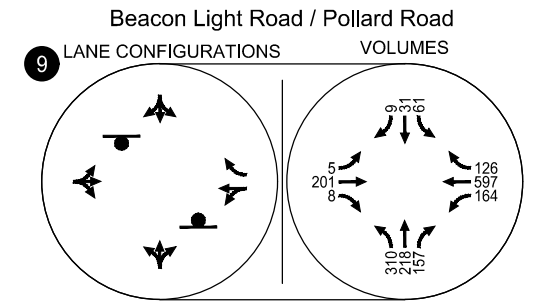
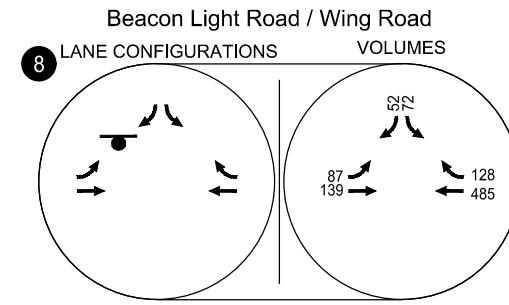
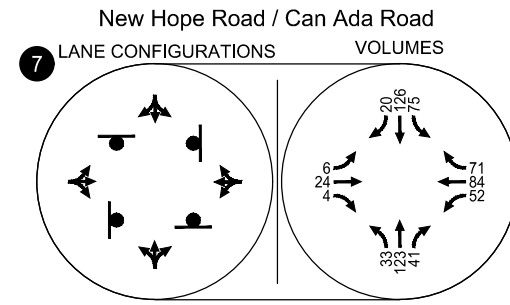
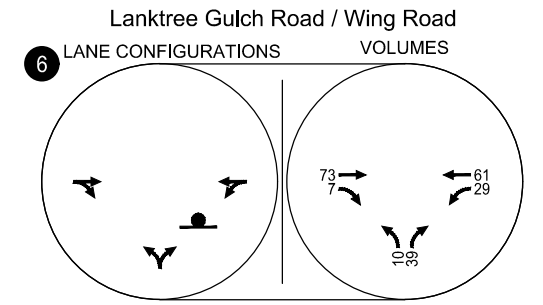
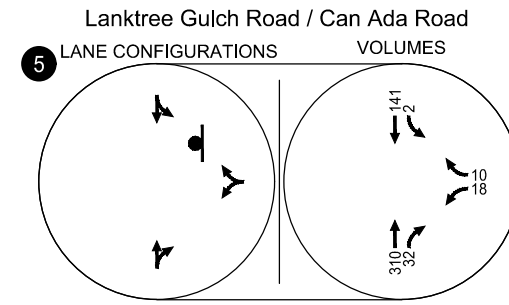
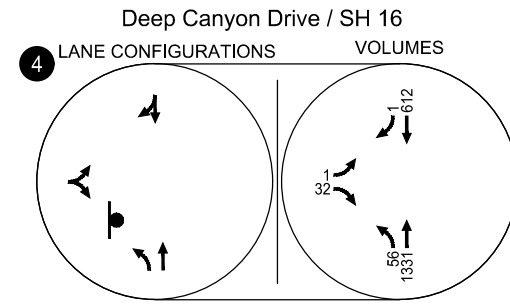
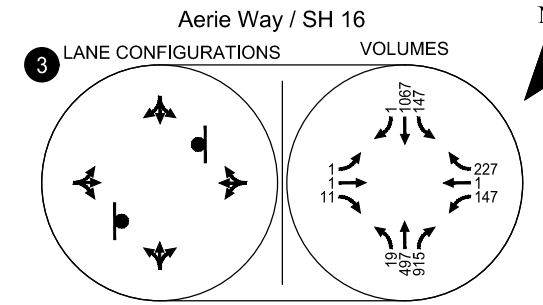
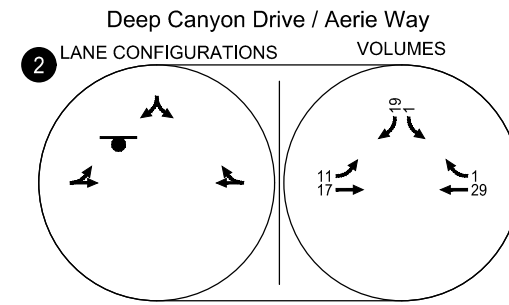
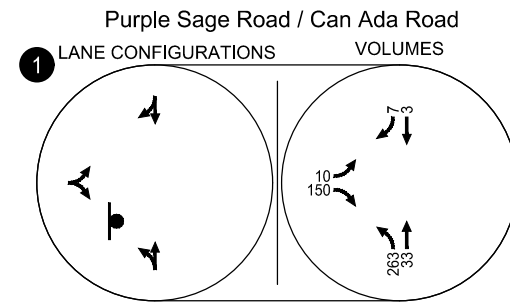
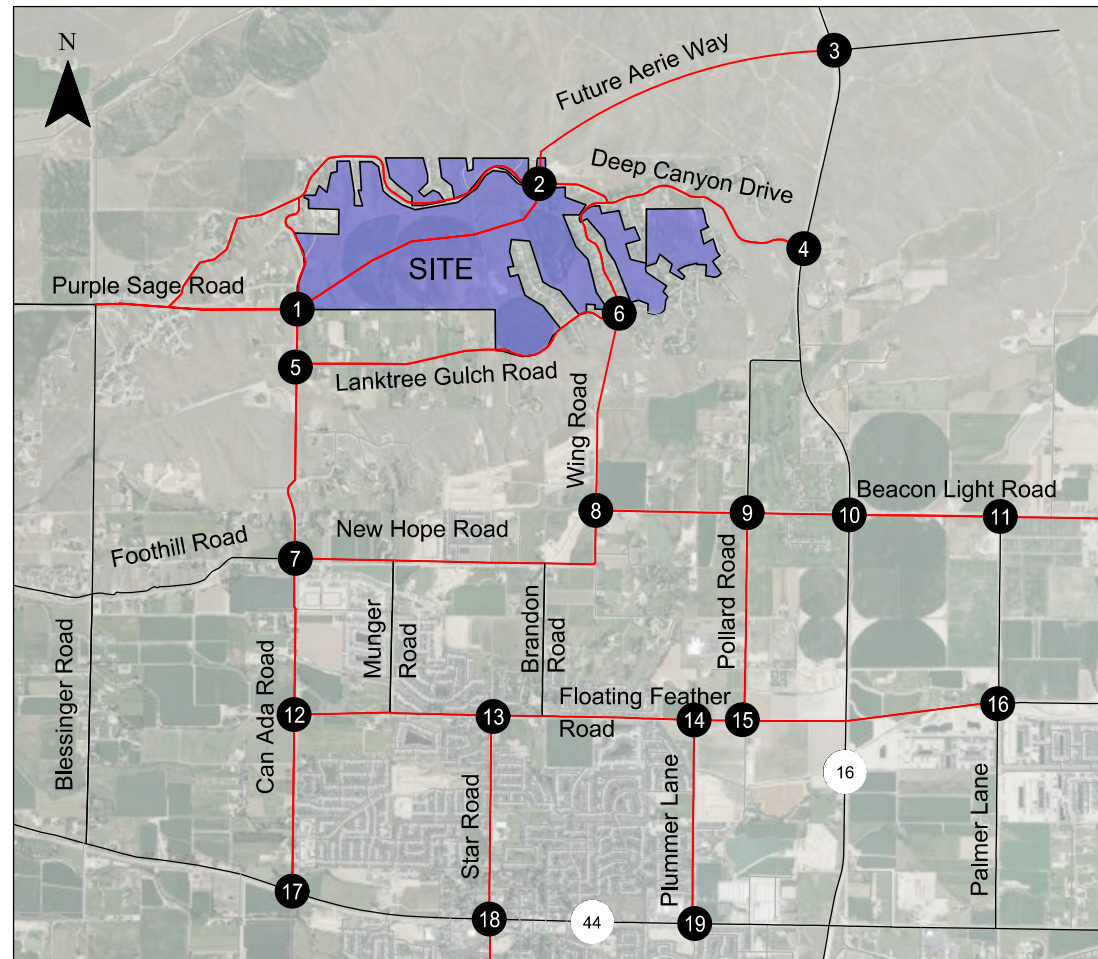


- STOP SIGN
 - TRAFFIC SIGNAL

Year 2045 Background (with Select Roadway Improvements) Traffic Volumes
 Weekday AM Peak Hour
 Ada County, Idaho

Figure 8A

H:\25\25407 - Willow Brook Community TIS\report\figs\25407_fig8a.dwg Jan 24, 2023 - 11:11am - smaitisch Layout Tab: Fig8A_2045BG_B_AM



- STOP SIGN
 - TRAFFIC SIGNAL

Year 2045 Background (with Select Roadway Improvements) Traffic Volumes
 Weekday PM Peak Hour
 Ada County, Idaho

Figure 8B

H:\25\25407 - Willow Brook Community TIS\report\figs\25407_fig8b.dwg Jan 24, 2023 - 11:11am - smaitisch Layout Tab: Fig8B_2045BG_B_PM

YEAR 2045 BACKGROUND (WITH SELECT ROADWAY IMPROVEMENTS) CONDITIONS MITIGATION

This section highlights the mitigations needed to address each of the intersections not meeting traffic operation standards under the year 2045 background (with select roadway improvements) traffic conditions. Appendix O contains the year 2045 mitigated background (with select roadway improvements) traffic operational worksheets including findings from the signal warrant analysis.

Deep Canyon Drive & SH 16

The Deep Canyon Drive / SH 16 intersection operates acceptably under 2045 background (with select roadway improvements) conditions during the weekday AM and PM peak hour, however the critical movement at the intersection is operating at LOS D in the weekday AM peak hour. ACHD policy requires an evaluation of traffic signal warrants if the critical movement at an unsignalized intersection operates at LOS D or worse. The intersection does not meet the peak hour, 4-hour, or 8-hour traffic signal volume warrants under 2045 background (with select roadway improvements) conditions.

Beacon Light Road & Pollard Road

The minor street approaches of the Beacon Light Road / Pollard Road intersection operate over capacity and at LOS F under 2045 background (with select roadway improvements) conditions during the weekday PM peak hour. The intersection meets the 8-hour, 4-hour, and peak hour traffic signal volume warrants under 2045 background (with select roadway improvements) conditions. The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040. This identified improvement does not bring the intersection to within ACHD standards in this scenario. A multi-lane roundabout with two lanes in the eastbound and westbound direction is required to bring the intersection within standards. Table 22 shows how the intersection of Beacon Light Road / Pollard Road operates as a multi-lane roundabout or a traffic signal with left turn lanes and a westbound right turn lane under 2045 background (with select roadway improvements) conditions.

Table 22 Beacon Light Road / Pollard Road Intersection Mitigation Operations – 2045 Background (with select roadway improvements) Conditions

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
9	Beacon Light Road / Pollard Road	Multi-Lane Roundabout	0.31/ 0.75	A/ B	5.4/ 13.6	NBLTR	0.31	A	8.7	0.75	C	16.5
						WBLTR	0.11	A	3.7	0.60	B	13.7
						SBLTR	0.18	A	4.9	0.28	B	13.5
						EBLTR	0.21	A	5.1	0.11	A	4.3
		Traffic Signal	0.60/ 0.89	B/ C	17.4/ 26.6	EBL	0.01	B	11.2	0.04	B	18.4
						EBTR	0.82	C	20.2	0.38	B	18.9
						WBL	0.15	B	11.9	0.34	B	13.3
						WBT	0.25	B	11.2	0.88	C	27.5
						WBR	0.16	B	10.7	0.22	B	13.8
						NBL	0.02	B	16.1	0.61	C	22.3
						NBTR	0.72	C	22.4	0.90	D	44.1
						SBL	0.35	B	14.8	0.31	C	23.2
						SBTR	0.17	B	14.6	0.12	C	24.1

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and **highlighted** indicate an intersection and/or lane group operating below the jurisdictional standards.

As shown in Table 22, the intersection operates within ACHD standards as a multi-lane roundabout or a traffic signal with left turn lanes and a westbound right turn lane under 2045 background (with select roadway improvements) conditions.

Beacon Light Road & SH 16

The intersection of Beacon Light Road / SH 16 is projected to operate over capacity and at LOS E under 2045 background (with select roadway improvements) conditions during the weekday AM and PM peak hour. In addition, several movements/lane groups are projected to operate over capacity and at LOS F during the weekday AM and PM peak hours. The Spring Valley development was conditioned with improvements to this intersection. Table 23 shows how the intersection of Beacon Light Road / SH 16 operates as with the northbound and southbound approaches widened to two through lanes and a westbound right turn overlap phase added under 2045 background (with select roadway improvements) conditions.

Table 23. Beacon Light Rd / SH 16 Intersection Mitigation Operations – 2045 Background (with select roadway improvements) Conditions

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
10	Beacon Light Road & SH 16	Traffic Signal	0.77/ 0.86	D/ D	34.7/ 40.0	EBL	0.06	C	31.5	0.35	C	28.7
						EBT	0.74	D	42.4	0.21	C	29.3
						EBR	0.85	D	50.5	0.26	C	29.9
						WBL	0.60	C	33.4	0.34	C	22.8
						WBT	0.27	C	31.2	0.72	D	36.3
						WBR	0.28	C	31.3	0.90	D	47.5
						NBL	0.43	C	27.3	0.48	C	29.3
						NBT	0.39	C	31.2	0.89	D	49.2
						NBR	0.47	C	33.0	0.20	C	31.2
						SBL	0.60	C	22.4	0.57	D	35.6
						SBT	0.81	D	35.0	0.50	D	36.8
SBR	0.01	C	21.9	0.10	C	32.0						

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and **highlighted** indicate an intersection and/or lane group operating below the jurisdictional standards.

As shown in Table 23, the intersection operates within ACHD and ITD standards with the northbound and southbound approaches widened to two through lanes and a westbound right turn overlap phase added under 2045 background (with select roadway improvements) conditions.

Beacon Light Road & Palmer Lane

The minor street approach of the Beacon Light Road / Palmer Lane intersection operates over capacity and at LOS F under 2045 background (with select roadway improvements) conditions during the weekday PM peak hour. The intersection meets the 8-hour, 4-hour, and peak hour traffic signal volume warrants under 2045 background (with select roadway improvements) conditions. The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040. Due to the high eastbound and westbound volumes, the intersection does not operate within standards as a single lane roundabout or a traffic signal with turn lanes. In order to meet standards, Beacon Light Road would need to be widened to two through lanes at the intersection. Table 24 shows how the intersection of Beacon Light Road / Palmer Lane operates as a multi-lane roundabout or a traffic signal with turn lanes and the eastbound and westbound approaches widened to two through lanes under 2045 background (with select roadway improvements) conditions.

Table 24 Beacon Light Road / Palmer Lane Intersection Mitigation Operations – 2045 Background (with select roadway improvements) Conditions

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
11	Beacon Light Road / Palmer Lane	Multi-Lane Roundabout	0.40/ 0.53	A/ A	5.8/ 7.4	NBLR	0.17	B	11.0	0.17	A	6.0
						WBLT	0.20	A	4.2	0.53	A	8.7
						EBLR	0.40	A	6.3	0.16	A	3.9
		Traffic Signal	0.53/ 0.66	A/ A	6.9/ 6.0	EBT	0.68	A	8.2	0.29	A	6.0
						WBR	0.03	A	5.4	0.03	A	5.2
						WBL	0.07	A	5.6	0.01	A	4.3
						WBT	0.25	A	3.2	0.66	A	5.1
						NBL	0.13	B	14.3	0.50	B	15.0
						NBR	0.23	B	14.8	0.10	B	12.8

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and highlighted indicate an intersection and/or lane group operating below the jurisdictional standards.

As shown in Table 24, the intersection operates within ACHD standards as a multi-lane roundabout or a traffic signal with turn lanes and the eastbound and westbound approaches widened to two through lanes under 2045 background (with select roadway improvements) conditions.

Floating Feather Road & Star Road

The minor street approach of the Floating Feather Road / Star Road intersection operates over capacity and at LOS F under 2045 background (with select roadway improvements) conditions during the weekday AM and PM peak hour. The intersection meets the 8-hour, 4-hour, and peak hour traffic signal volume warrants under 2045 background (with select roadway improvements) conditions. The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040. Table 25 shows how the intersection of Floating Feather Road / Star Road operates as a single-lane roundabout or a traffic signal with turn lanes under 2045 background (with select roadway improvements) conditions.

Table 25 Floating Feather Road / Star Road Intersection Mitigation Operations – 2045 Background (with select roadway improvements) Conditions

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
13	Floating Feather Road / Star Road	Single Lane Roundabout	0.48/ 0.76	A/ B	7.5/ 12.8	NBLR	0.25	A	5.6	0.28	A	5.6
						WBTR	0.35	A	6.5	0.76	C	15.9
						EBLT	0.48	A	9.6	0.47	B	12.0
		Traffic Signal	0.53/ 0.78	B/ B	10.8/ 13.0	EBT	0.47	B	11.9	0.39	B	16.9
						EBR	0.66	B	13.7	0.70	C	20.4
						EBL	0.51	A	6.8	0.75	A	9.9
						EBT	0.08	A	3.4	0.22	A	3.8
						NBL	0.39	B	13.6	0.50	B	18.3
						NBR	0.60	B	15.5	0.70	C	20.9

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and highlighted indicate an intersection and/or lane group operating below the jurisdictional standards.

As shown in Table 25, the intersection operates within ACHD standards as a single lane roundabout or a traffic signal with turn lanes under 2045 background (with select roadway improvements) conditions.

Floating Feather Road & Plummer Road

The minor street approach of the Floating Feather Road / Plummer Road intersection operates over capacity and at LOS F under 2045 background (with select roadway improvements) conditions during the weekday PM peak hour. The intersection meets the 8-hour, 4-hour, and peak hour traffic signal volume warrants under 2045 background (with select roadway improvements) conditions. The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040. Table 26 shows how the intersection of Floating Feather Road / Plummer Road operates as a single-lane roundabout or a traffic signal with turn lanes under 2045 background (with select roadway improvements) conditions.

Table 26 Floating Feather Road / Plummer Road Intersection Mitigation Operations – 2045 Background (with select roadway improvements) Conditions

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
14	Floating Feather Road / Plummer Road	Single Lane Roundabout	0.43/ 0.58	A/ A	6.1/ 8.8	NBLR	0.15	A	4.7	0.42	A	7.5
						WBTL	0.12	A	4.1	0.58	B	12.1
						EBTR	0.43	A	7.0	0.37	A	6.4
		Traffic Signal	0.32/ 0.69	A/ B	9.0/ 11.6	EBT	0.37	A	8.0	0.40	B	12.1
						EBR	0.70	B	10.5	0.70	B	14.9
						WBL	0.08	A	5.2	0.20	A	7.8
						WBT	0.11	A	3.5	0.52	A	7.6
						NBL	0.35	B	11.7	0.79	B	14.8
						NBR	0.26	B	11.3	0.16	A	9.9

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and highlighted indicate an intersection and/or lane group operating below the jurisdictional standards.

As shown in Table 26, the intersection operates within ACHD standards as a single lane roundabout or a traffic signal with turn lanes under 2045 background (with select roadway improvements) conditions.

SH 44 & Can Ada Road

The minor street approach of the SH 44 / Can Ada Road intersection operates over capacity and at LOS F under 2045 background (with select roadway improvements) conditions during the weekday AM and PM peak hour. The intersection meets the 4-hour and peak hour traffic signal volume warrants under existing conditions and meets the 8-hour traffic signal volume warrant under 2045 background (with select roadway improvements) conditions. This intersection is in the Mid-Star CIP as a future traffic signal to be constructed by 2025. ITD's SH 44 Corridor Plan shows this intersection as a future RCUT with SH 44 widened to 4 lanes. The City of Star is leading a project that will widen SH 44 to the east of Can Ada Road in 2023, which will not improve operations on the southbound approach of Can Ada Road. Table 27 shows how the intersection operates as a traffic signal with the eastbound and westbound approaches widened to two through lanes and with turn lanes or as an RCUT with SH 44 widened to 4 lanes under 2045 background (with select roadway improvements) conditions.

Table 27 SH 44 / Can Ada Rd Intersection Mitigation Operations – 2045 Background (with select roadway improvements) Conditions

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
17	SH 44 & Can Ada Road	Traffic Signal	0.65/ 0.71	A/ A	7.5/ 9.7	EBL	0.14	A	5.4	0.19	A	7.7
						EBT	0.63	A	5.4	0.43	A	4.3
						WBT	0.42	A	8.5	0.78	B	11.8
						WBR	0.10	A	7.4	0.13	A	6.7
						SBL	0.54	B	13.8	0.68	C	20.2

					SBR	0.56	B	14.4	0.40	B	17.6
					EBL	0.10	A	9.0	0.19	B	14.0
		RCUT	-	-	SBR	0.39	B	12.8	0.66	D	27.9

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and **highlighted** indicate an intersection and/or lane group operating below the jurisdictional standards.

As shown in Table 27, the intersection operates within ACHD and ITD standards as a traffic signal with the eastbound and westbound approaches widened to two through lanes and with turn lanes or as an RCUT with SH 44 widened to 4 lanes under 2045 background (with select roadway improvements) conditions.

SH 44 & Star Road

The intersection of SH 44 / Star Road operates over capacity and at LOS F under 2045 background (with select roadway improvements) conditions during the weekday AM and PM peak hour. Additionally, several lane groups are over capacity and at LOS F during the AM and PM peak hours. This intersection is in the ACHD CIP to have the signal replaced/modified and approaches widened. The lane configuration identified in the CIP does not fully mitigate the intersection in this scenario. Table 28 shows how the intersection operates as a traffic signal with left and right turn lanes, two through lanes in the eastbound and westbound direction, and dual left turn lanes in the northbound direction under 2045 background (with select roadway improvements) conditions.

Table 28. SH 44 / Star Rd Intersection Mitigation Operations – 2045 Background (with select roadway improvements) Conditions

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
18	SH 44 & Star Road	Traffic Signal	0.73/ 0.77	C/ C	26.0/ 29.4	EBL	0.21	B	16.1	0.70	C	28.8
						EBT	0.70	C	26.6	0.47	C	22.6
						EBR	0.76	C	34.0	0.45	A	5.7
						WBL	0.60	C	20.7	0.65	D	37.1
						WBT	0.41	B	19.9	0.74	C	28.6
						WBR	0.18	B	18.2	0.20	C	21.3
						NBL	0.58	C	23.5	0.85	D	48.4
						NBT	0.41	C	25.3	0.74	D	36.3
						NBR	0.47	C	25.8	0.35	B	19.4
						SBL	0.52	C	23.9	0.43	C	32.1
						SBT	0.86	C	34.9	0.85	D	45.1
SBR	0.20	C	23.8	0.47	D	38.1						

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and **highlighted** indicate an intersection and/or lane group operating below the jurisdictional standards.

As shown in Table 28, the intersection operates within ACHD and ITD standards with the eastbound and westbound approaches widened to two through lanes and dual northbound left turn lanes under 2045 background (with select roadway improvements) conditions.

SH 44 & Plummer Road

The intersection of SH 44 / Plummer Road operates over capacity and at LOS F under 2045 background (with select roadway improvements) conditions during the weekday AM and PM peak hours. This intersection is not currently programmed for improvements by ACHD. ITD's draft SH 44 Corridor Plan shows this intersection as signalized with SH 44 widened to 4 lanes. The lane configuration shown in the Corridor Plan does not fully mitigate the intersection. Table 29 shows how the intersection operates as an expanded

traffic signal with left and right turn lanes, two through lanes in the eastbound and westbound direction, and dual left turn lanes in the southbound direction under 2045 background (with select roadway improvements) conditions.

Table 29. SH 44 / Plummer Rd Intersection Mitigation Operations – 2045 Background (with select roadway improvements) Conditions

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
19	SH 44 & Plummer Road	Traffic Signal	0.79/ 0.73	B/ C	16.1/ 22.9	EBL	0.07	A	8.8	0.32	B	16.4
						EBT	0.80	B	16.4	0.52	B	15.8
						EBR	0.06	A	9.6	0.09	B	12.5
						WBL	0.20	B	10.6	0.29	B	11.9
						WBT	0.41	B	10.7	0.84	C	22.5
						WBR	0.18	A	9.5	0.43	B	14.8
						NBL	0.14	B	19.5	0.29	C	25.7
						NBT	0.07	C	21.3	0.47	C	31.7
						NBR	0.58	C	25.8	0.77	D	37.6
						SBL	0.62	C	21.2	0.80	D	41.7
						SBT	0.16	B	19.4	0.24	C	26.6
SBR	0.37	C	20.8	0.35	C	27.5						

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and highlighted indicate an intersection and/or lane group operating below the jurisdictional standards.

As shown in Table 29, the intersection operates within ACHD and ITD standards with the eastbound and westbound approaches widened to two through lanes and dual southbound left turn lanes under 2045 background (with select roadway improvements) conditions.

YEAR 2045 BACKGROUND (WITH SELECT ROADWAY IMPROVEMENTS) CONDITIONS ROADWAY SEGMENT ANALYSIS

Peak hour roadway segment volumes were based on the traffic count data collected at the study intersections. The peak hour, peak direction roadway segment volumes, and resultant LOS per ACHD Policy Manual 7106.4.1 for the study roadway segments are summarized in Table 30.

Table 30. Year 2045 Background (With Select Roadway Improvements) Conditions Roadway Segment Operations

Roadway	Segment	Classification	Travel Lanes ²	ADT	ACHD Peak Hour Std. Volume (One-Way)	Weekday AM Peak Hour		Weekday PM Peak Hour	
						One-Way Volume/Direction	Meets Std.	One-Way Volume/Direction	Meets Std.
Deep Canyon Drive	Purple Sage to Can Ada	Local	2	270	None	20 (NB)	Yes	20 (SB)	Yes
	Can Ada to Aerie			545		40 (EB)	Yes	40 (WB)	Yes
	Aerie to SH 16			1,260		45 (EB)	Yes	55 (WB)	Yes

Aerie Way	Deep Canyon to SH 16	Minor Arterial	2	200	E / 575	20 (EB)	Yes	20 (WB)	Yes
Lanktree Gulch Road	Can Ada to Wing	Local	2	775	None	15 (WB)	Yes	35 (EB)	Yes
Purple Sage Road	Blessinger to Can Ada	Collector	2	4,735	D / 340 (CHD4)	210 (EB)	Yes	270 (WB)	Yes
Can Ada Road	Deep Canyon to Purple Sage	Local	2	590	None	15 (NB)	Yes	45 (NB)	Yes
	Purple Sage to Lanktree Gulch	Collector		4,965	D / 425	215 (SB)	Yes	345 (NB)	Yes
	Lanktree Gulch to New Hope		5,905	270 (SB)		Yes	400 (NB)	Yes	
	New Hope to Floating Feather	Minor Arterial	2	6,865	E / 575	295 (SB)	Yes	255 (SB)	Yes
	Floating Feather to SH 44			9,450		280 (SB)	Yes	265 (SB)	Yes
Wing Road	Lanktree Gulch to Beacon Light	Local	2	4,475	None	125 (SB)	Yes	215 (NB)	Yes
New Hope Road	Can Ada to Wing	Minor Arterial	2	3,940	E / 575	220 (EB)	Yes	205 (WB)	Yes
Beacon Light Road	Wing to Pollard	Minor Arterial	2	9,450	E / 575	425 (EB)	Yes	615 (WB)	No
	Pollard to SH 16			4,475		670 (EB)	Yes	885 (WB)	No
	SH 16 to Palmer			3,940		980 (EB)	No	1,380 (WB)	No
	Palmer to Linder			9,450		1,000 (EB)	No	1,270 (WB)	No
Pollard Road	Beacon Light to Floating Feather	Collector	2	6,065	D / 425	300 (NB)	Yes	685 (NB)	No
Floating Feather Road	Can Ada to Star	Minor Arterial	2	3,600	E / 575	405 (EB)	Yes	360 (WB)	Yes
	Star to Plummer			13,400		520 (EB)	Yes	805 (WB)	No
	Plummer to Pollard			8,435		415 (EB)	Yes	585 (WB)	No
	Pollard to SH 16			4,000		295 (EB)	Yes	290 (WB)	Yes
	SH 16 to Palmer			4,365		405 (WB)	Yes	475 (WB)	Yes
Star Road	Floating Feather to SH 44	Collector	2/3	15,270	D / 425	585 (SB)	No	765 (SB)	No
	SH 44 to Joplin	Minor Arterial	2/3	20,460	E / 575	835 (SB)	No	820 (NB)	No
Plummer Road	Floating Feather to SH 44	Collector	2	14,395	D / 425	610 (SB)	Yes	485 (SB)	Yes

¹Per COMPASS 2040 Functional Street Classification Map (Reference 9)

²Travel lanes include the total number of lanes across the roadway's respective cross section

As shown in Table 30, all the roadway segments meet ACHD roadway segment LOS thresholds under 2045 background (with select roadway improvements) conditions weekday AM and PM peak hours except for:

- Wing Road (Lanktree Gulch to Beacon Light – ADT
- Beacon Light Road (Wing to Pollard) – PM Peak Hour
- Beacon Light Road (Pollard to SH 16) – AM and PM Peak Hour
- Beacon Light Road (SH 16 to Palmer) – AM and PM Peak Hour
- Beacon Light Road (Palmer to Linder) – AM and PM Peak Hour
- Pollard Road (Beacon Light to Floating Feather – PM Peak Hour
- Floating Feather Road (Star to Plummer) - PM Peak Hour
- Floating Feather Road (Plummer to Pollard) - PM Peak Hour
- Star Road (Floating Feather to SH 44) – AM and PM Peak Hour
- Star Road (SH 44 to Joplin) – AM and PM Peak Hour
- Plummer Road (Floating Feather to SH 44) – AM and PM Peak Hour

YEAR 2045 BACKGROUND (WITH SELECT ROADWAY IMPROVEMENTS) CONDITIONS ROADWAY SEGMENT MITIGATION

Wing Road (Lanktree Gulch to Beacon Light)

This segment of Wing Road exceeds the ACHD local road ADT threshold under 2045 background (with select roadway improvements) conditions. This segment would meet the AM and PM peak hour LOS D volume thresholds under 2045 background (with select roadway improvements) conditions if Wing Road

were upgraded to a collector roadway. Upgrading Wing Road to a collector roadway is an option as development continues in the area. This segment serves as a key connection between Beacon Light Road and planned residential areas.

Beacon Light Road (Wing to Pollard)

This segment of Beacon Light Road exceeds the ACHD LOS E volume threshold for minor arterials under 2045 background (with select roadway improvements) conditions in the PM peak hour. This roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe. This would bring the LOS E threshold to 720 VPH, which would still be exceeded by 2045 background (with select roadway improvements) traffic volumes. To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section (LOS E threshold of 1,540 VPH).

Beacon Light Road (Pollard to SH 16)

This segment of Beacon Light Road exceeds the ACHD LOS E volume threshold for minor arterials under 2045 background (with select roadway improvements) conditions in the PM peak hour. This roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe. This would bring the LOS E threshold to 720 VPH, which would still be exceeded by 2045 background (with select roadway improvements) traffic volumes. To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section (LOS E threshold of 1,540 VPH).

Beacon Light Road (SH 16 to Palmer)

This segment of Beacon Light Road exceeds the ACHD LOS E volume threshold for minor arterials under 2045 background (with select roadway improvements) conditions in the AM and PM peak hours. This roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe. This would bring the LOS E threshold to 720 VPH, which would still be exceeded by 2045 background (with select roadway improvements) traffic volumes. To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section (LOS E threshold of 1,540 VPH).

Beacon Light Road (Palmer to Linder)

This segment of Beacon Light Road exceeds the ACHD LOS E volume threshold for minor arterials under 2045 background (with select roadway improvements) conditions in the AM and PM peak hours. This roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe. This would bring the LOS E threshold to 720 VPH, which would still be exceeded by 2045 background (with select roadway improvements) traffic volumes. To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section (LOS E threshold of 1,540 VPH).

Pollard Road (Beacon Light to Floating Feather)

This segment of Pollard Road exceeds the ACHD LOS E volume threshold for minor arterials under 2045 background (with select roadway improvements) conditions in the PM peak hour. The roadway segment is not currently listed for widening in the ACHD CIP. To bring this segment to within standards, Pollard Road would need to be widened to a 3-lane section (LOS E threshold of 720 VPH).

Floating Feather Road (Star to Plummer)

This segment of Floating Feather Road exceeds the ACHD LOS E volume threshold for minor arterials under 2045 background (with select roadway improvements) conditions in the PM peak hour. The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe. This would bring the LOS E threshold to 720 VPH, which would still be exceeded by 2045 background (with select roadway improvements) traffic volumes. To bring this segment to within standards, Floating Feather Road would need to be widened to a 5-lane section (LOS E threshold of 1,540 VPH).

Floating Feather Road (Plummer to Pollard)

This segment of Floating Feather Road exceeds the ACHD LOS E volume threshold for minor arterials under 2045 background (with select roadway improvements) conditions in the PM peak hour. The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe. This would bring the LOS E threshold to 720 VPH, which would accommodate 2045 background (with select roadway improvements) conditions traffic volumes.

Star Road (Floating Feather to SH 44)

This segment of Star Road exceeds the ACHD LOS E volume threshold for minor arterials under 2045 background (with select roadway improvements) conditions in the AM and PM peak hours. The roadway segment is not currently listed for widening in the ACHD CIP. To bring this segment to within standards, this segment of Star Road would need to be widened to a 5-lane section (LOS E threshold of 1,540 VPH).

Star Road (SH 44 to Joplin)

This segment of Star Road exceeds the ACHD LOS E volume threshold for minor arterials under 2045 background (with select roadway improvements) conditions in the AM and PM peak hours. The roadway segment is listed in the ACHD CIP to be widened to a 5-lane section in the 2031-2035 timeframe. This would bring the LOS E threshold to 1,540 VPH, which would accommodate 2045 background (with select roadway improvements) conditions traffic volumes.

Plummer Road (Floating Feather to SH 44)

This segment of Plummer Road exceeds the ACHD LOS E volume threshold for minor arterials under 2045 background (with select roadway improvements) conditions in the PM peak hour. The roadway segment is not currently listed for widening in the ACHD CIP. To bring this segment to within standards, Plummer Road would need to be widened to a 3-lane section (LOS E threshold of 720 VPH).

PROPOSED DEVELOPMENT PLAN

The Willow Brook Golf Community will be constructed in phases with phase 1 expected to be completed by 2030 and full buildout expected in 2045.

TRIP GENERATION

Golf Course Only

Trip generation is provided for the option of constructing only the golf course before any residential uses are constructed. Table 31 summarizes the estimated trip generation for the golf course only of the proposed Willow Brook Golf Community.

Table 31. Willow Brook Golf Course Only Estimated Trip Generation

Land Use	ITE Code	Size	Daily	Weekday AM Peak Hour			Weekday PM Peak Hour		
				Total	In	Out	Total	In	Out
Golf Course	430	18	526	30	24	6	52	27	25

Notes: Fitted curve equation used based on data provided by ITE.

As shown in Table 31, the golf course of the proposed Willow Brook Golf Community is estimated to generate a total of 526 daily net new trip ends, of these, 30 are estimated to occur in the weekday a.m. peak hour (24 inbound / 6 outbound), and 52 are estimated to occur in the weekday p.m. peak hour (27 inbound / 25 outbound).

Due to the low trip generation associated with constructing only the golf course, traffic analysis was not completed for this scenario.

Phase 1 (2030)

The projected weekday daily, AM, and PM peak hour vehicle trips for phase 1 of the proposed development were estimated based on the *Trip Generation Manual, 11th Edition* (Reference 14). Table 32 summarizes the estimated trip generation for phase 1 of the proposed Willow Brook Golf Community.

Table 32. Phase 1 Willow Brook Golf Community Estimated Trip Generation

Land Use	ITE Code	Size	Daily	Weekday AM Peak Hour			Weekday PM Peak Hour		
				Total	In	Out	Total	In	Out
Single Family Houses	210	285	2,645	193	50	143	266	168	98
Townhomes	220	45	364	37	9	28	40	25	15
Total Residential Trips			3,009	230	59	171	306	193	113
Golf Course	430	18	526	30	24	6	52	27	25
Total Trips			3,535	260	83	177	358	220	138

Notes: Fitted curve equation used based on data provided by ITE.

As shown in Table 32, phase 1 of the proposed Willow Brook Golf Community is estimated to generate a total of 3,535 daily net new trip ends, of these, 260 are estimated to occur in the weekday a.m. peak hour (83 inbound / 177 outbound), and 358 are estimated to occur in the weekday p.m. peak hour (220 inbound / 138 outbound).

Full Buildout (2045)

Table 33 summarizes the estimated trip generation for full buildout of the proposed Willow Brook Golf Community. Appendix P contains the internal trip capture worksheets.

Table 33. Phase 1 Willow Brook Golf Community Estimated Trip Generation

Land Use	ITE Code	Size	Daily	Weekday AM Peak Hour			Weekday PM Peak Hour		
				Total	In	Out	Total	In	Out
Single Family Houses	210	948	7,990	577	150	427	823	518	305
Townhomes	220	146	1,011	68	16	52	83	52	31
Total Residential Trips			9,001	645	166	479	906	570	336
<i>Internal Trips (1% AM, 8% PM)</i>			(405)	(8)	(3)	(5)	(71)	(52)	(19)
External Residential Trips			8,596	637	163	474	835	518	317
Shopping Plaza	821	75,000	5,064	130	80	50	389	190	199
<i>Internal Trips (6% AM, 18% PM)</i>			(608)	(8)	(5)	(3)	(71)	(19)	(52)
External Commercial Trips			4,456	122	75	47	318	171	147
<i>Pass-By Trips (0% AM, 34% PM)</i>			(758)	-	-	-	(108)	(58)	(50)
Net New Commercial Trips			3,699	122	75	47	210	113	97
Golf Course	430	18	526	30	24	6	52	27	25
Total Trips			14,591	805	270	535	1,347	787	560
<i>Internal Trips</i>			(1,013)	(16)	(8)	(8)	(142)	(71)	(71)
External Trips			13,578	789	262	527	1,205	716	489
<i>Pass-By Trips</i>			(758)	-	-	-	(108)	(58)	(50)
NET NEW TRIPS			12,821	789	262	527	1,097	658	439

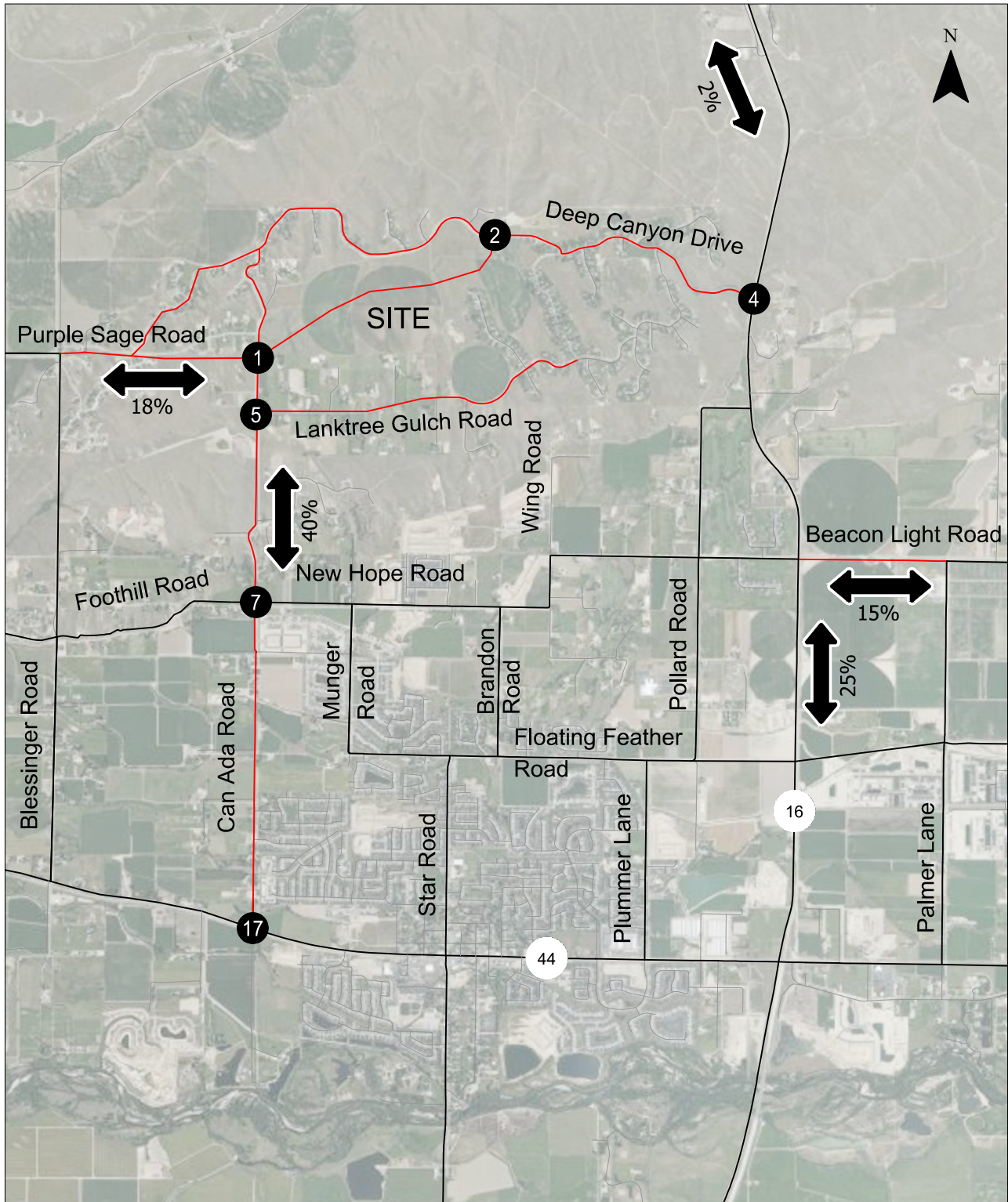
Notes: Fitted curve equation used based on data provided by ITE.

As shown in Table 33, full buildout of the proposed Willow Brook Golf Community is estimated to generate a total of 12,821 daily net new trip ends, of these, 789 are estimated to occur in the weekday a.m. peak hour (262 inbound / 527 outbound), and 1,097 are estimated to occur in the weekday p.m. peak hour (658 inbound / 439 outbound).

SITE TRIP DISTRIBUTION

The trip distribution patterns are based on the access connections to and from the proposed development and their attraction/destination characteristics. The distribution of site generated trips onto the roadway system was based on the area of impact model runs by COMPASS, a review of the roadway system, and knowledge of travel patterns in the area.

The site generated trip distribution pattern used for 2030 Phase 1 of development is shown in Figure 9. The site generated trip distribution pattern used for 2045 full buildout of development is shown in Figure 10.

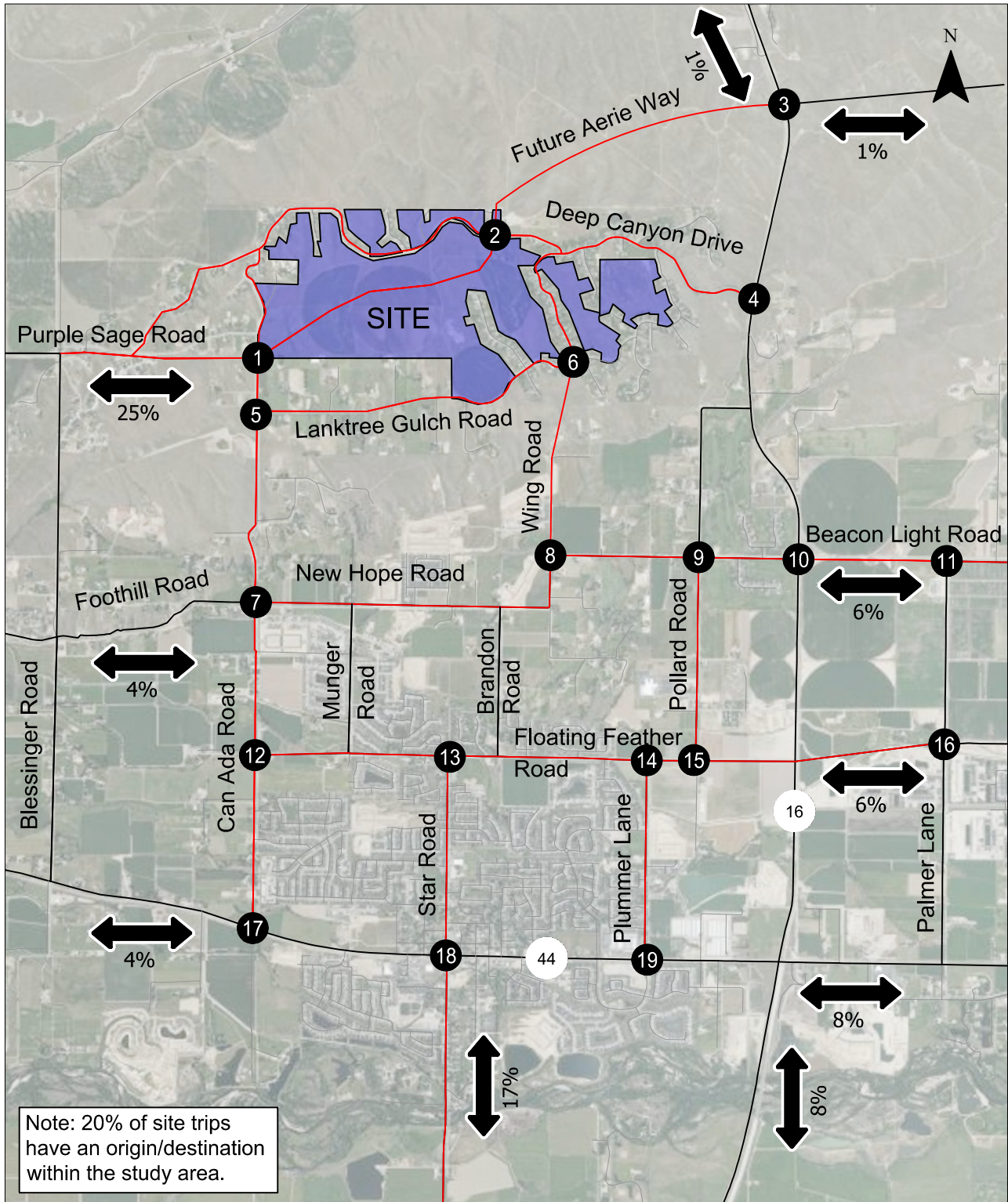


- # - Study Intersections
- Study Roadway
- XX% - Trip Distribution Percentage

Trip Distribution
2030 Phase 1
Ada County, Idaho

Figure
9

H:\25\25407 - Willow Brook Community TIS\report\figs\25407_fig9.dwg Jan 24, 2023 - 11:11am - smantsch Layout Tab: Fig9_Dist 2030



- # - Study Intersections
- Study Roadway
- ↔
XX% - Trip Distribution Percentage

Trip Distribution
2045 Full Build-out
Ada County, Idaho

Figure
10

H:\25\25407 - Willow Brook Community TIS\report\figs\25407_fig5.dwg Jan 24, 2023 - 11:11am - smantsch Layout Tab: Fig10_Dist 2045

YEAR 2030 TOTAL TRAFFIC CONDITIONS

The total traffic conditions analysis forecasts how the study area's transportation system will operate with the traffic generated by phase 1 of the proposed Willow Brook Golf Community. Site generated trips for 2030 phase 1 were distributed to the roadway system according to the trip assignment shown in Figures 11A and 11B.

The 2030 background traffic volumes (Figures 6A and 6B) were added to the site-generated traffic for phase 1 (Figures 11A and 11B) to arrive at the Year 2030 total traffic volumes that are shown in Figures 12A and 12B.

YEAR 2030 TOTAL TRAFFIC CONDITIONS INTERSECTION OPERATIONS

Table 34 presents the traffic operations results for each study intersection and its corresponding lane groups under 2030 total traffic conditions for during the weekday AM and PM peak hours. Figures 11A and 11B show the lane configurations and traffic volumes for Year 2030 total traffic conditions. *Appendix Q contains the Year 2030 total traffic conditions Synchro worksheets.*

Table 34. Year 2030 Total Traffic Intersection Operations

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
1	Purple Sage Road & Can Ada Road	TWSC	-	-	-	NBL	0.03	A	7.3	0.10	A	7.5
						EBLTR	0.15	A	9.2	0.20	B	11.2
						WBLTR	0.17	B	11.5	0.22	C	16.0
						SBL	0.01	A	7.3	0.01	A	7.5
2	Deep Canyon Drive & Aerie Way	TWSC	-	-	-	NBLR	0.08	A	8.8	0.06	A	8.7
						WBL	0.03	A	7.3	0.06	A	7.4
4	Deep Canyon Drive & SH 16	TWSC	-	-	-	NBL	0.09	B	10.7	0.17	A	9.3
						EBLR	0.53	D	31.9	0.30	C	19.1
5	Lanktree Gulch Road & Can Ada Road	TWSC	-	-	-	WBLR	0.02	B	10.3	0.05	B	11.1
						SBL	0.01	A	7.4	0.01	A	7.9
7	New Hope Road & Can Ada Road	AWSC	-	A/A	9.0/9.6	NBLTR	0.16	A	8.6	0.27	A	9.4
						EBLTR	0.09	A	8.2	0.06	A	8.6
						WBLTR	0.10	A	9.3	0.28	A	9.8
						SBLTR	0.29	A	9.3	0.28	A	9.7
17	SH 44 & Can Ada Road	TWSC	-	-	-	EBL	0.06	A	9.0	0.11	B	12.0
						SBLR	1.29	F	224.3	>1.50	F	>300.0

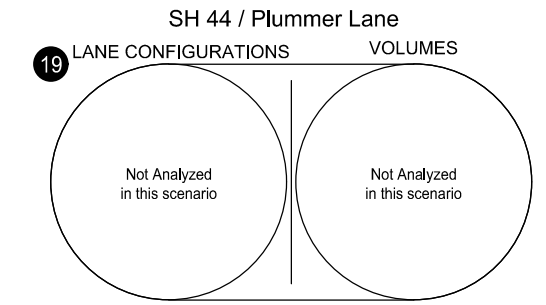
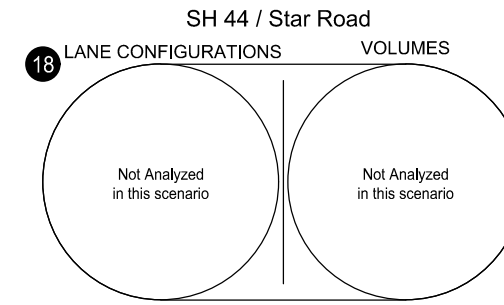
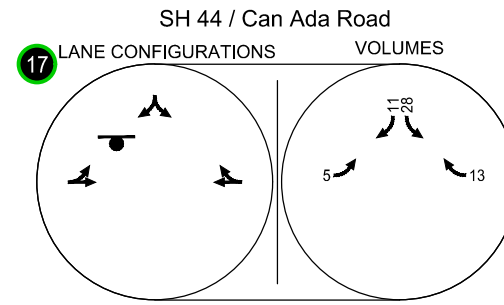
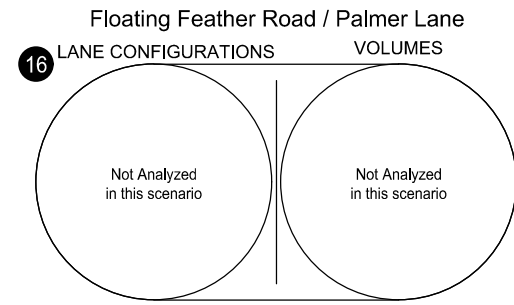
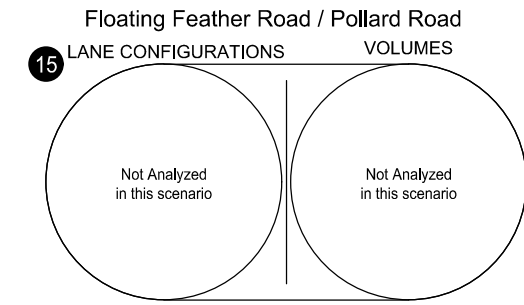
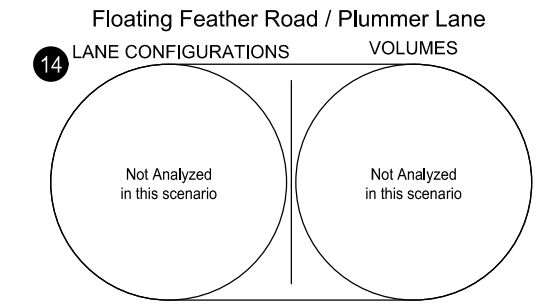
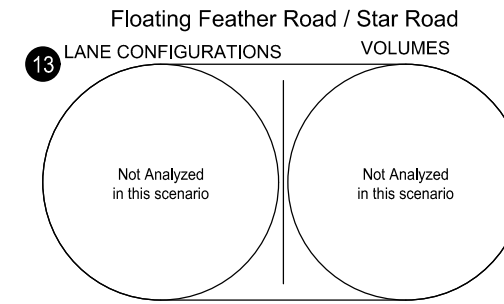
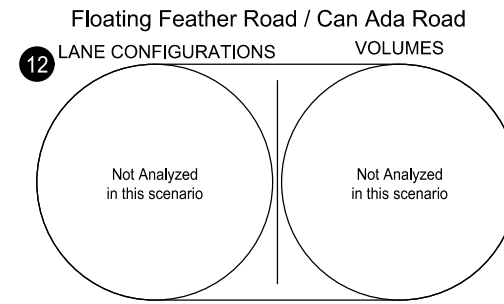
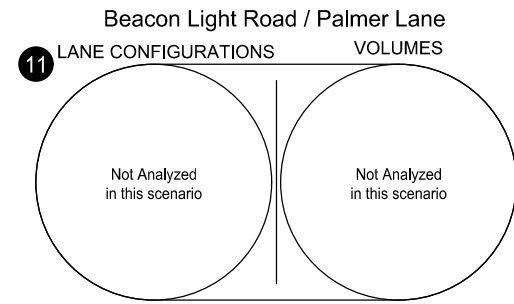
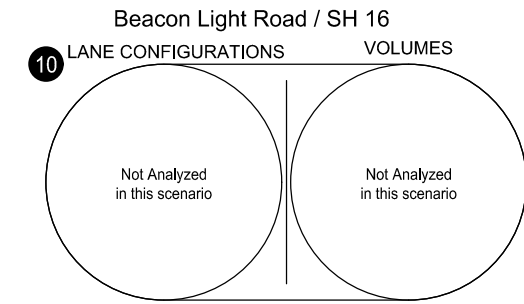
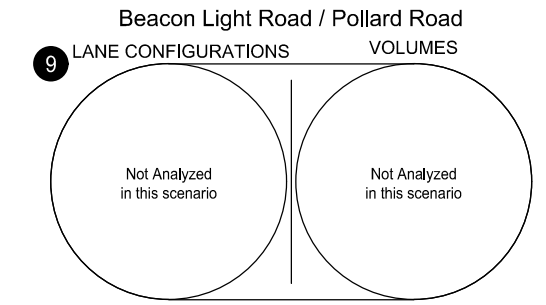
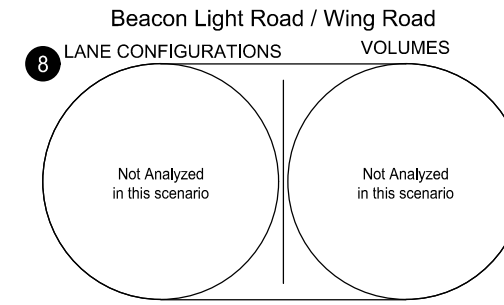
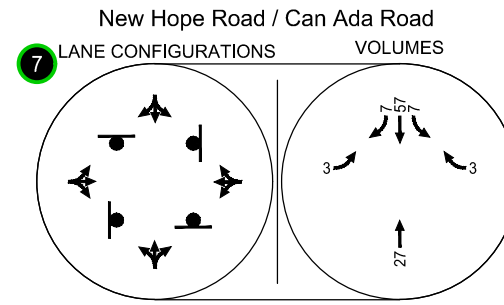
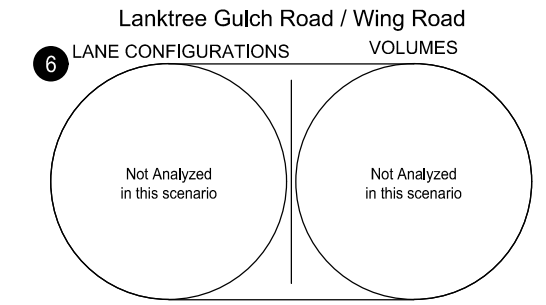
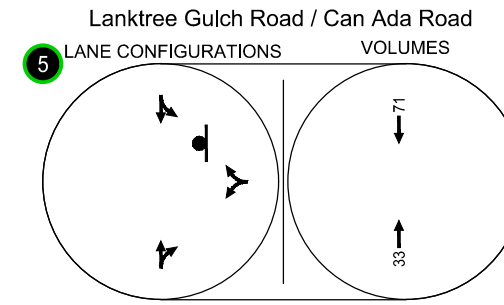
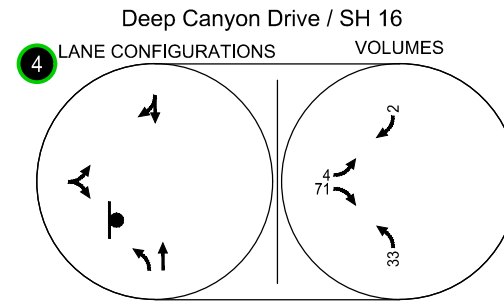
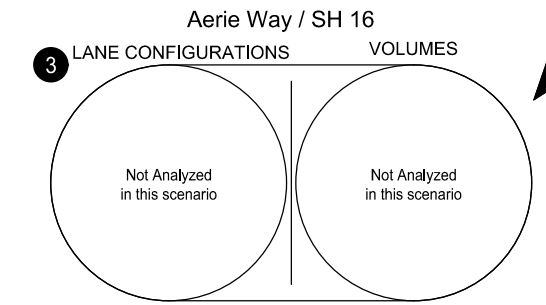
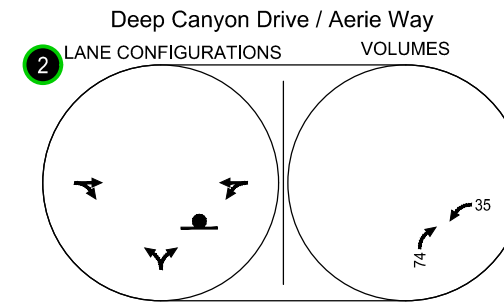
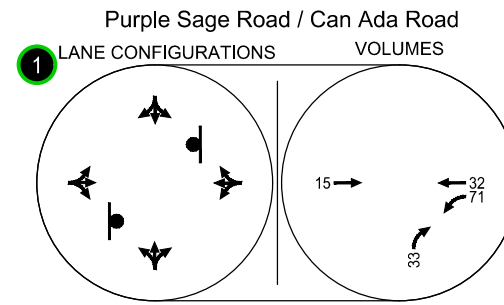
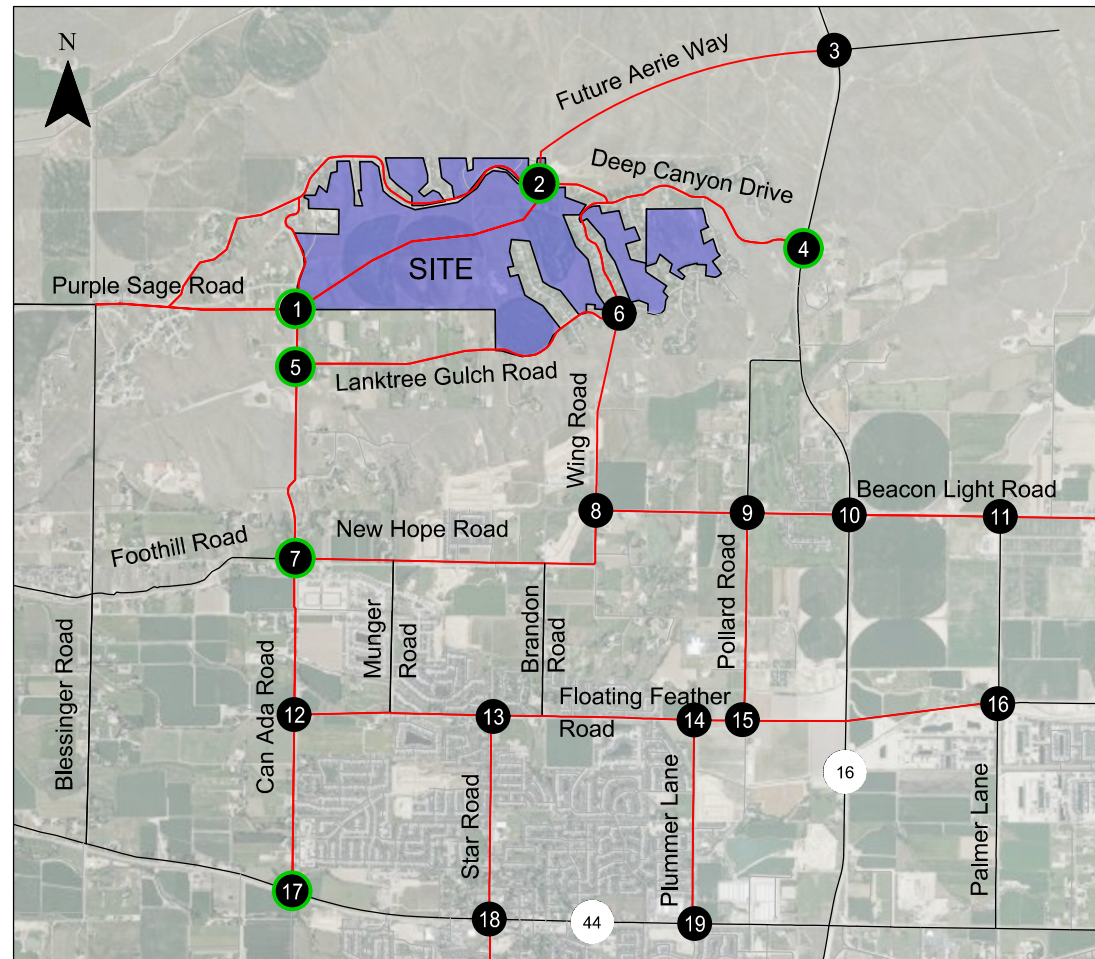
V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and highlighted indicate an intersection and/or lane group operating below the jurisdictional standards.

As Table 34 shows, all study intersections operate acceptably during the year 2030 total traffic weekday AM and PM peak hours except for:

- 17. SH 44 & Can Ada Road

The following intersections operate acceptably during year 2030 total traffic conditions but have one or more lane groups operating at LOS D or worse and require a signal warrant analysis:

- 4. Deep Canyon Drive & SH 16

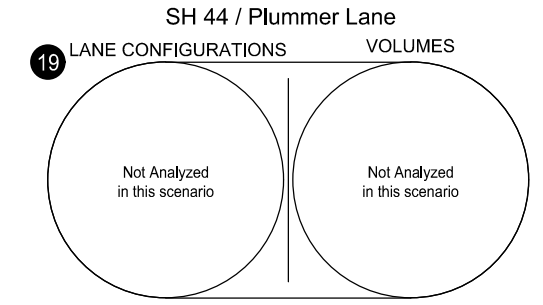
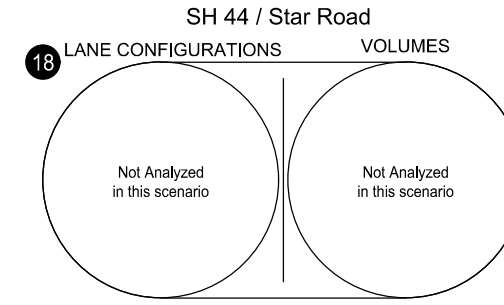
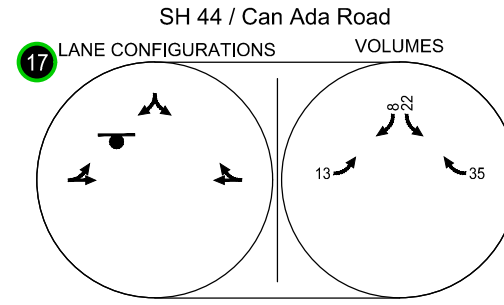
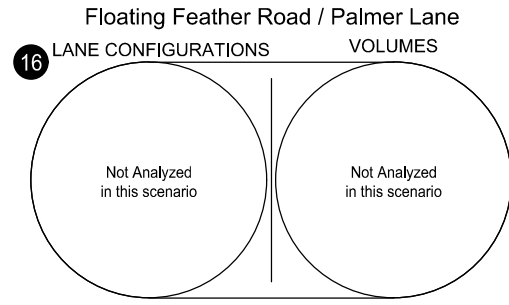
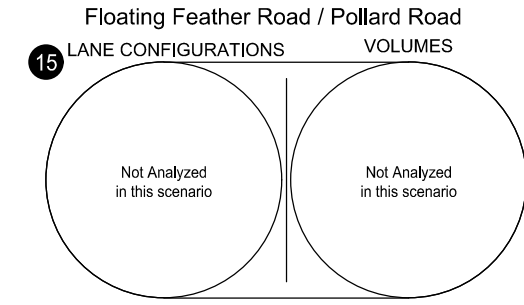
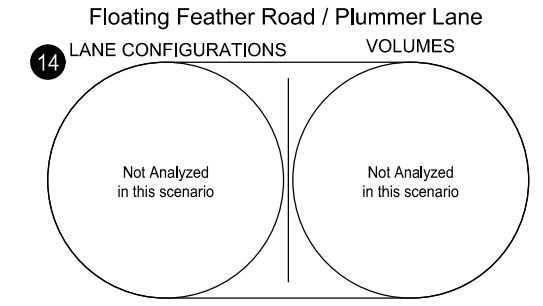
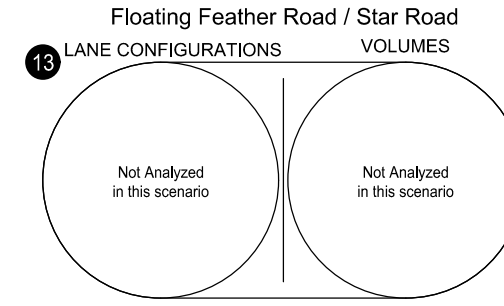
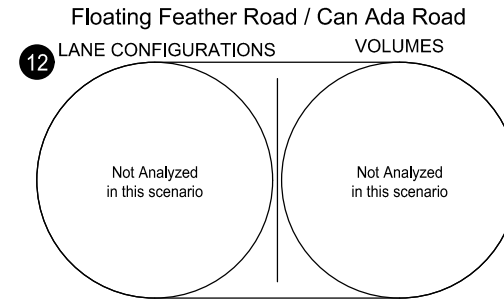
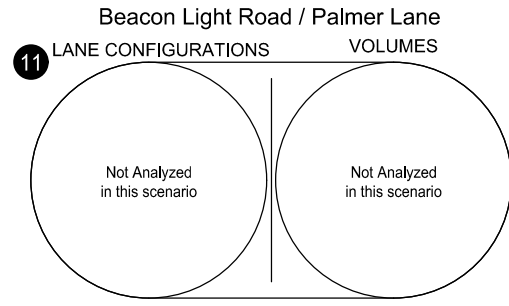
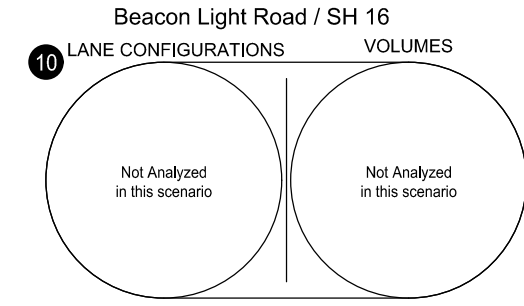
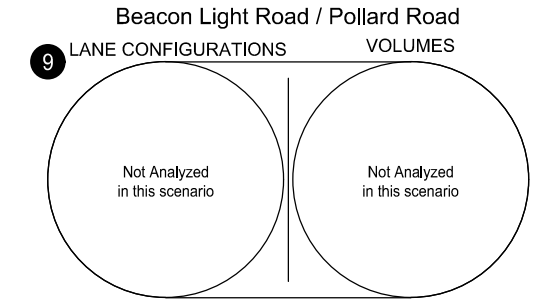
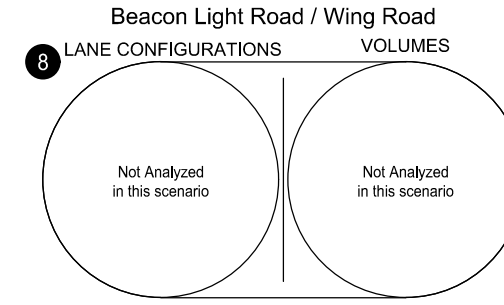
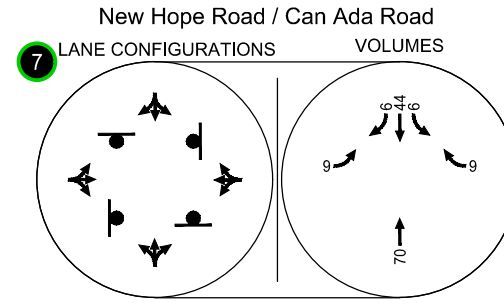
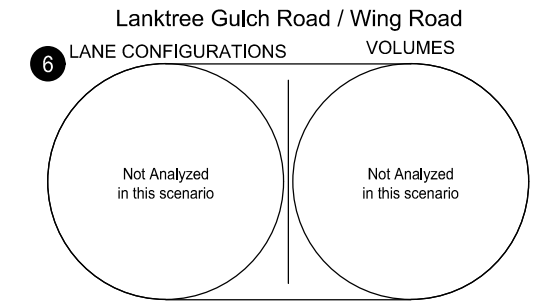
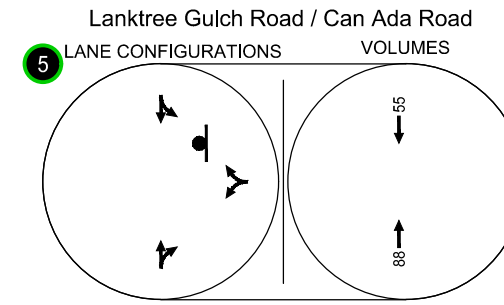
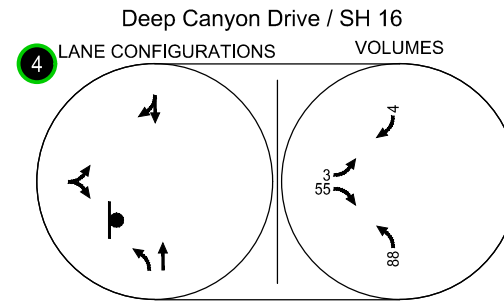
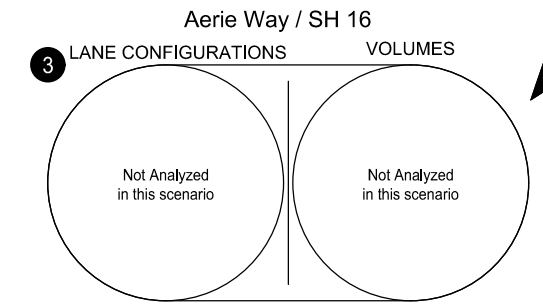
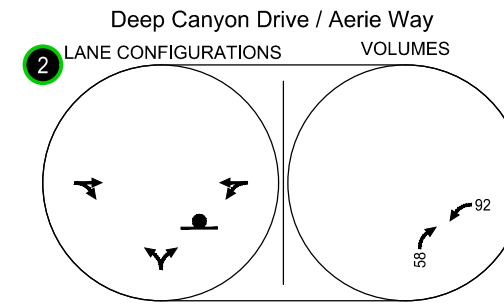
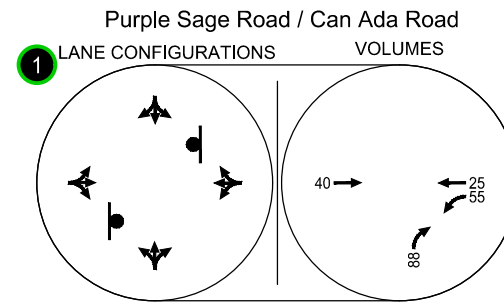
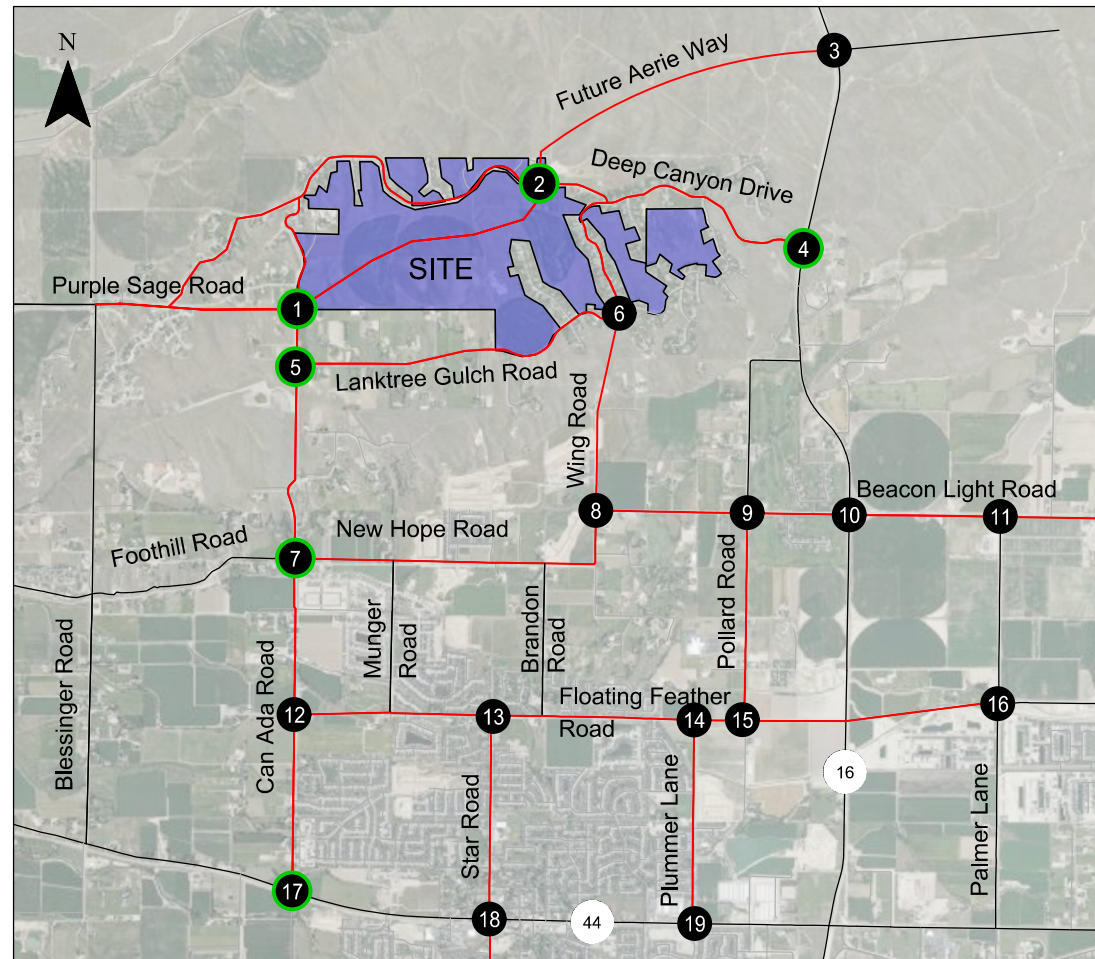


- STOP SIGN
- TRAFFIC SIGNAL
- 2030 TOTAL TRAFFIC CONDITIONS STUDY INTERSECTION

Year 2030 Trip Assignment Volumes
Weekday AM Peak Hour
Ada County, Idaho

Figure
11A

H:\25\25407 - Willow Brook Community TIS\report\figs\25407_fig.dwg Jan 24, 2023 - 11:11am - smartisch Layout Tab: Fig 11A_2030_Assign_AM

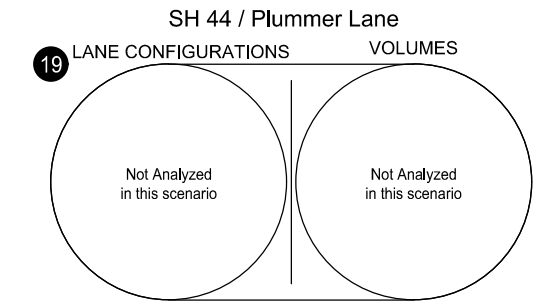
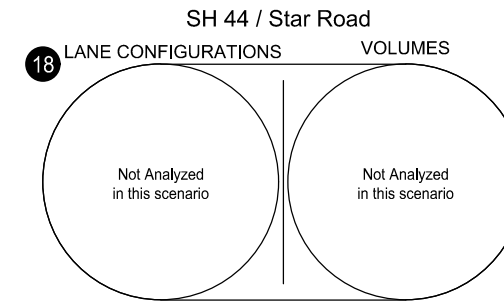
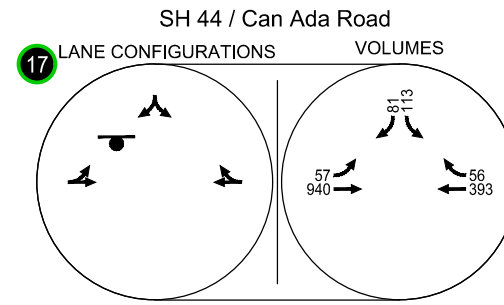
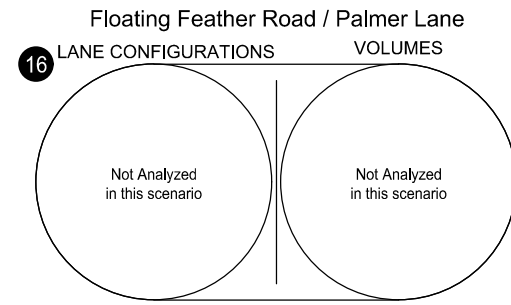
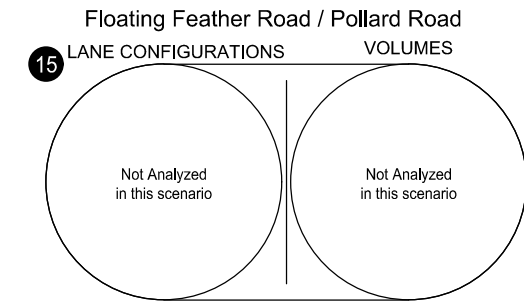
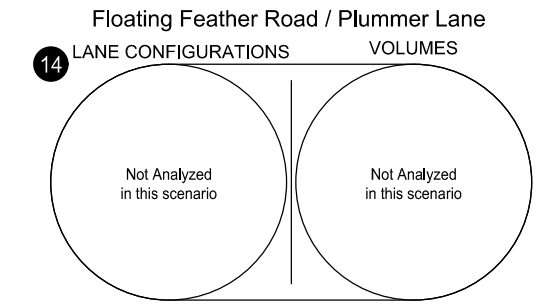
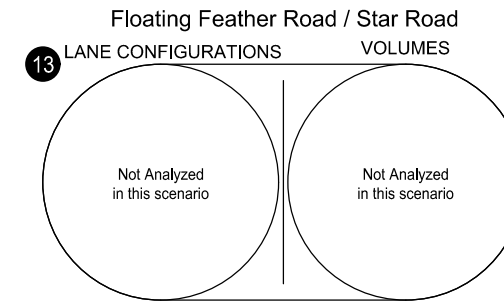
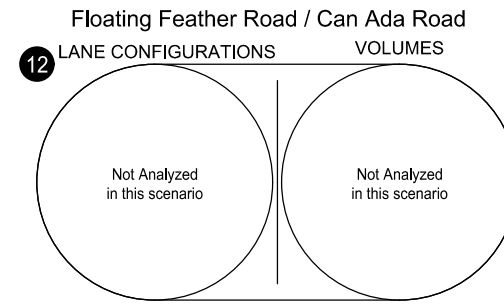
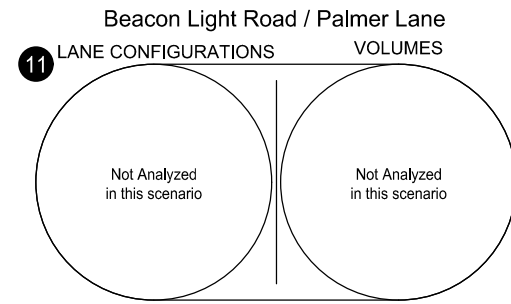
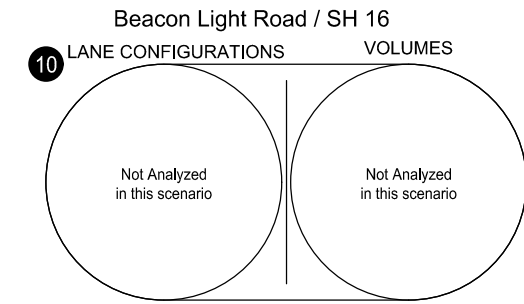
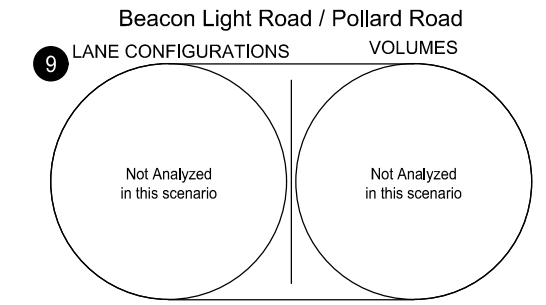
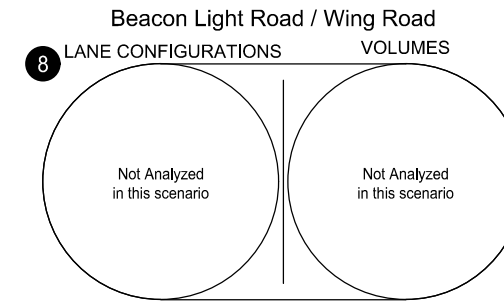
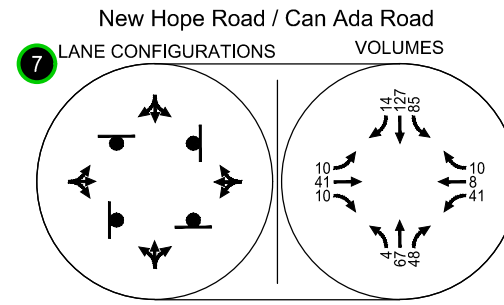
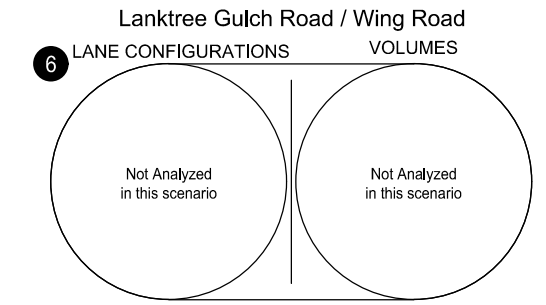
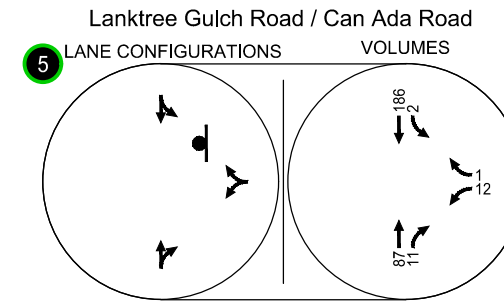
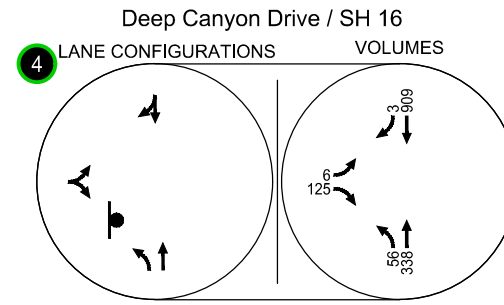
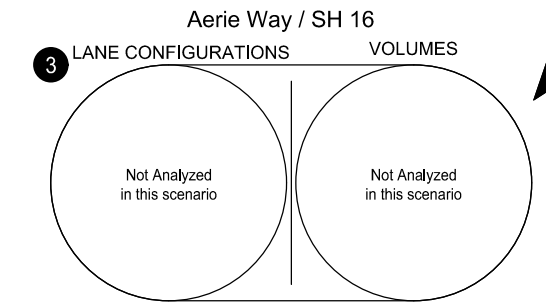
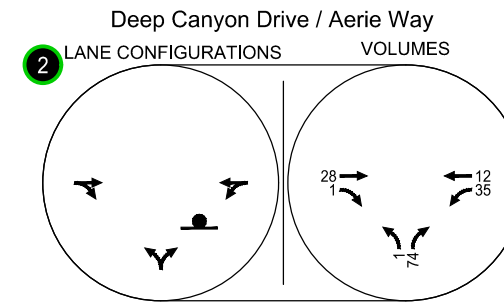
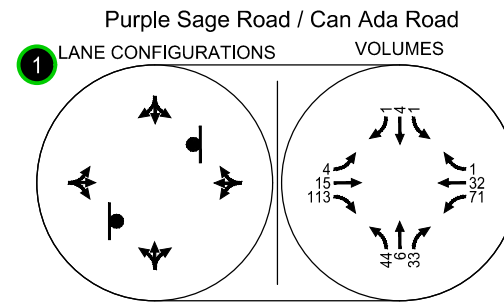
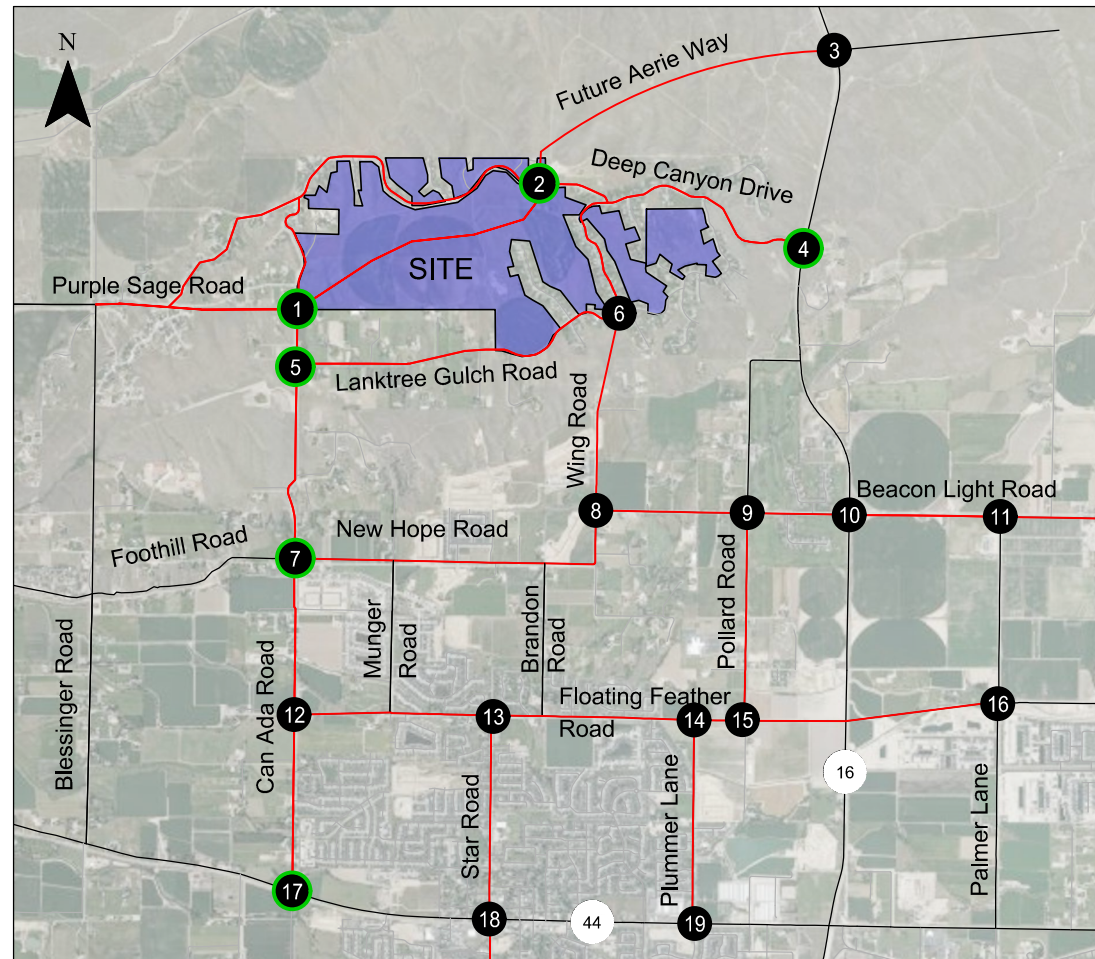


- STOP SIGN
- TRAFFIC SIGNAL
- 2030 TOTAL TRAFFIC CONDITIONS STUDY INTERSECTION

Year 2030 Trip Assignment Volumes
Weekday PM Peak Hour
Ada County, Idaho

Figure
11B

H:\25\25407 - Willow Brook Community TIS\report\figs\25407_fig11b.dwg Jan 24, 2023 - 11:11am - smartisch Layout Tab: Fig11B_2030_Assign_PM

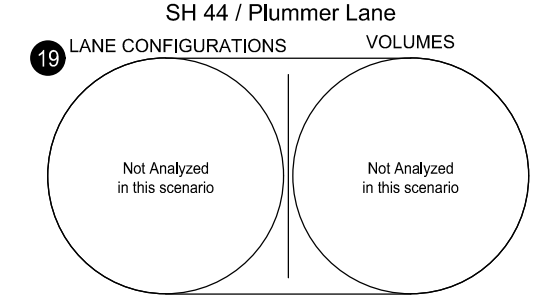
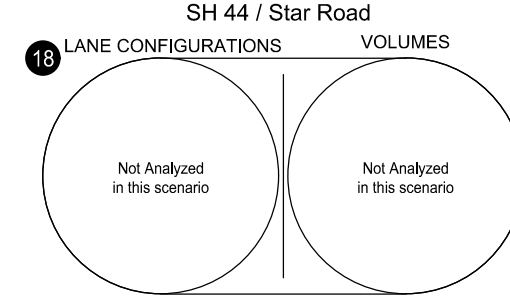
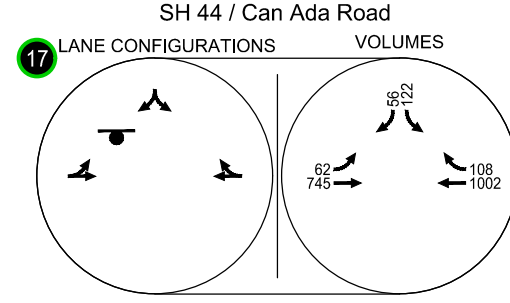
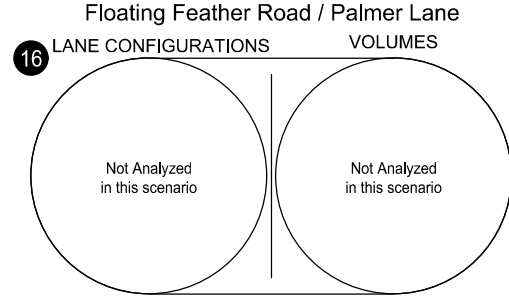
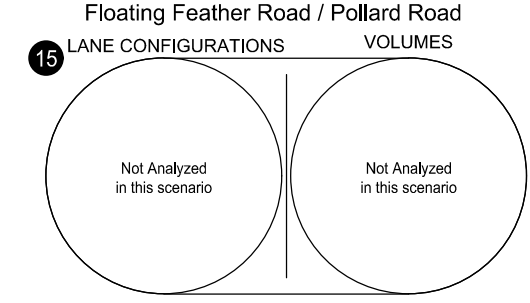
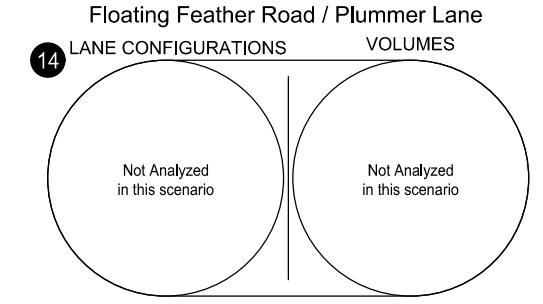
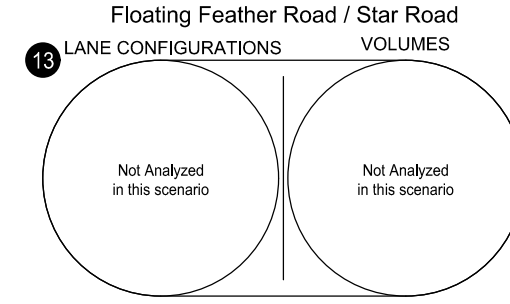
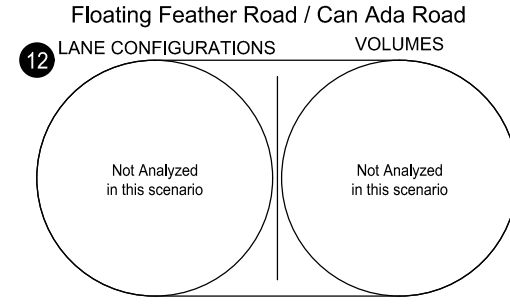
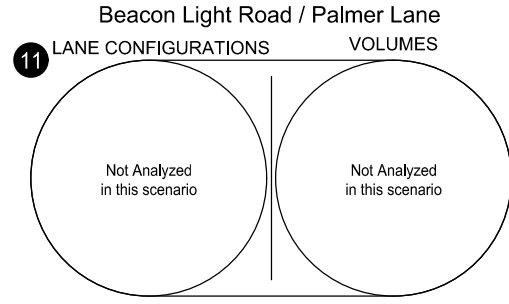
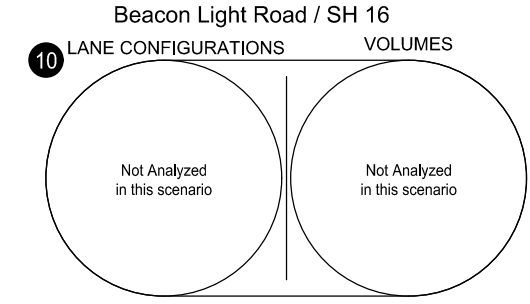
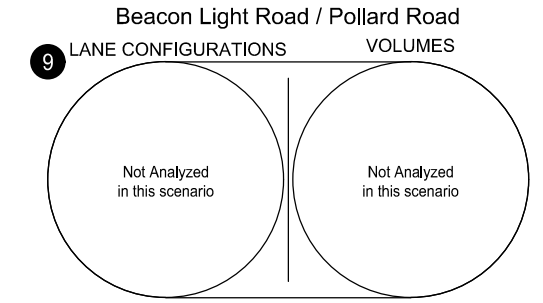
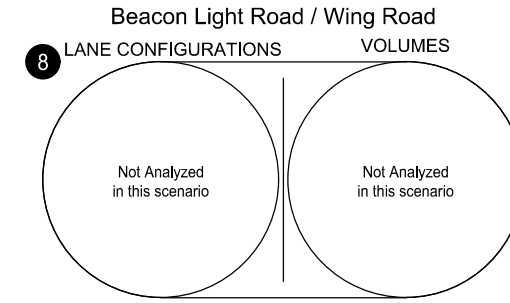
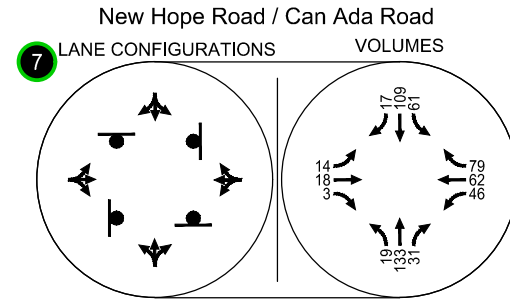
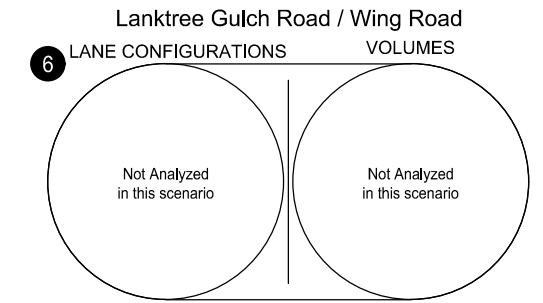
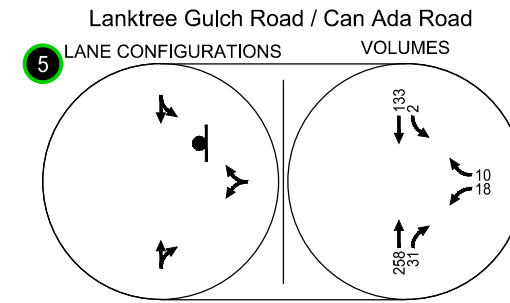
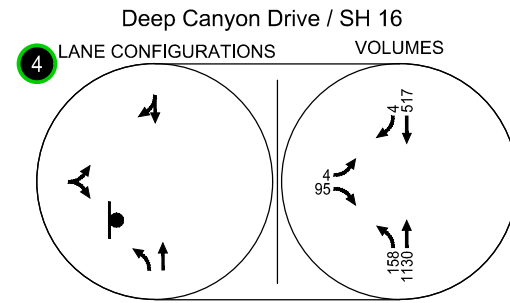
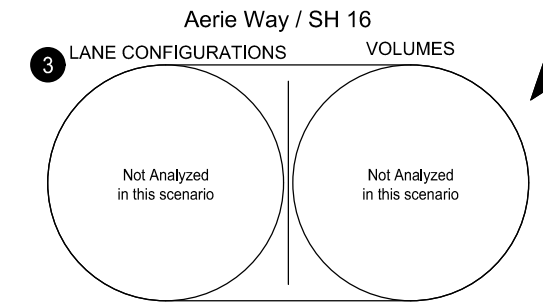
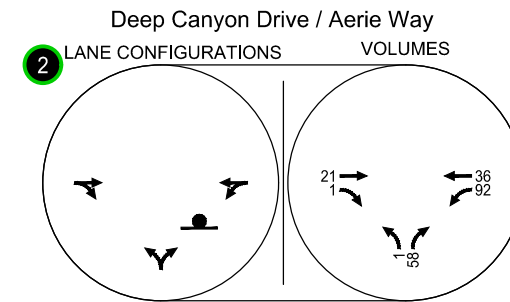
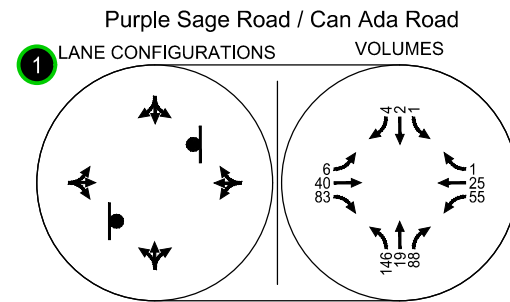
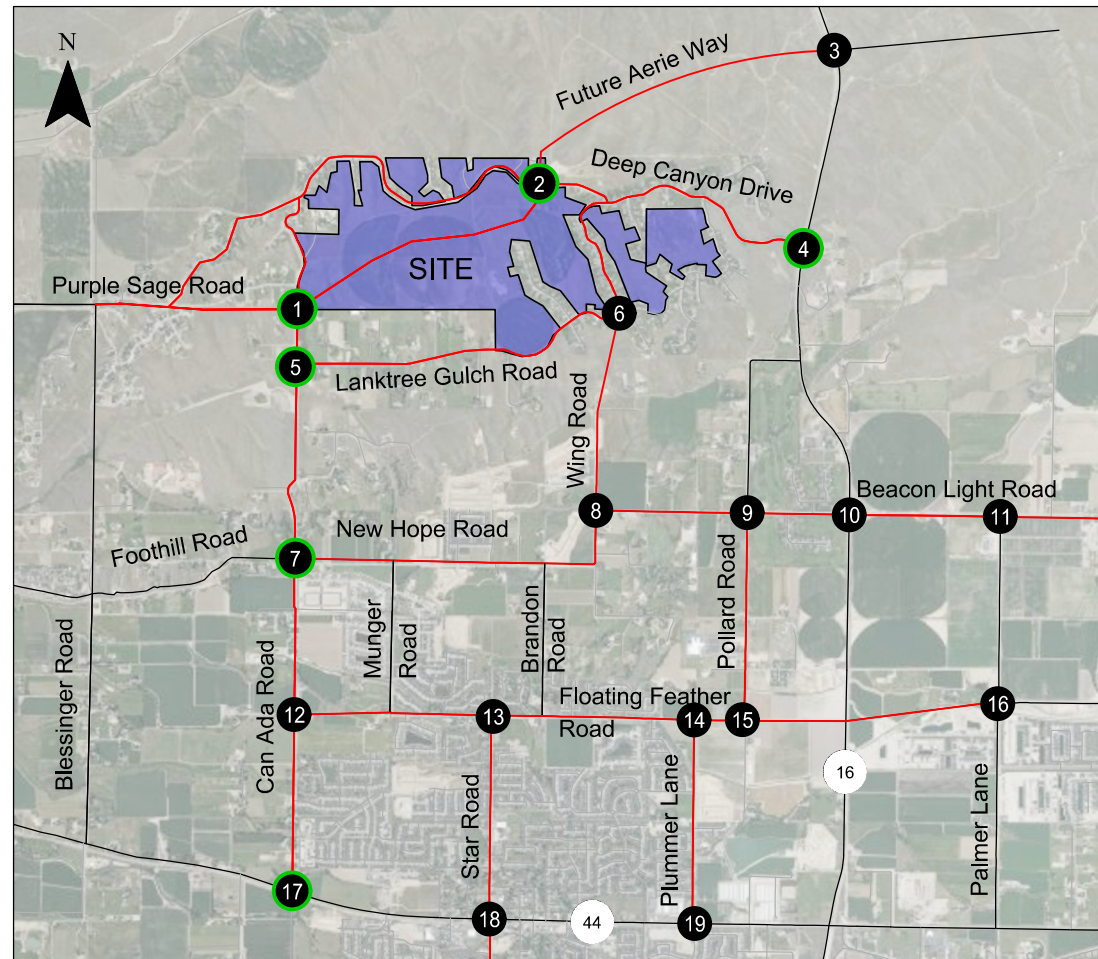


- STOP SIGN
- TRAFFIC SIGNAL
- 2030 TOTAL TRAFFIC CONDITIONS STUDY INTERSECTION

Year 2030 Total Traffic Volumes
Weekday AM Peak Hour
Ada County, Idaho

Figure
12A

H:\25\25407 - Willow Brook Community TIS\report\figs\25407_fig12a.dwg Jan 24, 2023 - 11:11am - smartisch Layout Tab: Fig12A_2030_TT_AM



- STOP SIGN
- TRAFFIC SIGNAL
- 2030 TOTAL TRAFFIC CONDITIONS STUDY INTERSECTION

Year 2030 Total Traffic Volumes
Weekday PM Peak Hour
Ada County, Idaho

Figure
12B

H:\25\25407 - Willow Brook Community TIS\report\figs\25407_fig12b.dwg Jan 24, 2023 - 11:11am - smartisch Layout Tab: Fig12B_2030_TT_PM

YEAR 2030 TOTAL TRAFFIC CONDITIONS MITIGATION

This section highlights the mitigations needed to address each of the intersections not meeting traffic operation standards under the year 2030 total traffic conditions. *Appendix R contains the year 2030 mitigated total traffic operational worksheets including findings from the signal warrant analysis.*

Deep Canyon Drive / SH 16

The Deep Canyon Drive / SH 16 intersection operates acceptably under 2030 total traffic conditions during the weekday AM and PM peak hour, however the critical movement at the intersection is operating at LOS D in the weekday AM peak hour. ACHD policy requires an evaluation of traffic signal warrants if the critical movement at an unsignalized intersection operates at LOS D or worse.

The intersection meets the peak hour, 4-hour, and 8-hour traffic signal volume warrants under 2030 total traffic conditions. The future configuration of this section of SH 16 is currently being determined by an ITD Corridor Plan.

SH 44 / Can Ada Road

The minor street approach of the SH 44 / Can Ada Road intersection operates over capacity and at LOS F under 2030 total traffic conditions during the weekday AM and PM peak hours. The intersection meets the 4-hour and peak hour traffic signal volume warrants, but not the 8-hour traffic signal volume warrant under 2030 total traffic conditions. This intersection is in the Mid-Star CIP as a future traffic signal to be constructed by 2025. The City of Star is leading a project that will widen SH 44 to the east of Can Ada Road in 2023, which will not improve operations on the southbound approach of Can Ada Road. ITD's SH 44 Corridor Plan shows this intersection as a future RCUT with SH 44 widened to 4 lanes. Table 35 shows how the intersection operates as a traffic signal with left turn lanes or as an RCUT with SH 44 widened to 4 lanes under 2030 total traffic conditions.

Table 35 SH 44 / Can Ada Rd Intersection Mitigation Operations – 2030 Total Traffic Conditions

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
17	SH 44 & Can Ada Road	Traffic Signal	0.83/ 0.85	A/ B	8.9/ 13.2	EBL	0.12	A	4.4	0.26	B	15.2
						EBT	0.84	A	7.5	0.58	A	3.9
						WBT	0.46	A	7.2	0.90	B	16.8
						WBR	0.08	A	5.4	0.12	A	4.6
						SBL	0.58	C	21.3	0.73	D	38.1
						SBR	0.52	C	21.1	0.41	C	33.3
		RCUT	-	-	-	EBL	0.06	A	8.5	0.11	B	11.9
			-	-	-	SBR	0.26	B	11.1	0.39	C	16.9

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and **highlighted** indicate an intersection and/or lane group operating below the jurisdictional standards.

As shown in Table 35, the intersection operates within ACHD and ITD standards as a traffic signal with turn lanes or as an RCUT with SH 44 widened to 4 lanes under 2030 total traffic conditions.

YEAR 2030 TOTAL TRAFFIC CONDITIONS ROADWAY SEGMENT ANALYSIS

Peak hour roadway segment volumes were based on the traffic count data collected at the study intersections. The peak hour, peak direction roadway segment volumes, and resultant LOS per ACHD Policy Manual 7106.4.1 for the 2030 total traffic conditions study roadway segments are summarized in Table 36.

Table 36. Year 2030 Total Traffic Roadway Segment Operations

Roadway	Segment	Classification ¹	Travel Lanes ²	ADT	ACHD Peak Hour Std. Volume (One-Way)	Weekday AM Peak Hour		Weekday PM Peak Hour	
						One-Way Volume/Direction	Meets Std.	One-Way Volume/Direction	Meets Std.
Main Internal Collector	Can Ada to Deep Canyon	Collector	2	1,415	D / 425	105 (WB)	Yes	130 (EB)	Yes
Deep Canyon Drive	Purple Sage to Can Ada	Local	2	200	None	15 (NB)	Yes	15 (SB)	Yes
	Can Ada to Aerie			405		30 (EB)	Yes	30 (WB)	Yes
	Aerie to SH 16			3,810		130 (EB)	Yes	165 (WB)	Yes
Lanktree Gulch Road	Can Ada to Wing	Local	2	740	None	15 (WB)	Yes	35 (EB)	Yes
Purple Sage Road	Blessinger to Can Ada	Collector	2	3,065	D / 340 (CHD4)	130 (EB)	Yes	175 (WB)	Yes
Can Ada Road	Deep Canyon to Purple Sage	Local	2	330	None	10 (NB)	Yes	25 (NB)	Yes
	Purple Sage to Lanktree Gulch	Collector		4,135	D / 425	185 (SB)	Yes	270 (NB)	Yes
	Lanktree Gulch to New Hope			4,990		225 (SB)	Yes	290 (NB)	Yes
	New Hope to Floating Feather	Minor Arterial		5,015	E / 575	210 (SB)	Yes	190 (SB)	Yes
	Floating Feather to SH 44			6,300		195 (SB)	Yes	180 (SB)	Yes
Beacon Light Road	SH 16 to Palmer	Minor Arterial	2	13,130	E / 575	755 (EB)	No	1,045 (WB)	No

¹Per COMPASS 2040 Functional Street Classification Map (Reference 9)

²Travel lanes include the total number of lanes across the roadway's respective cross section

As shown in Table 36, the roadway segments meet ACHD roadway segment LOS thresholds under 2030 total traffic conditions weekday AM and PM peak hours except for:

- Deep Canyon Drive (Purple Sage to SH 16) – ADT
- Beacon Light Road (SH 16 to Palmer) – AM and PM Peak Hours

YEAR 2030 TOTAL TRAFFIC CONDITIONS ROADWAY SEGMENT MITIGATION

Deep Canyon Drive (Aerie to SH 16)

This segment of Deep Canyon Drive exceeds the ACHD local road ADT threshold under 2030 total traffic conditions. This segment would meet the AM and PM peak hour LOS D volume thresholds under 2030 total traffic conditions if Deep Canyon Drive were upgraded to a collector roadway.

Due to the residential nature of Deep Canyon Drive and the significant front-on housing with driveway access, it is desired to keep Deep Canyon Drive as a local street. In order to meet ACHD local road ADT thresholds under 2030 total traffic conditions, Deep Canyon Drive would need to be disconnected from SH 16. This is not feasible with the connections provided by the current roadway network. The 2045 total traffic (with select roadway improvements) conditions scenario analyzes disconnecting Deep Canyon Drive from SH 16 with the construction of Aerie Way and the Wing Road extension.

Beacon Light Road (SH 16 to Palmer)

This segment of Beacon Light Road exceeds the ACHD LOS E volume threshold for minor arterials under 2030 total traffic conditions in the AM and PM peak hours. This roadway segment is listed in the ACHD CIP to

be widened to a 3-lane section in the 2036-2040 timeframe. This would bring the LOS E threshold to 720 VPH, which would still be exceeded by 2030 total traffic volumes. To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section (LOS E threshold of 1,540 VPH).

YEAR 2045 TOTAL TRAFFIC CONDITIONS

The total traffic conditions analysis forecasts how the study area's transportation system will operate with the traffic generated by full buildout of the proposed Willow Brook Golf Community. Site generated trips for 2045 full buildout were distributed to the roadway system according to the trip assignment shown in Figures 13A and 13B.

The 2045 background traffic volumes (Figure 7A and 7B) were added to the site-generated traffic for full buildout (Figure 13A and 13B) to arrive at the Year 2045 total traffic volumes that are shown in Figures 14A and 14B.

YEAR 2045 TOTAL TRAFFIC CONDITIONS INTERSECTION OPERATIONS

Table 37 presents the traffic operations results for each study intersection and its corresponding lane groups under 2045 total traffic conditions for during the weekday AM and PM peak hours. Figures 14A and 14B show the lane configurations and traffic volumes for Year 2045 total traffic conditions. *Appendix S contains the Year 2045 total traffic conditions Synchro worksheets.*

Table 37. Year 2045 Total Traffic Intersection Operations

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
1	Purple Sage Road & Can Ada Road	TWSC	-	-	-	NBL	0.07	A	7.6	0.20	A	7.9
						EBLTR	0.37	B	12.0	1.08	F	108.7
						WBLTR	0.65	D	30.1	>1.50	F	>300.0
						SBL	0.01	A	7.4	0.01	A	7.8
2	Deep Canyon Drive & Aerie Way	TWSC	-	-	-	NBLR	0.14	A	9.2	0.12	A	9.0
						WBL	0.05	A	7.4	0.11	A	7.
3	Aerie Way & SH 16	Not constructed for this scenario. Intersection is analyzed in the 2045 Total Traffic (With Select Roadway Improvements) Conditions scenario										
4	Deep Canyon Drive & SH 16	TWSC	-	-	-	NBL	0.27	B	12.7	0.37	B	11.3
						EBLR	1.44	F	267.1	0.51	C	20.5
5	Lanktree Gulch Road & Can Ada Road	TWSC	-	-	-	WBLR	0.18	C	14.0	0.32	C	22.0
						SBL	0.01	A	7.7	0.04	A	9.0
6	Lanktree Gulch Road & Wing Road	Not constructed for this scenario. Intersection is analyzed in the 2045 Total Traffic (With Select Roadway Improvements) Conditions scenario										
7	New Hope Road & Can Ada Road	AWSC	-	C/C	15.4/24.5	NBLTR	0.41	B	12.1	0.80	D	28.7
						EBLTR	0.16	B	10.2	0.15	B	12.0
						WBLTR	0.16	B	11.3	0.50	C	16.4

						SBLTR	0.69	C	18.7	0.77	D	26.7
8	Beacon Light Road & Wing Road	TWSC	-	-	-	NBT	0.01	A	7.5	0.07	A	9.1
						SBLT	0.18	B	12.4	0.29	C	19.8
9	Beacon Light Road & Pollard Road	TWSC	-	-	-	NBLTR	0.46	C	19.1	>1.50	F	>300.0
						EBL	0.01	A	7.7	0.01	A	9.3
						WBL	0.04	A	8.5	0.13	A	8.1
						SBLTR	0.82	F	63.4	>1.50	F	>300.0
10	Beacon Light Road & SH 16	Traffic Signal	1.23/1.39	F/F	91.5/174.7	EBL	0.11	D	53.0	0.68	E	61.5
						EBT	1.06	F	135.6	0.36	D	51.6
						EBR	1.15	F	170.1	0.40	D	52.3
						WBL	1.30	F	246.1	0.52	D	42.5
						WBT	0.42	E	57.4	1.11	F	132.4
						WBR	0.50	E	58.5	>1.50	F	>300.0
						NBL	0.84	E	75.8	0.63	D	38.1
						NBT	0.51	C	26.2	1.42	F	237.6
						NBR	0.26	C	22.0	0.14	C	23.0
						SBL	0.65	B	19.4	1.22	F	194.1
						SBT	1.15	F	110.1	0.78	D	39.9
11	Beacon Light Road & Palmer Lane	TWSC	-	-	-	NBLR	0.49	F	50.6	>1.50	F	>300.0
						WBL	0.04	B	11.0	0.01	A	8.3
12	Floating Feather Road & Can Ada Road	Not constructed for this scenario. Intersection is analyzed in the 2045 Total Traffic (With Select Roadway Improvements) Conditions scenario										
13	Floating Feather Road & Star Road	TWSC	-	-	-	NBL	0.68	F	62.9	>1.50	F	>300.0
						NBR	0.22	B	11.5	0.23	B	10.8
						WBL	0.31	A	9.7	0.52	B	11.1
14	Floating Feather Road & Plummer Road	TWSC	-	-	-	NBLR	0.31	C	15.0	>1.50	F	>300.0
						WBL	0.04	A	8.8	0.09	A	8.6
15	Floating Feather Road & Pollard Road	TWSC	-	-	-	WBLR	0.40	C	18.3	0.82	E	45.2
						SBL	0.11	A	8.6	0.03	A	8.1
16	Floating Feather Road & Palmer Lane	TWSC	-	-	-	NBL	0.30	A	8.5	0.32	A	8.3
						EBLR	0.36	B	12.1	0.10	A	9.8
17	SH 44 & Can Ada Road	TWSC	-	-	-	EBL	0.13	A	10.1	0.30	C	17.5
						SBLR	>1.50	F	>300.0	>1.50	F	>300.0

18	SH 44 & Star Road	Traffic Signal	1.25/1.39	F/F	83.0/118.0	EBL	0.25	C	22.7	1.35	F	268.3
						EBT	1.07	F	90.8	0.90	E	55.2
						EBR	0.68	D	36.6	0.66	D	39.0
						WBL	1.13	F	148.4	1.05	F	111.6
						WBT	0.60	C	28.4	1.22	F	150.3
						WBR	0.13	C	21.1	0.17	C	23.9
						NBL	1.21	F	164.9	1.38	F	231.3
						NBT	0.39	D	42.9	0.59	D	45.3
						NBR	0.48	D	44.1	0.36	D	41.0
						SBL	0.53	D	39.8	0.40	D	46.8
						SBTR	1.19	F	165.1	1.23	F	189.6
19	SH 44 & Plummer Road	Traffic Signal	1.28/1.35	F/F	117.6/132.2	EBL	0.12	C	23.1	0.69	D	52.4
						EBT	1.28	F	173.1	0.88	D	39.7
						EBR	0.05	B	19.2	0.07	B	16.1
						WBL	0.59	D	38.4	0.60	D	35.1
						WBT	0.72	C	31.6	1.38	F	212.4
						WBR	0.15	B	19.8	0.35	B	19.3
						NBL	0.08	C	30.7	0.28	D	40.1
						NBT	0.02	C	29.9	0.21	D	38.6
						NBR	0.16	C	31.5	0.35	D	40.6
												SBLTR	1.21	F	160.8	1.40	F	254.9

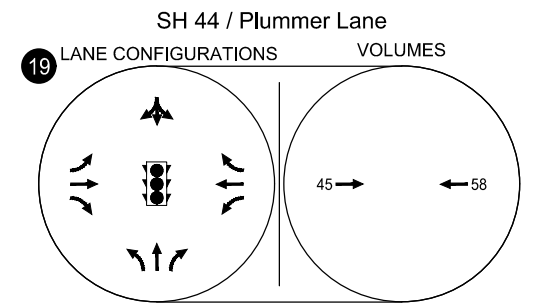
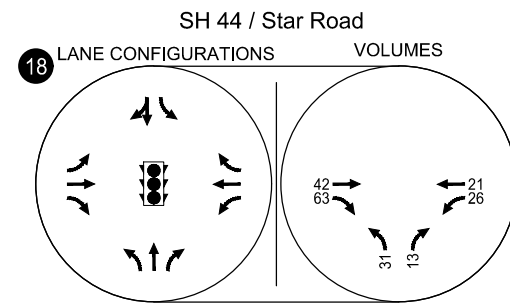
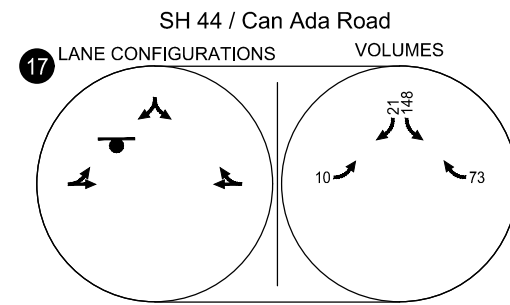
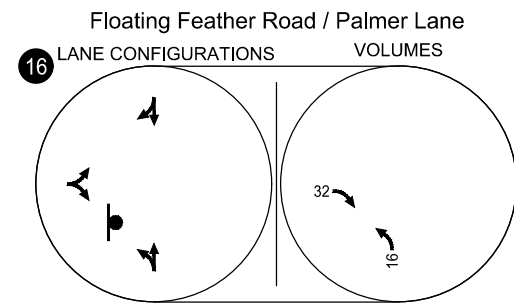
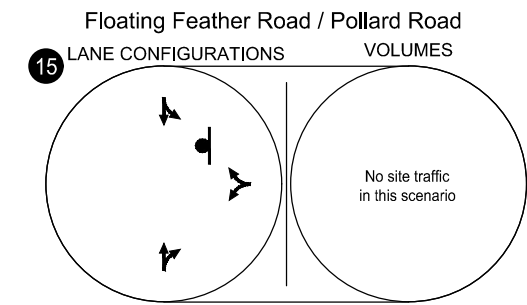
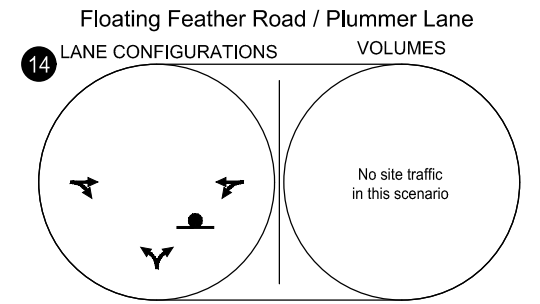
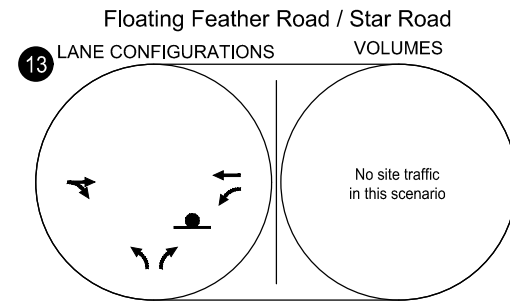
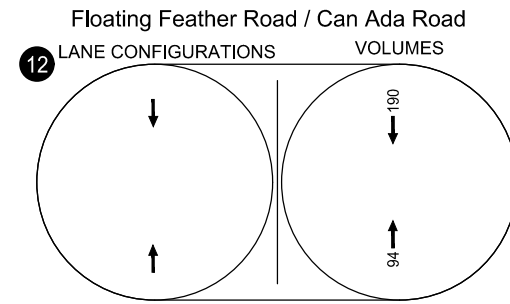
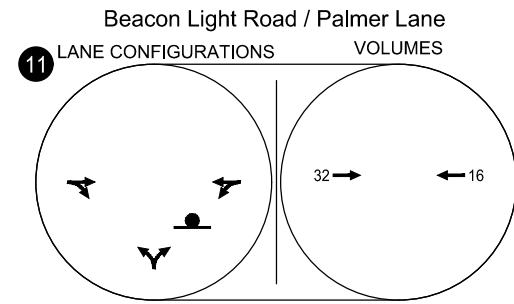
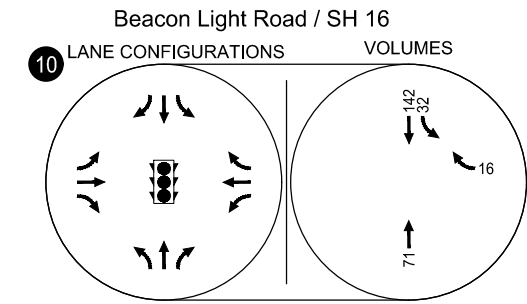
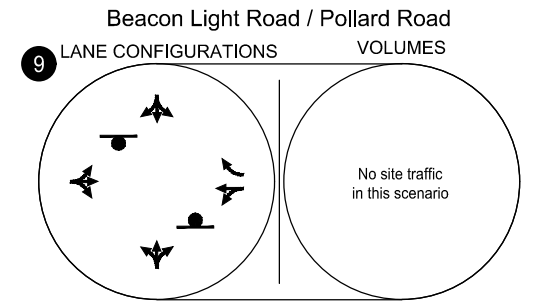
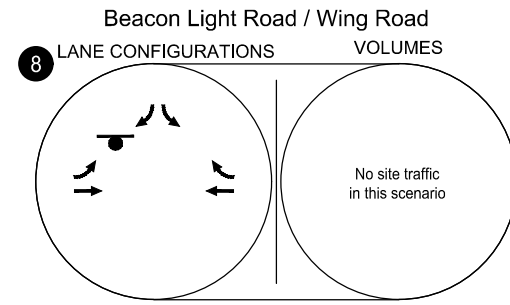
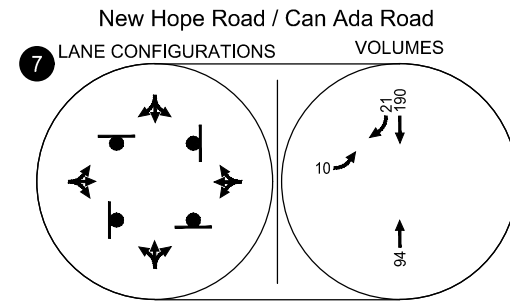
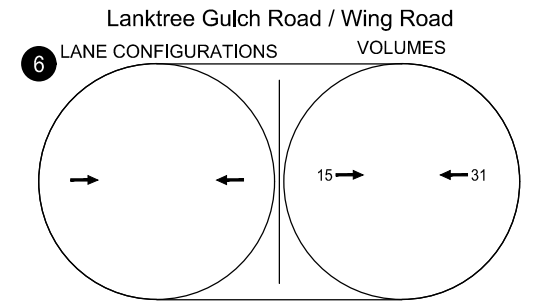
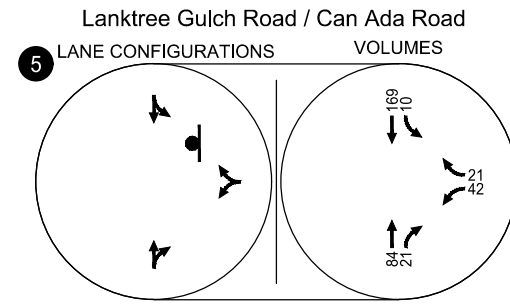
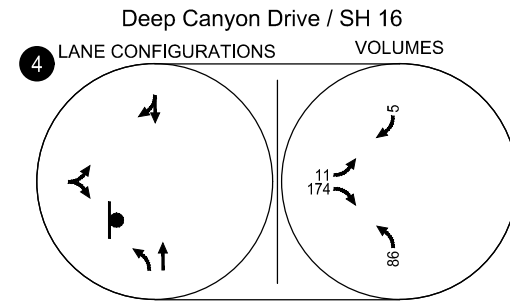
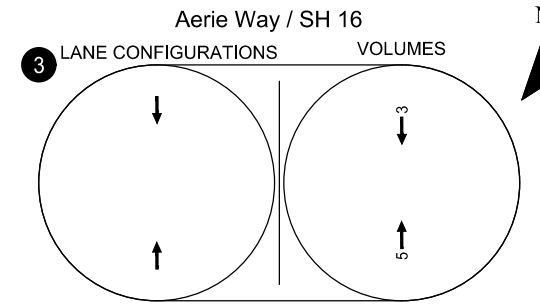
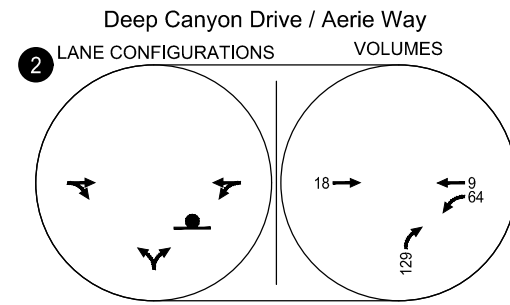
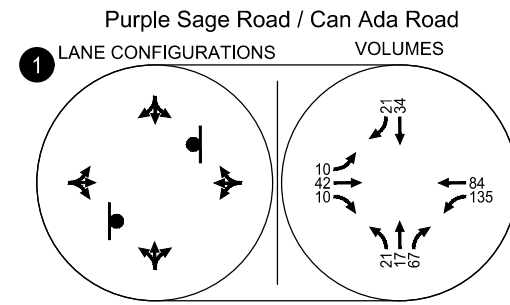
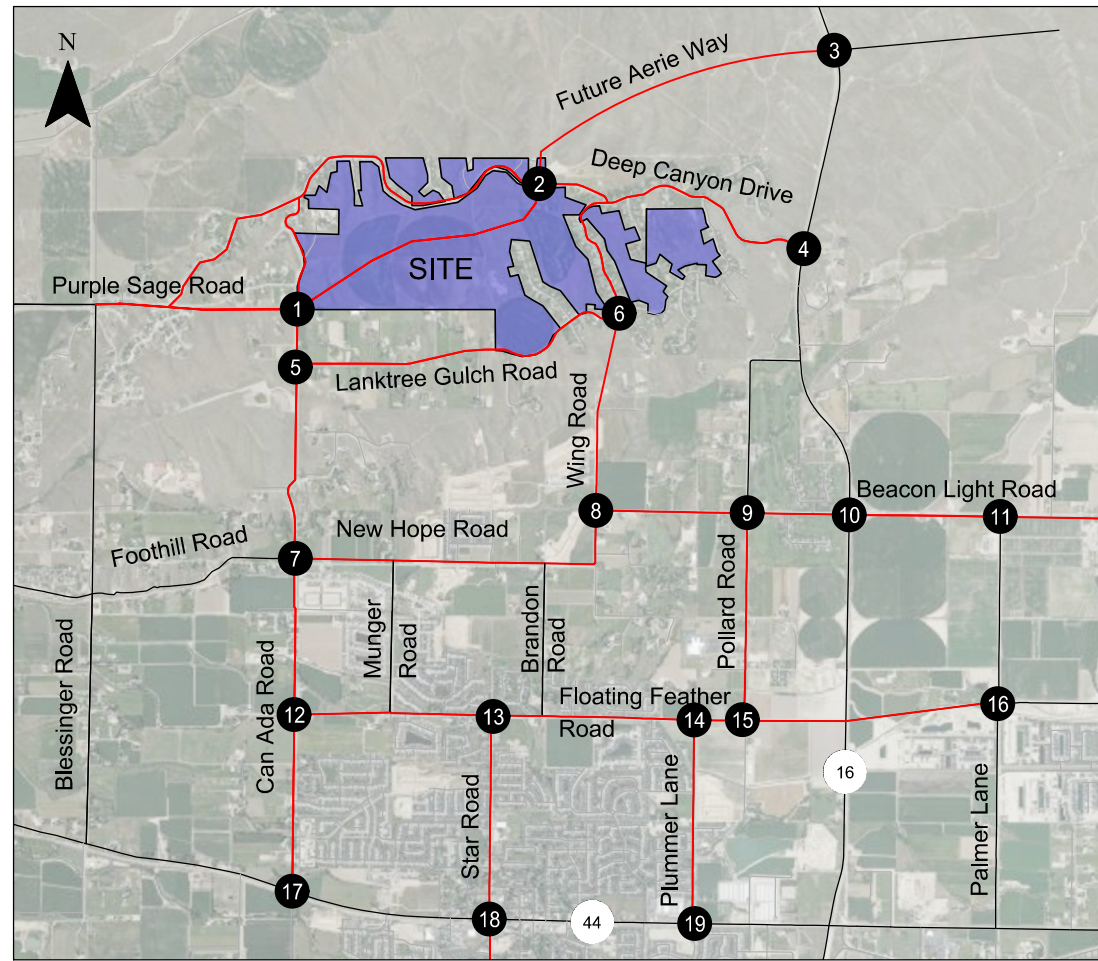
V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and highlighted indicate an intersection and/or lane group operating below the jurisdictional standards.

As Table 37 shows, all study intersections operate acceptably during the year 2045 total traffic weekday AM and PM peak hours except for:

1. Purple Sage Road & Can Ada Road
4. Deep Canyon Drive & SH 16
9. Beacon Light Road & Pollard Road
10. Beacon Light Road & SH 16
11. Beacon Light Road & Palmer Lane
13. Floating Feather Road & Star Road
14. Floating Feather Road & Plummer Road
17. SH 44 & Can Ada Road
18. SH 44 & Star Road
19. SH 44 & Plummer Road

The following intersections operate acceptably during year 2045 total traffic conditions but have one or more lane groups operating at LOS D or worse and require a signal warrant analysis:

5. Lanktree Gulch Road & Can Ada Road
7. New Hope Road & Can Ada Road
15. Floating Feather Road & Pollard Road

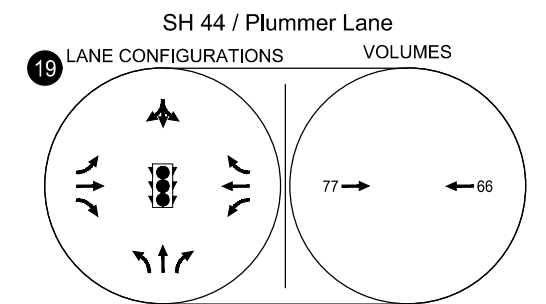
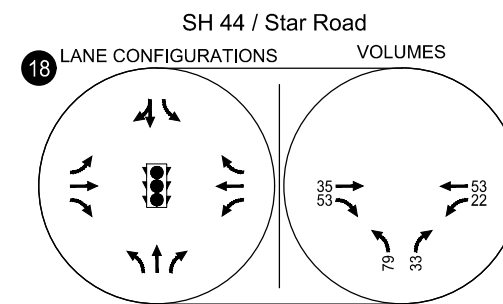
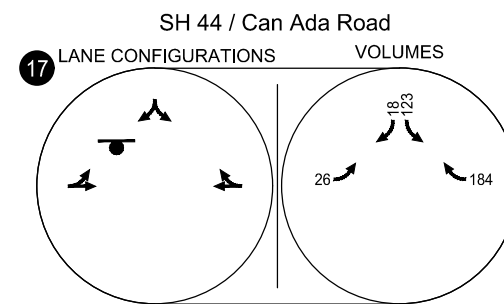
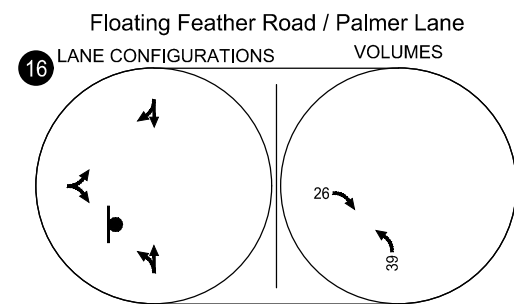
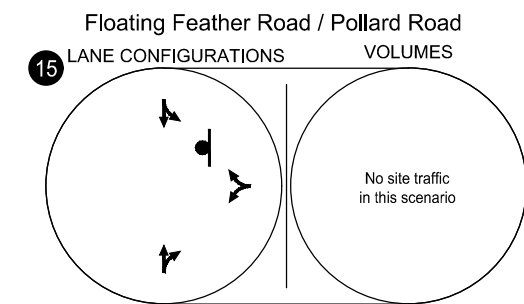
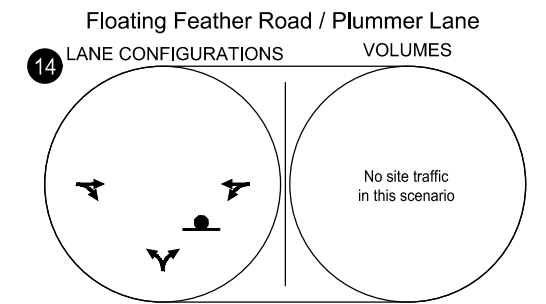
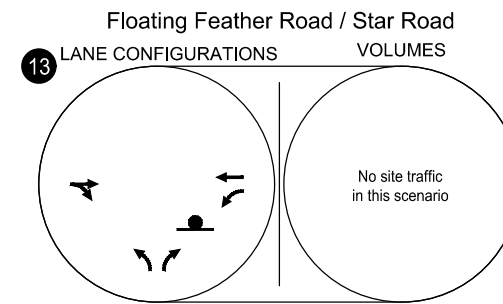
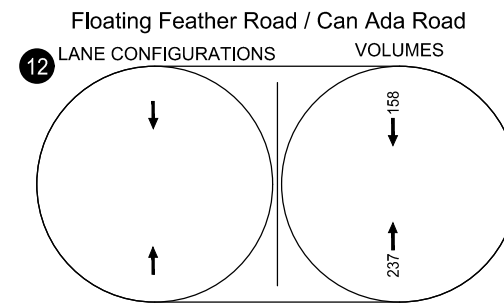
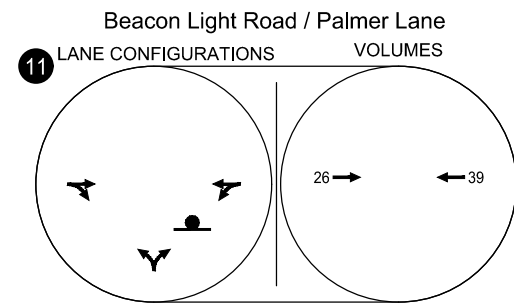
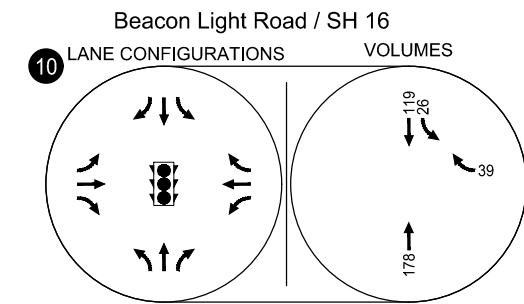
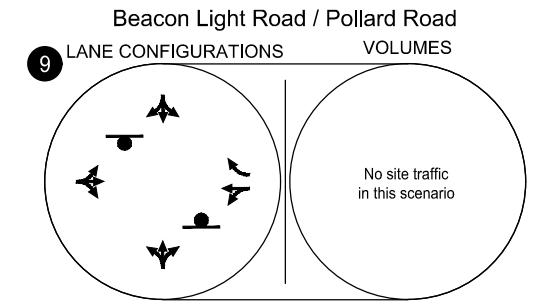
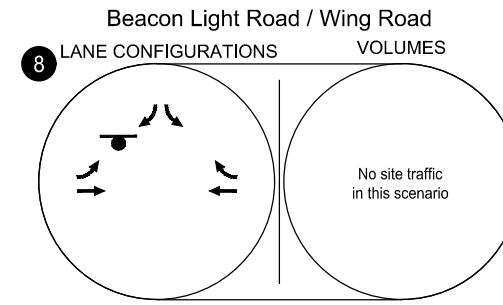
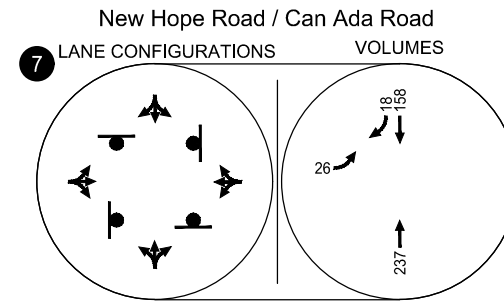
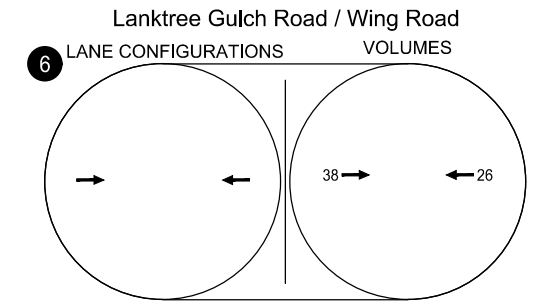
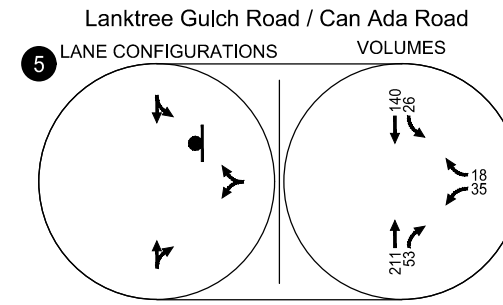
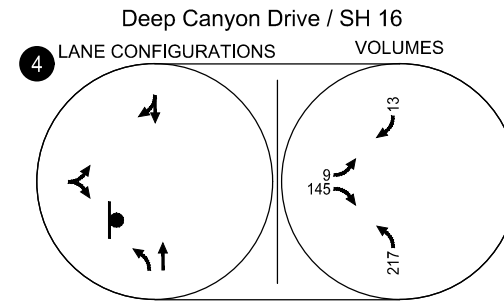
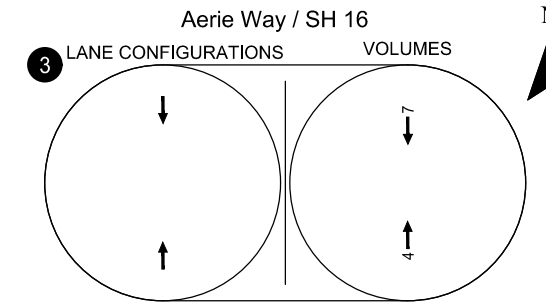
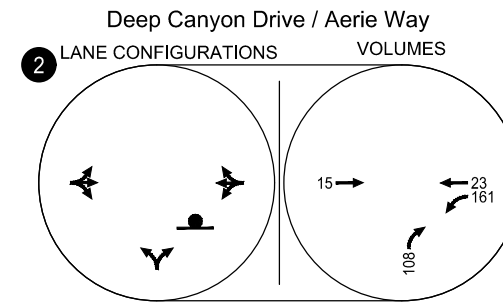
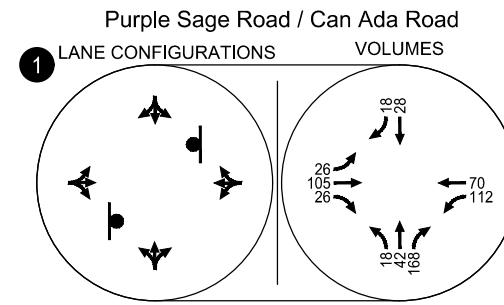
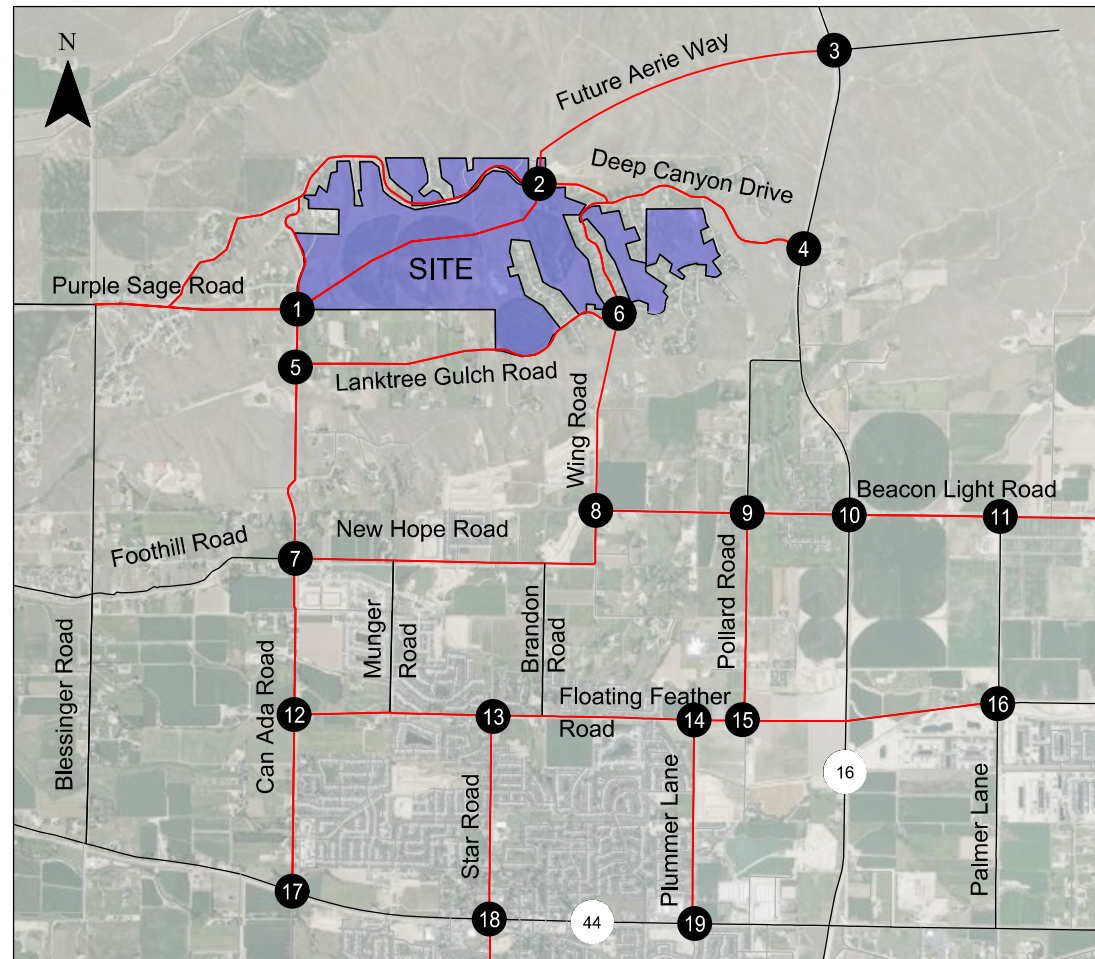


- STOP SIGN
 - TRAFFIC SIGNAL

Year 2045 Trip Assignment Volumes
 Weekday AM Peak Hour
 Ada County, Idaho

Figure 13A

H:\25\25407 - Willow Brook Community TIS\report\figs\25407_fig3.dwg Jan 24, 2023 - 11:11am - smartsch Layout Tab: Fig13A_2045_Assign_AM

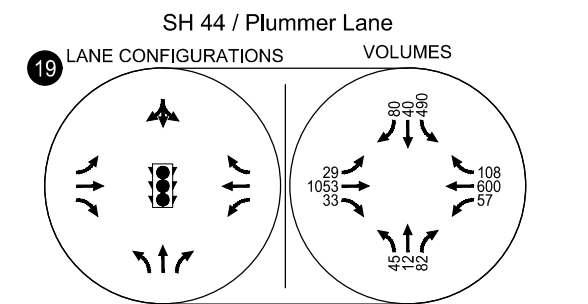
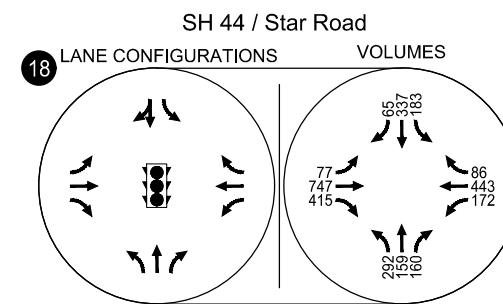
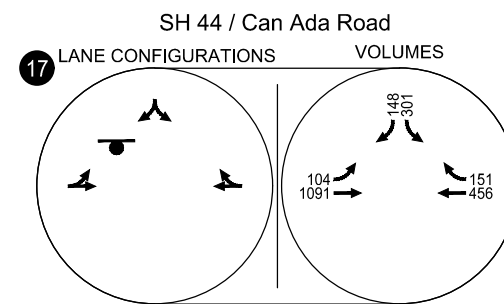
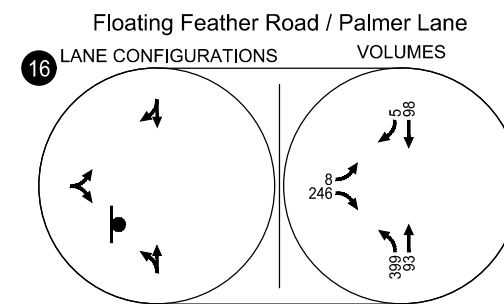
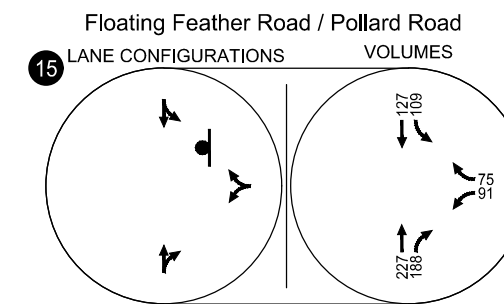
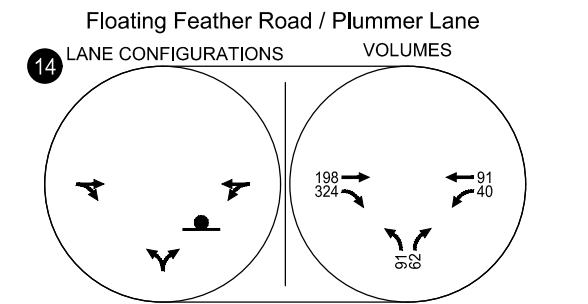
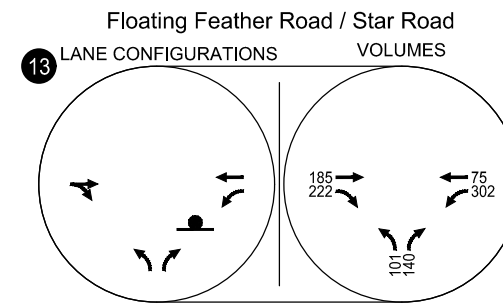
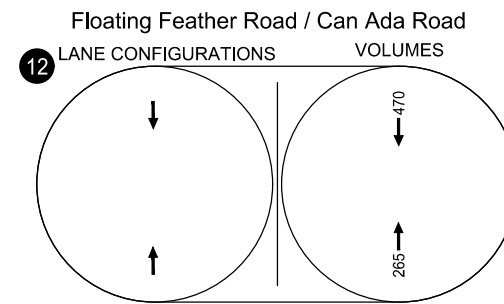
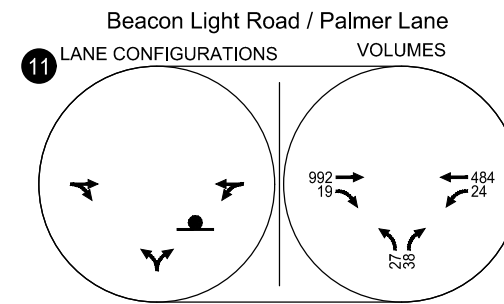
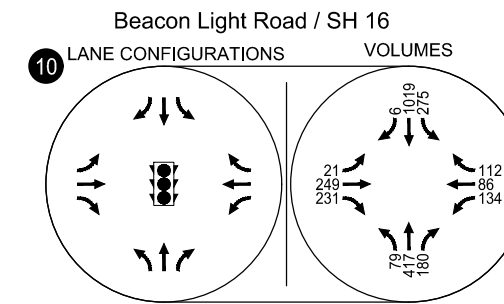
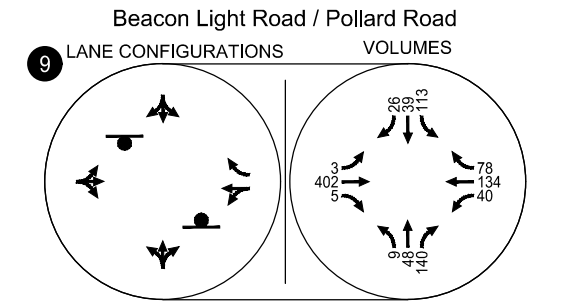
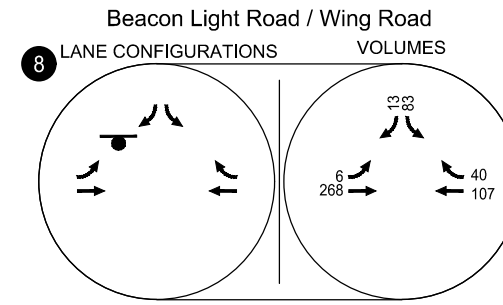
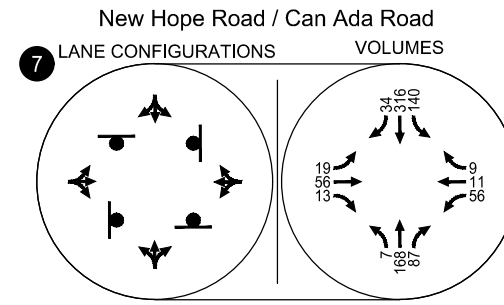
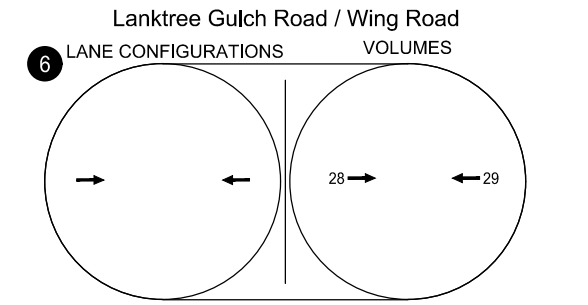
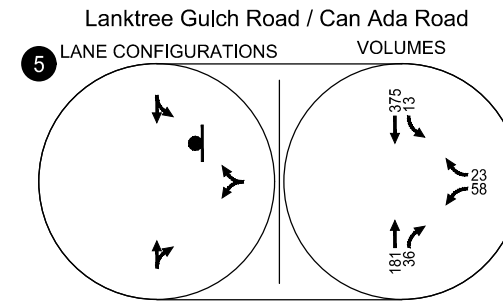
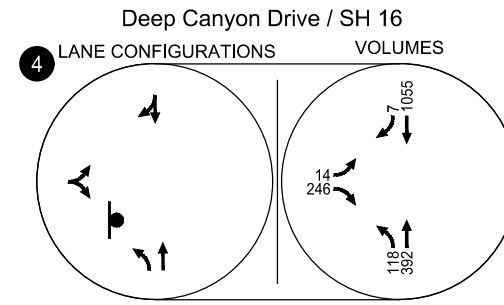
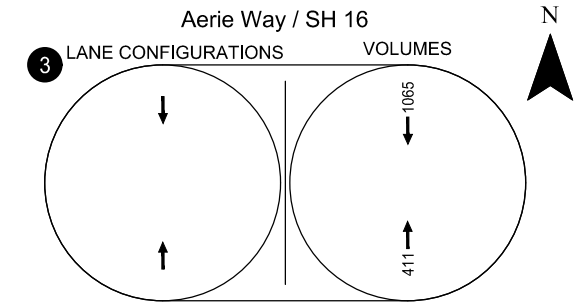
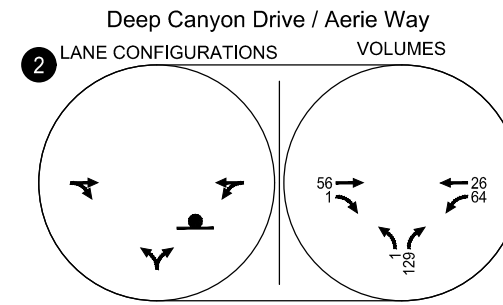
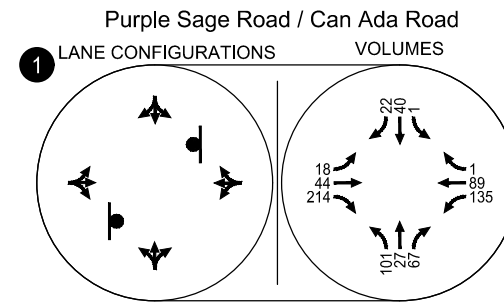
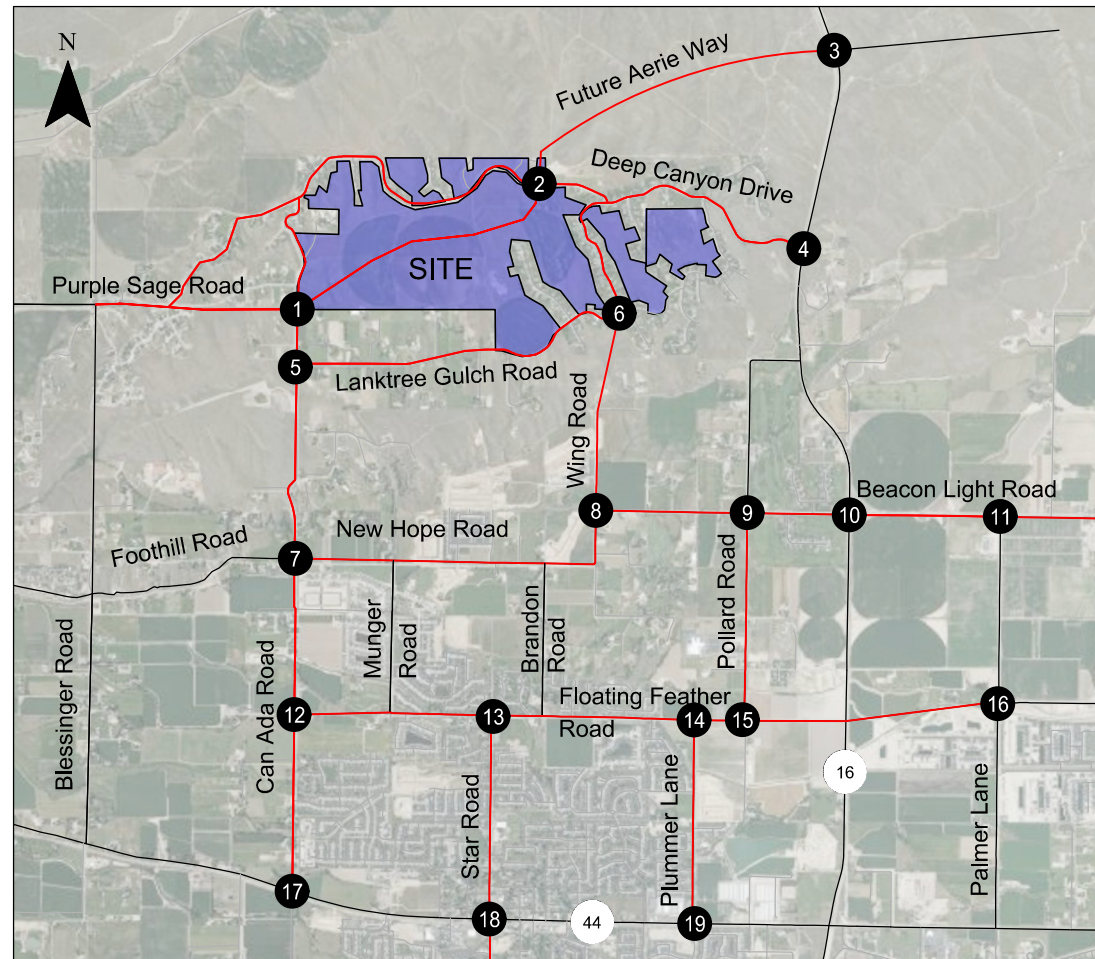


- STOP SIGN
 - TRAFFIC SIGNAL

Year 2045 Trip Assignment Volumes
Weekday PM Peak Hour
Ada County, Idaho

Figure 13B

H:\25\25407 - Willow Brook Community TIS\report\figs\25407_fig3.dwg Jan 24, 2023 - 11:11am - smantsch Layout Tab: Fig13B_2045_Assign_PM

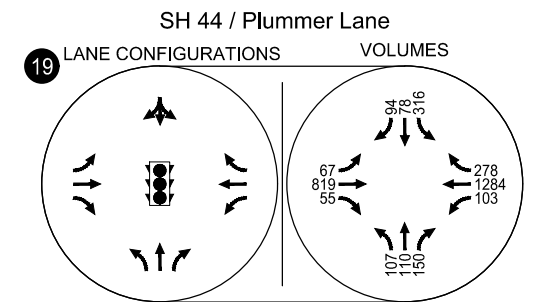
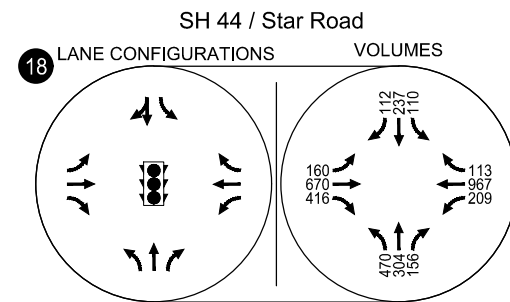
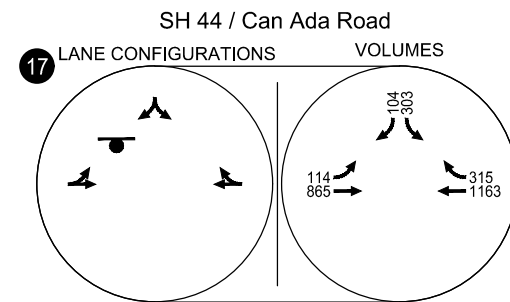
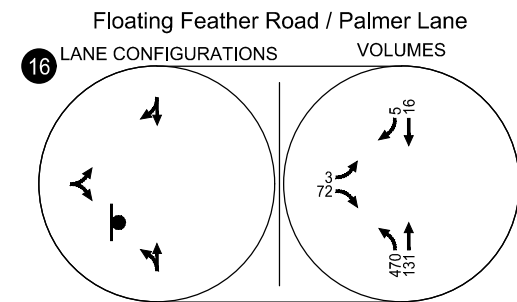
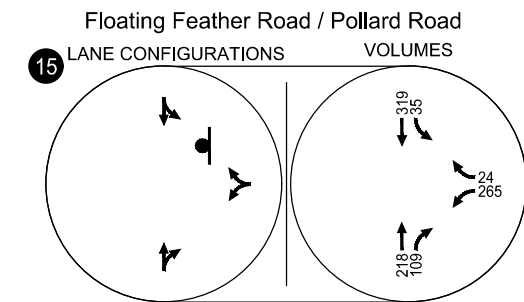
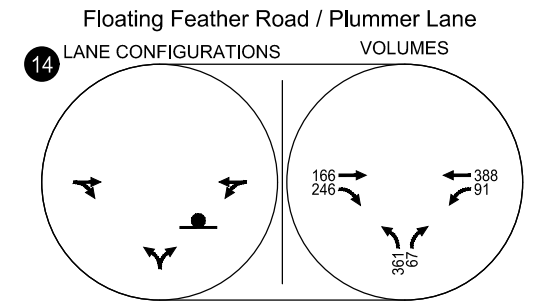
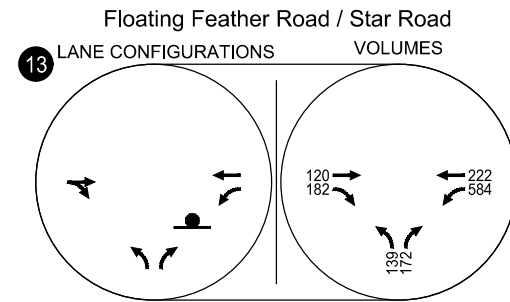
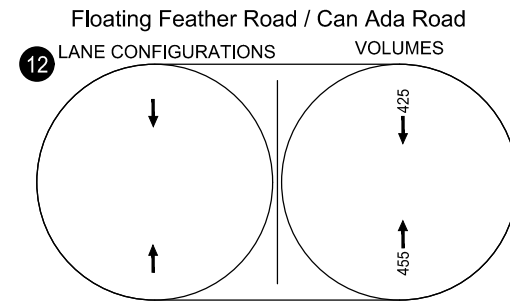
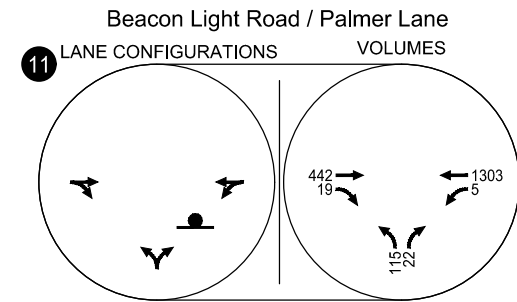
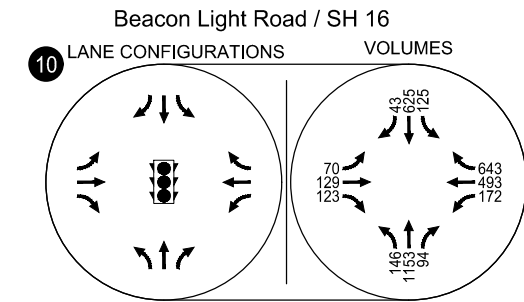
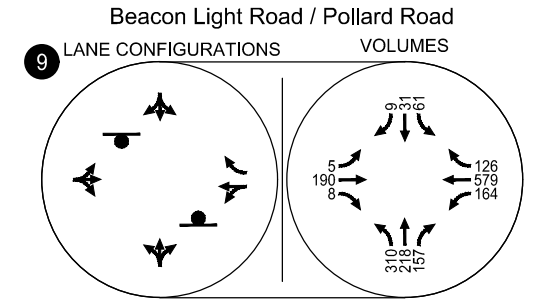
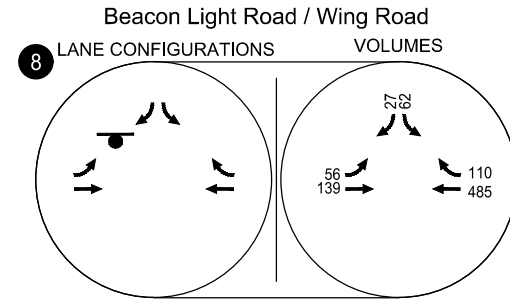
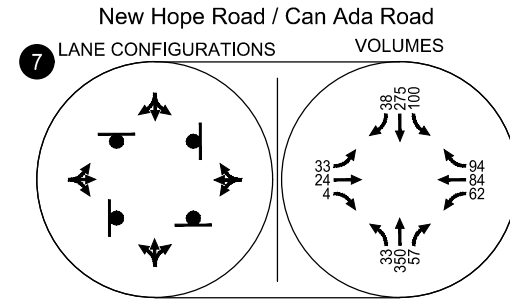
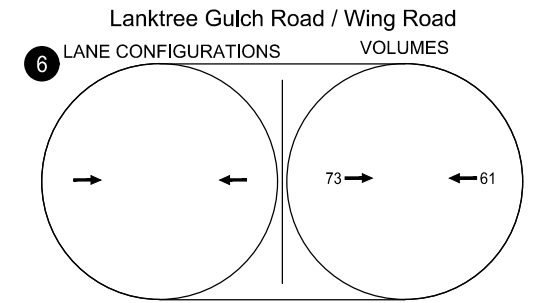
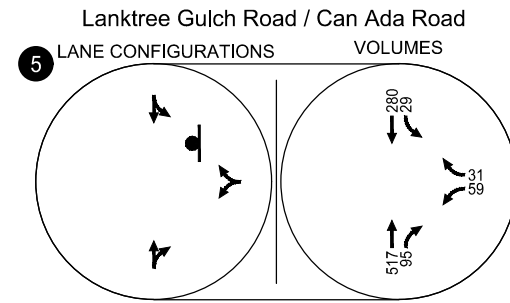
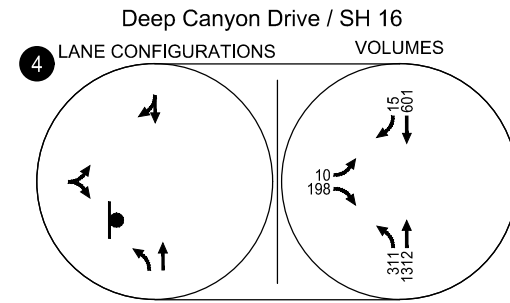
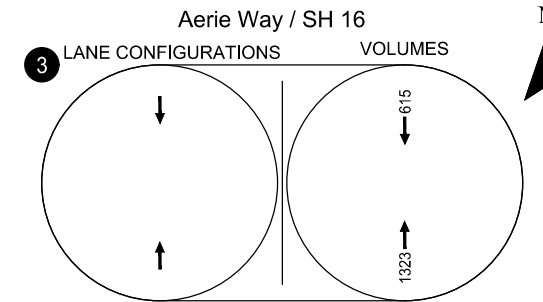
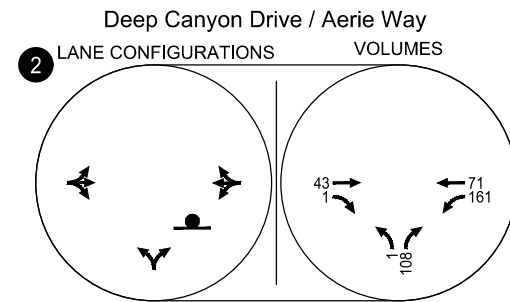
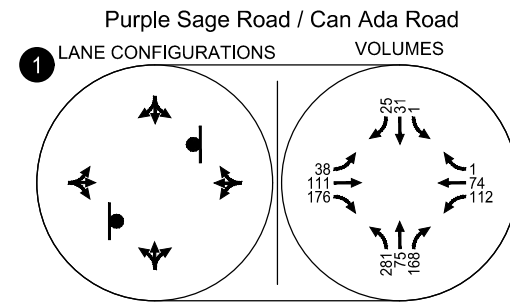
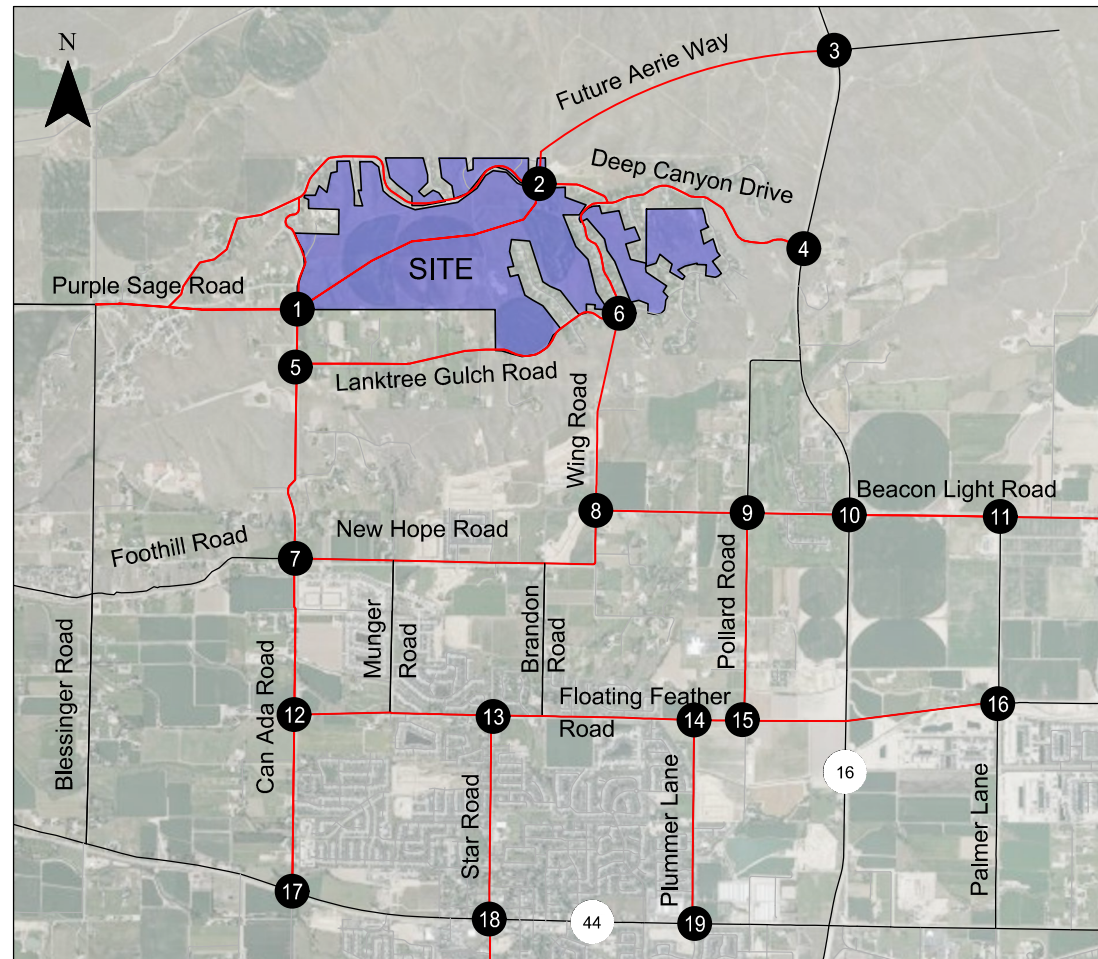


- STOP SIGN
 - TRAFFIC SIGNAL

Year 2045 Total Traffic Volumes
Weekday AM Peak Hour
Ada County, Idaho

Figure 14A

H:\25\25407 - Willow Brook Community TIS\report\figs\25407_fig.dwg Jan 24, 2023 - 11:12am - smaitisch Layout Tab: Fig14A_2045_TT_AM



- STOP SIGN
 - TRAFFIC SIGNAL

Year 2045 Total Traffic Volumes
Weekday PM Peak Hour
Ada County, Idaho

Figure 14B

H:\25\25407 - Willow Brook Community TIS\report\figs\25407_fig.dwg Jan 24, 2023 - 11:12am - smartsch Layout Tab: Fig14B_2045_TT_PM

YEAR 2045 TOTAL TRAFFIC CONDITIONS MITIGATION

This section highlights the mitigations needed to address each of the intersections not meeting traffic operation standards under the year 2045 total traffic conditions. Appendix T contains the year 2045 mitigated total traffic operational worksheets including findings from the signal warrant analysis.

Purple Sage Road & Can Ada Road

The minor street approaches of the Purple Sage Road / Can Ada Road intersection operate over capacity and at LOS F under 2045 total traffic conditions during the weekday PM peak hour. The intersection meets the 4-hour and peak hour traffic signal volume warrants, but not the 8-hour traffic signal volume warrant under 2045 total traffic conditions. The Mid-Star CIP includes adding turn lanes to this intersection in the 2030-2040 timeframe, but that will not mitigate the intersection in this scenario. The Willow Brook Golf Community site plan shows this intersection as a single lane roundabout. Table 38 shows how the intersection of Purple Sage Road / Can Ada Road operates as a traffic signal with left turn lanes and a single lane roundabout under 2045 total traffic conditions.

Table 38 Purple Sage Road / Can Ada Road Intersection Mitigation Operations – 2045 Total Traffic Conditions

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
1	Purple Sage Road / Can Ada Road	Single Lane Roundabout	0.27/ 0.50	A/ A	5.0/ 7.3	NBLTR	0.17	A	4.3	0.50	A	8.6
						WBLTR	0.21	A	5.0	0.23	A	6.5
						SBLTR	0.07	A	4.4	0.08	A	5.2
						EBLTR	0.27	A	5.7	0.30	A	6.0
		Traffic Signal with Left Turn Lanes	0.42/ 0.66	B/ B	14.0/ 16.2	EBL	0.04	B	11.0	0.07	B	11.0
						EBTR	0.75	B	17.1	0.77	B	18.1
						WBL	0.35	B	10.4	0.31	B	11.3
						WBTR	0.16	B	10.0	0.15	B	11.3
						NBL	0.26	B	13.0	0.63	B	16.9
						NBTR	0.31	B	14.0	0.70	B	17.3
						SBL	0.01	B	15.5	0.01	B	16.9
						SBTR	0.32	B	17.1	0.32	B	18.5

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and **highlighted** indicate an intersection and/or lane group operating below the jurisdictional standards.

As shown in Table 38, the intersection operates within ACHD standards as a single lane roundabout or a traffic signal with left turn lanes under 2045 total traffic conditions.

Deep Canyon Drive & SH 16

The minor street approach of the Deep Canyon Drive / SH 16 intersection operates over capacity and at LOS F under 2045 total traffic conditions during the weekday AM peak hour. The intersection meets the peak hour traffic signal volume warrants under 2045 background conditions and meets the 4-hour and 8-hour traffic signal volume warrants under 2045 total traffic conditions.

The future configuration of this section of SH 16 is currently being determined by an ITD Corridor Plan. A traffic signal with one through lane in the northbound and southbound direction does not mitigate the intersection. To fully mitigate the intersection, SH 16 needs to be widened to two through lanes in each direction. Table 39 shows how the intersection of Deep Canyon Drive / SH 16 operates as a traffic signal

with turn lanes and SH 16 widened to two through lanes in each direction under 2045 total traffic conditions.

Table 39 Deep Canyon Dr / SH 16 Intersection Mitigation Operations – 2045 Total Traffic Conditions

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
4	Deep Canyon Dr & SH 16	Traffic Signal	0.64/ 0.66	B/ A	14.8/ 9.6	EBLR	0.83	C	24.9	0.79	C	21.2
						NBL	0.37	B	10.5	0.59	A	8.4
						NBT	0.22	A	4.8	0.72	A	6.6
						SBT	0.83	B	16.5	0.61	B	12.6
						SBR	0.06	A	8.8	0.03	A	9.8

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and highlighted indicate an intersection and/or lane group operating below the jurisdictional standards.

As shown in Table 39, the intersection operates within ACHD and ITD standards as traffic signal with turn lanes and SH 16 widened to two through lanes in each direction under 2045 total traffic conditions.

As shown later in the 2045 total traffic (with select roadway improvements) conditions analysis, the intersection is also mitigated by adding the Aerie Way and Wing Road connections.

Lanktree Gulch Road & Can Ada Road

The Lanktree Gulch Road / Can Ada Road intersection operates acceptably under 2045 total traffic conditions during the weekday AM and PM peak hour, however the critical movement at the intersection is operating at LOS F in the weekday PM peak hour. ACHD policy requires an evaluation of traffic signal warrants if the critical movement at an unsignalized intersection operates at LOS D or worse.

The intersection meets the 8-hour, 4-hour, and peak hour traffic signal volume warrants under 2045 total traffic conditions.

New Hope Road & Can Ada Road

The New Hope Road / Can Ada Road intersection operates acceptably under 2045 total traffic conditions during the weekday AM and PM peak hour, however the critical movement at the intersection is operating at LOS E in the weekday PM peak hour. ACHD policy requires an evaluation of traffic signal warrants if the critical movement at an unsignalized intersection operates at LOS D or worse.

The intersection meets the 8-hour, 4-hour, and peak hour traffic signal volume warrants under 2045 total traffic conditions.

Beacon Light Road & Pollard Road

As shown in Figures 12A and 12B, no Willow Brook site trips are assigned to this intersection under 2045 total traffic conditions. Therefore, the mitigations needed at this intersection are the same as identified in the 2045 background conditions mitigations section.

Beacon Light Road & SH 16

The intersection of Beacon Light Road / SH 16 is projected to operate over capacity and at LOS F under 2045 total traffic conditions during the weekday AM and PM peak hour. In addition, several movements/lane groups are projected to operate over capacity and at LOS F during the weekday AM and PM peak hours. The Spring Valley development was conditioned with improvements to this intersection. Table 40 shows how the intersection of Beacon Light Road / SH 16 operates as with the

northbound and southbound approaches widened to two through lanes and a second westbound right turn lane added under 2045 total traffic conditions.

Table 40. Beacon Light Rd / SH 16 Intersection Mitigation Operations – 2045 Total Traffic Conditions

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
10	Beacon Light Road & SH 16	Traffic Signal	0.84/ 0.86	C/ D	36.7/ 38.1	EBL	0.07	C	34.7	0.46	D	36.2
						EBT	0.80	D	51.1	0.25	D	35.1
						EBR	0.87	E	59.9	0.28	D	35.5
						WBL	0.67	D	40.3	0.40	C	30.5
						WBT	0.29	C	34.9	0.87	D	51.4
						WBR	0.12	C	22.6	0.64	C	33.4
						NBL	0.46	C	28.2	0.42	C	23.9
						NBT	0.44	C	31.3	0.90	D	44.4
						NBR	0.42	C	31.8	0.17	C	25.9
						SBL	0.67	C	23.3	0.69	D	36.5
						SBT	0.86	D	36.7	0.50	C	30.8
SBR	0.01	C	20.3	0.08	C	25.5						

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and **highlighted** indicate an intersection and/or lane group operating below the jurisdictional standards.

As shown in Table 40, the intersection operates within ACHD and ITD standards with the northbound and southbound approaches widened to two through lanes and a second westbound right turn lane added under 2045 total traffic conditions.

Beacon Light Road & Palmer Lane

The minor street approach of the Beacon Light Road / Palmer Lane intersection operates over capacity and at LOS F under 2045 total traffic conditions during the weekday PM peak hour. The intersection meets the 8-hour, 4-hour, and peak hour traffic signal volume warrants under 2045 background conditions. The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040. Due to the high eastbound and westbound volumes, the intersection does not operate within standards as a single lane roundabout or a traffic signal with turn lanes. In order to meet standards, Beacon Light Road would need to be widened to two through lanes at the intersection. Table 41 shows how the intersection of Beacon Light Road / Palmer Lane operates as a multi-lane roundabout or a traffic signal with turn lanes and the eastbound and westbound approaches widened to two through lanes under 2045 total traffic conditions.

Table 41 Beacon Light Road / Palmer Lane Intersection Mitigation Operations – 2045 Total Traffic Conditions

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
11	Beacon Light Road / Palmer Lane	Multi-Lane Roundabout	0.41/ 0.55	A/ A	6.0/ 7.6	NBLR	0.18	B	11.5	0.18	A	6.2
						WBLT	0.20	A	4.3	0.55	A	9.0
						EBLR	0.41	A	6.5	0.17	A	4.0
		Traffic Signal	0.52/ 0.66	A/ A	6.6/ 5.9	EBT	0.65	A	7.8	0.28	A	5.7
						EBR	0.03	A	5.1	0.03	A	4.9
						WBL	0.07	A	5.4	0.01	A	4.1
						WBT	0.24	A	3.0	0.66	A	4.9
						NBL	0.14	B	15.5	0.53	B	16.5
						NBR	0.24	B	16.2	0.11	B	14.0

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and **highlighted** indicate an intersection and/or lane group operating below the jurisdictional standards.

As shown in Table 41, the intersection operates within ACHD standards as a multi-lane roundabout or a traffic signal with turn lanes and the eastbound and westbound approaches widened to two through lanes under 2045 total traffic conditions.

Floating Feather Road & Star Road

As shown in Figures 12A and 12B, no Willow Brook site trips are assigned to this intersection under 2045 total traffic conditions. Therefore, the mitigations needed at this intersection are the same as identified in the 2045 background conditions mitigations section.

Floating Feather Road & Plummer Road

As shown in Figures 12A and 12B, no Willow Brook site trips are assigned to this intersection under 2045 total traffic conditions. Therefore, the mitigations needed at this intersection are the same as identified in the 2045 background conditions mitigations section.

SH 44 & Can Ada Road

The minor street approach of the SH 44 / Can Ada Road intersection operates over capacity and at LOS F under 2045 total traffic conditions during the weekday AM and PM peak hour. The intersection meets the 4-hour and peak hour traffic signal volume warrants under existing conditions and meets the 8-hour traffic signal volume warrant under 2045 background conditions. This intersection is in the Mid-Star CIP as a future traffic signal to be constructed by 2025. ITD's SH 44 Corridor Plan shows this intersection as a future RCUT with SH 44 widened to 4 lanes. The City of Star is leading a project that will widen SH 44 to the east of Can Ada Road in 2023, which will not improve operations on the southbound approach of Can Ada Road. Table 42 shows how the intersection operates as a traffic signal with the eastbound and westbound approaches widened to two through lanes and with turn lanes or as an RCUT with SH 44 widened to 4 lanes under 2045 total traffic conditions.

Table 42 SH 44 / Can Ada Rd Intersection Mitigation Operations – 2045 Total Traffic Conditions

7	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
17	SH 44 & Can Ada Road	Traffic Signal	0.75/ 0.80	A/ B	9.3/ 13.7	EBL	0.18	A	7.1	0.31	B	11.0
						EBT	0.68	A	7.5	0.46	A	6.1
						WBT	0.46	B	10.6	0.84	B	17.3
						WBR	0.27	A	10.0	0.44	B	10.7
						SBL	0.74	B	15.5	0.81	C	23.8
						SBR	0.45	B	13.0	0.34	B	17.0
		RCUT	-	-	-	EBL	0.12	A	9.4	0.29	C	17.2
			-	-	-	SBR	0.63	C	17.5	1.00	F	75.2

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and **highlighted** indicate an intersection and/or lane group operating below the jurisdictional standards.

As shown in Table 42, the intersection operates within ACHD and ITD standards as a traffic signal with the eastbound and westbound approaches widened to two through lanes and with turn lanes under 2045 total traffic conditions. The intersection does not operate within ACHD and ITD standards as an RCUT with SH 44 widened to 4 lanes.

SH 44 & Star Road

The intersection of SH 44 / Star Road operates over capacity and at LOS F under 2045 total traffic conditions during the weekday AM and PM peak hour. Additionally, several lane groups are over capacity and at LOS F during the AM and PM peak hours. This intersection is in the ACHD CIP to have the signal replaced/modified and approaches widened. The lane configuration identified in the CIP does not fully mitigate the intersection in this scenario. Table 43 shows how the intersection operates as a traffic signal with left and right turn lanes, two through lanes in the eastbound and westbound direction, and dual left turn lanes in the northbound direction under 2045 total traffic conditions.

Table 43. SH 44 / Star Rd Intersection Mitigation Operations – 2045 Total Traffic Conditions

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
18	SH 44 & Star Road	Traffic Signal	0.75/ 0.82	C/ C	30.3/ 31.5	EBL	0.20	B	16.8	0.71	C	34.1
						EBT	0.68	C	28.3	0.54	C	26.2
						EBR	0.82	D	45.8	0.52	A	6.8
						WBL	0.62	C	23.8	0.78	D	41.0
						WBT	0.36	B	20.0	0.85	C	33.9
						WBR	0.15	B	18.2	0.22	C	23.2
						NBL	0.76	C	23.4	0.87	D	48.4
						NBT	0.47	C	25.0	0.67	C	33.5
						NBR	0.57	C	25.8	0.41	B	17.5
						SBL	0.56	C	23.7	0.40	C	31.5
SBT	0.88	C	34.7	0.85	D	44.6						
SBR	0.20	C	24.5	0.46	D	37.8						

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and highlighted indicate an intersection and/or lane group operating below the jurisdictional standards.

As shown in Table 43, the intersection operates within ACHD and ITD standards with the eastbound and westbound approaches widened to two through lanes and dual northbound left turn lanes under 2045 total traffic conditions.

SH 44 & Plummer Road

The minor street approaches of SH 44 / Plummer Road operate over capacity and at LOS F under 2045 total traffic conditions during the weekday AM and PM peak hours. The intersection meets the 8-hour, 4-hour, and peak hour traffic signal volume warrants under 2022 existing conditions. This intersection is not currently programmed for improvements by ACHD. ITD's draft SH 44 Corridor Plan shows this intersection as signalized with SH 44 widened to 4 lanes. The lane configuration shown in the Corridor Plan does not fully mitigate the intersection. Table 44 shows how the intersection operates as an expanded traffic signal with left and right turn lanes, two through lanes in the eastbound and westbound direction, and dual left turn lanes in the southbound direction under 2045 total traffic conditions.

Table 44. SH 44 / Plummer Rd Intersection Mitigation Operations – 2045 Total Traffic Conditions

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
19	SH 44 & Plummer Road	Traffic Signal	0.69/ 0.76	C/ C	21.3/ 24.0	EBL	0.08	B	11.4	0.34	B	17.6
						EBT	0.81	C	20.7	0.57	B	16.4
						EBR	0.06	B	12.2	0.08	B	12.4
						WBL	0.24	B	14.2	0.31	B	12.4
						WBT	0.45	B	14.0	0.87	C	24.6

						WBR	0.18	B	12.3	0.42	B	14.7
						NBL	0.16	C	26.6	0.30	C	26.3
						NBT	0.08	C	28.7	0.47	C	32.4
						NBR	0.65	D	35.0	0.77	D	38.6
						SBL	0.85	C	32.7	0.81	D	43.1
						SBT	0.10	C	20.5	0.24	C	27.2
						SBR	0.24	C	21.4	0.35	C	28.2

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and highlighted indicate an intersection and/or lane group operating below the jurisdictional standards.

As shown in Table 44, the intersection operates within ACHD and ITD standards with left and right turn lanes, the eastbound and westbound approaches widened to two through lanes, and dual southbound left turn lanes under 2045 total traffic conditions.

YEAR 2045 TOTAL TRAFFIC CONDITIONS ROADWAY SEGMENT ANALYSIS

Peak hour roadway segment volumes were based on the traffic count data collected at the study intersections. The peak hour, peak direction roadway segment volumes, and resultant LOS per ACHD Policy Manual 7106.4.1 for the study roadway segments are summarized in Table 45.

Table 45. Year 2045 Total Traffic Conditions Roadway Segment Operations

Roadway	Segment	Classification ¹	Travel Lanes ²	ADT	ACHD Peak Hour Std. Volume (One-Way)	Weekday AM Peak Hour		Weekday PM Peak Hour	
						One-Way Volume/Direction	Meets Std.	One-Way Volume/Direction	Meets Std.
Main Internal Collector	Can Ada to Deep Canyon	Collector	2	2,750	D / 425	220 (WB)	Yes	275 (EB)	Yes
Deep Canyon Drive	Purple Sage to Can Ada	Local	2	270	None	20 (NB)	Yes	20 (SB)	Yes
	Can Ada to Aerie			885		55 (EB)	Yes	65 (WB)	Yes
	Aerie to SH 16			7,445		260 (EB)	Yes	325 (WB)	Yes
Aerie Way	Deep Canyon to SH 16	Not constructed for this scenario. Segment is analyzed in the 2045 Total Traffic (With Select Roadway Improvements) Conditions scenario							
Lanktree Gulch Road	Can Ada to Wing	Local	2	2,760	None	80 (WB)	Yes	125 (EB)	Yes
Purple Sage Road	Blessinger to Can Ada	Collector	2	6,660	D / 340 (CHD4)	275 (EB)	Yes	380 (WB)	No
Can Ada Road	Deep Canyon to Purple Sage	Local	2	1,440	None	60 (SB)	Yes	110 (NB)	Yes
	Purple Sage to Lanktree Gulch	Collector		8,205	D / 425	390 (SB)	Yes	570 (NB)	No
	Lanktree Gulch to New Hope			10,110		490 (SB)	No	685 (NB)	No
	New Hope to Floating Feather	Minor Arterial		12,250	E / 575	470 (SB)	Yes	455 (NB)	Yes
	Floating Feather to SH 44	16,225		470 (SB)		Yes	455 (NB)	Yes	
Wing Road	Lanktree Gulch to Beacon Light	No Site Traffic in this Scenario, Results Same As 2045 Background Conditions							
New Hope Road	Can Ada to Wing	No Site Traffic in this Scenario, Results Same As 2045 Background Conditions							
Beacon Light Road	Wing to Pollard	No Site Traffic in this Scenario, Results Same As 2045 Background Conditions							
	Pollard to SH 16	No Site Traffic in this Scenario, Results Same As 2045 Background Conditions							
	SH 16 to Palmer	Minor Arterial	2	17,515	E / 575	1,010 (EB)	No	1,415 (WB)	No
	Palmer to Linder			17,205		1,030 (EB)	No	1,310 (WB)	No

Pollard Road	Beacon Light to Floating Feather	No Site Traffic in this Scenario, Results Same As 2045 Background Conditions							
Floating Feather Road	Can Ada to Star	Not constructed for this scenario. Segment is analyzed in the 2045 Total Traffic (With Select Roadway Improvements) Conditions scenario							
	Star to Plummer	No Site Traffic in this Scenario, Results Same As 2045 Background Conditions							
	Plummer to Pollard								
	Pollard to SH 16								
	SH 16 to Palmer	Minor Arterial	2	4,730	E / 575	420 (WB)	Yes	515 (WB)	Yes
Star Road	Floating Feather to SH 44	No Site Traffic in this Scenario, Results Same As 2045 Background Conditions							
	SH 44 to Joplin	Minor Arterial	2/3	23,205	E / 575	925 (SB)	No	930 (NB)	No
Plummer Road	Floating Feather to SH 44	No Site Traffic in this Scenario, Results Same As 2045 Background Conditions							

¹Per COMPASS 2040 Functional Street Classification Map (Reference 9)

²Travel lanes include the total number of lanes across the roadway's respective cross section

As shown in Table 45, all the roadway segments that receive Willow Brook site traffic meet ACHD roadway segment LOS thresholds under 2045 total traffic conditions weekday AM and PM peak hours except for:

- Deep Canyon Drive (Purple Sage to SH 16) – ADT
- Lanktree Gulch Road (Can Ada to Wing) – ADT
- Purple Sage Road (Blessinger to Can Ada) – PM Peak Hour
- Can Ada Road (Purple Sage to Lanktree Gulch) – AM and PM Peak Hour
- Can Ada Road (Lanktree Gulch to New Hope) – AM and PM Peak Hour
- Beacon Light Road (SH 16 to Palmer) – AM and PM Peak Hour
- Beacon Light Road (Palmer to Linder) – AM and PM Peak Hour
- Star Road (SH 44 to Joplin) – AM and PM Peak Hour

YEAR 2045 TOTAL TRAFFIC CONDITIONS ROADWAY SEGMENT MITIGATION

Deep Canyon Drive (Purple Sage to SH 16)

This segment of Deep Canyon Drive exceeds the ACHD local road ADT threshold under 2045 total traffic conditions. This segment would meet the AM and PM peak hour LOS D volume thresholds under 2045 total traffic conditions if Deep Canyon Drive were upgraded to a collector roadway.

Due to the residential nature of Deep Canyon Drive and the significant front-on housing with driveway access, it is desired to keep Deep Canyon Drive as a local street. In order to meet ACHD local road ADT thresholds under 2045 total traffic conditions, Deep Canyon Drive would need to be disconnected from SH 16. This is not feasible with the connections provided by the current roadway network. The 2045 total traffic (with select roadway improvements) conditions scenario analyzes disconnecting Deep Canyon Drive from SH 16 with the construction of Aerie Way and the Wing Road extension.

Lanktree Gulch Road (Can Ada to Wing)

This segment of Lanktree Gulch Road exceeds the ACHD local road ADT threshold under 2045 total traffic conditions. This segment would meet the AM and PM peak hour LOS D volume thresholds under 2045 total traffic conditions if Lanktree Gulch Road were upgraded to a collector roadway. Though there is sporadic front on housing along the segment, upgrading Lanktree Gulch Road to a collector roadway is an option as development continues in the area. This segment serves as a key connection between Can Ada Road and residential areas.

Purple Sage Road (Blessinger to Can Ada

This segment of Can Ada Road exceeds the CHD4 LOS D volume threshold for collectors under 2045 total traffic (with select roadway improvements) conditions in the PM peak hour. This roadway segment has limited right-of-way with front on housing and is limited to a maximum of a 3-lane section. Widening to 3-lanes would increase the LOS D threshold to 490 VPH, which would bring the segment to within CHD4 standards.

Can Ada Road (Purple Sage to Lanktree Gulch)

This segment of Can Ada Road exceeds the ACHD LOS D volume threshold for collectors under 2045 total traffic conditions in the AM and PM peak hours. Can Ada Road is currently a minor arterial from SH 44 to New Hope Road. This designation should be extended to Purple Sage Road to accommodate increasing traffic volumes as development occurs in the area. This would increase the LOS E volume threshold to 575, which would accommodate 2045 total traffic volumes.

Additionally, the Willow Brook developer has identified the need for improvements to this section of Can Ada Road to accommodate traffic from the Willow Brook development. The developer should work with ACHD and CHD4 to determine potential options to improve safety and operations related to the topography and tight curves that currently exist on this segment.

Can Ada Road (Lanktree Gulch to New Hope)

This segment of Can Ada Road exceeds the ACHD LOS D volume threshold for collectors under 2045 total traffic conditions in the AM and PM peak hours. Can Ada Road is currently a minor arterial from SH 44 to New Hope Road. This designation should be extended to Purple Sage Road to accommodate increasing traffic volumes as development occurs in the area. This would increase the LOS E volume threshold to 575, which would accommodate 2045 total traffic volumes.

Additionally, the Willow Brook developer has identified the need for improvements to this section of Can Ada Road to accommodate traffic from the Willow Brook development. The developer should work with ACHD and CHD4 to determine potential options to improve safety and operations related to the topography and tight curves that currently exist on this segment.

Beacon Light Road (SH 16 to Palmer)

This segment of Beacon Light Road exceeds the ACHD LOS E volume threshold for minor arterials under 2045 total traffic conditions in the AM and PM peak hours. This roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe. This would bring the LOS E threshold to 720 VPH, which would still be exceeded by 2045 total traffic volumes. To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section (LOS E threshold of 1,540 VPH).

Beacon Light Road (Palmer to Linder)

This segment of Beacon Light Road exceeds the ACHD LOS E volume threshold for minor arterials under 2045 total traffic conditions in the AM and PM peak hours. This roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe. This would bring the LOS E threshold to 720 VPH, which would still be exceeded by 2045 total traffic volumes. To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section (LOS E threshold of 1,540 VPH).

Star Road (SH 44 to Joplin)

This segment of Star Road exceeds the ACHD LOS E volume threshold for minor arterials under 2045 total traffic conditions in the AM and PM peak hours. The roadway segment is listed in the ACHD CIP to be

widened to a 5-lane section in the 2031-2035 timeframe. This would bring the LOS E threshold to 1,540 VPH, which would accommodate 2045 total traffic volumes.

YEAR 2045 TOTAL TRAFFIC CONDITIONS (WITH SELECT ROADWAY IMPROVEMENTS)

The year 2045 total traffic (with select roadway improvements) analysis identifies how the study area's transportation system will operate in the future year with the proposed Willow Brook Golf Community in place, and with select roadway improvements constructed. This scenario includes the following roadway improvements:

- Floating Feather Road constructed between Munger Road and Can Ada Road
- Floating Feather Road realignment constructed between Pollard Road and Palmer Lane
- Wing Road constructed between Beacon Light Road and Lanktree Gulch Road
- Aerie Way constructed between SH 16 and Deep Canyon Drive

Site generated trips for 2045 full buildout with select roadway improvements were distributed to the roadway system according to the trip assignment shown in Figures 14A and 14B.

The 2045 background (with select roadway improvements) traffic volumes (Figures 8A and 8B) were added to the site-generated traffic for full buildout (Figures 15A and 15B) to arrive at the Year 2045 total traffic (with select roadway improvements) volumes that are shown in Figures 16A and 16B.

YEAR 2045 TOTAL TRAFFIC CONDITIONS (WITH SELECT ROADWAY IMPROVEMENTS) INTERSECTION OPERATIONS

Table 46 presents the traffic operations results for each study intersection and its corresponding lane groups under 2045 total traffic conditions (with select roadway improvements) for during the weekday AM and PM peak hours. Figures 16A and 16B show the lane configurations and traffic volumes for Year 2045 total traffic (with select roadway improvements) conditions. Appendix U contains the Year 2045 total traffic conditions (with select roadway improvements) Synchro worksheets.

Table 46. Year 2045 Total Traffic (with Select Roadway Improvements) Intersection Operations

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
1	Purple Sage Road & Can Ada Road	TWSC	-	-	-	NBL	0.07	A	7.5	0.20	A	7.9
						EBLTR	0.37	B	11.8	1.00	F	82.9
						WBLTR	0.53	C	23.2	1.46	F	>300.0
						SBL	0.01	A	7.4	0.01	A	7.6
2	Deep Canyon Drive & Aerie Way	TWSC	-	-	-	NBLTR	0.13	A	9.5	0.12	A	9.9
						EBL	0.01	A	7.3	0.01	A	7.3
						WBL	0.03	A	7.3	0.07	A	7.4
						SBLTR	0.0	A	9.8	0.10	B	11.0
3A	Aerie Way & SH 16 West Rdbt	Roundabout	0.21/ 0.12	A/ A	3.7/ 3.2	NBLTR	0.07	A	3.0	0.12	A	3.2
						WBLTR	0.21	A	3.8	0.10	A	3.2
						SBLTR	0.01	A	4.2	0.01	A	3.2
						EBLTR	0.06	A	4.6	0.05	A	3.3
3B	Aerie Way &	Roundabout	0.39/ 0.61	A/ A	2.2/ 1.9	NBL	0.02	A	3.0	0.08	A	3.8

	SH 16 East Rdbt					NBR	0.39	A	0.0	0.61	A	0.0
						WBLT	0.22	A	4.1	0.20	A	4.1
						EBTR	0.09	A	3.4	0.16	A	4.8
3C	Aerie Way & SH 16 SB Ramp	Free										
3D	Aerie Way & SH 16 NB Ramp	TWSC	-	-	-	WBR	0.09	B	10.5	0.66	D	42.0
4	Deep Canyon Drive & SH 16	TWSC	-	-	-	NBL	0.14	B	12.2	0.23	B	10.2
						EBLR	0.86	F	79.8	0.31	C	16.8
5	Lanktree Gulch Road & Can Ada Road	TWSC	-	-	-	WBLR	0.14	B	12.6	0.23	C	18.2
						SBL	0.01	A	7.6	0.03	A	8.8
6	Lanktree Gulch Road & Wing Road	TWSC	-	-	-	NBLR	0.08	B	9.6	0.23	B	11.1
						WBL	0.03	A	7.5	0.03	A	7.6
7	New Hope Road & Can Ada Road	AWSC	-	B/C	12.6/19.7	NBLTR	0.32	B	10.7	0.63	C	18.5
						EBLTR	0.15	A	9.7	0.13	B	10.9
						WBLTR	0.15	B	10.8	0.42	B	13.7
						SBLTR	0.60	B	14.5	0.62	C	17.4
8	Beacon Light Road & Wing Road	TWSC	-	-	-	NBT	0.04	A	7.7	0.19	A	10.0
						SBLT	0.40	C	15.0	0.98	F	91.1
9	Beacon Light Road & Pollard Road	TWSC	-	-	-	NBLTR	0.53	C	24.8	>1.50	F	>300.0
						EBL	0.01	A	7.7	0.01	A	9.4
						WBL	0.04	A	8.8	0.14	A	8.3
						SBLTR	0.99	F	158	>1.50	F	>300.0
10	Beacon Light Road & SH 16	Traffic Signal	1.16/1.33	F/F	92.2/91.2	EBL	0.11	D	52.1	0.68	E	61.0
						EBT	1.06	F	133.2	0.37	D	51.0
						EBR	1.38	F	259.3	0.53	D	53.9
						WBL	1.19	F	197.9	0.52	D	41.8
						WBT	0.41	E	55.6	1.11	F	131.9
						WBR	0.45	E	56.0	>1.50	F	>300.0
						NBL	0.92	F	98.6	0.59	C	30.5
						NBT	0.50	C	26.9	1.37	F	216.6
						NBR	0.27	C	23.0	0.14	C	23.6
						SBL	0.62	B	19.4	1.12	F	163.6
						SBT	1.07	F	83.7	0.76	D	42.1
						SBR	0.01	B	15.0	0.07	C	25.8
11	Beacon Light Road & Palmer Lane	TWSC	-	-	-	NBL	0.49	F	50.6	>1.50	F	>300.0
						WBLR	0.04	B	11.0	0.01	A	8.3

12	Floating Feather Road & Can Ada Road	TWSC	-	-	-	WBLR	0.06	C	15.4	0.17	C	16.4
						SBL	0.03	A	7.9	0.03	B	8.3
13	Floating Feather Road & Star Road	TWSC	-	-	-	NBL	0.84	F	104.2	>1.50	F	>300.0
						NBR	0.26	B	11.8	0.31	B	11.4
						WBL	0.36	B	10.1	0.56	B	11.6
14	Floating Feather Road & Plummer Road	TWSC	-	-	-	NBLR	0.33	C	25.3	>1.50	F	>300.0
						WBL	0.04	A	8.9	0.09	A	8.6
15	Floating Feather Road & Pollard Road	TWSC	-	-	-	EBL	0.17	A	8.1	0.20	A	8.6
						SBL	0.59	C	24.4	0.66	C	22.0
16	Floating Feather Road & Palmer Lane	TWSC	-	-	-	NBL	0.31	A	8.6	0.34	A	8.4
						EBLR	0.40	B	12.6	0.13	A	9.8
17	SH 44 & Can Ada Road	TWSC	-	-	-	EBL	0.13	A	10.0	0.29	C	16.9
						SBLR	>1.50	F	>300.0	>1.50	F	>300.0
18	SH 44 & Star Road	Traffic Signal	1.21/1.38	F/F	83.0/115.3	EBL	0.27	C	26.0	1.35	F	239.1
						EBT	1.09	F	104.5	0.86	D	49.1
						EBR	0.68	D	40.8	0.63	D	36.3
						WBL	1.14	F	158.9	0.99	F	94.5
						WBT	0.62	C	32.5	1.19	F	135.4
						WBR	0.14	C	24.1	0.16	C	23.4
						NBL	1.11	F	132.6	1.39	F	235.9
						NBT	0.38	D	42.6	0.67	D	50.2
						NBR	0.42	D	43.2	0.34	D	42.5
						SBL	0.49	D	39.6	0.44	D	47.0
19	SH 44 & Plummer Road	Traffic Signal	1.28/1.34	F/F	115.3/128.3	EBL	0.12	C	22.3	0.69	D	52.3
						EBT	1.26	F	162.2	0.86	D	37.5
						EBR	0.05	B	19.2	0.07	B	16.6
						WBL	0.59	D	38.4	0.55	C	31.3
						WBT	0.69	C	30.3	1.37	F	205.4
						WBR	0.16	B	19.9	0.37	C	20.1
						NBL	0.08	C	30.7	0.27	D	39.2
						NBT	0.02	C	29.9	0.21	D	37.9
						NBR	0.16	C	31.5	0.34	D	39.8
						SBLTR	1.23	F	168.7	1.39	F	249.5

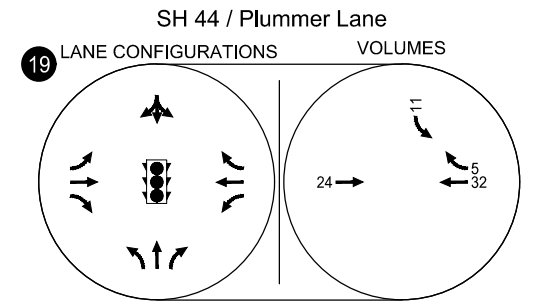
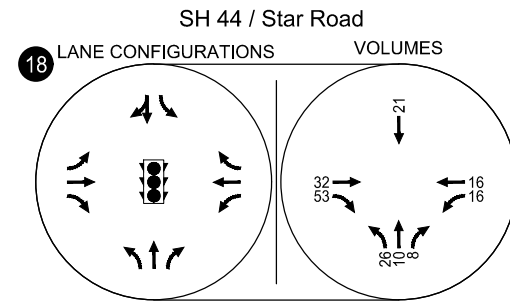
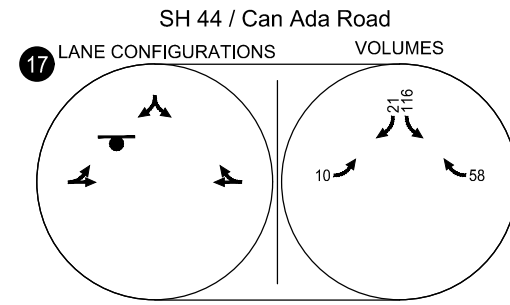
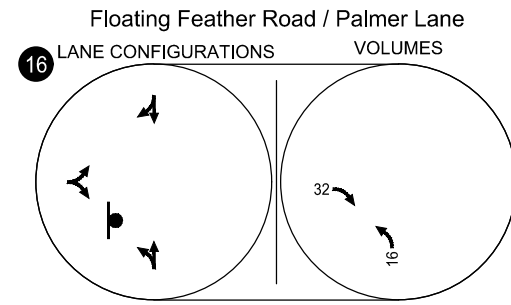
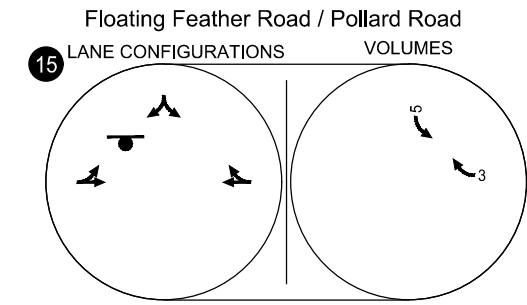
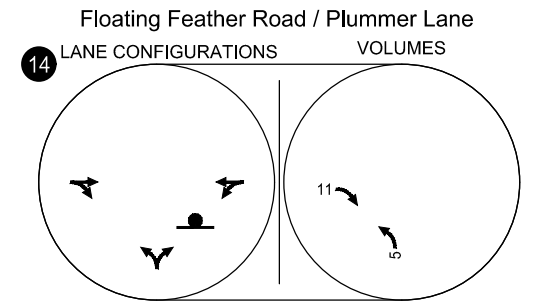
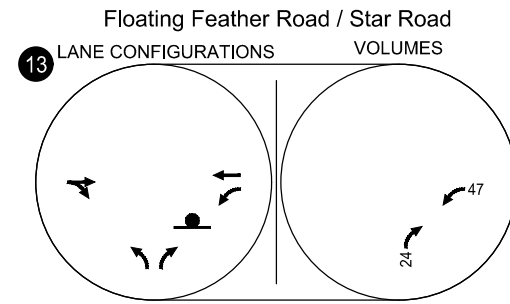
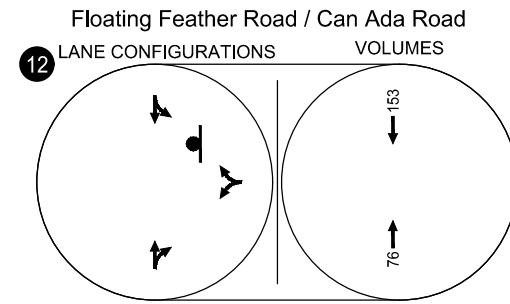
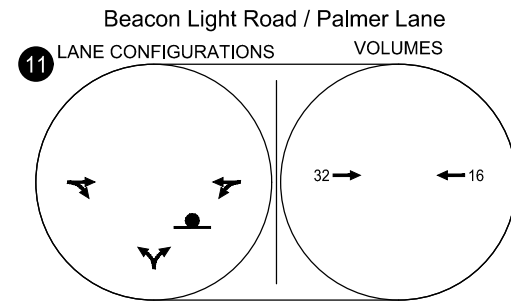
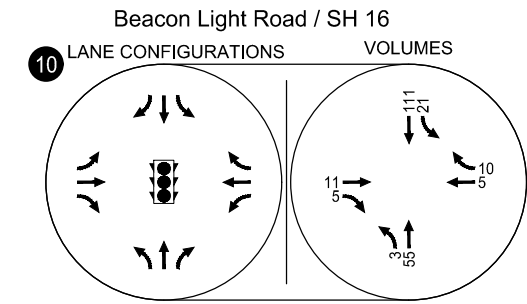
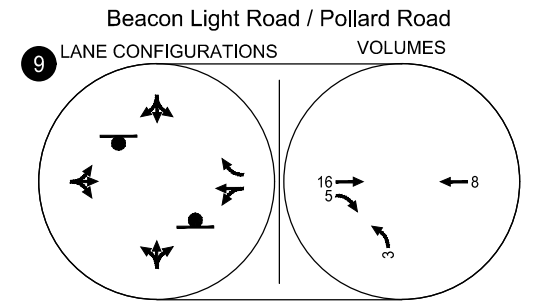
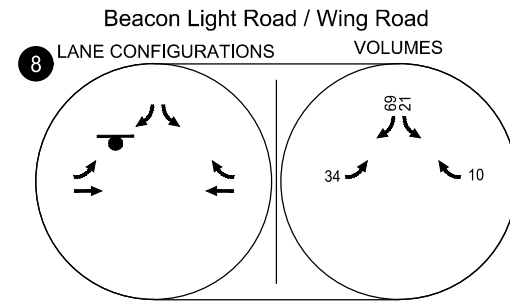
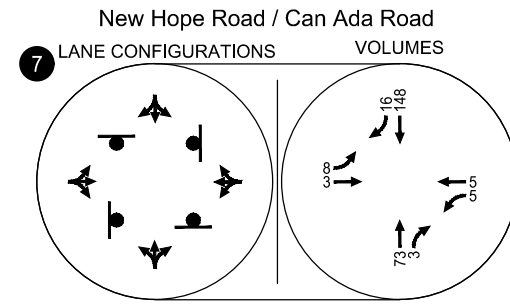
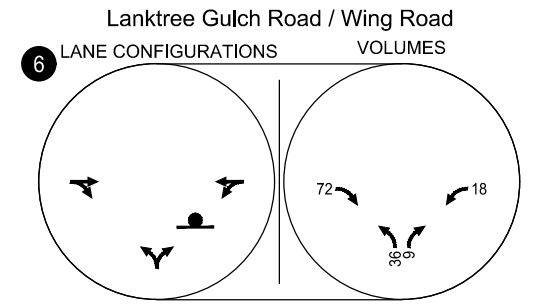
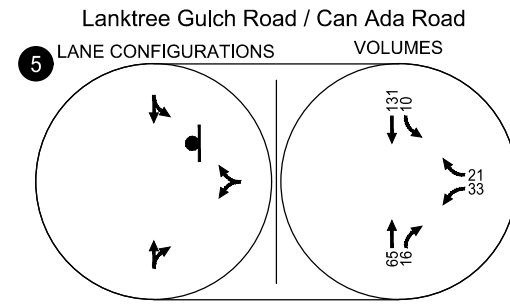
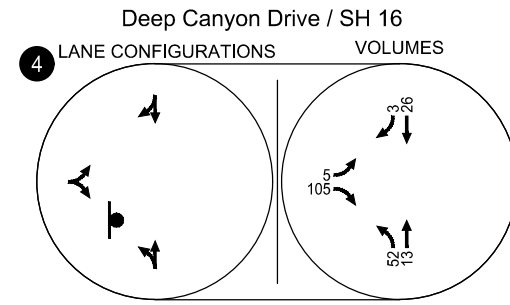
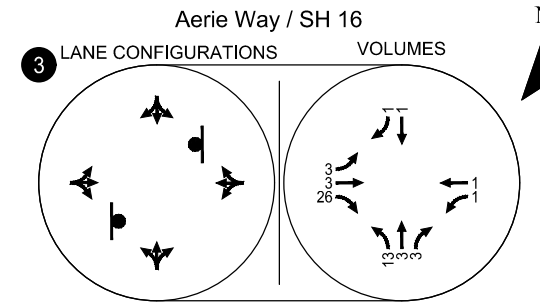
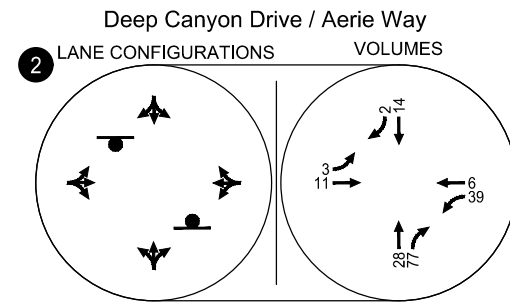
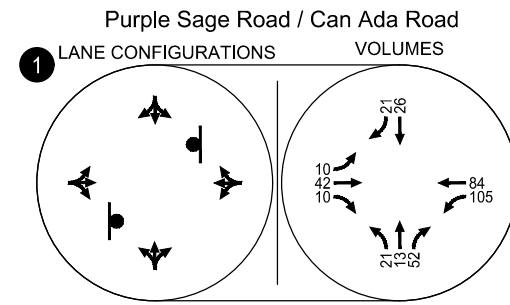
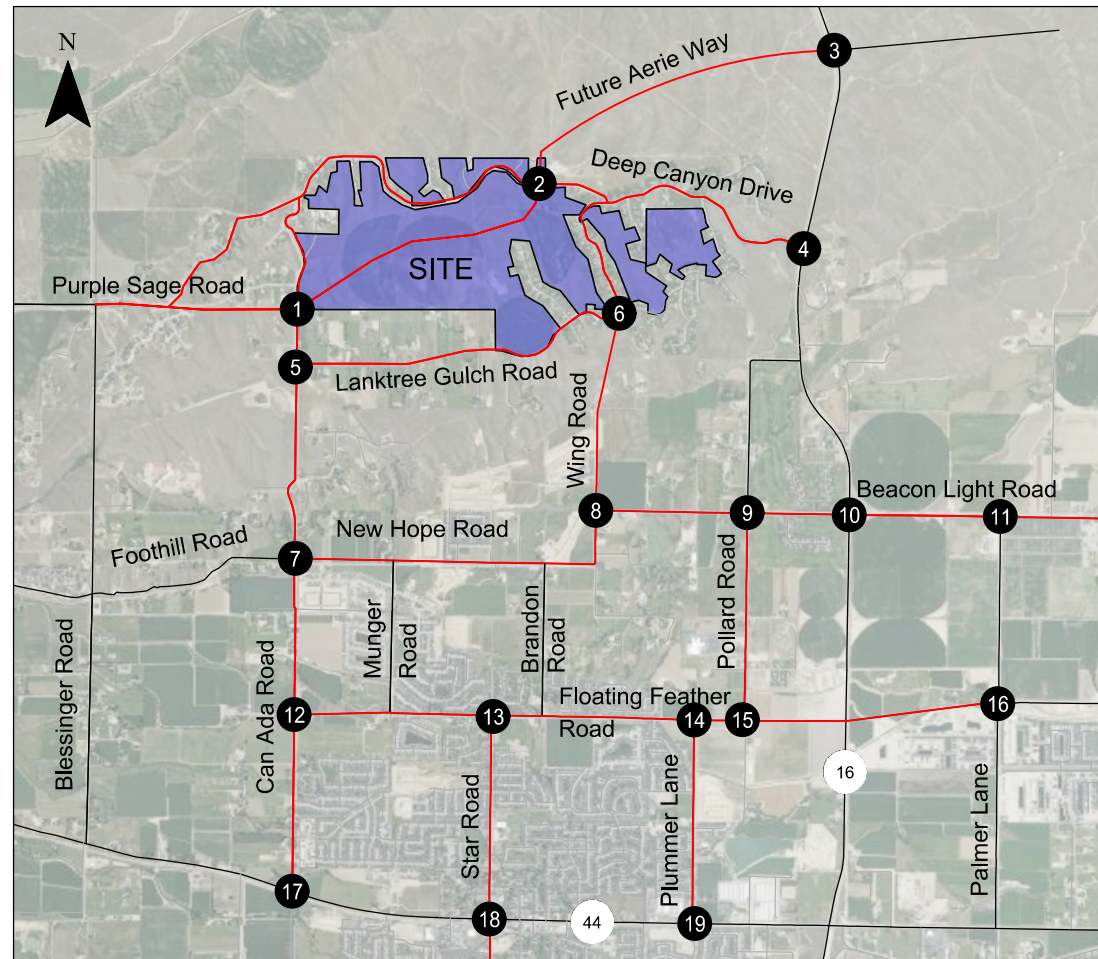
V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and highlighted indicate an intersection and/or lane group operating below the jurisdictional standards.

As Table 46 shows, all study intersections operate *acceptably* during the year 2045 total traffic (with select roadway improvements) weekday AM and PM peak hours except for:

1. Purple Sage Road & Can Ada Road
9. Beacon Light Road & Pollard Road
10. Beacon Light Road & SH 16
11. Beacon Light Road & Palmer Lane
13. Floating Feather Road & Star Road
14. Floating Feather Road & Plummer Road
17. SH 44 & Can Ada Road
18. SH 44 & Star Road
19. SH 44 & Plummer Road

The following intersections operate acceptably during year 2045 background conditions but have one or more lane groups operating at LOS D or worse and require a signal warrant analysis:

4. Deep Canyon Drive & SH 16
8. Beacon Light Road & Wing Road

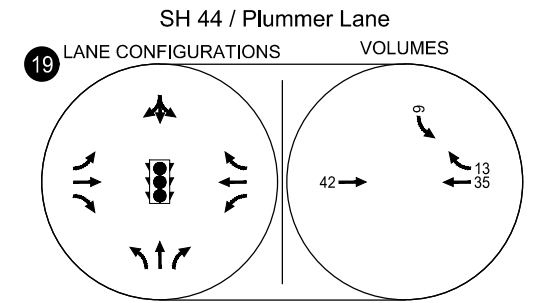
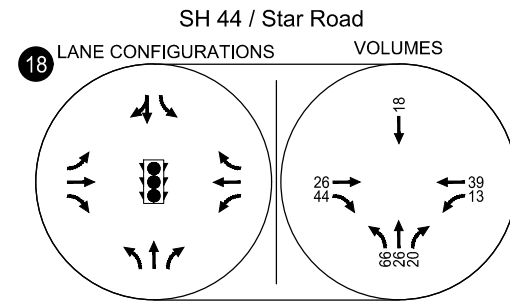
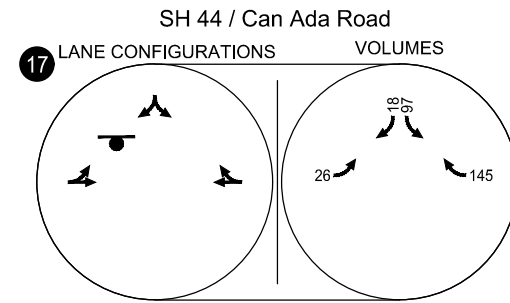
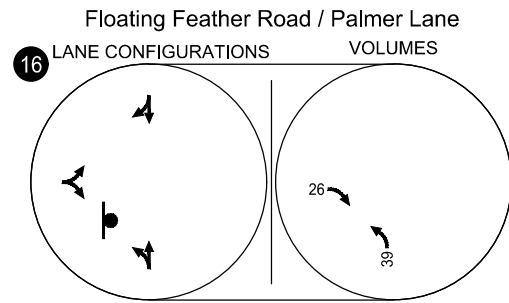
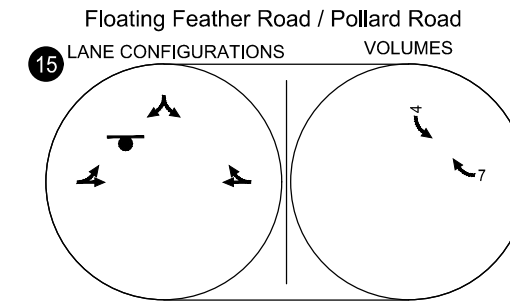
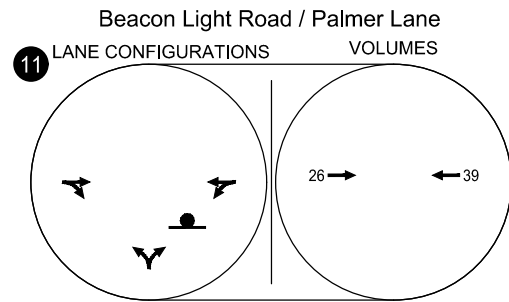
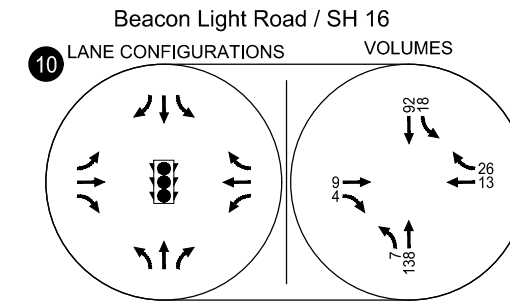
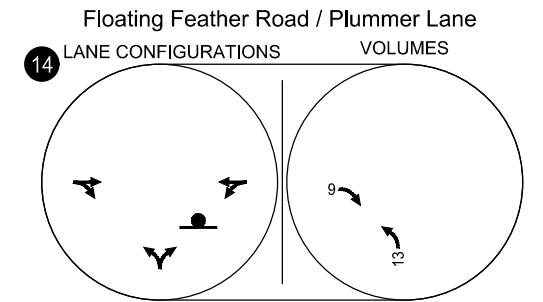
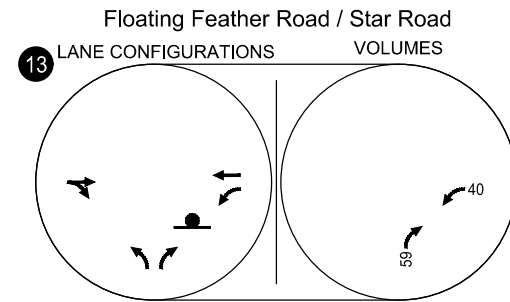
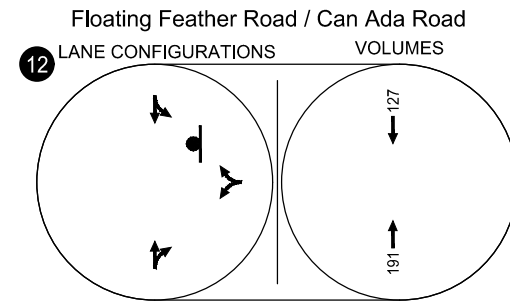
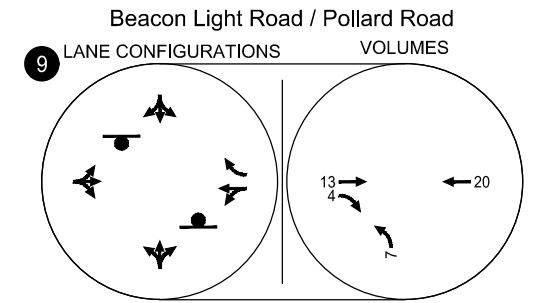
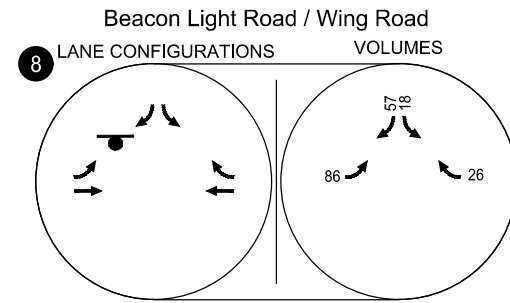
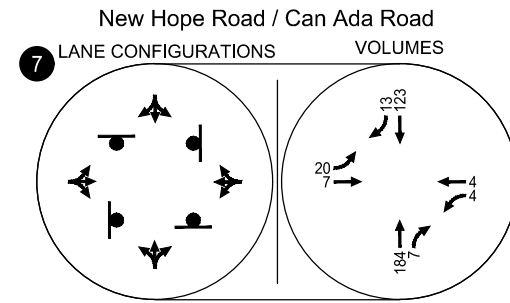
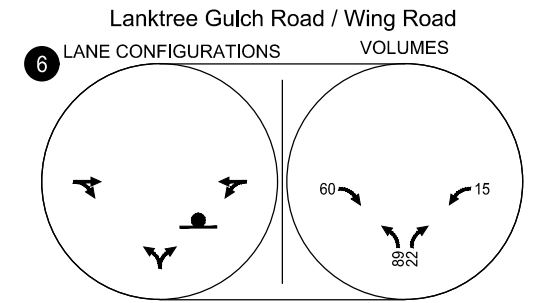
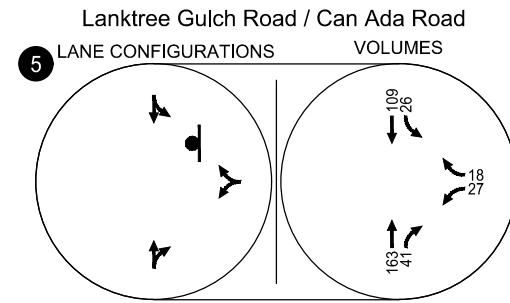
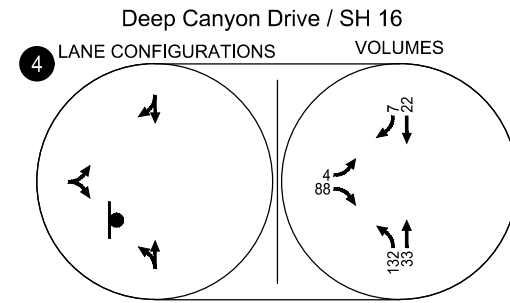
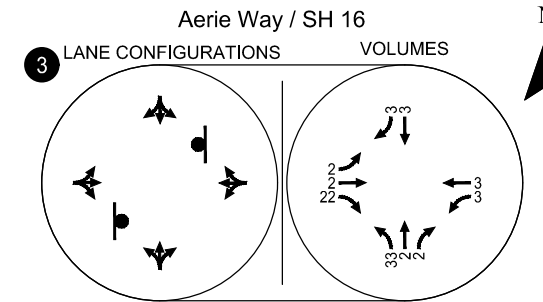
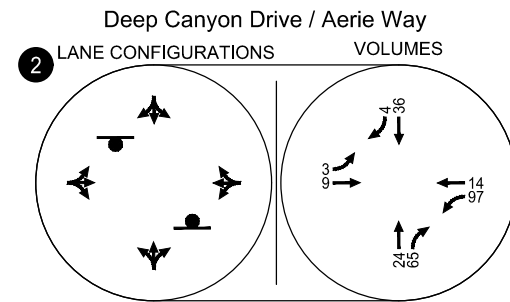
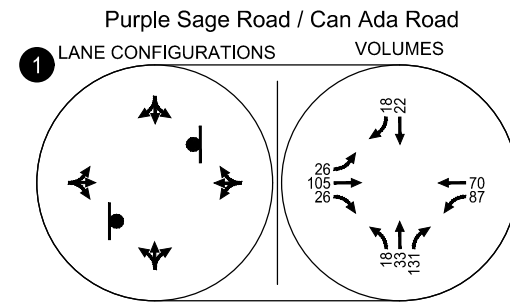
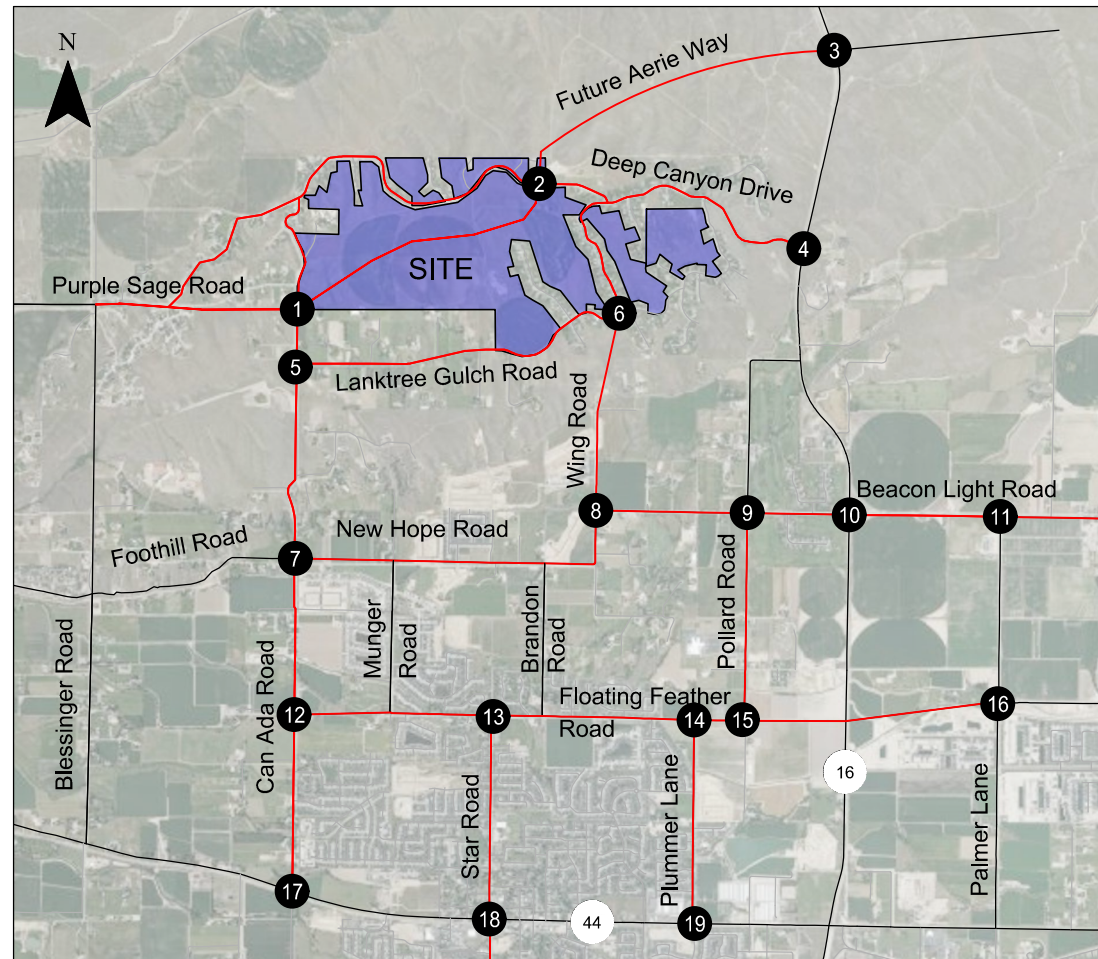


- STOP SIGN
 - TRAFFIC SIGNAL

Year 2045 Trip Assignment (with Select Roadway Improvements) Traffic Volumes
 Weekday AM Peak Hour
 Ada County, Idaho

Figure 15A

H:\25\25407 - Willow Brook Community TIS\report\figs\25407_fig5.dwg Jan 24, 2023 - 11:12am - smartsch Layout Tab: Fig 15A_2045_Assign_AM+build

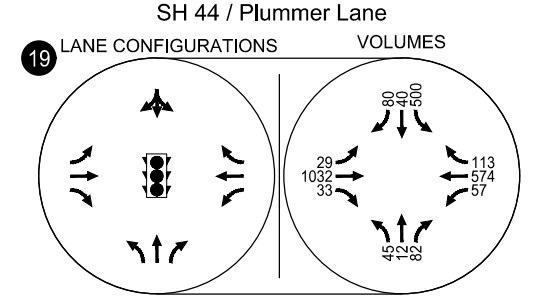
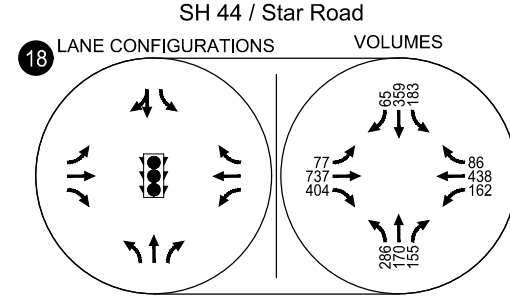
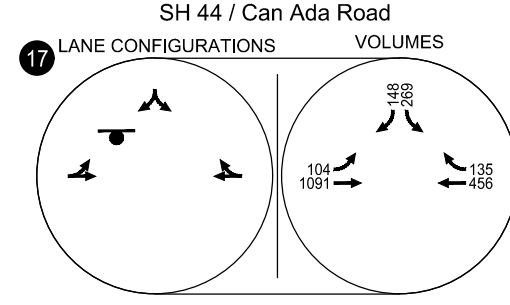
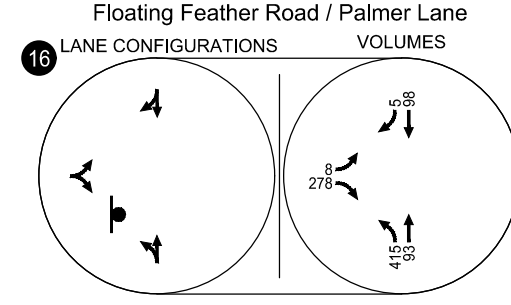
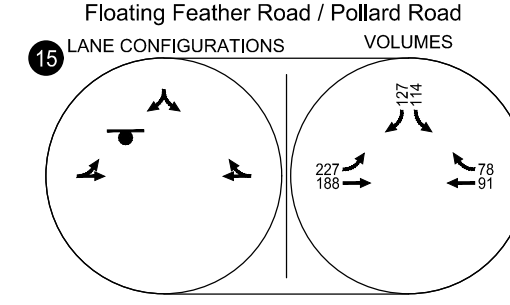
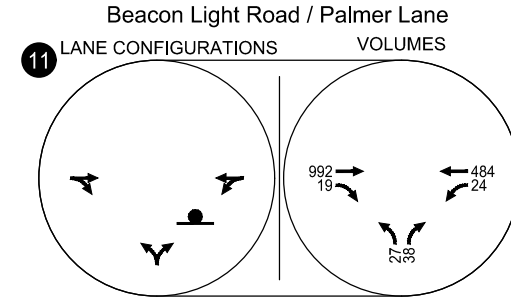
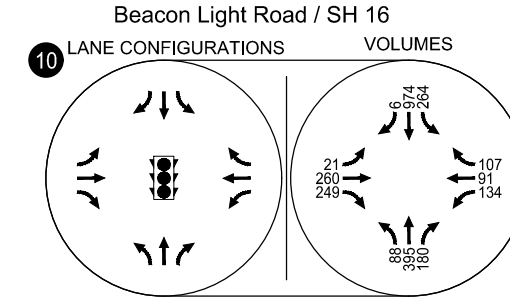
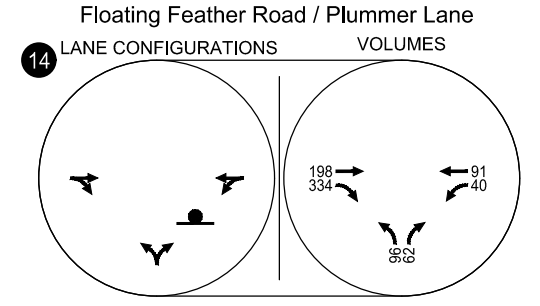
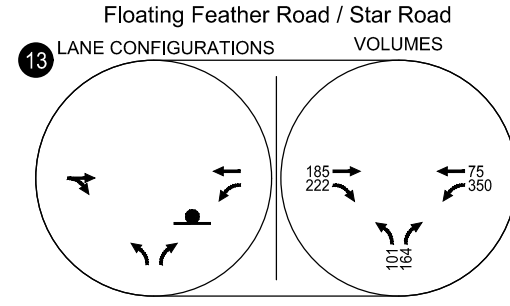
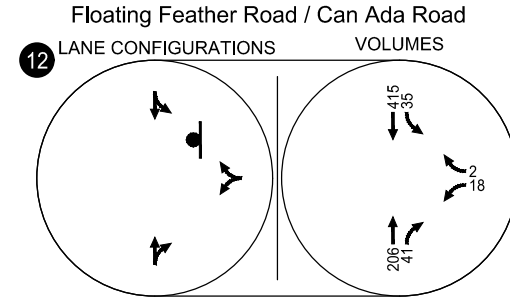
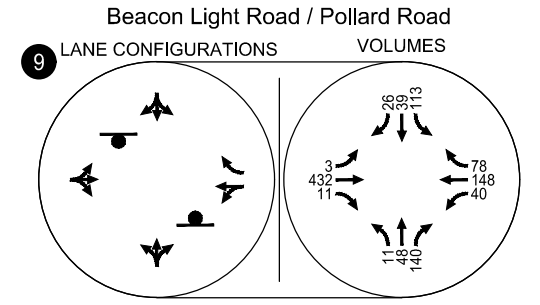
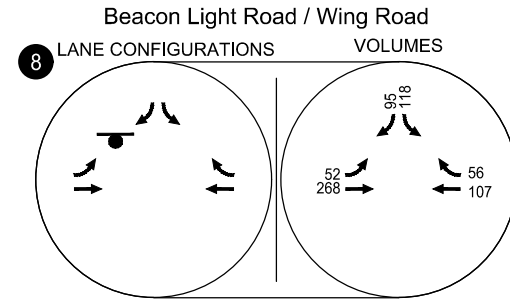
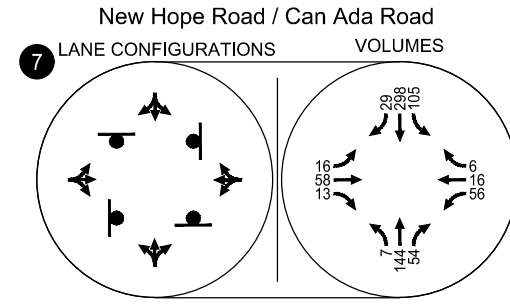
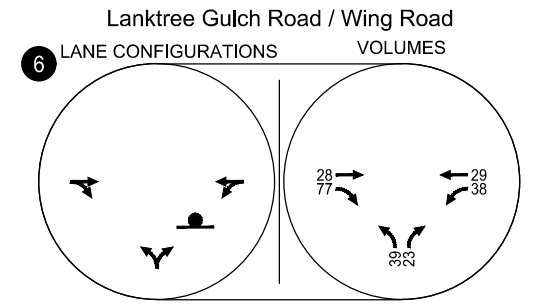
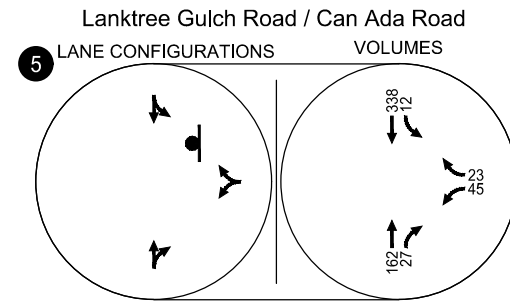
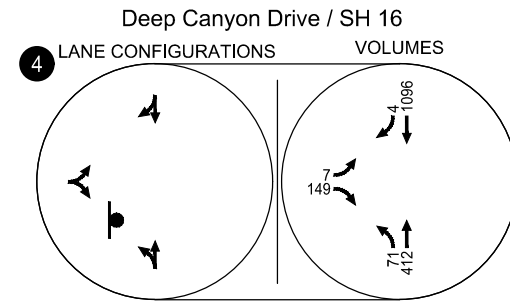
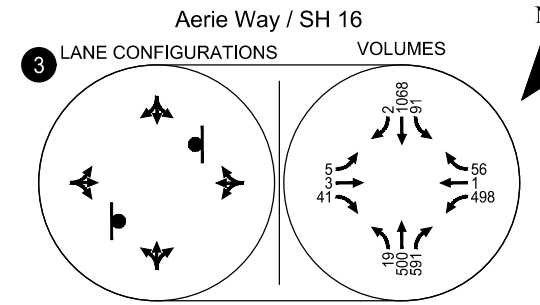
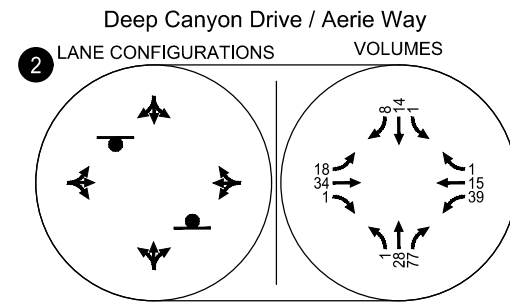
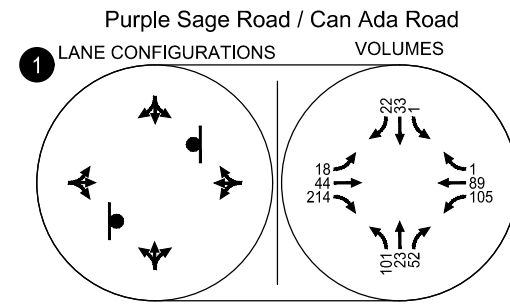
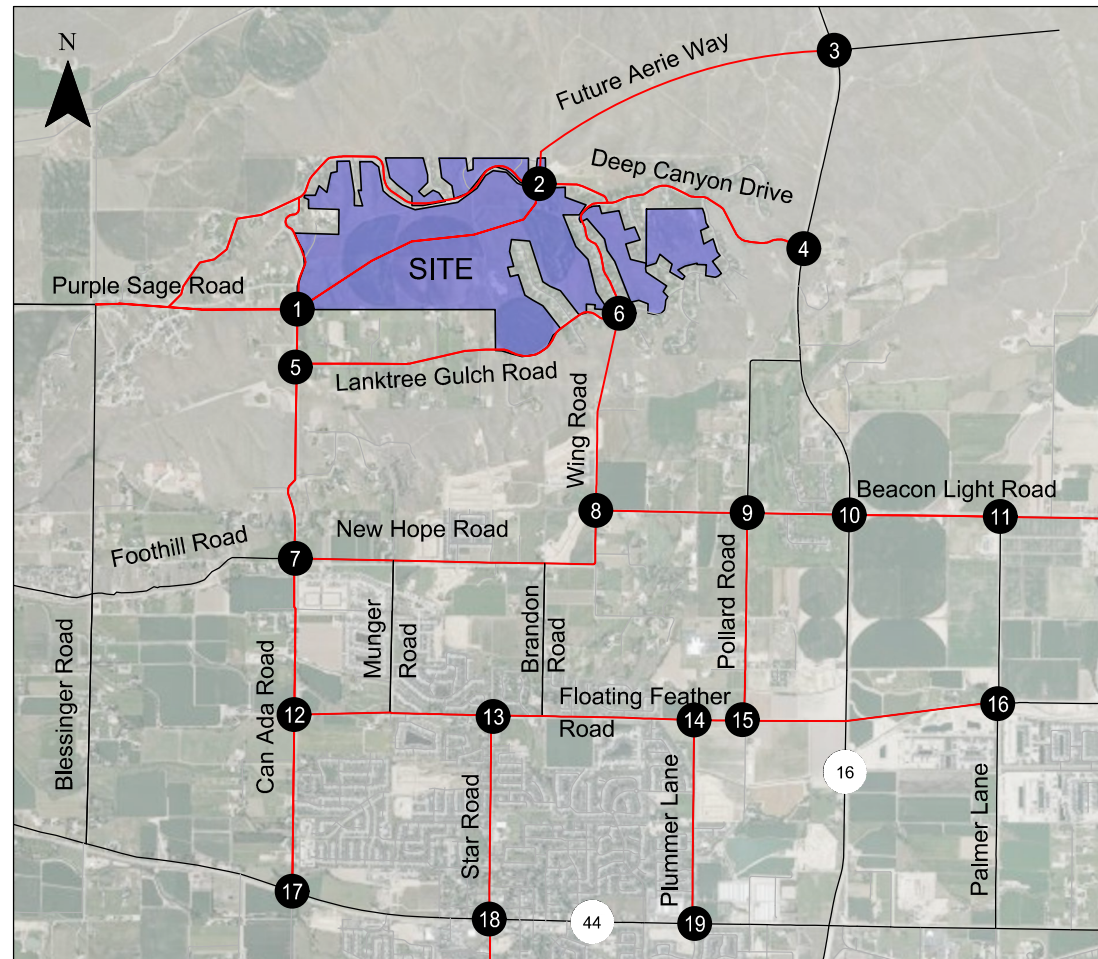


- STOP SIGN
 - TRAFFIC SIGNAL

Year 2045 Trip Assignment (with Select Roadway Improvements) Traffic Volumes
 Weekday PM Peak Hour
 Ada County, Idaho

Figure 15B

H:\25\25407 - Willow Brook Community TIS\report\figs\25407_fig.dwg Jan 24, 2023 - 11:12am - smartsch Layout Tab: Fig15B_2045_Assign_PM-build

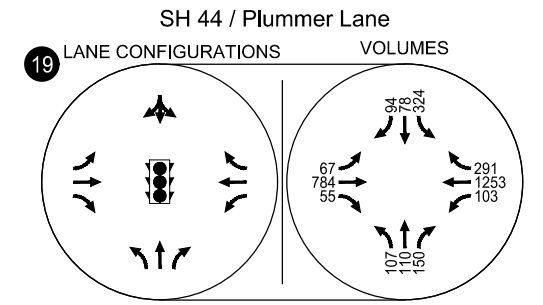
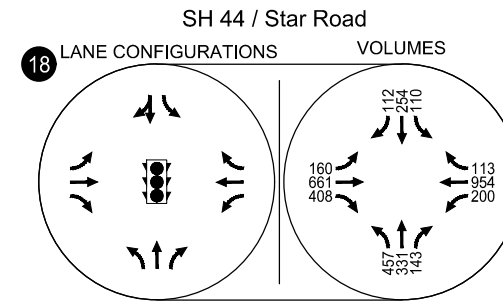
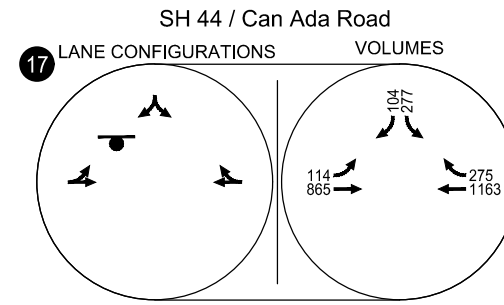
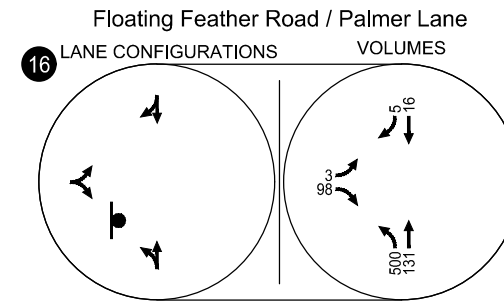
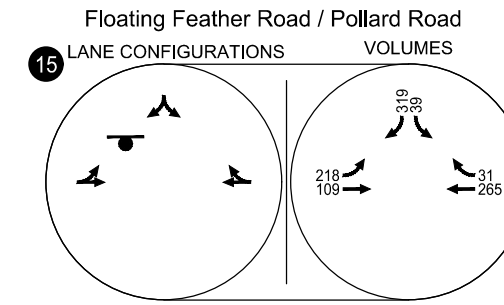
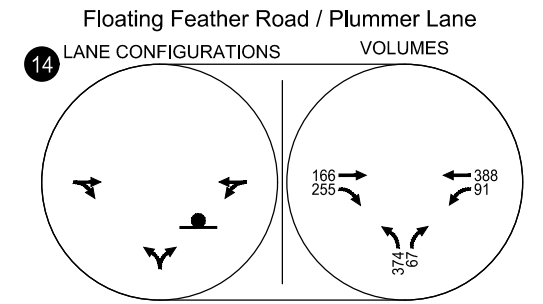
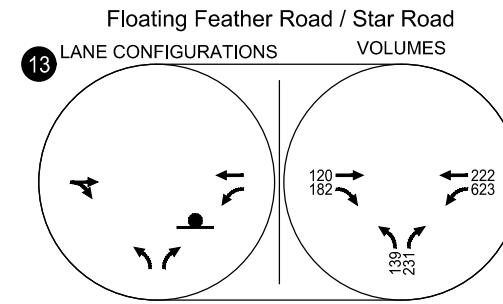
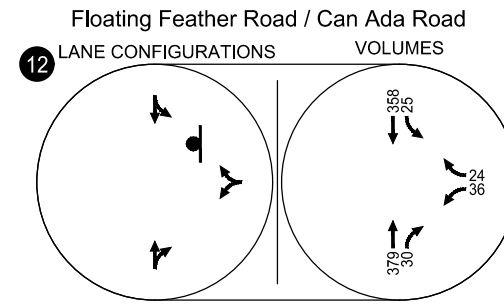
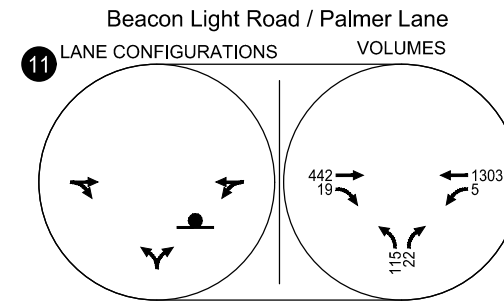
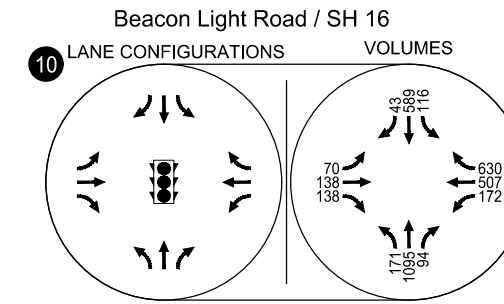
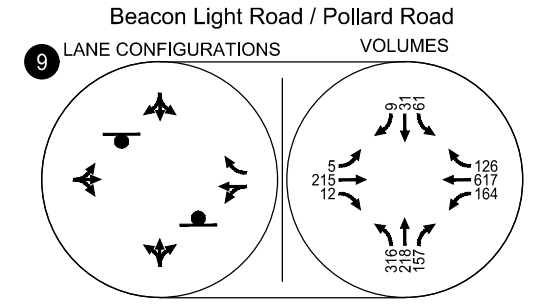
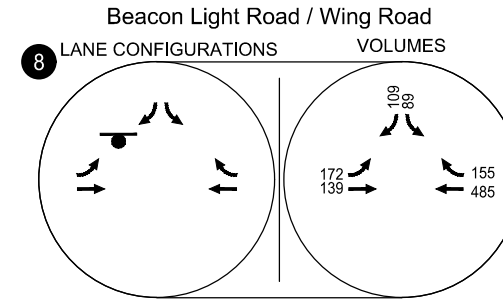
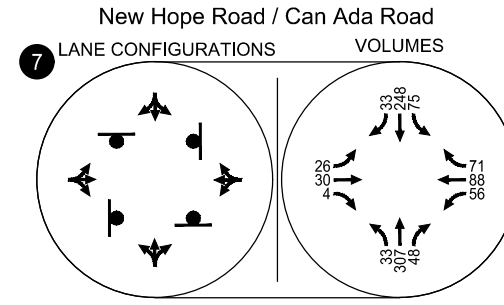
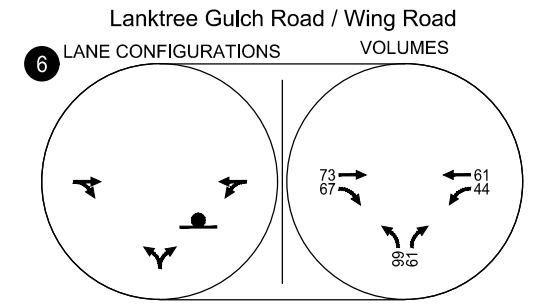
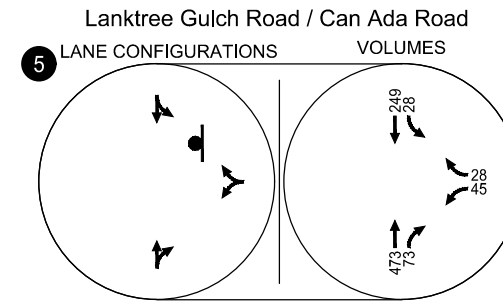
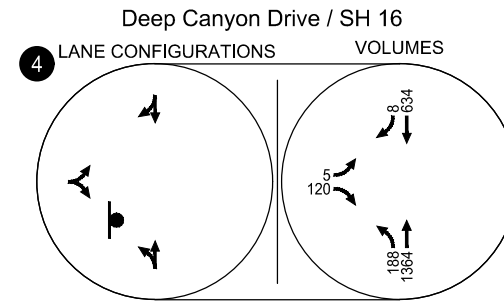
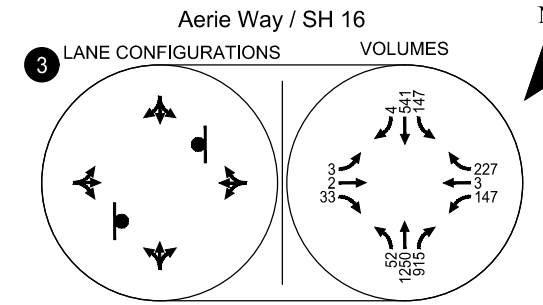
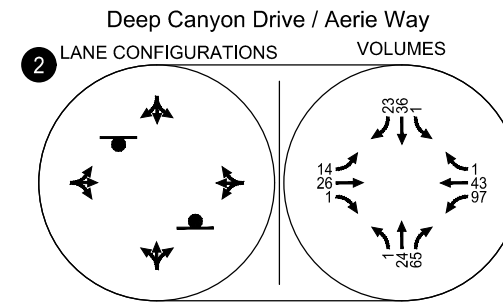
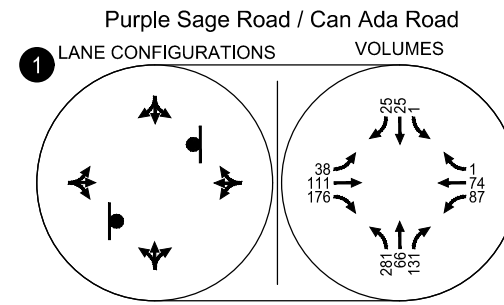
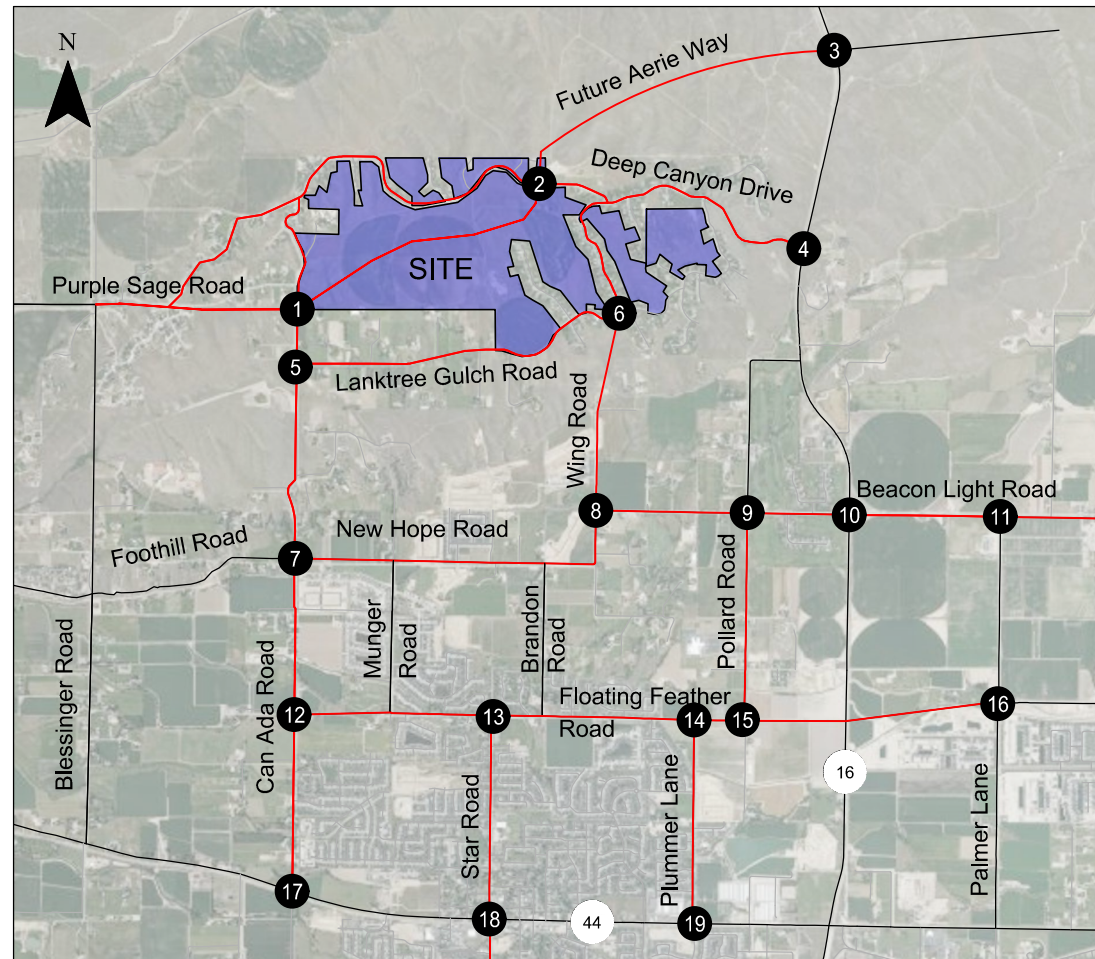


- STOP SIGN
 - TRAFFIC SIGNAL

Year 2045 Total Traffic (with Select Roadway Improvements) Traffic Volumes
 Weekday AM Peak Hour
 Ada County, Idaho

Figure
 16A

H:\25\25407 - Willow Brook Community TIS\report\figs\25407_fig.dwg Jan 24, 2023 - 11:12am - smenitsch Layout Tab: Fig 16A_2045_TT_AM-build



- STOP SIGN
 - TRAFFIC SIGNAL

Year 2045 Total Traffic (with Select Roadway Improvements) Traffic Volumes
 Weekday PM Peak Hour
 Ada County, Idaho

Figure 16B

H:\25\25407 - Willow Brook Community TIS\report\figs\25407_fig.dwg Jan 24, 2023 - 11:12am - smaitisch Layout Tab: Fig16B_2045_TT_PM-build

YEAR 2045 TOTAL TRAFFIC CONDITIONS (WITH SELECT ROADWAY IMPROVEMENTS) MITIGATION

This section highlights the mitigations needed to address each of the intersections not meeting traffic operation standards under the year 2045 total traffic (with select roadway improvements) conditions. *Appendix V contains the year 2045 mitigated total traffic (with select roadway improvements) operational worksheets including findings from the signal warrant analysis.*

Purple Sage Road & Can Ada Road

The minor street approaches of the Purple Sage Road / Can Ada Road intersection operate over capacity and at LOS F under 2045 total traffic (with select roadway improvements) conditions during the weekday PM peak hour. The intersection meets the 4-hour and peak hour traffic signal volume warrants, but not the 8-hour traffic signal volume warrant under 2045 total traffic (with select roadway improvements) conditions. The Mid-Star CIP includes adding turn lanes to this intersection in the 2030-2040 timeframe, but that will not mitigate the intersection in this scenario. The Willow Brook Golf Community site plan shows this intersection as a single lane roundabout. Table 47 shows how the intersection of Purple Sage Road / Can Ada Road operates as a traffic signal with left turn lanes and a single lane roundabout under 2045 total traffic (with select roadway improvements) conditions.

Table 47 Purple Sage Road / Can Ada Road Intersection Mitigation Operations – 2045 Total Traffic (with select roadway improvements) Conditions

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
1	Purple Sage Road / Can Ada Road	Single Lane Roundabout	0.26/ 0.47	A/ A	4.8/ 7.0	NBLTR	0.16	A	4.2	0.47	A	8.2
						WBLTR	0.18	A	4.7	0.20	A	6.3
						SBLTR	0.06	A	4.2	0.07	A	5.2
						EBLTR	0.26	A	5.4	0.30	A	5.8
		Traffic Signal with Left Turn Lanes	0.38/ 0.65	B/ B	13.9/ 15.6	EBL	0.04	B	10.8	0.07	B	10.9
						EBTR	0.74	B	16.8	0.77	B	17.8
						WBL	0.28	B	10.4	0.25	B	11.2
						WBTR	0.18	B	10.2	0.15	B	11.4
						NBL	0.25	B	12.8	0.62	B	16.1
						NBT	0.25	B	13.4	0.56	B	15.4
						SBL	0.01	B	15.2	0.01	B	16.6
						SBTR	0.28	B	16.7	0.28	B	18.0

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and **highlighted** indicate an intersection and/or lane group operating below the jurisdictional standards.

As shown in Table 47, the intersection operates within ACHD standards as a single lane roundabout or a traffic signal with left turn lanes under 2045 total traffic (with select roadway improvements) conditions.

Deep Canyon Drive & SH 16

The Deep Canyon Drive / SH 16 intersection operates acceptably under 2045 total traffic (with select roadway improvements) conditions during the weekday AM and PM peak hour, however the critical movement at the intersection is operating at LOS F in the weekday AM peak hour. ACHD policy requires an evaluation of traffic signal warrants if the critical movement at an unsignalized intersection operates at LOS D or worse.

The intersection meets the peak hour, 4-hour, and 8-hour traffic signal volume warrants under 2045 total traffic (with select roadway improvements) conditions. The future configuration of this section of SH 16 is currently being determined by an ITD Corridor Plan.

Beacon Light Road & Wing Road

The Beacon Light Road / Wing Road intersection operates acceptably under 2045 total traffic (with select roadway improvements) conditions during the weekday AM and PM peak hour, however the critical movement at the intersection is operating at LOS F in the weekday PM peak hour. ACHD policy requires an evaluation of traffic signal warrants if the critical movement at an unsignalized intersection operates at LOS D or worse. The intersection meets the peak hour, 4-hour, and 8-hour traffic signal volume warrants under 2045 total traffic (with select roadway improvements) conditions.

Beacon Light Road & Pollard Road

The minor street approaches of the Beacon Light Road / Pollard Road 16 intersection operate over capacity and at LOS F under 2045 total traffic (with select roadway improvements) conditions during the weekday PM peak hour. The intersection meets the 8-hour, 4-hour, and peak hour traffic signal volume warrants under 2045 background (with select roadway improvements) conditions. The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040. This identified improvement does not bring the intersection to within ACHD standards in this scenario. A multi-lane roundabout with two lanes in the eastbound and westbound direction is required to bring the intersection within standards. Table 48 shows how the intersection of Beacon Light Road / Pollard Road operates as a multi-lane roundabout or a traffic signal with left turn lanes and a westbound right turn lane under 2045 total traffic (with select roadway improvements) conditions.

Table 48 Beacon Light Rd / Pollard Ln Intersection Mitigation Operations – 2045 Total Traffic (with select roadway improvements) Conditions

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
9	Beacon Light Road / Pollard Road	Multi Lane Roundabout	0.31/ 0.77	A/ C	5.5/ 14.3	NBLTR	0.31	A	8.9	0.77	C	17.6
						WBLTR	0.12	A	3.8	0.62	B	14.3
						SBLTR	0.18	A	4.9	0.28	B	14.0
						EBLTR	0.22	A	5.2	0.12	A	4.4
		Traffic Signal	0.62/ 0.90	B/ C	18.2/ 27.4	EBL	0.01	B	11.1	0.04	B	18.9
						EBTR	0.84	C	21.7	0.47	C	20.0
						WBL	0.16	B	12.0	0.37	B	13.9
						WBT	0.26	B	11.1	0.90	C	31.0
						WBR	0.15	B	10.5	0.22	B	13.9
						NBL	0.03	B	16.5	0.63	C	23.2
						NBTR	0.73	C	23.0	0.89	D	41.8
						SBL	0.36	B	15.3	0.31	C	23.5
						SBTR	0.17	B	15.2	0.12	C	24.3

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and **highlighted** indicate an intersection and/or lane group operating below the jurisdictional standards.

As shown in Table 48, the intersection operates within ACHD standards as a multi-lane roundabout or a traffic signal with left turn lanes and a westbound right turn lane under 2045 total traffic (with select roadway improvements) conditions.

Beacon Light Road & SH 16

The intersection of Beacon Light Road / SH 16 is projected to operate over capacity and at LOS E/F under 2045 total traffic (with select roadway improvements) conditions during the weekday AM and PM peak hour. In addition, several movements/lane groups are projected to operate over capacity and at LOS F during the weekday AM and PM peak hours. The Spring Valley development was conditioned with improvements to this intersection. Table 49 shows how the intersection of Beacon Light Road / SH 16 operates as with the northbound and southbound approaches widened to two through lanes and dual westbound right turn lanes under 2045 total traffic (with select roadway improvements) conditions.

Table 49. Beacon Light Rd / SH 16 Intersection Mitigation Operations – 2045 Total Traffic (with select roadway improvements) Conditions

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
10	Beacon Light Road & SH 16	Traffic Signal	0.79/ 0.88	C/ D	29.1/ 46.2	EBL	0.06	C	25.9	0.53	D	40.6
						EBT	0.74	D	35.8	0.27	D	38.8
						EBR	0.83	D	42.1	0.31	D	39.5
						WBL	0.56	C	27.4	0.43	C	34.6
						WBT	0.27	C	25.8	0.90	E	60.1
						WBR	0.11	B	16.1	0.74	D	45.7
						NBL	0.45	C	24.0	0.51	C	29.2
						NBT	0.44	C	25.7	0.90	D	51.9
						NBR	0.45	C	26.2	0.17	C	30.7
						SBL	0.62	B	18.8	0.74	D	50.3
						SBT	0.87	C	31.3	0.53	D	39.0
SBR	0.01	B	17.3	0.09	C	32.4						

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and **highlighted** indicate an intersection and/or lane group operating below the jurisdictional standards.

As shown in Table 49, the intersection operates within ACHD and ITD standards with the northbound and southbound approaches widened to two through lanes and dual westbound right turn lanes under 2045 total traffic (with select roadway improvements) conditions.

Beacon Light Road & Palmer Lane

The minor street approach of the Beacon Light Road / Palmer Lane intersection operates over capacity and at LOS F under 2045 total traffic (with select roadway improvements) conditions during the weekday PM peak hour. The intersection meets the 8-hour, 4-hour, and peak hour traffic signal volume warrants under 2045 background (with select roadway improvements) conditions. The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040. Due to the high eastbound and westbound volumes, the intersection does not operate within standards as a single lane roundabout or a traffic signal with turn lanes. In order to meet standards, Beacon Light Road would need to be widened to two through lanes at the intersection. Table 50 shows how the intersection of Beacon Light Road / Palmer Lane operates as a multi-lane roundabout or a traffic signal with turn lanes and the eastbound and westbound approaches widened to two through lanes under 2045 total traffic (with select roadway improvements) conditions.

Table 50 Beacon Light Road / Palmer Lane Intersection Mitigation Operations – 2045 Total Traffic (with select roadway improvements) Conditions

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
11			0.41/	A/	6.0/	NBLR	0.18	B	11.5	0.18	A	6.2

Beacon Light Road / Palmer Lane	Mult-Lane Roundabout	0.55	A	7.6	WBLT	0.20	A	4.3	0.55	A	9.0
	Traffic Signal	0.54/ 0.66	A/ A	6.9/ 5.9	EBLR	0.41	A	6.5	0.17	A	4.0
					EBT	0.69	A	8.3	0.28	A	5.7
					WBR	0.03	A	5.3	0.03	A	4.9
					WBL	0.08	A	5.7	0.01	A	4.1
					WBT	0.25	A	3.2	0.66	A	4.9
					NBL	0.13	B	14.5	0.53	B	16.5
	NBR	0.23	B	15.1	0.11	B	14.0				

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and **highlighted** indicate an intersection and/or lane group operating below the jurisdictional standards.

As shown in Table 50, the intersection operates within ACHD standards as a multi-lane roundabout or a traffic signal with turn lanes and the eastbound and westbound approaches widened to two through lanes under 2045 total traffic (with select roadway improvements) conditions.

Floating Feather Road & Star Road

The minor street approach of the Floating Feather Road / Star Road intersection operates over capacity and at LOS F under 2045 total traffic (with select roadway improvements) conditions during the weekday PM peak hour. The intersection meets the 8-hour, 4-hour, and peak hour traffic signal volume warrants under 2045 background (with select roadway improvements) conditions. The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040. Table 51 shows how the intersection of Floating Feather Road / Star Road operates as a single-lane roundabout or a traffic signal with left turn lanes under 2045 total traffic (with select roadway improvements) conditions.

Table 51 Floating Feather Road / Star Road Intersection Mitigation Operations – 2045 Total Traffic (with select roadway improvements) Conditions

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
13	Floating Feather Road / Star Road	Single Lane Roundabout	0.51/ 0.81	A/ B	8.1/ 14.1	NBLR	0.27	A	5.9	0.34	A	6.2
						WBTR	0.40	A	7.0	0.80	C	17.9
						EBLT	0.51	B	10.6	0.49	B	12.9
		Traffic Signal	0.59/ 0.81	B/ B	11.6/ 16.2	EBT	0.48	B	13.0	0.40	B	19.8
						EBR	0.68	B	15.0	0.73	C	24.0
						EBL	0.58	A	7.5	0.81	B	14.0
						EBT	0.08	A	3.6	0.22	A	4.6
						NBL	0.36	B	14.0	0.42	B	18.7
NBR	0.65	B	16.7	0.79	C	23.8						

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and **highlighted** indicate an intersection and/or lane group operating below the jurisdictional standards.

As shown in Table 51, the intersection operates within ACHD standards as a single lane roundabout or a traffic signal with left turn lanes under 2045 total traffic (with select roadway improvements) conditions.

Floating Feather Road & Plummer Road

The minor street approach of the Floating Feather Road / Plummer Road intersection operates over capacity and at LOS F under 2045 total traffic (with select roadway improvements) conditions during the weekday PM peak hour. The intersection meets the 8-hour, 4-hour, and peak hour traffic signal volume warrants under 2045 background (with select roadway improvements) conditions. The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040. Table 52

shows how the intersection of Floating Feather Road / Plummer Road operates as a single-lane roundabout or a traffic signal with left turn lanes under 2045 total traffic (with select roadway improvements) conditions.

Table 52 Floating Feather Road / Plummer Road Intersection Mitigation Operations – 2045 Total Traffic (with select roadway improvements) Conditions

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
14	Floating Feather Road / Plummer Road	Single Lane Roundabout	0.44/ 0.59	A/ A	6.2/ 9.0	NBLR	0.16	A	4.7	0.43	A	7.6
						WBLT	0.12	A	4.1	0.59	B	12.5
						EBTR	0.44	A	7.1	0.38	A	6.5
		Traffic Signal	0.33/ 0.70	A/ B	9.1/ 12.0	EBT	0.36	A	8.0	0.39	B	12.3
						EBR	0.71	B	10.5	0.72	B	15.4
						WBL	0.08	A	5.1	0.20	A	8.0
						WBT	0.11	A	3.5	0.52	A	7.8
						NBL	0.37	B	11.9	0.80	B	15.3
						NBR	0.26	B	11.4	0.16	A	9.9

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and **highlighted** indicate an intersection and/or lane group operating below the jurisdictional standards.

As shown in Table 52, the intersection operates within ACHD standards as a single lane roundabout or a traffic signal with left turn lanes under 2045 total traffic (with select roadway improvements) conditions.

SH 44 & Can Ada Road

The minor street approach of the SH 44 / Can Ada Road intersection operates over capacity and at LOS F under 2045 total traffic (with select roadway improvements) conditions during the weekday AM and PM peak hours. The intersection meets the 4-hour and peak hour traffic signal volume warrants under existing conditions and meets the 8-hour traffic signal volume warrant under 2045 background (with select roadway improvements) conditions. This intersection is in the Mid-Star CIP as a future traffic signal to be constructed by 2025. ITD's SH 44 Corridor Plan shows this intersection as a future RCUT with SH 44 widened to 4 lanes. The City of Star is leading a project that will widen SH 44 to the east of Can Ada Road in 2023, which will not improve operations on the southbound approach of Can Ada Road. Table 53 shows how the intersection operates as a traffic signal with the eastbound and westbound approaches widened to two through lanes and with turn lanes or as an RCUT with SH 44 widened to 4 lanes under 2045 total traffic (with select roadway improvements) conditions.

Table 53 SH 44 / Can Ada Rd Intersection Mitigation Operations – 2045 Total Traffic (with select roadway improvements) Conditions

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
17	SH 44 & Can Ada Road	Traffic Signal	0.73/ 0.79	A/ B	9.2/ 12.8	EBL	0.18	A	6.7	0.29	B	10.3
						EBT	0.67	A	7.0	0.46	A	5.7
						WBT	0.45	B	10.2	0.83	B	16.1
						WBR	0.24	A	9.4	0.37	A	9.8
						SBL	0.70	B	15.2	0.79	C	22.2
						SBR	0.48	B	13.3	0.36	B	17.2
		RCUT	-	-	-	EBL	0.12	A	9.3	0.28	C	16.6
						SBR	0.59	C	16.2	0.94	F	60.4

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in

seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and **highlighted** indicate an intersection and/or lane group operating below the jurisdictional standards.

As shown in Table 53, the intersection operates within ACHD and ITD standards as a traffic signal with the eastbound and westbound approaches widened to two through lanes and with turn lanes under 2045 total traffic (with select roadway improvements) conditions. The intersection operates within ACHD standards but exceed ITD desired operational thresholds as an RCUT with SH 44 widened to 4 lanes.

SH 44 & Star Road

The intersection of SH 44 / Star Road operates over capacity and at LOS F under 2045 total traffic (with select roadway improvements) conditions during the weekday AM and PM peak hour. Additionally, several lane groups are over capacity and at LOS F during the AM and PM peak hours. This intersection is in the ACHD CIP to have the signal replaced/modified and approaches widened. The lane configuration identified in the CIP does not fully mitigate the intersection in this scenario. Table 54 shows how the intersection operates as a traffic signal with left and right turn lanes, two through lanes in the eastbound and westbound direction, and dual left turn lanes in the northbound direction under 2045 total traffic (with select roadway improvements) conditions.

Table 54. SH 44 / Star Rd Intersection Mitigation Operations – 2045 Total Traffic (with select roadway improvements) Conditions

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
18	SH 44 & Star Road	Traffic Signal	0.77/ 0.83	C/ D	30.2/ 37.1	EBL	0.29	C	25.5	0.64	C	28.0
						EBT	0.65	C	29.7	0.62	C	30.9
						EBR	0.59	B	10.7	0.86	D	48.8
						WBL	0.80	D	50.9	0.63	C	23.4
						WBT	0.39	C	24.2	0.85	D	35.3
						WBR	0.16	C	22.0	0.22	C	23.4
						NBL	0.82	D	51.7	0.87	D	52.6
						NBT	0.39	C	31.4	0.68	C	33.3
						NBR	0.44	B	19.4	0.35	C	28.9
						SBL	0.47	C	26.9	0.40	C	31.6
						SBT	0.90	D	50.0	0.84	D	47.6
SBR	0.19	C	31.4	0.43	D	36.9						

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and **highlighted** indicate an intersection and/or lane group operating below the jurisdictional standards.

As shown in Table 54, the intersection operates within ACHD and ITD standards with the eastbound and westbound approaches widened to two through lanes and dual northbound left turn lanes under 2045 total traffic (with select roadway improvements) conditions.

SH 44 & Plummer Road

The minor street approaches of SH 44 / Plummer Road operate over capacity and at LOS F under 2045 total traffic (with select roadway improvements) conditions during the weekday AM and PM peak hours. The intersection meets the 8-hour, 4-hour, and peak hour traffic signal volume warrants under 2022 existing conditions. This intersection is not currently programmed for improvements by ACHD. ITD's draft SH 44 Corridor Plan shows this intersection as signalized with SH 44 widened to 4 lanes. The lane configuration shown in the Corridor Plan does not fully mitigate the intersection. Table 55 shows how the intersection operates as an expanded traffic signal with left and right turn lanes, two through lanes in the eastbound

and westbound direction, and dual left turn lanes in the southbound direction under 2045 total traffic (with select roadway improvements) conditions.

Table 55. SH 44 / Plummer Rd Intersection Mitigation Operations – 2045 Total Traffic (with select roadway improvements) Conditions

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
19	SH 44 & Plummer Road	Traffic Signal	0.68/ 0.69	C/ B	21.2/ 18.3	EBL	0.08	B	11.6	0.40	C	28.1
						EBT	0.79	B	19.9	0.43	B	10.4
						EBR	0.06	B	12.5	0.07	A	8.1
						WBL	0.24	B	14.3	0.30	B	16.7
						WBT	0.42	B	14.2	0.68	B	13.4
						WBR	0.18	B	12.6	0.35	A	9.9
						NBL	0.16	C	27.8	0.44	D	35.2
						NBT	0.08	C	29.9	0.47	C	34.4
						NBR	0.66	D	36.7	0.76	D	40.3
						SBL	0.81	C	30.7	0.80	D	42.1
						SBT	0.10	C	20.9	0.14	C	20.1
SBR	0.23	C	21.8	0.21	C	20.7						

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and highlighted indicate an intersection and/or lane group operating below the jurisdictional standards.

As shown in Table 55, the intersection operates within ACHD and ITD standards as a traffic signal with the eastbound and westbound approaches widened to two through lanes and dual southbound left turn lanes under 2045 total traffic (with select roadway improvements) conditions.

YEAR 2045 TOTAL TRAFFIC CONDITIONS (WITH SELECT ROADWAY IMPROVEMENTS) ROADWAY SEGMENT ANALYSIS

Peak hour roadway segment volumes were based on the traffic count data collected at the study intersections. The peak hour, peak direction roadway segment volumes, and resultant LOS per ACHD Policy Manual 7106.4.1 for the study roadway segments are summarized in Table 56.

Table 56. Year 2045 Total Traffic (With Select Roadway Improvements) Conditions Roadway Segment Operations

Roadway	Segment	Classification	Travel Lanes ²	ADT	ACHD Peak Hour Std. Volume (One-Way)	Weekday AM Peak Hour		Weekday PM Peak Hour	
						One-Way Volume/Direction	Meets Std.	One-Way Volume/Direction	Meets Std.
Main Internal Collector	Can Ada to Deep Canyon	Collector	2	2,750	D / 425	220 (WB)	Yes	235 (EB)	Yes
Deep Canyon Drive	Purple Sage to Can Ada	Local	2	270	None	20 (NB)	Yes	20 (SB)	Yes
	Can Ada to Aerie			815		50 (EB)	Yes	60 (WB)	Yes
	Aerie to SH 16			4,465		155 (EB)	Yes	195 (WB)	Yes
Aerie Way	Deep Canyon to SH 16	Minor Arterial	2	1,200	E / 575	50 (EB)	Yes	60 (WB)	Yes
Lanktree Gulch Road	Can Ada to Wing	Local	2	2,210	None	65 (WB)	Yes	100 (EB)	Yes
Purple Sage Road	Blessinger to Can Ada	Collector	2	6,660	D / 340 (CHD4)	275 (EB)	Yes	380 (WB)	No
Can Ada Road	Deep Canyon to Purple Sage	Local	2	1,310	None	55 (SB)	Yes	100 (NB)	Yes

	Purple Sage to Lanktree Gulch	Collector		7,560	D / 425	355 (SB)	Yes	525 (NB)	No
	Lanktree Gulch to New Hope			8,930		435 (SB)	No	605 (NB)	No
	New Hope to Floating Feather	Minor Arterial		10,770	E / 575	450 (SB)	Yes	400 (SB)	Yes
	Floating Feather to SH 44			14,620		435 (SB)	Yes	410 (SB)	Yes
Wing Road	Lanktree Gulch to Beacon Light	Local	2	6,385	None	215 (SB)	Yes	325 (NB)	Yes
New Hope Road	Can Ada to Wing	Minor Arterial	2	4,130	E / 575	225 (EB)	Yes	215 (WB)	Yes
Beacon Light Road	Wing to Pollard	Minor Arterial	2	9,745	E / 575	445 (EB)	Yes	640 (WB)	No
	Pollard to SH 16			14,350		685 (EB)	No	905 (WB)	No
	SH 16 to Palmer			17,515		1,010 (EB)	No	1,415 (WB)	No
	Palmer to Linder			17,205		1,030 (EB)	No	1,310 (WB)	No
Pollard Road	Beacon Light to Floating Feather	Collector	2	6,110	D / 425	305 (NB)	Yes	690 (NB)	No
Floating Feather Road	Can Ada to Star	Minor Arterial	2	3,600	E / 575	405 (EB)	Yes	360 (WB)	Yes
	Star to Plummer			14,065		535 (EB)	Yes	845 (WB)	No
	Plummer to Pollard			8,435		415 (EB)	Yes	585 (WB)	No
	Pollard to SH 16			4,070		300 (EB)	Yes	295 (WB)	Yes
	SH 16 to Palmer			4,730		420 (WB)	Yes	515 (WB)	Yes
Star Road	Floating Feather to SH 44	Collector	2/3	16,070	D / 425	605 (SB)	No	805 (SB)	No
	SH 44 to Joplin	Minor Arterial	2/3	23,205	E / 575	925 (SB)	No	930 (NB)	No
Plummer Road	Floating Feather to SH 44	Collector	2	14,690	D / 425	620 (SB)	Yes	495 (SB)	Yes

¹Per COMPASS 2040 Functional Street Classification Map (Reference 9)

²Travel lanes include the total number of lanes across the roadway's respective cross section

As shown in Table 56, all the roadway segments meet ACHD roadway segment LOS thresholds under 2045 total traffic (with select roadway improvements) conditions weekday AM and PM peak hours except for:

- Deep Canyon Drive (Purple Sage to SH 16) – ADT
- Lanktree Gulch Road (Can Ada to Wing) – ADT
- Purple Sage Road (Blessinger to Can Ada) – PM Peak Hour
- Wing Road (Lanktree Gulch to Beacon Light – ADT
- Can Ada Road (Purple Sage to Lanktree Gulch) – PM Peak Hour
- Can Ada Road (Lanktree Gulch to New Hope) – AM and PM Peak Hour
- Beacon Light Road (Wing to Pollard) – PM Peak Hour
- Beacon Light Road (Pollard to SH 16) – AM and PM Peak Hour
- Beacon Light Road (SH 16 to Palmer) – AM and PM Peak Hour
- Beacon Light Road (Palmer to Linder) – AM and PM Peak Hour
- Pollard Road (Beacon Light to Floating Feather – PM Peak Hour
- Floating Feather Road (Star to Plummer) - PM Peak Hour
- Floating Feather Road (Plummer to Pollard) - PM Peak Hour
- Star Road (Floating Feather to SH 44) – AM and PM Peak Hour
- Star Road (SH 44 to Joplin) – AM and PM Peak Hour
- Plummer Road (Floating Feather to SH 44) – AM and PM Peak Hour

YEAR 2045 TOTAL TRAFFIC (WITH SELECT ROADWAY IMPROVEMENTS) CONDITIONS ROADWAY SEGMENT MITIGATION

Deep Canyon Drive (Purple Sage to SH 16)

This segment of Deep Canyon Drive exceeds the ACHD local road ADT threshold under 2045 total traffic (with select roadway improvements) conditions. This segment would meet the AM and PM peak hour LOS D volume thresholds under 2045 total traffic (with select roadway improvements) conditions if Deep Canyon Drive were upgraded to a collector roadway.

Due to the residential nature of Deep Canyon Drive and the significant front-on housing with driveway access, it is desired to keep Deep Canyon Drive as a local street. With the construction of Aerie Way and the Wing Road extension, Deep Canyon Drive could be disconnected from SH 16 and traffic would use arterial roads at Aerie Way and Beacon Light Road to access SH 16. With this disconnect, Deep Canyon Drive would meet ACHD's local road ADT threshold under 2045 total traffic (with select roadway improvements) conditions. Figures 17A and 17B show the redirected volumes that result from disconnecting Deep Canyon Drive from SH 16. Table 57 shows how the intersections of Deep Canyon Drive / Aerie Way, Aerie Way / SH 16, Lanktree Gulch Road / Wing Road, Beacon Light Road / Wing Road, Beacon Light Road / Pollard Road, and Beacon Light Road / SH 16 would operate if Deep Canyon Drive is disconnected from SH 16 under 2045 total traffic (with select roadway improvements) conditions. This analysis assumes any mitigations identified for each of these intersections under this scenario are in place.

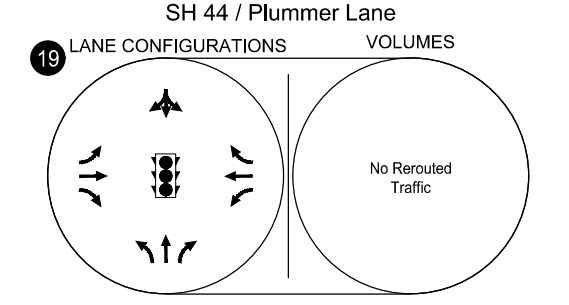
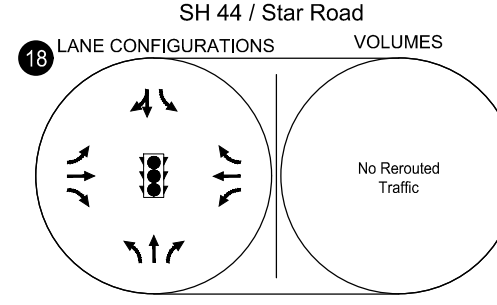
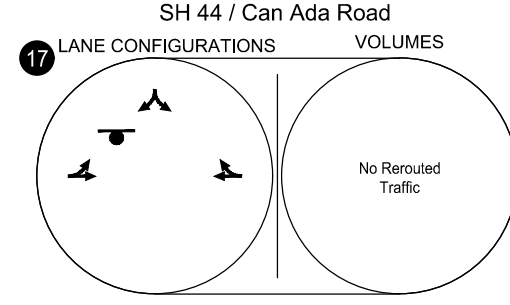
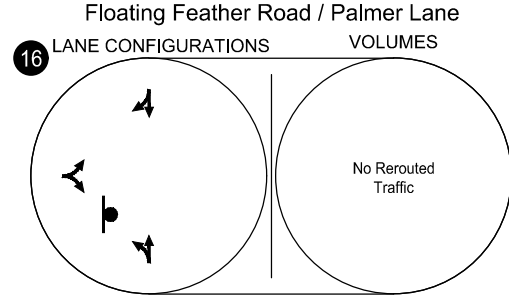
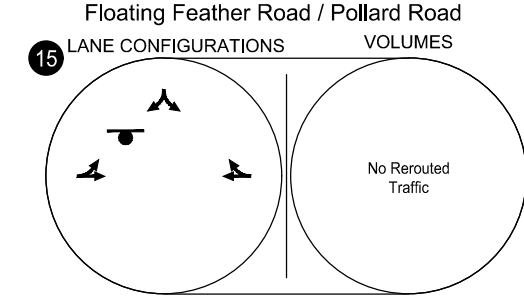
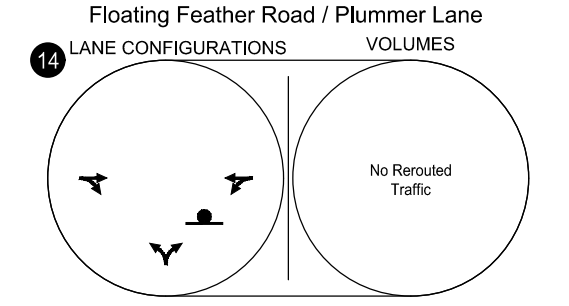
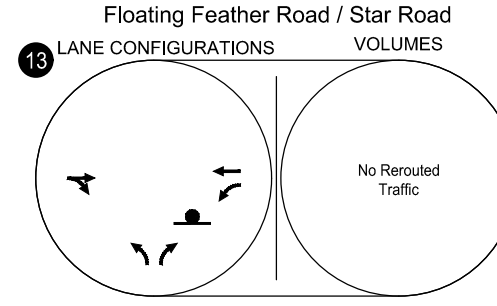
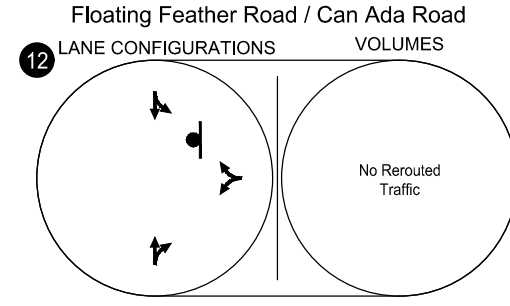
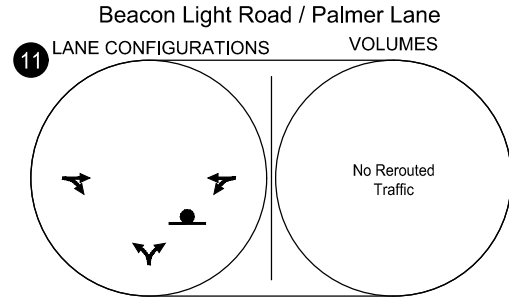
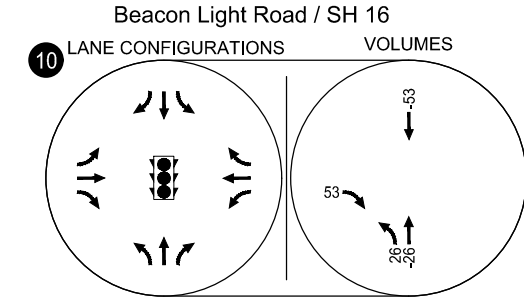
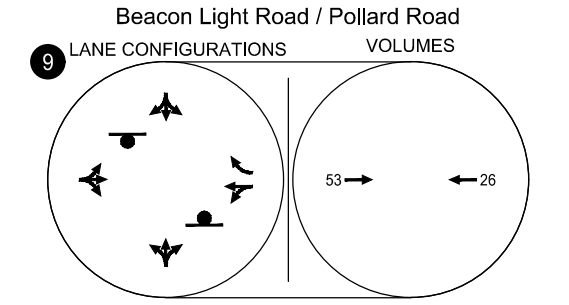
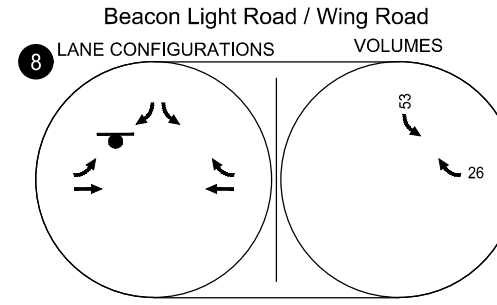
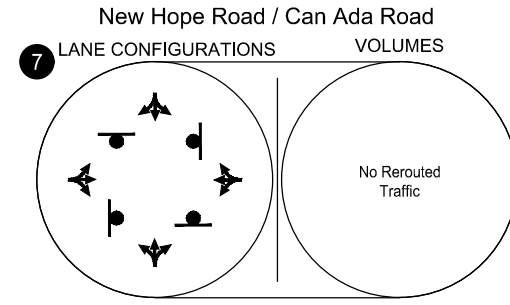
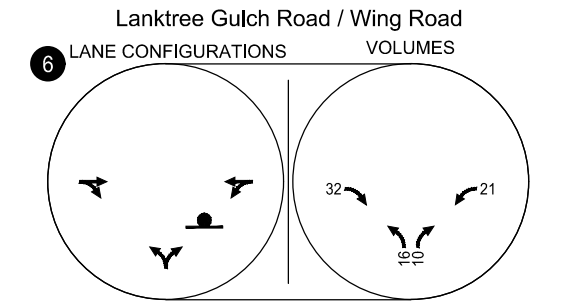
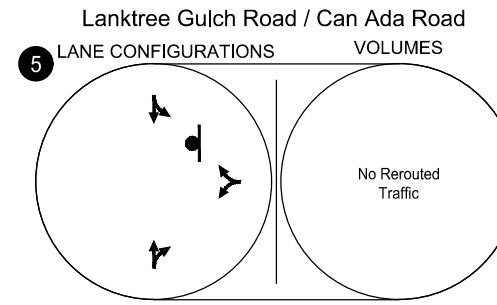
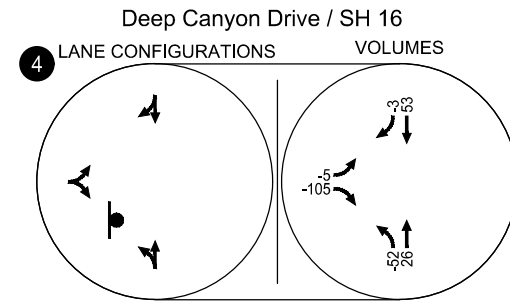
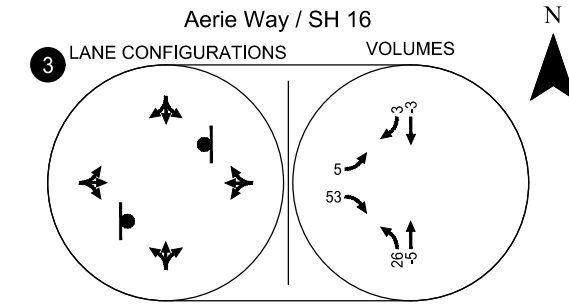
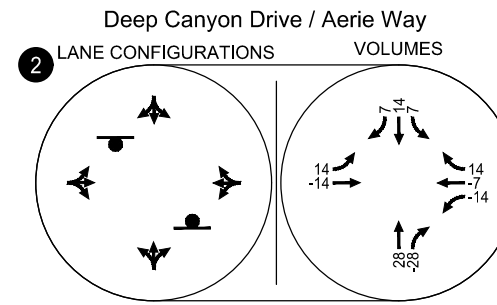
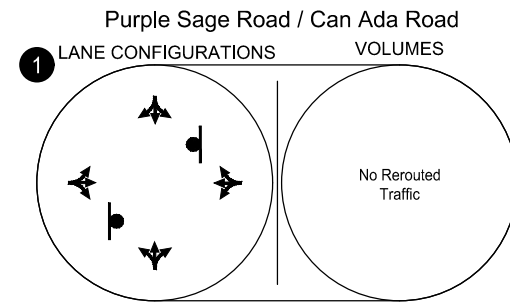
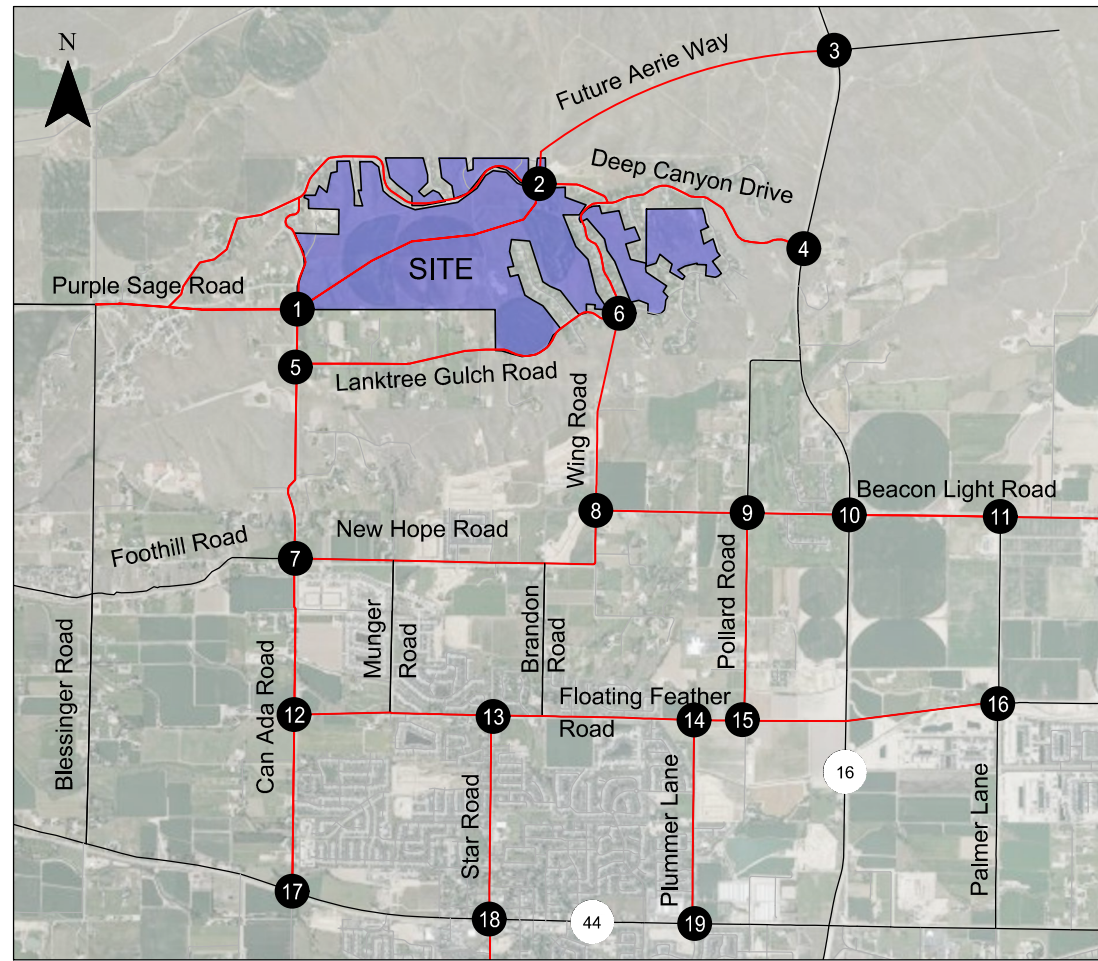
Table 57. Deep Canyon Dr / SH 16 Disconnected Intersection Mitigation Operations – 2045 Total Traffic (with select roadway improvements) Conditions

No.	Intersection	Intersection Control	Intersection AM/PM			Lane Group	Weekday AM Peak Hour			Weekday PM Peak Hour		
			V/C	LOS	Delay		V/C	LOS	Delay	V/C	LOS	Delay
2	Deep Canyon Drive & Aerie Way	TWSC	-	-	-	NBLTR	0.15	B	10.2	0.13	B	10.4
						EBL	0.03	A	7.3	0.02	A	7.3
						WBL	0.02	A	7.3	0.04	A	7.3
						SBLTR	0.09	B	10.2	0.26	B	11.7
3A	Aerie Way & SH 16 West Rdbt	Roundabout	0.23/ 0.13	A/ A	4.2/ 3.5	NBLTR	0.08	A	3.1	0.13	A	3.4
						WBLTR	0.23	A	4.0	0.12	A	3.4
						SBLTR	0.01	A	4.3	0.01	A	3.4
						EBLTR	0.17	A	5.8	0.10	A	3.7
3B	Aerie Way & SH 16 East Rdbt	Roundabout	0.39/ 0.61	A/ A	2.4/ 2.1	NBL	0.05	A	3.3	0.14	A	4.3
						NBR	0.39	A	0.0	0.61	A	0.0
						WBLT	0.23	A	4.5	0.21	A	4.5
						EBTR	0.10	A	3.5	0.17	A	4.9
3C	Aerie Way & SH 16 SB Ramp	Free										
3D	Aerie Way & SH 16 NB Ramp	TWSC	-	-	-	WBR	0.10	B	10.6	0.69	D	32.3
6	Lanktree Gulch Road & Wing Road	TWSC	-	-	-	NBLR	0.14	B	10.6	0.40	B	13.5
						WBL	0.06	A	7.7	0.06	A	7.7
8	Beacon Light Road / Wing Road	TWSC	-	-	-	EBL	0.04	A	7.8	0.23	B	10.7
						SBL	0.44	C	18.0	0.88	F	88.4
						SBR	0.11	A	9.3	0.22	B	13.5
9	Beacon Light Road / Pollard Road	Single Lane Roundabout	0.29/ 0.71	A/ B	5.5/ 7.2	NBLTR	0.29	A	8.4	0.33	A	1.5
						WBLTR	0.13	A	3.8	0.71	C	7.2
						SBLTR	0.19	A	5.3	0.35	C	1.3
						EBLTR	0.25	A	5.5	0.15	A	0.6

		Traffic Signal	0.41/ 0.66	A/ A	7.2/ 9.7	EBL	0.01	A	6.3	0.02	B	11.8
						EBTR	0.51	A	7.4	0.24	A	7.7
						WBL	0.10	A	8.6	0.34	B	10.3
						WBT	0.18	A	6.0	0.61	A	9.4
						WBR	0.18	A	6.1	0.24	A	7.7
						NBL	0.02	A	6.6	0.52	B	10.8
						NBTR	0.44	A	7.5	0.69	B	11.0
						SBL	0.24	A	9.1	0.20	B	14.1
						SBTR	0.14	A	6.3	0.07	A	7.4
10	Beacon Light Road & SH 16	Traffic Signal	0.78/ 0.88	D/ D	38.5/ 45.2	EBL	0.06	C	33.7	0.53	D	40.6
						EBT	0.67	D	44.3	0.27	D	38.9
						EBR	0.74	D	41.9	0.44	D	41.7
						WBL	0.58	C	34.8	0.44	C	34.9
						WBT	0.19	C	32.7	0.88	E	57.2
						WBR	0.15	C	32.2	0.73	D	45.2
						NBL	0.61	D	32.1	0.68	C	31.0
						NBT	0.41	D	36.1	0.85	D	49.1
						NBR	0.47	D	37.8	0.18	C	32.5
						SBL	0.65	C	27.3	0.61	D	40.8
						SBT	0.85	D	43.0	0.54	D	44.1
						SBR	0.01	C	26.2	0.10	D	37.4

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and highlighted indicate an intersection and/or lane group operating below the jurisdictional standards.

As shown in Table 57, disconnecting Deep Canyon Drive from SH 16 will not require any additional mitigations beyond those already identified under 2045 total traffic (with select roadway improvements) conditions.

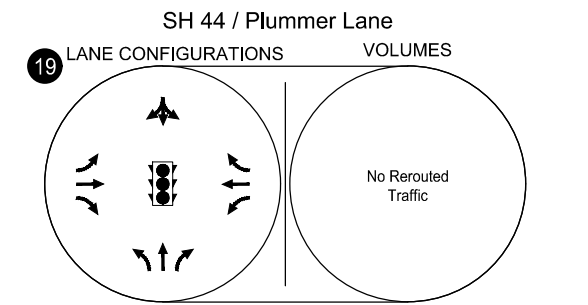
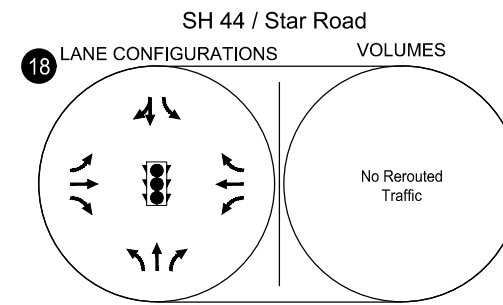
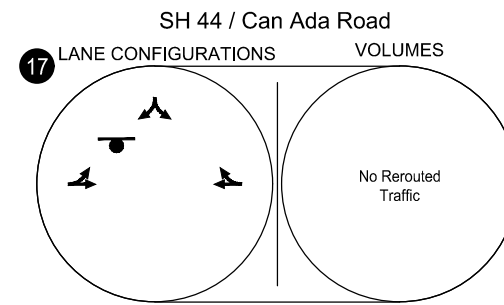
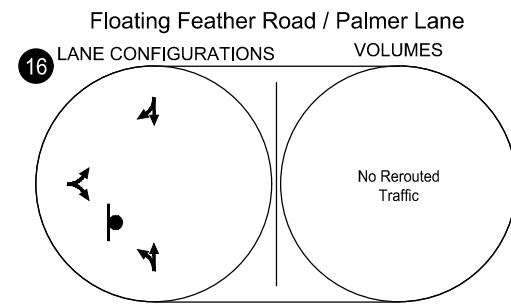
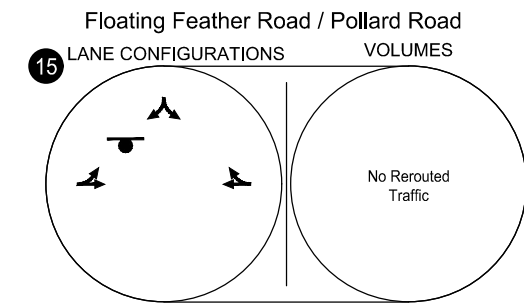
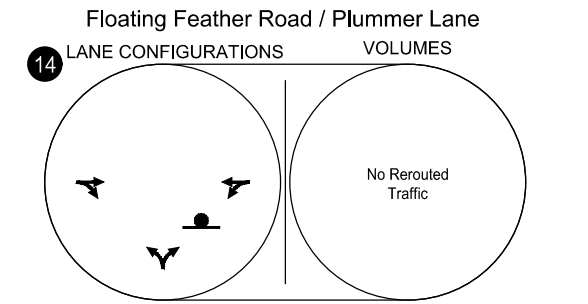
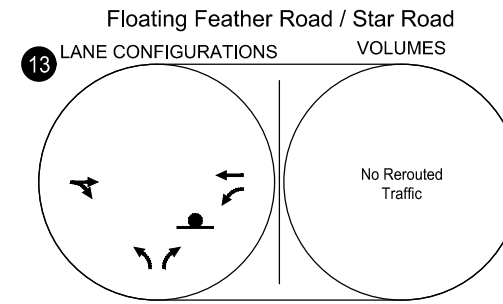
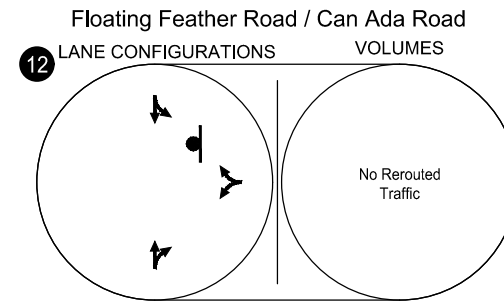
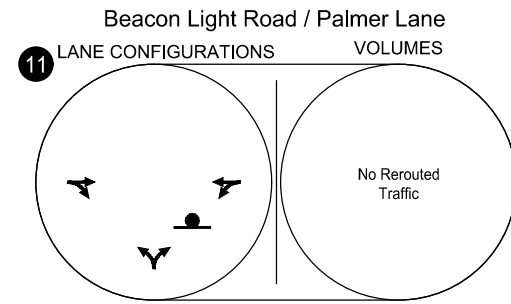
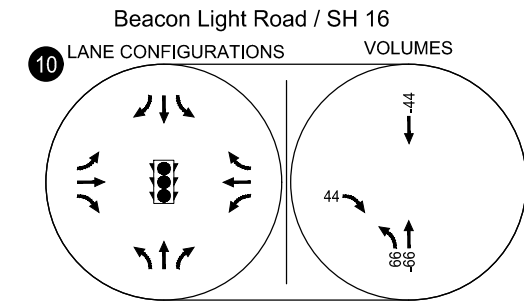
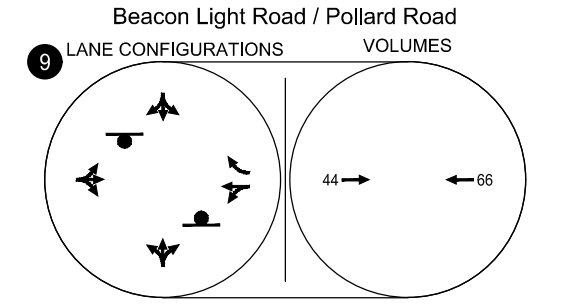
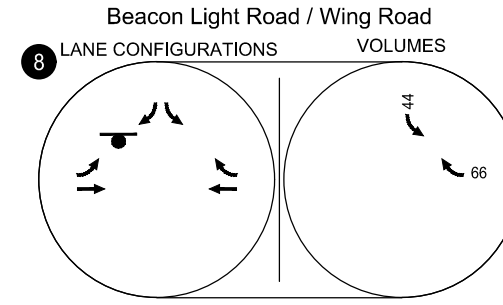
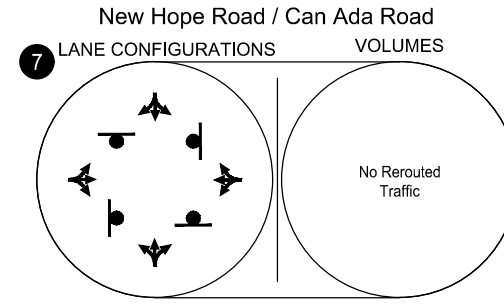
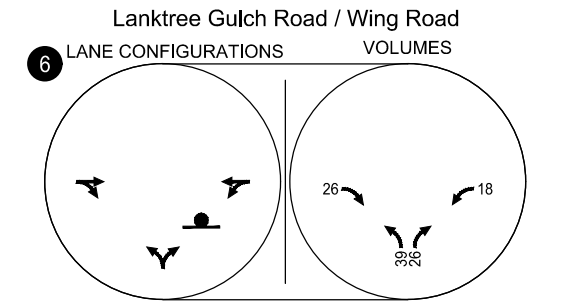
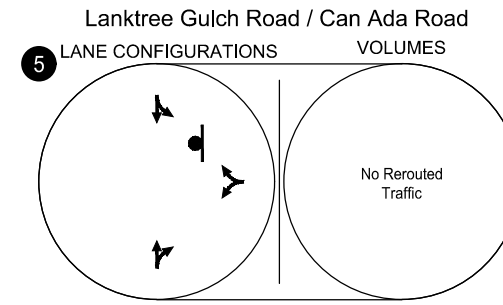
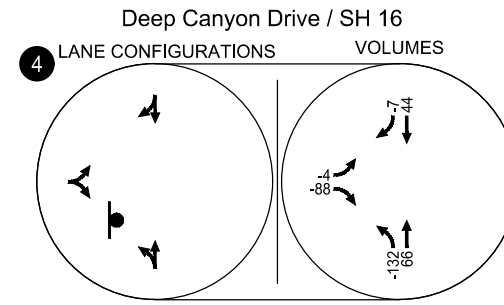
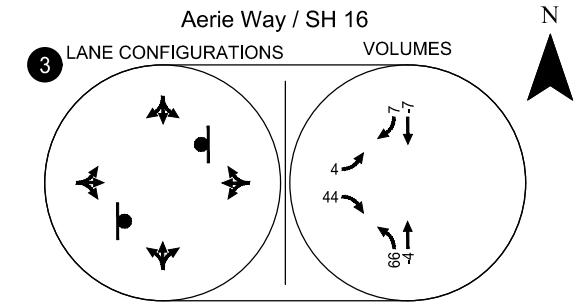
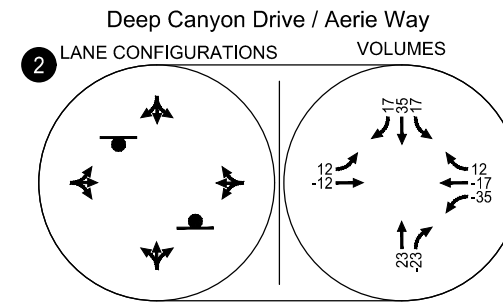
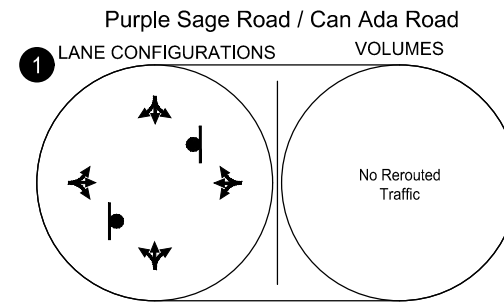
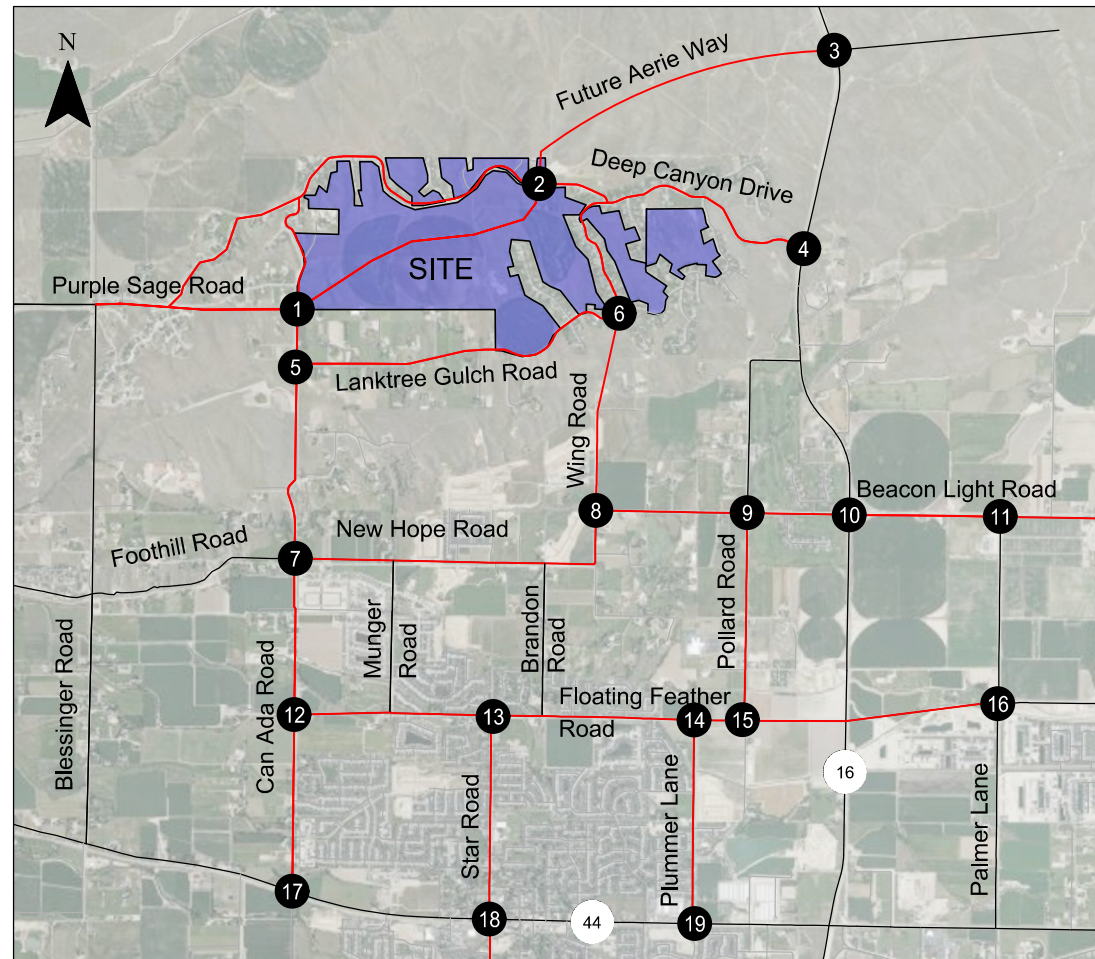


- STOP SIGN
 - TRAFFIC SIGNAL

Year 2045 Total Traffic (with Select Roadway Improvements) Traffic Volumes
 Traffic Rerouted from Disconnecting Deep Canyon Drive from SH 16 - Weekday AM Peak Hour
 Ada County, Idaho

Figure 17A

H:\25\25407 - Willow Brook Community TIS\report\figs\25407_fig.dwg Jan 24, 2023 - 11:12am - smartsch Layout Tab: Fig17A_2045_TT_AM-build-Revt



- STOP SIGN
 - TRAFFIC SIGNAL

Year 2045 Total Traffic (with Select Roadway Improvements) Traffic Volumes
 Traffic Rerouted from Disconnecting Deep Canyon Drive from SH 16 - Weekday PM Peak Hour
 Ada County, Idaho

Figure 17B

H:\25\25407 - Willow Brook Community TIS\report\figs\25407_fig3.dwg Jan 24, 2023 - 11:12am - smartsch Layout Tab: Fig 17B_2045_TT_PM-build-Revt

Purple Sage Road (Blessinger to Can Ada)

This segment of Can Ada Road exceeds the CHD4 LOS D volume threshold for collectors under 2045 total traffic (with select roadway improvements) conditions in the PM peak hour. This roadway segment has limited right-of-way with front on housing and is limited to a maximum of a 3-lane section. Widening to 3-lanes would increase the LOS D threshold to 490 VPH, which would bring the segment to within CHD4 standards.

Can Ada Road (Purple Sage to Lanktree Gulch)

This segment of Can Ada Road exceeds the ACHD LOS E volume threshold for collectors under 2045 total traffic (with select roadway improvements) conditions in the PM peak hour. Can Ada Road is currently a minor arterial from SH 44 to New Hope Road. This designation should be extended to Purple Sage Road to accommodate increasing traffic volumes as development occurs in the area. This would increase the LOS E volume threshold to 575, which would accommodate 2045 total traffic (with select roadway improvements) volumes.

Additionally, the Willow Brook developer has identified the need for improvements to this section of Can Ada Road to accommodate traffic from the Willow Brook development. The developer should work with ACHD and CHD4 to determine potential options to improve safety and operations related to the topography and tight curves that currently exist on this segment.

Can Ada Road (Lanktree Gulch to New Hope)

This segment of Can Ada Road exceeds the ACHD LOS E volume threshold for collectors under 2045 total traffic (with select roadway improvements) conditions in the AM and PM peak hours. Can Ada Road is currently a minor arterial from SH 44 to New Hope Road. This designation should be extended to Purple Sage Road to accommodate increasing traffic volumes as development occurs in the area. This would increase the LOS E volume threshold to 575, which would accommodate 2045 total traffic (with select roadway improvements) volumes.

Additionally, the Willow Brook developer has identified the need for improvements to this section of Can Ada Road to accommodate traffic from the Willow Brook development. The developer should work with ACHD and CHD4 to determine potential options to improve safety and operations related to the topography and tight curves that currently exist on this segment.

Wing Road (Lanktree Gulch to Beacon Light)

This segment of Wing Road exceeds the ACHD local road ADT threshold under 2045 total traffic (with select roadway improvements) conditions. This segment would meet the AM and PM peak hour LOS D volume thresholds under 2045 total traffic (with select roadway improvements) conditions if Wing Road were upgraded to a collector roadway. Upgrading Wing Road to a collector roadway is an option as development continues in the area. This segment serves as a key connection between Beacon Light Road and planned residential areas.

Beacon Light Road (Wing to Pollard)

This segment of Beacon Light Road exceeds the ACHD LOS E volume threshold for minor arterials under 2045 total traffic (with select roadway improvements) conditions in the PM peak hour. This roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe. This would bring the LOS E threshold to 720 VPH, which would still be exceeded by 2045 total traffic (with select roadway improvements) volumes. To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section (LOS E threshold of 1,540 VPH).

Beacon Light Road (Pollard to SH 16)

This segment of Beacon Light Road exceeds the ACHD LOS E volume threshold for minor arterials under 2045 total traffic (with select roadway improvements) conditions in the PM peak hour. This roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe. This would bring the LOS E threshold to 720 VPH, which would still be exceeded by 2045 total traffic (with select roadway improvements) volumes. To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section (LOS E threshold of 1,540 VPH).

Beacon Light Road (SH 16 to Palmer)

This segment of Beacon Light Road exceeds the ACHD LOS E volume threshold for minor arterials under 2045 total traffic (with select roadway improvements) conditions in the AM and PM peak hours. This roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe. This would bring the LOS E threshold to 720 VPH, which would still be exceeded by 2045 total traffic (with select roadway improvements) volumes. To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section (LOS E threshold of 1,540 VPH).

Beacon Light Road (Palmer to Linder)

This segment of Beacon Light Road exceeds the ACHD LOS E volume threshold for minor arterials under 2045 total traffic (with select roadway improvements) conditions in the AM and PM peak hours. This roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe. This would bring the LOS E threshold to 720 VPH, which would still be exceeded by 2045 total traffic (with select roadway improvements) volumes. To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section (LOS E threshold of 1,540 VPH).

Pollard Road (Beacon Light to Floating Feather)

This segment of Pollard Road exceeds the ACHD LOS E volume threshold for minor arterials under 2045 total traffic (with select roadway improvements) conditions in the PM peak hour. The roadway segment is not currently listed for widening in the ACHD CIP. To bring this segment to within standards, Pollard Road would need to be widened to a 3-lane section (LOS E threshold of 720 VPH).

Floating Feather Road (Star to Plummer)

This segment of Floating Feather Road exceeds the ACHD LOS E volume threshold for minor arterials under 2045 total traffic (with select roadway improvements) conditions in the PM peak hour. The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe. This would bring the LOS E threshold to 720 VPH, which would still be exceeded by 2045 total traffic (with select roadway improvements) traffic volumes. To bring this segment to within standards, Floating Feather Road would need to be widened to a 5-lane section (LOS E threshold of 1,540 VPH).

Floating Feather Road (Plummer to Pollard)

This segment of Floating Feather Road exceeds the ACHD LOS E volume threshold for minor arterials under 2045 total traffic (with select roadway improvements) conditions in the PM peak hour. The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe. This would bring the LOS E threshold to 720 VPH, which would accommodate 2045 total traffic (with select roadway improvements) conditions traffic volumes.

Star Road (Floating Feather to SH 44)

This segment of Star Road exceeds the ACHD LOS E volume threshold for minor arterials under 2045 total traffic (with select roadway improvements) conditions in the AM and PM peak hours. The roadway

segment is not currently listed for widening in the ACHD CIP. To bring this segment to within standards, this segment of Star Road would need to be widened to a 5-lane section (LOS E threshold of 1,540 VPH).

Star Road (SH 44 to Joplin)

This segment of Star Road exceeds the ACHD LOS E volume threshold for minor arterials under 2045 total traffic (with select roadway improvements) conditions in the AM and PM peak hours. The roadway segment is listed in the ACHD CIP to be widened to a 5-lane section in the 2031-2035 timeframe. This would bring the LOS E threshold to 1,540 VPH, which would accommodate 2045 total traffic (with select roadway improvements) conditions traffic volumes.

Plummer Road (Floating Feather to SH 44)

This segment of Plummer Road exceeds the ACHD LOS E volume threshold for minor arterials under 2045 total traffic (with select roadway improvements) conditions in the PM peak hour. The roadway segment is not currently listed for widening in the ACHD CIP. To bring this segment to within standards, Plummer Road would need to be widened to a 3-lane section (LOS E threshold of 720 VPH).

MITIGATION TIMING & THRESHOLD EVALUATION

For each of the mitigations identified, the number of site development units and approximate year of need for the mitigation was evaluated. It should be noted that most mitigations are needed to address background conditions, so the site development may only trigger the need for the mitigation earlier. Table 58 shows the recommended mitigations and thresholds. Appendix W contains the synchro worksheets of the analysis used to determine the approximate year of need of intersection mitigations.

Table 58 Mitigation Threshold Evaluation

Intersection/ Roadway	Existing Need?	2045 Background Need?	Percent of PM Peak Site Traffic at Buildout	PM Peak Site Trips	Mitigation Need	Proposed Mitigation	Approx. Year of Need	Estimated Units Built and Site Trips at Time of Need
1. Purple Sage Road / Can Ada Road	No	No	58%	535	WB approach exceeds V/C policy	Single Lane Roundabout or Traffic Signal	2043	91% 720 AM 1,002 PM
4. Deep Canyon Drive / SH 16	No	No	16%	384	EB approach exceeds V/C policy if Aerie Way and Wing Road are not constructed	Construct Aerie Way and Wing Road extension or Widened Traffic Signal	2040	78% 617 AM 859 PM
9. Beacon Light Road / Pollard Road	No	Yes	2%	44	WB approaches exceeds V/C policy	Multi-Lane Roundabout or Traffic Signal	2025	13% 103 AM 143 PM
10. Beacon Light Road / SH 16	No	Yes	8%	307	Intersection exceeds V/C policy	Widened Traffic Signal	2026	17% 137 AM 191 PM
11. Beacon Light Road / Palmer Lane	No	Yes	4%	66	NB left turn movement exceeds V/C policy	Multi-Lane Roundabout or Traffic Signal	2038	70% 549 AM 763 PM
13. Floating Feather Road / Star Road	No	Yes	10%	99	NB left turn movement exceeds V/C policy	Single Lane Roundabout or Traffic Signal	2032	43% 343 AM 477 PM
14. Floating Feather Road / Plummer Road	No	Yes	2%	22	NB approach exceeds V/C policy	Single Lane Roundabout or Traffic Signal	2032	43% 343 AM 477 PM
17. SH 44 / Can Ada Road	No	Yes	18%	285	SB approach exceeds V/C policy	Traffic Signal or RCUT	2025	13% 103 AM 143 PM
18. SH 44 / Star Road	No	Yes	9%	252	Intersection exceeds V/C policy	Widened Traffic Signal	2028	26% 206 AM 286 PM
19. SH 44 / Plummer Road	No	Yes	3%	99	NB and SB approaches exceed V/C policy	Traffic Signal or RCUT	2024	9% 71 AM 99 PM
Deep Canyon Drive (Purple Sage to SH 16)	No	Yes	71% ADT	5,270 ADT	Exceeds ADT threshold for local roads if Aerie Way and Wing Road extension are not constructed	Construct Aerie Way and Wing Road extension or Upgrade to Collector (not desired)	2024	9% 71 AM 99 PM
	No	No	72% ADT	3,205 ADT	Exceeds ADT threshold for local roads with Aerie Way and Wing Road extension constructed	Disconnect Deep Canyon Drive from SH 16	2027	22% 172 AM 238 PM
Lanktree Gulch Road (Can Ada to Wing)	No	Yes	53% ADT	2,250 ADT	Exceeds ADT threshold for local roads	Upgrade to Collector	2026	17% 137 AM 191 PM
Wing Road (Lanktree Gulch to Beacon Light)	No	Yes	30% ADT	1,910 ADT	Exceeds ADT threshold for local roads with Aerie Way and Wing Road	Upgrade to a Collector	2026	17% 137 AM 191 PM

					extension constructed			
Can Ada (Purple Sage to Lanktree Gulch)	No	No	34%	180	Exceeds segment LOS threshold	Upgrade to Minor Arterial	2040	78% 617 AM 859 PM
Can Ada (Lanktree Gulch to New Hope)	No	No	34%	205	Exceeds segment LOS threshold	Upgrade to Minor Arterial	2037	65% 515 AM 715 PM
Beacon Light Road (Wing to Pollard)	No	Yes	11%	92	Exceeds segment LOS threshold	Widen to 5 Lanes	2031	39% 309 AM 429 PM
Beacon Light Road (Pollard to SH 16)	No	Yes	7%	85	Exceeds segment LOS threshold	Widen to 5 Lanes	2031	39% 309 AM 429 PM
Beacon Light Road (SH 16 to Palmer)	No	Yes	2%	35	Exceeds segment LOS threshold	Widen to 5 Lanes	2024	9% 69 AM 95 PM
Beacon Light Road (Palmer to Linder)	No	Yes	3%	40	Exceeds segment LOS threshold	Widen to 5 Lanes	2025	13% 103 AM 143 PM
Pollard Road (Beacon Light to Floating Feather)	No	Yes	1%	5	Exceeds segment LOS threshold	Widen to 3 Lanes	2034	52% 412 AM 572 PM
Floating Feather Road (Star to Plummer)	No	Yes	5%	40	Exceeds segment LOS threshold	Widen to 5 Lanes	2034	52% 412 AM 572 PM
Floating Feather Road (Plummer to Pollard)	No	Yes	0%	0	Exceeds segment LOS threshold	Widen to 3 Lanes	2044	96% 755 AM 1,049 PM
Star Road (Floating Feather to SH 44)	No	Yes	5%	40	Exceeds segment LOS threshold	Widen to 5 Lanes	2026	17% 137 AM 191 PM
Star Road (SH 44 to Joplin Road)	No	Yes	12%	110	Exceeds segment LOS threshold	Widen to 5 Lanes	2025	13% 103 AM 143 PM
Plummer Road (Floating Feather to SH 44)	No	Yes	2%	10	Exceeds segment LOS threshold	Widen to 3 Lanes	2039	74% 583 AM 811 PM

YEAR 2045 TOTAL TRAFFIC QUEUING

An analysis of the 95th percentile queuing at the study intersections and site accesses. Table 59 shows the projected queue under 2045 total traffic (with select roadway improvements) conditions. Queuing was analyzed with existing lane configuration and intersection control and with the proposed mitigations in place.

Table 59. Year 2045 Total Traffic Conditions 95th Percentile Queuing Analysis

No.	Intersection	2045 Total Traffic Conditions – with existing lane configurations and intersection control				2045 Total Traffic (with Select Roadway Improvements) Conditions – with Proposed Mitigations							
		Lane Group	95 th Queue AM/PM (feet)	Storage Available (feet)	Fits within Storage	Lane Group	95 th Queue AM/PM (feet)	Storage Available (feet)	Fits within Storage				
1	Purple Sage Road & Can Ada Road	NBL	25/25	-	-	EBL	25/25	100	Yes				
		EBLTR	50/325	-	-	EBTR	75/125	-	-				
		WBLTR	125/425	-	-	WBL	50/50	100	Yes				
		SBL	25/25	-	-	WBTR	50/50	-	-				
						NBL	50/200	200	Yes				
						NBTR	50/75	-	-				
						SBL	25/25	100	Yes				
						SBTR	50/50	-	-				
2	Deep Canyon Drive & Aerie Way	NBLR	25/25	-	-	No mitigation proposed							
		WBL	25/25	-	-								
3A	Aerie Way & SH 16 West Roundabout	Intersection does not exist				NBLTR	25/25	-	-				
3B	Aerie Way & SH 16 East Roundabout					WBLTR	25/25	-	-				
						SBLTR	25/25	-	-				
						EBLTR	25/25	-	-				
						NBLTR	25/25	-	-				
3C	Aerie Way & SH 16 SB Ramp					WBLTR	25/25	-	-	Free			
						EBLTR	25/25	-	-				
3D	Aerie Way & SH 16 NB Ramp					WBR	25/125	125	-				
4	Deep Canyon Drive & SH 16	NBL	50/50	150	Yes	Disconnect proposed							
		EBLR	450/75	-	-								
5	Lanktree Gulch Road & Can Ada Road	WBLR	50/100	-	-	No mitigation proposed							
		SBL	25/25	-	-								
6	Lanktree Gulch Road & Wing Road	Intersection does not exist				WBLR	25/50	-	-				
						SBL	25/25	-	-				
7	New Hope Road & Can Ada Road	NBLTR	50/200	-	-	No mitigation proposed							
		EBLTR	25/25	-	-								
		WBLTR	25/75	-	-								
		SBLTR	150/200	-	-								
8	Beacon Light Road & Wing Road	NBT	25/25	-	-	EBL	25/25	-	-				
		SBLT	25/50	-	-	SBLR	50/175	-	-				
9	Beacon Light Road & Pollard Road	NBLTR	75/2,100	-	-	EBL	25/25	100	Yes				
		EBL	25/25	-	-	EBTR	325/200	-	-				
		WBL	25/25	-	-	WBL	25/100	100	Yes				
		SBLTR	175/25	-	-	WBT	100/600	-	-				
						WBR	25/50	100	Yes				
						NBL	25/275	300	Yes				
						NBTR	75/375	-	-				
						SBL	75/50	100	Yes				
				SBTR	50/50	-	-						

10	Beacon Light Road & SH 16	EBL	50/100	375	Yes	EBL	25/75	100	Yes
		EBT	475/200	-	-	EBT	250/175	-	-
		EBR	125/25	400	Yes	EBR	100/50	450	Yes
		WBL	325/200	150	No	WBL	125/175	200	Yes
		WBT	150/800	-	-	WBT	100/650	-	-
		WBR	25/950	50	No	WBR	25/275	300	Yes
		NBL	150/125	375	Yes	NBL	75/150	500	Yes
		NBT	450/1,825	-	-	NBT	175/700	-	-
		NBR	50/25	375	Yes	NBR	50/25	100	Yes
		SBL	175/250	475	Yes	SBL	200/200	250	Yes
		SBT	1,600/700	-	-	SBT	475/325	-	-
		SBR	25/25	375	Yes	SBR	25/25	100	Yes
11	Beacon Light Road & Palmer Lane	NBLR	75/300	-	-	EBT	175/75	-	-
		WBL	25/25	-	-	EBR	25/25	100	Yes
						WBL	25/25	100	Yes
						WBT	50/200	-	-
						NBL	25/75	100	Yes
12	Floating Feather Road & Can Ada Road	Intersection does not exist				WBLR	25/25	-	-
						SBL	25/25	-	-
13	Floating Feather Road & Star Road	NBL	100/425	100	No	EBT	100/100	-	-
		NBR	25/25	-	-	EBR	50/50	100	Yes
		WBL	50/75	100	Yes	WBL	100/325	350	Yes
						WBT	25/75	-	-
						NBL	75/100	100	Yes
14	Floating Feather Road & Plummer Road					NBR	50/50	100	Yes
		NBLR	50/750	-	-	EBT	75/100	-	-
		WBL	25/25	-	-	EBR	50/50	100	Yes
						WBL	25/50	100	Yes
						WBT	25/150	-	-
15	Floating Feather Road & Pollard Road	WBTR	50/200	-	-	EBL	25/25	-	-
		SBL	25/25	-	-	SBLR	100/150	-	-
16	Floating Feather Road & Palmer Lane	NBL	50/50	-	-	No mitigation proposed			
		EBLR	50/25	-	-				
17	SH 44 & Can Ada Road	EBL	25/50	-	-	EBL	25/50	100	Yes
		SBLR	1,375/1,375	-	-	EBT	200/150	-	-
						WBT	100/350	-	-
						WBR	25/50	100	Yes
						SBL	150/150	150	Yes
18	SH 44 & Star Road	SBR	50/50	100	Yes				
		EBL	75/300	100	No	EBL	100/150	150	Yes
		EBT	1025/850	-	-	EBT	350/225	-	-
		EBR	235/300	100	No	EBR	150/75	150	Yes
		WBL	300/325	175	No	WBL	150/175	200	Yes
		WBT	425/1,400	-	-	WBT	200/400	-	-
		WBR	25/25	175	No	WBR	25/25	100	Yes
		NBL	475/775	150	No	NBL	175/125	200	Yes
		NBT	200/350	-	-	NBT	175/250	-	-
		NBR	75/100	150	Yes	NBR	50/25	100	Yes
SBL	200/125	75	No	SBL	150/75	150	Yes		
SBTR	675/600	-	-	SBT	425/200	-	-		

19	SH 44 & Plummer Road	EBL	25/100	150	Yes	SBR	25/25	100	Yes
		EBL	25/75			EBL	25/75	100	Yes
		EBT	1,675/1,025	-	-	EBT	325/125	-	-
		EBR	25/25	150	Yes	EBR	25/25	100	Yes
		WBL	75/75	150	Yes	WBL	25/50	100	Yes
		WBT	650/2,025	-	-	WBT	150/250	-	-
		WBR	75/200	150	No	WBT	25/50	100	Yes
		NBL	75/150	125	No	NBL	50/75	100	Yes
		NBT	25/150	-	-	NBT	25/75	-	-
		NBR	50/50	125	Yes	NBR	25/50	100	Yes
		SBLTR	1,075/900	-	-	SBL	200/100	200	Yes
						SBT	50/50	-	-
				SBR	25/50	100	Yes		

Queues are reported for signal mitigations. Cells in the table above that are **bolded**, *italicized*, and highlighted indicate a lane group with queues that either exceeds the provided storage length or are greater than 300 feet.

As shown in Table 59, several intersections have lane groups with queues that would exceed available storage or extend more than 300 feet from the intersection with no mitigations in place under 2045 total traffic conditions.

With the proposed mitigations in place, only a few major intersections have queues that extend more than 300 feet from the intersection. This is expected on major arterials like SH 44 and Beacon Light Road during the peak hours of weekday traffic.

The available storage for turn lanes shown in the table with mitigations in place are based on the projected queues. The mitigations for each of these intersections are recommended to be constructed with the turn lane storage lengths shown as a minimum.

SITE ACCESS EVALUATION

This section evaluates the need for turn lanes, intersection sight distance, and the access location, threshold, and operation with respect to ACHD Policy Manual. All analyses and evaluation in this section is based on full buildout of the site in Year 2045 with the exception of turn lanes, which were only evaluated for 2030 Phase 1 buildout.

TURN LANE WARRANT ANALYSIS

Turn lane warrants were analyzed for all two-way stop-controlled intersections in the study area for Phase 1 2030 buildout. Turn lane warrants were not completed for 2045 full buildout because most of the two-way stop-controlled intersections require mitigations that are more extensive than turn lanes by 2045. The warrant analysis used the ACHD guidelines as presented in Section 7106.4.4 of the *ACHD Policy Manual*. *Appendix X contains the worksheets for the turn lane warrants*. Table 60 shows the results of the turn lane analysis at the study intersections for 2030 Phase 1 buildout.

Table 60. Turn Lane Analysis Results

Intersection	Turn Lane	Warranted in 2030 Total Traffic Conditions?
1. Purple Sage Road / Can Ada Road	NB Right Turn Lane	No
	NB Left-Turn Lane	No
	SB Left-Turn Lane	No
	SB Right-Turn Lane	No
2. Deep Canyon Drive / Internal Collector	EB Right-Turn Lane	No
	WB Left Turn Lane	No
4. Deep Canyon Drive / SH 16	NB Left-Turn Lane	Existing
	SB Right-Turn Lane	No
5. Lanktree Gulch Road / Can Ada Road	NB Right Turn Lane	No
	SB Left-Turn Lane	No
17. SH 44 / Can Ada Road	EB Left-Turn Lane	Yes
	WB Right-Turn Lane	Yes

Based on the analysis, left and right turn lanes are warranted on SH 44 at Can Ada Road under 2030 total traffic conditions.

INTERSECTION SIGHT DISTANCE AND SPACING AT ACCESSES

Intersection sight distance and spacing was evaluated at all proposed new connections to the existing road network. Figure 18 shows the location of all intersections where intersection sight distance and spacing was evaluated. All site accesses are proposed to intersect with existing local roads. ACHD's minimum intersection spacing for new roads intersecting a local road is 125'.

Intersection sight distance requirements are based on the speed of the roadway, per the AASHTO Green Book (Reference 15). Most site access intersections are located on rural local roads with speed limits of 25 MPH. The required sight distance for this speed is 280'. There are a few accesses located on sections of Deep Canyon Drive with a speed limit of 35 mph. The required sight distance for this speed is 390'.



Site Access Locations
2045 Full Build-out
Ada County, Idaho

Figure
18

H:\25\25407 - Willow Brook Community TIS\report\figs\25407_figs.dwg Jan 24, 2023 - 11:12am - smartch Layout Tab: Fig18_Site Accesses

Study Intersection 1

The main internal collector street will connect to the existing intersection of Purple Sage Road & Can Ada Road. Sight Distance can be achieved with the current configuration of a stop-controlled intersection. The site plan identifies this intersection as a single lane roundabout but it is not warranted by traffic operations until 2043. Intersection sight distance is achievable for a roundabout in this location and will be evaluated further when it is designed. The nearest intersection is 850' to the west, providing adequate intersection spacing.

Study Intersection 2

The main internal collector street will intersect Deep Canyon Drive approximately 1,300' west of High Country Way. Sight Distance can be achieved with a lane configuration of a stop-controlled intersection. The site plan identifies this intersection as a single lane dogbone roundabout but it is not warranted by traffic operations. A roundabout may be desirable in this location to provide proper alignment with Aerie Way. Intersection sight distance is achievable for a roundabout in this location and will be evaluated further when it is designed. The nearest intersection is 575' to the south, providing adequate intersection spacing.

Site Access A

This internal roadway, a proposed local road, will intersect with Can Ada Road approximately 820' north of Purple Sage Road. Looking to the north there is 635' of clear sight distance before a horizontal curve. Looking to the south there is 225' of clear sight distance before a horizontal curve. There is not adequate sight distance in this location for an assumed design speed of 25 MPH for Can Ada Road. For this reason, it is recommended that the site plan be modified to relocate this site access to the north so there is at least 280' of clear sight distance before the horizontal curve. Once relocated, the nearest intersection is 525' to the north, providing adequate intersection spacing.

Site Access B

This internal roadway, a proposed local road, will intersect with Deep Canyon Drive approximately 1,150' west of Highhill Place. Looking to the west there is 500' of clear sight distance before a horizontal curve. Looking to the east there is >1000' of clear sight distance. The location of this access as shown on the site plan provides adequate sight distance along a 35 mph section of Deep Canyon Drive. The nearest intersection is 950' to the east, providing adequate intersection spacing.

Site Access C

This internal roadway, a proposed local road, will intersect with Deep Canyon Drive approximately 825' west of Aerie Way. Looking to the west there is 300' of clear sight distance before a horizontal curve. Looking to the east there is 410' of clear sight distance before a horizontal curve. The location of this access as shown on the site plan does not provide adequate sight distance along a 35 mph section of Deep Canyon Drive.

With additional development along the section of Deep Canyon Drive that is posted at 35 mph, it is recommended to update the entire length of Deep Canyon Drive to 25 mph. Site Access C will meet sight distance requirements along Deep Canyon Drive if it is posted at 25 mph. The nearest intersection is 850' to the east, providing adequate intersection spacing.

Site Access D

This internal roadway, a proposed local road, will intersect with High Country Way approximately 825' west of Deep Canyon Drive. Looking to the southwest there is 280' of clear sight distance before a horizontal curve. Looking to the northeast there is 280' of clear sight distance before a horizontal curve. The location

of this access as shown on the site plan provides adequate sight distance. The nearest intersection is 600' to the east, providing adequate intersection spacing.

Site Access E

This internal roadway, a proposed local road, will intersect with Echo Summit Way approximately 475' south of Deep Canyon Drive. Looking to the north there is 475' of clear sight distance to the intersection with Deep Canyon Drive. Looking to the south there is 315' of clear sight distance before a horizontal curve. The location of this access as shown on the site plan provides adequate sight distance. The nearest intersection is 425' to the north, providing adequate intersection spacing.

Site Access F

This internal roadway, a proposed local road, will intersect with Lanktree Gulch Road approximately 260' west of Ptarmigan Place. Looking to the west there is 485' of clear sight distance before a vertical curve. Looking to the east there is 435' of clear sight distance before a horizontal curve. The location of this access as shown on the site plan provides adequate sight distance. The nearest intersection is 825' to the west, providing adequate intersection spacing.

Site Access G

This internal roadway, a proposed local road, will intersect with Lanktree Gulch Road approximately 425' west of High Prairie Place. Looking to the southwest there is 950' of clear sight distance before a horizontal curve. Looking to the northeast there is 380' of clear sight distance before a vertical curve. The location of this access as shown on the site plan provides adequate sight distance. The nearest intersection is 350' to the east, providing adequate intersection spacing.

Site Access H

This internal roadway, a proposed local road, will intersect with Lanktree Gulch Road approximately 405' east of High Prairie Place. Looking to the west there is 370' of clear sight distance before a vertical curve. Looking to the east there is 290' of clear sight distance before a horizontal curve. The location of this access as shown on the site plan provides adequate sight distance. The nearest intersection is 350' to the west, providing adequate intersection spacing.

Site Access I

This internal roadway, a proposed local road, will intersect with Lanktree Gulch Road approximately 485' east of Eagle Pointe Place. Looking to the west there is 800' of clear sight distance before a horizontal curve. Looking to the east there is 300' of clear sight distance before a horizontal curve. The location of this access as shown on the site plan provides adequate sight distance. The nearest intersection is 500' to the west, providing adequate intersection spacing.

Site Access J

This internal roadway, a proposed local road, will intersect with Golden View Court approximately 275' west of Golden View Drive. Looking to the west there is 485' of clear sight distance to the end of the cul-de-sac. Looking to the east there is 330' of clear sight distance to the intersection with Golden View Drive. The location of this access as shown on the site plan provides adequate sight distance. The nearest intersection is 275' to the east, providing adequate intersection spacing.

General Recommendations for All Site Accesses

In addition to the above sight distance evaluation, the following recommendations have been identified to ensure adequate safety and operations at the site access points, internal intersections, and roadways:

- Remove miscellaneous vegetation and shrubbery, and potential obstructions along roadways as necessary to obtain and maintain adequate intersection sight distance.
- Site accesses are assumed to match the existing grade of the connected roadway at the intersection and back at least one car length. Significant changes to the approach grade could impact the sight distances.
- Shrubby, weeds, and landscaping near the internal intersections and site access points should be maintained to ensure adequate sight distance.
- If widening occurs along any of the site access roads, care should be taken to ensure adequate grades and intersection sight distance is maintained.
- Intersection sight distance should be analyzed as part of the final access design and roadway widening.

SITE ROADWAY TRAFFIC VOLUME THRESHOLD EVALUATION

Table 61 shows the estimated average daily traffic (ADT) on the site access roadways as compared with the ACHD Policy Manual for maximum traffic on a local street or collector street. ACHD has a general threshold of 2,000 ADT for local streets.

Table 61. 2045 Daily Traffic Estimates on Internal Roadways (with Select Roadway Improvements)

Street	Estimated Total ADT	ACHD ADT Classification / Planning ADT Threshold	Meets ACHD Criteria?
Main Collector at Can Ada Road	3,400	Collector / No Max	Yes
Main Collector at Deep Canyon Drive	3,400	Collector / No Max	Yes
Site Access A	430	Local / 2,000	Yes
Site Access B	260	Local / 2,000	Yes
Site Access C	260	Local / 2,000	Yes
Site Access D (North)	690	Local / 2,000	Yes
Site Access D (South)	690	Local / 2,000	Yes
Site Access E	430	Local / 2,000	Yes
Site Access F	260	Local / 2,000	Yes
Site Access G	860	Local / 2,000	Yes
Site Access H	1,290	Local / 2,000	Yes
Site Access I	690	Local / 2,000	Yes
Site Access J	430	Local / 2,000	Yes

As shown in Table 61, no accesses are projected to exceed the ACHD maximum criteria for local or collector streets. No changes are recommended.

PEDESTRIAN AND BICYCLE CONSIDERATIONS

The ACHD Roadways to Bikeways Plan (2018 Addendum) (Reference 16) identifies bicycle facilities on key roadways in Ada County. In general, the roadways in the study area are rural in nature and only have pedestrian and bicycle facilities in areas with recent development. The Plan identifies future shared use facilities on Floating Feather Road, Plummer Road, and Pollard Road. As roads and intersections are reconstructed in the study area according to the mitigations identified in this study, pedestrian and bicycle facilities should be considered.



Section 5 Findings and Recommendations

FINDINGS AND RECOMMENDATIONS

The results of the traffic impact analysis indicate that the proposed Willow Brook Golf Community can be constructed while maintaining acceptable levels of service and safety on the surrounding transportation system if the appropriate mitigations are in place. The findings of this analysis and recommendations are discussed below.

FINDINGS

EXISTING CONDITIONS

The study evaluated 19 off-site intersections and 23 roadway segments during the AM and PM peak period of a typical weekday. All study intersections and roadway segments were found to meet ACHD and ITD operating standards under 2022 existing conditions during the AM and PM peak hours.

YEAR 2030 BACKGROUND CONDITIONS

The 2030 phase 1 portion of the study evaluated 5 off-site intersections and 8 roadway segments during the AM and PM peak period of a typical weekday.

All study intersections were found to meet ACHD and ITD operating standards under 2030 background conditions during the AM and PM peak hours except for:

■ **SH 44 & Can Ada Road**

- The southbound approach operates over capacity and at LOS F during the weekday AM and PM peak hours.
- This intersection is in the Mid-Star CIP as a future traffic signal to be constructed by 2025. ITD's SH 44 Corridor Plan shows this intersection as a future RCUT with SH 44 widened to 4 lanes. The City of Star is leading a project that will widen SH 44 to the east of Can Ada Road in 2023
- The CHD4 identified improvement of a traffic signal with left and right turn lanes will serve as acceptable mitigation for the intersection. Alternatively, the ITD identified improvement of an RCUT will also serve as acceptable mitigation for the intersection.

All ACHD study roadway segments operate at acceptable levels of service under 2030 background conditions except for:

■ **Beacon Light Road (SH 16 to Palmer)**

- The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the AM and PM peak hours.
- The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.
- To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section.

YEAR 2045 BACKGROUND CONDITIONS

The 2045 background conditions analysis evaluated 19 off-site intersections and 23 roadway segments during the AM and PM peak period of a typical weekday assuming no background roadway improvements were completed.

The following study intersections were found to exceed ACHD and ITD operating standards under 2045 background conditions during the AM and/or PM peak hours:

■ **Beacon Light Road & Pollard Road**

- The minor street approaches operate over capacity and at LOS F during the weekday PM peak hour.
- The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040. This improvement does not bring the intersection to within ACHD operating standards.
- A multi-lane roundabout with 2 lanes on Beacon Light Road will serve as acceptable mitigation for the intersection. Alternatively, a traffic signal with left turn lanes and a westbound right turn lane will also serve as acceptable mitigation for the intersection.

■ **Beacon Light Road & SH 16**

- The intersection operates over capacity and at LOS E during the weekday AM and PM peak hours.
- The Spring Valley development was conditioned with making capacity improvements to this intersection.
- Widening SH 16 at the intersection and adding a westbound right turn overlap will serve as acceptable mitigation for the intersection.

■ **Beacon Light Road & Palmer Lane**

- The northbound approach operates over capacity and at LOS F during the weekday PM peak hour.
- The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040. This improvement does not bring the intersection to within ACHD operating standards.
- A multi-lane roundabout with 2 lanes on Beacon Light Road will serve as acceptable mitigation for the intersection. Alternatively, a traffic signal with left and right turn lanes and Beacon Light Road widened to 2 through lanes will also serve as acceptable mitigation for the intersection.

■ **Floating Feather Road & Star Road**

- The northbound approach operates over capacity and at LOS F during the weekday AM and PM peak hours.
- The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040.
- The ACHD identified improvement of a single-lane roundabout will serve as acceptable mitigation for the intersection. Alternatively, a traffic signal with left turn lanes will also serve as acceptable mitigation for the intersection.

■ **Floating Feather Road & Plummer Road**

- The northbound approach operates over capacity and at LOS F during the weekday PM peak hour.
- The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040.
- The ACHD identified improvement of a single-lane roundabout will serve as acceptable mitigation for the intersection. Alternatively, a traffic signal with left turn lanes will also serve as acceptable mitigation for the intersection.

■ **SH 44 & Can Ada Road**

- The southbound approach operates over capacity and at LOS F during the weekday AM and PM peak hours.
- This intersection is in the Mid-Star CIP as a future traffic signal to be constructed by 2025. ITD's SH 44 Corridor Plan shows this intersection as a future RCUT with SH 44 widened to 4 lanes. The City of Star is leading a project that will widen SH 44 to the east of Can Ada Road in 2023.
- The CHD4 identified improvement of a traffic signal with left and right turn lanes will serve as acceptable mitigation for the intersection. Alternatively, the ITD identified improvement of an RCUT will also serve as acceptable mitigation for the intersection.

■ **SH 44 & Star Road**

- The intersection operates over capacity and at LOS E during the weekday AM and PM peak hours.
- This intersection is in the ACHD CIP to have the signal replaced/modified and approaches widened. The lane configuration identified by ACHD does not fully mitigate the intersection.
- Widening SH 44 at the intersection and adding dual northbound left turn lanes will serve as acceptable mitigation for the intersection.

■ **SH 44 & Plummer Road**

- The intersection operates over capacity and at LOS F during the weekday AM and PM peak hours.
- This intersection is not currently programmed for improvements by ACHD. ITD's draft SH 44 Corridor Plan shows this intersection as signalized with SH 44 widened to 4 lanes. The lane configuration shown in the Corridor Plan does not fully mitigate the intersection.
- A traffic signal with left and right turn lanes, the eastbound and westbound approaches widened to two through lanes, and dual southbound left turn lanes will serve as acceptable mitigation for the intersection.

The following study roadway segments operate above ACHD level of service volume thresholds under 2045 background conditions:

■ **Deep Canyon Drive (Aerie Way to SH 16)**

- The segment is projected to exceed the ACHD local road ADT volume threshold.
- This segment would meet the AM and PM peak hour LOS D volume thresholds if Deep Canyon Drive were upgraded to a collector roadway.
- Constructing Aerie Way and the Wing Road extension would bring Deep Canyon Drive to within the ACHD local road ADT threshold as shown in the 2045 background (with select roadway improvements) conditions scenario.

■ **Lanktree Gulch Road (Can Ada to Wing)**

- The segment is projected to exceed the ACHD local road ADT volume threshold.
- This segment would meet the AM and PM peak hour LOS D volume thresholds if Lanktree Gulch Road were upgraded to a collector roadway.

■ **Wing Road (Lanktree Gulch to Beacon Light)**

- The segment is projected to exceed the ACHD local road ADT volume threshold.
- This segment would meet the AM and PM peak hour LOS D volume thresholds if Wing Road were upgraded to a collector roadway.

■ **Beacon Light Road (Wing to Pollard)**

- The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the PM peak hour.
- The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.
- To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section.

■ **Beacon Light Road (Pollard to SH 16)**

- The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the PM peak hour.
- The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.
- To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section.

■ **Beacon Light Road (SH 16 to Palmer)**

- The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the AM and PM peak hours.
- The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.
- To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section.

■ **Beacon Light Road (Palmer to Linder)**

- The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the AM and PM peak hours.
- The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.
- To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section.

■ **Pollard Road (Beacon Light to Floating Feather)**

- The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the PM peak hour.
- The roadway segment is not currently listed in the ACHD CIP to be widened.
- To bring this segment to within standards, Pollard Road would need to be widened to a 3-lane section.

■ **Floating Feather Road (Star to Plummer)**

- The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the PM peak hour.
- The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.
- To bring this segment to within standards, Floating Feather Road would need to be widened to a 5-lane section.

■ **Star Road (Floating Feather to SH 44)**

- The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the AM and PM peak hours.
- The roadway segment is not currently listed in the ACHD CIP to be widened.
- To bring this segment to within standards, Star Road would need to be widened to a 5-lane section.

■ **Star Road (SH 44 to Joplin)**

- The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the AM and PM peak hours.
- The roadway segment is listed in the ACHD CIP to be widened to a 5-lane section in the 2031-2035 timeframe. This would bring the segment to within standards.

■ **Plummer Road (Floating Feather to SH 44)**

- The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the PM peak hour.
- The roadway segment is not currently listed in the ACHD CIP to be widened.
- To bring this segment to within standards, Plummer Road would need to be widened to a 3-lane section.

YEAR 2045 BACKGROUND (WITH SELECT ROADWAY IMPROVEMENTS) CONDITIONS

The 2045 background (with select roadway improvements) conditions analysis evaluated 19 off-site intersections and 23 roadway segments during the AM and PM peak period of a typical weekday assuming select background roadway improvements were constructed. The assumed improvements include:

- Floating Feather Road constructed between Munger Road and Can Ada Road
- Floating Feather Road realignment constructed between Pollard Road and Palmer Lane
- Wing Road constructed between Beacon Light Road and Lanktree Gulch Road
- Aerie Way constructed between SH 16 and Deep Canyon Drive

The following study intersections were found to exceed ACHD and ITD operating standards under 2045 background (with select roadway improvements) conditions during the AM and/or PM peak hours:

■ **Beacon Light Road & Pollard Road**

- The minor street approaches operate over capacity and at LOS F during the weekday PM peak hour.
- The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040. This improvement does not bring the intersection to within ACHD operating standards.
- A multi-lane roundabout with 2 lanes on Beacon Light Road will serve as acceptable mitigation for the intersection. Alternatively, a traffic signal with left turn lanes and a westbound right turn lane will also serve as acceptable mitigation for the intersection.

■ **Beacon Light Road & SH 16**

- The intersection operates over capacity and at LOS E during the weekday AM and PM peak hours.

- The Spring Valley development was conditioned with making capacity improvements to this intersection.
- Widening SH 16 at the intersection and adding a westbound right turn overlap will serve as acceptable mitigation for the intersection.
- **Beacon Light Road & Palmer Lane**
 - The northbound approach operates over capacity and at LOS F during the weekday PM peak hour.
 - The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040. This improvement does not bring the intersection to within ACHD operating standards.
 - A multi-lane roundabout with 2 lanes on Beacon Light Road will serve as acceptable mitigation for the intersection. Alternatively, a traffic signal with left and right turn lanes and Beacon Light Road widened to 2 through lanes will also serve as acceptable mitigation for the intersection.
- **Floating Feather Road & Star Road**
 - The northbound approach operates over capacity and at LOS F during the weekday AM and PM peak hours.
 - The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040.
 - The ACHD identified improvement of a single-lane roundabout will serve as acceptable mitigation for the intersection. Alternatively, a traffic signal with left turn lanes will also serve as acceptable mitigation for the intersection.
- **Floating Feather Road & Plummer Road**
 - The northbound approach operates over capacity and at LOS F during the weekday PM peak hour.
 - The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040.
 - The ACHD identified improvement of a single-lane roundabout will serve as acceptable mitigation for the intersection. Alternatively, a traffic signal with left turn lanes will also serve as acceptable mitigation for the intersection.
- **SH 44 & Can Ada Road**
 - The southbound approach operates over capacity and at LOS F during the weekday AM and PM peak hours.
 - This intersection is in the Mid-Star CIP as a future traffic signal to be constructed by 2025. ITD's SH 44 Corridor Plan shows this intersection as a future RCUT with SH 44 widened to 4 lanes. The City of Star is leading a project that will widen SH 44 to the east of Can Ada Road in 2023.
 - The CHD4 identified improvement of a traffic signal with left and right turn lanes and SH 44 widened to 4 lanes will serve as acceptable mitigation for the intersection. Alternatively, the ITD identified improvement of an RCUT will also serve as acceptable mitigation for the intersection.
- **SH 44 & Star Road**
 - The intersection operates over capacity and at LOS E during the weekday AM and PM peak hours.
 - This intersection is in the ACHD CIP to have the signal replaced/modified and approaches widened. The lane configuration identified by ACHD does not fully mitigate the intersection.

- Widening SH 44 at the intersection and adding dual northbound left turn lanes will serve as acceptable mitigation for the intersection.

■ **SH 44 & Plummer Road**

- The intersection operates over capacity and at LOS F during the weekday AM and PM peak hours.
- This intersection is not currently programmed for improvements by ACHD. ITD's draft SH 44 Corridor Plan shows this intersection as signalized with SH 44 widened to 4 lanes. The lane configuration shown in the Corridor Plan does not fully mitigate the intersection.
- A traffic signal with left and right turn lanes, the eastbound and westbound approaches widened to two through lanes, and dual southbound left turn lanes will serve as acceptable mitigation for the intersection.

The following study roadway segments operate above ACHD level of service volume thresholds under 2045 background (with select roadway improvements) conditions:

■ **Wing Road (Lanktree Gulch to Beacon Light)**

- The segment is projected to exceed the ACHD local road ADT volume threshold.
- This segment would meet the AM and PM peak hour LOS D volume thresholds if Wing Road were upgraded to a collector roadway.

■ **Beacon Light Road (Wing to Pollard)**

- The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the PM peak hour.
- The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.
- To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section.

■ **Beacon Light Road (Pollard to SH 16)**

- The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the PM peak hour.
- The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.
- To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section.

■ **Beacon Light Road (SH 16 to Palmer)**

- The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the AM and PM peak hours.
- The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.
- To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section.

■ **Beacon Light Road (Palmer to Linder)**

- The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the AM and PM peak hours.

- The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.
- To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section.
- **Pollard Road (Beacon Light to Floating Feather)**
 - The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the PM peak hour.
 - The roadway segment is not currently listed in the ACHD CIP to be widened.
 - To bring this segment to within standards, Pollard Road would need to be widened to a 3-lane section.
- **Floating Feather Road (Star to Plummer)**
 - The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the PM peak hour.
 - The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.
 - To bring this segment to within standards, Floating Feather Road would need to be widened to a 5-lane section.
- **Floating Feather Road (Plummer to Pollard)**
 - The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the PM peak hour.
 - The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe. This would bring the segment to within standards.
- **Star Road (Floating Feather to SH 44)**
 - The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the AM and PM peak hours.
 - The roadway segment is not currently listed in the ACHD CIP to be widened.
 - To bring this segment to within standards, Star Road would need to be widened to a 5-lane section.
- **Star Road (SH 44 to Joplin)**
 - The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the AM and PM peak hours.
 - The roadway segment is listed in the ACHD CIP to be widened to a 5-lane section in the 2031-2035 timeframe. This would bring the segment to within standards.
- **Plummer Road (Floating Feather to SH 44)**
 - The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the PM peak hour.
 - The roadway segment is not currently listed in the ACHD CIP to be widened.
 - To bring this segment to within standards, Plummer Road would need to be widened to a 3-lane section.

TRIP GENERATION & DISTRIBUTION

- The golf course only of the proposed Willow Brook Golf Community is estimated to generate a total of 526 daily net new trip ends, of these, 30 are estimated to occur in the weekday a.m. peak hour (24 inbound / 6 outbound), and 52 are estimated to occur in the weekday p.m. peak hour (27 inbound / 25 outbound).
- Phase 1 of the proposed Willow Brook Golf Community is estimated to generate a total of 3,535 daily net new trip ends, of these, 260 are estimated to occur in the weekday a.m. peak hour (83 inbound / 177 outbound), and 358 are estimated to occur in the weekday p.m. peak hour (220 inbound / 138 outbound).
- Full buildout of the proposed Willow Brook Golf Community is estimated to generate a total of 12,821 daily net new trip ends, of these, 789 are estimated to occur in the weekday a.m. peak hour (262 inbound / 527 outbound), and 1,097 are estimated to occur in the weekday p.m. peak hour (658 inbound / 439 outbound).
- The distribution pattern for site-generated trips was developed by evaluating a select zone analysis from COMPASS' regional travel demand model.

YEAR 2030 TOTAL TRAFFIC CONDITIONS

The 2030 phase 1 portion of the study evaluated 5 off-site intersections and 8 roadway segments during the AM and PM peak period of a typical weekday with the inclusion of phase 1 trips from the Willow Brook Golf Community.

All study intersections were found to meet ACHD and ITD operating standards under 2030 background conditions during the AM and PM peak hours except for:

- **SH 44 & Can Ada Road**
 - The southbound approach operates over capacity and at LOS F during the weekday AM and PM peak hours.
 - This intersection is in the Mid-Star CIP as a future traffic signal to be constructed by 2025. ITD's SH 44 Corridor Plan shows this intersection as a future RCUT with SH 44 widened to 4 lanes. The City of Star is leading a project that will widen SH 44 to the east of Can Ada Road in 2023.
 - The CHD4 identified improvement of a traffic signal with left and right turn lanes will serve as acceptable mitigation for the intersection. Alternatively, the ITD identified improvement of an RCUT will also serve as acceptable mitigation for the intersection.

All ACHD study roadway segments operate at acceptable levels of service under 2030 total traffic conditions except for:

- **Deep Canyon Drive (Purple Sage to SH 16)**
 - The segment is projected to exceed the ACHD local road ADT volume threshold.
 - This segment would meet the AM and PM peak hour LOS D volume thresholds if Deep Canyon Drive were upgraded to a collector roadway.
 - To limit through traffic on this local road, Deep Canyon Drive would need to be disconnected from SH 16. This option is discussed in the 2045 total traffic (with select roadway improvements) conditions scenario.
- **Beacon Light Road (SH 16 to Palmer)**
 - The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the AM and PM peak hours.

- The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.
- To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section.

YEAR 2045 TOTAL TRAFFIC CONDITIONS

The 2045 total traffic conditions analysis evaluated 19 off-site intersections and 23 roadway segments during the AM and PM peak period of a typical weekday assuming no background roadway improvements were completed and includes site traffic from full buildout of the Willow Brook Golf Community.

The following study intersections were found to exceed ACHD and ITD operating standards under 2045 total traffic conditions during the AM and/or PM peak hours:

■ **Purple Sage Road & Can Ada Road**

- The minor street approaches operate over capacity and at LOS F during the weekday PM peak hour.
- The Mid-Star CIP includes adding turn lanes to this intersection in the 2030-2040 timeframe, but that will not mitigate the intersection in this scenario.
- A single lane roundabout or a traffic signal with left turn lanes will serve as acceptable mitigation for the intersection.

■ **Deep Canyon Drive & SH 16**

- The eastbound approach operates over capacity and at LOS F during the weekday AM peak hour.
- The future configuration of this section of SH 16 is currently being determined by an ITD Corridor Plan. A traffic signal with one through lane in the northbound and southbound direction does not mitigate the intersection.
- A traffic signal with left and right turn lanes and SH 16 widened to two through lanes in each direction will serve as acceptable mitigation for the intersection.

■ **Beacon Light Road & Pollard Road**

- No Willow Brook site trips are assigned to this intersection under 2045 total traffic conditions. Therefore, the mitigations needed at this intersection are the same as identified in 2045 background conditions.

■ **Beacon Light Road & SH 16**

- The intersection operates over capacity and at LOS E during the weekday AM and PM peak hours.
- The Spring Valley development was conditioned with making capacity improvements to this intersection.
- Widening SH 16 at the intersection and adding a second westbound right turn lane will serve as acceptable mitigation for the intersection.

■ **Beacon Light Road & Palmer Lane**

- The northbound approach operates over capacity and at LOS F during the weekday PM peak hour.

- The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040. This improvement does not bring the intersection to within ACHD operating standards.
- A multi-lane roundabout with 2 lanes on Beacon Light Road will serve as acceptable mitigation for the intersection. Alternatively, a traffic signal with left and right turn lanes and Beacon Light Road widened to 2 through lanes will also serve as acceptable mitigation for the intersection.
- **Floating Feather Road & Star Road**
 - No Willow Brook site trips are assigned to this intersection under 2045 total traffic conditions. Therefore, the mitigations needed at this intersection are the same as identified in 2045 background conditions.
- **Floating Feather Road & Plummer Road**
 - No Willow Brook site trips are assigned to this intersection under 2045 total traffic conditions. Therefore, the mitigations needed at this intersection are the same as identified in 2045 background conditions.
- **SH 44 & Can Ada Road**
 - The southbound approach operates over capacity and at LOS F during the weekday AM and PM peak hours.
 - This intersection is in the Mid-Star CIP as a future traffic signal to be constructed by 2025. ITD's SH 44 Corridor Plan shows this intersection as a future RCUT with SH 44 widened to 4 lanes. The City of Star is leading a project that will widen SH 44 to the east of Can Ada Road in 2023. The ITD identified improvement of an RCUT does not bring the intersection to within ACHD or ITD operating standards.
 - The CHD4 identified improvement of a traffic signal with left and right turn lanes and SH 44 widened to 4 lanes will serve as acceptable mitigation for the intersection.
- **SH 44 & Star Road**
 - The intersection operates over capacity and at LOS E during the weekday AM and PM peak hours.
 - This intersection is in the ACHD CIP to have the signal replaced/modified and approaches widened. The lane configuration identified by ACHD does not fully mitigate the intersection.
 - Widening SH 44 at the intersection and adding dual northbound left turn lanes will serve as acceptable mitigation for the intersection.
- **SH 44 & Plummer Road**
 - The intersection operates over capacity and at LOS F during the weekday AM and PM peak hours.
 - This intersection is not currently programmed for improvements by ACHD. ITD's draft SH 44 Corridor Plan shows this intersection as signalized with SH 44 widened to 4 lanes. The lane configuration shown in the Corridor Plan does not fully mitigate the intersection.
 - A traffic signal with left and right turn lanes, the eastbound and westbound approaches widened to two through lanes, and dual southbound left turn lanes will serve as acceptable mitigation for the intersection.

The following study roadway segments receive site traffic and operate above ACHD level of service volume thresholds under 2045 total traffic conditions:

- **Deep Canyon Drive (Aerie to SH 16)**

- The segment is projected to exceed the ACHD local road ADT volume threshold.
 - This segment would meet the AM and PM peak hour LOS D volume thresholds if Deep Canyon Drive were upgraded to a collector roadway.
 - To limit through traffic on this local road, Deep Canyon Drive would need to be disconnected from SH 16. This option is discussed in the total traffic (with select roadway improvements) conditions scenario.
- **Lanktree Gulch Road (Can Ada to Wing)**
- The segment is projected to exceed the ACHD local road ADT volume threshold.
 - This segment would meet the AM and PM peak hour LOS D volume thresholds if Lanktree Gulch Road were upgraded to a collector roadway.
- **Purple Sage Road (Blessinger to Can Ada)**
- The segment is projected to exceed the CHD4 LOS D volume threshold for collectors in the PM peak hour.
 - To bring this segment to within standards, Purple Sage Road would need to be widened to a 3-lane section.
- **Can Ada Road (Purple Sage to Lanktree Gulch)**
- The segment is projected to exceed the ACHD LOS D volume threshold for collectors in the PM peak hour.
 - To bring this segment to within standards, Can Ada Road can be designated as a minor arterial, which it is already classified as between SH 44 and New Hope Road.
- **Can Ada Road (Lanktree Gulch to New Hope)**
- The segment is projected to exceed the ACHD LOS D volume threshold for collectors in the PM peak hour.
 - To bring this segment to within standards, Can Ada Road can be designated as a minor arterial, which it is already classified as between SH 44 and New Hope Road.
- **Beacon Light Road (SH 16 to Palmer)**
- The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the AM and PM peak hours.
 - The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.
 - To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section.
- **Beacon Light Road (Palmer to Linder)**
- The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the AM and PM peak hours.
 - The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.
 - To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section.
- **Star Road (SH 44 to Joplin)**

- The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the AM and PM peak hours.
- The roadway segment is listed in the ACHD CIP to be widened to a 5-lane section in the 2031-2035 timeframe. This would bring the segment to within standards.

YEAR 2045 TOTAL TRAFFIC (WITH SELECT ROADWAY IMPROVEMENTS) CONDITIONS

The 2045 total traffic (with select roadway improvements) conditions analysis evaluated 19 off-site intersections and 23 roadway segments during the AM and PM peak period of a typical weekday assuming select background roadway improvements were constructed and includes site traffic from full buildout of the Willow Brook Golf Community. The assumed background improvements include:

- Floating Feather Road constructed between Munger Road and Can Ada Road
- Floating Feather Road realignment constructed between Pollard Road and Palmer Lane
- Wing Road constructed between Beacon Light Road and Lanktree Gulch Road
- Aerie Way constructed between SH 16 and Deep Canyon Drive

The following study intersections were found to exceed ACHD and ITD operating standards under 2045 total traffic (with select roadway improvements) conditions during the AM and/or PM peak hours:

■ **Purple Sage Road & Can Ada Road**

- The minor street approaches operate over capacity and at LOS F during the weekday PM peak hour.
- The Mid-Star CIP includes adding turn lanes to this intersection in the 2030-2040 timeframe, but that will not mitigate the intersection in this scenario.
- A single lane roundabout or a traffic signal with left turn lanes will serve as acceptable mitigation for the intersection.

■ **Beacon Light Road & Pollard Road**

- The minor street approaches operate over capacity and at LOS F during the weekday PM peak hour.
- The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040. This improvement does not bring the intersection to within ACHD operating standards.
- A multi-lane roundabout with 2 lanes on Beacon Light Road will serve as acceptable mitigation for the intersection. Alternatively, a traffic signal with left turn lanes and a westbound right turn lane will also serve as acceptable mitigation for the intersection.

■ **Beacon Light Road & SH 16**

- The intersection operates over capacity and at LOS E during the weekday AM and PM peak hours.
- The Spring Valley development was conditioned with making capacity improvements to this intersection.
- Widening SH 16 at the intersection and adding a second westbound right turn lane will serve as acceptable mitigation for the intersection.

■ **Beacon Light Road & Palmer Lane**

- The northbound approach operates over capacity and at LOS F during the weekday PM peak hour.

- The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040. This improvement does not bring the intersection to within ACHD operating standards.
- A multi-lane roundabout with 2 lanes on Beacon Light Road will serve as acceptable mitigation for the intersection. Alternatively, a traffic signal with left and right turn lanes and Beacon Light Road widened to 2 through lanes will also serve as acceptable mitigation for the intersection.
- **Floating Feather Road & Star Road**
 - The northbound approach operates over capacity and at LOS F during the weekday AM and PM peak hours.
 - The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040.
 - The ACHD identified improvement of a single-lane roundabout will serve as acceptable mitigation for the intersection. Alternatively, a traffic signal with left turn lanes will also serve as acceptable mitigation for the intersection.
- **Floating Feather Road & Plummer Road**
 - The northbound approach operates over capacity and at LOS F during the weekday PM peak hour.
 - The intersection is programmed in the ACHD CIP as a future single-lane roundabout to be constructed in 2036-2040.
 - The ACHD identified improvement of a single-lane roundabout will serve as acceptable mitigation for the intersection. Alternatively, a traffic signal with left turn lanes will also serve as acceptable mitigation for the intersection.
- **SH 44 & Can Ada Road**
 - The southbound approach operates over capacity and at LOS F during the weekday AM and PM peak hours.
 - This intersection is in the Mid-Star CIP as a future traffic signal to be constructed by 2025. ITD's SH 44 Corridor Plan shows this intersection as a future RCUT with SH 44 widened to 4 lanes. The City of Star is leading a project that will widen SH 44 to the east of Can Ada Road in 2023. The ITD identified improvement of an RCUT does not bring the intersection to within ACHD or ITD operating standards.
 - The CHD4 identified improvement of a traffic signal with left and right turn lanes and SH 44 widened to 4 lanes will serve as acceptable mitigation for the intersection.
- **SH 44 & Star Road**
 - The intersection operates over capacity and at LOS E during the weekday AM and PM peak hours.
 - This intersection is in the ACHD CIP to have the signal replaced/modified and approaches widened. The lane configuration identified by ACHD does not fully mitigate the intersection.
 - Widening SH 44 at the intersection and adding dual northbound left turn lanes will serve as acceptable mitigation for the intersection.
- **SH 44 & Plummer Road**
 - The intersection operates over capacity and at LOS F during the weekday AM and PM peak hours.

- This intersection is not currently programmed for improvements by ACHD. ITD's draft SH 44 Corridor Plan shows this intersection as signalized with SH 44 widened to 4 lanes. The lane configuration shown in the Corridor Plan does not fully mitigate the intersection.
- A traffic signal with left and right turn lanes, the eastbound and westbound approaches widened to two through lanes, and dual southbound left turn lanes will serve as acceptable mitigation for the intersection.

The following study roadway segments operate above ACHD level of service volume thresholds under 2045 background conditions:

■ **Deep Canyon Drive (Aerie to SH 16)**

- The segment is projected to exceed the ACHD local road ADT volume threshold.
- This segment would meet the AM and PM peak hour LOS D volume thresholds if Deep Canyon Drive were upgraded to a collector roadway.
- With the construction of Aerie Way and the Wing Road extension, Deep Canyon Drive could be disconnected from SH 16. This would limit through traffic on the roadway and would allow it to meet the ACHD local road ADT volume threshold.
- Disconnecting Deep Canyon Drive from SH 16 will not require any additional intersection mitigations beyond those already identified under 2045 total traffic (with select roadway improvements) conditions.

■ **Purple Sage Road (Blessinger to Can Ada)**

- The segment is projected to exceed the CHD4 LOS D volume threshold for collectors in the PM peak hour.
- To bring this segment to within standards, Purple Sage Road would need to be widened to a 3-lane section.

■ **Can Ada Road (Purple Sage to Lanktree Gulch)**

- The segment is projected to exceed the ACHD LOS D volume threshold for collectors in the PM peak hour.
- To bring this segment to within standards, Can Ada Road can be designated as a minor arterial, which it is already classified as between SH 44 and New Hope Road.

■ **Can Ada Road Lanktree Gulch to New Hope)**

- The segment is projected to exceed the ACHD LOS D volume threshold for collectors in the PM peak hour.
- To bring this segment to within standards, Can Ada Road can be designated as a minor arterial, which it is already classified as between SH 44 and New Hope Road.

■ **Wing Road (Lanktree Gulch to Beacon Light)**

- The segment is projected to exceed the ACHD local road ADT volume threshold.
- This segment would meet the AM and PM peak hour LOS D volume thresholds if Wing Road were upgraded to a collector roadway.

■ **Beacon Light Road (Wing to Pollard)**

- The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the PM peak hour.
- The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.

- To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section.
- **Beacon Light Road (Pollard to SH 16)**
 - The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the PM peak hour.
 - The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.
 - To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section.
- **Beacon Light Road (SH 16 to Palmer)**
 - The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the AM and PM peak hours.
 - The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.
 - To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section.
- **Beacon Light Road (Palmer to Linder)**
 - The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the AM and PM peak hours.
 - The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.
 - To bring this segment to within standards, Beacon Light Road would need to be widened to a 5-lane section.
- **Pollard Road (Beacon Light to Floating Feather)**
 - The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the PM peak hour.
 - The roadway segment is not currently listed in the ACHD CIP to be widened.
 - To bring this segment to within standards, Pollard Road would need to be widened to a 3-lane section.
- **Floating Feather Road (Star to Plummer)**
 - The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the PM peak hour.
 - The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe.
 - To bring this segment to within standards, Floating Feather Road would need to be widened to a 5-lane section.
- **Floating Feather Road (Plummer to Pollard)**
 - The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the PM peak hour.
 - The roadway segment is listed in the ACHD CIP to be widened to a 3-lane section in the 2036-2040 timeframe. This would bring the segment to within standards.

■ **Star Road (Floating Feather to SH 44)**

- The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the AM and PM peak hours.
- The roadway segment is not currently listed in the ACHD CIP to be widened.
- To bring this segment to within standards, Star Road would need to be widened to a 5-lane section.

■ **Star Road (SH 44 to Joplin)**

- The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the AM and PM peak hours.
- The roadway segment is listed in the ACHD CIP to be widened to a 5-lane section in the 2031-2035 timeframe. This would bring the segment to within standards.

■ **Plummer Road (Floating Feather to SH 44)**

- The segment is projected to exceed the ACHD LOS E volume threshold for minor arterials in the PM peak hour.
- The roadway segment is not currently listed in the ACHD CIP to be widened.
- To bring this segment to within standards, Plummer Road would need to be widened to a 3-lane section.

SITE ACCESSES

- With approval from ACHD, construct all accesses to the development to allow full access on the public street approaches with the following designations:
 - All local streets within the development should be constructed with one travel lane in each direction.
 - Site driveways with access to public streets should provide sufficient stacking distance for four vehicles (100 feet) to ensure acceptable operation and accommodate larger vehicles, including utility service and delivery vehicles.
 - Site accesses should match the existing grade of road to which they access to ensure the best possible sight distance.
 - All accesses and internal streets should be designed to provide adequate intersection site distance. Shrubbery and landscaping near the intersection and site access point should be maintained to ensure adequate sight distance is maintained.
- Site Access A on Can Ada Road just north of Purple Sage Road should be relocated to the north to allow for at least 280' of clear sight distance before any horizontal curve.
- Site Access C on Deep Canyon Drive does not provide adequate intersection spacing for a 35 mph local road. The segment of Deep Canyon Drive that is currently posted at 35 mph is recommended to be reduced to 25 mph to provide adequate intersection spacing and improve safety as development increases.

RECOMMENDATIONS

Based on the report's analyses and evaluation findings, recommendations were developed accordingly for each analysis scenario.

EXISTING CONDITIONS

No mitigations are recommended to accommodate the year 2022 existing traffic volumes and meet ACHD and ITD standards.

YEAR 2030 BACKGROUND CONDITIONS

The following mitigations are recommended to accommodate the year 2030 background traffic volumes and meet ACHD and ITD standards:

- **SH 44 & Can Ada Road**
 - Construct an RCUT with SH 44 widened to a 4-lane section or a traffic signal with left and right turn lanes.
- **Beacon Light Road (SH 16 to Palmer)**
 - Widen to a 5-lane section.

YEAR 2045 BACKGROUND CONDITIONS

The following mitigations are recommended to accommodate the year 2045 background traffic volumes and meet ACHD and ITD standards:

- **Beacon Light Road & Pollard Road**
 - Construct a multi-lane roundabout with 2 lanes on Beacon Light Road or a traffic signal with left turn lanes and a westbound right turn lane.
- **Beacon Light Road & SH 16**
 - Widen SH 16 at the intersection and add a westbound right turn overlap.
- **Beacon Light Road & Palmer Lane**
 - Construct a multi-lane roundabout with 2 lanes on Beacon Light Road or a traffic signal with left and right turn lanes and Beacon Light Road widened to 2 through lanes.
- **Floating Feather Road & Star Road**
 - Construct a single-lane roundabout or a traffic signal with left turn lanes.
- **Floating Feather Road & Plummer Road**
 - Construct a single-lane roundabout or a traffic signal with left turn lanes.
- **SH 44 & Can Ada Road**
 - Construct an RCUT with SH 44 widened to a 4-lane section or a traffic signal with left and right turn lanes.
- **SH 44 & Star Road**
 - Widen SH 44 at the intersection and add dual northbound left turn lanes
- **SH 44 & Plummer Road**
 - Expand the traffic signal to include left and right turn lanes, the eastbound and westbound approaches widened to two through lanes, and dual southbound left turn lanes.
- **Deep Canyon Drive (Aerie to SH 16)**
 - Construct Aerie Way and the Wing Road extension.
- **Lanktree Gulch Road (Can Ada to Wing)**

- Upgrade to a collector roadway.
- **Wing Road (Lanktree Gulch to Beacon Light)**
 - Upgrade to a collector roadway.
- **Beacon Light Road (Wing to Pollard)**
 - Widen to a 5-lane section.
- **Beacon Light Road (Pollard to SH 16)**
 - Widen to a 5-lane section.
- **Beacon Light Road (SH 16 to Palmer)**
 - Widen to a 5-lane section.
- **Beacon Light Road (Palmer to Linder)**
 - Widen to a 5-lane section.
- **Pollard Road (Beacon Light to Floating Feather)**
 - Widen to a 3-lane section.
- **Floating Feather Road (Star to Plummer)**
 - Widen to a 5-lane section.
- **Star Road (Floating Feather to SH 44)**
 - Widen to a 5-lane section.
- **Star Road (SH 44 to Joplin)**
 - Widen to a 5-lane section.
- **Plummer Road (Floating Feather to SH 44)**
 - Widen to a 3-lane section.

YEAR 2045 BACKGROUND (WITH SELECT ROADWAY IMPROVEMENTS) CONDITIONS

The following mitigations are recommended to accommodate the year 2045 background (with select roadway improvements) traffic volumes and meet ACHD and ITD standards:

- **Beacon Light Road & Pollard Road**
 - Construct a multi-lane roundabout with 2 lanes on Beacon Light Road or a traffic signal with left turn lanes and a westbound right turn lane.
- **Beacon Light Road & SH 16**
 - Widen SH 16 at the intersection and add a westbound right turn overlap.
- **Beacon Light Road & Palmer Lane**
 - Construct a multi-lane roundabout with 2 lanes on Beacon Light Road or a traffic signal with left and right turn lanes and Beacon Light Road widened to 2 through lanes.
- **Floating Feather Road & Star Road**
 - Construct a single-lane roundabout or a traffic signal with left turn lanes.
- **Floating Feather Road & Plummer Road**

- Construct a single-lane roundabout or a traffic signal with left turn lanes.
- **SH 44 & Can Ada Road**
 - Construct an RCUT with SH 44 widened to a 4-lane section or a traffic signal with left and right turn lanes.
- **SH 44 & Star Road**
 - Widen SH 44 at the intersection and add dual northbound left turn lanes
- **SH 44 & Plummer Road**
 - Expand the traffic signal to include left and right turn lanes, the eastbound and westbound approaches widened to two through lanes, and dual southbound left turn lanes.
- **Wing Road (Lanktree Gulch to Beacon Light)**
 - Upgrade to a collector roadway.
- **Beacon Light Road (Wing to Pollard)**
 - Widen to a 5-lane section.
- **Beacon Light Road (Pollard to SH 16)**
 - Widen to a 5-lane section.
- **Beacon Light Road (SH 16 to Palmer)**
 - Widen to a 5-lane section.
- **Beacon Light Road (Palmer to Linder)**
 - Widen to a 5-lane section.
- **Pollard Road (Beacon Light to Floating Feather)**
 - Widen to a 3-lane section.
- **Floating Feather Road (Star to Plummer)**
 - Widen to a 5-lane section.
- **Floating Feather Road (Plummer to Pollard)**
 - Widen to a 3-lane section.
- **Star Road (Floating Feather to SH 44)**
 - Widen to a 5-lane section.
- **Star Road (SH 44 to Joplin)**
 - Widen to a 5-lane section.
- **Plummer Road (Floating Feather to SH 44)**
 - Widen to a 3-lane section.

YEAR 2030 TOTAL TRAFFIC CONDITIONS

The following mitigations beyond those identified in 2030 background conditions are recommended to accommodate the year 2030 total traffic volumes and meet ACHD and ITD standards:

- **Deep Canyon Drive (Aerie to SH 16)**
 - Construct Aerie Way and the Wing Road extension.

YEAR 2045 TOTAL TRAFFIC CONDITIONS

The following mitigations beyond those identified in 2045 background conditions are recommended to accommodate the year 2045 total traffic volumes and meet ACHD and ITD standards:

- **Purple Sage Road & Can Ada Road**
 - Construct a single lane roundabout or a traffic signal with left turn lanes.
- **Deep Canyon Drive & SH 16**
 - Construct Aerie Way and the Wing Road extension or add a traffic signal with left and right turn lanes and SH 16 widened to two through lanes in each direction.
- **Beacon Light Road & SH 16**
 - Add a second westbound right turn lane
- **SH 44 & Can Ada Road**
 - Construct a traffic signal with left and right turn lanes and SH 44 widened to 4 lanes.
 - An RCUT was recommended under 2045 background conditions but is no longer recommended under 2045 total traffic conditions
- **Purple Sage Road (Blessinger to Can Ada)**
 - Widen to a 3-lane section.
- **Can Ada Road (Purple Sage to Lanktree Gulch)**
 - Upgrade to a minor arterial.
- **Can Ada Road (Lanktree Gulch to New Hope)**
 - Upgrade to a minor arterial.

YEAR 2045 TOTAL TRAFFIC (WITH SELECT ROADWAY IMPROVEMENTS) CONDITIONS

The following mitigations beyond those identified in 2045 background (with select roadway improvements) conditions are recommended to accommodate the year 2045 total traffic (with select roadway improvements) volumes and meet ACHD and ITD standards:

- **Purple Sage Road & Can Ada Road**
 - Construct a single lane roundabout or a traffic signal with left turn lanes.
- **Beacon Light Road & SH 16**
 - Add a second westbound right turn lane
- **SH 44 & Can Ada Road**
 - Construct a traffic signal with left and right turn lanes and SH 44 widened to 4 lanes.
 - An RCUT was recommended under 2045 background (with select roadway improvements) conditions but is no longer recommended under 2045 total traffic (with select roadway improvements) conditions.
- **Purple Sage Road (Blessinger to Can Ada)**
 - Widen to a 3-lane section.
- **Can Ada Road (Purple Sage to Lanktree Gulch)**

- Upgrade to a minor arterial.
- **Can Ada Road (Lanktree Gulch to New Hope)**
 - Upgrade to a minor arterial.

SITE ACCESSES

- **Purple Sage Road & Can Ada Road**
 - This intersection should be constructed as a two way stop control in the near term. A single lane roundabout or a traffic signal with left turn lanes is warranted in 2043. Right of way should be preserved now for a future roundabout.
- **Deep Canyon Drive & Aerie Way**
 - Although shown as a dogbone roundabout on the site plan, a two way stop controlled intersection is shown to operate acceptably for this intersection. The roundabout may be preferred to provide proper alignment with Aerie Way and the main internal collector.
- **Site Access A**
 - Relocate to the north to allow for at least 280' of clear sight distance before any horizontal curve.
- **Site Access C**
 - Reduce speed limit on this section of Deep Canyon Drive to 25 mph.

RECOMMENDED NEW CONNECTIONS

- **Aerie Way**
 - Recommended to be constructed between Deep Canyon Drive and SH 16 to provide alternate access to SH 16 from the development and to reduce demand on Deep Canyon Drive. This connection should be constructed in conjunction with the Wing Road extension described below.
 - Deep Canyon Drive is projected to exceed ACHD's local road ADT threshold by 2024. Constructing these new connections will extend the timeline of reaching this threshold to 2027. Operations at the intersection of Deep Canyon Drive / SH 16 are not projected to exceed capacity until 2040.
 - The timing of constructing Aerie Way should be determined with the understanding that the local road ADT threshold of Deep Canyon Drive will be exceeded by 2024 but there are no capacity deficiencies in the near term.
 - The construction of Aerie Way and the Wing Road extension alone will not relieve pressure from Deep Canyon Drive beyond 2027. It is also recommended that Deep Canyon Drive be disconnected from SH 16 upon completion of these connections as described below.
 - The construction of Aerie Way will require land acquisition from the Bureau of Land Management and private landowners. The developer is currently in discussions with these landowners regarding logistics of making this land acquisition for right of way.
- **Wing Road Extension**
 - Recommended to be constructed between Lanktree Gulch Road and Beacon Light Road to provide alternate access to SH 16 from the development and to reduce demand on Deep Canyon Drive. This connection should be constructed in conjunction with Aerie Way described above.
 - Deep Canyon Drive is projected to exceed ACHD's local road ADT threshold by 2024. Constructing these new connections will extend the timeline of reaching this threshold to 2027.

Operations at the intersection of Deep Canyon Drive / SH 16 are not projected to exceed capacity until 2040.

- The timing of constructing the Wing Road extension should be determined with the understanding that the local road ADT threshold of Deep Canyon Drive will be exceeded by 2024 but there are no capacity deficiencies in the near term.
- The construction of Aerie Way and the Wing Road extension alone will not relieve pressure from Deep Canyon Drive beyond 2027. It is also recommended that Deep Canyon Drive be disconnected from SH 16 upon completion of these connections as described below.
- The construction of the Wing Road extension will require land acquisition from private landowners. Some of the land required for this extension is already owned by Willow Brook Development.

■ **Can Ada Road**

- Recommended to be improved between Purple Sage Road and New Hope Road. Improvements should include upgrading Can Ada Road to a minor arterial, flattening steep grades, and improving sight distance. The road should be improved to accommodate design standards for a minor arterial where possible and should include advisory sections where necessary.

■ **Deep Canyon Drive Recommendations**

- Deep Canyon Drive is projected to exceed ACHD's local road ADT threshold of 2,000 by 2024 (with 9% of the Willow Brook site built out). Constructing Aerie Way and the Wing Road extension will extend the timeline of reaching this threshold to 2027.
- With the construction of Aerie Way and the Wing Road extension, it becomes feasible to disconnect Deep Canyon Drive from SH 16. Traffic will divert to Aerie Way or Beacon Light Road to reach SH 16. This will bring the 2045 total traffic ADT on Deep Canyon Drive to within ACHD local road thresholds and will not further impact operations on other intersections and roadway segments.



Section 6 References

REFERENCES

1. Ada County Highway District. *Policy Manual Section 7106*. December 12, 2018.
2. Idaho Transportation Department. *IDAPA 39.03.43. Rules Governing Highway Right-of-Way Encroachment Rights-of-Way*. 2014.
3. Transportation Research Board. *Highway Capacity Manual, 6th Edition*. April 2016.
4. Ada County Highway District. *ACHD 2020 Capital Improvements Plan*. Amended August 19, 2020.
5. Transportation Research Board. *Highway Capacity Manual 2000*. 2000.
6. Federal Highway Administration. *Manual on Uniform Traffic Control Devices, 2009 Edition*, Washington D.C., June 2012.
7. National Academies of Sciences, Engineering, and Medicine. NCHRP 03-110 Estimating the Life-Cycle Cost of Intersection Designs. September 2015.
8. Idaho Transportation Department. Memo No. 39 District 3 Operational Procedures. November 2020.
9. Community Planning Association of Southwest Idaho. *2040 Functional Classification Map for Ada County and Canyon County*. Approved January 28, 2013. Map background updated July 2019.
10. Idaho Transportation Department. SH 44 Corridor Plan Concept Exhibits. December 2019.
11. Ada County Highway District. *Integrated Five Year Work Plan*. September 25, 2019.
12. Canyon Highway District No. 4. Mid-Star Service Area Capital Improvements Plan. May 7, 2021.
13. Idaho Transportation Department. Idaho's Statewide Transportation Improvement Program. January 2016.
14. Institute of Transportation Engineers. *Trip Generation Manual, 11th Edition*. September 2021.
15. American Association of State Highway and Transportation Officials (AASHTO). *A Policy on Geometric Design of Highways and Streets, 6th Edition*. 2011.
16. Ada County Highway District. *Roadway to Bikeways Plan (2018 Addendum)*.



Appendix A
Proposed Scope of Work Memo
and Confirmation Emails

Scoping Memorandum

July 25, 2022

Project# 25407

To: Paige Bankhead (ACHD); Regan Hansen (ITD)

From: Jamie Markosian, PE, Sonia Daleiden, PE, and Sam Mantsch

CC: Chris Hopper (CHD4); Mindy Wallace (ACHD); Jason Brinkman (ITD)

Project: Willow Brook Golf Community

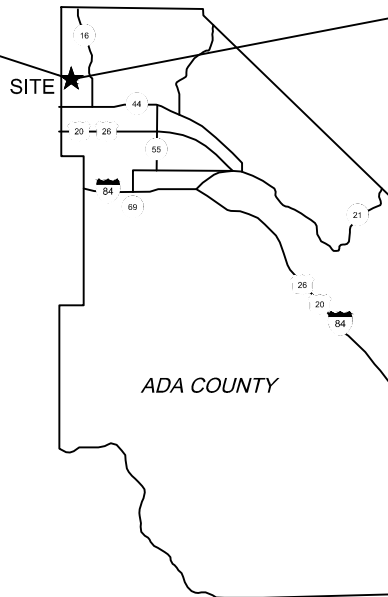
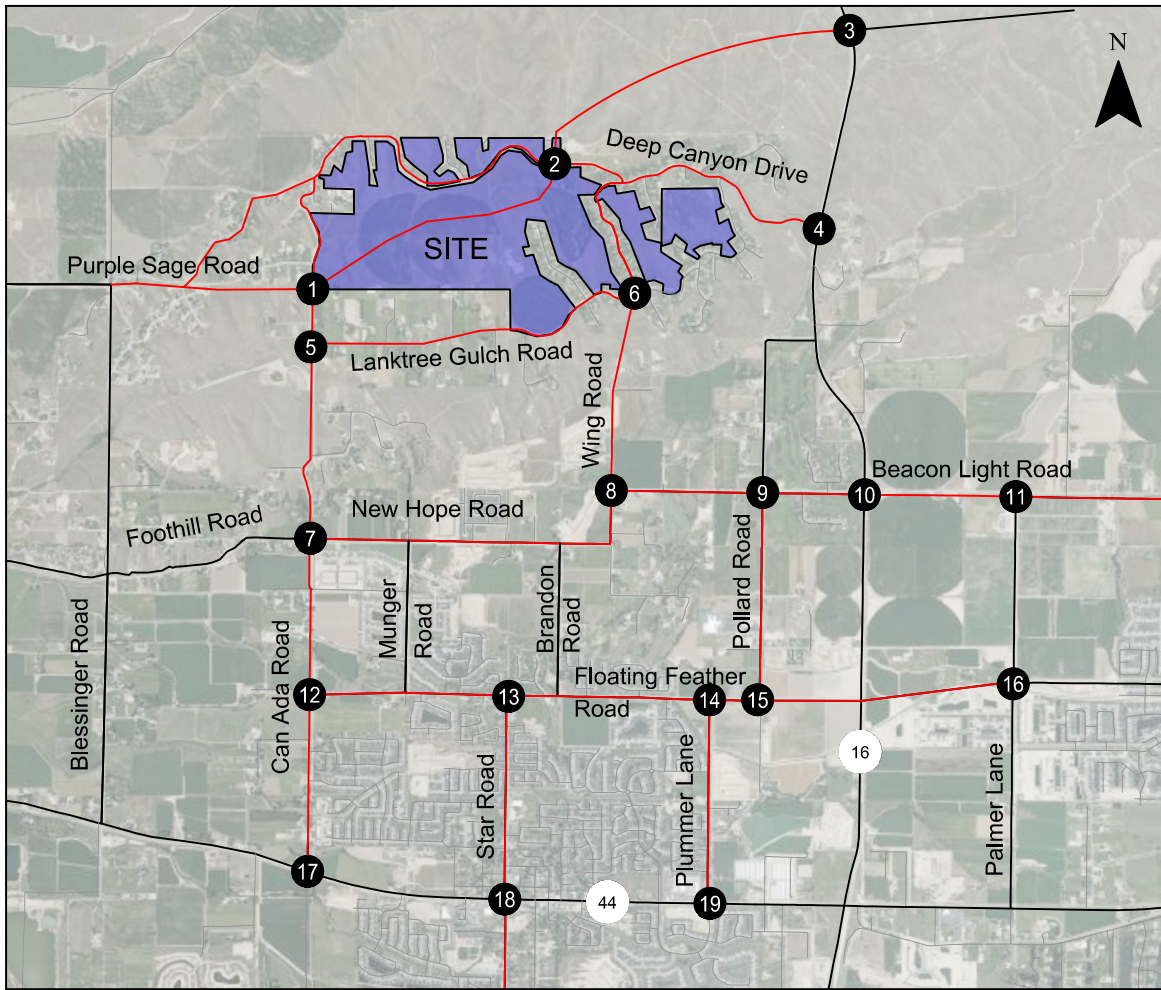
RE: Transportation Impact Study Scope of Work and Assumptions

This memorandum documents the scope of work and summarizes the assumptions for the transportation impact study (TIS) for the proposed Willow Brook Golf Community located in northern Ada County, Idaho. The development is loosely bounded by SH 16 to the east, Deep Canyon Drive to the north, Can Ada Road to the west, and Lanktree Gulch Road to the south. According to the *Star Zoning Map* (Reference 1), the site is currently unincorporated and must be annexed into the City of Star prior to development. Figure 1 shows the site boundaries and location of the Willow Brook Golf Community.

The information presented in this memorandum was developed based on conversations with the developer (Willowbrook Development Inc.), a due diligence investigation, and coordination with Idaho Transportation Department (ITD), Ada County Highway District (ACHD), and Canyon Highway District 4 (CHD4).

This memorandum addressed the following items:

- Project Description
- Estimated Trip Generation And Distribution
- Analysis Scenarios and Study Assumptions
- Background Roadway Improvements
- Analysis Tools and Operating Standards



- Study Intersections
- Study Roadway

Site Vicinity
Willow Brook Golf Community
Ada County, Idaho

Figure
1

Project Description

The proposed Willow Brook Golf Community is situated on approximately 716 acres of land in the northwest corner of Ada County, Idaho. This study will examine the following two analysis scenarios:

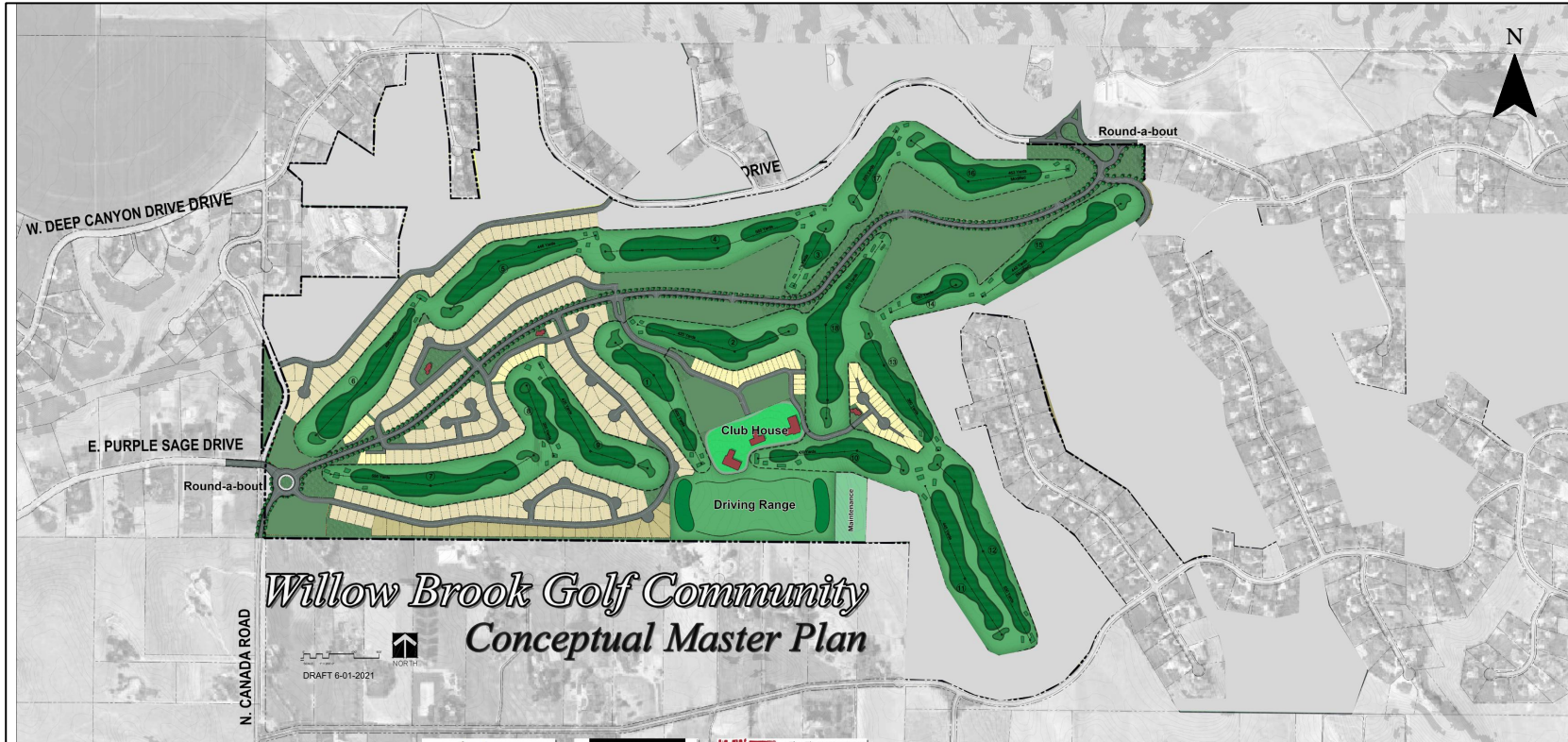
Willow Brook Golf Community – Phase 1

- Build-out year of 2030
- 285 single family homes
- 45 townhomes/patio-homes
- 18-hole public golf course

Willow Brook Golf Community – Full Build-out

- Build-out year of 2045
- 948 single-family homes
- 146 townhomes
- 75,000 square-feet of commercial/retail space
- 18-hole public golf course

Access to the development is proposed via Deep Canyon Drive, Lanktree Gulch Road, new Wing Road extension, Can Ada Road, Purple Sage Drive, and a potential new arterial connection to SH-16 at Aerie Way. There are several access points proposed on existing roadways, but the main internal collector road is proposed to connect Deep Canyon Drive and Can Ada Road. The proposed site plan for Phase 1 of the Willow Brook Golf Community is shown in Figure 2. The site plan for full build-out is shown in Figure 3.



H:\25\25407 - Willow Brook Community TIS\report\figs\25407_fig2.dwg Apr 21, 2022 - 4:33pm - smantsich Layout Tab: Fig2_Site_Ph1

Proposed Site Plan
2030 Phase 1
Ada County, Idaho

Figure
2



Proposed Site Plan
2045 Full Build-out
Ada County, Idaho

Figure
3

H:\25\25407 - Willow Brook Community TIS\report\figs\25407_fig3.dwg Apr 21, 2022 - 4:33pm - smantsich Layout Tab: Fig3_Site_Ada

Estimated Trip Generation

The projected weekday daily, a.m. and p.m. peak hour vehicle trips for the proposed development were estimated based on the *Trip Generation Manual, 11th Edition* (Reference 2). Table 1 summarizes the estimated trip generation for Phase 1 of the proposed Willowbrook Golf Community. Table 2 summarizes the estimated trip generation full build-out of the proposed Willowbrook Golf Community. Internal Trips were calculated between the commercial uses and residential uses using NCHRP 684 methods. *Attachment A contains the internal trip calculation worksheets.*

Table 1 Willow Brook Golf Community – Phase 1 Trip Generation

Land Use	ITE Code	Size	Daily	Weekday AM Peak Hour			Weekday PM Peak Hour		
				Total	In	Out	Total	In	Out
Single Family Houses	210	285	2,645	193	50	143	266	168	98
Townhomes	220	45	364	37	9	28	40	25	15
Total Residential Trips			3,009	230	59	171	306	193	113
Golf Course	430	18	526	30	24	6	52	27	25
Total Trips			3,535	260	83	177	358	220	138

*Note: Phase 1 includes 30% of the proposed housing units and the 18-hole golf course.

As shown in Table 1, Phase 1 (2030) of the proposed Willow Brook Golf Community is estimated to generate a total of 3,535 daily net new trip ends, of these, 260 are estimated to occur in the weekday a.m. peak hour (83 inbound / 177 outbound), and 358 are estimated to occur in the weekday p.m. peak hour (220 inbound / 138 outbound).

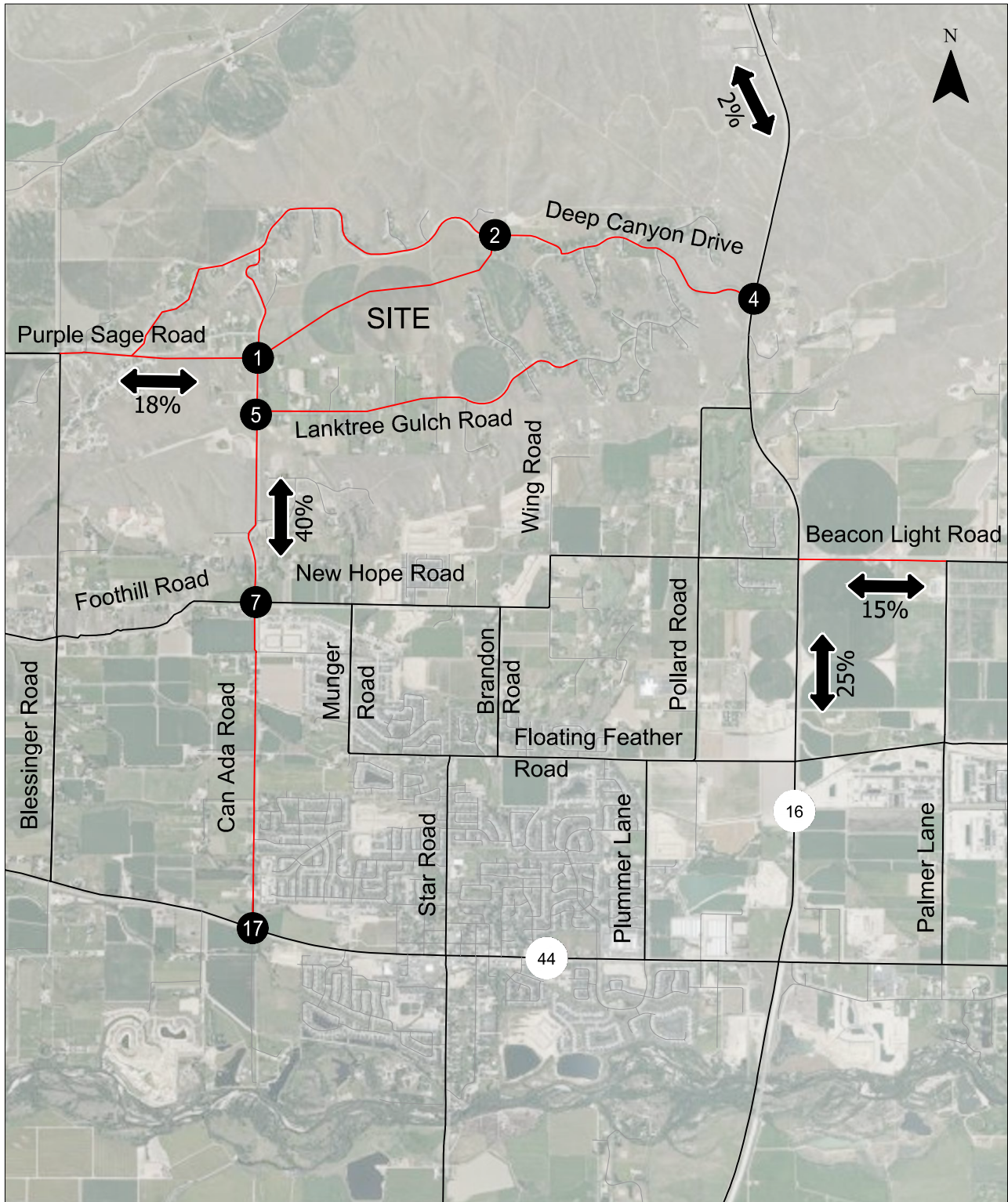
Table 2 Willow Brook Golf Community – Full Build-out Trip Generation

Land Use	ITE Code	Size	Daily	Weekday AM Peak Hour			Weekday PM Peak Hour		
				Total	In	Out	Total	In	Out
Single Family Houses	210	948	7,990	577	150	427	823	518	305
Townhomes	220	146	1,011	68	16	52	83	52	31
Total Residential Trips			9,001	645	166	479	906	570	336
<i>Internal Trips (1% AM, 8% PM)</i>			(405)	(8)	(3)	(5)	(71)	(52)	(19)
External Residential Trips			8,596	637	163	474	835	518	317
Shopping Plaza - No Grocery Store	821	75,000	5,064	130	80	50	389	190	199
<i>Internal Trips (6% AM, 18% PM)</i>			(608)	(8)	(5)	(3)	(71)	(19)	(52)
External Commercial Trips			4,456	122	75	47	318	171	147
<i>Pass-By Trips (0% AM, 34% PM)</i>			(758)	-	-	-	(108)	(58)	(50)
Net New Commercial Trips			3,699	122	75	47	210	113	97
Golf Course	430	18	526	30	24	6	52	27	25
Total Trips			14,591	805	270	535	1,347	787	560
<i>Internal Trips</i>			(1,013)	(16)	(8)	(8)	(142)	(71)	(71)
External Trips			13,578	789	262	527	1,205	716	489
<i>Pass-By Trips</i>			(758)	-	-	-	(108)	(58)	(50)
NET NEW TRIPS			12,821	789	262	527	1,097	658	439

As shown in Table 2, Full Build-out (2045) of the proposed Willow Brook Golf Community is estimated to generate a total of 12,821 daily net new trip ends, of these, 789 are estimated to occur in the weekday a.m. peak hour (262 inbound / 527 outbound), and 1,097 are estimated to occur in the weekday p.m. peak hour (658 inbound / 439 outbound).

Trip Distribution

The distribution of site generated trips onto the roadway system was based on the site's connections to nearby collector and arterial streets, area of impact model runs by COMPASS, review of the roadway system, and knowledge of travel patterns the area. The proposed distribution for phase 1 of the Willow Brook Golf Community is shown in Figure 4. The proposed distribution for full build-out of the Willow Brook Golf Community is shown in Figure 5. *Attachment B contains the select zone analysis provided by COMPASS for the project.*

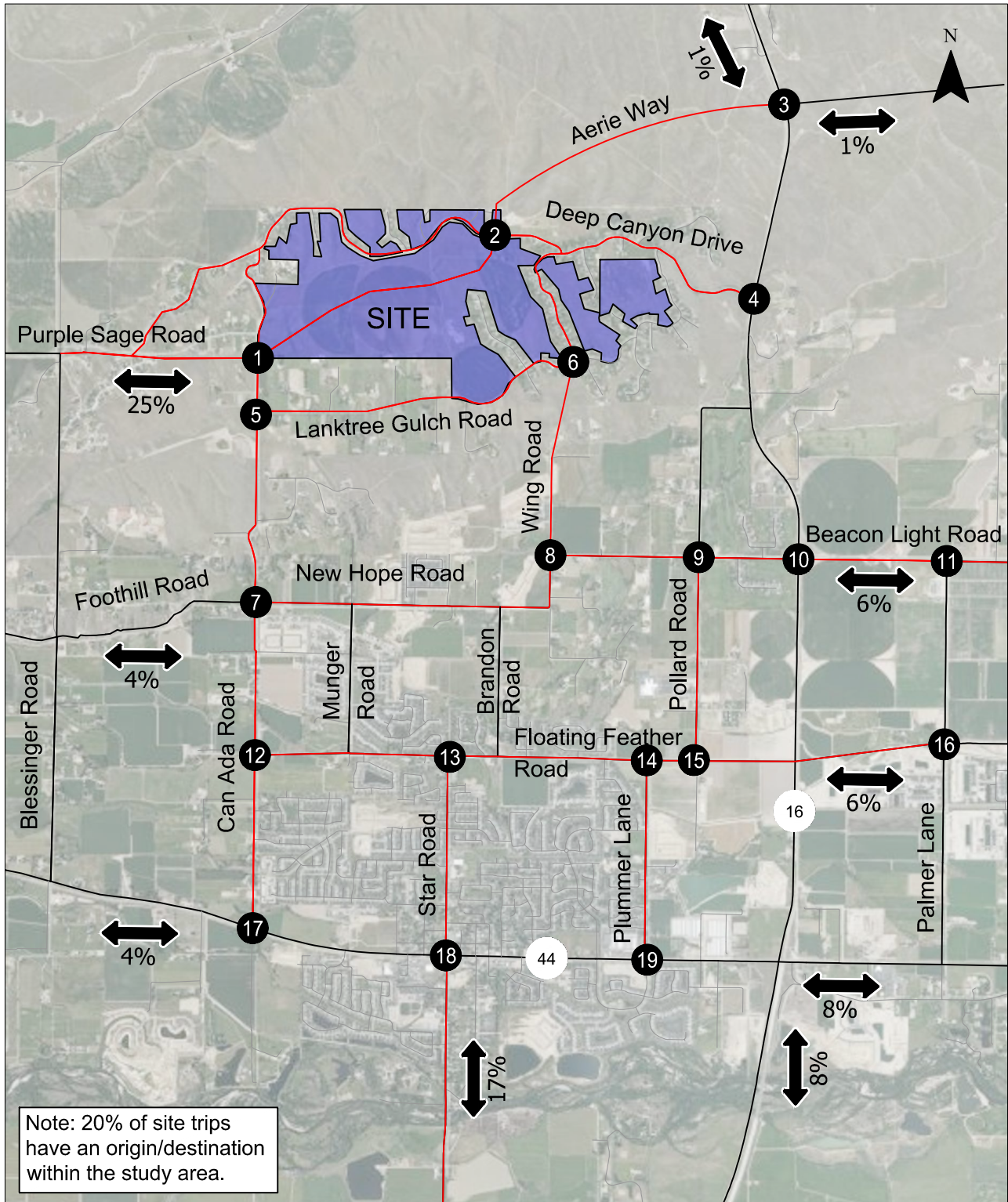


- # - Study Intersections
- Study Roadway
- ↔ XX% - Trip Distribution Percentage

Trip Distribution
2030 Phase 1
Ada County, Idaho

Figure
4

H:\25\25407 - Willow Brook Community TIS\report\figs\25407_fig5.dwg Apr 28, 2022 - 11:34am - smantsch Layout Tab: Fig5_Dist 2030



- # - Study Intersections
- Study Roadway
- ↔
XX% - Trip Distribution Percentage

Trip Distribution
2045 Full Build-out
Ada County, Idaho

Figure
5

H:\25\25407 - Willow Brook Community TIS\report\figs\25407_fig5.dwg Apr 28, 2022 - 11:34am - smantsch Layout Tab: Fig5_Dist 2045

Analysis Scenarios & Study Assumptions

The proposed assumptions for the analysis include:

- **Time Periods:**
 - Weekday AM Peak Hour (7:00 – 9:00 a.m.)
 - Weekday PM Peak Hour (4:00 – 6:00 p.m.)

- **Study Years**
 - Existing Traffic Conditions (Year 2022).
 - Year 2030 (phase 1 build-out year) background traffic conditions (includes regional growth and in-process developments but no site development traffic).
 - Year 2045 (full build-out year) background traffic conditions (includes regional growth and in-process developments but no site development traffic).
 - Year 2030 (phase 1 build-out year) total traffic conditions (includes 2030 background traffic volumes plus phase 1 site-generated trips).
 - Year 2045 (full build-out year) total traffic conditions (includes 2045 background traffic volumes plus full build-out site-generated trips).
 - Year 2045 (full build-out year) total traffic conditions (includes 2045 background traffic volumes plus full build-out site-generated trips) with new roadway connections Aerie Way and Wing Road constructed.

- **Study intersections:**
 - Phase 1 of Willow Brook Golf Community
 1. Purple Sage Road & Can Ada Road
 4. Deep Canyon Drive & SH 16
 5. Lanktree Gulch Road & Can Ada Road
 7. New Hope Road & Can Ada Road
 17. SH 44 & Can Ada Road
 - All site access intersections
 - All internal collector intersections

 - Full Build-out of Willow Brook Golf Community
 1. Purple Sage Road & Can Ada Road
 2. Deep Canyon Drive & Aerie Way
 3. Aerie Way & SH 16
 4. Deep Canyon Road & SH 16
 5. Lanktree Gulch Road & Can Ada Road
 6. Lanktree Gulch Road & Wing Road
 7. New Hope Road & Can Ada Road
 8. Beacon Light Road & Wing Road
 9. Beacon Light Road & Pollard Road
 10. Beacon Light Road & SH 16
 11. Beacon Light Road & Palmer Lane
 12. Floating Feather Road & Can Ada Road
 13. Floating Feather Road & Star Road
 14. Floating Feather Road & Plummer Road

15. Floating Feather Road & Pollard Road
 16. Floating Feather Road & Palmer Lane
 17. SH 44 & Can Ada Road
 18. SH 44 & Star Road
 19. SH 44 & Plummer Road
- All site access intersections
 - All internal collector intersections

▪ **Study Roadway Segments:**

- Phase 1 of Willow Brook Golf Community
 - Deep Canyon Drive
 - Purple Sage Road to SH 16
 - Lanktree Gulch Road
 - Can Ada Road to High Country Way
 - Purple Sage Road
 - Blessinger Road to Can Ada Road
 - Can Ada Road
 - Purple Sage Road to Lanktree Gulch Road
 - Lanktree Gulch Road to New Hope Road
 - New Hope Road to SH 44
 - Beacon Light Road
 - SH 16 to Palmer Lane
 - All internal collectors
- Full Build-out of Willow Brook Golf Community
 - Deep Canyon Drive
 - Purple Sage Road to SH 16
 - Aerie Way
 - Deep Canyon Drive to SH 16
 - Lanktree Gulch Road
 - Can Ada Road to Wing Road
 - Purple Sage Road
 - Blessinger Road to Can Ada Road
 - Can Ada Road
 - Purple Sage Road to Lanktree Gulch Road
 - Lanktree Gulch Road to New Hope Road
 - New Hope Road to Floating Feather Road
 - Floating Feather Road to SH 44
 - Wing Road
 - New Hope Road to Beacon Light Road
 - Beacon Light Road to Lanktree Gulch Road
 - New Hope Road
 - Can Ada Road to Wing Road
 - Beacon Light Road
 - Wing Road to Pollard Road
 - Pollard Road to SH 16
 - SH 16 to Palmer Lane
 - Palmer Lane to Linder Road
 - Pollard Road
 - Beacon Light Road to Floating Feather Road
 - Floating Feather Road
 - Can Ada Road to Star Road
 - Star Road to Plummer Road
 - Plummer Road to Pollard Road
 - Pollard Road to SH 16
 - SH 16 to Palmer Lane

- Star Road
 - Floating Feather Road to SH 44
 - SH 44 to Joplin Road
 - Plummer Road
 - Floating Feather Road to SH 44
 - All internal collectors
- **Improvement Triggers/Phasing**
- Due to the size of this development and the lengthy build-out timeline for the entire project to be completed, an analysis of the timeline/thresholds for improvements to be triggered will be completed to address the following:
 - The traffic related deficiency
 - The mitigation necessary
 - The projected number of units/size of land use constructed prior to the deficiency, which will be estimated based on the trip generation and background traffic growth
- **Background Growth Rate and In-Process Developments**
- Due to the lengthy build-out timeline, growth of traffic in the area will be calculated using growth rates by roadway. Table 3 shows the annually compounded growth rates that were gathered from the COMPASS model for growth from 2022-2030 and 2031-2045. These rates will be applied directly to existing traffic volumes to arrive at background traffic volumes for year 2030 and year 2045.
 - Also included in Table 3 are the existing ADT traffic counts for the highest volume segment on each roadway as well as the projected volumes using the proposed growth rates.

Table 3 Annually Compounded Growth Rates

Proposed Growth Rates			2022 Counts	2030 Projection	2045 Projection
Roadway	2022-2030	2031-2045	ADT	ADT	ADT
Deep Canyon Drive	2%	12%	219	257	1,404
Purple Sage Road	8%	4%	1,416	2,621	4,720
Lanktree Gulch Road	5%	9%	500	739	2,691
New Hope Road	6%	2%	2,148	3,424	4,608
Beacon Light Road	9%	2%	6,370	12,693	17,083
Floating Feather Road	7%	3%	5,002	8,594	13,390
Can Ada Road	8%	4%	2,832	5,242	9,440
Star Road	2%	2%	12,972	15,199	20,456
Plummer Road	11%	1%	5,380	12,398	14,394
Pollard Road	18%	1%	1,390	5,225	6,066
Palmer Lane	17%	3%	214	751	1,171
SH 44	5%	1%	-	-	-
SH 16	4%	1%	-	-	-

- The growth derived from the COMPASS model include general growth in the area, so individual in-process developments will not be included in this study. *Attachment C contains the most recent select zone analysis provided by COMPASS which was used to develop these proposed growth rates.*
- **Data Collection**
 - Turning movement counts will be collected during a typical midweek (Tuesday through Thursday) a.m. peak period (7:00 a.m. – 9:00 a.m.) and p.m. peak period (4:00 p.m. – 6:00 p.m.).
 - 48-hour roadway segment counts will be collected for all study roadways to determine ADT. Additionally, 48-hour counts will be collected for all legs of unsignalized study intersection in case signal warrants are necessary.
 - Kittelson will obtain historical crash data for the 2030 phase 1 intersections and roadway segments from ITD for the last 5 years on record.

Planned Transportation Improvements

All planned transportation improvements will be assumed as not constructed in base scenarios of analysis. They will be considered as mitigations for intersections and roadway segments to do not meet ACHD operating standards or ITD desired operating thresholds.

Based on our review of ACHD's *Capital Improvement Plan* adopted in August 2020 (ACHD CIP, Reference 3), the following projects are in the study area:

- **2026-2030**
 - IN2020-83: SH 44 / Star Road. Replace/modify signal. Reconstruct/widen approaches.
- **2031-2035**
 - RD2020-121: Star Road (US 20/26 to SH 44). Reconstruct/widen to 5 lanes.
- **2036-2040**
 - RD2020-7: Beacon Light Road Extension (Munger Road to Pollard Road). New Road. Construct new 3-lane roadway.
 - RD2020-8: Beacon Light Road (Pollard Road to SH 16). Reconstruct/widen to 3-lanes.
 - RD2020-9: Beacon Light Road (SH 16 to Palmer Lane). Reconstruct/widen to 3-lanes.
 - RD2020-51: Floating Feather Road Extension (Can Ada Road to Star Road). New Road. Construct new 3-lane roadway.
 - RD2020-52: Floating Feather Road (Star Road to Plummer Road). Reconstruct/widen to 3-lanes.
 - RD2020-53: Floating Feather Road Realignment. (Plummer Road to SH 16). New Road. Construct new 3-lane roadway.

- RD2020-54: Floating Feather Road Realignment. (SH 16 to Palmer Lane). New Road. Construct new 3-lane roadway.
- RD2020-107: New Hope Road (Can Ada Road to Munger Road). Reconstruct/widen to 3-lanes.
- IN2020-71: New Hope Road / Munger Road. Add roundabout. Reconstruct/widen approaches to construct a Single-lane Roundabout.
- IN2020-17: Beacon Light Road / Pollard Road. Add roundabout. Reconstruct/widen approaches to construct a Single-lane Roundabout.
- IN2020-13: Beacon Light Road / SH 16. Replace/modify signal. Reconstruct/widen approaches.
- IN2020-15: Beacon Light Road / Palmer Lane. Add roundabout. Reconstruct/widen approaches to construct a Single-lane Roundabout.
- IN2020-40: Floating Feather Road / Palmer Lane. Add roundabout. Reconstruct/widen approaches to construct a Single-lane Roundabout.
- IN2020-42: Floating Feather Road / Plummer Road. Add roundabout. Reconstruct/widen approaches to construct a Single-lane Roundabout.
- IN2020-43: Floating Feather Road / Star Road. Add roundabout. Reconstruct/widen approaches to construct a Single-lane Roundabout.

Based on our review of ACHD's *Integrated Five Year Work Plan* (ACHD IFYWP, Reference 4), there were no projects identified in the study area.

Based on our review of CHD4's *Mid-Star Service Area Capital Improvements Plan* (CHD4 CIP, Reference 5), the following projects were identified in the study area:

- 2020-2025
 - I-26: SH 44 / Can Ada Road. Install Traffic Signal
- 2025-2030
 - Can Ada Road / Foothill Road. Add Single-Lane Roundabout.
 - R-10. Can Ada Road (SH 44 to Willis Road). Add left turn lanes at intersections.
- 2030-2035
 - R-11. Can Ada Road (Willis Road to Purple Sage Road). Add left turn lanes at intersections.
 - R-14 Willis Road (Blessinger Road to Can Ada Road). Construct new two lane roadway.
- 2035-2040
 - R-7: Purple Sage Road (Kingsbury Road to Can Ada Road). Add left turn lanes at intersections.

- R-9: Blessinger Road (SH 44 to Willis Road). Add left turn lanes at intersections.
- R-13. Blessinger Road (Willis Road to Purple Sage Road). Construct new two lane roadway with left turn lanes at intersections.

ITD's State Highway 44 Corridor Plan includes planned improvements on SH 44 at the south end of the study area. Intersection projects are included in the ACHD CIP and CHD4 CIP above.

ITD Plans to connect SH16 to I-84. This project is under design and was assumed as in place for the purpose of traffic patterns in this study. The portion of SH 16 north of SH 44 will likely see improvements in the timeframe of this study, but the details of which are still being determined.

In addition, the following external roadway improvements are planned as key connections for the Willow Brook Golf Community. They are planned to be constructed by 2045 (full build-out of Willow Brook Golf Community). This study will examine the need for and timing of these development related roadway improvements. The 2045 total traffic conditions will be analyzed both with and without these improvements.

- Can Ada Road (Lanktree Gulch Road and New Hope Road): Roadway improvements.
- Wing Road (Lanktree Gulch Road to Beacon Light Road): New road, connection completed.
- Aerie Way (Deep Canyon Drive to SH 16). New road constructed.

Analysis tools And Operating Standards

The intersection operational analysis will be performed using the *Highway Capacity Manual 6th Edition* analysis procedures (Reference 6). To ensure that this analysis is based on a reasonable worst-case scenario, the peak 15-minute flow rate during the weekday a.m. and p.m. peak hours will be used in the evaluation of all intersection level of service (LOS) and vehicle-to-capacity (V/C) ratios. The intersection peak hour factor (PHF) will be utilized in all operations analyses to comply with ACHD Policy and HCM methods. The signalized and stop-controlled intersection operations analyses presented in this report will be completed using Synchro 11 software, and if needed for supplemental analysis, HCS 7 software and Sidra Intersection 9 software. For a signalized intersection's overall V/C ratios, the HCM 2000 procedure will be utilized since the HCM 6th Edition procedure doesn't produce an intersection V/C ratio.

The analysis will be performed in accordance with the methodologies stated in Section 7106.6 of the *ACHD Policy Manual* (Reference 7) and include consideration of separate left-and right-turn lanes as well as queuing impacts. Intersection and segment level of service will be reported per *ACHD Policy Manual* and *Highway Standards*.

ACHD requires that signalized intersections operate at a minimum of LOS E for Principal Arterials and Minor Arterials and LOS D for Collectors. All unsignalized intersections that have a projected level of service D or worse shall be evaluated to determine if a signal or roundabout is warranted. The acceptable volume-to-capacity ratio for signalized intersections is 0.90 for the overall intersection and 1.0 for each lane group. The acceptable volume-to-capacity ratio is 1.0 for the critical lane group at unsignalized intersections.

Although not policy, ITD's desirable thresholds are LOS D and v/c ratio of 0.90 or better for all intersections and a v/c ratio of 0.90 or better for all intersection land groups.

Next Steps

We request that ITD, ACHD and CHD4 review this scoping memorandum and provide a response on the assumptions so that we can move forward with this study. Please contact Jamie Markosian (208-472-9813 or

jmarkosian@kittelson.com) if you have any questions or comments on the information provided in this memorandum.

References

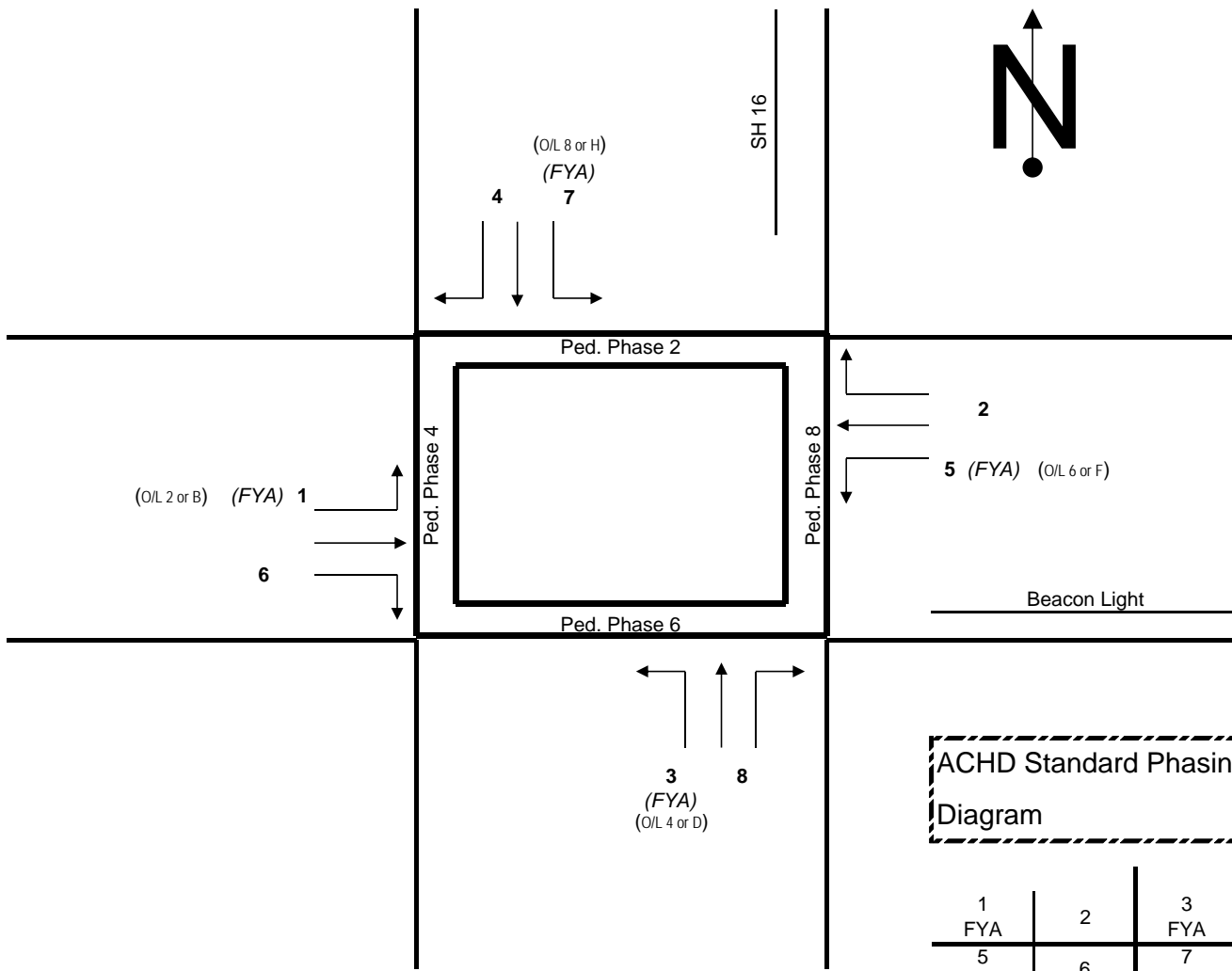
1. Star Idaho. *Zoning Map*. Published January 2018.
2. Institute of Transportation Engineers. *Trip Generation Manual, 11th Edition*. September 2021.
3. Ada County Highway District. *Capital Improvements Plan*. Published August 19, 2020.
4. Ada County Highway District. *Five Year Integrated Work Plan 2022-2026*. January 26, 2022.
5. Canyon Highway District 4. *Mid-Star Service Area Capital Improvements Plan*. May 7, 2021.
6. Transportation Research Board. *Highway Capacity Manual 6th Edition*. Washington D.C. 2015.
7. Ada County Highway District. *Policy Manual*. 2010.

Attachments

- A. NCHRP 684 Internal Trip Capture Worksheets
- B. COMPASS Model Run for the Willow Brook Golf Community
- C. COMPASS Model Run with most recent projected growth rates



Appendix B Signal Timing Sheets



ACHD Standard Phasing
 Diagram

1 FYA	2	3 FYA	4	Ring 1
5 FYA	6	7 FYA	8	Ring 2

Location: SH 16 & Beacon Light (#456)

Controller Database Timing Sheet



Station: 456 - SH16 & Beacon Light (Standard-3/19/2020 4:26:02 PM)

Type: NTCIP 76.x ATC Ethernet

Firmware:

Created By: NTDomain\mboydstun
Modified By:

Reviewed By:

Actions																																																		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	0	0	0	0	0	0	0	0	0	0

Table - 1

Pattern	1	2	3	4	5	6	7	8	9	25	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	0	0	0	0	0	0	0	0	0	0										
Aux 1											
Aux 2								
Aux 3							
Pre1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Pre2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Special 1				
Special 2			
Special 3			
Special 4			
Special 5		
Special 6		
Special 7	
Special 8

Adv Schedule

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----

Table - 1

Jan	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Feb	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Mar	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Apr	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
May	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jun	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jul	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aug	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sep	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Oct	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Nov	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dec	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
01	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
02	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
03	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
04	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
05	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
06	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
07	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
08	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
09	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
12	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
13	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
14	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
15	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
16	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
17	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
18	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
19	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
20	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
21	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
22	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
23	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Adv Schedule																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
24	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
25	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
26	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
27	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
28	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
29	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
30	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
31	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sun	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Mon	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Tue	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Wed	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Thu	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Fri	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sat	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Plan	1	2	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Day Plan

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Table - 1																
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 2																
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 3																
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 4																
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 5																
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Day Plan																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 6																
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 7																
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 8																
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 9																
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 10																
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Overlap Programming

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----

Table - 1

Included P1	0	1	0	3	0	5	0	7	0	0	0	0	0	0	0	0
Included P2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P1	0	2	0	4	0	6	0	8	0	0	0	0	0	0	0	0
Modify P2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Type	NORMA L	FYA-4	NORMA L	FYA-4	NORMA L	FYA-4	NORMA L	FYA-4	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L
Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yellow	3.5	5	3.5	6.5	3.5	5	3.5	6.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Red	1.5	2	1.5	2.5	1.5	2	1.5	2.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5

Overlap+

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----

Table - 1

Conflict P1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Overlap+																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Conflict O4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict Ped 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict Ped 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict Ped 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict Ped 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict Ped 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict Ped 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict Ped 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict Ped 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

OverlapB+																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Table - 1																
Leading Green	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
FYA MCE Disable	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
FYA After Preempt	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
FYA Skip Red	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
PedCallClear	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
FYA ImmedReturn	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
FYA RedB4Ped	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Transit Input	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FYA Delay Time	0	5	0	5	0	5	0	5	0	0	0	0	0	0	0	0
FYA Ext Overlap	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GrnExtInh 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GrnExtInh 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GrnExtInh 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GrnExtInh 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GrnExtInh 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GrnExtInh 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GrnExtInh 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GrnExtInh 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FYAGapMin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

OverlapB+																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
FYAGapMax	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FYAGapExt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FYAGapDet1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FYAGapDet2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FYAGapDet3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FYAGapDet4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Patterns																																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32				
Table - 1																																				
Cycle Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Offset Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Split Number	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Seq Number	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Phase Times and Options								
	1	2	3	4	5	6	7	8
Table - 1								
Walk	0	0	0	0	0	0	0	0
Ped Clearance	0	0	0	0	0	0	0	0
Min Green	5	10	5	10	5	10	5	10
Gap Ext	2	3	2	5	2	3	2	5
Max1	25	35	30	60	25	35	30	60
Max2	30	45	35	70	30	45	35	70
Yellow Clr	5	5	6.5	6.5	5	5	6.5	6.5
Red Clr	2	2	2.5	2.5	2	2	2.5	2.5
Red Revert	0	0	0	0	0	0	0	0
Added Initial	0	0	0	0	0	0	0	0
Max Initial	0	0	0	0	0	0	0	0
Time Before Reduce	0	0	0	0	0	0	0	0
Cars Before Reduce	0	0	0	0	0	0	0	0
Time To Reduce	0	0	0	0	0	0	0	0
Reduce By	0	0	0	0	0	0	0	0
Min Gap	0	0	0	0	0	0	0	0
Dynamic Max Limit	0	0	0	120	0	0	0	120
Dynamic Max Step	0	0	0	10	0	0	0	10
Startup	RED	RED	RED	GREEN	RED	RED	RED	GREEN

Phase Times and Options								
	1	2	3	4	5	6	7	8
Enable	X	X	X	X	X	X	X	X
Auto Flash Entry	.	.	.	X	.	.	.	X
Auto Flash Exit	.	.	.	X	.	.	.	X
Non-Actuated 1	.	.	.	.	.	.	.	.
Non-Actuated 2	.	.	.	.	.	.	.	.
Lock Call	.	.	.	.	.	.	.	.
Min Recall	.	.	.	X	.	.	.	X
Max Recall	.	.	.	.	.	.	.	.
Ped Recall	.	.	.	.	.	.	.	.
Soft Recall	.	.	.	.	.	.	.	.
Dual Entry	.	X	.	X	.	X	.	X
Sim Gap Enable	X	X	X	X	X	X	X	X
Guar Passage	.	.	.	.	.	.	.	.
Rest In Walk	.	.	.	.	.	.	.	.
Cond Service	.	.	.	.	.	.	.	.
Add Init Calc	.	.	.	.	.	.	.	.
Ring	1	1	1	1	2	2	2	2
Concur 1	5	5	7	7	1	1	3	3
Concur 2	6	6	8	8	2	2	4	4
Concur 3	0	0	0	0	0	0	0	0
Concur 4	0	0	0	0	0	0	0	0
Concur 5	0	0	0	0	0	0	0	0
Concur 6	0	0	0	0	0	0	0	0
Concur 7	0	0	0	0	0	0	0	0
Concur 8	0	0	0	0	0	0	0	0

Ring Sequences

	1	2
--	---	---

Table - 1

Ring P1	1	5
Ring P2	2	6
Ring P3	3	7
Ring P4	4	8
Ring P5	0	0
Ring P6	0	0
Ring P7	0	0
Ring P8	0	0

Ring Sequences

	1	2
--	---	---

Table - 2

Ring P1	1	6
Ring P2	2	5
Ring P3	3	7
Ring P4	4	8
Ring P5	0	0
Ring P6	0	0
Ring P7	0	0
Ring P8	0	0

Table - 3

Ring P1	2	5
Ring P2	1	6
Ring P3	3	7
Ring P4	4	8
Ring P5	0	0
Ring P6	0	0
Ring P7	0	0
Ring P8	0	0

Table - 4

Ring P1	2	6
Ring P2	1	5
Ring P3	3	7
Ring P4	4	8
Ring P5	0	0
Ring P6	0	0
Ring P7	0	0
Ring P8	0	0

Table - 5

Ring P1	1	5
Ring P2	2	6
Ring P3	3	8
Ring P4	4	7
Ring P5	0	0
Ring P6	0	0
Ring P7	0	0
Ring P8	0	0

Table - 6

--	--	--

Ring Sequences		
	1	2
Ring P1	1	6
Ring P2	2	5
Ring P3	3	8
Ring P4	4	7
Ring P5	0	0
Ring P6	0	0
Ring P7	0	0
Ring P8	0	0
Table - 7		
Ring P1	2	5
Ring P2	1	6
Ring P3	3	8
Ring P4	4	7
Ring P5	0	0
Ring P6	0	0
Ring P7	0	0
Ring P8	0	0
Table - 8		
Ring P1	2	6
Ring P2	1	5
Ring P3	3	8
Ring P4	4	7
Ring P5	0	0
Ring P6	0	0
Ring P7	0	0
Ring P8	0	0
Table - 9		
Ring P1	1	5
Ring P2	2	6
Ring P3	4	7
Ring P4	3	8
Ring P5	0	0
Ring P6	0	0
Ring P7	0	0
Ring P8	0	0
Table - 10		

Ring Sequences		
	1	2
Ring P1	1	6
Ring P2	2	5
Ring P3	4	7
Ring P4	3	8
Ring P5	0	0
Ring P6	0	0
Ring P7	0	0
Ring P8	0	0
Table - 11		
Ring P1	2	5
Ring P2	1	6
Ring P3	4	7
Ring P4	3	8
Ring P5	0	0
Ring P6	0	0
Ring P7	0	0
Ring P8	0	0
Table - 12		
Ring P1	2	6
Ring P2	1	5
Ring P3	4	7
Ring P4	3	8
Ring P5	0	0
Ring P6	0	0
Ring P7	0	0
Ring P8	0	0
Table - 13		
Ring P1	1	5
Ring P2	2	6
Ring P3	4	8
Ring P4	3	7
Ring P5	0	0
Ring P6	0	0
Ring P7	0	0
Ring P8	0	0
Table - 14		

Ring Sequences

	1	2
Ring P1	1	6
Ring P2	2	5
Ring P3	4	8
Ring P4	3	7
Ring P5	0	0
Ring P6	0	0
Ring P7	0	0
Ring P8	0	0

Table - 15

	2	5
Ring P1	2	5
Ring P2	1	6
Ring P3	4	8
Ring P4	3	7
Ring P5	0	0
Ring P6	0	0
Ring P7	0	0
Ring P8	0	0

Table - 16

	2	6
Ring P1	2	6
Ring P2	1	5
Ring P3	4	8
Ring P4	3	7
Ring P5	0	0
Ring P6	0	0
Ring P7	0	0
Ring P8	0	0

Splits Expanded

	1	2	3	4	5	6	7	8
--	---	---	---	---	---	---	---	---

Table - 1

Time	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase	.	.	.	.	.	.	.	.

Table - 2

Time	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase	.	.	.	.	.	.	.	.

Splits Expanded

	1	2	3	4	5	6	7	8
--	---	---	---	---	---	---	---	---

Table - 3

Time	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase	.	.	.	.	.	.	.	.

Table - 4

Time	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase	.	.	.	.	.	.	.	.

Table - 5

Time	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase	.	.	.	.	.	.	.	.

Table - 6

Time	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase	.	.	.	.	.	.	.	.

Table - 7

Time	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase	.	.	.	.	.	.	.	.

Table - 8

Time	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase	.	.	.	.	.	.	.	.

Table - 9

Time	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase	.	.	.	.	.	.	.	.

Table - 10

Time	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase	.	.	.	.	.	.	.	.

Table - 11

Time	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase	.	.	.	.	.	.	.	.

Table - 12

Splits Expanded

	1	2	3	4	5	6	7	8
Time	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase	.	.	.	.	.	.	.	.

Table - 13

Time	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase	.	.	.	.	.	.	.	.

Table - 14

Time	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase	.	.	.	.	.	.	.	.

Table - 15

Time	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase	.	.	.	.	.	.	.	.

Table - 16

Time	0	0	0	0	0	0	0	
Mode	NON	NON	NON	NON	NON	NON	NON	
Coord Phase	.	.	.	.	.	.	.

Table - 17

Time	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase	.	.	.	.	.	.	.	.

Table - 18

Time	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase	.	.	.	.	.	.	.	.

Table - 19

Time	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase	.	.	.	.	.	.	.	.

Table - 20

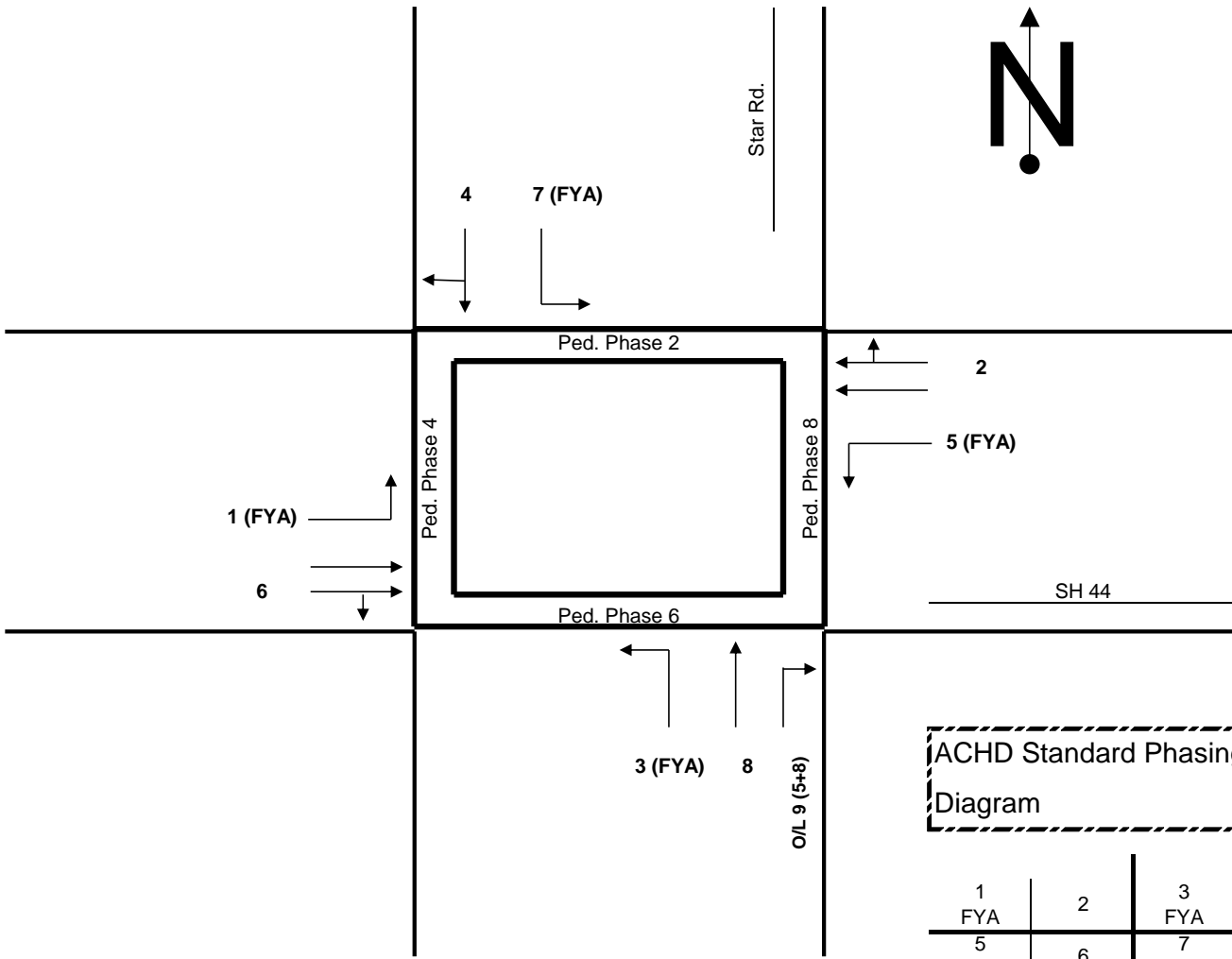
Time	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase	.	.	.	.	.	.	.	.

Table - 21

Time	0	0	0	0	0	0	0	0
------	---	---	---	---	---	---	---	---

Splits Expanded								
	1	2	3	4	5	6	7	8
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase	.	.	.	.	.	.	.	.
Table - 22								
Time	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase	.	.	.	.	.	.	.	.
Table - 23								
Time	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase	.	.	.	.	.	.	.	.
Table - 24								
Time	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase	.	.	.	.	.	.	.	.
Table - 25								
Time	0	0	0	0	0	0	0	0
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Coord Phase	.	.	.	.	.	.	.	.
Table - 26								
Time	0	0	0	0	0	0	0	0
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Coord Phase	.	.	.	.	.	.	.	.
Table - 27								
Time	0	0	0	0	0	0	0	0
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Coord Phase	.	.	.	.	.	.	.	.
Table - 28								
Time	0	0	0	0	0	0	0	0
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Coord Phase	.	.	.	.	.	.	.	.
Table - 29								
Time	0	0	0	0	0	0	0	0
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Coord Phase	.	.	.	.	.	.	.	.
Table - 30								
Time	0	0	0	0	0	0	0	0
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Splits Expanded								
	1	2	3	4	5	6	7	8
Coord Phase	.	.	.	.	.	.	.	.
Table - 31								
Time	0	0	0	0	0	0	0	0
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Coord Phase	.	.	.	.	.	.	.	.
Table - 32								
Time	0	0	0	0	0	0	0	0
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Coord Phase	.	.	.	.	.	.	.	.



ACHD Standard Phasing
Diagram

1 FYA	2	3 FYA	4	Ring 1
5 FYA	6	7 FYA	8	Ring 2

Location: SH44 and Star Rd. (# 346)

Controller Database Timing Sheet



Station: 346 - State & Star - 980 (Standard-10/28/2021 5:13:40 PM)

Type: NTCIP 61.x TS2 Ethernet

Firmware:

Created By: NTDomain\mboydstun
Modified By:

Reviewed By:

Actions																																								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35					
Table - 1																																								
Pattern	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Aux 1			
Aux 2			
Aux 3			
Special 1			
Special 2		
Special 3		
Special 4	
Special 5	
Special 6
Special 7
Special 8

Channels Assignments																								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Table - 1																								
PH/OLP #	2	2	4	4	6	6	8	8	9	10	11	12	2	4	6	8	1	3	5	7	0	0	0	0
Type	OLP	VEH	OLP	VEH	OLP	VEH	OLP	VEH	OLP	OLP	OLP	OLP	PED	PED	PED	PED	PED	PED	PED	PED	VEH	VEH	VEH	VEH
Flash	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	DRK	DRK	DRK	DRK	DRK	DRK	DRK	DRK	DRK	DRK	DRK	DRK
Flash 1-2 Hertz	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dimming Green	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dimming Yellow	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dimming Red	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Alt Cyc	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

COORD

	Value
Table - 1	
Operation Mode	254
Correct Mode	SHRT/LNG
Maximum Mode	MAX INH
Force Mode	FIXED

Coord Plus	
	Value
Table - 1	
Mode	FRC
Leave Before	TIMED
Leave After	TIMED
Recycle	NO_RECYCLE
Stop In Walk	.
External	.
Auto Reset	.
Latch Sec Foff	.
Coord Easy Float	.
Yield Value	0
Coord NTCIP Yield Sign	+
Closed Loop Active	.
Shortway+	.

Day Plan																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Table - 1																
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table - 2																
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table - 3																
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table - 4																
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table - 5																
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Day Plan

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----

Table - 6

Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table - 7

Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table - 8

Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table - 9

Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table - 10

Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Flashing Yellow Arrow

	Value															
--	-------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table - 1

Channel 1	13															
Channel 2	14															
Channel 3	15															
Channel 4	16															

Overlap Programming

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----

Table - 1

Included P1	0	1	0	3	0	5	0	7	5	0	0	0	0	0	0	0
Included P2	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0
Included P3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Overlap Programming																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Included P7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P1	0	2	0	4	0	6	0	8	8	0	0	0	0	0	0	0
Modify P2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Type	NORMA L	R-T/OTH	NORMA L	R-T/OTH	NORMA L	R-T/OTH	NORMA L	R-T/OTH	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L
Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yellow	3.5	4	3.5	4	3.5	4	3.5	4	4	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Red	1.5	2	1.5	2	1.5	2	1.5	2	2	1.5	1.5	1.5	1.5	1.5	1.5	1.5

Overlap+

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----

Table - 1

Conflict P1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict Ped 1	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0
Conflict Ped 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Phase Entries																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Cars Before Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time To Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reduce By	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max Limit	0	90	0	0	0	90	0	0	0	0	0	0	0	0	0	0
Dynamic Max Step	0	15	0	0	0	15	0	0	0	0	0	0	0	0	0	0
Startup	RED	WALK	RED	RED	RED	WALK	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED
Enable	X	X	X	X	X	X	X	X	.	.	.	.	.	.	.	.
Auto Entry	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.
Auto Exit	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.
Non Act1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Non Act2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Lock Call	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Min Recall	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.
Max Recall	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ped Recall	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Soft Recall	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dual Entry	.	X	.	X	.	X	.	X	.	.	.	.	.	.	.	.
Sim Gap Enable	X	X	X	X	X	X	X	X	.	.	.	.	.	.	.	.
Guar Passage	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Rest In Walk	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cond Service	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Add Init Calc	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ring	1	1	1	1	2	2	2	2	0	0	0	0	0	0	0	0
Concur 1	5	5	7	7	1	1	3	3	0	0	0	0	0	0	0	0
Concur 2	6	6	8	8	2	2	4	4	0	0	0	0	0	0	0	0
Concur 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Phase Entries+																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Phase Entries+																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Table - 1																
Reservice	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Walk Yellow	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Skip Red	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Red Rest	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Max 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ped Delay	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Conf Phs1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Green Ped Delay Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Omit Yel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Out	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Yel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Inhibit P1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P9	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P11	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P13	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P14	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Call Phs1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Call Phs2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Call Phs3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Call Phs4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
From Phs1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
To Phs1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
From Phs2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
To Phs2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Phase Entries+																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
From Phs3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
To Phs3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
From Phs4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
To Phs4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bike Clear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring Sequences

	1	2	3	4
--	---	---	---	---

Table - 1

Ring P1	1	5	0	0
Ring P2	2	6	0	0
Ring P3	3	7	0	0
Ring P4	4	8	0	0
Ring P5	0	0	0	0
Ring P6	0	0	0	0
Ring P7	0	0	0	0
Ring P8	0	0	0	0

Table - 2

Ring P1	1	6	0	0
Ring P2	2	5	0	0
Ring P3	3	7	0	0
Ring P4	4	8	0	0
Ring P5	0	0	0	0
Ring P6	0	0	0	0
Ring P7	0	0	0	0
Ring P8	0	0	0	0

Table - 3

Ring P1	2	5	0	0
Ring P2	1	6	0	0
Ring P3	3	7	0	0
Ring P4	4	8	0	0
Ring P5	0	0	0	0
Ring P6	0	0	0	0
Ring P7	0	0	0	0
Ring P8	0	0	0	0

Table - 4

Ring P1	2	6	0	0
---------	---	---	---	---

Ring Sequences				
	1	2	3	4
Ring P2	1	5	0	0
Ring P3	3	7	0	0
Ring P4	4	8	0	0
Ring P5	0	0	0	0
Ring P6	0	0	0	0
Ring P7	0	0	0	0
Ring P8	0	0	0	0
Table - 5				
Ring P1	1	5	0	0
Ring P2	2	6	0	0
Ring P3	3	8	0	0
Ring P4	4	7	0	0
Ring P5	0	0	0	0
Ring P6	0	0	0	0
Ring P7	0	0	0	0
Ring P8	0	0	0	0
Table - 6				
Ring P1	1	6	0	0
Ring P2	2	5	0	0
Ring P3	3	8	0	0
Ring P4	4	7	0	0
Ring P5	0	0	0	0
Ring P6	0	0	0	0
Ring P7	0	0	0	0
Ring P8	0	0	0	0
Table - 7				
Ring P1	2	5	0	0
Ring P2	1	6	0	0
Ring P3	3	8	0	0
Ring P4	4	7	0	0
Ring P5	0	0	0	0
Ring P6	0	0	0	0
Ring P7	0	0	0	0
Ring P8	0	0	0	0
Table - 8				
Ring P1	2	6	0	0

Ring Sequences				
	1	2	3	4
Ring P2	1	5	0	0
Ring P3	3	8	0	0
Ring P4	4	7	0	0
Ring P5	0	0	0	0
Ring P6	0	0	0	0
Ring P7	0	0	0	0
Ring P8	0	0	0	0
Table - 9				
Ring P1	1	5	0	0
Ring P2	2	6	0	0
Ring P3	4	7	0	0
Ring P4	3	8	0	0
Ring P5	0	0	0	0
Ring P6	0	0	0	0
Ring P7	0	0	0	0
Ring P8	0	0	0	0
Table - 10				
Ring P1	1	6	0	0
Ring P2	2	5	0	0
Ring P3	4	7	0	0
Ring P4	3	8	0	0
Ring P5	0	0	0	0
Ring P6	0	0	0	0
Ring P7	0	0	0	0
Ring P8	0	0	0	0
Table - 11				
Ring P1	2	5	0	0
Ring P2	1	6	0	0
Ring P3	4	7	0	0
Ring P4	3	8	0	0
Ring P5	0	0	0	0
Ring P6	0	0	0	0
Ring P7	0	0	0	0
Ring P8	0	0	0	0
Table - 12				
Ring P1	2	6	0	0

Ring Sequences				
	1	2	3	4
Ring P2	1	5	0	0
Ring P3	4	7	0	0
Ring P4	3	8	0	0
Ring P5	0	0	0	0
Ring P6	0	0	0	0
Ring P7	0	0	0	0
Ring P8	0	0	0	0
Table - 13				
Ring P1	1	5	0	0
Ring P2	2	6	0	0
Ring P3	4	8	0	0
Ring P4	3	7	0	0
Ring P5	0	0	0	0
Ring P6	0	0	0	0
Ring P7	0	0	0	0
Ring P8	0	0	0	0
Table - 14				
Ring P1	1	6	0	0
Ring P2	2	5	0	0
Ring P3	4	8	0	0
Ring P4	3	7	0	0
Ring P5	0	0	0	0
Ring P6	0	0	0	0
Ring P7	0	0	0	0
Ring P8	0	0	0	0
Table - 15				
Ring P1	2	5	0	0
Ring P2	1	6	0	0
Ring P3	4	8	0	0
Ring P4	3	7	0	0
Ring P5	0	0	0	0
Ring P6	0	0	0	0
Ring P7	0	0	0	0
Ring P8	0	0	0	0
Table - 16				
Ring P1	2	6	0	0

Ring Sequences				
	1	2	3	4
Ring P2	1	5	0	0
Ring P3	4	8	0	0
Ring P4	3	7	0	0
Ring P5	0	0	0	0
Ring P6	0	0	0	0
Ring P7	0	0	0	0
Ring P8	0	0	0	0

Scheduler																																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Table - 1																																	
Jan	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Feb	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Mar	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Apr	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
May	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jun	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jul	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aug	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sep	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Oct	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Nov	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dec	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
01	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
02	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
03	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
04	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
05	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
06	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
07	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
08	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
09	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
12	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
13	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
14	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Scheduler																																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
15	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
16	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
17	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
18	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
19	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
20	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
21	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
22	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
23	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
24	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
25	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
26	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
27	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
28	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
29	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
30	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
31	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sun	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Mon	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Tue	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Wed	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Thu	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Fri	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sat	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Plan	1	2	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	

Splits

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----

Table - 1

Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Table - 2

Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Table - 3

Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Splits																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 4																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 5																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 6																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 7																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 8																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 9																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 10																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 11																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 12																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Splits																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 13																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 14																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 15																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 16																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 17																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 18																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 19																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 20																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 21																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON

Splits																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 22																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 23																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 24																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 25																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 26																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 27																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 28																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 29																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 30																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Splits																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Table - 31																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 32																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Controller Database Timing Sheet



Station: 469 - State & Plummer (Standard-11/16/2021 3:23:12 PM)

Type: Scout Ethernet v85.2

Firmware:

Created By: NTdomain\wloyd

Modified By:

Reviewed By:

Phase Times and Options(1.1.1/1.1.2/1.1.4)								
	1	2	3	4	5	6	7	8
Table - 1								
MIN GRN	5	10	0	5	5	10	0	5
Gap Ext	2.5	4	0	2.5	2.5	4	0	2.5
MAX 1	20	60	0	40	25	60	0	30
Max 2	50	50	0	50	50	50	0	50
Yel Clr	4	4	3.5	4	4	4	3.5	4
Red Clr	2	2	1.5	1	2	2	1.5	1
Walk	0	5	0	5	0	5	0	5
Ped Clr	0	9	0	16	0	20	0	17
Red Revt	0	0	0	0	0	0	0	0
Add Init	0	0	0	0	0	0	0	0
Max Init	0	0	0	0	0	0	0	0
Gap Reduce Time B4	0	0	0	0	0	0	0	0
Gap Reduce Cars B4 Reduce	0	0	0	0	0	0	0	0
Gap Reduce Time To	0	0	0	0	0	0	0	0
Gap Reduce ReduceBy	0	0	0	0	0	0	0	0
Gap Reduce Min Gap	0	0	0	0	0	0	0	0
DyMaxLim	0	90	0	0	0	90	0	0
Max Step	0	15	0	0	0	15	0	0
Enable P	X	X	.	X	X	X	.	X
Min Recall	.	X	.	.	.	X	.	.
Max Recall	.	.	.	.	.	.	.	.
Ped Recall	.	.	.	.	.	.	.	.
Soft Recall	.	.	.	.	.	.	.	.
Lock Calls	.	.	.	.	.	.	.	.

Phase Times and Options(1.1.1/1.1.2/1.1.4)								
	1	2	3	4	5	6	7	8
Auto Flash Entry	.	.	.	X	.	.	.	X
Auto Flash Exit	.	X	.	.	.	X	.	.
Dual Entry	.	X	.	X	.	X	.	X
Enable Simul Gap	X	X	X	X	X	X	X	X
Guarantd Passage	.	.	.	.	.	.	.	.
Rest In Walk	.	.	.	.	.	.	.	.
Condit'l Service	.	.	.	.	.	.	.	.
Non-Actuated 1	.	.	.	.	.	.	.	.
Non-Actuated 2	.	.	.	.	.	.	.	.
Added Init Calc	S	S	S	S	S	S	S	S
Hold to Max	.	.	.	.	.	.	.	.
Ring	1	1	1	1	2	2	2	2
Startup	RED	WALK	RED	RED	RED	WALK	RED	RED
C 1	5	5	7	7	1	1	3	3
C 2	6	6	8	8	2	2	4	4
C 3	0	0	0	0	0	0	0	0
C 4	0	0	0	0	0	0	0	0
C 5	0	0	0	0	0	0	0	0
C 6	0	0	0	0	0	0	0	0
C 7	0	0	0	0	0	0	0	0
C 8	0	0	0	0	0	0	0	0
C 9	0	0	0	0	0	0	0	0
C 10	0	0	0	0	0	0	0	0
C 11	0	0	0	0	0	0	0	0
C 12	0	0	0	0	0	0	0	0
C 13	0	0	0	0	0	0	0	0
C 14	0	0	0	0	0	0	0	0
C 15	0	0	0	0	0	0	0	0
C 16	0	0	0	0	0	0	0	0
C 17	0	0	0	0	0	0	0	0
C 18	0	0	0	0	0	0	0	0
C 19	0	0	0	0	0	0	0	0
C 20	0	0	0	0	0	0	0	0
C 21	0	0	0	0	0	0	0	0
C 22	0	0	0	0	0	0	0	0
C 23	0	0	0	0	0	0	0	0

Phase Times and Options(1.1.1/1.1.2/1.1.4)								
	1	2	3	4	5	6	7	8
C 24	0	0	0	0	0	0	0	0
C 25	0	0	0	0	0	0	0	0
C 26	0	0	0	0	0	0	0	0
C 27	0	0	0	0	0	0	0	0
C 28	0	0	0	0	0	0	0	0
C 29	0	0	0	0	0	0	0	0
C 30	0	0	0	0	0	0	0	0
C 31	0	0	0	0	0	0	0	0
C 32	0	0	0	0	0	0	0	0

Ring Sequences(1.2.4)		
	1	2
Table - 1		
1	1	5
2	2	6
3	3	7
4	4	8
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0
Table - 2		
1	1	6
2	2	5

Ring Sequences(1.2.4)		
	1	2
3	3	7
4	4	8
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0
Table - 3		
1	2	5
2	1	6
3	3	7
4	4	8
5	0	0

Ring Sequences(1.2.4)		
	1	2
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0
Table - 4		
1	2	6
2	1	5
3	3	7
4	4	8
5	0	0
6	0	0
7	0	0
8	0	0

Ring Sequences(1.2.4)		
	1	2
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0
Table - 5		
1	1	5
2	2	6
3	3	8
4	4	7
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11	0	0

Ring Sequences(1.2.4)		
	1	2
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0
Table - 6		
1	1	6
2	2	5
3	3	8
4	4	7
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0

Ring Sequences(1.2.4)		
	1	2
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0
Table - 7		
1	2	5
2	1	6
3	3	8
4	4	7
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0

Ring Sequences(1.2.4)		
	1	2
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0
Table - 8		
1	2	6
2	1	5
3	3	8
4	4	7
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0

Ring Sequences(1.2.4)		
	1	2
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0
Table - 9		
1	1	5
2	2	6
3	4	7
4	3	8
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0

Ring Sequences(1.2.4)		
	1	2
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0
Table - 10		
1	1	6
2	2	5
3	4	7
4	3	8
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0

Ring Sequences(1.2.4)		
	1	2
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0
Table - 11		
1	2	5
2	1	6
3	4	7
4	3	8
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0

Ring Sequences(1.2.4)		
	1	2
30	0	0
31	0	0
32	0	0
Table - 12		
1	2	6
2	1	5
3	4	7
4	3	8
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0

Ring Sequences(1.2.4)		
	1	2
Table - 13		
1	1	5
2	2	6
3	4	8
4	3	7
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0
Table - 14		
1	1	6
2	2	5

Ring Sequences(1.2.4)		
	1	2
3	4	8
4	3	7
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0
Table - 15		
1	2	5
2	1	6
3	4	8
4	3	7
5	0	0

Ring Sequences(1.2.4)		
	1	2
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0
Table - 16		
1	2	6
2	1	5
3	4	8
4	3	7
5	0	0
6	0	0
7	0	0
8	0	0

Ring Sequences(1.2.4)		
	1	2
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0

Patterns(2.4)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
Table - 1																																	
Cycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Offset	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Split	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
seqnc	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
--	---	---	---	---	---	---	---	---

Table - 1

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 2

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 3

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 4

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 5

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 6

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 7

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 8

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 9

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 10

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 11

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 12

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 13

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 14

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 15

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 16

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 17

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 18

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 19

Time	0	0	0	0	0	0	0	0
------	---	---	---	---	---	---	---	---

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 20								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 21								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 22								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 23								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 24								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 25								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 26								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 27								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 28								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 29

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 30

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 31

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 32

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Adv Schedule(4.3)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----

Table - 1

Sun	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Mon	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Tue	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Wed	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Thu	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Fri	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sat	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jan	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Feb	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Mar	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Apr	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
May	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jun	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jul	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aug	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sep	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Adv Schedule(4.3)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Oct	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Nov	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dec	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
01	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
02	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
03	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
04	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
05	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
06	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
07	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
08	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
09	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
12	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
13	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
14	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
15	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
16	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
17	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
18	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
19	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
20	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
21	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
22	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
23	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
24	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
25	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
26	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
27	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
28	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
29	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
30	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
31	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Plan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Day Plan(4.4)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Table - 1																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 2																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 3																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 4																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 5																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 6																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 7																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 8																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 9																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 10																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Day Plan(4.4)																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Actions(4.5)																																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33

Table - 1																																					
Pattern	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	254				
Aux 1		
Aux 2		
Aux 3		
Special 1		
Special 2	
Special 3	
Special 4	
Special 5
Special 6
Special 7
Special 8
Pre1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pre2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



Appendix C
Existing Intersection
Traffic Count Data

L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Palmer / Beacon Light Rd
City, State: Star, Idaho
Control: Stop Sign

File Name : Beacon Light Rd & Palmer Ln
Site Code : 00000000
Start Date : 6/14/2022
Page No : 1

Groups Printed- General Traffic - 3+ Axle Heavy Trucks

Start Time	Beacon Light Road From East				Palmer Lane From South				Beacon Light Road From West				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
07:00 AM	16	0	0	16	2	0	0	2	3	71	0	74	92
07:15 AM	23	1	0	24	0	1	0	1	3	100	0	103	128
07:30 AM	29	0	0	29	2	0	0	2	1	102	0	103	134
07:45 AM	30	3	0	33	2	0	0	2	2	78	0	80	115
Total	98	4	0	102	6	1	0	7	9	351	0	360	469
08:00 AM	17	1	0	18	3	4	0	7	1	78	0	79	104
08:15 AM	28	4	0	32	0	3	0	3	2	71	0	73	108
08:30 AM	32	2	0	34	1	3	0	4	2	85	0	87	125
08:45 AM	39	0	0	39	2	3	0	5	1	59	0	60	104
Total	116	7	0	123	6	13	0	19	6	293	0	299	441

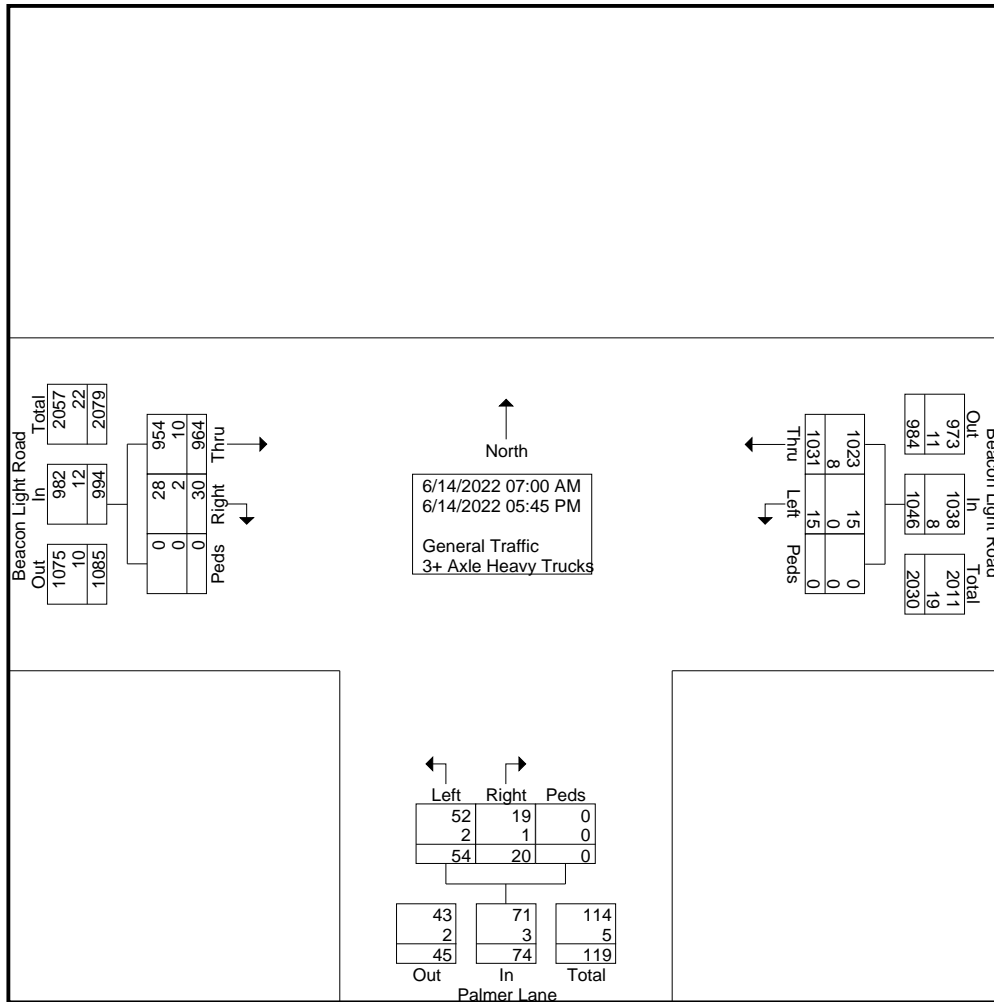
04:00 PM	75	1	0	76	0	5	0	5	4	38	0	42	123
04:15 PM	71	0	0	71	1	5	0	6	1	43	0	44	121
04:30 PM	97	1	0	98	1	7	0	8	2	44	0	46	152
04:45 PM	103	0	0	103	2	2	0	4	1	40	0	41	148
Total	346	2	0	348	4	19	0	23	8	165	0	173	544
05:00 PM	126	0	0	126	1	6	0	7	2	39	0	41	174
05:15 PM	118	1	0	119	0	5	0	5	2	39	0	41	165
05:30 PM	119	0	0	119	1	7	0	8	2	39	0	41	168
05:45 PM	108	1	0	109	2	3	0	5	1	38	0	39	153
Total	471	2	0	473	4	21	0	25	7	155	0	162	660
Grand Total	1031	15	0	1046	20	54	0	74	30	964	0	994	2114
Apprch %	98.6	1.4	0		27	73	0		3	97	0		
Total %	48.8	0.7	0	49.5	0.9	2.6	0	3.5	1.4	45.6	0	47	
General Traffic	1023	15	0	1038	19	52	0	71	28	954	0	982	2091
% General Traffic	99.2	100	0	99.2	95	96.3	0	95.9	93.3	99	0	98.8	98.9
3+ Axle Heavy Trucks	8	0	0	8	1	2	0	3	2	10	0	12	23
% 3+ Axle Heavy Trucks	0.8	0	0	0.8	5	3.7	0	4.1	6.7	1	0	1.2	1.1

L2 Data Collection

L2DataCollection.com
 Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Intersection: Palmer / Beacon Light Rd
 City, State: Star, Idaho
 Control: Stop Sign

File Name : Beacon Light Rd & Palmer Ln
 Site Code : 00000000
 Start Date : 6/14/2022
 Page No : 2



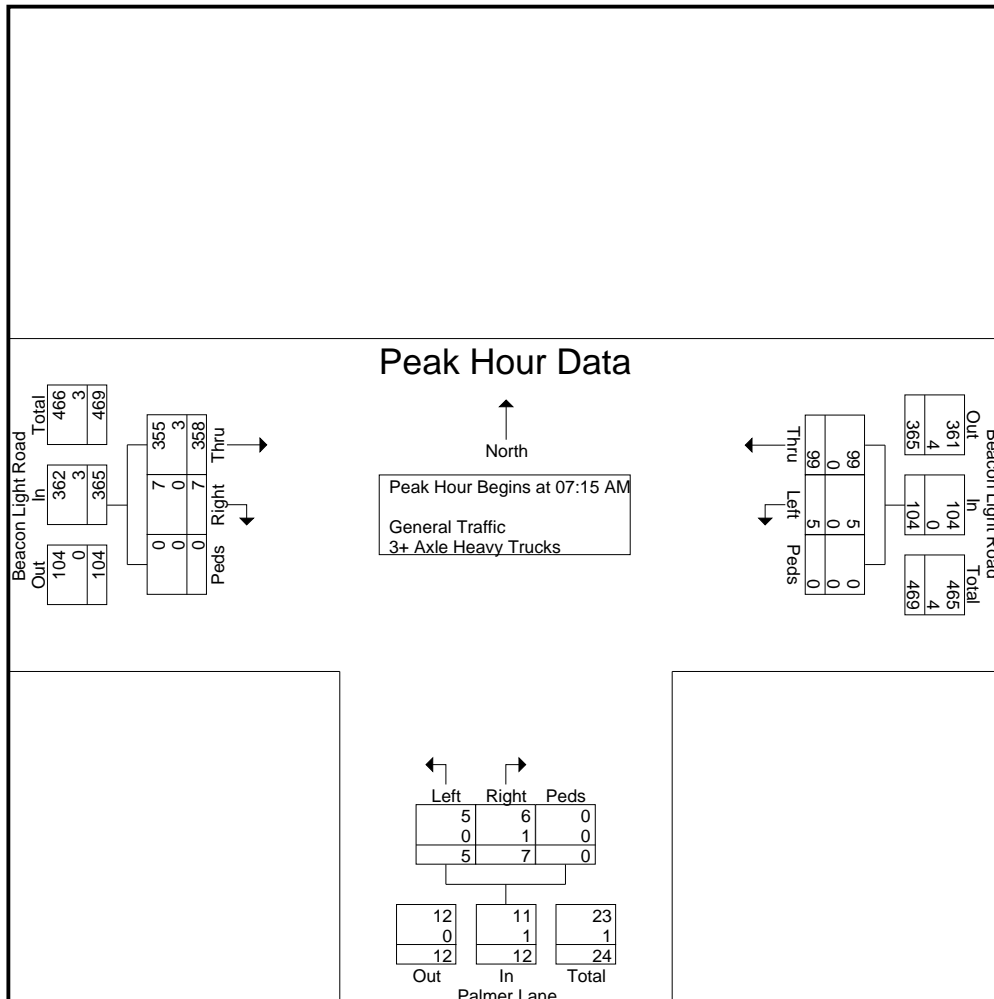
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Palmer / Beacon Light Rd
City, State: Star, Idaho
Control: Stop Sign

File Name : Beacon Light Rd & Palmer Ln
Site Code : 00000000
Start Date : 6/14/2022
Page No : 3

Start Time	Beacon Light Road From East				Palmer Lane From South				Beacon Light Road From West				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:15 AM													
07:15 AM	23	1	0	24	0	1	0	1	3	100	0	103	128
07:30 AM	29	0	0	29	2	0	0	2	1	102	0	103	134
07:45 AM	30	3	0	33	2	0	0	2	2	78	0	80	115
08:00 AM	17	1	0	18	3	4	0	7	1	78	0	79	104
Total Volume	99	5	0	104	7	5	0	12	7	358	0	365	481
% App. Total	95.2	4.8	0		58.3	41.7	0		1.9	98.1	0		
PHF	.825	.417	.000	.788	.583	.313	.000	.429	.583	.877	.000	.886	.897
General Traffic	99	5	0	104	6	5	0	11	7	355	0	362	477
% General Traffic	100	100	0	100	85.7	100	0	91.7	100	99.2	0	99.2	99.2
3+ Axle Heavy Trucks	0	0	0	0	1	0	0	1	0	3	0	3	4
% 3+ Axle Heavy Trucks	0	0	0	0	14.3	0	0	8.3	0	0.8	0	0.8	0.8



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Palmer / Beacon Light Rd
City, State: Star, Idaho
Control: Stop Sign

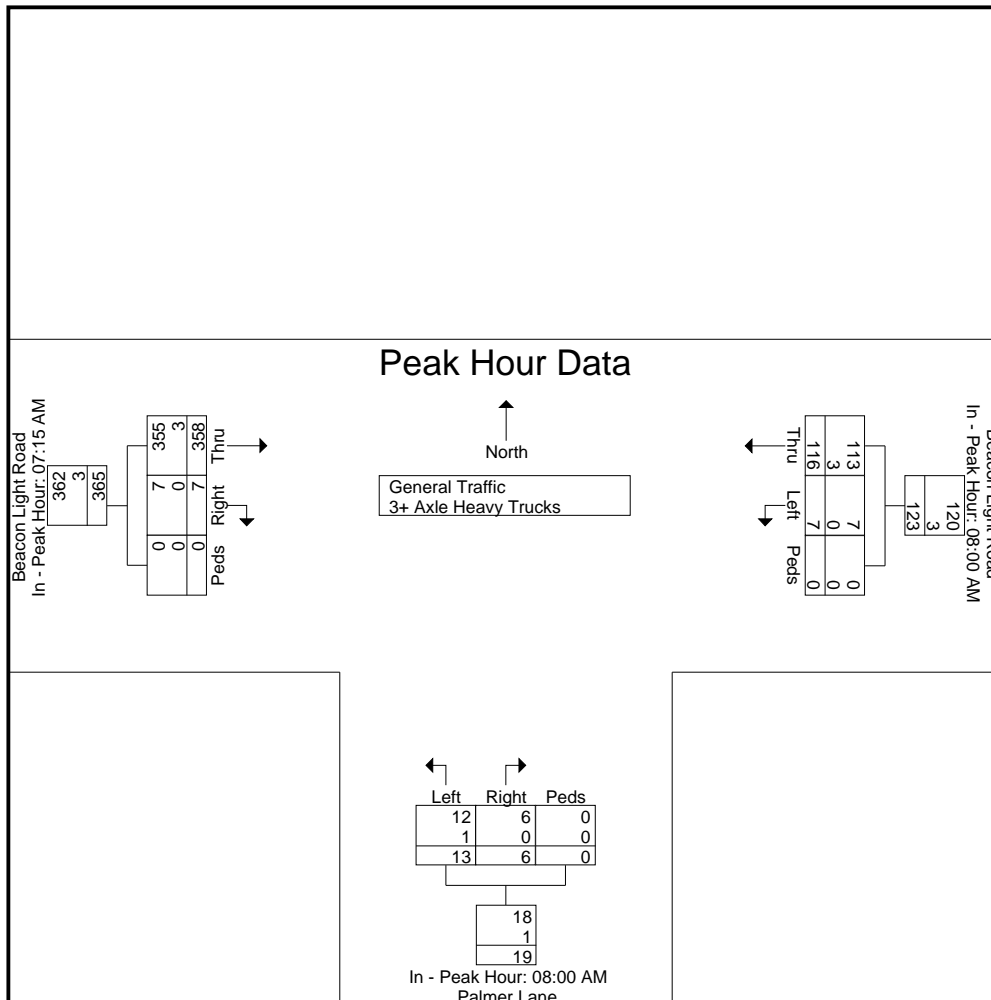
File Name : Beacon Light Rd & Palmer Ln
Site Code : 00000000
Start Date : 6/14/2022
Page No : 4

Start Time	Beacon Light Road From East				Palmer Lane From South				Beacon Light Road From West				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	08:00 AM				08:00 AM				07:15 AM			
+0 mins.	17	1	0	18	3	4	0	7	3	100	0	103
+15 mins.	28	4	0	32	0	3	0	3	1	102	0	103
+30 mins.	32	2	0	34	1	3	0	4	2	78	0	80
+45 mins.	39	0	0	39	2	3	0	5	1	78	0	79
Total Volume	116	7	0	123	6	13	0	19	7	358	0	365
% App. Total	94.3	5.7	0		31.6	68.4	0		1.9	98.1	0	
PHF	.744	.438	.000	.788	.500	.813	.000	.679	.583	.877	.000	.886
General Traffic	113	7	0	120	6	12	0	18	7	355	0	362
% General Traffic	97.4	100	0	97.6	100	92.3	0	94.7	100	99.2	0	99.2
3+ Axle Heavy Trucks	3	0	0	3	0	1	0	1	0	3	0	3
% 3+ Axle Heavy Trucks	2.6	0	0	2.4	0	7.7	0	5.3	0	0.8	0	0.8



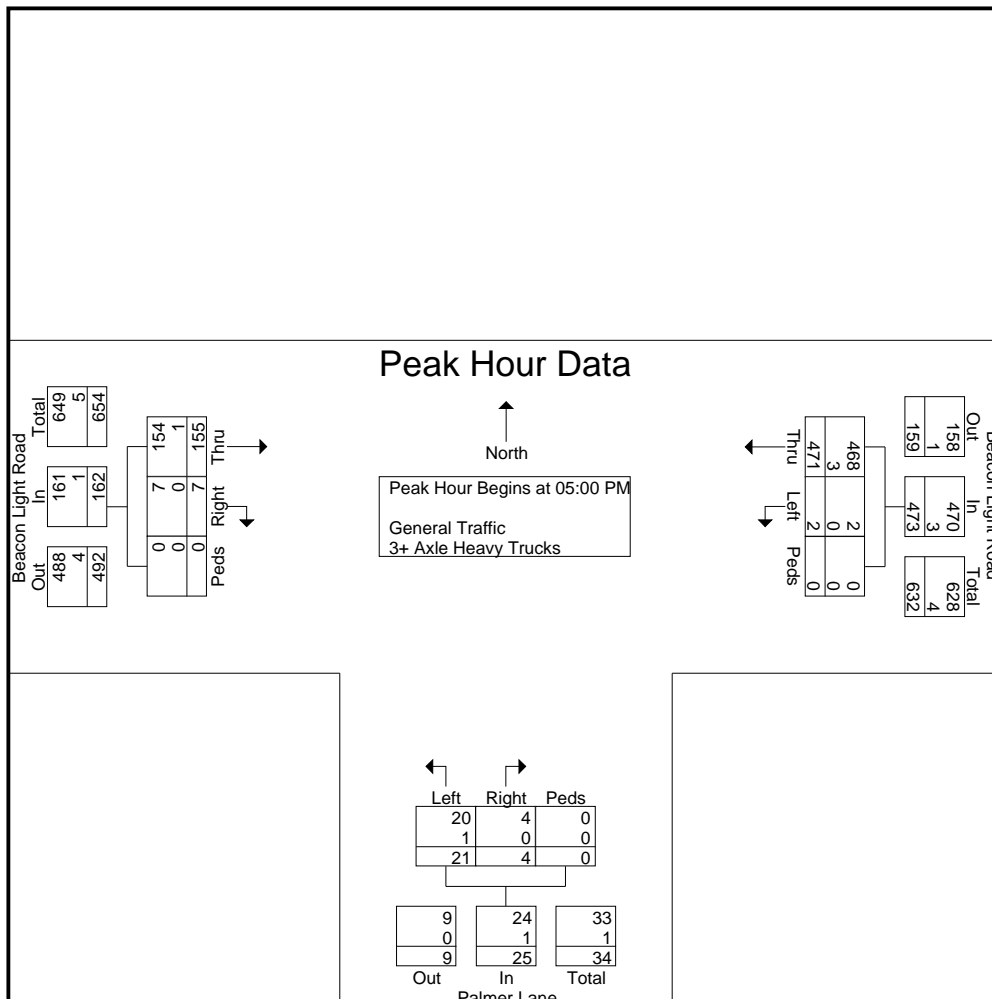
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Palmer / Beacon Light Rd
City, State: Star, Idaho
Control: Stop Sign

File Name : Beacon Light Rd & Palmer Ln
Site Code : 00000000
Start Date : 6/14/2022
Page No : 5

Start Time	Beacon Light Road From East				Palmer Lane From South				Beacon Light Road From West				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	126	0	0	126	1	6	0	7	2	39	0	41	174
05:15 PM	118	1	0	119	0	5	0	5	2	39	0	41	165
05:30 PM	119	0	0	119	1	7	0	8	2	39	0	41	168
05:45 PM	108	1	0	109	2	3	0	5	1	38	0	39	153
Total Volume	471	2	0	473	4	21	0	25	7	155	0	162	660
% App. Total	99.6	0.4	0		16	84	0		4.3	95.7	0		
PHF	.935	.500	.000	.938	.500	.750	.000	.781	.875	.994	.000	.988	.948
General Traffic	468	2	0	470	4	20	0	24	7	154	0	161	655
% General Traffic	99.4	100	0	99.4	100	95.2	0	96.0	100	99.4	0	99.4	99.2
3+ Axle Heavy Trucks	3	0	0	3	0	1	0	1	0	1	0	1	5
% 3+ Axle Heavy Trucks	0.6	0	0	0.6	0	4.8	0	4.0	0	0.6	0	0.6	0.8



L2 Data Collection

L2DataCollection.com
 Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Intersection: Palmer / Beacon Light Rd
 City, State: Star, Idaho
 Control: Stop Sign

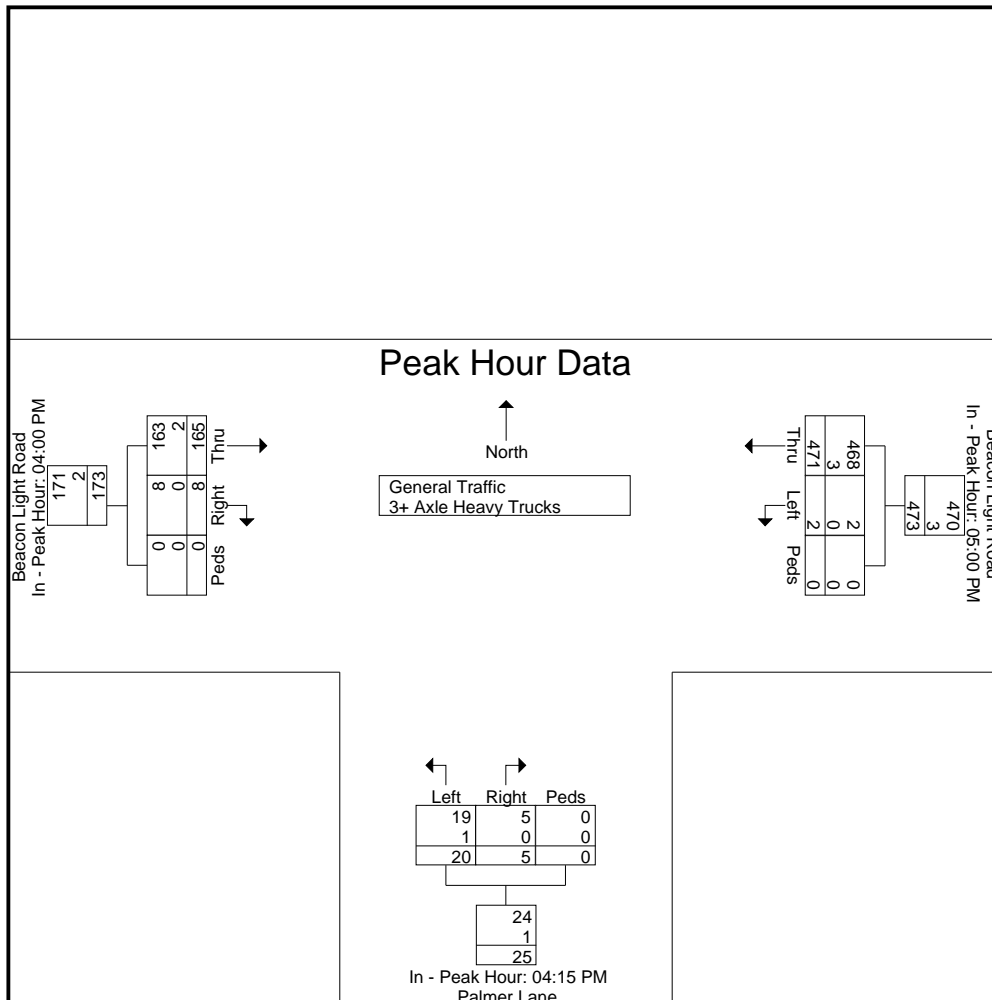
File Name : Beacon Light Rd & Palmer Ln
 Site Code : 00000000
 Start Date : 6/14/2022
 Page No : 6

Start Time	Beacon Light Road From East				Palmer Lane From South				Beacon Light Road From West				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	

Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	05:00 PM				04:15 PM				04:00 PM			
+0 mins.	126	0	0	126	1	5	0	6	4	38	0	42
+15 mins.	118	1	0	119	1	7	0	8	1	43	0	44
+30 mins.	119	0	0	119	2	2	0	4	2	44	0	46
+45 mins.	108	1	0	109	1	6	0	7	1	40	0	41
Total Volume	471	2	0	473	5	20	0	25	8	165	0	173
% App. Total	99.6	0.4	0		20	80	0		4.6	95.4	0	
PHF	.935	.500	.000	.938	.625	.714	.000	.781	.500	.938	.000	.940
General Traffic	468	2	0	470	5	19	0	24	8	163	0	171
% General Traffic	99.4	100	0	99.4	100	95	0	96	100	98.8	0	98.8
3+ Axle Heavy Trucks	3	0	0	3	0	1	0	1	0	2	0	2
% 3+ Axle Heavy Trucks	0.6	0	0	0.6	0	5	0	4	0	1.2	0	1.2



L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Palmer / Beacon Light Rd
City, State: Star, Idaho
Control: Stop Sign

File Name : Beacon Light Rd & Palmer Ln
Site Code : 00000000
Start Date : 6/14/2022
Page No : 7

Image 1



L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Intersection: Pollard Rd/ Beacon Light Rd
 City, State: Star, Idaho
 Control: Stop Sign

File Name : Beacon Light Rd & Pollard Rd
 Site Code : 00000000
 Start Date : 6/14/2022
 Page No : 1

Groups Printed- General Traffic - 3+ Axle Heavy Trucks

Start Time	Pollard Road From North					Beacon Light Road From East					Pollard Road From South					Beacon Light Road From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:00 AM	0	0	3	0	3	16	9	2	0	27	7	4	1	0	12	0	27	0	0	27	69
07:15 AM	1	5	13	0	19	7	13	3	0	23	3	3	2	0	8	0	39	2	0	41	91
07:30 AM	0	5	4	0	9	4	9	2	0	15	9	1	2	0	12	1	49	0	0	50	86
07:45 AM	0	2	4	0	6	1	12	5	0	18	8	3	1	0	12	0	17	1	0	18	54
Total	1	12	24	0	37	28	43	12	0	83	27	11	6	0	44	1	132	3	0	136	300
08:00 AM	0	1	3	0	4	2	6	4	0	12	9	2	0	0	11	0	34	0	0	34	61
08:15 AM	1	1	5	2	9	11	24	4	0	39	10	3	1	1	15	2	34	0	0	36	99
08:30 AM	2	2	5	0	9	13	6	4	0	23	6	5	0	0	11	0	40	1	1	42	85
08:45 AM	3	5	13	0	21	3	14	3	0	20	7	1	1	1	10	0	42	0	0	42	93
Total	6	9	26	2	43	29	50	15	0	94	32	11	2	2	47	2	150	1	1	154	338

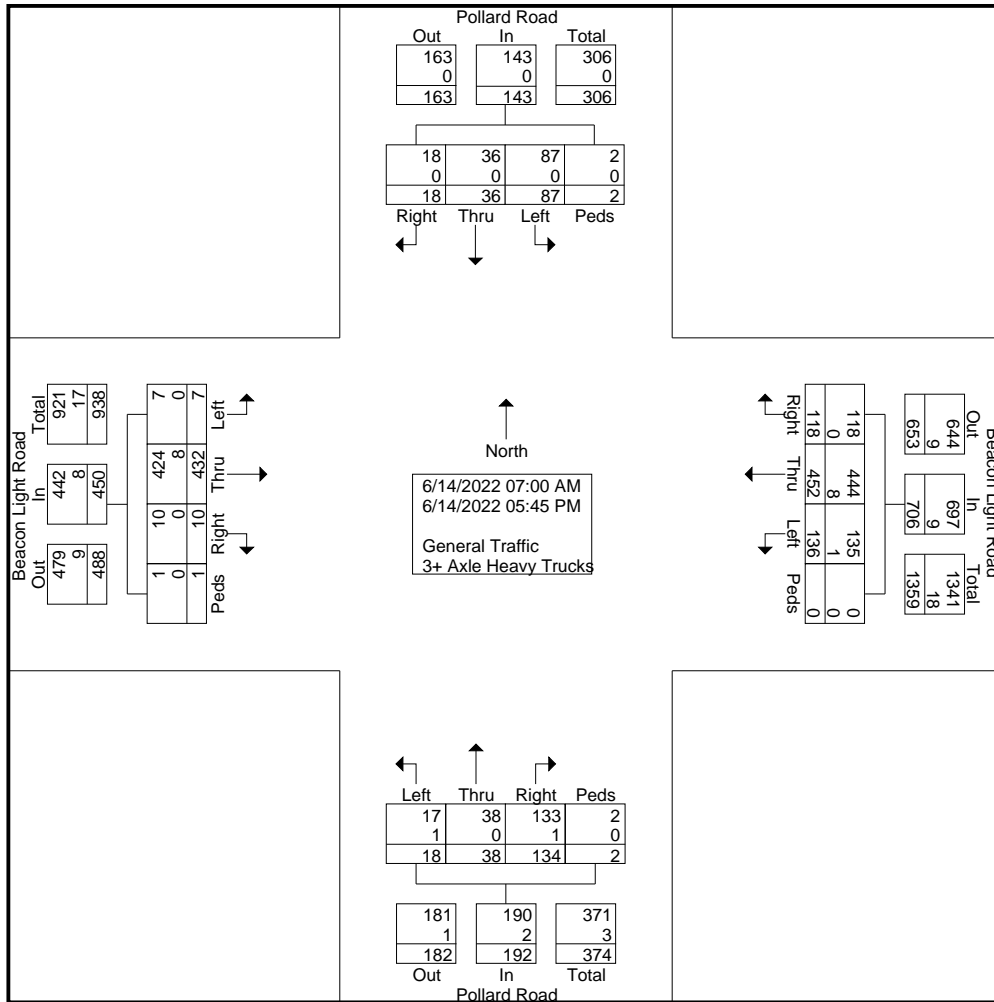
04:00 PM	2	3	9	0	14	2	29	10	0	41	14	3	3	0	20	0	17	0	0	17	92
04:15 PM	5	2	13	0	20	3	38	11	0	52	9	2	0	0	11	2	27	0	0	29	112
04:30 PM	2	3	0	0	5	3	41	13	0	57	10	0	0	0	10	0	16	0	0	16	88
04:45 PM	1	0	2	0	3	3	44	13	0	60	4	1	1	0	6	1	18	0	0	19	88
Total	10	8	24	0	42	11	152	47	0	210	37	6	4	0	47	3	78	0	0	81	380
05:00 PM	1	4	5	0	10	14	70	8	0	92	12	0	2	0	14	0	16	2	0	18	134
05:15 PM	0	1	6	0	7	16	46	18	0	80	13	5	1	0	19	1	19	0	0	20	126
05:30 PM	0	2	1	0	3	14	56	22	0	92	7	4	0	0	11	1	18	0	0	19	125
05:45 PM	0	0	1	0	1	6	35	14	0	55	6	1	3	0	10	2	19	1	0	22	88
Total	1	7	13	0	21	50	207	62	0	319	38	10	6	0	54	4	72	3	0	79	473
Grand Total	18	36	87	2	143	118	452	136	0	706	134	38	18	2	192	10	432	7	1	450	1491
Apprch %	12.6	25.2	60.8	1.4		16.7	64	19.3	0		69.8	19.8	9.4	1		2.2	96	1.6	0.2		
Total %	1.2	2.4	5.8	0.1	9.6	7.9	30.3	9.1	0	47.4	9	2.5	1.2	0.1	12.9	0.7	29	0.5	0.1	30.2	
General Traffic	18	36	87	2	143	118	444	135	0	697	133	38	17	2	190	10	424	7	1	442	1472
% General Traffic	100	100	100	100	100	100	98.2	99.3	0	98.7	99.3	100	94.4	100	99	100	98.1	100	100	98.2	98.7
3+ Axle Heavy Trucks	0	0	0	0	0	0	8	1	0	9	1	0	1	0	2	0	8	0	0	8	19
% 3+ Axle Heavy Trucks	0	0	0	0	0	0	1.8	0.7	0	1.3	0.7	0	5.6	0	1	0	1.9	0	0	1.8	1.3

L2 Data Collection

L2DataCollection.com
 Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Intersection: Pollard Rd/ Beacon Light Rd
 City, State: Star, Idaho
 Control: Stop Sign

File Name : Beacon Light Rd & Pollard Rd
 Site Code : 00000000
 Start Date : 6/14/2022
 Page No : 2



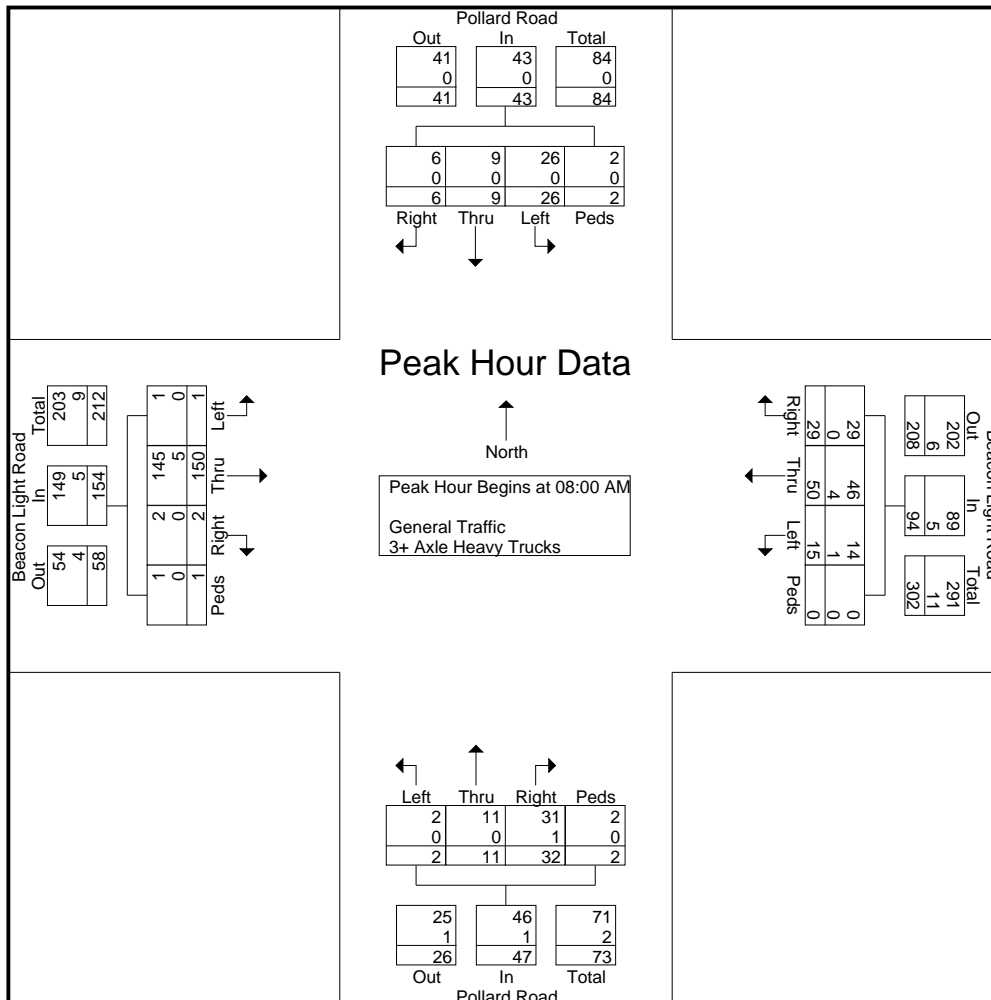
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Pollard Rd/ Beacon Light Rd
City, State: Star, Idaho
Control: Stop Sign

File Name : Beacon Light Rd & Pollard Rd
Site Code : 00000000
Start Date : 6/14/2022
Page No : 3

Start Time	Pollard Road From North					Beacon Light Road From East					Pollard Road From South					Beacon Light Road From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	1	3	0	4	2	6	4	0	12	9	2	0	0	11	0	34	0	0	34	61
08:15 AM	1	1	5	2	9	11	24	4	0	39	10	3	1	1	15	2	34	0	0	36	99
08:30 AM	2	2	5	0	9	13	6	4	0	23	6	5	0	0	11	0	40	1	1	42	85
08:45 AM	3	5	13	0	21	3	14	3	0	20	7	1	1	1	10	0	42	0	0	42	93
Total Volume	6	9	26	2	43	29	50	15	0	94	32	11	2	2	47	2	150	1	1	154	338
% App. Total	14	20.9	60.5	4.7		30.9	53.2	16	0		68.1	23.4	4.3	4.3		1.3	97.4	0.6	0.6		
PHF	.500	.450	.500	.250	.512	.558	.521	.938	.000	.603	.800	.550	.500	.500	.783	.250	.893	.250	.250	.917	.854
General Traffic	6	9	26	2	43	29	46	14	0	89	31	11	2	2	46	2	145	1	1	149	327
% General Traffic	100	100	100	100	100	100	92.0	93.3	0	94.7	96.9	100	100	100	97.9	100	96.7	100	100	96.8	96.7
3+ Axle Heavy Trucks	0	0	0	0	0	0	4	1	0	5	1	0	0	0	1	0	5	0	0	5	11
% 3+ Axle Heavy Trucks	0	0	0	0	0	0	8.0	6.7	0	5.3	3.1	0	0	0	2.1	0	3.3	0	0	3.2	3.3



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Pollard Rd/ Beacon Light Rd
City, State: Star, Idaho
Control: Stop Sign

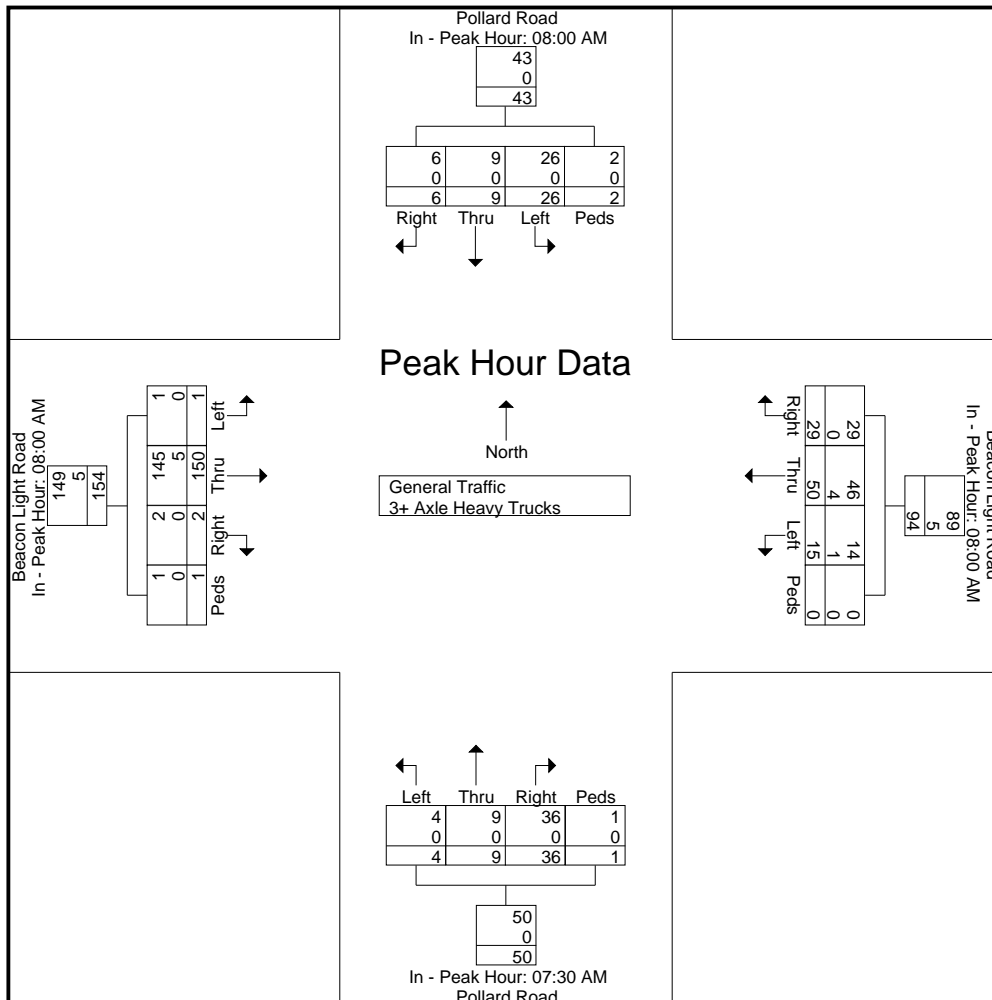
File Name : Beacon Light Rd & Pollard Rd
Site Code : 00000000
Start Date : 6/14/2022
Page No : 4

Start Time	Pollard Road From North					Beacon Light Road From East					Pollard Road From South					Beacon Light Road From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	08:00 AM					08:00 AM					07:30 AM					08:00 AM				
+0 mins.	0	1	3	0	4	2	6	4	0	12	9	1	2	0	12	0	34	0	0	34
+15 mins.	1	1	5	2	9	11	24	4	0	39	8	3	1	0	12	2	34	0	0	36
+30 mins.	2	2	5	0	9	13	6	4	0	23	9	2	0	0	11	0	40	1	1	42
+45 mins.	3	5	13	0	21	3	14	3	0	20	10	3	1	1	15	0	42	0	0	42
Total Volume	6	9	26	2	43	29	50	15	0	94	36	9	4	1	50	2	150	1	1	154
% App. Total	14	20.9	60.5	4.7		30.9	53.2	16	0		72	18	8	2		1.3	97.4	0.6	0.6	
PHF	.500	.450	.500	.250	.512	.558	.521	.938	.000	.603	.900	.750	.500	.250	.833	.250	.893	.250	.250	.917
General Traffic	6	9	26	2	43	29	46	14	0	89	36	9	4	1	50	2	145	1	1	149
% General Traffic	100	100	100	100	100	100	92	93.3	0	94.7	100	100	100	100	100	100	96.7	100	100	96.8
3+ Axle Heavy Trucks	0	0	0	0	0	0	4	1	0	5	0	0	0	0	0	0	5	0	0	5
% 3+ Axle Heavy Trucks	0	0	0	0	0	0	8	6.7	0	5.3	0	0	0	0	0	0	3.3	0	0	3.2



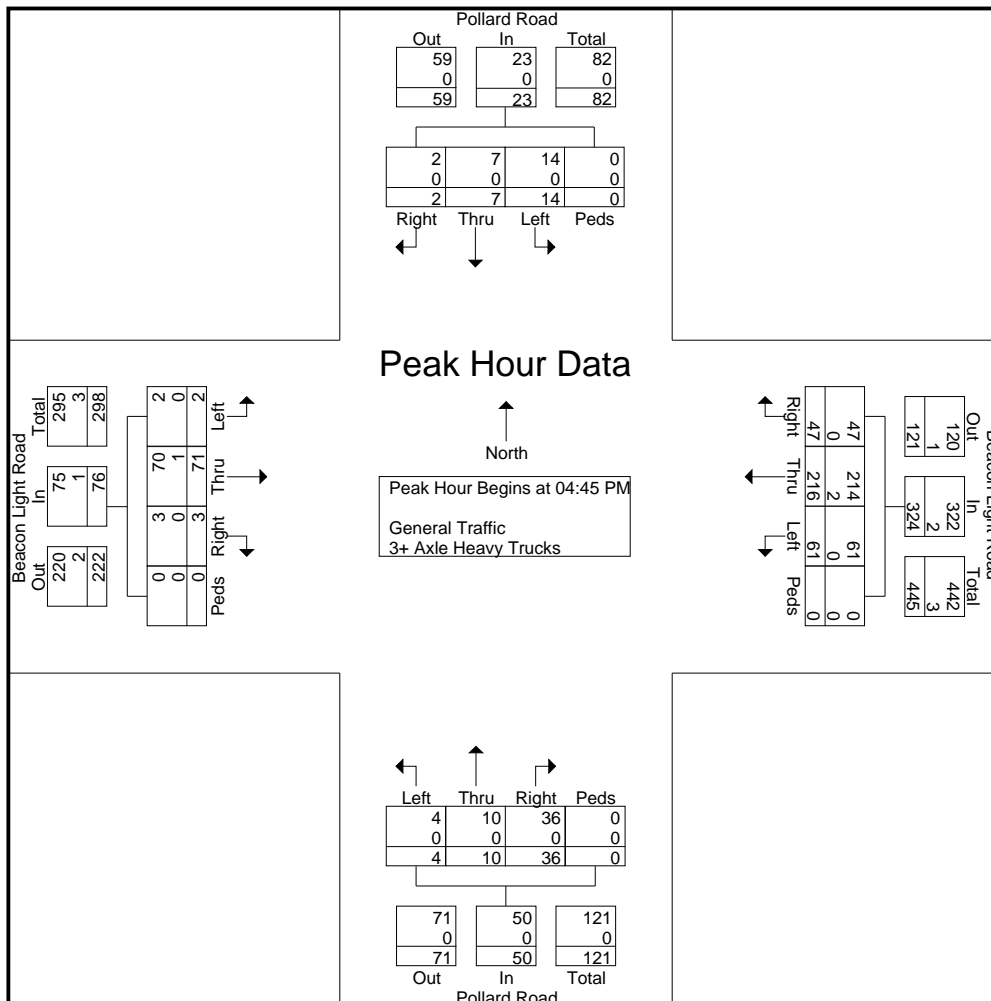
L2 Data Collection

L2DataCollection.com
 Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Intersection: Pollard Rd/ Beacon Light Rd
 City, State: Star, Idaho
 Control: Stop Sign

File Name : Beacon Light Rd & Pollard Rd
 Site Code : 00000000
 Start Date : 6/14/2022
 Page No : 5

Start Time	Pollard Road From North					Beacon Light Road From East					Pollard Road From South					Beacon Light Road From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	1	0	2	0	3	3	44	13	0	60	4	1	1	0	6	1	18	0	0	19	88
05:00 PM	1	4	5	0	10	14	70	8	0	92	12	0	2	0	14	0	16	2	0	18	134
05:15 PM	0	1	6	0	7	16	46	18	0	80	13	5	1	0	19	1	19	0	0	20	126
05:30 PM	0	2	1	0	3	14	56	22	0	92	7	4	0	0	11	1	18	0	0	19	125
Total Volume	2	7	14	0	23	47	216	61	0	324	36	10	4	0	50	3	71	2	0	76	473
% App. Total	8.7	30.4	60.9	0		14.5	66.7	18.8	0		7.2	20	8	0		3.9	93.4	2.6	0		
PHF	.500	.438	.583	.000	.575	.734	.771	.693	.000	.880	.692	.500	.500	.000	.658	.750	.934	.250	.000	.950	.882
General Traffic	2	7	14	0	23	47	214	61	0	322	36	10	4	0	50	3	70	2	0	75	470
% General Traffic	100	100	100	0	100	100	99.1	100	0	99.4	100	100	100	0	100	100	98.6	100	0	98.7	99.4
3+ Axle Heavy Trucks	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
% 3+ Axle Heavy Trucks	0	0	0	0	0	0	0.9	0	0	0.6	0	0	0	0	0	0	1.4	0	0	1.3	0.6



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Pollard Rd/ Beacon Light Rd
City, State: Star, Idaho
Control: Stop Sign

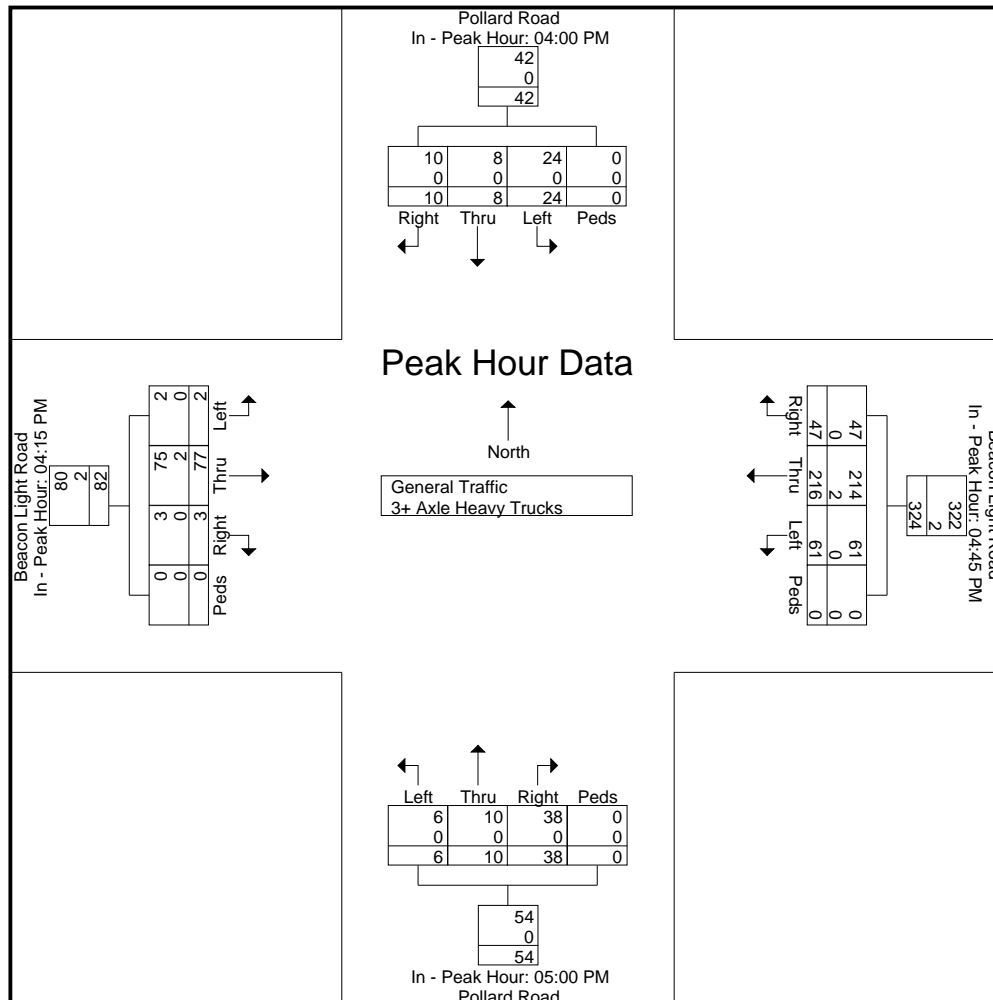
File Name : Beacon Light Rd & Pollard Rd
Site Code : 00000000
Start Date : 6/14/2022
Page No : 6

	Pollard Road From North					Beacon Light Road From East					Pollard Road From South					Beacon Light Road From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total

Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:00 PM					04:45 PM					05:00 PM					04:15 PM				
+0 mins.	2	3	9	0	14	3	44	13	0	60	12	0	2	0	14	2	27	0	0	29
+15 mins.	5	2	13	0	20	14	70	8	0	92	13	5	1	0	19	0	16	0	0	16
+30 mins.	2	3	0	0	5	16	46	18	0	80	7	4	0	0	11	1	18	0	0	19
+45 mins.	1	0	2	0	3	14	56	22	0	92	6	1	3	0	10	0	16	2	0	18
Total Volume	10	8	24	0	42	47	216	61	0	324	38	10	6	0	54	3	77	2	0	82
% App. Total	23.8	19	57.1	0		14.5	66.7	18.8	0		70.4	18.5	11.1	0		3.7	93.9	2.4	0	
PHF	.500	.667	.462	.000	.525	.734	.771	.693	.000	.880	.731	.500	.500	.000	.711	.375	.713	.250	.000	.707
General Traffic	10	8	24	0	42	47	214	61	0	322	38	10	6	0	54	3	75	2	0	80
% General Traffic	100	100	100	0	100	100	99.1	100	0	99.4	100	100	100	0	100	100	97.4	100	0	97.6
3+ Axle Heavy Trucks	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2
% 3+ Axle Heavy Trucks	0	0	0	0	0	0	0.9	0	0	0.6	0	0	0	0	0	0	2.6	0	0	2.4



L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Pollard Rd/ Beacon Light Rd
City, State: Star, Idaho
Control: Stop Sign

File Name : Beacon Light Rd & Pollard Rd
Site Code : 00000000
Start Date : 6/14/2022
Page No : 7

Image 1



L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Intersection: SH-16 / Beacon Light Rd
 City, State: Star, Idaho
 Control: Signalized

File Name : Beacon Light Rd & SH-16
 Site Code : 00000000
 Start Date : 6/14/2022
 Page No : 1

Groups Printed- General Traffic - 3+ Axle Heavy Trucks

Start Time	SH-16 From North					Beacon Light Road From East					SH-16 From South					Beacon Light Road From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:00 AM	3	140	44	0	187	4	4	4	0	12	20	37	21	0	78	21	13	2	0	36	313
07:15 AM	1	160	45	0	206	9	8	17	0	34	28	33	12	4	77	28	22	2	0	52	369
07:30 AM	0	149	35	0	184	10	10	15	0	35	32	84	8	0	124	20	39	3	0	62	405
07:45 AM	0	103	29	0	132	13	10	14	0	37	33	64	9	0	106	17	19	1	0	37	312
Total	4	552	153	0	709	36	32	50	0	118	113	218	50	4	385	86	93	8	0	187	1399
08:00 AM	2	89	29	0	120	5	4	11	0	20	26	59	5	1	91	18	24	3	0	45	276
08:15 AM	3	130	28	0	161	8	12	7	0	27	20	59	19	0	98	19	29	7	0	55	341
08:30 AM	2	123	30	0	155	13	5	13	0	31	34	92	13	0	139	24	21	7	0	52	377
08:45 AM	3	120	28	0	151	11	8	19	0	38	7	46	5	0	58	29	24	10	0	63	310
Total	10	462	115	0	587	37	29	50	0	116	87	256	42	1	386	90	98	27	0	215	1304

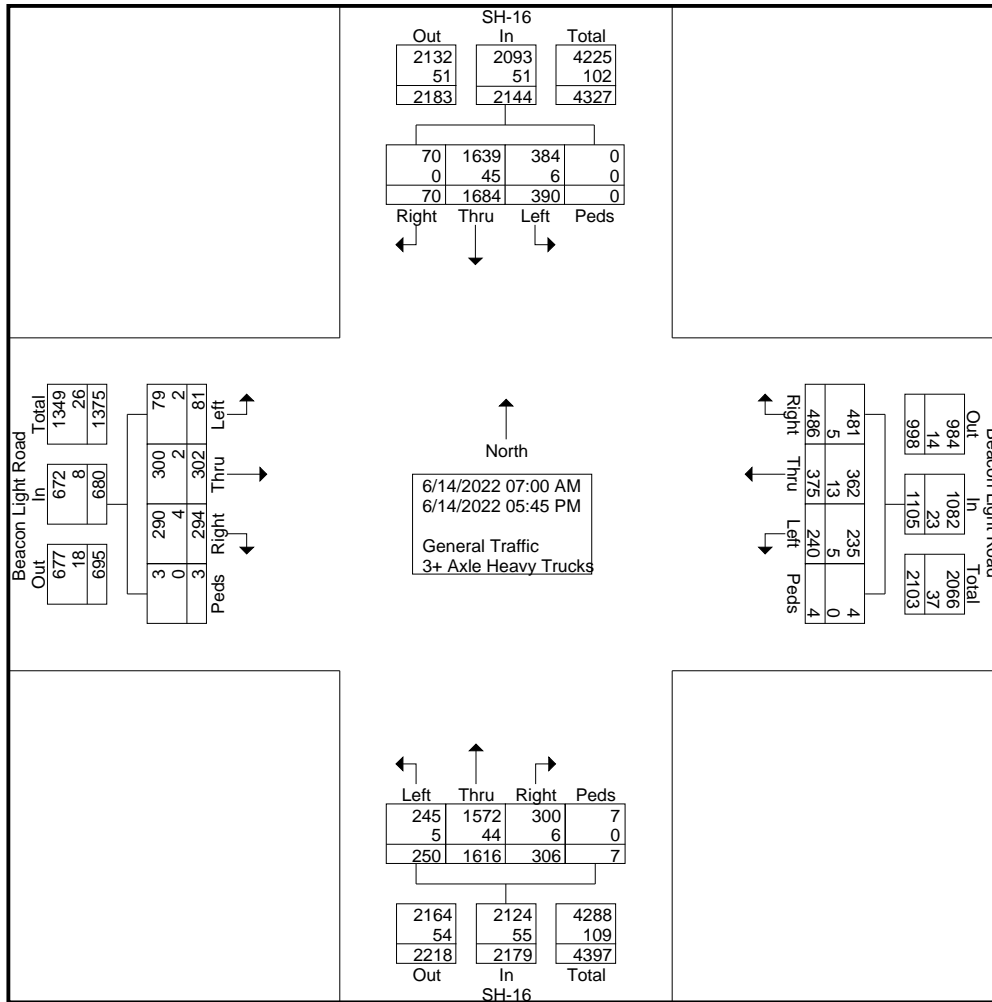
04:00 PM	5	76	10	0	91	41	23	16	0	80	10	119	17	0	146	14	26	7	0	47	364
04:15 PM	7	96	21	0	124	35	27	13	0	75	11	127	19	0	157	34	10	5	0	49	405
04:30 PM	6	78	18	0	102	54	40	17	0	111	16	169	20	0	205	8	15	8	0	31	449
04:45 PM	4	85	16	0	105	50	33	22	2	107	12	154	20	0	186	8	10	6	0	24	422
Total	22	335	65	0	422	180	123	68	2	373	49	569	76	0	694	64	61	26	0	151	1640
05:00 PM	5	74	12	0	91	61	59	14	0	134	18	140	33	0	191	15	9	8	0	32	448
05:15 PM	12	82	16	0	110	60	52	11	2	125	13	151	19	0	183	15	14	4	0	33	451
05:30 PM	10	91	12	0	113	57	47	25	0	129	12	147	16	0	175	11	10	2	0	23	440
05:45 PM	7	88	17	0	112	55	33	22	0	110	14	135	14	2	165	13	17	6	3	39	426
Total	34	335	57	0	426	233	191	72	2	498	57	573	82	2	714	54	50	20	3	127	1765
Grand Total	70	1684	390	0	2144	486	375	240	4	1105	306	1616	250	7	2179	294	302	81	3	680	6108
Apprch %	3.3	78.5	18.2	0		44	33.9	21.7	0.4		14	74.2	11.5	0.3		43.2	44.4	11.9	0.4		
Total %	1.1	27.6	6.4	0	35.1	8	6.1	3.9	0.1	18.1	5	26.5	4.1	0.1	35.7	4.8	4.9	1.3	0	11.1	
General Traffic	70	1639	384	0	2093	481	362	235	4	1082	300	1572	245	7	2124	290	300	79	3	672	5971
% General Traffic	100	97.3	98.5	0	97.6	99	96.5	97.9	100	97.9	98	97.3	98	100	97.5	98.6	99.3	97.5	100	98.8	97.8
3+ Axle Heavy Trucks	0	45	6	0	51	5	13	5	0	23	6	44	5	0	55	4	2	2	0	8	137
% 3+ Axle Heavy Trucks	0	2.7	1.5	0	2.4	1	3.5	2.1	0	2.1	2	2.7	2	0	2.5	1.4	0.7	2.5	0	1.2	2.2

L2 Data Collection

L2DataCollection.com
 Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Intersection: SH-16 / Beacon Light Rd
 City, State: Star, Idaho
 Control: Signalized

File Name : Beacon Light Rd & SH-16
 Site Code : 00000000
 Start Date : 6/14/2022
 Page No : 2



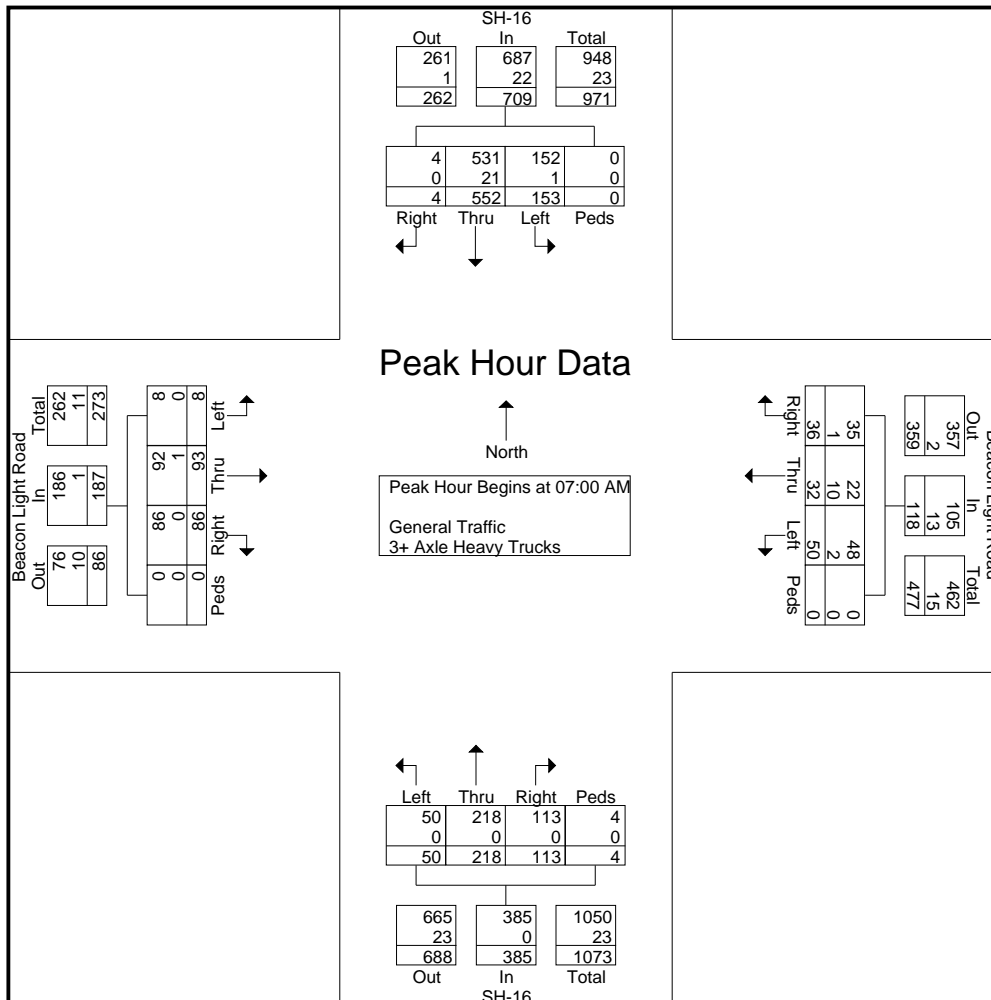
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: SH-16 / Beacon Light Rd
City, State: Star, Idaho
Control: Signalized

File Name : Beacon Light Rd & SH-16
Site Code : 00000000
Start Date : 6/14/2022
Page No : 3

Start Time	SH-16 From North					Beacon Light Road From East					SH-16 From South					Beacon Light Road From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	3	140	44	0	187	4	4	4	0	12	20	37	21	0	78	21	13	2	0	36	313
07:15 AM	1	160	45	0	206	9	8	17	0	34	28	33	12	4	77	28	22	2	0	52	369
07:30 AM	0	149	35	0	184	10	10	15	0	35	32	84	8	0	124	20	39	3	0	62	405
07:45 AM	0	103	29	0	132	13	10	14	0	37	33	64	9	0	106	17	19	1	0	37	312
Total Volume	4	552	153	0	709	36	32	50	0	118	113	218	50	4	385	86	93	8	0	187	1399
% App. Total	0.6	77.9	21.6	0		30.5	27.1	42.4	0		29.4	56.6	13	1		46	49.7	4.3	0		
PHF	.333	.863	.850	.000	.860	.692	.800	.735	.000	.797	.856	.649	.595	.250	.776	.768	.596	.667	.000	.754	.864
General Traffic	4	531	152	0	687	35	22	48	0	105	113	218	50	4	385	86	92	8	0	186	1363
% General Traffic	100	96.2	99.3	0	96.9	97.2	68.8	96.0	0	89.0	100	100	100	100	100	100	98.9	100	0	99.5	97.4
3+ Axle Heavy Trucks	0	21	1	0	22	1	10	2	0	13	0	0	0	0	0	0	1	0	0	1	36
% 3+ Axle Heavy Trucks	0	3.8	0.7	0	3.1	2.8	31.3	4.0	0	11.0	0	0	0	0	0	0	1.1	0	0	0.5	2.6



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: SH-16 / Beacon Light Rd
City, State: Star, Idaho
Control: Signalized

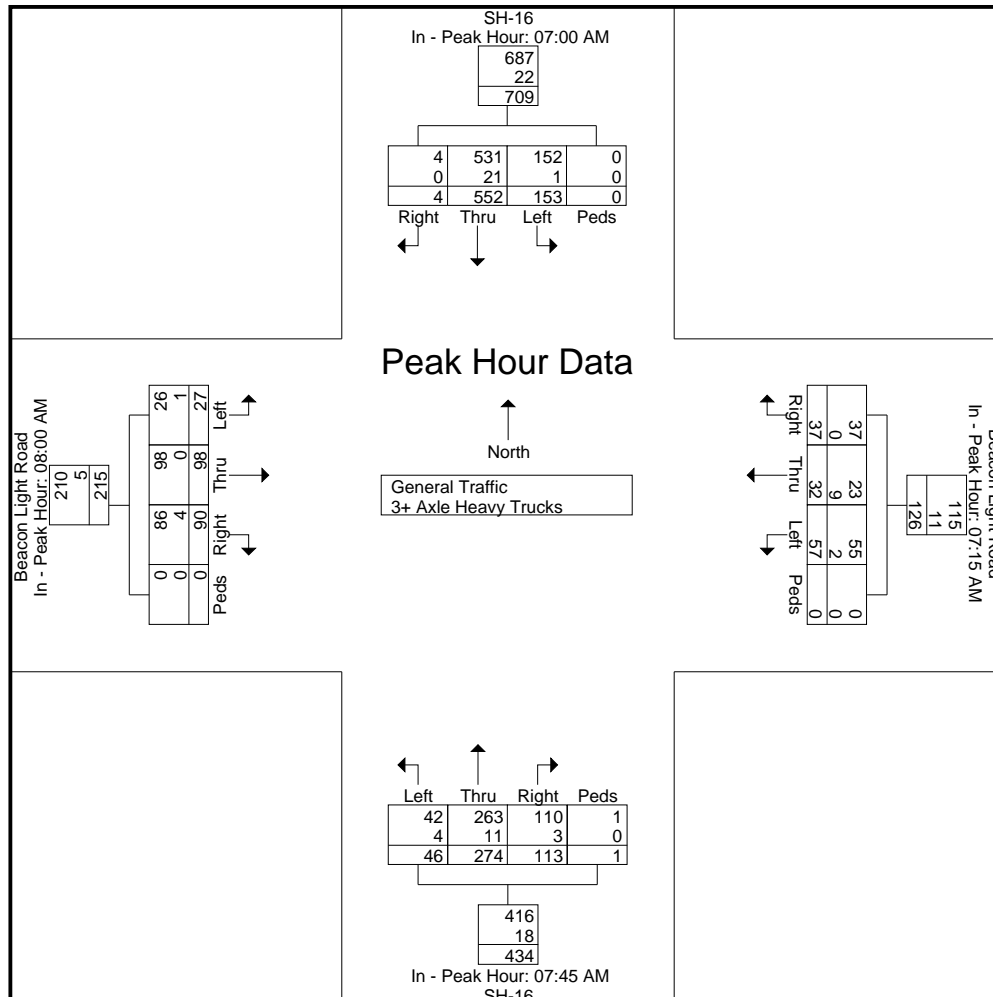
File Name : Beacon Light Rd & SH-16
Site Code : 00000000
Start Date : 6/14/2022
Page No : 4

Start Time	SH-16 From North					Beacon Light Road From East					SH-16 From South					Beacon Light Road From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:00 AM					07:15 AM					07:45 AM					08:00 AM				
+0 mins.	3	140	44	0	187	9	8	17	0	34	33	64	9	0	106	18	24	3	0	45
+15 mins.	1	160	45	0	206	10	10	15	0	35	26	59	5	1	91	19	29	7	0	55
+30 mins.	0	149	35	0	184	13	10	14	0	37	20	59	19	0	98	24	21	7	0	52
+45 mins.	0	103	29	0	132	5	4	11	0	20	34	92	13	0	139	29	24	10	0	63
Total Volume	4	552	153	0	709	37	32	57	0	126	113	274	46	1	434	90	98	27	0	215
% App. Total	0.6	77.9	21.6	0		29.4	25.4	45.2	0		26	63.1	10.6	0.2		41.9	45.6	12.6	0	
PHF	.333	.863	.850	.000	.860	.712	.800	.838	.000	.851	.831	.745	.605	.250	.781	.776	.845	.675	.000	.853
General Traffic	4	531	152	0	687	37	23	55	0	115	110	263	42	1	416	86	98	26	0	210
% General Traffic	100	96.	99.	0	96.9	100	71.	96.	0	91.3	97.	96	91.	100	95.9	95.	100	96.	0	97.7
3+ Axle Heavy Trucks	0	21	1	0	22	0	9	2	0	11	3	11	4	0	18	4	0	1	0	5
% 3+ Axle Heavy Trucks	0	3.8	0.7	0	3.1	0	28.	3.5	0	8.7	2.7	4	8.7	0	4.1	4.4	0	3.7	0	2.3



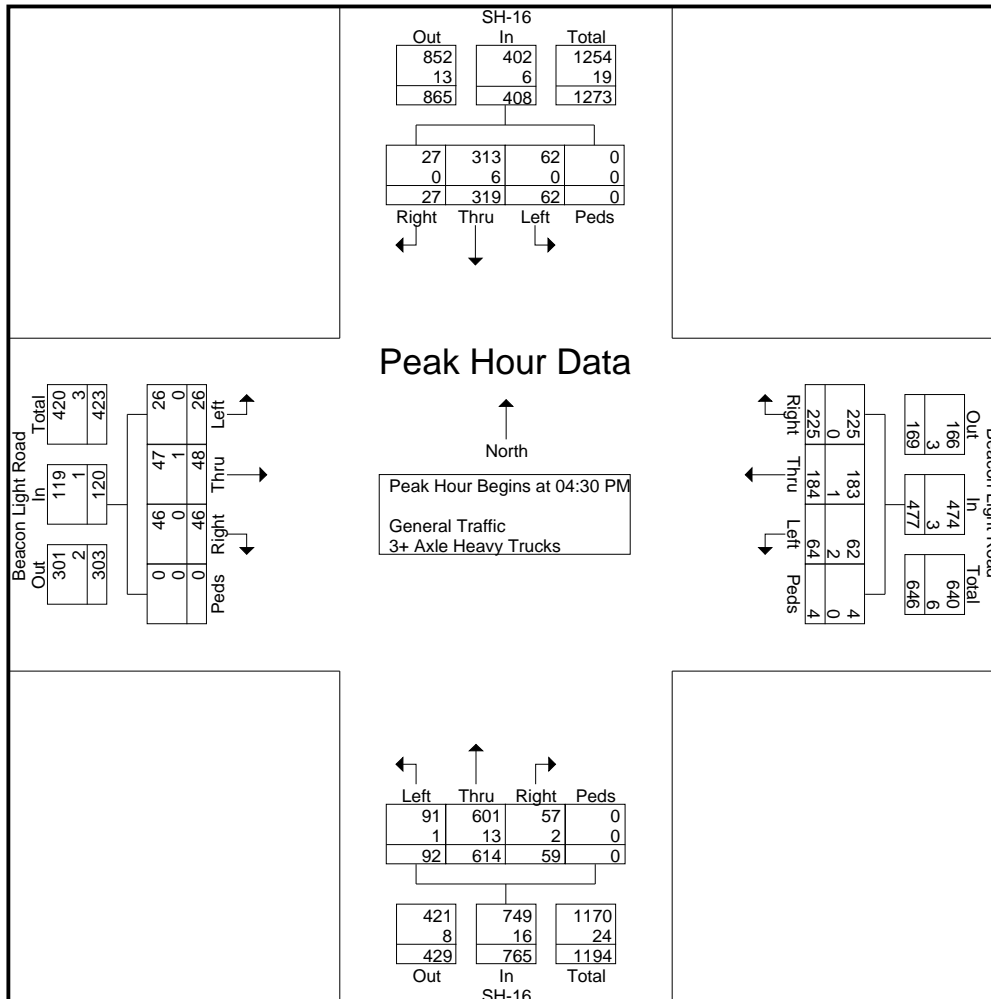
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: SH-16 / Beacon Light Rd
City, State: Star, Idaho
Control: Signalized

File Name : Beacon Light Rd & SH-16
Site Code : 00000000
Start Date : 6/14/2022
Page No : 5

Start Time	SH-16 From North					Beacon Light Road From East					SH-16 From South					Beacon Light Road From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	6	78	18	0	102	54	40	17	0	111	16	169	20	0	205	8	15	8	0	31	449
04:45 PM	4	85	16	0	105	50	33	22	2	107	12	154	20	0	186	8	10	6	0	24	422
05:00 PM	5	74	12	0	91	61	59	14	0	134	18	140	33	0	191	15	9	8	0	32	448
05:15 PM	12	82	16	0	110	60	52	11	2	125	13	151	19	0	183	15	14	4	0	33	451
Total Volume	27	319	62	0	408	225	184	64	4	477	59	614	92	0	765	46	48	26	0	120	1770
% App. Total	6.6	78.2	15.2	0		47.2	38.6	13.4	0.8		7.7	80.3	12	0		38.3	40	21.7	0		
PHF	.563	.938	.861	.000	.927	.922	.780	.727	.500	.890	.819	.908	.697	.000	.933	.767	.800	.813	.000	.909	.981
General Traffic	27	313	62	0	402	225	183	62	4	474	57	601	91	0	749	46	47	26	0	119	1744
% General Traffic	100	98.1	100	0	98.5	100	99.5	96.9	100	99.4	96.6	97.9	98.9	0	97.9	100	97.9	100	0	99.2	98.5
3+ Axle Heavy Trucks	0	6	0	0	6	0	1	2	0	3	2	13	1	0	16	0	1	0	0	1	26
% 3+ Axle Heavy Trucks	0	1.9	0	0	1.5	0	0.5	3.1	0	0.6	3.4	2.1	1.1	0	2.1	0	2.1	0	0	0.8	1.5



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: SH-16 / Beacon Light Rd
City, State: Star, Idaho
Control: Signalized

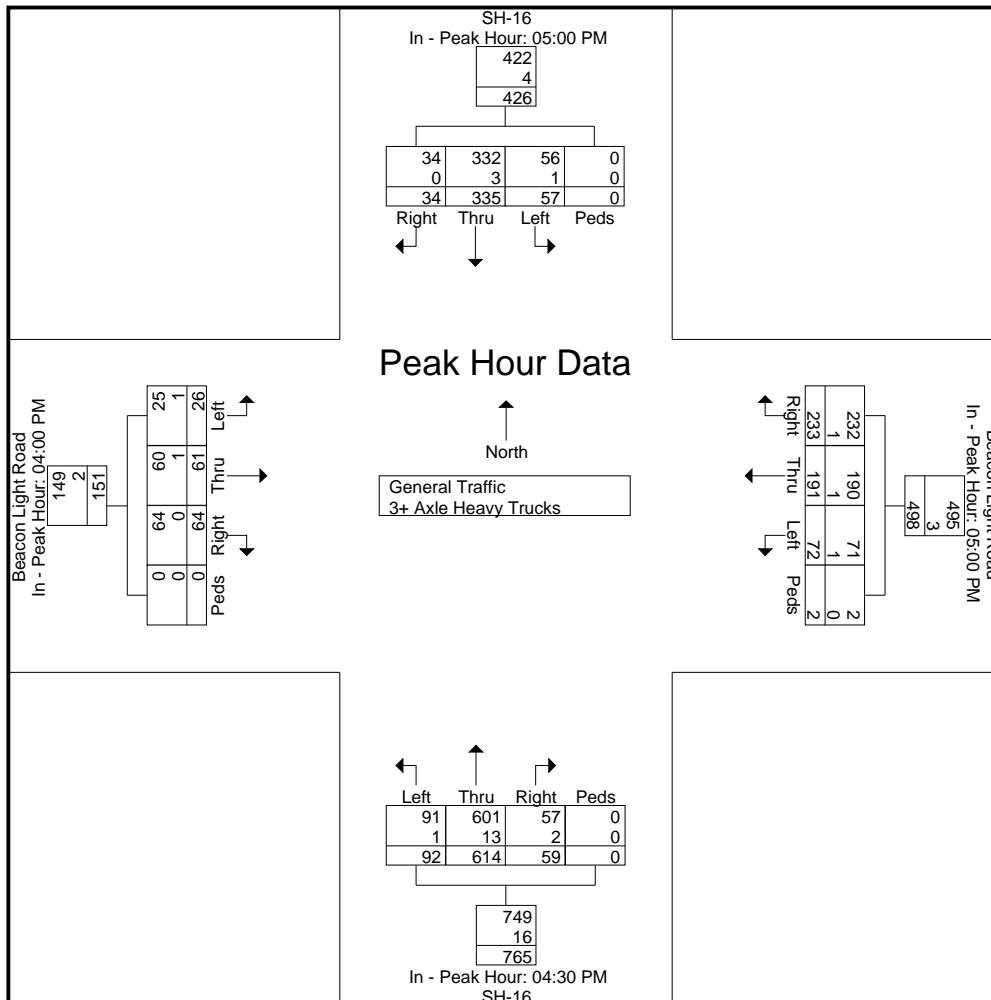
File Name : Beacon Light Rd & SH-16
Site Code : 00000000
Start Date : 6/14/2022
Page No : 6

Start Time	SH-16 From North					Beacon Light Road From East					SH-16 From South					Beacon Light Road From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	05:00 PM					05:00 PM					04:30 PM					04:00 PM				
+0 mins.	5	74	12	0	91	61	59	14	0	134	16	169	20	0	205	14	26	7	0	47
+15 mins.	12	82	16	0	110	60	52	11	2	125	12	154	20	0	186	34	10	5	0	49
+30 mins.	10	91	12	0	113	57	47	25	0	129	18	140	33	0	191	8	15	8	0	31
+45 mins.	7	88	17	0	112	55	33	22	0	110	13	151	19	0	183	8	10	6	0	24
Total Volume	34	335	57	0	426	233	191	72	2	498	59	614	92	0	765	64	61	26	0	151
% App. Total	8	78.6	13.4	0		46.8	38.4	14.5	0.4		7.7	80.3	12	0		42.4	40.4	17.2	0	
PHF	.708	.920	.838	.000	.942	.955	.809	.720	.250	.929	.819	.908	.697	.000	.933	.471	.587	.813	.000	.770
General Traffic	34	332	56	0	422	232	190	71	2	495	57	601	91	0	749	64	60	25	0	149
% General Traffic	100	99.	98.	0	99.1	99.	99.	98.	100	99.4	96.	97.	98.	0	97.9	100	98.	96.	0	98.7
3+ Axle Heavy Trucks	0	3	1	0	4	1	1	1	0	3	2	13	1	0	16	0	1	1	0	2
% 3+ Axle Heavy Trucks	0	0.9	1.8	0	0.9	0.4	0.5	1.4	0	0.6	3.4	2.1	1.1	0	2.1	0	1.6	3.8	0	1.3



L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: SH-16 / Beacon Light Rd
City, State: Star, Idaho
Control: Signalized

File Name : Beacon Light Rd & SH-16
Site Code : 00000000
Start Date : 6/14/2022
Page No : 7

Image 1



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Wing Rd / Beacon Light Rd
City, State: Star, Idaho
Control: Stop Sign

File Name : Beacon Light Rd & Wing Rd
Site Code : 00000000
Start Date : 6/14/2022
Page No : 1

Groups Printed- General Traffic - 3+ Axle Heavy Trucks

Start Time	Wing Road From North				Beacon Light Road From East				Wing Road From South				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
07:00 AM	1	1	1	3	1	10	0	11	24	3	0	27	41
07:15 AM	0	11	0	11	3	10	0	13	30	3	0	33	57
07:30 AM	1	11	0	12	4	8	0	12	37	2	0	39	63
07:45 AM	1	1	0	2	3	5	0	8	19	3	0	22	32
Total	3	24	1	28	11	33	0	44	110	11	0	121	193
08:00 AM	1	7	0	8	4	4	0	8	28	0	0	28	44
08:15 AM	1	4	3	8	4	18	0	22	35	2	0	37	67
08:30 AM	2	11	0	13	2	6	0	8	31	1	0	32	53
08:45 AM	1	9	2	12	5	12	0	17	31	0	0	31	60
Total	5	31	5	41	15	40	0	55	125	3	0	128	224

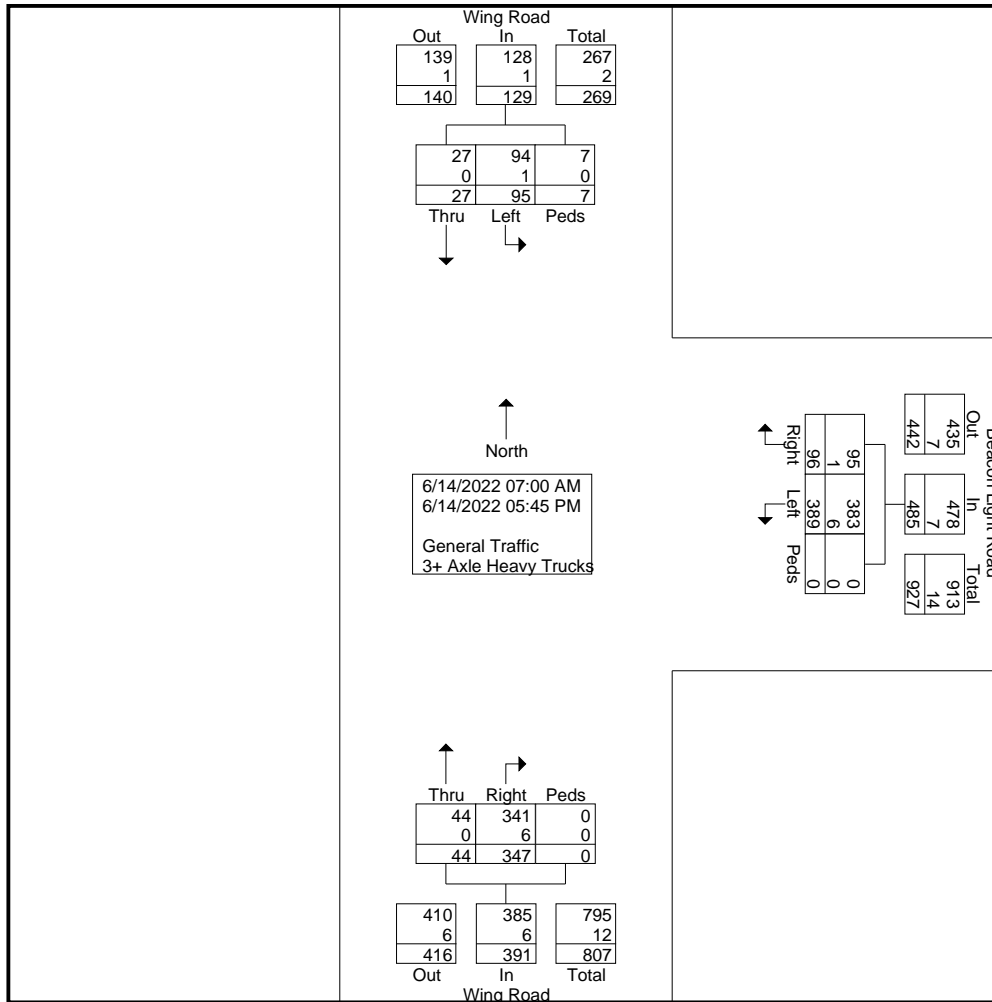
04:00 PM	2	3	0	5	7	35	0	42	16	4	0	20	67
04:15 PM	2	5	0	7	3	41	0	44	22	0	0	22	73
04:30 PM	3	4	0	7	11	32	0	43	7	1	0	8	58
04:45 PM	6	6	0	12	10	33	0	43	13	5	0	18	73
Total	13	18	0	31	31	141	0	172	58	10	0	68	271
05:00 PM	1	6	0	7	14	63	0	77	10	5	0	15	99
05:15 PM	2	4	0	6	11	40	0	51	14	7	0	21	78
05:30 PM	1	7	0	8	6	45	0	51	15	4	0	19	78
05:45 PM	2	5	1	8	8	27	0	35	15	4	0	19	62
Total	6	22	1	29	39	175	0	214	54	20	0	74	317
Grand Total	27	95	7	129	96	389	0	485	347	44	0	391	1005
Apprch %	20.9	73.6	5.4		19.8	80.2	0		88.7	11.3	0		
Total %	2.7	9.5	0.7	12.8	9.6	38.7	0	48.3	34.5	4.4	0	38.9	
General Traffic	27	94	7	128	95	383	0	478	341	44	0	385	991
% General Traffic	100	98.9	100	99.2	99	98.5	0	98.6	98.3	100	0	98.5	98.6
3+ Axle Heavy Trucks	0	1	0	1	1	6	0	7	6	0	0	6	14
% 3+ Axle Heavy Trucks	0	1.1	0	0.8	1	1.5	0	1.4	1.7	0	0	1.5	1.4

L2 Data Collection

L2DataCollection.com
 Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Intersection: Wing Rd / Beacon Light Rd
 City, State: Star, Idaho
 Control: Stop Sign

File Name : Beacon Light Rd & Wing Rd
 Site Code : 00000000
 Start Date : 6/14/2022
 Page No : 2



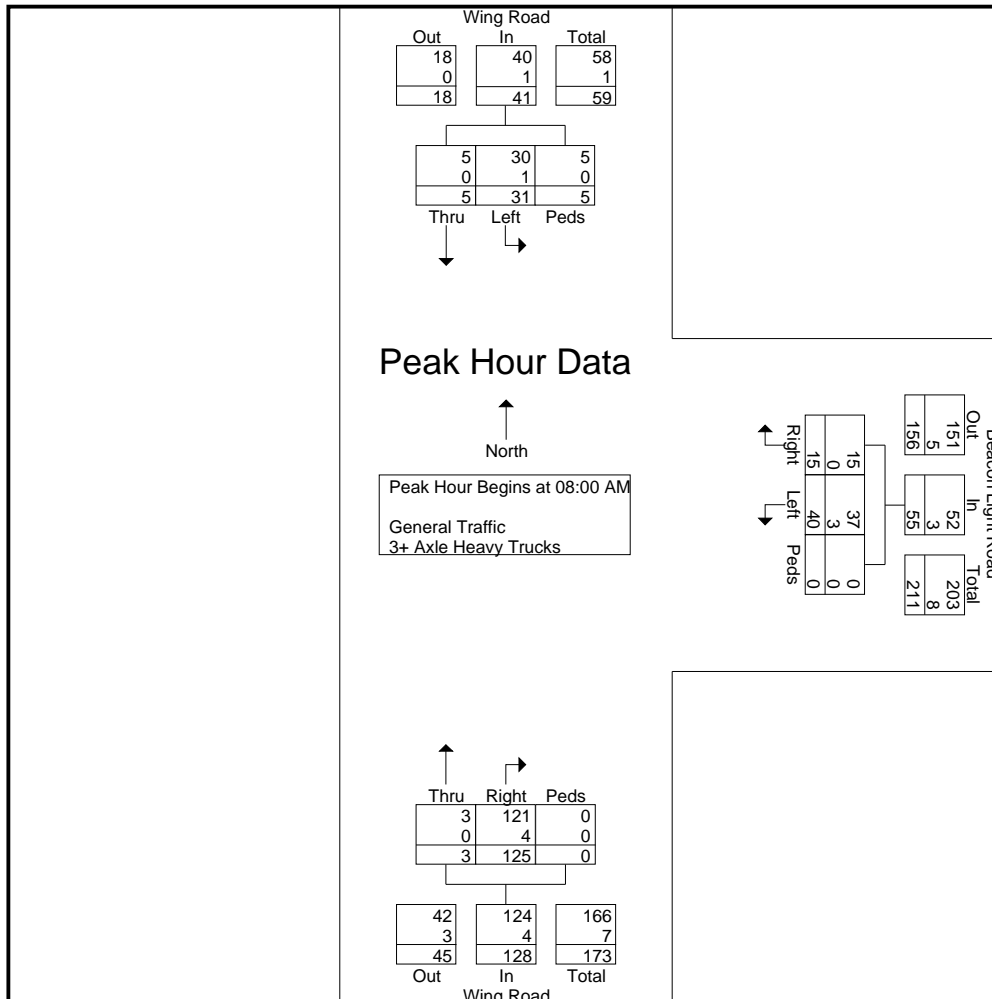
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Wing Rd / Beacon Light Rd
City, State: Star, Idaho
Control: Stop Sign

File Name : Beacon Light Rd & Wing Rd
Site Code : 00000000
Start Date : 6/14/2022
Page No : 3

Start Time	Wing Road From North				Beacon Light Road From East				Wing Road From South				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	1	7	0	8	4	4	0	8	28	0	0	28	44
08:15 AM	1	4	3	8	4	18	0	22	35	2	0	37	67
08:30 AM	2	11	0	13	2	6	0	8	31	1	0	32	53
08:45 AM	1	9	2	12	5	12	0	17	31	0	0	31	60
Total Volume	5	31	5	41	15	40	0	55	125	3	0	128	224
% App. Total	12.2	75.6	12.2		27.3	72.7	0		97.7	2.3	0		
PHF	.625	.705	.417	.788	.750	.556	.000	.625	.893	.375	.000	.865	.836
General Traffic	5	30	5	40	15	37	0	52	121	3	0	124	216
% General Traffic	100	96.8	100	97.6	100	92.5	0	94.5	96.8	100	0	96.9	96.4
3+ Axle Heavy Trucks	0	1	0	1	0	3	0	3	4	0	0	4	8
% 3+ Axle Heavy Trucks	0	3.2	0	2.4	0	7.5	0	5.5	3.2	0	0	3.1	3.6



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Wing Rd / Beacon Light Rd
City, State: Star, Idaho
Control: Stop Sign

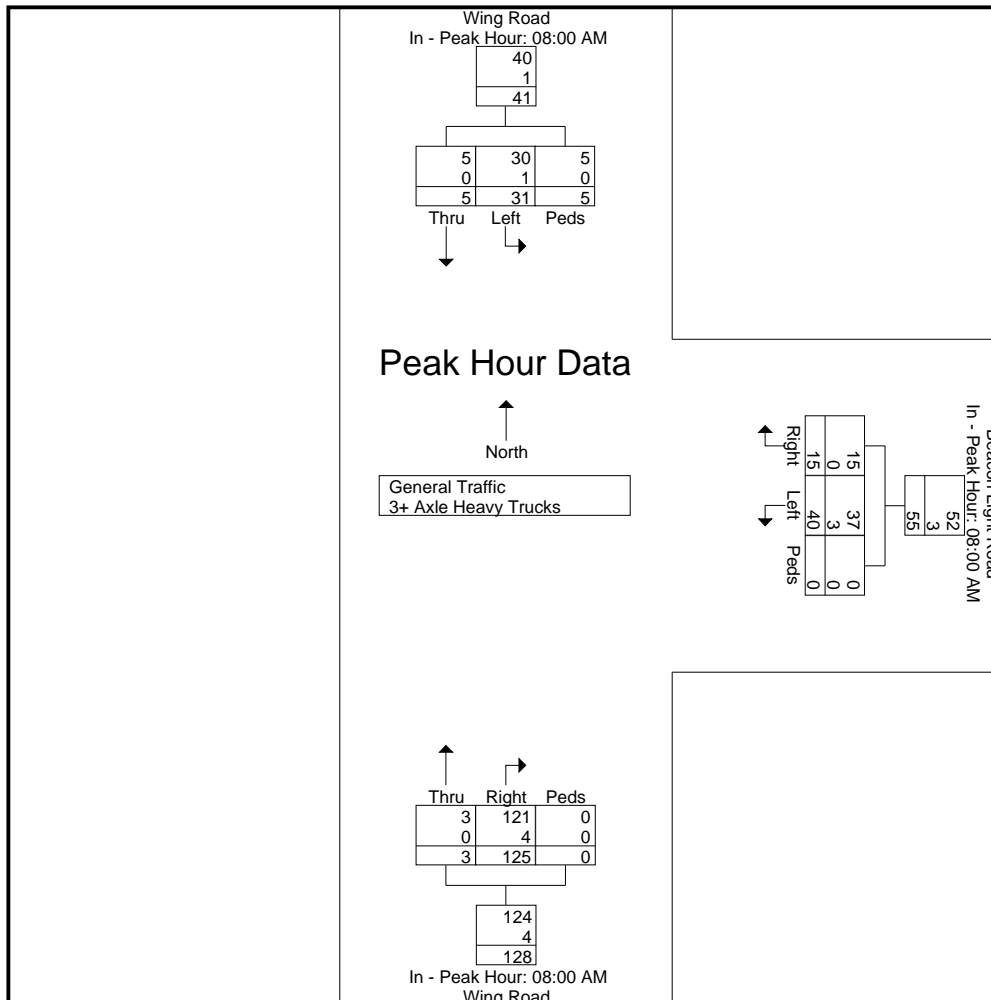
File Name : Beacon Light Rd & Wing Rd
Site Code : 00000000
Start Date : 6/14/2022
Page No : 4

Start Time	Wing Road From North				Beacon Light Road From East				Wing Road From South				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	08:00 AM				08:00 AM				08:00 AM			
+0 mins.	1	7	0	8	4	4	0	8	28	0	0	28
+15 mins.	1	4	3	8	4	18	0	22	35	2	0	37
+30 mins.	2	11	0	13	2	6	0	8	31	1	0	32
+45 mins.	1	9	2	12	5	12	0	17	31	0	0	31
Total Volume	5	31	5	41	15	40	0	55	125	3	0	128
% App. Total	12.2	75.6	12.2		27.3	72.7	0		97.7	2.3	0	
PHF	.625	.705	.417	.788	.750	.556	.000	.625	.893	.375	.000	.865
General Traffic	5	30	5	40	15	37	0	52	121	3	0	124
% General Traffic	100	96.8	100	97.6	100	92.5	0	94.5	96.8	100	0	96.9
3+ Axle Heavy Trucks	0	1	0	1	0	3	0	3	4	0	0	4
% 3+ Axle Heavy Trucks	0	3.2	0	2.4	0	7.5	0	5.5	3.2	0	0	3.1



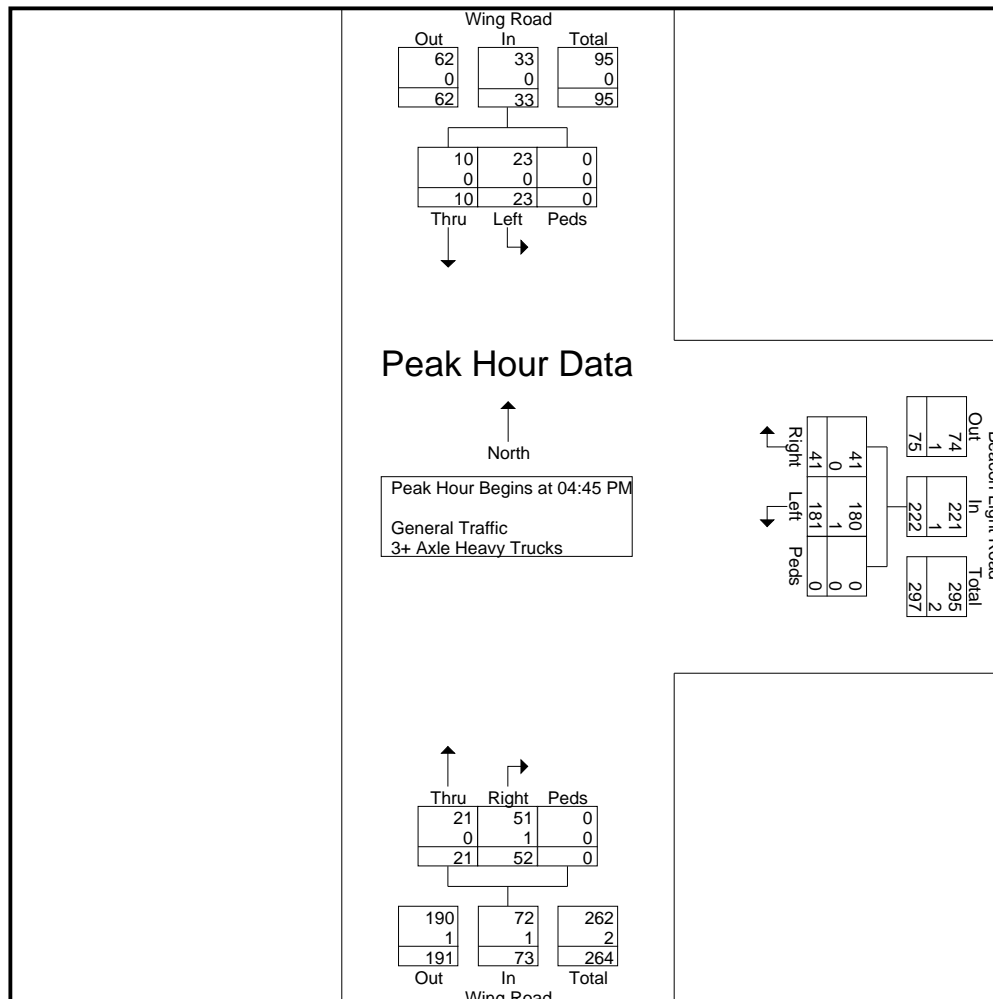
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Wing Rd / Beacon Light Rd
City, State: Star, Idaho
Control: Stop Sign

File Name : Beacon Light Rd & Wing Rd
Site Code : 00000000
Start Date : 6/14/2022
Page No : 5

Start Time	Wing Road From North				Beacon Light Road From East				Wing Road From South				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	6	6	0	12	10	33	0	43	13	5	0	18	73
05:00 PM	1	6	0	7	14	63	0	77	10	5	0	15	99
05:15 PM	2	4	0	6	11	40	0	51	14	7	0	21	78
05:30 PM	1	7	0	8	6	45	0	51	15	4	0	19	78
Total Volume	10	23	0	33	41	181	0	222	52	21	0	73	328
% App. Total	30.3	69.7	0	100	18.5	81.5	0	100	71.2	28.8	0	100	100
PHF	.417	.821	.000	.688	.732	.718	.000	.721	.867	.750	.000	.869	.828
General Traffic	10	23	0	33	41	180	0	221	51	21	0	72	326
% General Traffic	100	100	0	100	100	99.4	0	99.5	98.1	100	0	98.6	99.4
3+ Axle Heavy Trucks	0	0	0	0	0	1	0	1	1	0	0	1	2
% 3+ Axle Heavy Trucks	0	0	0	0	0	0.6	0	0.5	1.9	0	0	1.4	0.6



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Wing Rd / Beacon Light Rd
City, State: Star, Idaho
Control: Stop Sign

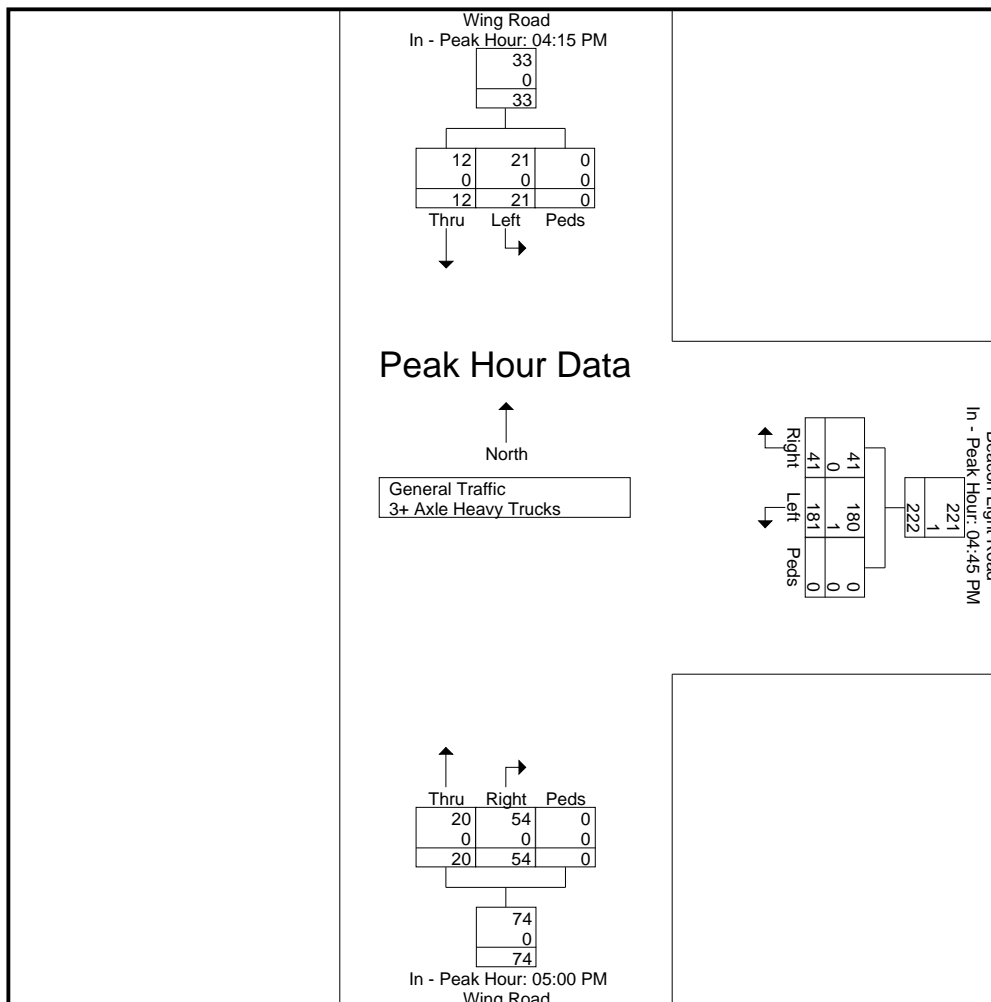
File Name : Beacon Light Rd & Wing Rd
Site Code : 00000000
Start Date : 6/14/2022
Page No : 6

Start Time	Wing Road From North				Beacon Light Road From East				Wing Road From South				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	

Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:15 PM				04:45 PM				05:00 PM			
+0 mins.	2	5	0	7	10	33	0	43	10	5	0	15
+15 mins.	3	4	0	7	14	63	0	77	14	7	0	21
+30 mins.	6	6	0	12	11	40	0	51	15	4	0	19
+45 mins.	1	6	0	7	6	45	0	51	15	4	0	19
Total Volume	12	21	0	33	41	181	0	222	54	20	0	74
% App. Total	36.4	63.6	0		18.5	81.5	0		73	27	0	
PHF	.500	.875	.000	.688	.732	.718	.000	.721	.900	.714	.000	.881
General Traffic	12	21	0	33	41	180	0	221	54	20	0	74
% General Traffic	100	100	0	100	100	99.4	0	99.5	100	100	0	100
3+ Axle Heavy Trucks	0	0	0	0	0	1	0	1	0	0	0	0
% 3+ Axle Heavy Trucks	0	0	0	0	0	0.6	0	0.5	0	0	0	0



L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Wing Rd / Beacon Light Rd
City, State: Star, Idaho
Control: Stop Sign

File Name : Beacon Light Rd & Wing Rd
Site Code : 00000000
Start Date : 6/14/2022
Page No : 7

Image 1



L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Intersection: SH-16 / Deep Canyon Dr
 City, State: Star, Idaho
 Control: Stop Sign

File Name : Deep Canyon Dr & SH-16
 Site Code : 00000000
 Start Date : 6/14/2022
 Page No : 1

Groups Printed- General Traffic - 3+ Axle Heavy Trucks

Start Time	SH-16 From North				SH-16 From South				Deep Canyon Drive From West				Int. Total
	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	
07:00 AM	0	178	0	178	42	1	0	43	12	1	0	13	234
07:15 AM	1	217	0	218	47	2	0	49	11	1	0	12	279
07:30 AM	0	148	0	148	80	6	0	86	12	0	0	12	246
07:45 AM	0	121	0	121	78	8	0	86	11	0	0	11	218
Total	1	664	0	665	247	17	0	264	46	2	0	48	977
08:00 AM	0	119	0	119	59	4	0	63	19	0	0	19	201
08:15 AM	0	140	0	140	62	8	0	70	13	0	0	13	223
08:30 AM	0	139	0	139	103	8	0	111	12	1	0	13	263
08:45 AM	1	120	0	121	67	3	0	70	22	2	0	24	215
Total	1	518	0	519	291	23	0	314	66	3	0	69	902

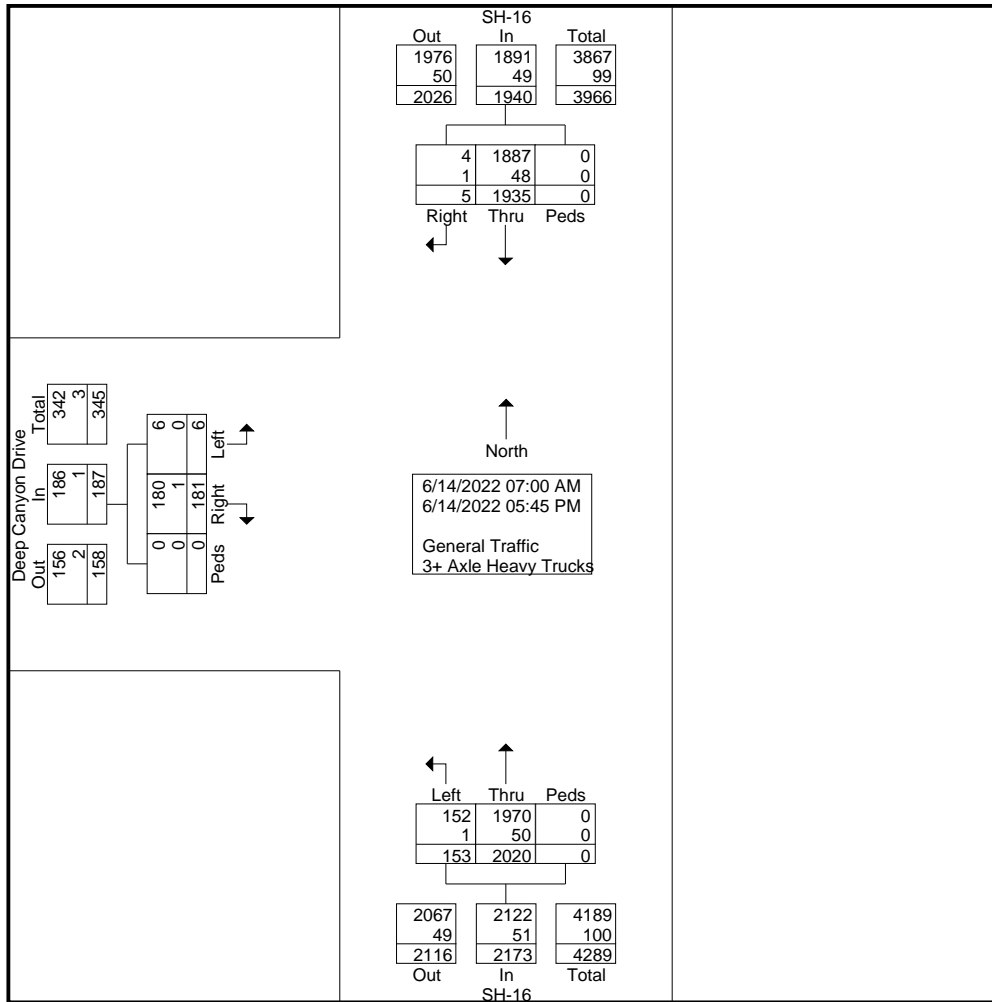
04:00 PM	3	91	0	94	145	16	0	161	11	0	0	11	266
04:15 PM	0	106	0	106	150	18	0	168	2	0	0	2	276
04:30 PM	0	89	0	89	214	20	0	234	10	0	0	10	333
04:45 PM	0	100	0	100	189	8	0	197	6	0	0	6	303
Total	3	386	0	389	698	62	0	760	29	0	0	29	1178
05:00 PM	0	75	0	75	202	14	0	216	9	0	0	9	300
05:15 PM	0	114	0	114	221	9	0	230	9	1	0	10	354
05:30 PM	0	87	0	87	178	12	0	190	9	0	0	9	286
05:45 PM	0	91	0	91	183	16	0	199	13	0	0	13	303
Total	0	367	0	367	784	51	0	835	40	1	0	41	1243
Grand Total	5	1935	0	1940	2020	153	0	2173	181	6	0	187	4300
Apprch %	0.3	99.7	0		93	7	0		96.8	3.2	0		
Total %	0.1	45	0	45.1	47	3.6	0	50.5	4.2	0.1	0	4.3	
General Traffic	4	1887	0	1891	1970	152	0	2122	180	6	0	186	4199
% General Traffic	80	97.5	0	97.5	97.5	99.3	0	97.7	99.4	100	0	99.5	97.7
3+ Axle Heavy Trucks	1	48	0	49	50	1	0	51	1	0	0	1	101
% 3+ Axle Heavy Trucks	20	2.5	0	2.5	2.5	0.7	0	2.3	0.6	0	0	0.5	2.3

L2 Data Collection

L2DataCollection.com
 Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Intersection: SH-16 / Deep Canyon Dr
 City, State: Star, Idaho
 Control: Stop Sign

File Name : Deep Canyon Dr & SH-16
 Site Code : 00000000
 Start Date : 6/14/2022
 Page No : 2



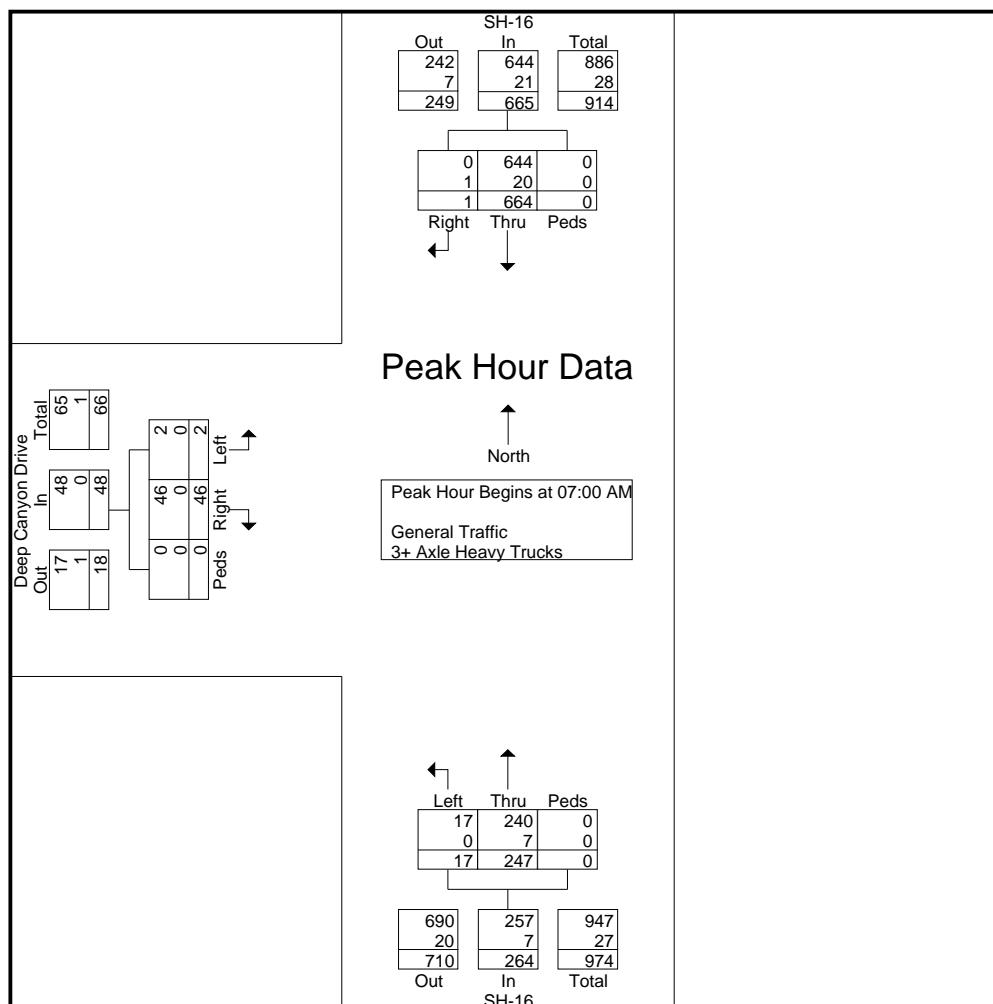
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: SH-16 / Deep Canyon Dr
City, State: Star, Idaho
Control: Stop Sign

File Name : Deep Canyon Dr & SH-16
Site Code : 00000000
Start Date : 6/14/2022
Page No : 3

Start Time	SH-16 From North				SH-16 From South				Deep Canyon Drive From West				Int. Total
	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:00 AM													
07:00 AM	0	178	0	178	42	1	0	43	12	1	0	13	234
07:15 AM	1	217	0	218	47	2	0	49	11	1	0	12	279
07:30 AM	0	148	0	148	80	6	0	86	12	0	0	12	246
07:45 AM	0	121	0	121	78	8	0	86	11	0	0	11	218
Total Volume	1	664	0	665	247	17	0	264	46	2	0	48	977
% App. Total	0.2	99.8	0		93.6	6.4	0		95.8	4.2	0		
PHF	.250	.765	.000	.763	.772	.531	.000	.767	.958	.500	.000	.923	.875
General Traffic	0	644	0	644	240	17	0	257	46	2	0	48	949
% General Traffic	0	97.0	0	96.8	97.2	100	0	97.3	100	100	0	100	97.1
3+ Axle Heavy Trucks	1	20	0	21	7	0	0	7	0	0	0	0	28
% 3+ Axle Heavy Trucks	100	3.0	0	3.2	2.8	0	0	2.7	0	0	0	0	2.9



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: SH-16 / Deep Canyon Dr
City, State: Star, Idaho
Control: Stop Sign

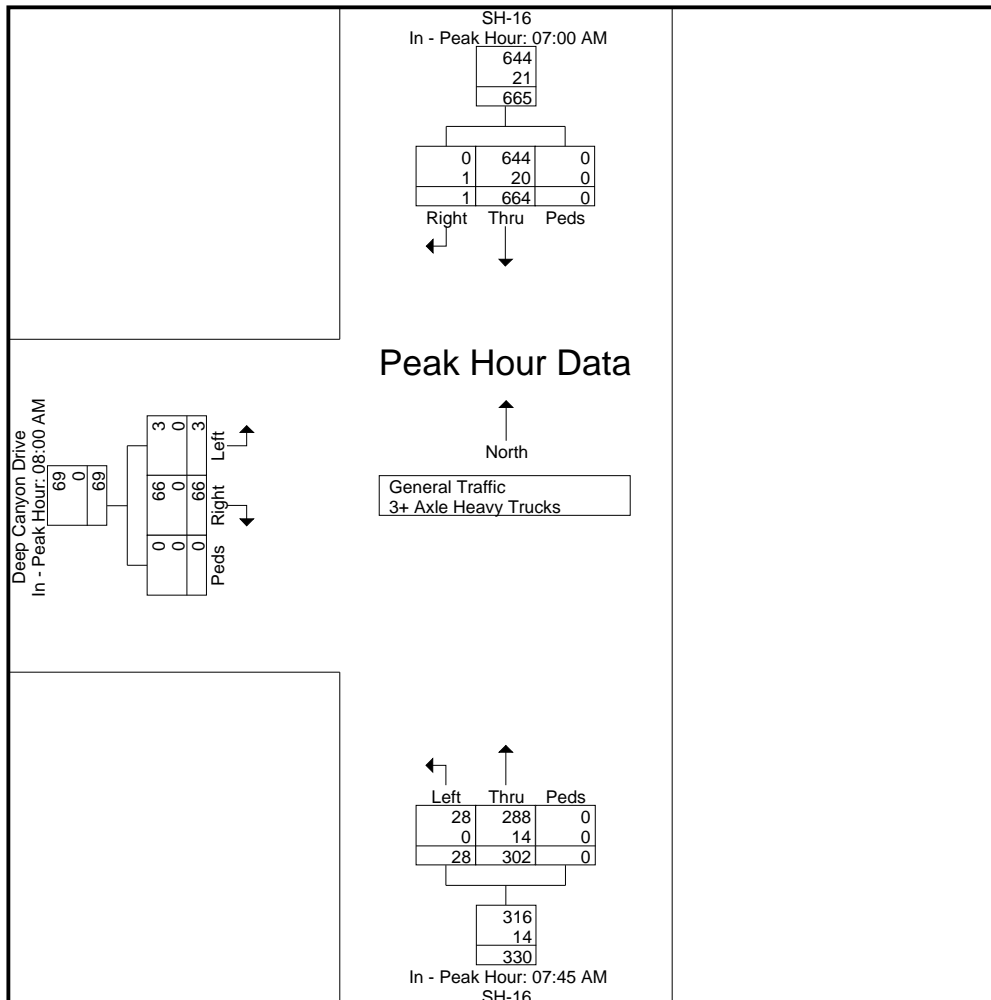
File Name : Deep Canyon Dr & SH-16
Site Code : 00000000
Start Date : 6/14/2022
Page No : 4

Start Time	SH-16 From North			App. Total	SH-16 From South			App. Total	Deep Canyon Drive From West			App. Total	Int. Total
	Right	Thru	Peds		Thru	Left	Peds		Right	Left	Peds		

Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:00 AM				07:45 AM				08:00 AM			
+0 mins.	0	178	0	178	78	8	0	86	19	0	0	19
+15 mins.	1	217	0	218	59	4	0	63	13	0	0	13
+30 mins.	0	148	0	148	62	8	0	70	12	1	0	13
+45 mins.	0	121	0	121	103	8	0	111	22	2	0	24
Total Volume	1	664	0	665	302	28	0	330	66	3	0	69
% App. Total	0.2	99.8	0		91.5	8.5	0		95.7	4.3	0	
PHF	.250	.765	.000	.763	.733	.875	.000	.743	.750	.375	.000	.719
General Traffic	0	644	0	644	288	28	0	316	66	3	0	69
% General Traffic	0	97	0	96.8	95.4	100	0	95.8	100	100	0	100
3+ Axle Heavy Trucks	1	20	0	21	14	0	0	14	0	0	0	0
% 3+ Axle Heavy Trucks	100	3	0	3.2	4.6	0	0	4.2	0	0	0	0



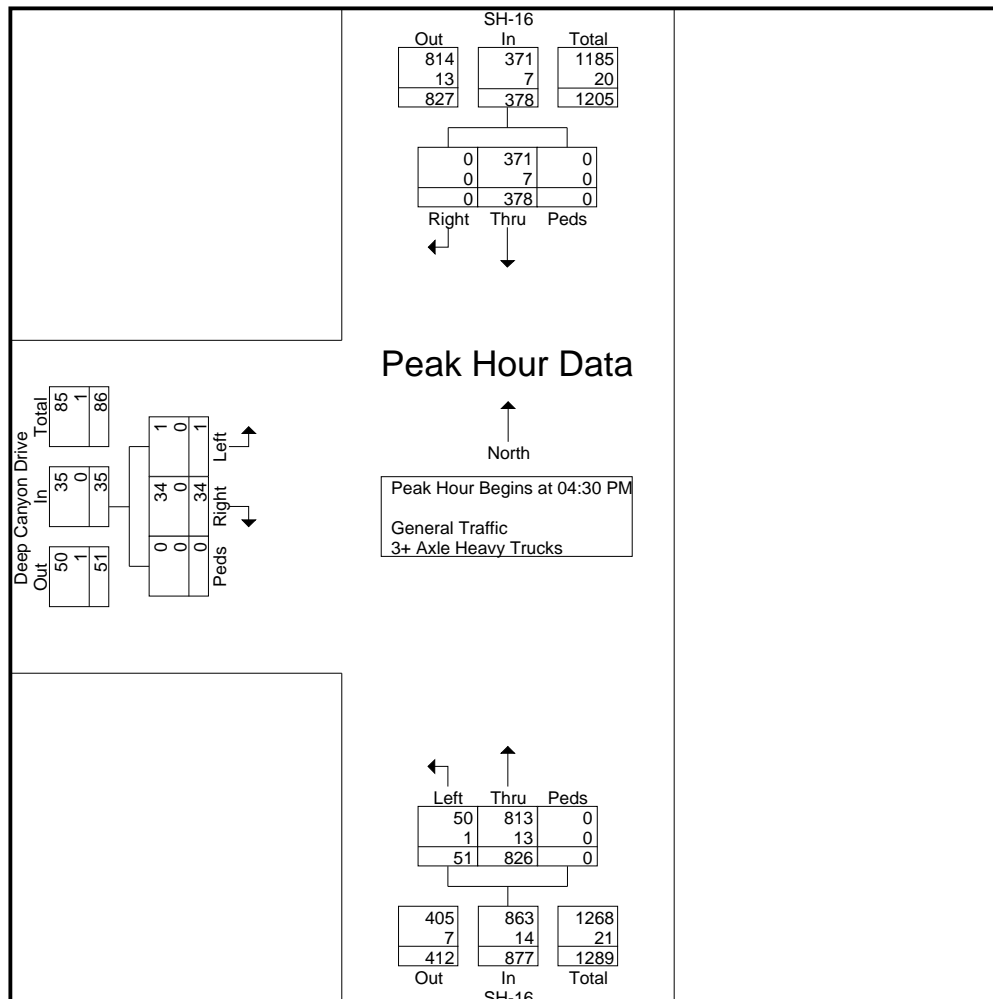
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: SH-16 / Deep Canyon Dr
City, State: Star, Idaho
Control: Stop Sign

File Name : Deep Canyon Dr & SH-16
Site Code : 00000000
Start Date : 6/14/2022
Page No : 5

Start Time	SH-16 From North				SH-16 From South				Deep Canyon Drive From West				Int. Total
	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:30 PM													
04:30 PM	0	89	0	89	214	20	0	234	10	0	0	10	333
04:45 PM	0	100	0	100	189	8	0	197	6	0	0	6	303
05:00 PM	0	75	0	75	202	14	0	216	9	0	0	9	300
05:15 PM	0	114	0	114	221	9	0	230	9	1	0	10	354
Total Volume	0	378	0	378	826	51	0	877	34	1	0	35	1290
% App. Total	0	100	0	100	94.2	5.8	0	94.2	97.1	2.9	0	100	98.4
PHF	.000	.829	.000	.829	.934	.638	.000	.937	.850	.250	.000	.875	.911
General Traffic	0	371	0	371	813	50	0	863	34	1	0	35	1269
% General Traffic	0	98.1	0	98.1	98.4	98.0	0	98.4	100	100	0	100	98.4
3+ Axle Heavy Trucks	0	7	0	7	13	1	0	14	0	0	0	0	21
% 3+ Axle Heavy Trucks	0	1.9	0	1.9	1.6	2.0	0	1.6	0	0	0	0	1.6



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: SH-16 / Deep Canyon Dr
City, State: Star, Idaho
Control: Stop Sign

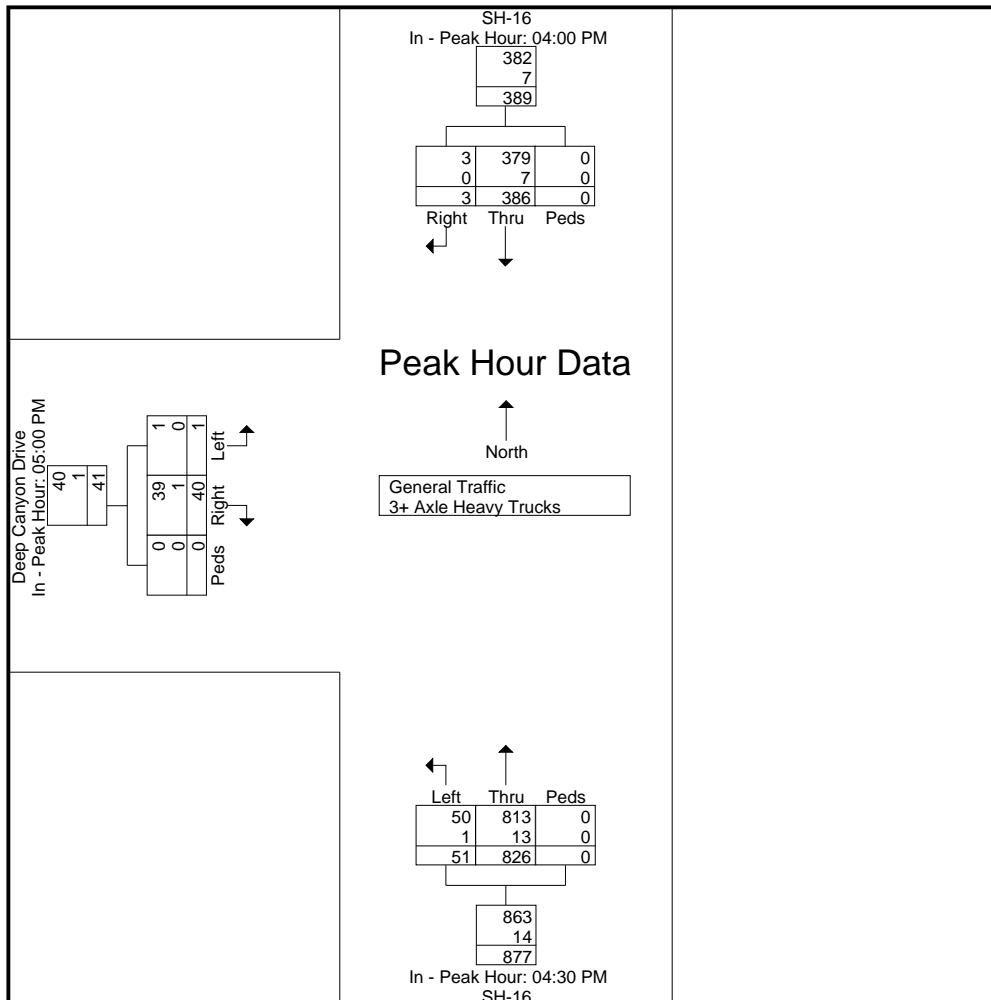
File Name : Deep Canyon Dr & SH-16
Site Code : 00000000
Start Date : 6/14/2022
Page No : 6

Start Time	SH-16 From North			App. Total	SH-16 From South			App. Total	Deep Canyon Drive From West			Int. Total
	Right	Thru	Peds		Thru	Left	Peds		Right	Left	Peds	

Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:00 PM			04:30 PM			05:00 PM					
+0 mins.	3	91	0	94	214	20	0	234	9	0	0	9
+15 mins.	0	106	0	106	189	8	0	197	9	1	0	10
+30 mins.	0	89	0	89	202	14	0	216	9	0	0	9
+45 mins.	0	100	0	100	221	9	0	230	13	0	0	13
Total Volume	3	386	0	389	826	51	0	877	40	1	0	41
% App. Total	0.8	99.2	0		94.2	5.8	0		97.6	2.4	0	
PHF	.250	.910	.000	.917	.934	.638	.000	.937	.769	.250	.000	.788
General Traffic	3	379	0	382	813	50	0	863	39	1	0	40
% General Traffic	100	98.2	0	98.2	98.4	98	0	98.4	97.5	100	0	97.6
3+ Axle Heavy Trucks	0	7	0	7	13	1	0	14	1	0	0	1
% 3+ Axle Heavy Trucks	0	1.8	0	1.8	1.6	2	0	1.6	2.5	0	0	2.4



L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: SH-16 / Deep Canyon Dr
City, State: Star, Idaho
Control: Stop Sign

File Name : Deep Canyon Dr & SH-16
Site Code : 00000000
Start Date : 6/14/2022
Page No : 7

Image 1



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Palmer / Floating Feather
City, State: Star, Idaho
Control: Stop Sign

File Name : Floating Feather Rd & Palmer Ln
Site Code : 00000000
Start Date : 6/14/2022
Page No : 1

Groups Printed- General Traffic - 3+ Axle Heavy Trucks

Start Time	Palmer Lane From North				Palmer Lane From South				Floating Feather Road - West Leg From West				Int. Total
	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	
07:00 AM	0	2	0	2	2	1	0	3	4	1	0	5	10
07:15 AM	1	5	0	6	2	4	0	6	12	0	0	12	24
07:30 AM	0	3	0	3	1	3	0	4	7	0	0	7	14
07:45 AM	0	3	0	3	2	10	0	12	15	1	0	16	31
Total	1	13	0	14	7	18	0	25	38	2	0	40	79
08:00 AM	0	6	0	6	6	14	0	20	18	1	0	19	45
08:15 AM	0	4	0	4	2	13	0	15	26	0	0	26	45
08:30 AM	0	5	0	5	4	24	0	28	27	1	0	28	61
08:45 AM	0	3	0	3	5	22	0	27	21	1	0	22	52
Total	0	18	0	18	17	73	0	90	92	3	0	95	203

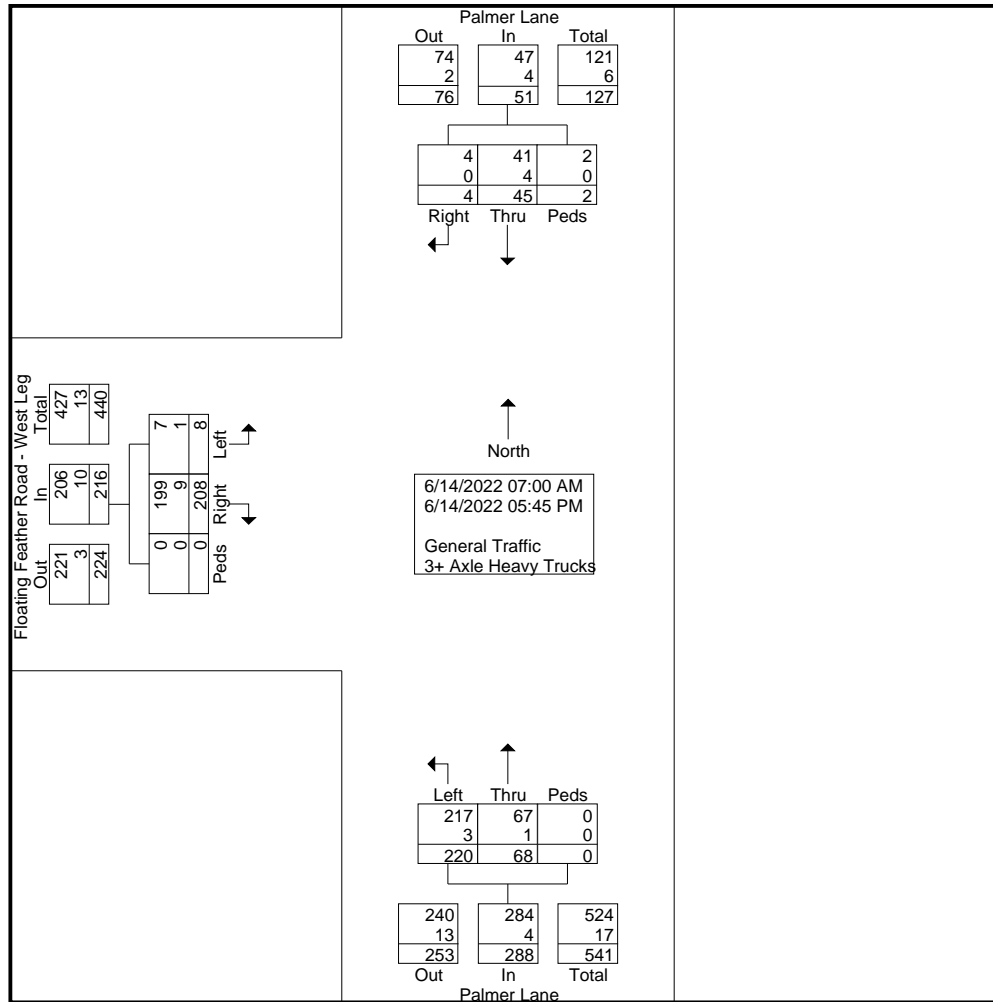
04:00 PM	1	4	0	5	3	6	0	9	15	0	0	15	29
04:15 PM	0	1	0	1	6	18	0	24	17	0	0	17	42
04:30 PM	0	3	0	3	8	8	0	16	6	1	0	7	26
04:45 PM	0	1	2	3	5	24	0	29	4	0	0	4	36
Total	1	9	2	12	22	56	0	78	42	1	0	43	133
05:00 PM	0	2	0	2	6	21	0	27	10	1	0	11	40
05:15 PM	1	2	0	3	5	22	0	27	9	0	0	9	39
05:30 PM	0	1	0	1	8	19	0	27	4	0	0	4	32
05:45 PM	1	0	0	1	3	11	0	14	13	1	0	14	29
Total	2	5	0	7	22	73	0	95	36	2	0	38	140
Grand Total	4	45	2	51	68	220	0	288	208	8	0	216	555
Apprch %	7.8	88.2	3.9		23.6	76.4	0		96.3	3.7	0		
Total %	0.7	8.1	0.4	9.2	12.3	39.6	0	51.9	37.5	1.4	0	38.9	
General Traffic	4	41	2	47	67	217	0	284	199	7	0	206	537
% General Traffic	100	91.1	100	92.2	98.5	98.6	0	98.6	95.7	87.5	0	95.4	96.8
3+ Axle Heavy Trucks	0	4	0	4	1	3	0	4	9	1	0	10	18
% 3+ Axle Heavy Trucks	0	8.9	0	7.8	1.5	1.4	0	1.4	4.3	12.5	0	4.6	3.2

L2 Data Collection

L2DataCollection.com
 Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Intersection: Palmer / Floating Feather
 City, State: Star, Idaho
 Control: Stop Sign

File Name : Floating Feather Rd & Palmer Ln
 Site Code : 00000000
 Start Date : 6/14/2022
 Page No : 2



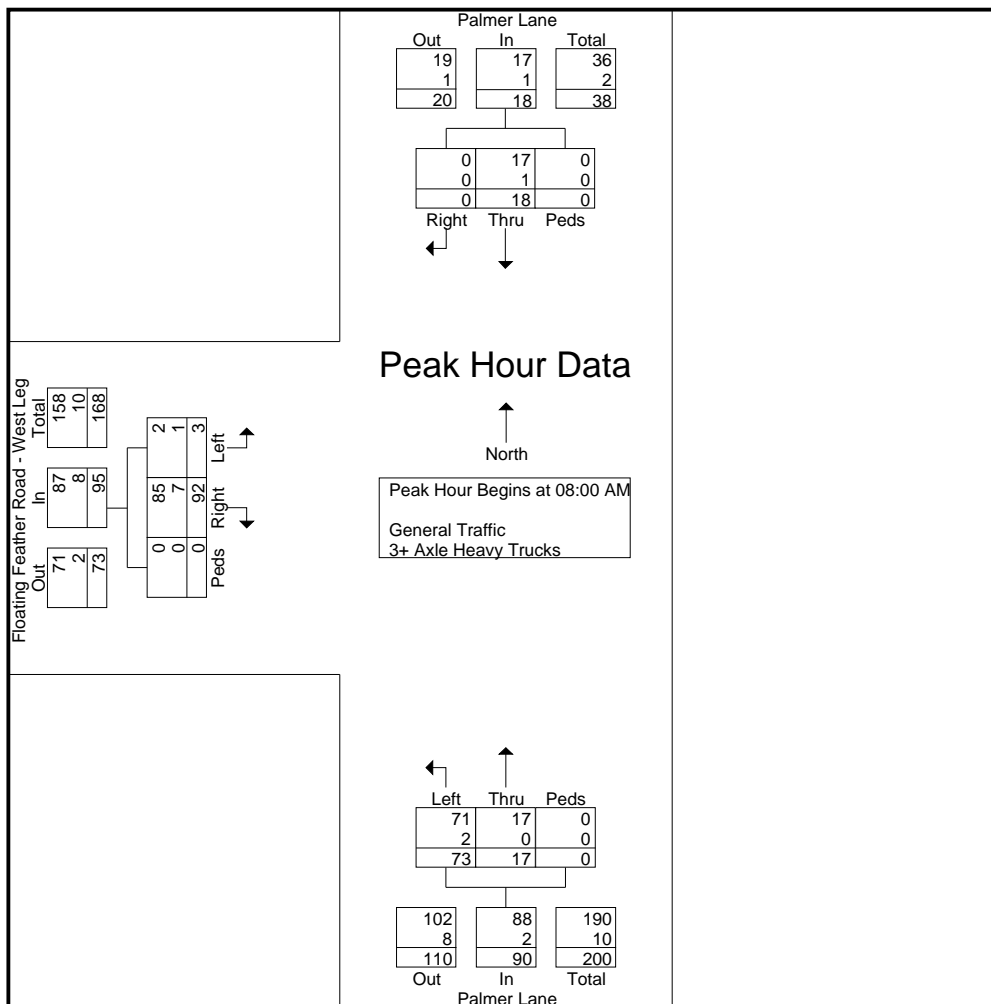
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Palmer / Floating Feather
City, State: Star, Idaho
Control: Stop Sign

File Name : Floating Feather Rd & Palmer Ln
Site Code : 00000000
Start Date : 6/14/2022
Page No : 3

Start Time	Palmer Lane From North				Palmer Lane From South				Floating Feather Road - West Leg From West				Int. Total
	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	0	6	0	6	6	14	0	20	18	1	0	19	45
08:15 AM	0	4	0	4	2	13	0	15	26	0	0	26	45
08:30 AM	0	5	0	5	4	24	0	28	27	1	0	28	61
08:45 AM	0	3	0	3	5	22	0	27	21	1	0	22	52
Total Volume	0	18	0	18	17	73	0	90	92	3	0	95	203
% App. Total	0	100	0		18.9	81.1	0		96.8	3.2	0		
PHF	.000	.750	.000	.750	.708	.760	.000	.804	.852	.750	.000	.848	.832
General Traffic	0	17	0	17	17	71	0	88	85	2	0	87	192
% General Traffic	0	94.4	0	94.4	100	97.3	0	97.8	92.4	66.7	0	91.6	94.6
3+ Axle Heavy Trucks	0	1	0	1	0	2	0	2	7	1	0	8	11
% 3+ Axle Heavy Trucks	0	5.6	0	5.6	0	2.7	0	2.2	7.6	33.3	0	8.4	5.4



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Palmer / Floating Feather
City, State: Star, Idaho
Control: Stop Sign

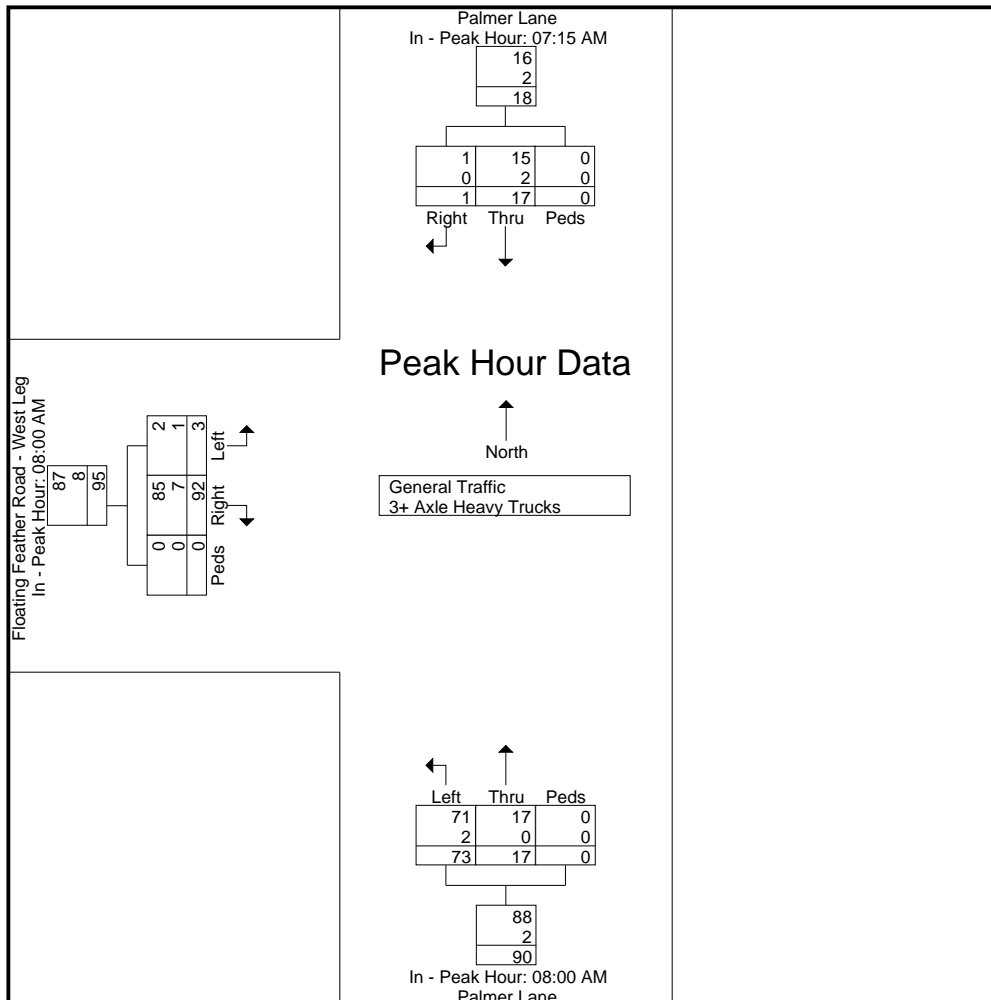
File Name : Floating Feather Rd & Palmer Ln
Site Code : 00000000
Start Date : 6/14/2022
Page No : 4

Start Time	Palmer Lane From North				Palmer Lane From South				Floating Feather Road - West Leg From West				Int. Total
	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:15 AM				08:00 AM				08:00 AM			
+0 mins.	1	5	0	6	6	14	0	20	18	1	0	19
+15 mins.	0	3	0	3	2	13	0	15	26	0	0	26
+30 mins.	0	3	0	3	4	24	0	28	27	1	0	28
+45 mins.	0	6	0	6	5	22	0	27	21	1	0	22
Total Volume	1	17	0	18	17	73	0	90	92	3	0	95
% App. Total	5.6	94.4	0		18.9	81.1	0		96.8	3.2	0	
PHF	.250	.708	.000	.750	.708	.760	.000	.804	.852	.750	.000	.848
General Traffic	1	15	0	16	17	71	0	88	85	2	0	87
% General Traffic	100	88.2	0	88.9	100	97.3	0	97.8	92.4	66.7	0	91.6
3+ Axle Heavy Trucks	0	2	0	2	0	2	0	2	7	1	0	8
% 3+ Axle Heavy Trucks	0	11.8	0	11.1	0	2.7	0	2.2	7.6	33.3	0	8.4



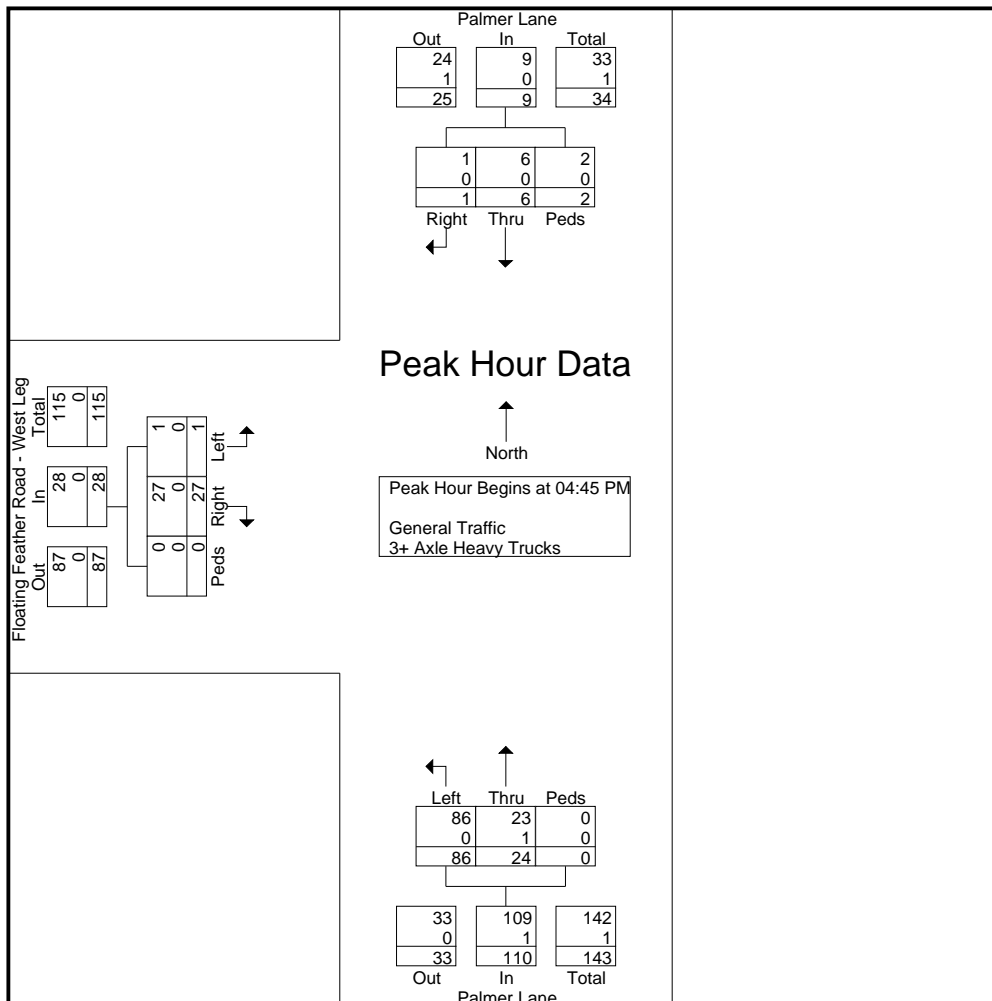
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Palmer / Floating Feather
City, State: Star, Idaho
Control: Stop Sign

File Name : Floating Feather Rd & Palmer Ln
Site Code : 00000000
Start Date : 6/14/2022
Page No : 5

Start Time	Palmer Lane From North				Palmer Lane From South				Floating Feather Road - West Leg From West				Int. Total
	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	0	1	2	3	5	24	0	29	4	0	0	4	36
05:00 PM	0	2	0	2	6	21	0	27	10	1	0	11	40
05:15 PM	1	2	0	3	5	22	0	27	9	0	0	9	39
05:30 PM	0	1	0	1	8	19	0	27	4	0	0	4	32
Total Volume	1	6	2	9	24	86	0	110	27	1	0	28	147
% App. Total	11.1	66.7	22.2		21.8	78.2	0		96.4	3.6	0		
PHF	.250	.750	.250	.750	.750	.896	.000	.948	.675	.250	.000	.636	.919
General Traffic	1	6	2	9	23	86	0	109	27	1	0	28	146
% General Traffic	100	100	100	100	95.8	100	0	99.1	100	100	0	100	99.3
3+ Axle Heavy Trucks	0	0	0	0	1	0	0	1	0	0	0	0	1
% 3+ Axle Heavy Trucks	0	0	0	0	4.2	0	0	0.9	0	0	0	0	0.7



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Palmer / Floating Feather
City, State: Star, Idaho
Control: Stop Sign

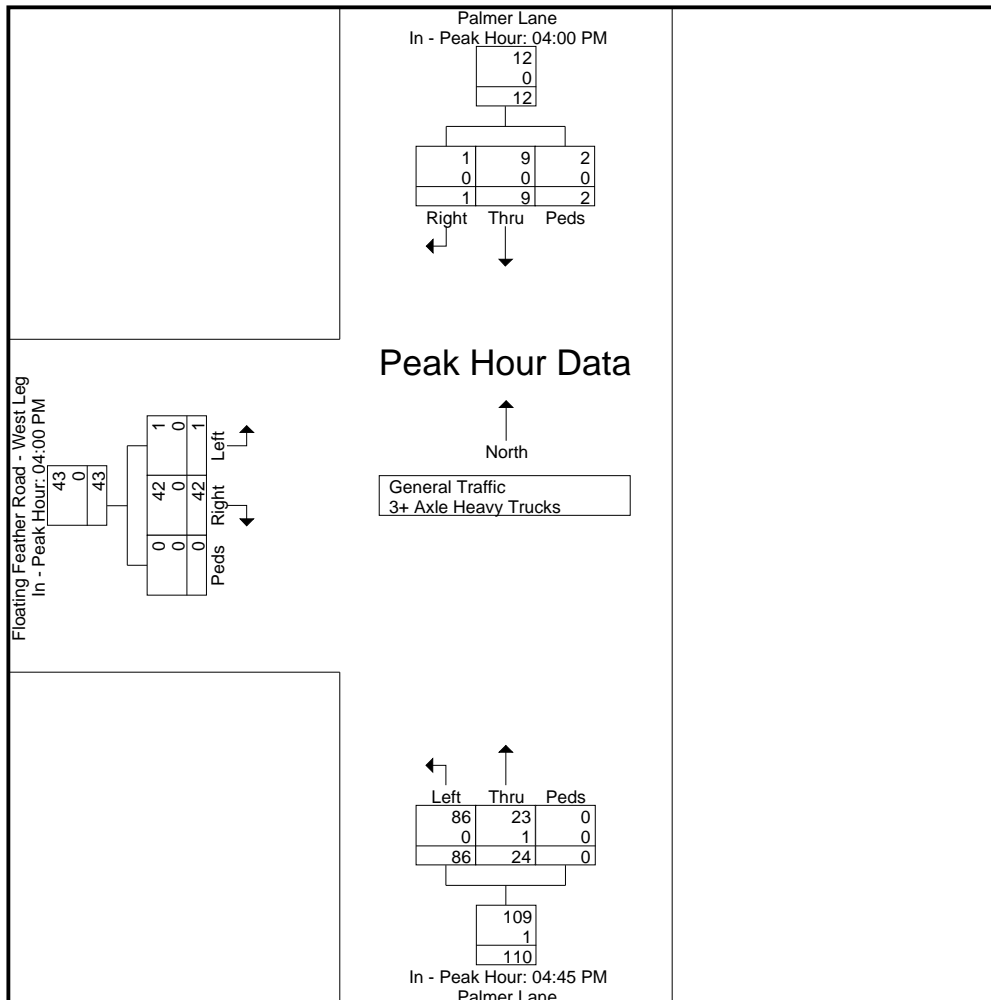
File Name : Floating Feather Rd & Palmer Ln
Site Code : 00000000
Start Date : 6/14/2022
Page No : 6

Start Time	Palmer Lane From North				Palmer Lane From South				Floating Feather Road - West Leg From West				Int. Total
	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	

Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:00 PM				04:45 PM				04:00 PM			
+0 mins.	1	4	0	5	5	24	0	29	15	0	0	15
+15 mins.	0	1	0	1	6	21	0	27	17	0	0	17
+30 mins.	0	3	0	3	5	22	0	27	6	1	0	7
+45 mins.	0	1	2	3	8	19	0	27	4	0	0	4
Total Volume	1	9	2	12	24	86	0	110	42	1	0	43
% App. Total	8.3	75	16.7		21.8	78.2	0		97.7	2.3	0	
PHF	.250	.563	.250	.600	.750	.896	.000	.948	.618	.250	.000	.632
General Traffic	1	9	2	12	23	86	0	109	42	1	0	43
% General Traffic	100	100	100	100	95.8	100	0	99.1	100	100	0	100
3+ Axle Heavy Trucks	0	0	0	0	1	0	0	1	0	0	0	0
% 3+ Axle Heavy Trucks	0	0	0	0	4.2	0	0	0.9	0	0	0	0



L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Palmer / Floating Feather
City, State: Star, Idaho
Control: Stop Sign

File Name : Floating Feather Rd & Palmer Ln
Site Code : 00000000
Start Date : 6/14/2022
Page No : 7

Image 1



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Plummer / Floating Feather
City, State: Star, Idaho
Control: Stop Sign

File Name : Floating Feather Rd & Plummer Rd
Site Code : 00000000
Start Date : 6/14/2022
Page No : 1

Groups Printed- General Traffic - 3+ Axle Heavy Trucks

Start Time	Floating Feather Road From East				Plummer Road From South				Floating Feather Road From West				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
07:00 AM	1	0	0	1	2	6	0	8	24	21	0	45	54
07:15 AM	7	2	0	9	2	7	0	9	17	23	0	40	58
07:30 AM	9	1	0	10	10	8	0	18	15	14	0	29	57
07:45 AM	6	5	0	11	9	2	0	11	26	22	0	48	70
Total	23	8	0	31	23	23	0	46	82	80	0	162	239
08:00 AM	8	5	0	13	8	5	0	13	34	15	0	49	75
08:15 AM	8	3	0	11	5	8	0	13	26	26	0	52	76
08:30 AM	7	3	0	10	2	7	1	10	29	21	0	50	70
08:45 AM	11	4	0	15	8	14	0	22	32	12	0	44	81
Total	34	15	0	49	23	34	1	58	121	74	0	195	302

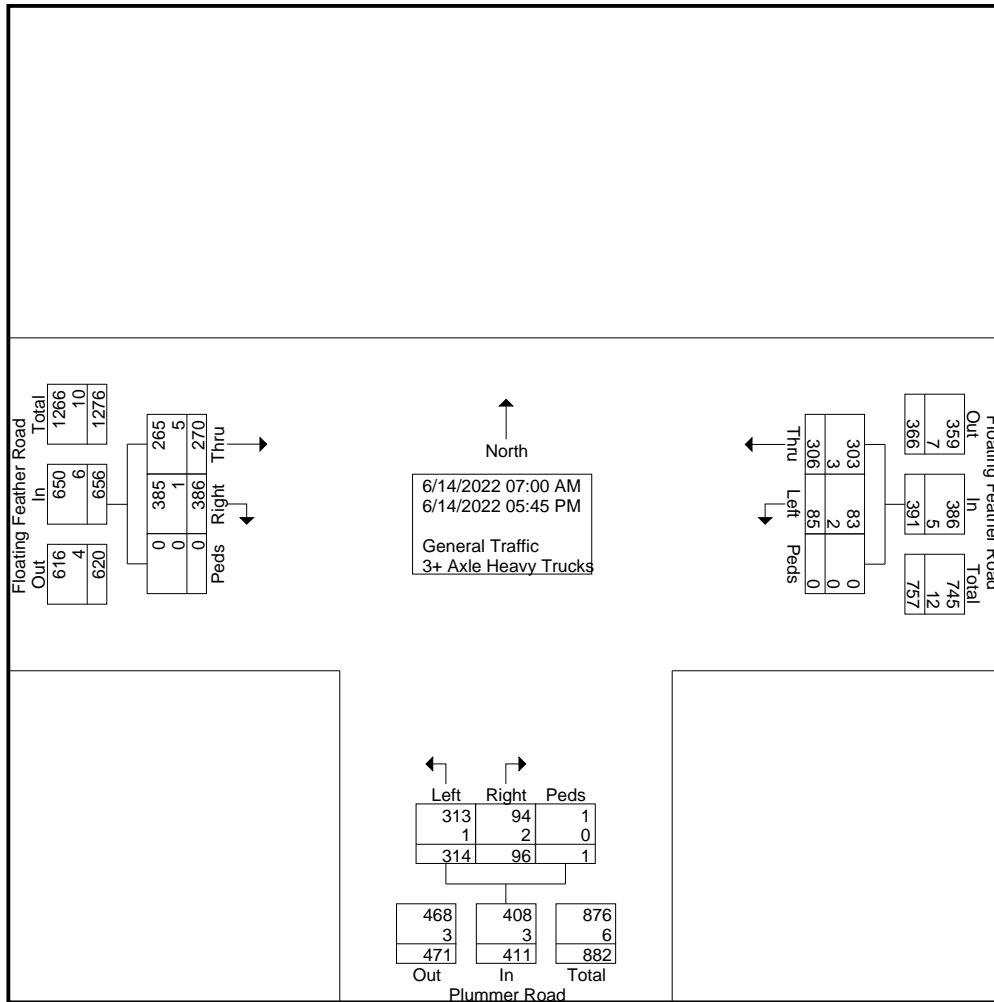
04:00 PM	22	9	0	31	9	24	0	33	25	20	0	45	109
04:15 PM	25	7	0	32	9	28	0	37	26	14	0	40	109
04:30 PM	26	6	0	32	1	40	0	41	23	13	0	36	109
04:45 PM	31	6	0	37	6	30	0	36	17	7	0	24	97
Total	104	28	0	132	25	122	0	147	91	54	0	145	424
05:00 PM	28	7	0	35	7	35	0	42	19	14	0	33	110
05:15 PM	43	8	0	51	10	31	0	41	28	21	0	49	141
05:30 PM	41	6	0	47	4	22	0	26	22	10	0	32	105
05:45 PM	33	13	0	46	4	47	0	51	23	17	0	40	137
Total	145	34	0	179	25	135	0	160	92	62	0	154	493
Grand Total	306	85	0	391	96	314	1	411	386	270	0	656	1458
Apprch %	78.3	21.7	0		23.4	76.4	0.2		58.8	41.2	0		
Total %	21	5.8	0	26.8	6.6	21.5	0.1	28.2	26.5	18.5	0	45	
General Traffic	303	83	0	386	94	313	1	408	385	265	0	650	1444
% General Traffic	99	97.6	0	98.7	97.9	99.7	100	99.3	99.7	98.1	0	99.1	99
3+ Axle Heavy Trucks	3	2	0	5	2	1	0	3	1	5	0	6	14
% 3+ Axle Heavy Trucks	1	2.4	0	1.3	2.1	0.3	0	0.7	0.3	1.9	0	0.9	1

L2 Data Collection

L2DataCollection.com
 Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Intersection: Plummer / Floating Feather
 City, State: Star, Idaho
 Control: Stop Sign

File Name : Floating Feather Rd & Plummer Rd
 Site Code : 00000000
 Start Date : 6/14/2022
 Page No : 2



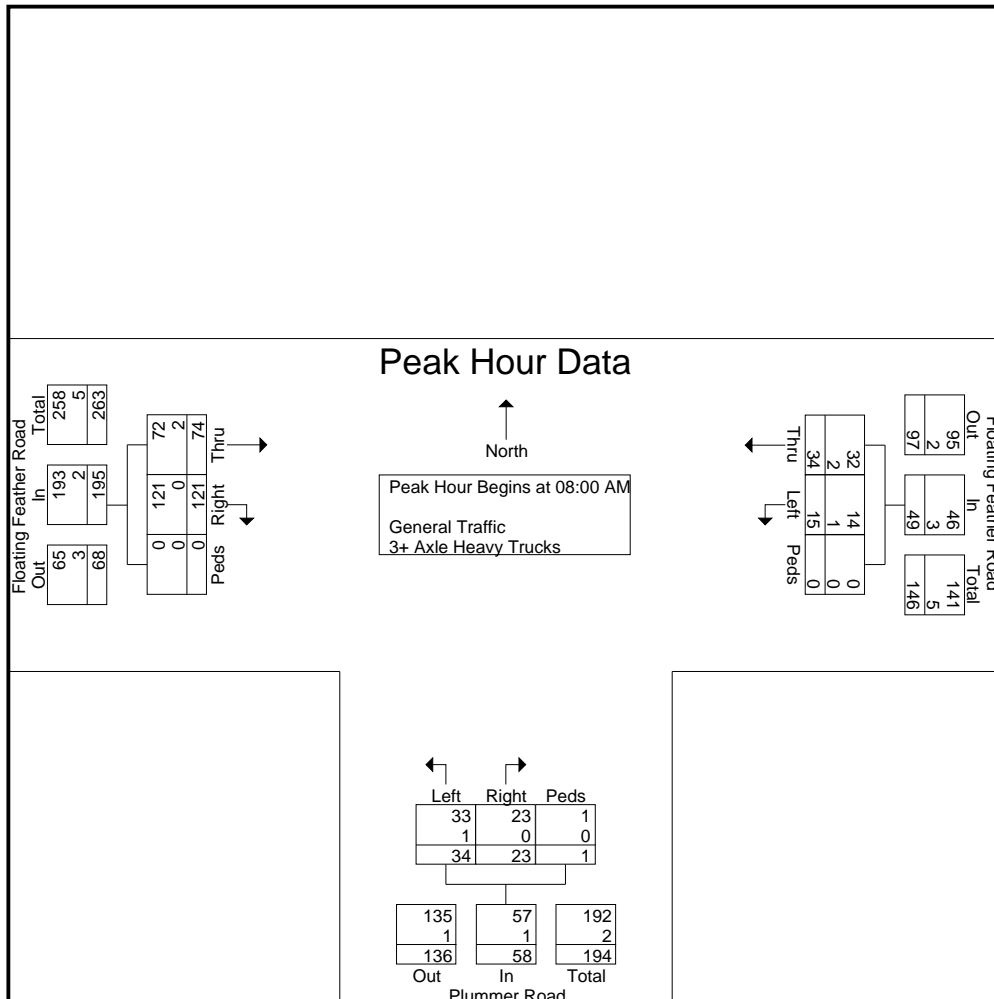
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Plummer / Floating Feather
City, State: Star, Idaho
Control: Stop Sign

File Name : Floating Feather Rd & Plummer Rd
Site Code : 00000000
Start Date : 6/14/2022
Page No : 3

Start Time	Floating Feather Road From East				Plummer Road From South				Floating Feather Road From West				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	8	5	0	13	8	5	0	13	34	15	0	49	75
08:15 AM	8	3	0	11	5	8	0	13	26	26	0	52	76
08:30 AM	7	3	0	10	2	7	1	10	29	21	0	50	70
08:45 AM	11	4	0	15	8	14	0	22	32	12	0	44	81
Total Volume	34	15	0	49	23	34	1	58	121	74	0	195	302
% App. Total	69.4	30.6	0	93.9	39.7	58.6	1.7	98.3	62.1	37.9	0	99.0	98.0
PHF	.773	.750	.000	.817	.719	.607	.250	.659	.890	.712	.000	.938	.932
General Traffic	32	14	0	46	23	33	1	57	121	72	0	193	296
% General Traffic	94.1	93.3	0	93.9	100	97.1	100	98.3	100	97.3	0	99.0	98.0
3+ Axle Heavy Trucks	2	1	0	3	0	1	0	1	0	2	0	2	6
% 3+ Axle Heavy Trucks	5.9	6.7	0	6.1	0	2.9	0	1.7	0	2.7	0	1.0	2.0



L2 Data Collection

L2DataCollection.com
 Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Intersection: Plummer / Floating Feather
 City, State: Star, Idaho
 Control: Stop Sign

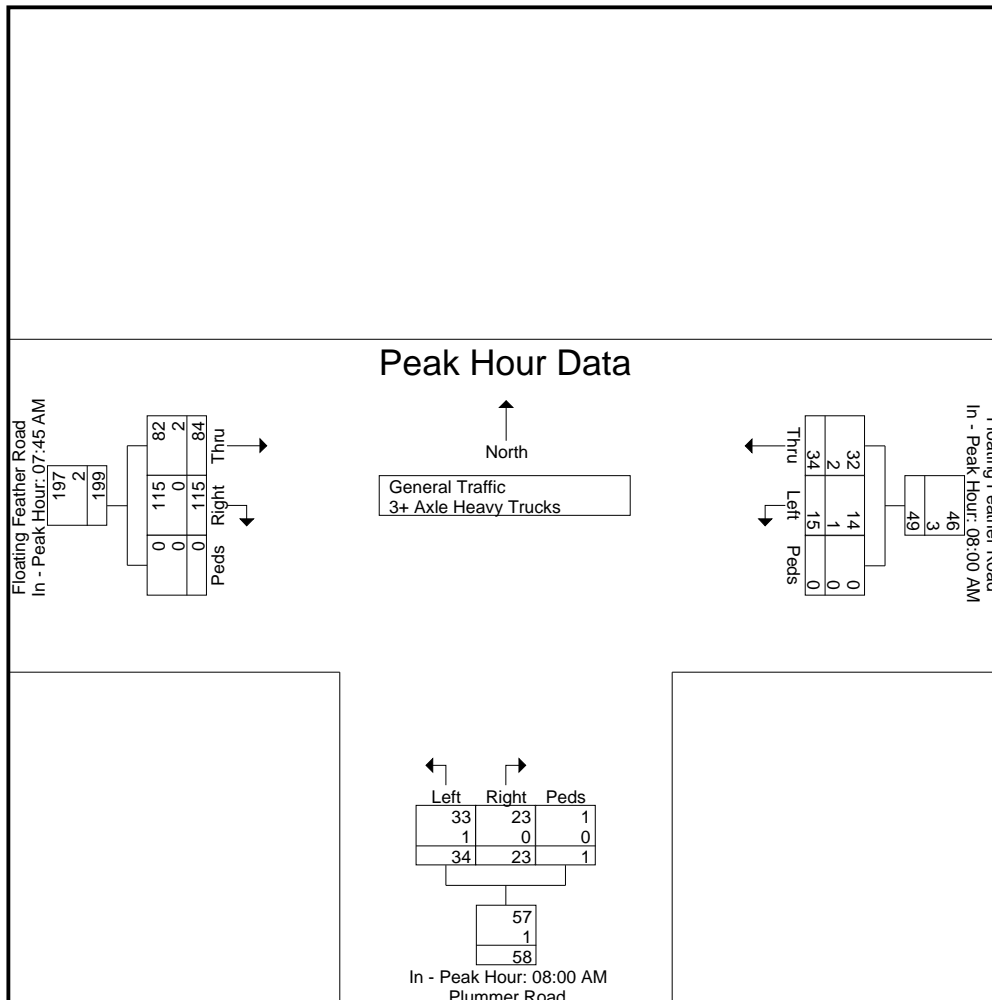
File Name : Floating Feather Rd & Plummer Rd
 Site Code : 00000000
 Start Date : 6/14/2022
 Page No : 4

Start Time	Floating Feather Road From East				Plummer Road From South				Floating Feather Road From West				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	08:00 AM				08:00 AM				07:45 AM			
+0 mins.	8	5	0	13	8	5	0	13	26	22	0	48
+15 mins.	8	3	0	11	5	8	0	13	34	15	0	49
+30 mins.	7	3	0	10	2	7	1	10	26	26	0	52
+45 mins.	11	4	0	15	8	14	0	22	29	21	0	50
Total Volume	34	15	0	49	23	34	1	58	115	84	0	199
% App. Total	69.4	30.6	0		39.7	58.6	1.7		57.8	42.2	0	
PHF	.773	.750	.000	.817	.719	.607	.250	.659	.846	.808	.000	.957
General Traffic	32	14	0	46	23	33	1	57	115	82	0	197
% General Traffic	94.1	93.3	0	93.9	100	97.1	100	98.3	100	97.6	0	99
3+ Axle Heavy Trucks	2	1	0	3	0	1	0	1	0	2	0	2
% 3+ Axle Heavy Trucks	5.9	6.7	0	6.1	0	2.9	0	1.7	0	2.4	0	1



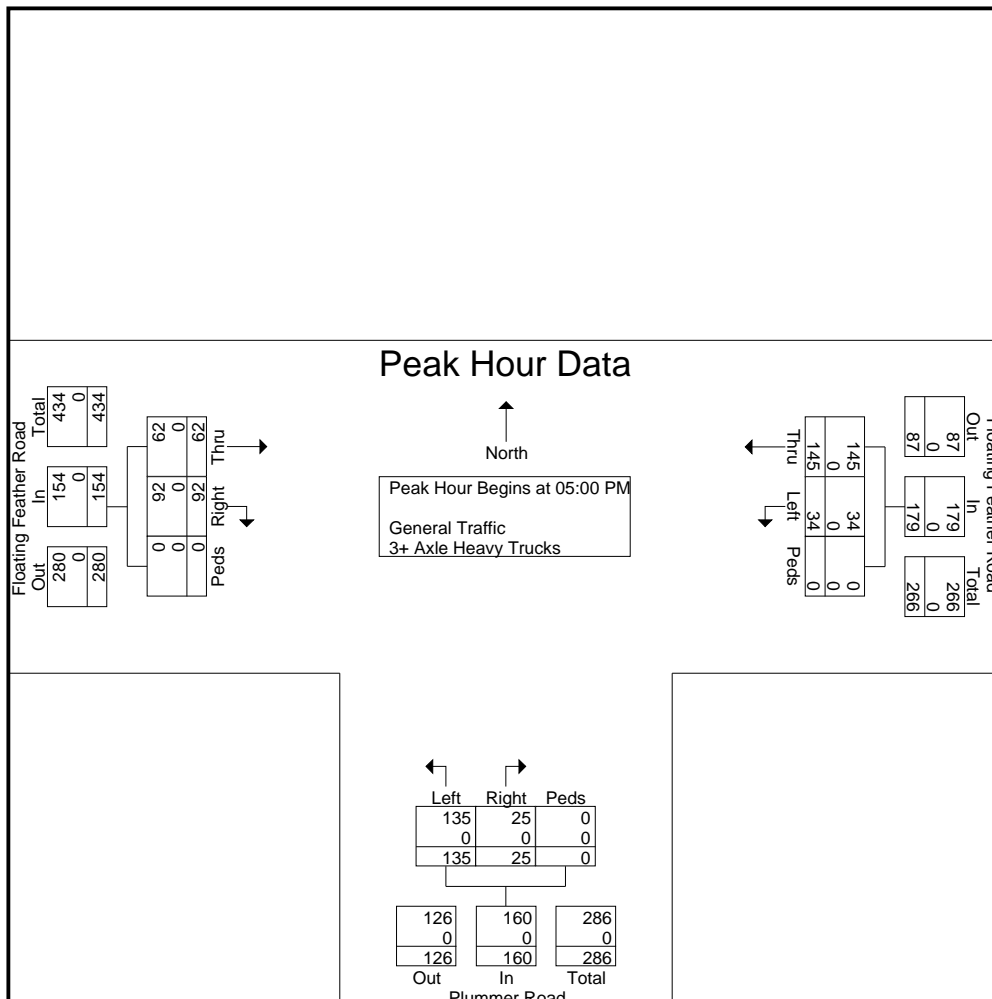
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Plummer / Floating Feather
City, State: Star, Idaho
Control: Stop Sign

File Name : Floating Feather Rd & Plummer Rd
Site Code : 00000000
Start Date : 6/14/2022
Page No : 5

Start Time	Floating Feather Road From East				Plummer Road From South				Floating Feather Road From West				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	28	7	0	35	7	35	0	42	19	14	0	33	110
05:15 PM	43	8	0	51	10	31	0	41	28	21	0	49	141
05:30 PM	41	6	0	47	4	22	0	26	22	10	0	32	105
05:45 PM	33	13	0	46	4	47	0	51	23	17	0	40	137
Total Volume	145	34	0	179	25	135	0	160	92	62	0	154	493
% App. Total	81	19	0		15.6	84.4	0		59.7	40.3	0		
PHF	.843	.654	.000	.877	.625	.718	.000	.784	.821	.738	.000	.786	.874
General Traffic	145	34	0	179	25	135	0	160	92	62	0	154	493
% General Traffic	100	100	0	100	100	100	0	100	100	100	0	100	100
3+ Axle Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% 3+ Axle Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0



L2 Data Collection

L2DataCollection.com
 Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Intersection: Plummer / Floating Feather
 City, State: Star, Idaho
 Control: Stop Sign

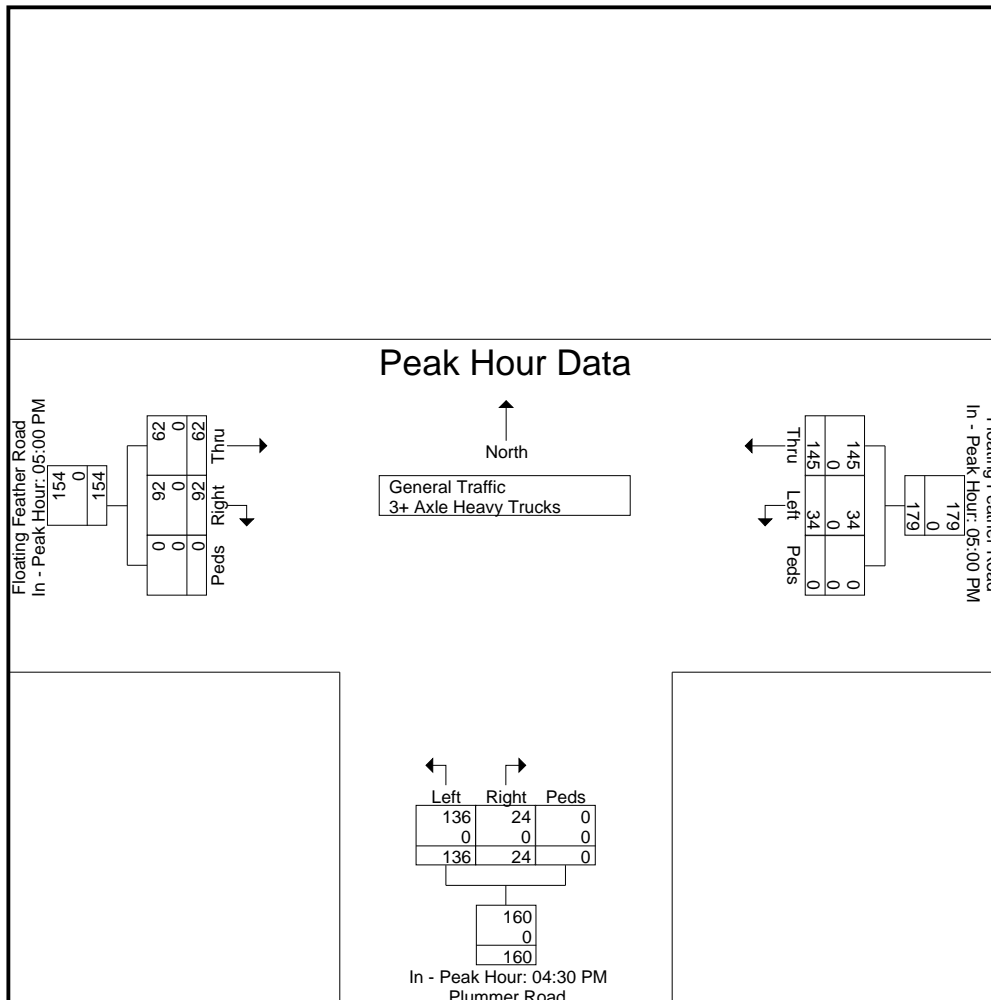
File Name : Floating Feather Rd & Plummer Rd
 Site Code : 00000000
 Start Date : 6/14/2022
 Page No : 6

Start Time	Floating Feather Road From East				Plummer Road From South				Floating Feather Road From West				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	

Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	05:00 PM				04:30 PM				05:00 PM			
+0 mins.	28	7	0	35	1	40	0	41	19	14	0	33
+15 mins.	43	8	0	51	6	30	0	36	28	21	0	49
+30 mins.	41	6	0	47	7	35	0	42	22	10	0	32
+45 mins.	33	13	0	46	10	31	0	41	23	17	0	40
Total Volume	145	34	0	179	24	136	0	160	92	62	0	154
% App. Total	81	19	0		15	85	0		59.7	40.3	0	
PHF	.843	.654	.000	.877	.600	.850	.000	.952	.821	.738	.000	.786
General Traffic	145	34	0	179	24	136	0	160	92	62	0	154
% General Traffic	100	100	0	100	100	100	0	100	100	100	0	100
3+ Axle Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0
% 3+ Axle Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0



L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Plummer / Floating Feather
City, State: Star, Idaho
Control: Stop Sign

File Name : Floating Feather Rd & Plummer Rd
Site Code : 00000000
Start Date : 6/14/2022
Page No : 7

Image 1



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KKITT0277
Intersection: Pollard / Floating Feather
City, State: Star, Idaho
Control: Stop Sign

File Name : Floating Feather Rd & Pollard Ln
Site Code : 00000000
Start Date : 6/14/2022
Page No : 1

Groups Printed- General Traffic - 3+ Axle Heavy Trucks

Start Time	Pollard Lane From North				Floating Feather Road From East				Pollard Lane From South				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
07:00 AM	1	1	0	2	1	3	0	4	9	11	0	20	26
07:15 AM	6	4	0	10	4	5	0	9	9	13	0	22	41
07:30 AM	8	6	0	14	8	5	0	13	11	11	0	22	49
07:45 AM	7	2	0	9	9	12	0	21	9	17	0	26	56
Total	22	13	0	35	22	25	0	47	38	52	0	90	172
08:00 AM	7	10	0	17	8	6	0	14	9	12	0	21	52
08:15 AM	7	7	0	14	3	11	0	14	14	12	0	26	54
08:30 AM	4	3	0	7	2	8	2	12	15	10	0	25	44
08:45 AM	8	3	0	11	1	7	0	8	10	9	0	19	38
Total	26	23	0	49	14	32	2	48	48	43	0	91	188

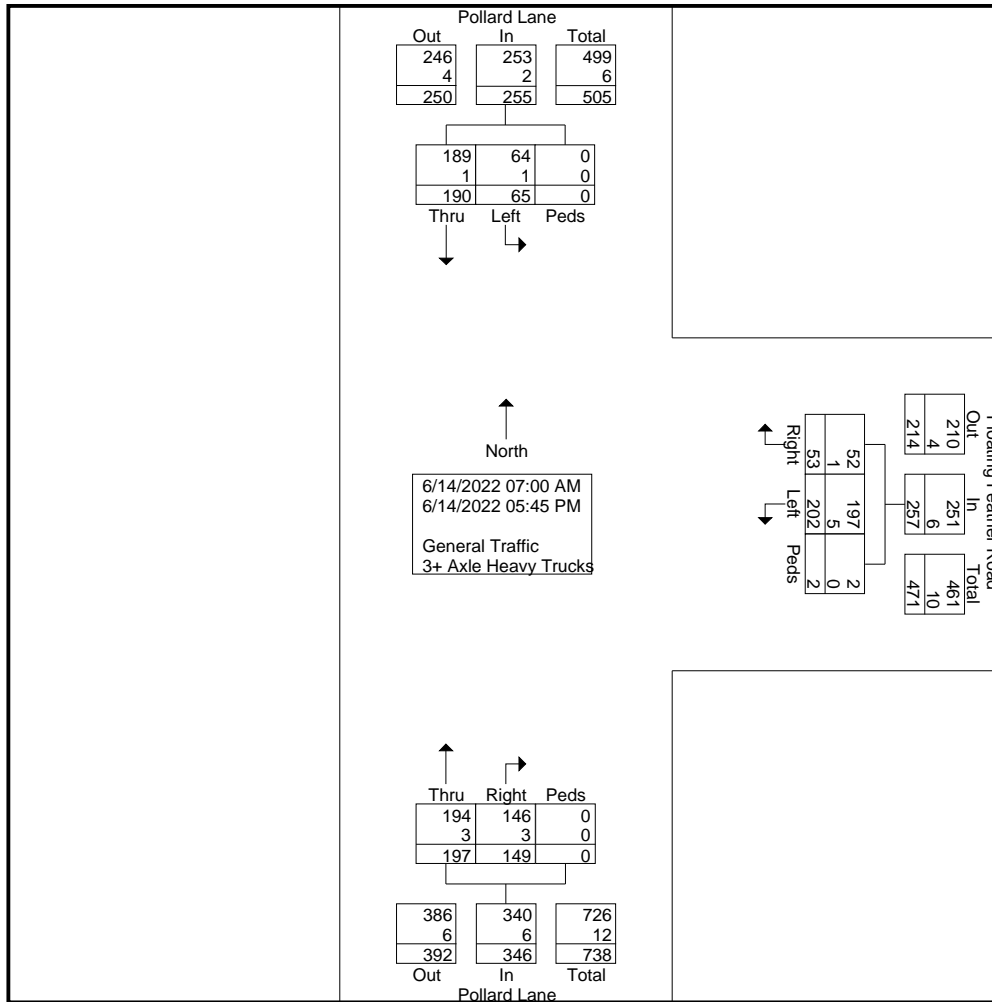
04:00 PM	21	9	0	30	1	10	0	11	4	17	0	21	62
04:15 PM	17	7	0	24	3	12	0	15	15	13	0	28	67
04:30 PM	16	3	0	19	1	11	0	12	10	10	0	20	51
04:45 PM	16	4	0	20	2	25	0	27	3	8	0	11	58
Total	70	23	0	93	7	58	0	65	32	48	0	80	238
05:00 PM	9	0	0	9	4	25	0	29	8	13	0	21	59
05:15 PM	24	3	0	27	2	23	0	25	8	19	0	27	79
05:30 PM	24	1	0	25	1	26	0	27	6	10	0	16	68
05:45 PM	15	2	0	17	3	13	0	16	9	12	0	21	54
Total	72	6	0	78	10	87	0	97	31	54	0	85	260
Grand Total	190	65	0	255	53	202	2	257	149	197	0	346	858
Apprch %	74.5	25.5	0		20.6	78.6	0.8		43.1	56.9	0		
Total %	22.1	7.6	0	29.7	6.2	23.5	0.2	30	17.4	23	0	40.3	
General Traffic	189	64	0	253	52	197	2	251	146	194	0	340	844
% General Traffic	99.5	98.5	0	99.2	98.1	97.5	100	97.7	98	98.5	0	98.3	98.4
3+ Axle Heavy Trucks	1	1	0	2	1	5	0	6	3	3	0	6	14
% 3+ Axle Heavy Trucks	0.5	1.5	0	0.8	1.9	2.5	0	2.3	2	1.5	0	1.7	1.6

L2 Data Collection

L2DataCollection.com
 Idaho (208) 860-7554 Utah (801) 413-2993

Study: KKITT0277
 Intersection: Pollard / Floating Feather
 City, State: Star, Idaho
 Control: Stop Sign

File Name : Floating Feather Rd & Pollard Ln
 Site Code : 00000000
 Start Date : 6/14/2022
 Page No : 2



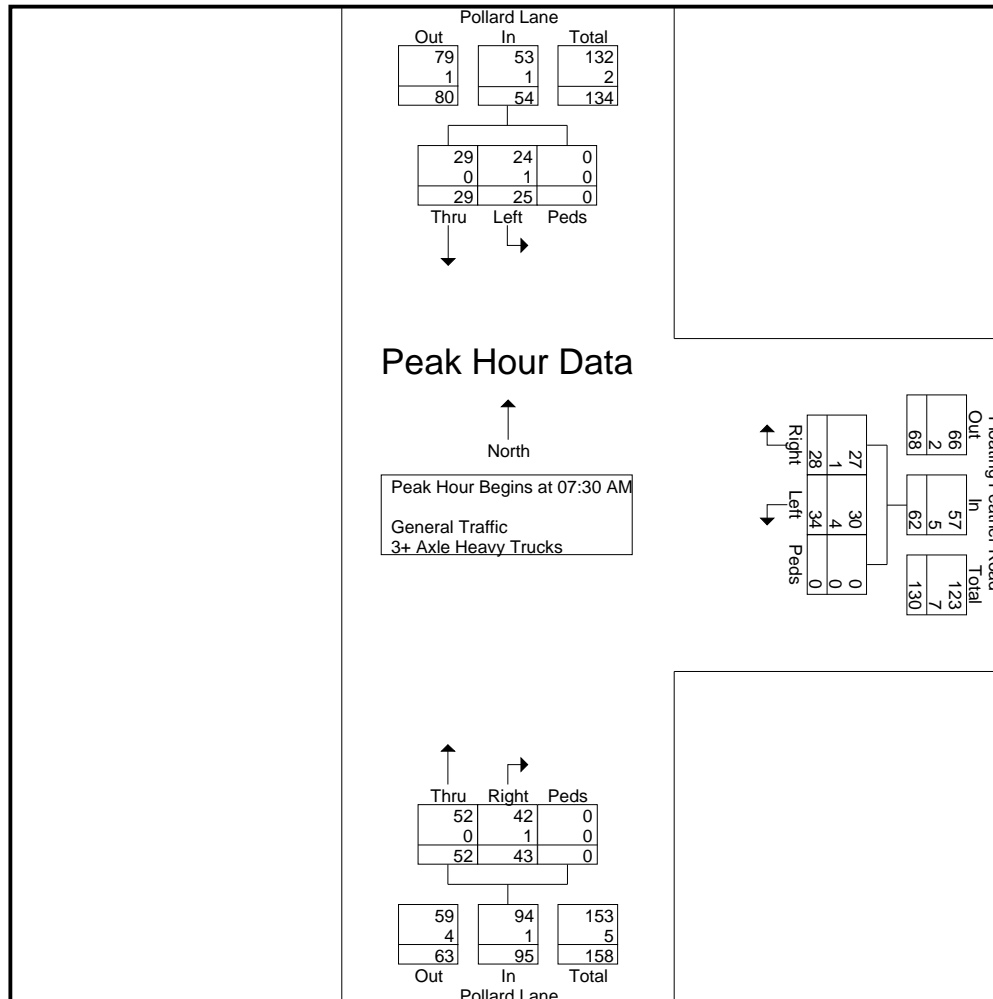
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KKITT0277
Intersection: Pollard / Floating Feather
City, State: Star, Idaho
Control: Stop Sign

File Name : Floating Feather Rd & Pollard Ln
Site Code : 00000000
Start Date : 6/14/2022
Page No : 3

Start Time	Pollard Lane From North				Floating Feather Road From East				Pollard Lane From South				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:30 AM													
07:30 AM	8	6	0	14	8	5	0	13	11	11	0	22	49
07:45 AM	7	2	0	9	9	12	0	21	9	17	0	26	56
08:00 AM	7	10	0	17	8	6	0	14	9	12	0	21	52
08:15 AM	7	7	0	14	3	11	0	14	14	12	0	26	54
Total Volume	29	25	0	54	28	34	0	62	43	52	0	95	211
% App. Total	53.7	46.3	0		45.2	54.8	0		45.3	54.7	0		
PHF	.906	.625	.000	.794	.778	.708	.000	.738	.768	.765	.000	.913	.942
General Traffic	29	24	0	53	27	30	0	57	42	52	0	94	204
% General Traffic	100	96.0	0	98.1	96.4	88.2	0	91.9	97.7	100	0	98.9	96.7
3+ Axle Heavy Trucks	0	1	0	1	1	4	0	5	1	0	0	1	7
% 3+ Axle Heavy Trucks	0	4.0	0	1.9	3.6	11.8	0	8.1	2.3	0	0	1.1	3.3



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KKITT0277
Intersection: Pollard / Floating Feather
City, State: Star, Idaho
Control: Stop Sign

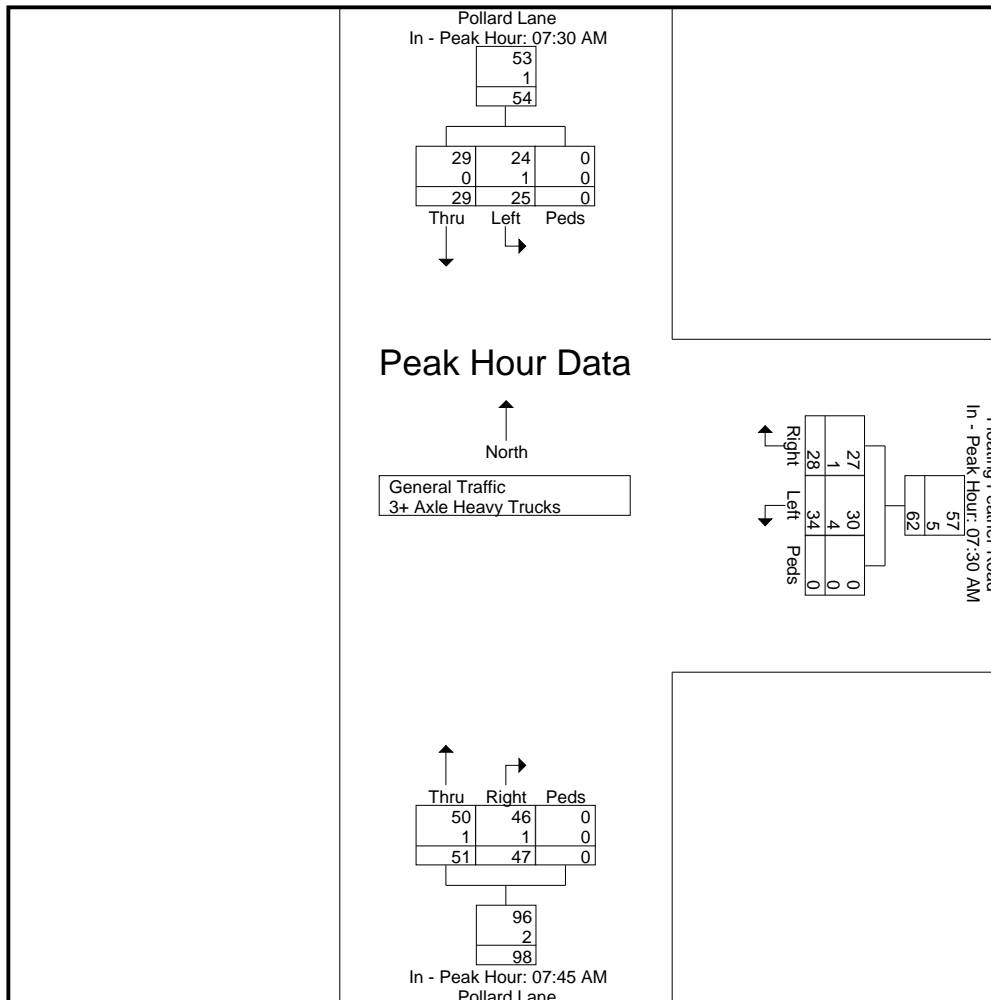
File Name : Floating Feather Rd & Pollard Ln
Site Code : 00000000
Start Date : 6/14/2022
Page No : 4

Start Time	Pollard Lane From North				Floating Feather Road From East				Pollard Lane From South				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:45 AM			
+0 mins.	8	6	0	14	8	5	0	13	9	17	0	26
+15 mins.	7	2	0	9	9	12	0	21	9	12	0	21
+30 mins.	7	10	0	17	8	6	0	14	14	12	0	26
+45 mins.	7	7	0	14	3	11	0	14	15	10	0	25
Total Volume	29	25	0	54	28	34	0	62	47	51	0	98
% App. Total	53.7	46.3	0		45.2	54.8	0		48	52	0	
PHF	.906	.625	.000	.794	.778	.708	.000	.738	.783	.750	.000	.942
General Traffic	29	24	0	53	27	30	0	57	46	50	0	96
% General Traffic	100	96	0	98.1	96.4	88.2	0	91.9	97.9	98	0	98
3+ Axle Heavy Trucks	0	1	0	1	1	4	0	5	1	1	0	2
% 3+ Axle Heavy Trucks	0	4	0	1.9	3.6	11.8	0	8.1	2.1	2	0	2



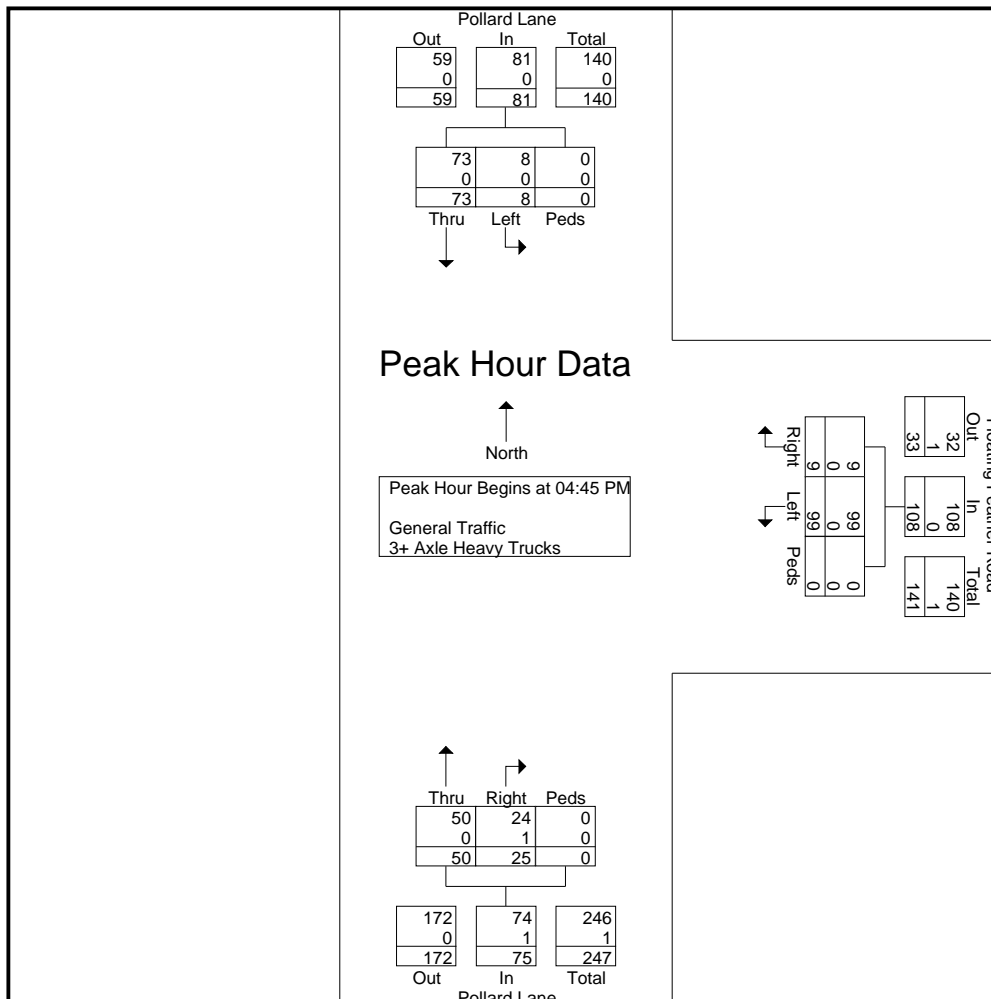
L2 Data Collection

L2DataCollection.com
 Idaho (208) 860-7554 Utah (801) 413-2993

Study: KKITT0277
 Intersection: Pollard / Floating Feather
 City, State: Star, Idaho
 Control: Stop Sign

File Name : Floating Feather Rd & Pollard Ln
 Site Code : 00000000
 Start Date : 6/14/2022
 Page No : 5

Start Time	Pollard Lane From North				Floating Feather Road From East				Pollard Lane From South				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	16	4	0	20	2	25	0	27	3	8	0	11	58
05:00 PM	9	0	0	9	4	25	0	29	8	13	0	21	59
05:15 PM	24	3	0	27	2	23	0	25	8	19	0	27	79
05:30 PM	24	1	0	25	1	26	0	27	6	10	0	16	68
Total Volume	73	8	0	81	9	99	0	108	25	50	0	75	264
% App. Total	90.1	9.9	0	100	8.3	91.7	0	100	33.3	66.7	0	100	100
PHF	.760	.500	.000	.750	.563	.952	.000	.931	.781	.658	.000	.694	.835
General Traffic	73	8	0	81	9	99	0	108	24	50	0	74	263
% General Traffic	100	100	0	100	100	100	0	100	96.0	100	0	98.7	99.6
3+ Axle Heavy Trucks	0	0	0	0	0	0	0	0	1	0	0	1	1
% 3+ Axle Heavy Trucks	0	0	0	0	0	0	0	0	4.0	0	0	1.3	0.4



L2 Data Collection

L2DataCollection.com
 Idaho (208) 860-7554 Utah (801) 413-2993

Study: KKITT0277
 Intersection: Pollard / Floating Feather
 City, State: Star, Idaho
 Control: Stop Sign

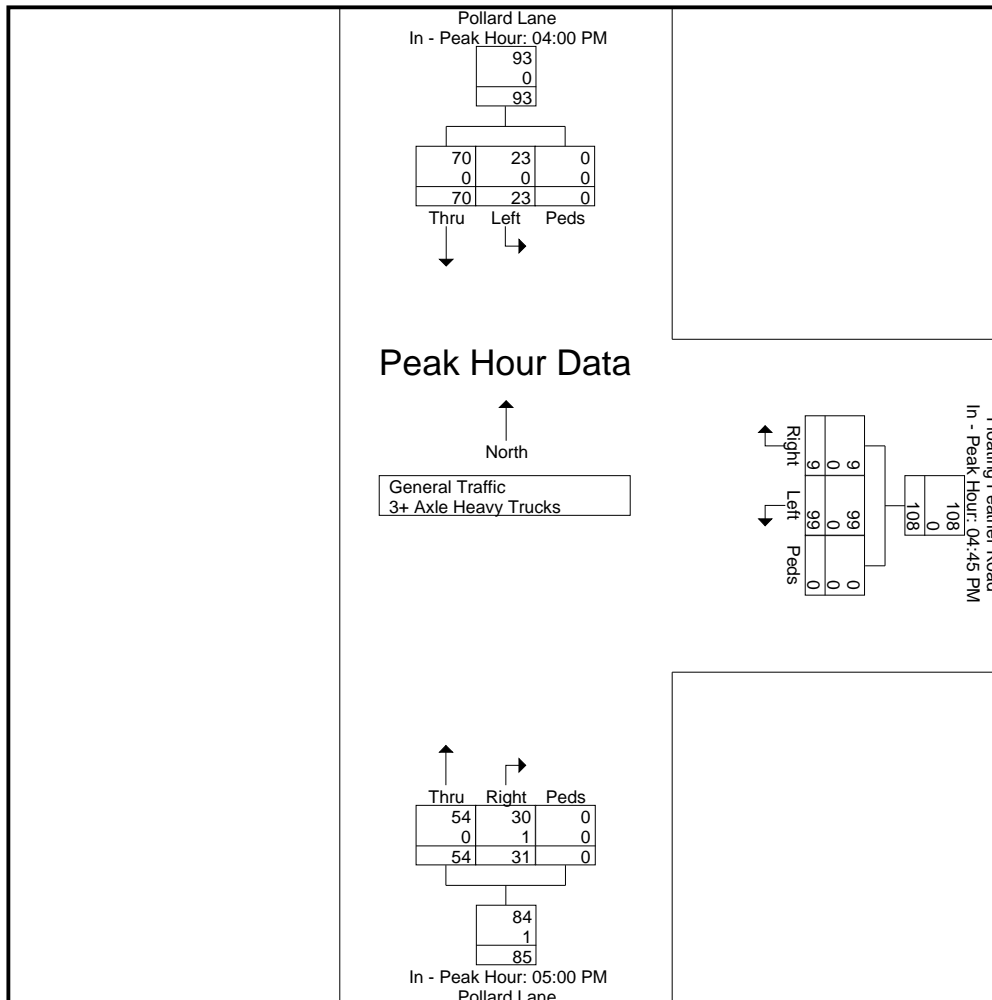
File Name : Floating Feather Rd & Pollard Ln
 Site Code : 00000000
 Start Date : 6/14/2022
 Page No : 6

Start Time	Pollard Lane From North				Floating Feather Road From East				Pollard Lane From South				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	

Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:00 PM				04:45 PM				05:00 PM			
+0 mins.	21	9	0	30	2	25	0	27	8	13	0	21
+15 mins.	17	7	0	24	4	25	0	29	8	19	0	27
+30 mins.	16	3	0	19	2	23	0	25	6	10	0	16
+45 mins.	16	4	0	20	1	26	0	27	9	12	0	21
Total Volume	70	23	0	93	9	99	0	108	31	54	0	85
% App. Total	75.3	24.7	0		8.3	91.7	0		36.5	63.5	0	
PHF	.833	.639	.000	.775	.563	.952	.000	.931	.861	.711	.000	.787
General Traffic	70	23	0	93	9	99	0	108	30	54	0	84
% General Traffic	100	100	0	100	100	100	0	100	96.8	100	0	98.8
3+ Axle Heavy Trucks	0	0	0	0	0	0	0	0	1	0	0	1
% 3+ Axle Heavy Trucks	0	0	0	0	0	0	0	0	3.2	0	0	1.2



L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KKITT0277
Intersection: Pollard / Floating Feather
City, State: Star, Idaho
Control: Stop Sign

File Name : Floating Feather Rd & Pollard Ln
Site Code : 00000000
Start Date : 6/14/2022
Page No : 7

Image 1



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Star Rd / Floating Feather
City, State: Star, Idaho
Control: Stop Sign

File Name : Floating Feather Rd & Star Rd-2
Site Code : 00000000
Start Date : 7/12/2022
Page No : 1

Groups Printed- General Traffic - 3+ Axle Heavy Trucks

Start Time	Floating Feather Road From East				Star Road From South				Floating Feather Road From West				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
07:00 AM	3	8	1	12	29	8	1	38	17	19	1	37	87
07:15 AM	3	16	0	19	27	9	1	37	9	21	0	30	86
07:30 AM	3	8	0	11	18	9	0	27	13	19	0	32	70
07:45 AM	5	12	1	18	31	4	2	37	12	19	0	31	86
Total	14	44	2	60	105	30	4	139	51	78	1	130	329
08:00 AM	8	28	0	36	23	11	2	36	23	12	1	36	108
08:15 AM	3	26	3	32	25	17	1	43	16	18	0	34	109
08:30 AM	8	22	0	30	19	8	0	27	18	16	0	34	91
08:45 AM	9	37	0	46	22	28	0	50	26	23	0	49	145
Total	28	113	3	144	89	64	3	156	83	69	1	153	453

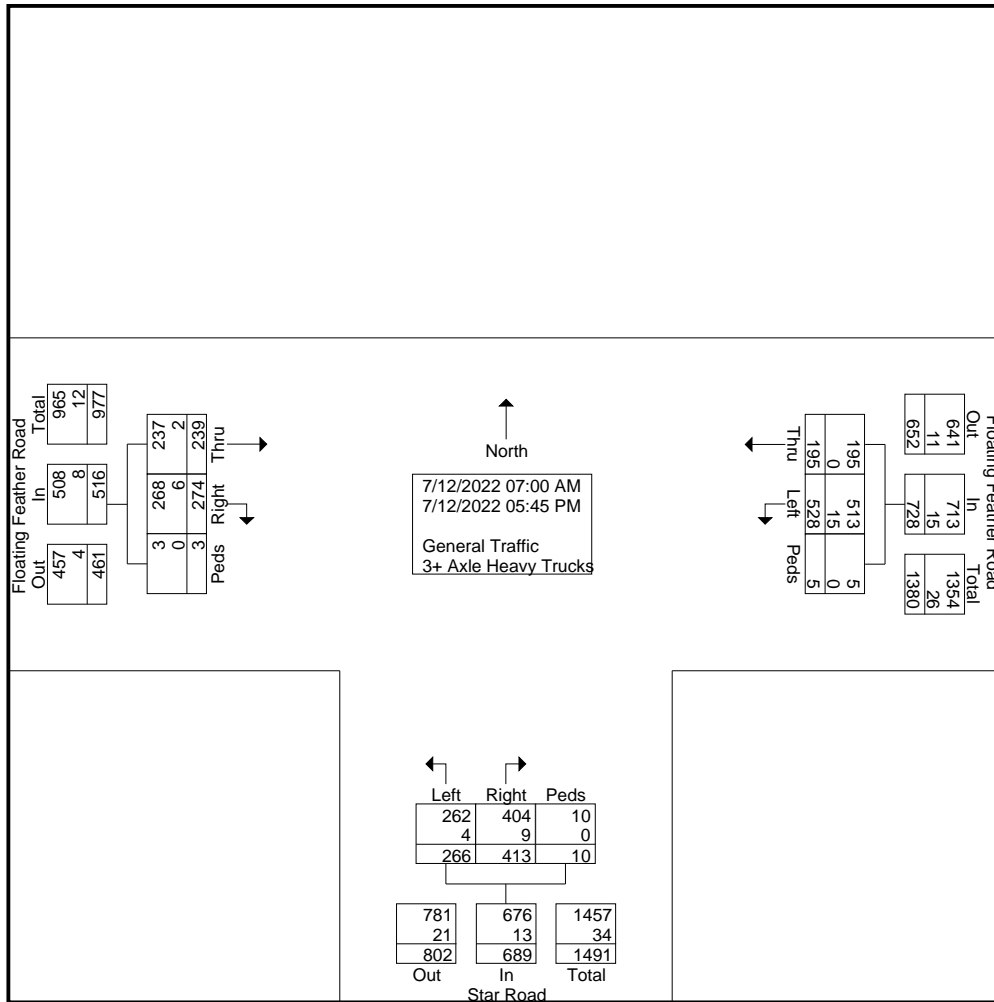
04:00 PM	16	44	0	60	19	21	2	42	26	15	0	41	143
04:15 PM	16	41	0	57	26	23	0	49	13	13	0	26	132
04:30 PM	24	31	0	55	36	25	0	61	16	8	0	24	140
04:45 PM	14	37	0	51	29	15	0	44	17	11	0	28	123
Total	70	153	0	223	110	84	2	196	72	47	0	119	538
05:00 PM	22	55	0	77	34	28	1	63	18	10	0	28	168
05:15 PM	22	54	0	76	24	20	0	44	20	11	1	32	152
05:30 PM	26	59	0	85	25	20	0	45	16	11	0	27	157
05:45 PM	13	50	0	63	26	20	0	46	14	13	0	27	136
Total	83	218	0	301	109	88	1	198	68	45	1	114	613
Grand Total	195	528	5	728	413	266	10	689	274	239	3	516	1933
Apprch %	26.8	72.5	0.7		59.9	38.6	1.5		53.1	46.3	0.6		
Total %	10.1	27.3	0.3	37.7	21.4	13.8	0.5	35.6	14.2	12.4	0.2	26.7	
General Traffic	195	513	5	713	404	262	10	676	268	237	3	508	1897
% General Traffic	100	97.2	100	97.9	97.8	98.5	100	98.1	97.8	99.2	100	98.4	98.1
3+ Axle Heavy Trucks	0	15	0	15	9	4	0	13	6	2	0	8	36
% 3+ Axle Heavy Trucks	0	2.8	0	2.1	2.2	1.5	0	1.9	2.2	0.8	0	1.6	1.9

L2 Data Collection

L2DataCollection.com
 Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Intersection: Star Rd / Floating Feather
 City, State: Star, Idaho
 Control: Stop Sign

File Name : Floating Feather Rd & Star Rd-2
 Site Code : 00000000
 Start Date : 7/12/2022
 Page No : 2



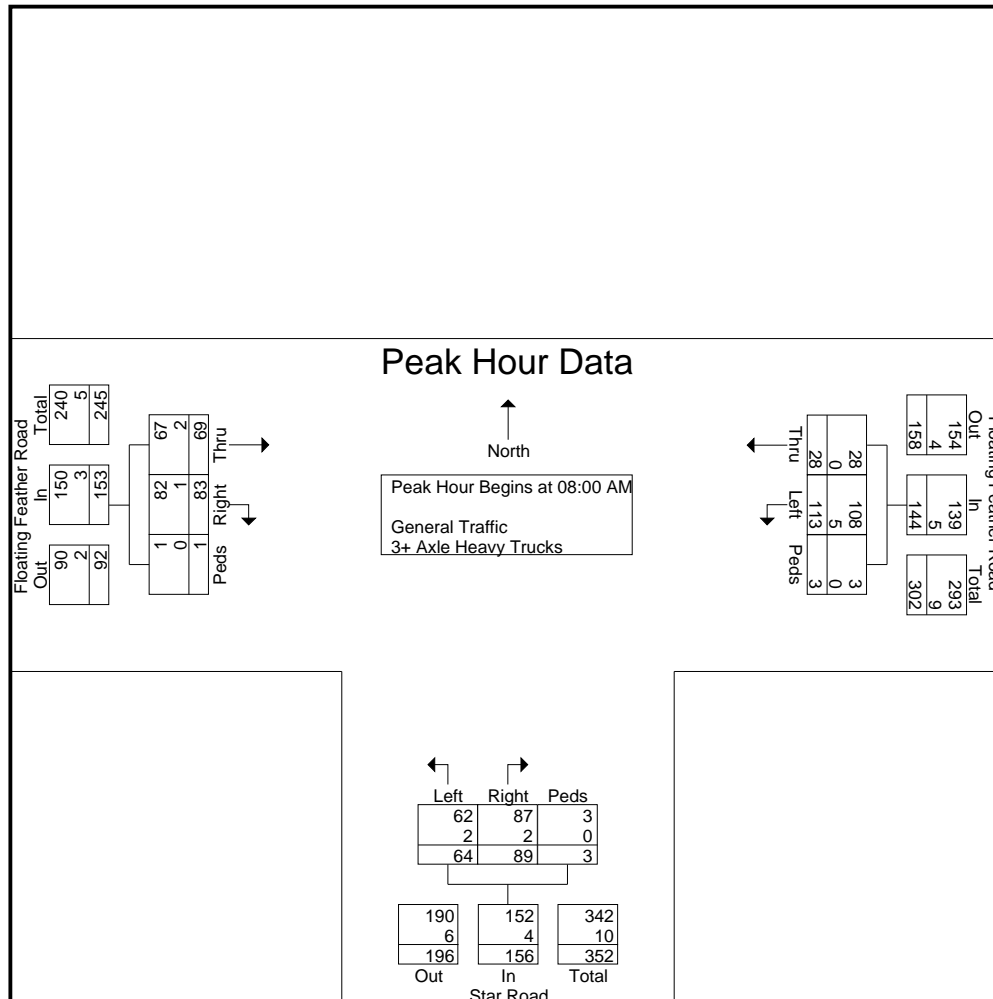
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Star Rd / Floating Feather
City, State: Star, Idaho
Control: Stop Sign

File Name : Floating Feather Rd & Star Rd-2
Site Code : 00000000
Start Date : 7/12/2022
Page No : 3

Start Time	Floating Feather Road From East				Star Road From South				Floating Feather Road From West				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	8	28	0	36	23	11	2	36	23	12	1	36	108
08:15 AM	3	26	3	32	25	17	1	43	16	18	0	34	109
08:30 AM	8	22	0	30	19	8	0	27	18	16	0	34	91
08:45 AM	9	37	0	46	22	28	0	50	26	23	0	49	145
Total Volume	28	113	3	144	89	64	3	156	83	69	1	153	453
% App. Total	19.4	78.5	2.1		57.1	41	1.9		54.2	45.1	0.7		
PHF	.778	.764	.250	.783	.890	.571	.375	.780	.798	.750	.250	.781	.781
General Traffic	28	108	3	139	87	62	3	152	82	67	1	150	441
% General Traffic	100	95.6	100	96.5	97.8	96.9	100	97.4	98.8	97.1	100	98.0	97.4
3+ Axle Heavy Trucks	0	5	0	5	2	2	0	4	1	2	0	3	12
% 3+ Axle Heavy Trucks	0	4.4	0	3.5	2.2	3.1	0	2.6	1.2	2.9	0	2.0	2.6



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Star Rd / Floating Feather
City, State: Star, Idaho
Control: Stop Sign

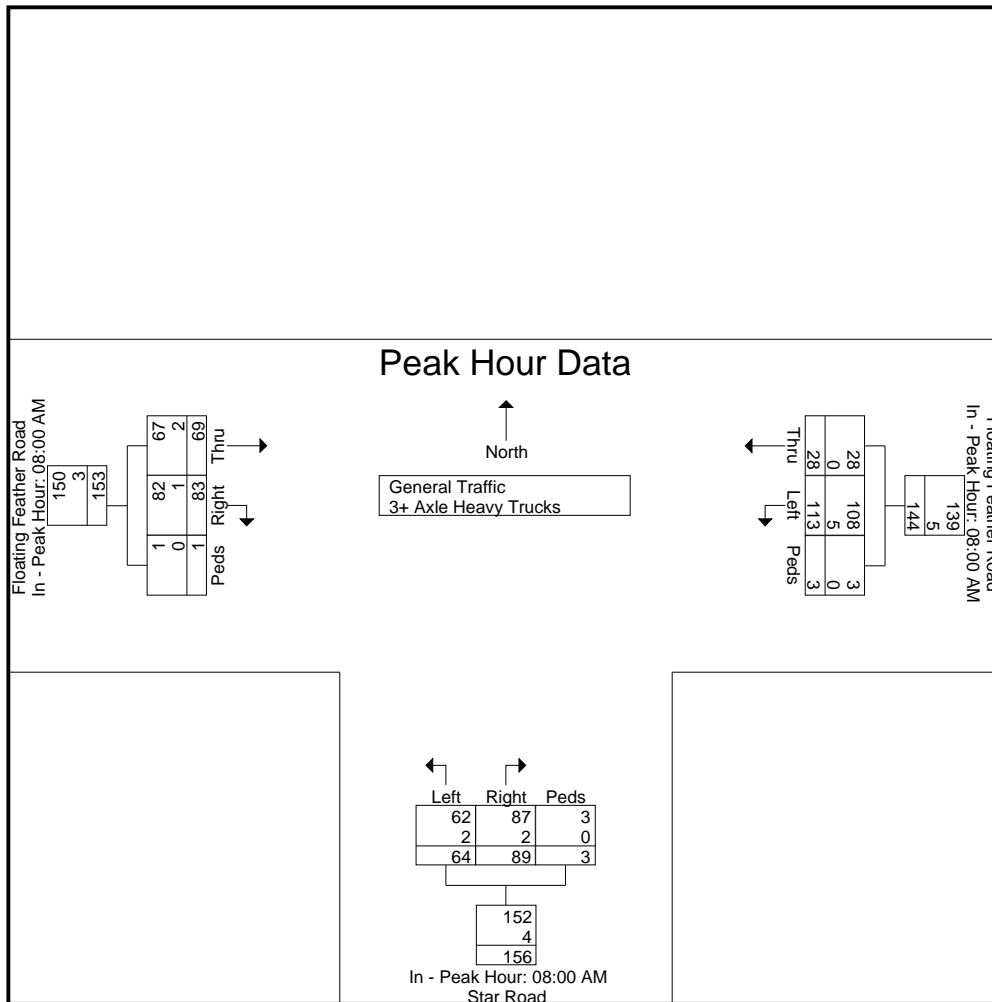
File Name : Floating Feather Rd & Star Rd-2
Site Code : 00000000
Start Date : 7/12/2022
Page No : 4

Start Time	Floating Feather Road From East				Star Road From South				Floating Feather Road From West				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	08:00 AM				08:00 AM				08:00 AM			
+0 mins.	8	28	0	36	23	11	2	36	23	12	1	36
+15 mins.	3	26	3	32	25	17	1	43	16	18	0	34
+30 mins.	8	22	0	30	19	8	0	27	18	16	0	34
+45 mins.	9	37	0	46	22	28	0	50	26	23	0	49
Total Volume	28	113	3	144	89	64	3	156	83	69	1	153
% App. Total	19.4	78.5	2.1		57.1	41	1.9		54.2	45.1	0.7	
PHF	.778	.764	.250	.783	.890	.571	.375	.780	.798	.750	.250	.781
General Traffic	28	108	3	139	87	62	3	152	82	67	1	150
% General Traffic	100	95.6	100	96.5	97.8	96.9	100	97.4	98.8	97.1	100	98
3+ Axle Heavy Trucks	0	5	0	5	2	2	0	4	1	2	0	3
% 3+ Axle Heavy Trucks	0	4.4	0	3.5	2.2	3.1	0	2.6	1.2	2.9	0	2



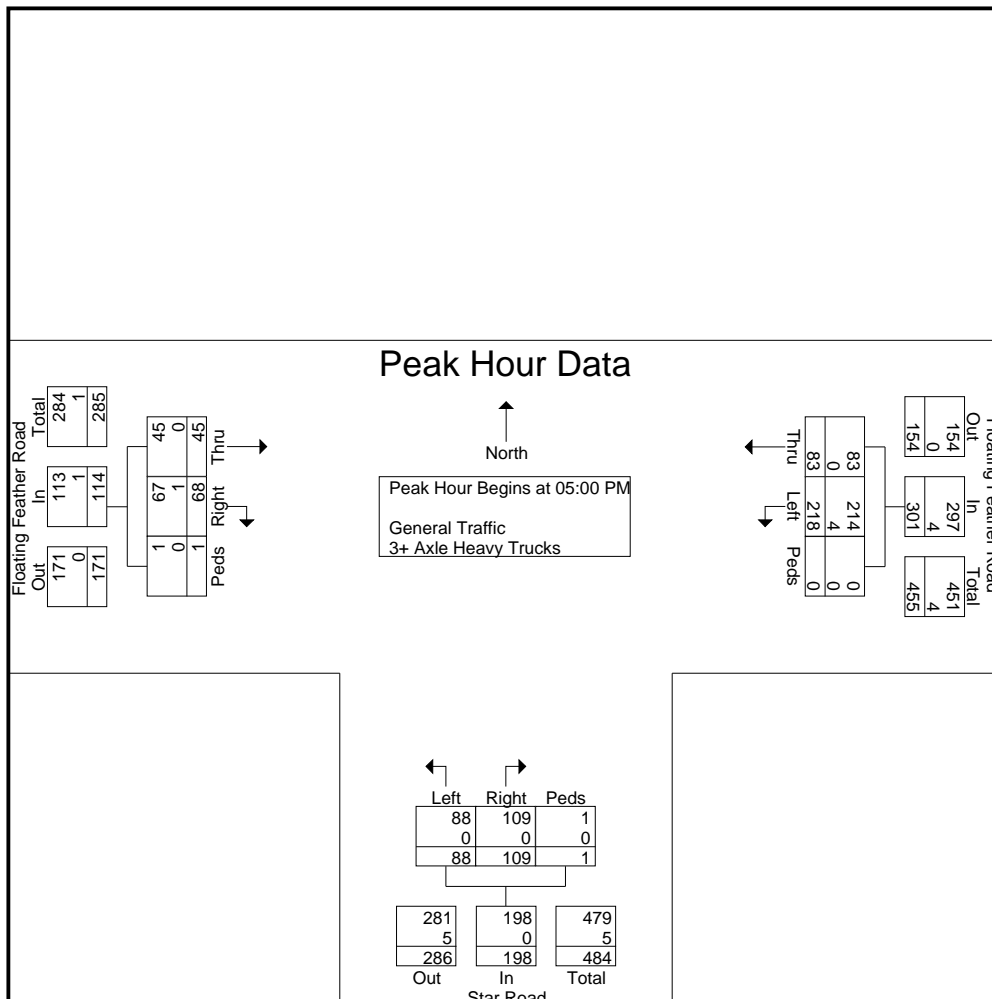
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Star Rd / Floating Feather
City, State: Star, Idaho
Control: Stop Sign

File Name : Floating Feather Rd & Star Rd-2
Site Code : 00000000
Start Date : 7/12/2022
Page No : 5

Start Time	Floating Feather Road From East				Star Road From South				Floating Feather Road From West				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	22	55	0	77	34	28	1	63	18	10	0	28	168
05:15 PM	22	54	0	76	24	20	0	44	20	11	1	32	152
05:30 PM	26	59	0	85	25	20	0	45	16	11	0	27	157
05:45 PM	13	50	0	63	26	20	0	46	14	13	0	27	136
Total Volume	83	218	0	301	109	88	1	198	68	45	1	114	613
% App. Total	27.6	72.4	0	98.7	55.1	44.4	0.5	100	59.6	39.5	0.9	99.1	99.2
PHF	.798	.924	.000	.885	.801	.786	.250	.786	.850	.865	.250	.891	.912
General Traffic	83	214	0	297	109	88	1	198	67	45	1	113	608
% General Traffic	100	98.2	0	98.7	100	100	100	100	98.5	100	100	99.1	99.2
3+ Axle Heavy Trucks	0	4	0	4	0	0	0	0	1	0	0	1	5
% 3+ Axle Heavy Trucks	0	1.8	0	1.3	0	0	0	0	1.5	0	0	0.9	0.8



L2 Data Collection

L2DataCollection.com
 Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Intersection: Star Rd / Floating Feather
 City, State: Star, Idaho
 Control: Stop Sign

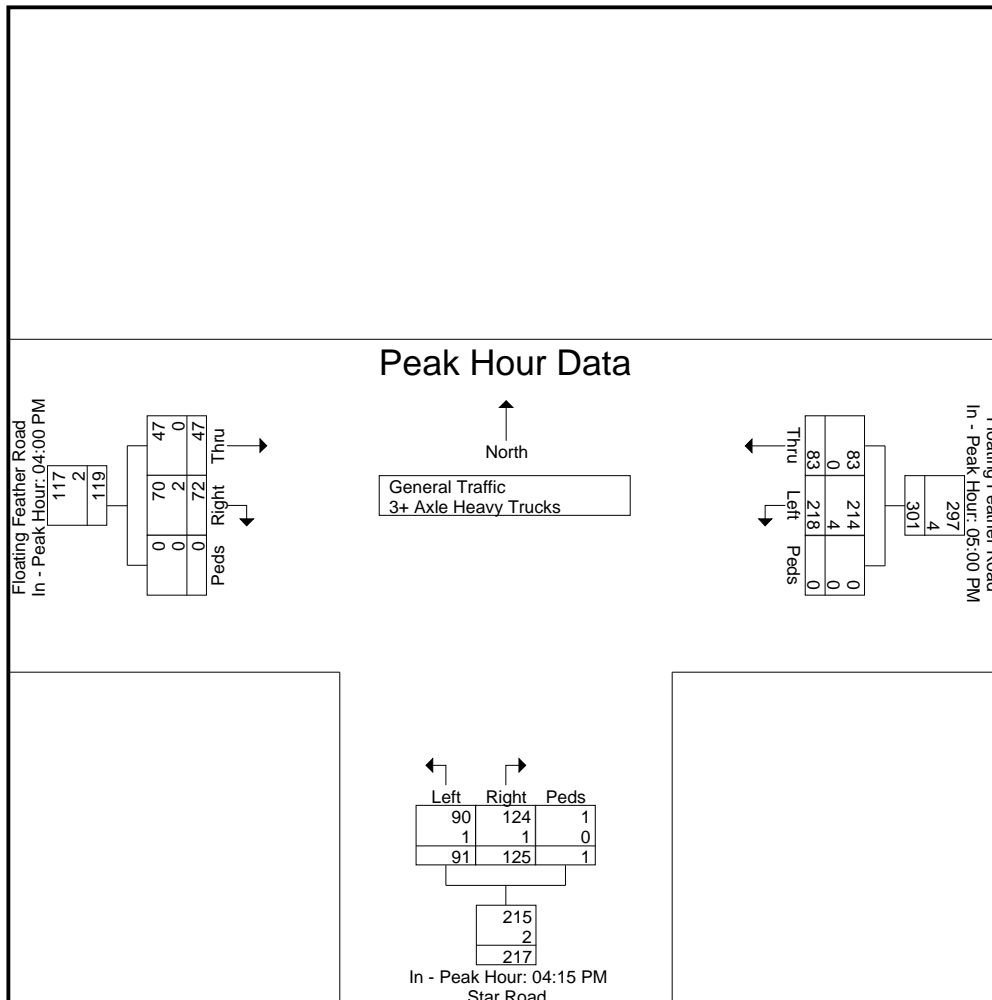
File Name : Floating Feather Rd & Star Rd-2
 Site Code : 00000000
 Start Date : 7/12/2022
 Page No : 6

Start Time	Floating Feather Road From East				Star Road From South				Floating Feather Road From West				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	

Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	05:00 PM				04:15 PM				04:00 PM			
+0 mins.	22	55	0	77	26	23	0	49	26	15	0	41
+15 mins.	22	54	0	76	36	25	0	61	13	13	0	26
+30 mins.	26	59	0	85	29	15	0	44	16	8	0	24
+45 mins.	13	50	0	63	34	28	1	63	17	11	0	28
Total Volume	83	218	0	301	125	91	1	217	72	47	0	119
% App. Total	27.6	72.4	0		57.6	41.9	0.5		60.5	39.5	0	
PHF	.798	.924	.000	.885	.868	.813	.250	.861	.692	.783	.000	.726
General Traffic	83	214	0	297	124	90	1	215	70	47	0	117
% General Traffic	100	98.2	0	98.7	99.2	98.9	100	99.1	97.2	100	0	98.3
3+ Axle Heavy Trucks	0	4	0	4	1	1	0	2	2	0	0	2
% 3+ Axle Heavy Trucks	0	1.8	0	1.3	0.8	1.1	0	0.9	2.8	0	0	1.7



L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Star Rd / Floating Feather
City, State: Star, Idaho
Control: Stop Sign

File Name : Floating Feather Rd & Star Rd-2
Site Code : 00000000
Start Date : 7/12/2022
Page No : 7

Image 1



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Lanktree Gulch / an Ada Rd
City, State: Star, Idaho
Control: Stop Sign

File Name : Lanktree Gulch Rd & Can Ada Rd
Site Code : 00000000
Start Date : 6/21/2022
Page No : 1

Groups Printed- General Traffic - 3+ Axle Heavy Trucks

Start Time	Can Ada Road From North				Lanktree Gulch Road From East				Can Ada Road From South				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
07:00 AM	13	3	0	16	0	0	0	0	0	2	0	2	18
07:15 AM	19	0	0	19	0	0	0	0	0	3	0	3	22
07:30 AM	15	0	0	15	0	3	0	3	2	11	0	13	31
07:45 AM	14	1	0	15	1	3	0	4	1	7	0	8	27
Total	61	4	0	65	1	6	0	7	3	23	0	26	98
08:00 AM	9	0	0	9	0	2	0	2	1	6	0	7	18
08:15 AM	24	0	0	24	0	0	0	0	2	5	0	7	31
08:30 AM	15	0	0	15	0	1	0	1	2	9	0	11	27
08:45 AM	12	0	1	13	0	3	0	3	1	6	0	7	23
Total	60	0	1	61	0	6	0	6	6	26	0	32	99

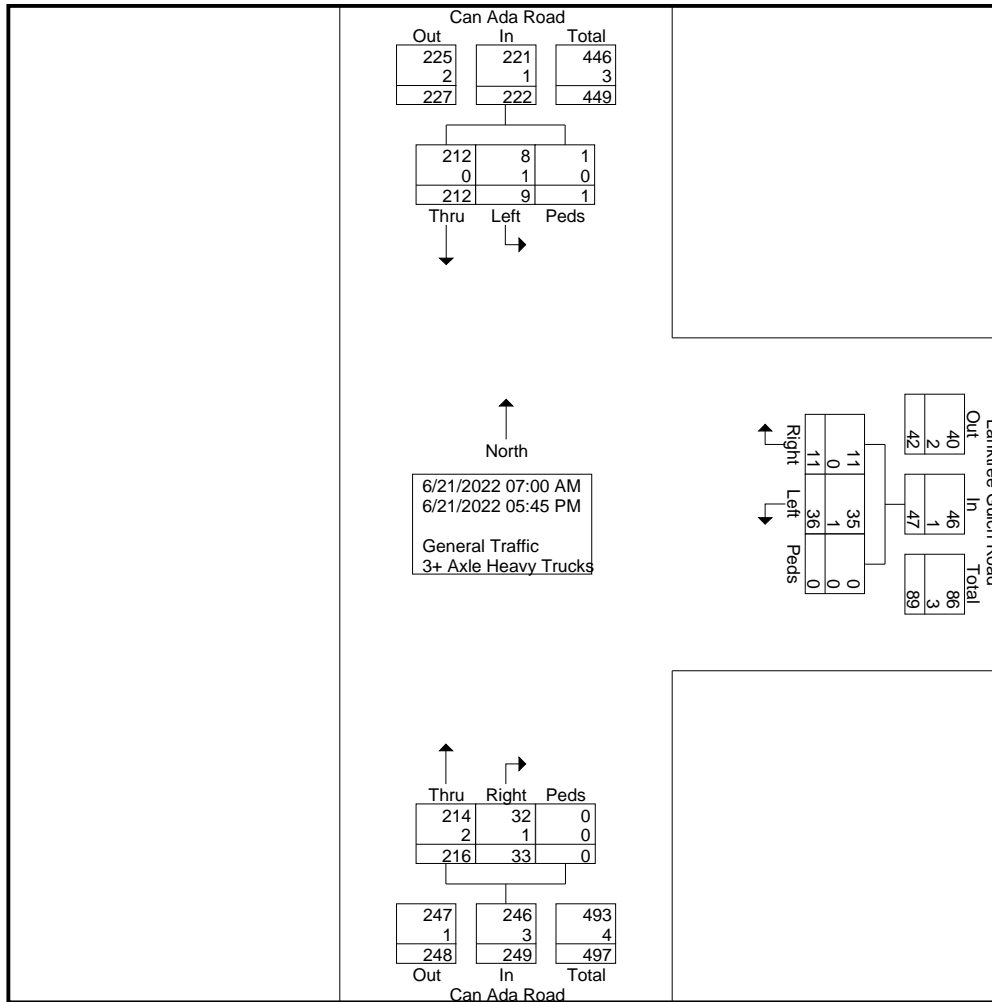
04:00 PM	17	0	0	17	2	3	0	5	2	18	0	20	42
04:15 PM	11	1	0	12	0	3	0	3	0	13	0	13	28
04:30 PM	9	1	0	10	1	2	0	3	2	23	0	25	38
04:45 PM	12	1	0	13	0	4	0	4	3	21	0	24	41
Total	49	3	0	52	3	12	0	15	7	75	0	82	149
05:00 PM	12	0	0	12	2	4	0	6	4	17	0	21	39
05:15 PM	12	1	0	13	1	2	0	3	4	16	0	20	36
05:30 PM	9	0	0	9	3	5	0	8	7	30	0	37	54
05:45 PM	9	1	0	10	1	1	0	2	2	29	0	31	43
Total	42	2	0	44	7	12	0	19	17	92	0	109	172
Grand Total	212	9	1	222	11	36	0	47	33	216	0	249	518
Apprch %	95.5	4.1	0.5		23.4	76.6	0		13.3	86.7	0		
Total %	40.9	1.7	0.2	42.9	2.1	6.9	0	9.1	6.4	41.7	0	48.1	
General Traffic	212	8	1	221	11	35	0	46	32	214	0	246	513
% General Traffic	100	88.9	100	99.5	100	97.2	0	97.9	97	99.1	0	98.8	99
3+ Axle Heavy Trucks	0	1	0	1	0	1	0	1	1	2	0	3	5
% 3+ Axle Heavy Trucks	0	11.1	0	0.5	0	2.8	0	2.1	3	0.9	0	1.2	1

L2 Data Collection

L2DataCollection.com
 Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Intersection: Lanktree Gulch / an Ada Rd
 City, State: Star, Idaho
 Control: Stop Sign

File Name : Lanktree Gulch Rd & Can Ada Rd
 Site Code : 00000000
 Start Date : 6/21/2022
 Page No : 2



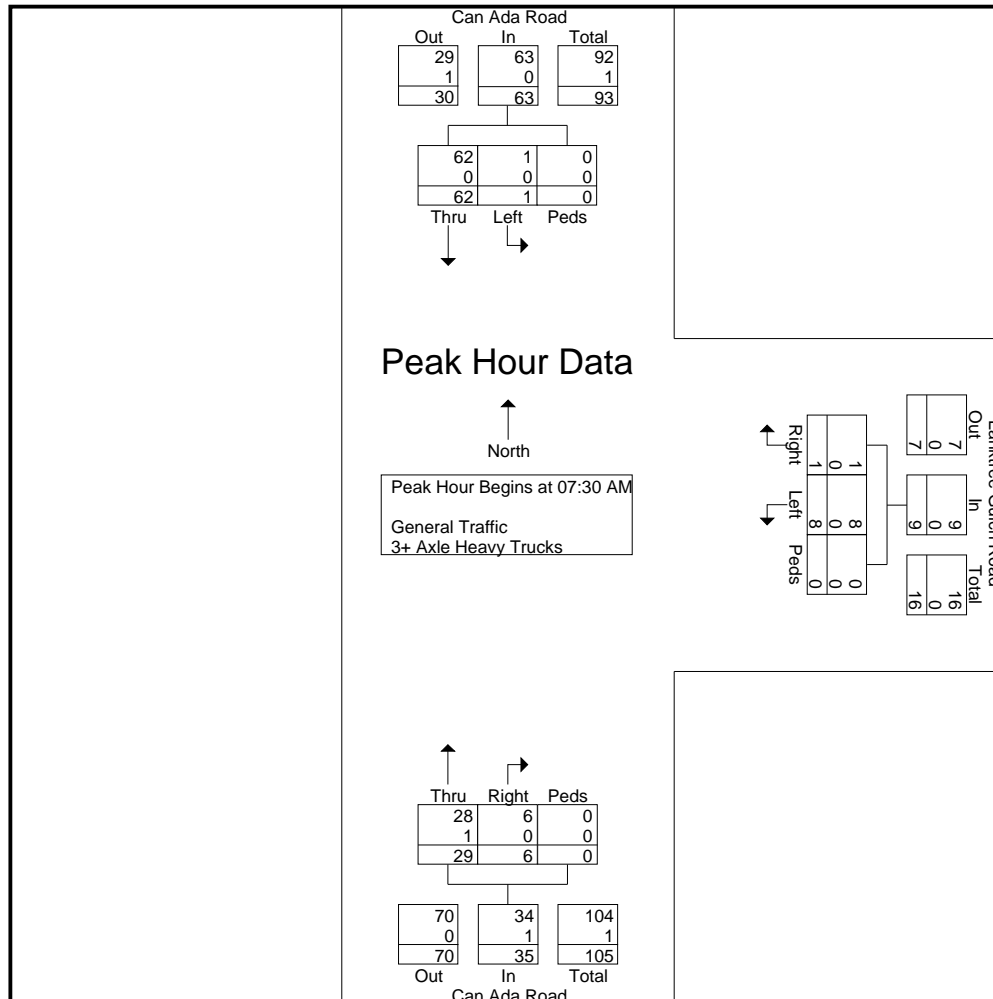
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Lanktree Gulch / an Ada Rd
City, State: Star, Idaho
Control: Stop Sign

File Name : Lanktree Gulch Rd & Can Ada Rd
Site Code : 00000000
Start Date : 6/21/2022
Page No : 3

Start Time	Can Ada Road From North				Lanktree Gulch Road From East				Can Ada Road From South				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:30 AM													
07:30 AM	15	0	0	15	0	3	0	3	2	11	0	13	31
07:45 AM	14	1	0	15	1	3	0	4	1	7	0	8	27
08:00 AM	9	0	0	9	0	2	0	2	1	6	0	7	18
08:15 AM	24	0	0	24	0	0	0	0	2	5	0	7	31
Total Volume	62	1	0	63	1	8	0	9	6	29	0	35	107
% App. Total	98.4	1.6	0		11.1	88.9	0		17.1	82.9	0		
PHF	.646	.250	.000	.656	.250	.667	.000	.563	.750	.659	.000	.673	.863
General Traffic	62	1	0	63	1	8	0	9	6	28	0	34	106
% General Traffic	100	100	0	100	100	100	0	100	100	96.6	0	97.1	99.1
3+ Axle Heavy Trucks	0	0	0	0	0	0	0	0	0	1	0	1	1
% 3+ Axle Heavy Trucks	0	0	0	0	0	0	0	0	0	3.4	0	2.9	0.9



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Lanktree Gulch / an Ada Rd
City, State: Star, Idaho
Control: Stop Sign

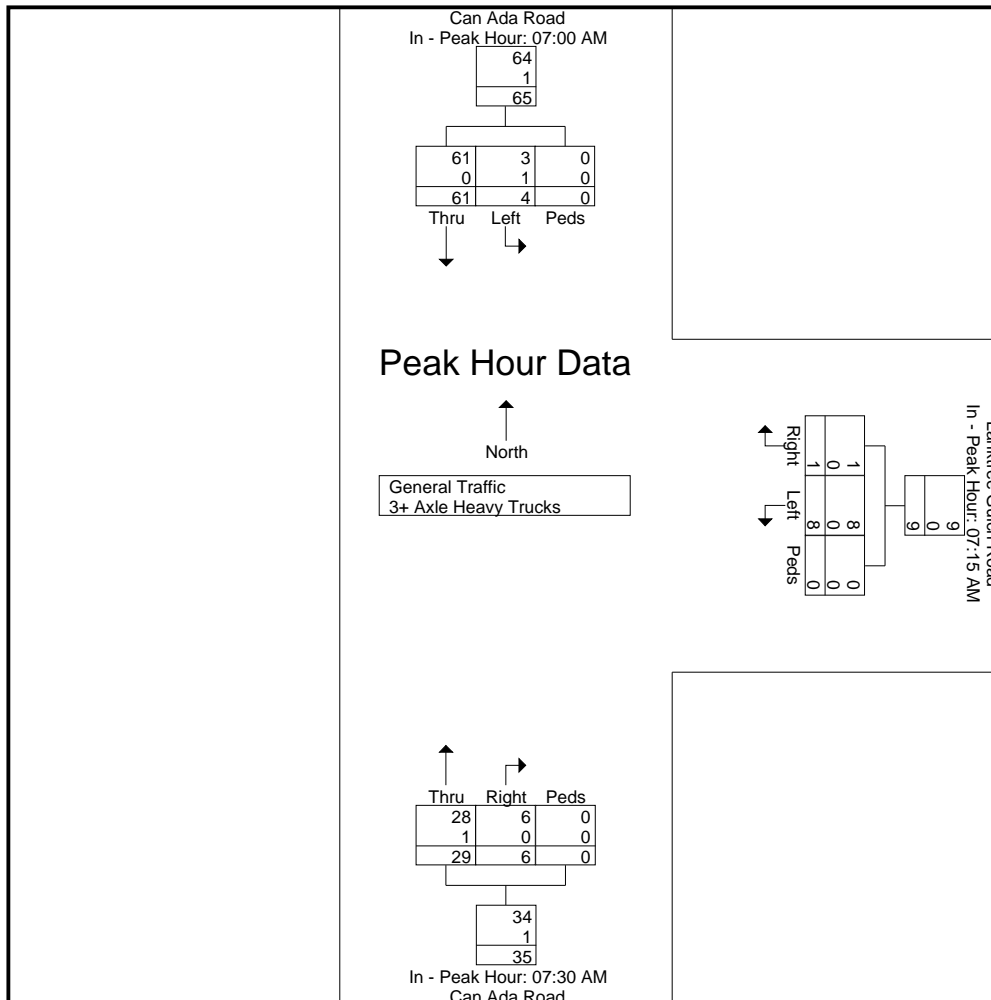
File Name : Lanktree Gulch Rd & Can Ada Rd
Site Code : 00000000
Start Date : 6/21/2022
Page No : 4

Start Time	Can Ada Road From North				Lanktree Gulch Road From East				Can Ada Road From South				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:00 AM				07:15 AM				07:30 AM			
+0 mins.	13	3	0	16	0	0	0	0	2	11	0	13
+15 mins.	19	0	0	19	0	3	0	3	1	7	0	8
+30 mins.	15	0	0	15	1	3	0	4	1	6	0	7
+45 mins.	14	1	0	15	0	2	0	2	2	5	0	7
Total Volume	61	4	0	65	1	8	0	9	6	29	0	35
% App. Total	93.8	6.2	0		11.1	88.9	0		17.1	82.9	0	
PHF	.803	.333	.000	.855	.250	.667	.000	.563	.750	.659	.000	.673
General Traffic	61	3	0	64	1	8	0	9	6	28	0	34
% General Traffic	100	75	0	98.5	100	100	0	100	100	96.6	0	97.1
3+ Axle Heavy Trucks	0	1	0	1	0	0	0	0	0	1	0	1
% 3+ Axle Heavy Trucks	0	25	0	1.5	0	0	0	0	0	3.4	0	2.9



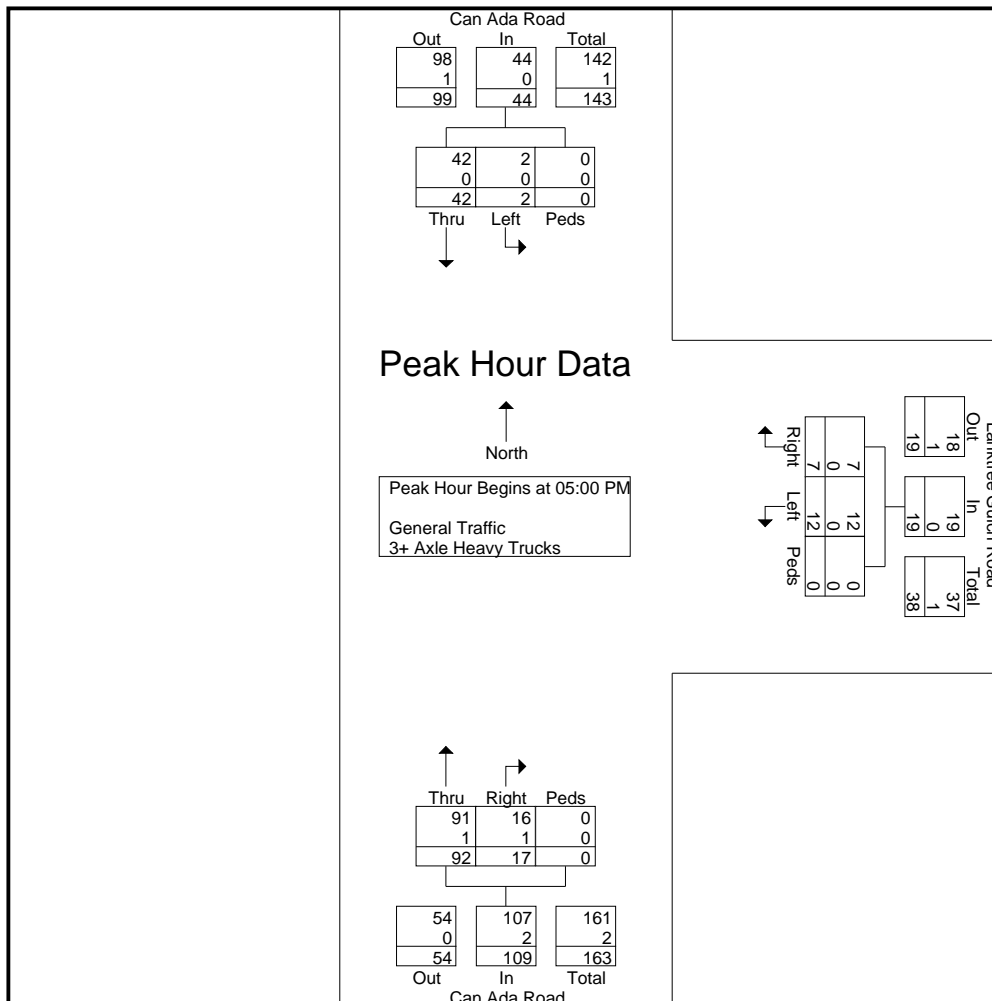
L2 Data Collection

L2DataCollection.com
 Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Intersection: Lanktree Gulch / an Ada Rd
 City, State: Star, Idaho
 Control: Stop Sign

File Name : Lanktree Gulch Rd & Can Ada Rd
 Site Code : 00000000
 Start Date : 6/21/2022
 Page No : 5

Start Time	Can Ada Road From North				Lanktree Gulch Road From East				Can Ada Road From South				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	12	0	0	12	2	4	0	6	4	17	0	21	39
05:15 PM	12	1	0	13	1	2	0	3	4	16	0	20	36
05:30 PM	9	0	0	9	3	5	0	8	7	30	0	37	54
05:45 PM	9	1	0	10	1	1	0	2	2	29	0	31	43
Total Volume	42	2	0	44	7	12	0	19	17	92	0	109	172
% App. Total	95.5	4.5	0		36.8	63.2	0		15.6	84.4	0		
PHF	.875	.500	.000	.846	.583	.600	.000	.594	.607	.767	.000	.736	.796
General Traffic	42	2	0	44	7	12	0	19	16	91	0	107	170
% General Traffic	100	100	0	100	100	100	0	100	94.1	98.9	0	98.2	98.8
3+ Axle Heavy Trucks	0	0	0	0	0	0	0	0	1	1	0	2	2
% 3+ Axle Heavy Trucks	0	0	0	0	0	0	0	0	5.9	1.1	0	1.8	1.2



L2 Data Collection

L2DataCollection.com
 Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Intersection: Lanktree Gulch / an Ada Rd
 City, State: Star, Idaho
 Control: Stop Sign

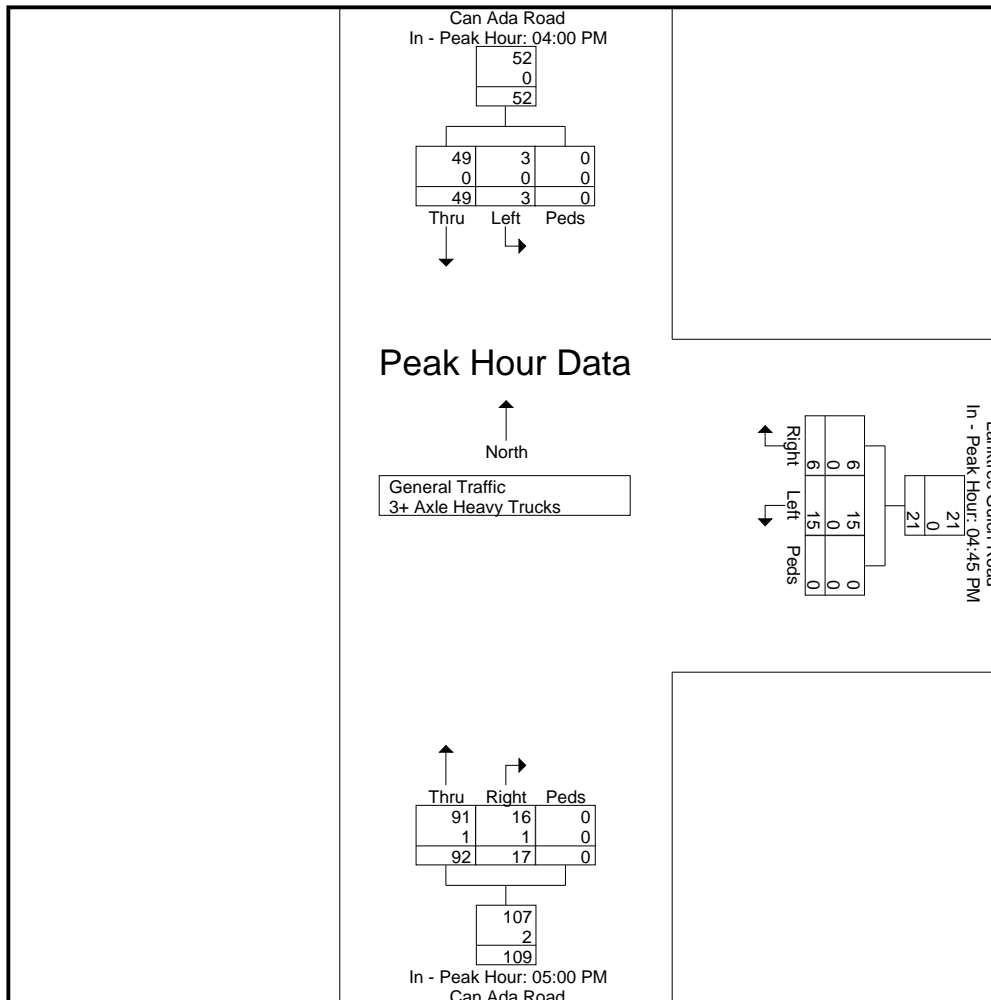
File Name : Lanktree Gulch Rd & Can Ada Rd
 Site Code : 00000000
 Start Date : 6/21/2022
 Page No : 6

Start Time	Can Ada Road From North				Lanktree Gulch Road From East				Can Ada Road From South				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	

Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:00 PM				04:45 PM				05:00 PM			
+0 mins.	17	0	0	17	0	4	0	4	4	17	0	21
+15 mins.	11	1	0	12	2	4	0	6	4	16	0	20
+30 mins.	9	1	0	10	1	2	0	3	7	30	0	37
+45 mins.	12	1	0	13	3	5	0	8	2	29	0	31
Total Volume	49	3	0	52	6	15	0	21	17	92	0	109
% App. Total	94.2	5.8	0		28.6	71.4	0		15.6	84.4	0	
PHF	.721	.750	.000	.765	.500	.750	.000	.656	.607	.767	.000	.736
General Traffic	49	3	0	52	6	15	0	21	16	91	0	107
% General Traffic	100	100	0	100	100	100	0	100	94.1	98.9	0	98.2
3+ Axle Heavy Trucks	0	0	0	0	0	0	0	0	1	1	0	2
% 3+ Axle Heavy Trucks	0	0	0	0	0	0	0	0	5.9	1.1	0	1.8



L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Lanktree Gulch / an Ada Rd
City, State: Star, Idaho
Control: Stop Sign

File Name : Lanktree Gulch Rd & Can Ada Rd
Site Code : 00000000
Start Date : 6/21/2022
Page No : 7

Image 1



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Can Ada / New Hope Rd
City, State: Star, Idaho
Control: All Stop

File Name : New Hope Rd & Can Ada Rd
Site Code : 00000000
Start Date : 6/14/2022
Page No : 1

Groups Printed- General Traffic - 3+ Axle Heavy Trucks

Start Time	Can Ada Road From North					New Hope Road From East					Can Ada Road From South					New Hope Road From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:00 AM	0	3	8	0	11	0	2	2	0	4	5	3	1	0	9	0	3	0	0	3	27
07:15 AM	1	6	0	0	7	3	1	2	0	6	10	4	0	0	14	0	2	1	0	3	30
07:30 AM	1	11	8	0	20	3	1	4	0	8	9	6	0	0	15	0	11	1	0	12	55
07:45 AM	0	8	18	0	26	0	2	8	0	10	6	2	1	0	9	1	3	2	0	6	51
Total	2	28	34	0	64	6	6	16	0	28	30	15	2	0	47	1	19	4	0	24	163
08:00 AM	3	8	11	2	24	0	0	6	0	6	3	11	1	1	16	3	6	0	0	9	55
08:15 AM	0	11	5	1	17	1	2	8	0	11	8	3	0	1	12	2	6	1	0	9	49
08:30 AM	1	6	8	0	15	2	0	9	0	11	4	5	1	0	10	1	5	1	0	7	43
08:45 AM	0	15	7	0	22	6	2	1	0	9	5	12	2	2	21	2	2	1	0	5	57
Total	4	40	31	3	78	9	4	24	0	37	20	31	4	4	59	8	19	3	0	30	204

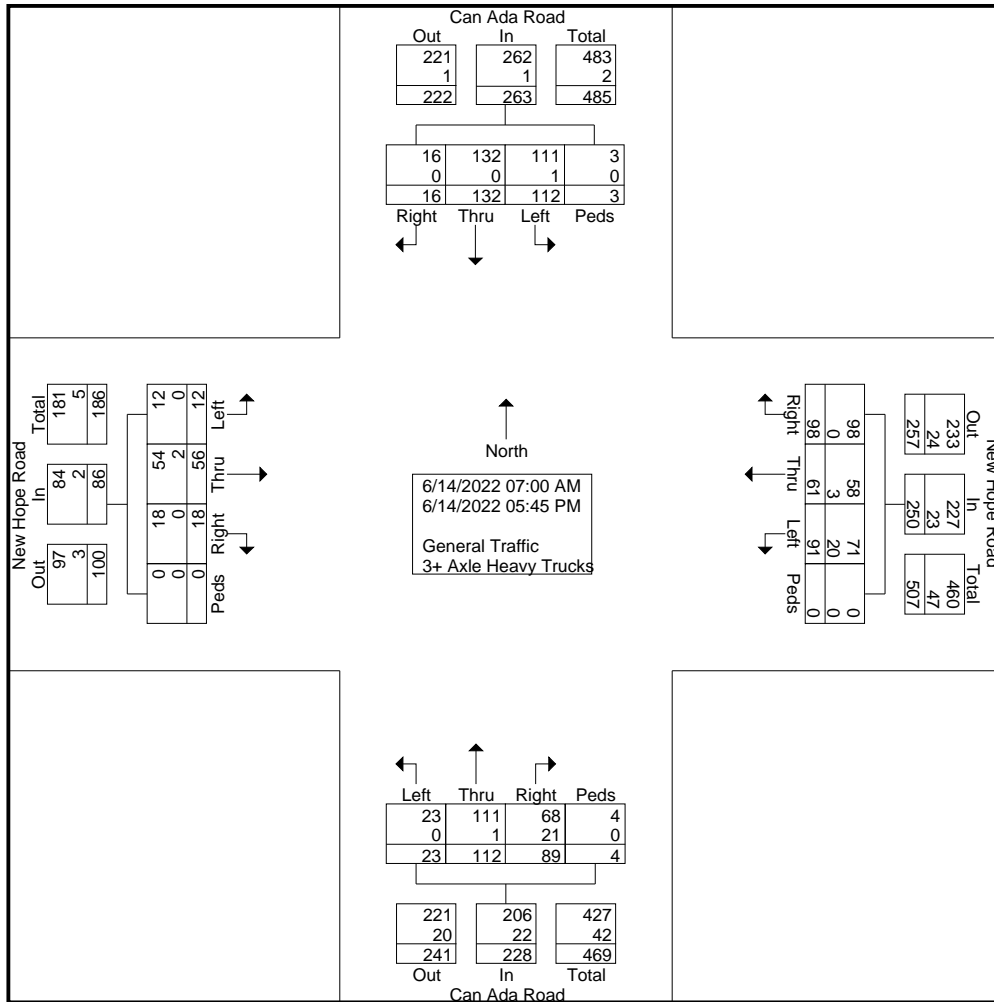
04:00 PM	0	4	6	0	10	10	3	9	0	22	4	11	1	0	16	2	2	0	0	4	52
04:15 PM	0	11	3	0	14	5	5	3	0	13	5	6	3	0	14	0	1	1	0	2	43
04:30 PM	3	5	4	0	12	10	2	5	0	17	11	10	0	0	21	1	2	0	0	3	53
04:45 PM	1	9	4	0	14	14	2	5	0	21	2	5	3	0	10	4	2	1	0	7	52
Total	4	29	17	0	50	39	12	22	0	73	22	32	7	0	61	7	7	2	0	16	200
05:00 PM	3	13	7	0	23	8	5	8	0	21	4	6	2	0	12	1	2	1	0	4	60
05:15 PM	0	9	8	0	17	7	9	4	0	20	7	7	5	0	19	0	3	0	0	3	59
05:30 PM	0	9	12	0	21	13	9	4	0	26	4	10	2	0	16	0	2	0	0	2	65
05:45 PM	3	4	3	0	10	16	16	13	0	45	2	11	1	0	14	1	4	2	0	7	76
Total	6	35	30	0	71	44	39	29	0	112	17	34	10	0	61	2	11	3	0	16	260
Grand Total	16	132	112	3	263	98	61	91	0	250	89	112	23	4	228	18	56	12	0	86	827
Apprch %	6.1	50.2	42.6	1.1		39.2	24.4	36.4	0		39	49.1	10.1	1.8		20.9	65.1	14	0		
Total %	1.9	16	13.5	0.4	31.8	11.9	7.4	11	0	30.2	10.8	13.5	2.8	0.5	27.6	2.2	6.8	1.5	0	10.4	
General Traffic	16	132	111	3	262	98	58	71	0	227	68	111	23	4	206	18	54	12	0	84	779
% General Traffic	100	100	99.1	100	99.6	100	95.1	78	0	90.8	76.4	99.1	100	100	90.4	100	96.4	100	0	97.7	94.2
3+ Axle Heavy Trucks	0	0	1	0	1	0	3	20	0	23	21	1	0	0	22	0	2	0	0	2	48
% 3+ Axle Heavy Trucks	0	0	0.9	0	0.4	0	4.9	22	0	9.2	23.6	0.9	0	0	9.6	0	3.6	0	0	2.3	5.8

L2 Data Collection

L2DataCollection.com
 Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Intersection: Can Ada / New Hope Rd
 City, State: Star, Idaho
 Control: All Stop

File Name : New Hope Rd & Can Ada Rd
 Site Code : 00000000
 Start Date : 6/14/2022
 Page No : 2



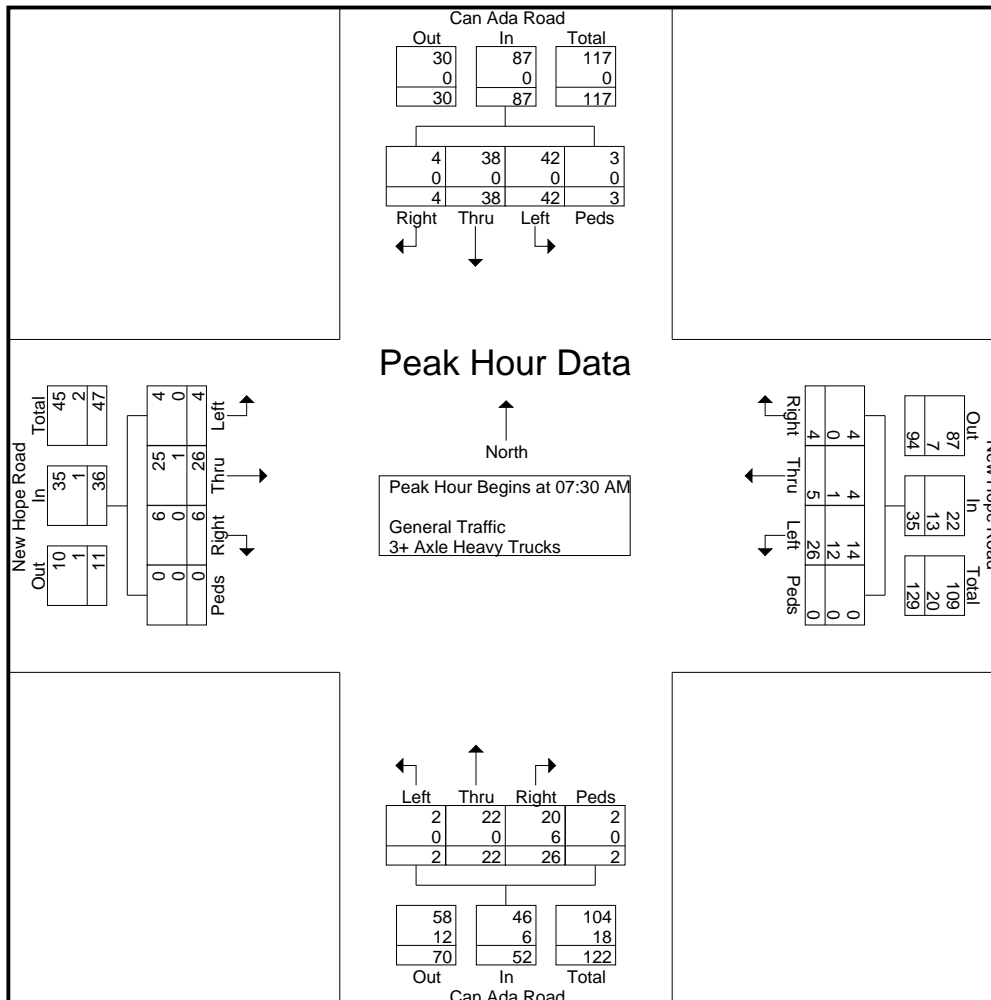
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Can Ada / New Hope Rd
City, State: Star, Idaho
Control: All Stop

File Name : New Hope Rd & Can Ada Rd
Site Code : 00000000
Start Date : 6/14/2022
Page No : 3

Start Time	Can Ada Road From North					New Hope Road From East					Can Ada Road From South					New Hope Road From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	1	11	8	0	20	3	1	4	0	8	9	6	0	0	15	0	11	1	0	12	55
07:45 AM	0	8	18	0	26	0	2	8	0	10	6	2	1	0	9	1	3	2	0	6	51
08:00 AM	3	8	11	2	24	0	0	6	0	6	3	11	1	1	16	3	6	0	0	9	55
08:15 AM	0	11	5	1	17	1	2	8	0	11	8	3	0	1	12	2	6	1	0	9	49
Total Volume	4	38	42	3	87	4	5	26	0	35	26	22	2	2	52	6	26	4	0	36	210
% App. Total	4.6	43.7	48.3	3.4		11.4	14.3	74.3	0		50	42.3	3.8	3.8		16.7	72.2	11.1	0		
PHF	.333	.864	.583	.375	.837	.333	.625	.813	.000	.795	.722	.500	.500	.500	.813	.500	.591	.500	.000	.750	.955
General Traffic	4	38	42	3	87	4	4	14	0	22	20	22	2	2	46	6	25	4	0	35	190
% General Traffic	100	100	100	100	100	100	80.0	53.8	0	62.9	76.9	100	100	100	88.5	100	96.2	100	0	97.2	90.5
3+ Axle Heavy Trucks	0	0	0	0	0	0	1	12	0	13	6	0	0	0	6	0	1	0	0	1	20
% 3+ Axle Heavy Trucks	0	0	0	0	0	0	20.0	46.2	0	37.1	23.1	0	0	0	11.5	0	3.8	0	0	2.8	9.5



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Can Ada / New Hope Rd
City, State: Star, Idaho
Control: All Stop

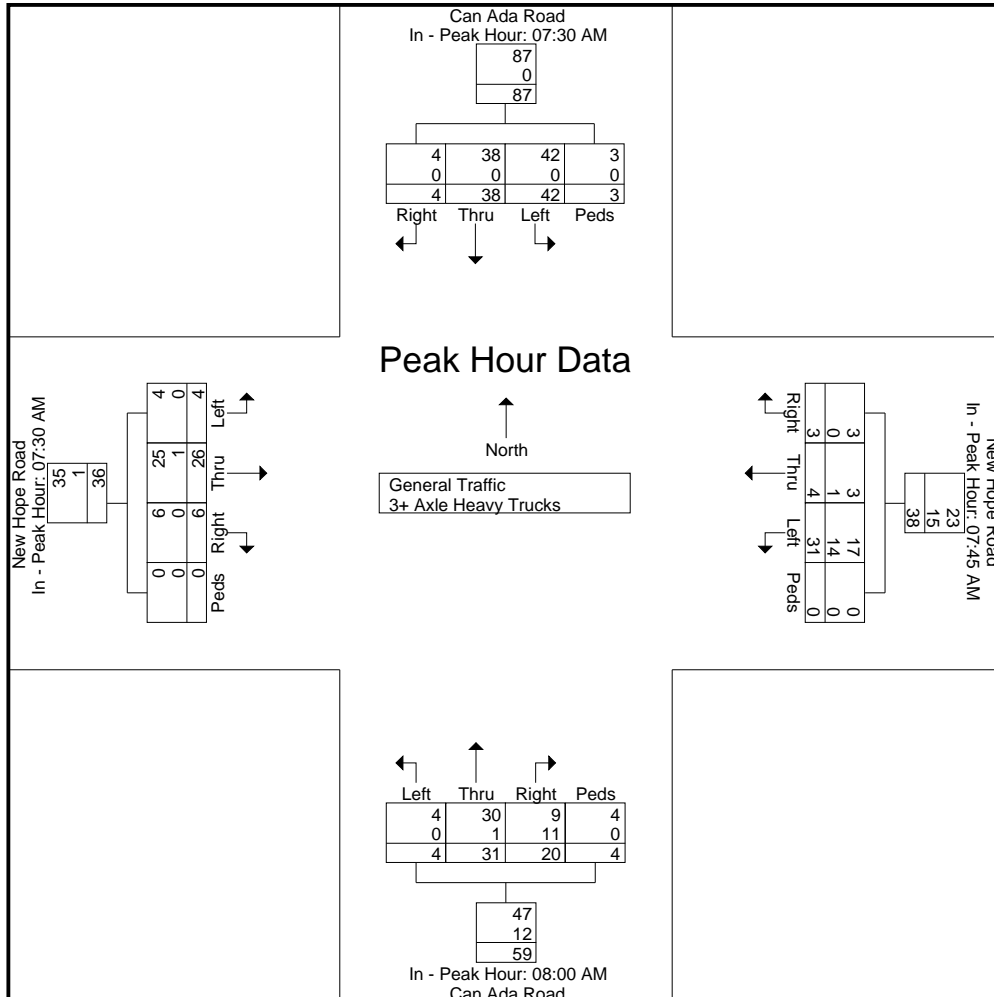
File Name : New Hope Rd & Can Ada Rd
Site Code : 00000000
Start Date : 6/14/2022
Page No : 4

Start Time	Can Ada Road From North					New Hope Road From East					Can Ada Road From South					New Hope Road From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:30 AM					07:45 AM					08:00 AM					07:30 AM				
+0 mins.	1	11	8	0	20	0	2	8	0	10	3	11	1	1	16	0	11	1	0	12
+15 mins.	0	8	18	0	26	0	0	6	0	6	8	3	0	1	12	1	3	2	0	6
+30 mins.	3	8	11	2	24	1	2	8	0	11	4	5	1	0	10	3	6	0	0	9
+45 mins.	0	11	5	1	17	2	0	9	0	11	5	12	2	2	21	2	6	1	0	9
Total Volume	4	38	42	3	87	3	4	31	0	38	20	31	4	4	59	6	26	4	0	36
% App. Total	4.6	43.7	48.3	3.4		7.9	10.5	81.6	0		33.9	52.5	6.8	6.8		16.7	72.2	11.1	0	
PHF	.333	.864	.583	.375	.837	.375	.500	.861	.000	.864	.625	.646	.500	.500	.702	.500	.591	.500	.000	.750
General Traffic	4	38	42	3	87	3	3	17	0	23	9	30	4	4	47	6	25	4	0	35
% General Traffic	100	100	100	100	100	100	75	54.8	0	60.5	45	96.8	100	100	79.7	100	96.2	100	0	97.2
3+ Axle Heavy Trucks	0	0	0	0	0	0	1	14	0	15	11	1	0	0	12	0	1	0	0	1
% 3+ Axle Heavy Trucks	0	0	0	0	0	0	25	45.2	0	39.5	55	3.2	0	0	20.3	0	3.8	0	0	2.8



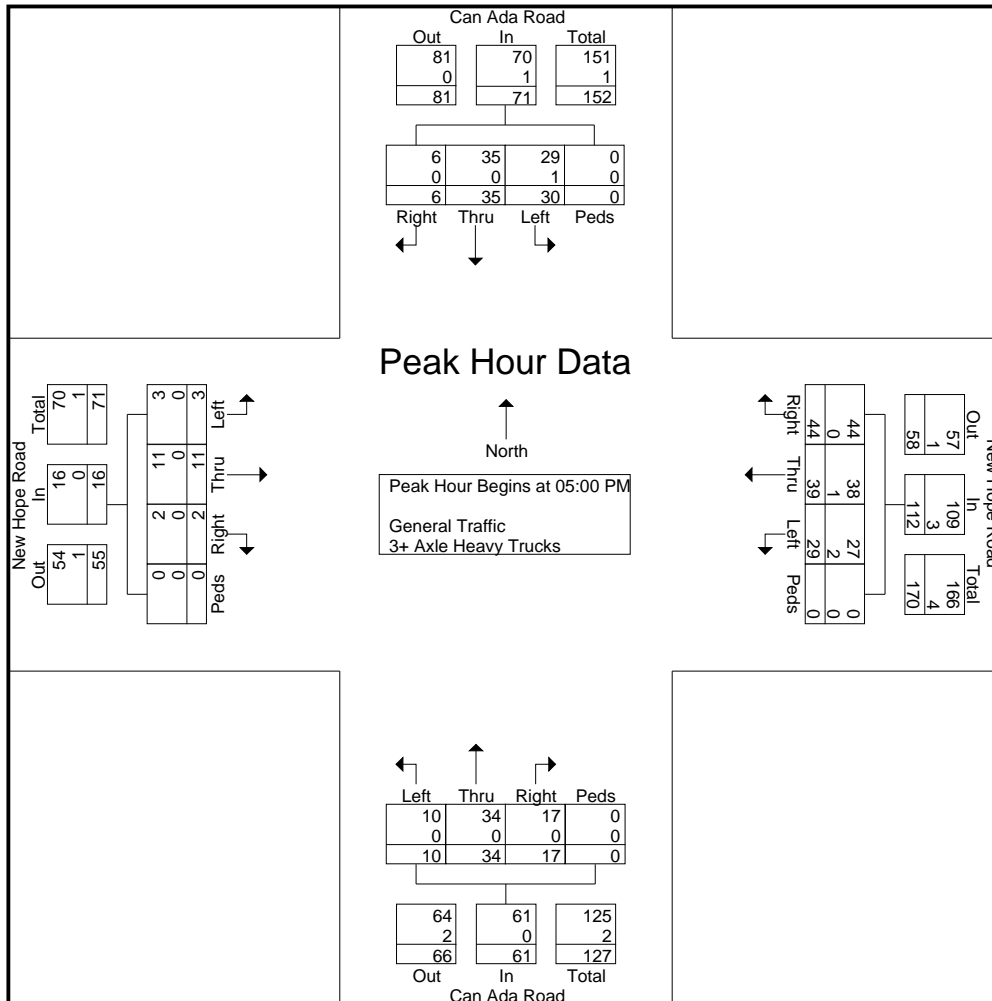
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Can Ada / New Hope Rd
City, State: Star, Idaho
Control: All Stop

File Name : New Hope Rd & Can Ada Rd
Site Code : 00000000
Start Date : 6/14/2022
Page No : 5

Start Time	Can Ada Road From North					New Hope Road From East					Can Ada Road From South					New Hope Road From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	3	13	7	0	23	8	5	8	0	21	4	6	2	0	12	1	2	1	0	4	60
05:15 PM	0	9	8	0	17	7	9	4	0	20	7	7	5	0	19	0	3	0	0	3	59
05:30 PM	0	9	12	0	21	13	9	4	0	26	4	10	2	0	16	0	2	0	0	2	65
05:45 PM	3	4	3	0	10	16	16	13	0	45	2	11	1	0	14	1	4	2	0	7	76
Total Volume	6	35	30	0	71	44	39	29	0	112	17	34	10	0	61	2	11	3	0	16	260
% App. Total	8.5	49.3	42.3	0		39.3	34.8	25.9	0		27.9	55.7	16.4	0		12.5	68.8	18.8	0		
PHF	.500	.673	.625	.000	.772	.688	.609	.558	.000	.622	.607	.773	.500	.000	.803	.500	.688	.375	.000	.571	.855
General Traffic	6	35	29	0	70	44	38	27	0	109	17	34	10	0	61	2	11	3	0	16	256
% General Traffic	100	100	96.7	0	98.6	100	97.4	93.1	0	97.3	100	100	100	0	100	100	100	100	0	100	98.5
3+ Axle Heavy Trucks	0	0	1	0	1	0	1	2	0	3	0	0	0	0	0	0	0	0	0	0	4
% 3+ Axle Heavy Trucks	0	0	3.3	0	1.4	0	2.6	6.9	0	2.7	0	0	0	0	0	0	0	0	0	0	1.5



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Can Ada / New Hope Rd
City, State: Star, Idaho
Control: All Stop

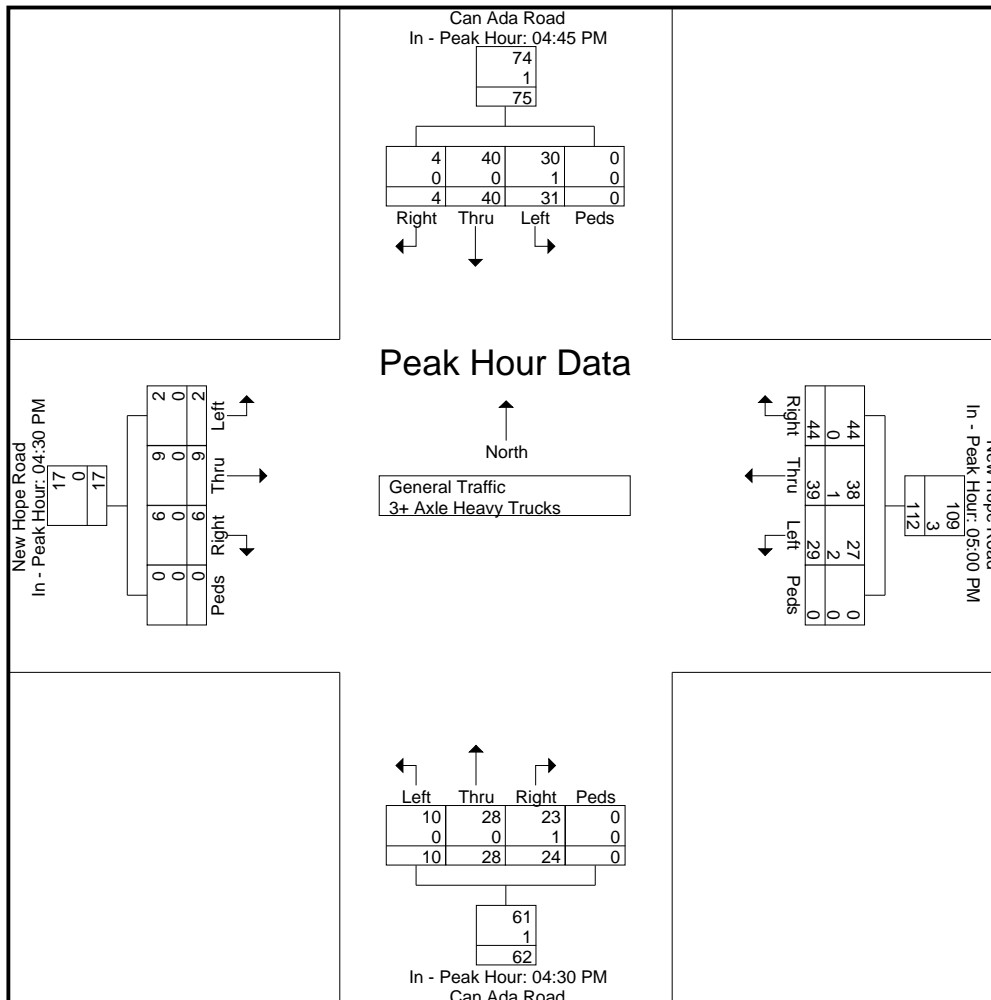
File Name : New Hope Rd & Can Ada Rd
Site Code : 00000000
Start Date : 6/14/2022
Page No : 6

Start Time	Can Ada Road From North					New Hope Road From East					Can Ada Road From South					New Hope Road From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:45 PM					05:00 PM					04:30 PM					04:30 PM				
+0 mins.	1	9	4	0	14	8	5	8	0	21	11	10	0	0	21	1	2	0	0	3
+15 mins.	3	13	7	0	23	7	9	4	0	20	2	5	3	0	10	4	2	1	0	7
+30 mins.	0	9	8	0	17	13	9	4	0	26	4	6	2	0	12	1	2	1	0	4
+45 mins.	0	9	12	0	21	16	16	13	0	45	7	7	5	0	19	0	3	0	0	3
Total Volume	4	40	31	0	75	44	39	29	0	112	24	28	10	0	62	6	9	2	0	17
% App. Total	5.3	53.3	41.3	0		39.3	34.8	25.9	0		38.7	45.2	16.1	0		35.3	52.9	11.8	0	
PHF	.333	.769	.646	.000	.815	.688	.609	.558	.000	.622	.545	.700	.500	.000	.738	.375	.750	.500	.000	.607
General Traffic	4	40	30	0	74	44	38	27	0	109	23	28	10	0	61	6	9	2	0	17
% General Traffic	100	100	96.8	0	98.7	100	97.4	93.1	0	97.3	95.8	100	100	0	98.4	100	100	100	0	100
3+ Axle Heavy Trucks	0	0	1	0	1	0	1	2	0	3	1	0	0	0	1	0	0	0	0	0
% 3+ Axle Heavy Trucks	0	0	3.2	0	1.3	0	2.6	6.9	0	2.7	4.2	0	0	0	1.6	0	0	0	0	0



L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Can Ada / New Hope Rd
City, State: Star, Idaho
Control: All Stop

File Name : New Hope Rd & Can Ada Rd
Site Code : 00000000
Start Date : 6/14/2022
Page No : 7

Image 1



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Can Ada Rd /Purple Sage Rd
City, State: Star, Idaho
Control: Stop Sign

File Name : Purple Sage Rd & Can Ada Rd
Site Code : 00000000
Start Date : 6/14/2022
Page No : 1

Groups Printed- General Traffic - 3+ Axle Heavy Trucks

Start Time	Can Ada Road From North				Can Ada Road From South				Purple Sage Road From West				Int. Total
	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	
07:00 AM	0	1	0	1	0	2	0	2	15	2	0	17	20
07:15 AM	0	1	0	1	1	2	0	3	18	0	0	18	22
07:30 AM	0	2	0	2	2	6	0	8	12	0	0	12	22
07:45 AM	0	1	0	1	0	8	0	8	14	0	1	15	24
Total	0	5	0	5	3	18	0	21	59	2	1	62	88
08:00 AM	0	0	0	0	0	6	0	6	10	1	0	11	17
08:15 AM	0	0	0	0	0	3	0	3	20	0	1	21	24
08:30 AM	0	1	0	1	3	7	0	10	17	1	0	18	29
08:45 AM	0	2	0	2	1	5	0	6	10	1	0	11	19
Total	0	3	0	3	4	21	0	25	57	3	1	61	89

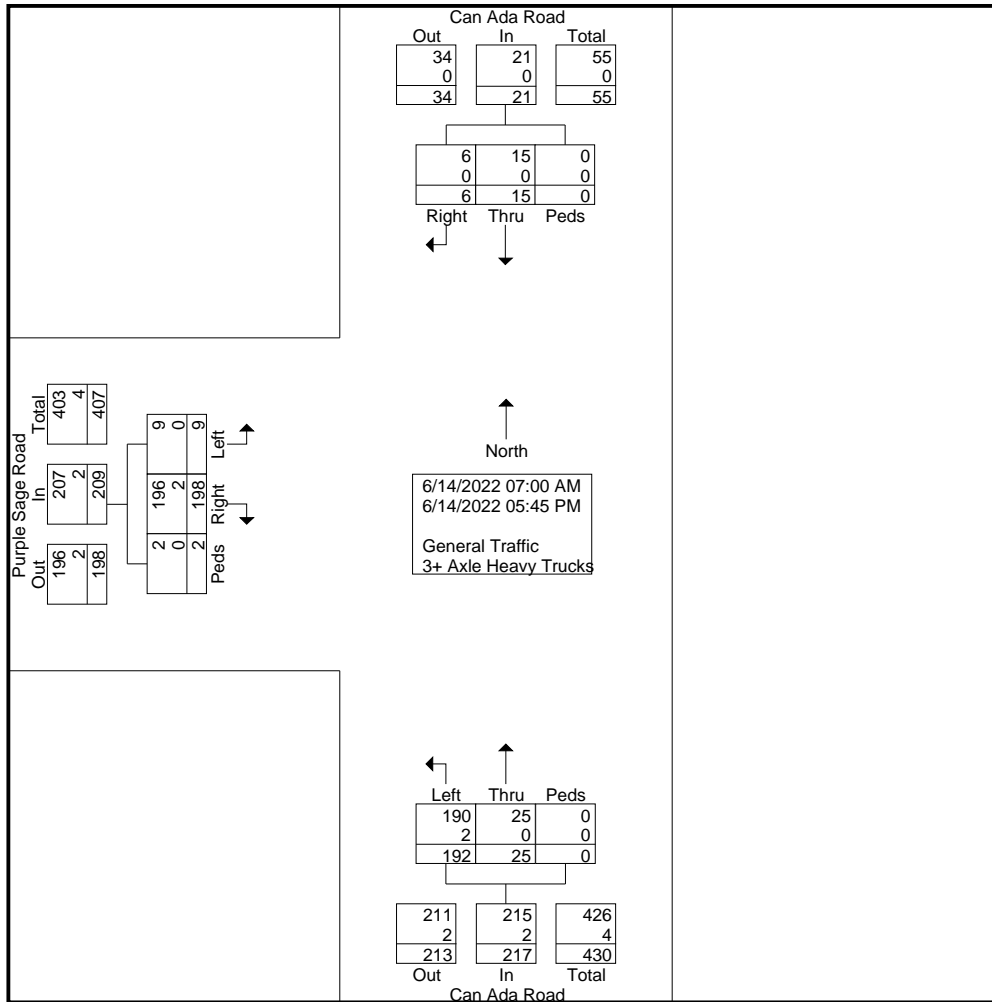
04:00 PM	0	2	0	2	0	18	0	18	14	0	0	14	34
04:15 PM	3	1	0	4	1	12	0	13	11	1	0	12	29
04:30 PM	1	1	0	2	3	20	0	23	6	0	0	6	31
04:45 PM	1	0	0	1	5	20	0	25	11	3	0	14	40
Total	5	4	0	9	9	70	0	79	42	4	0	46	134
05:00 PM	1	1	0	2	1	17	0	18	12	0	0	12	32
05:15 PM	0	0	0	0	0	15	0	15	10	0	0	10	25
05:30 PM	0	0	0	0	4	27	0	31	12	0	0	12	43
05:45 PM	0	2	0	2	4	24	0	28	6	0	0	6	36
Total	1	3	0	4	9	83	0	92	40	0	0	40	136
Grand Total	6	15	0	21	25	192	0	217	198	9	2	209	447
Apprch %	28.6	71.4	0		11.5	88.5	0		94.7	4.3	1		
Total %	1.3	3.4	0	4.7	5.6	43	0	48.5	44.3	2	0.4	46.8	
General Traffic	6	15	0	21	25	190	0	215	196	9	2	207	443
% General Traffic	100	100	0	100	100	99	0	99.1	99	100	100	99	99.1
3+ Axle Heavy Trucks	0	0	0	0	0	2	0	2	2	0	0	2	4
% 3+ Axle Heavy Trucks	0	0	0	0	0	1	0	0.9	1	0	0	1	0.9

L2 Data Collection

L2DataCollection.com
 Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Intersection: Can Ada Rd /Purple Sage Rd
 City, State: Star, Idaho
 Control: Stop Sign

File Name : Purple Sage Rd & Can Ada Rd
 Site Code : 00000000
 Start Date : 6/14/2022
 Page No : 2



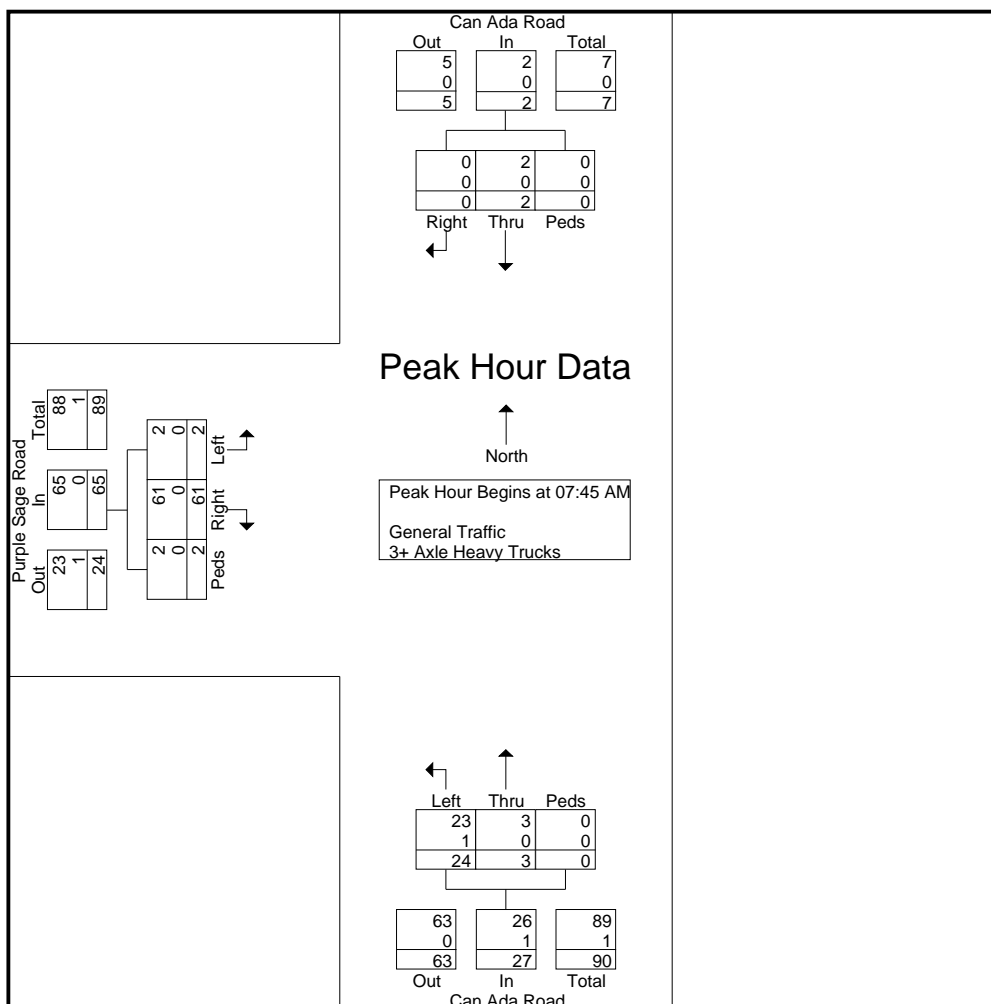
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Can Ada Rd /Purple Sage Rd
City, State: Star, Idaho
Control: Stop Sign

File Name : Purple Sage Rd & Can Ada Rd
Site Code : 00000000
Start Date : 6/14/2022
Page No : 3

Start Time	Can Ada Road From North				Can Ada Road From South				Purple Sage Road From West				Int. Total
	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:45 AM													
07:45 AM	0	1	0	1	0	8	0	8	14	0	1	15	24
08:00 AM	0	0	0	0	0	6	0	6	10	1	0	11	17
08:15 AM	0	0	0	0	0	3	0	3	20	0	1	21	24
08:30 AM	0	1	0	1	3	7	0	10	17	1	0	18	29
Total Volume	0	2	0	2	3	24	0	27	61	2	2	65	94
% App. Total	0	100	0	100	11.1	88.9	0	96.3	93.8	3.1	3.1	100	98.9
PHF	.000	.500	.000	.500	.250	.750	.000	.675	.763	.500	.500	.774	.810
General Traffic	0	2	0	2	3	23	0	26	61	2	2	65	93
% General Traffic	0	100	0	100	100	95.8	0	96.3	100	100	100	100	98.9
3+ Axle Heavy Trucks	0	0	0	0	0	1	0	1	0	0	0	0	1
% 3+ Axle Heavy Trucks	0	0	0	0	0	4.2	0	3.7	0	0	0	0	1.1



L2 Data Collection

L2DataCollection.com
 Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Intersection: Can Ada Rd /Purple Sage Rd
 City, State: Star, Idaho
 Control: Stop Sign

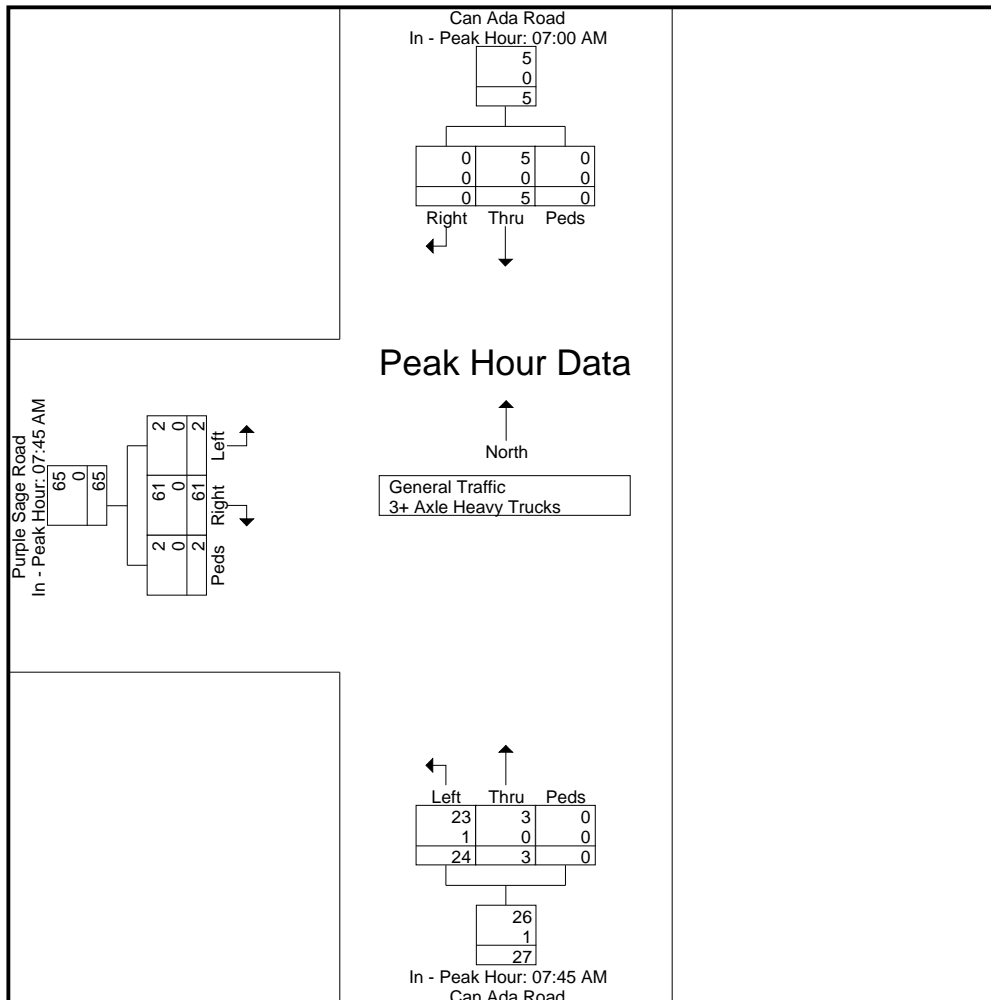
File Name : Purple Sage Rd & Can Ada Rd
 Site Code : 00000000
 Start Date : 6/14/2022
 Page No : 4

Start Time	Can Ada Road From North				Can Ada Road From South				Purple Sage Road From West				Int. Total
	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:00 AM				07:45 AM				07:45 AM			
+0 mins.	0	1	0	1	0	8	0	8	14	0	1	15
+15 mins.	0	1	0	1	0	6	0	6	10	1	0	11
+30 mins.	0	2	0	2	0	3	0	3	20	0	1	21
+45 mins.	0	1	0	1	3	7	0	10	17	1	0	18
Total Volume	0	5	0	5	3	24	0	27	61	2	2	65
% App. Total	0	100	0		11.1	88.9	0		93.8	3.1	3.1	
PHF	.000	.625	.000	.625	.250	.750	.000	.675	.763	.500	.500	.774
General Traffic	0	5	0	5	3	23	0	26	61	2	2	65
% General Traffic	0	100	0	100	100	95.8	0	96.3	100	100	100	100
3+ Axle Heavy Trucks	0	0	0	0	0	1	0	1	0	0	0	0
% 3+ Axle Heavy Trucks	0	0	0	0	0	4.2	0	3.7	0	0	0	0



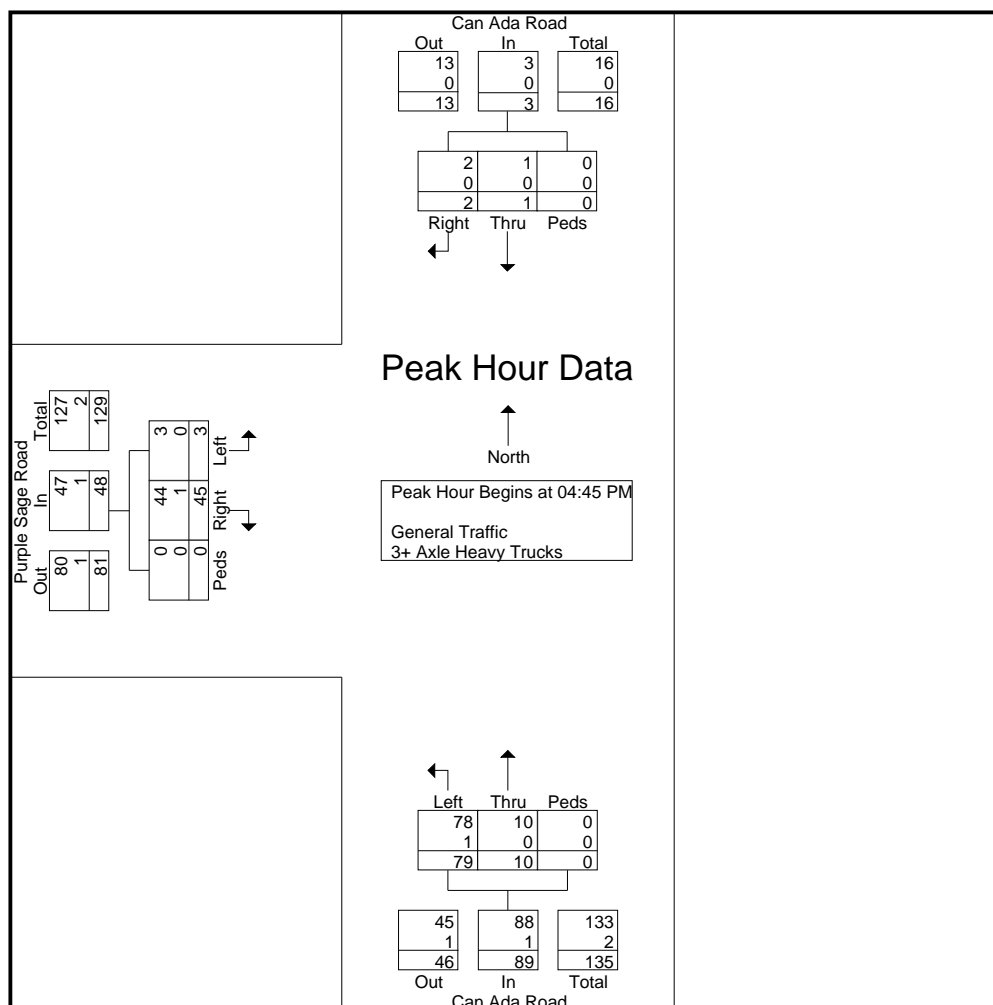
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Can Ada Rd /Purple Sage Rd
City, State: Star, Idaho
Control: Stop Sign

File Name : Purple Sage Rd & Can Ada Rd
Site Code : 00000000
Start Date : 6/14/2022
Page No : 5

Start Time	Can Ada Road From North				Can Ada Road From South				Purple Sage Road From West				Int. Total
	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	1	0	0	1	5	20	0	25	11	3	0	14	40
05:00 PM	1	1	0	2	1	17	0	18	12	0	0	12	32
05:15 PM	0	0	0	0	0	15	0	15	10	0	0	10	25
05:30 PM	0	0	0	0	4	27	0	31	12	0	0	12	43
Total Volume	2	1	0	3	10	79	0	89	45	3	0	48	140
% App. Total	66.7	33.3	0		11.2	88.8	0		93.8	6.2	0		
PHF	.500	.250	.000	.375	.500	.731	.000	.718	.938	.250	.000	.857	.814
General Traffic	2	1	0	3	10	78	0	88	44	3	0	47	138
% General Traffic	100	100	0	100	100	98.7	0	98.9	97.8	100	0	97.9	98.6
3+ Axle Heavy Trucks	0	0	0	0	0	1	0	1	1	0	0	1	2
% 3+ Axle Heavy Trucks	0	0	0	0	0	1.3	0	1.1	2.2	0	0	2.1	1.4



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Can Ada Rd /Purple Sage Rd
City, State: Star, Idaho
Control: Stop Sign

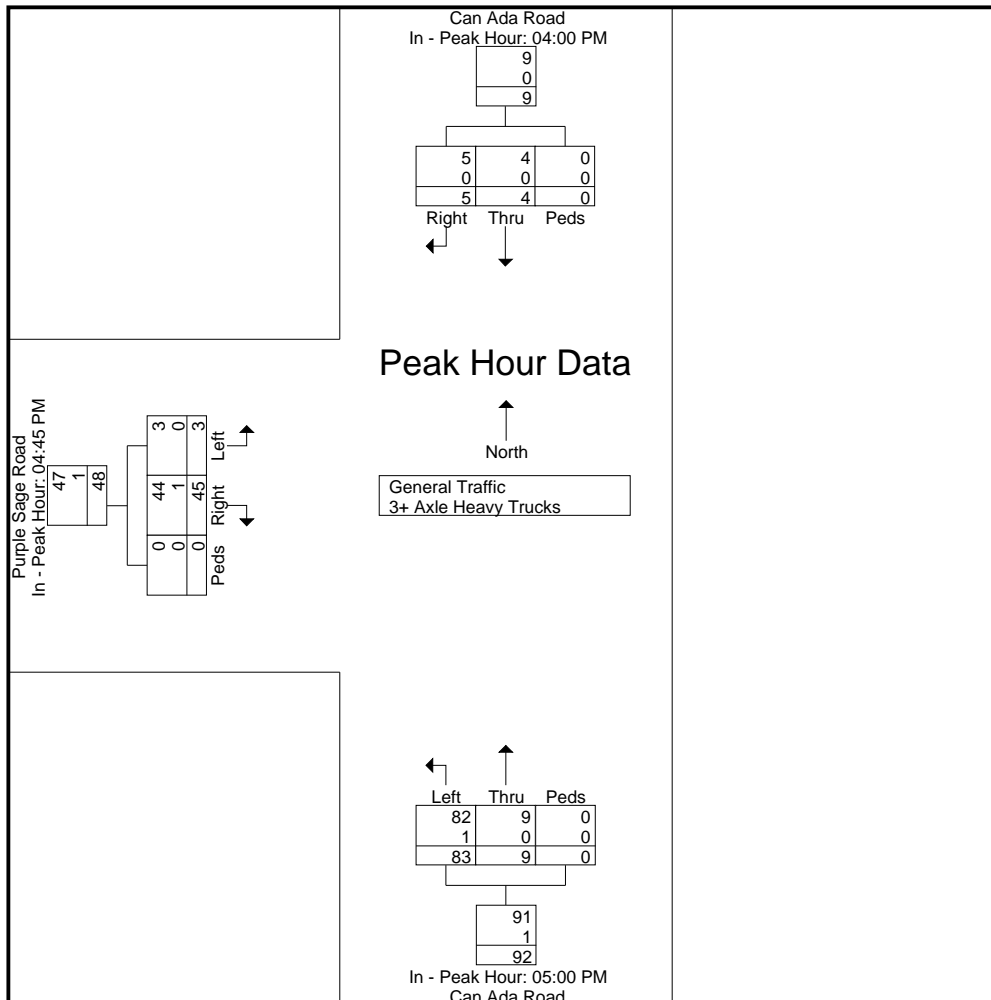
File Name : Purple Sage Rd & Can Ada Rd
Site Code : 00000000
Start Date : 6/14/2022
Page No : 6

Start Time	Can Ada Road From North				Can Ada Road From South				Purple Sage Road From West				Int. Total
	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	

Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:00 PM				05:00 PM				04:45 PM			
+0 mins.	0	2	0	2	1	17	0	18	11	3	0	14
+15 mins.	3	1	0	4	0	15	0	15	12	0	0	12
+30 mins.	1	1	0	2	4	27	0	31	10	0	0	10
+45 mins.	1	0	0	1	4	24	0	28	12	0	0	12
Total Volume	5	4	0	9	9	83	0	92	45	3	0	48
% App. Total	55.6	44.4	0		9.8	90.2	0		93.8	6.2	0	
PHF	.417	.500	.000	.563	.563	.769	.000	.742	.938	.250	.000	.857
General Traffic	5	4	0	9	9	82	0	91	44	3	0	47
% General Traffic	100	100	0	100	100	98.8	0	98.9	97.8	100	0	97.9
3+ Axle Heavy Trucks	0	0	0	0	0	1	0	1	1	0	0	1
% 3+ Axle Heavy Trucks	0	0	0	0	0	1.2	0	1.1	2.2	0	0	2.1



L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Can Ada Rd /Purple Sage Rd
City, State: Star, Idaho
Control: Stop Sign

File Name : Purple Sage Rd & Can Ada Rd
Site Code : 00000000
Start Date : 6/14/2022
Page No : 7

Image 1



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Can Ada Rd / SH-44
City, State: Star, Idaho
Control: Stop Sign

File Name : SH-44 & Can Ada Rd
Site Code : 00000000
Start Date : 7/12/2022
Page No : 1

Groups Printed- General Traffic - 3+ Axle Heavy Trucks

Start Time	Can Ada Road From North				SH-44 (State Street) From East				SH-44 (State Street) From West				Int. Total
	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	
07:00 AM	7	14	0	21	4	65	0	69	158	5	0	163	253
07:15 AM	10	8	0	18	11	62	0	73	157	11	0	168	259
07:30 AM	12	14	0	26	6	68	0	74	169	10	0	179	279
07:45 AM	9	10	0	19	8	71	0	79	152	9	0	161	259
Total	38	46	0	84	29	266	0	295	636	35	0	671	1050
08:00 AM	12	14	0	26	7	73	0	80	124	8	0	132	238
08:15 AM	7	13	0	20	5	62	0	67	124	3	0	127	214
08:30 AM	8	8	0	16	11	80	0	91	156	10	0	166	273
08:45 AM	7	21	0	28	9	74	0	83	113	11	0	124	235
Total	34	56	0	90	32	289	0	321	517	32	0	549	960

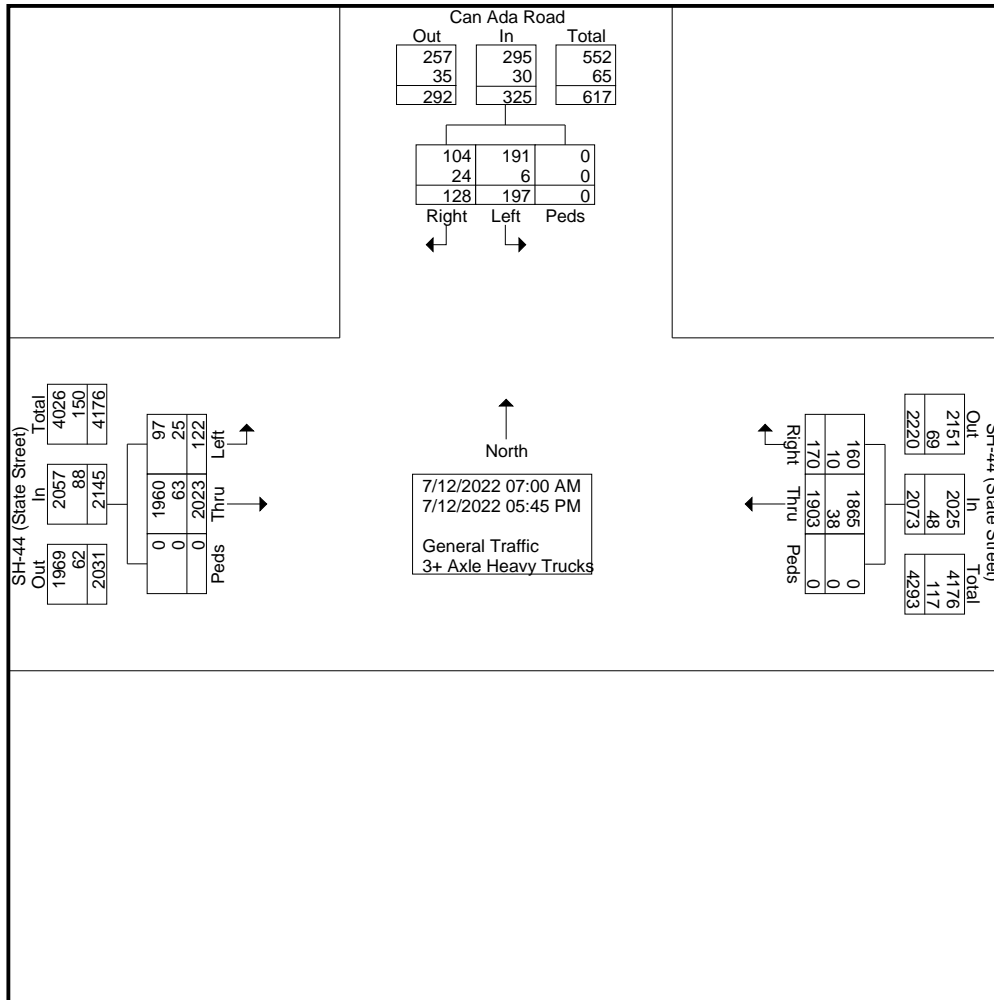
04:00 PM	4	10	0	14	14	168	0	182	57	4	0	61	257
04:15 PM	6	17	0	23	21	144	0	165	155	13	0	168	356
04:30 PM	5	10	0	15	11	180	0	191	105	7	0	112	318
04:45 PM	8	14	0	22	6	170	0	176	125	8	0	133	331
Total	23	51	0	74	52	662	0	714	442	32	0	474	1262
05:00 PM	7	13	0	20	11	184	0	195	119	5	0	124	339
05:15 PM	10	13	0	23	16	159	0	175	117	4	0	121	319
05:30 PM	12	12	0	24	16	162	0	178	106	7	0	113	315
05:45 PM	4	6	0	10	14	181	0	195	86	7	0	93	298
Total	33	44	0	77	57	686	0	743	428	23	0	451	1271
Grand Total	128	197	0	325	170	1903	0	2073	2023	122	0	2145	4543
Apprch %	39.4	60.6	0		8.2	91.8	0		94.3	5.7	0		
Total %	2.8	4.3	0	7.2	3.7	41.9	0	45.6	44.5	2.7	0	47.2	
General Traffic	104	191	0	295	160	1865	0	2025	1960	97	0	2057	4377
% General Traffic	81.2	97	0	90.8	94.1	98	0	97.7	96.9	79.5	0	95.9	96.3
3+ Axle Heavy Trucks	24	6	0	30	10	38	0	48	63	25	0	88	166
% 3+ Axle Heavy Trucks	18.8	3	0	9.2	5.9	2	0	2.3	3.1	20.5	0	4.1	3.7

L2 Data Collection

L2DataCollection.com
 Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Intersection: Can Ada Rd / SH-44
 City, State: Star, Idaho
 Control: Stop Sign

File Name : SH-44 & Can Ada Rd
 Site Code : 00000000
 Start Date : 7/12/2022
 Page No : 2



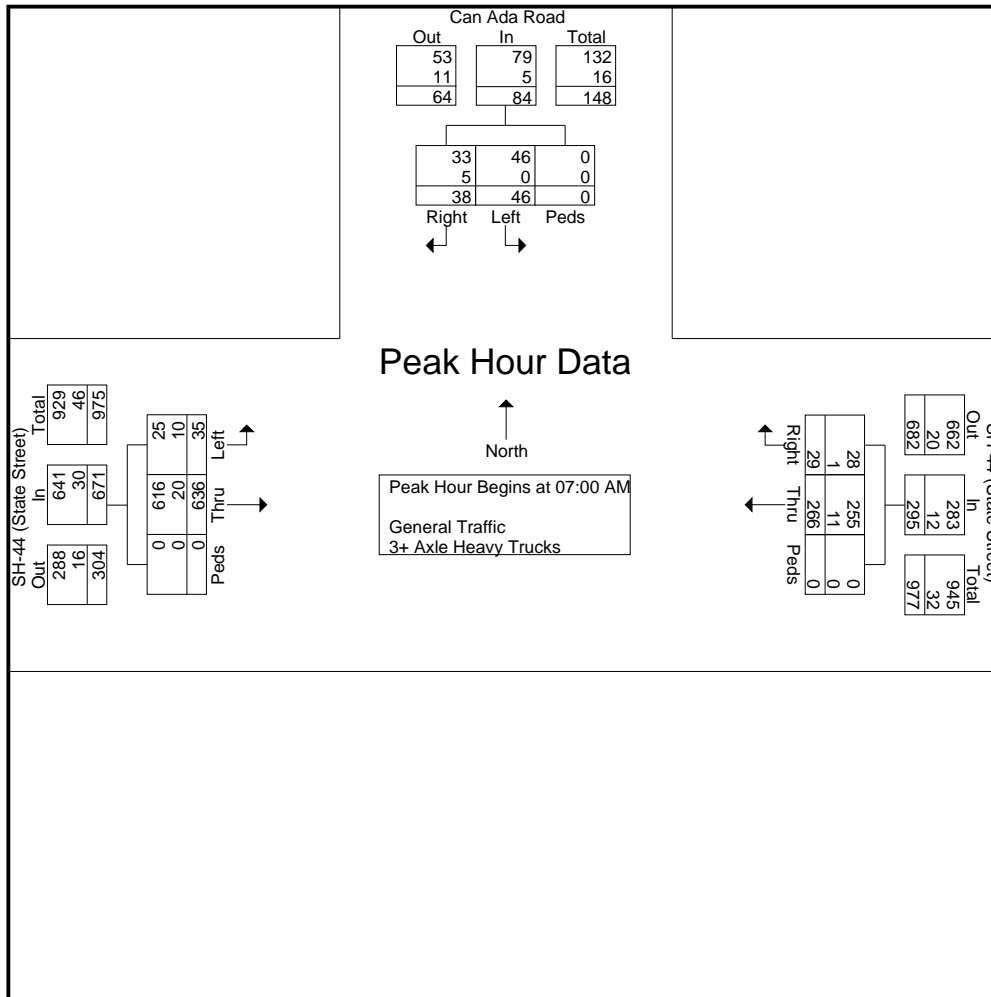
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Can Ada Rd / SH-44
City, State: Star, Idaho
Control: Stop Sign

File Name : SH-44 & Can Ada Rd
Site Code : 00000000
Start Date : 7/12/2022
Page No : 3

Start Time	Can Ada Road From North				SH-44 (State Street) From East				SH-44 (State Street) From West				Int. Total
	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:00 AM													
07:00 AM	7	14	0	21	4	65	0	69	158	5	0	163	253
07:15 AM	10	8	0	18	11	62	0	73	157	11	0	168	259
07:30 AM	12	14	0	26	6	68	0	74	169	10	0	179	279
07:45 AM	9	10	0	19	8	71	0	79	152	9	0	161	259
Total Volume	38	46	0	84	29	266	0	295	636	35	0	671	1050
% App. Total	45.2	54.8	0		9.8	90.2	0		94.8	5.2	0		
PHF	.792	.821	.000	.808	.659	.937	.000	.934	.941	.795	.000	.937	.941
General Traffic	33	46	0	79	28	255	0	283	616	25	0	641	1003
% General Traffic	86.8	100	0	94.0	96.6	95.9	0	95.9	96.9	71.4	0	95.5	95.5
3+ Axle Heavy Trucks	5	0	0	5	1	11	0	12	20	10	0	30	47
% 3+ Axle Heavy Trucks	13.2	0	0	6.0	3.4	4.1	0	4.1	3.1	28.6	0	4.5	4.5



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Can Ada Rd / SH-44
City, State: Star, Idaho
Control: Stop Sign

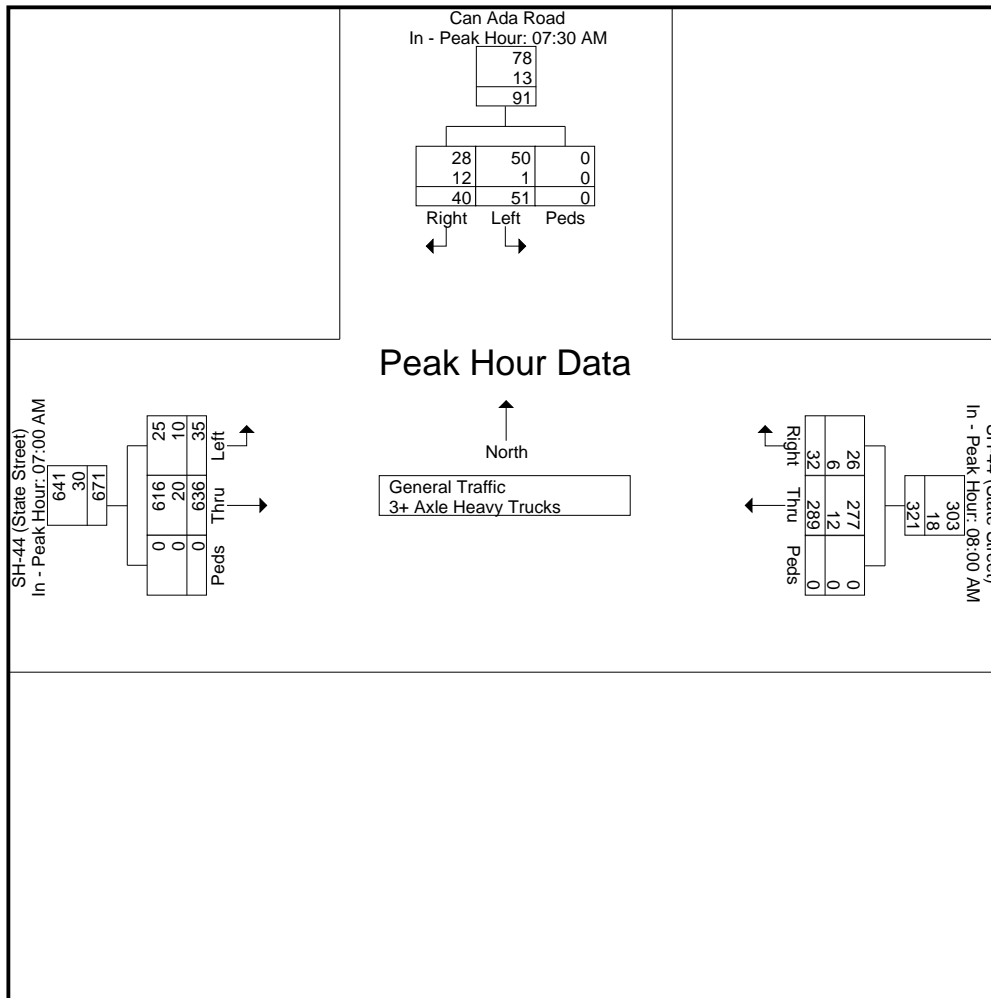
File Name : SH-44 & Can Ada Rd
Site Code : 00000000
Start Date : 7/12/2022
Page No : 4

Start Time	Can Ada Road From North				SH-44 (State Street) From East				SH-44 (State Street) From West				Int. Total
	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:30 AM				08:00 AM				07:00 AM			
+0 mins.	12	14	0	26	7	73	0	80	158	5	0	163
+15 mins.	9	10	0	19	5	62	0	67	157	11	0	168
+30 mins.	12	14	0	26	11	80	0	91	169	10	0	179
+45 mins.	7	13	0	20	9	74	0	83	152	9	0	161
Total Volume	40	51	0	91	32	289	0	321	636	35	0	671
% App. Total	44	56	0		10	90	0		94.8	5.2	0	
PHF	.833	.911	.000	.875	.727	.903	.000	.882	.941	.795	.000	.937
General Traffic	28	50	0	78	26	277	0	303	616	25	0	641
% General Traffic	70	98	0	85.7	81.2	95.8	0	94.4	96.9	71.4	0	95.5
3+ Axle Heavy Trucks	12	1	0	13	6	12	0	18	20	10	0	30
% 3+ Axle Heavy Trucks	30	2	0	14.3	18.8	4.2	0	5.6	3.1	28.6	0	4.5



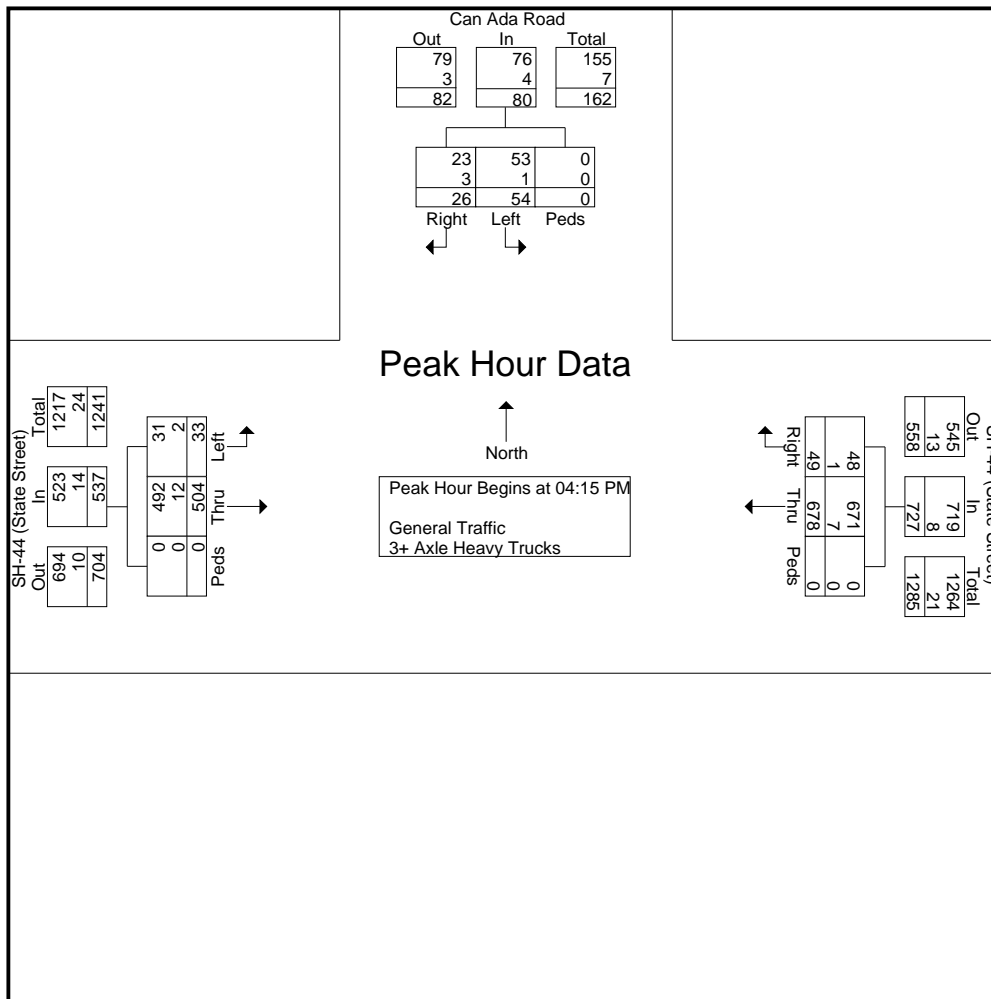
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Can Ada Rd / SH-44
City, State: Star, Idaho
Control: Stop Sign

File Name : SH-44 & Can Ada Rd
Site Code : 00000000
Start Date : 7/12/2022
Page No : 5

Start Time	Can Ada Road From North				SH-44 (State Street) From East				SH-44 (State Street) From West				Int. Total
	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:15 PM													
04:15 PM	6	17	0	23	21	144	0	165	155	13	0	168	356
04:30 PM	5	10	0	15	11	180	0	191	105	7	0	112	318
04:45 PM	8	14	0	22	6	170	0	176	125	8	0	133	331
05:00 PM	7	13	0	20	11	184	0	195	119	5	0	124	339
Total Volume	26	54	0	80	49	678	0	727	504	33	0	537	1344
% App. Total	32.5	67.5	0		6.7	93.3	0		93.9	6.1	0		
PHF	.813	.794	.000	.870	.583	.921	.000	.932	.813	.635	.000	.799	.944
General Traffic	23	53	0	76	48	671	0	719	492	31	0	523	1318
% General Traffic	88.5	98.1	0	95.0	98.0	99.0	0	98.9	97.6	93.9	0	97.4	98.1
3+ Axle Heavy Trucks	3	1	0	4	1	7	0	8	12	2	0	14	26
% 3+ Axle Heavy Trucks	11.5	1.9	0	5.0	2.0	1.0	0	1.1	2.4	6.1	0	2.6	1.9



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Can Ada Rd / SH-44
City, State: Star, Idaho
Control: Stop Sign

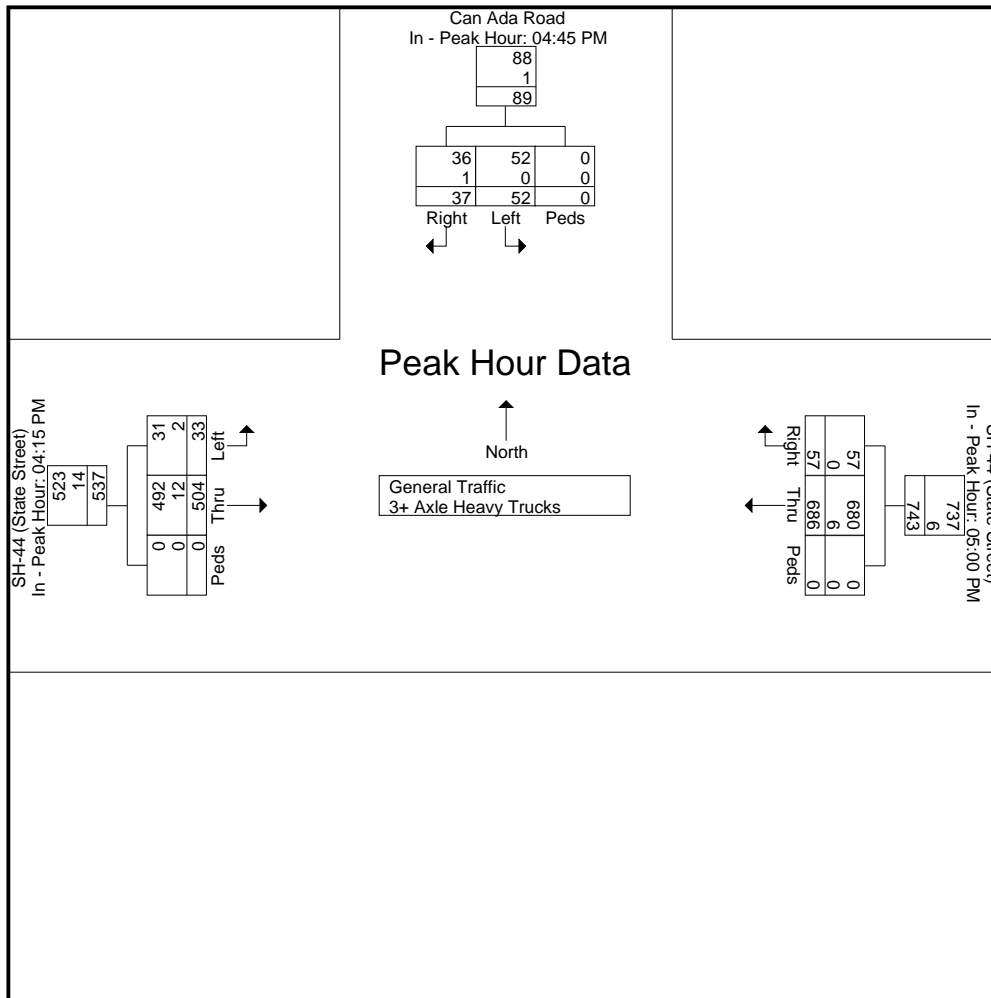
File Name : SH-44 & Can Ada Rd
Site Code : 00000000
Start Date : 7/12/2022
Page No : 6

Start Time	Can Ada Road From North				SH-44 (State Street) From East				SH-44 (State Street) From West				Int. Total
	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:45 PM				05:00 PM				04:15 PM			
+0 mins.	8	14	0	22	11	184	0	195	155	13	0	168
+15 mins.	7	13	0	20	16	159	0	175	105	7	0	112
+30 mins.	10	13	0	23	16	162	0	178	125	8	0	133
+45 mins.	12	12	0	24	14	181	0	195	119	5	0	124
Total Volume	37	52	0	89	57	686	0	743	504	33	0	537
% App. Total	41.6	58.4	0		7.7	92.3	0		93.9	6.1	0	
PHF	.771	.929	.000	.927	.891	.932	.000	.953	.813	.635	.000	.799
General Traffic	36	52	0	88	57	680	0	737	492	31	0	523
% General Traffic	97.3	100	0	98.9	100	99.1	0	99.2	97.6	93.9	0	97.4
3+ Axle Heavy Trucks	1	0	0	1	0	6	0	6	12	2	0	14
% 3+ Axle Heavy Trucks	2.7	0	0	1.1	0	0.9	0	0.8	2.4	6.1	0	2.6



L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Can Ada Rd / SH-44
City, State: Star, Idaho
Control: Stop Sign

File Name : SH-44 & Can Ada Rd
Site Code : 00000000
Start Date : 7/12/2022
Page No : 7

Image 1



L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Intersection: Plummer Rd / SH-44
 City, State: Star, Idaho
 Control: Stop Sign

File Name : SH-44 & Plummer Rd
 Site Code : 00000000
 Start Date : 6/14/2022
 Page No : 1

Groups Printed- General Traffic - 3+ Axle Heavy Trucks

Start Time	Plummer Road From North					SH-44 (State Street) From East					Plummer Road From South					SH-44 (State Street) From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:00 AM	5	0	42	0	47	8	47	3	1	59	10	0	3	0	13	3	171	3	0	177	296
07:15 AM	5	1	43	0	49	14	61	7	0	82	12	1	3	0	16	4	184	5	0	193	340
07:30 AM	4	1	27	0	32	12	66	8	0	86	13	0	8	0	21	5	157	8	0	170	309
07:45 AM	3	1	35	0	39	19	77	9	0	105	11	3	3	0	17	3	168	6	0	177	338
Total	17	3	147	0	167	53	251	27	1	332	46	4	17	0	67	15	680	22	0	717	1283
08:00 AM	7	4	42	0	53	16	64	6	0	86	11	2	7	0	20	4	161	1	0	166	325
08:15 AM	4	4	50	0	58	10	94	8	0	112	12	1	6	0	19	3	144	7	0	154	343
08:30 AM	10	4	49	0	63	13	79	9	1	102	12	0	8	0	20	7	131	4	0	142	327
08:45 AM	9	3	42	0	54	24	79	10	0	113	13	4	5	0	22	5	152	5	3	165	354
Total	30	15	183	0	228	63	316	33	1	413	48	7	26	0	81	19	588	17	3	627	1349

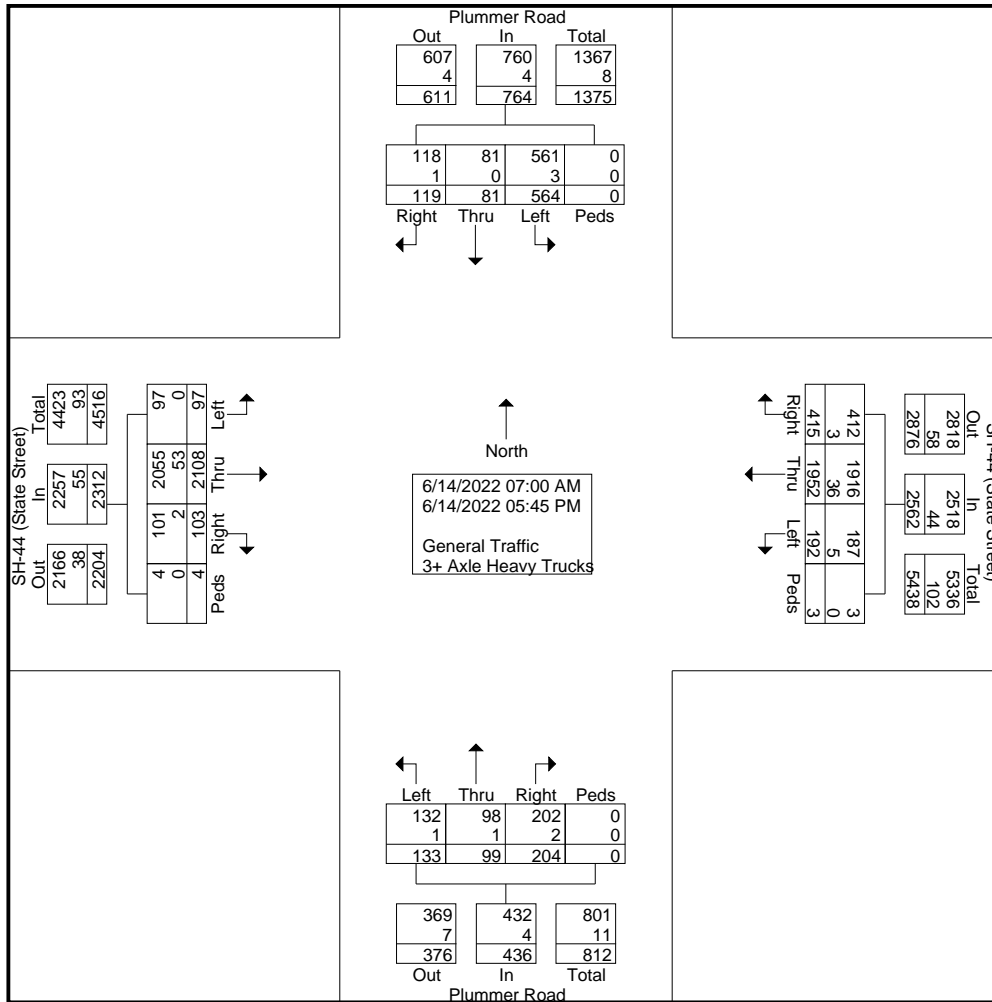
04:00 PM	18	7	27	0	52	33	165	22	0	220	11	11	18	0	40	11	113	4	0	128	440
04:15 PM	7	6	32	0	45	38	187	13	0	238	13	11	8	0	32	7	97	9	0	113	428
04:30 PM	12	8	34	0	54	41	173	19	0	233	13	6	8	0	27	12	125	9	0	146	460
04:45 PM	10	8	18	0	36	44	172	16	0	232	19	12	12	0	43	8	93	12	1	114	425
Total	47	29	111	0	187	156	697	70	0	923	56	40	46	0	142	38	428	34	1	501	1753
05:00 PM	6	7	34	0	47	39	178	12	1	230	11	12	12	0	35	5	118	9	0	132	444
05:15 PM	6	5	33	0	44	28	165	13	0	206	10	7	13	0	30	4	112	7	0	123	403
05:30 PM	8	13	28	0	49	30	167	23	0	220	17	11	9	0	37	12	86	4	0	102	408
05:45 PM	5	9	28	0	42	46	178	14	0	238	16	18	10	0	44	10	96	4	0	110	434
Total	25	34	123	0	182	143	688	62	1	894	54	48	44	0	146	31	412	24	0	467	1689
Grand Total	119	81	564	0	764	415	1952	192	3	2562	204	99	133	0	436	103	2108	97	4	2312	6074
Apprch %	15.6	10.6	73.8	0		16.2	76.2	7.5	0.1		46.8	22.7	30.5	0		4.5	91.2	4.2	0.2		
Total %	2	1.3	9.3	0	12.6	6.8	32.1	3.2	0	42.2	3.4	1.6	2.2	0	7.2	1.7	34.7	1.6	0.1	38.1	
General Traffic	118	81	561	0	760	412	1916	187	3	2518	202	98	132	0	432	101	2055	97	4	2257	5967
% General Traffic	99.2	100	99.5	0	99.5	99.3	98.2	97.4	100	98.3	99	99	99.2	0	99.1	98.1	97.5	100	100	97.6	98.2
3+ Axle Heavy Trucks	1	0	3	0	4	3	36	5	0	44	2	1	1	0	4	2	53	0	0	55	107
% 3+ Axle Heavy Trucks	0.8	0	0.5	0	0.5	0.7	1.8	2.6	0	1.7	1	1	0.8	0	0.9	1.9	2.5	0	0	2.4	1.8

L2 Data Collection

L2DataCollection.com
 Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Intersection: Plummer Rd / SH-44
 City, State: Star, Idaho
 Control: Stop Sign

File Name : SH-44 & Plummer Rd
 Site Code : 00000000
 Start Date : 6/14/2022
 Page No : 2



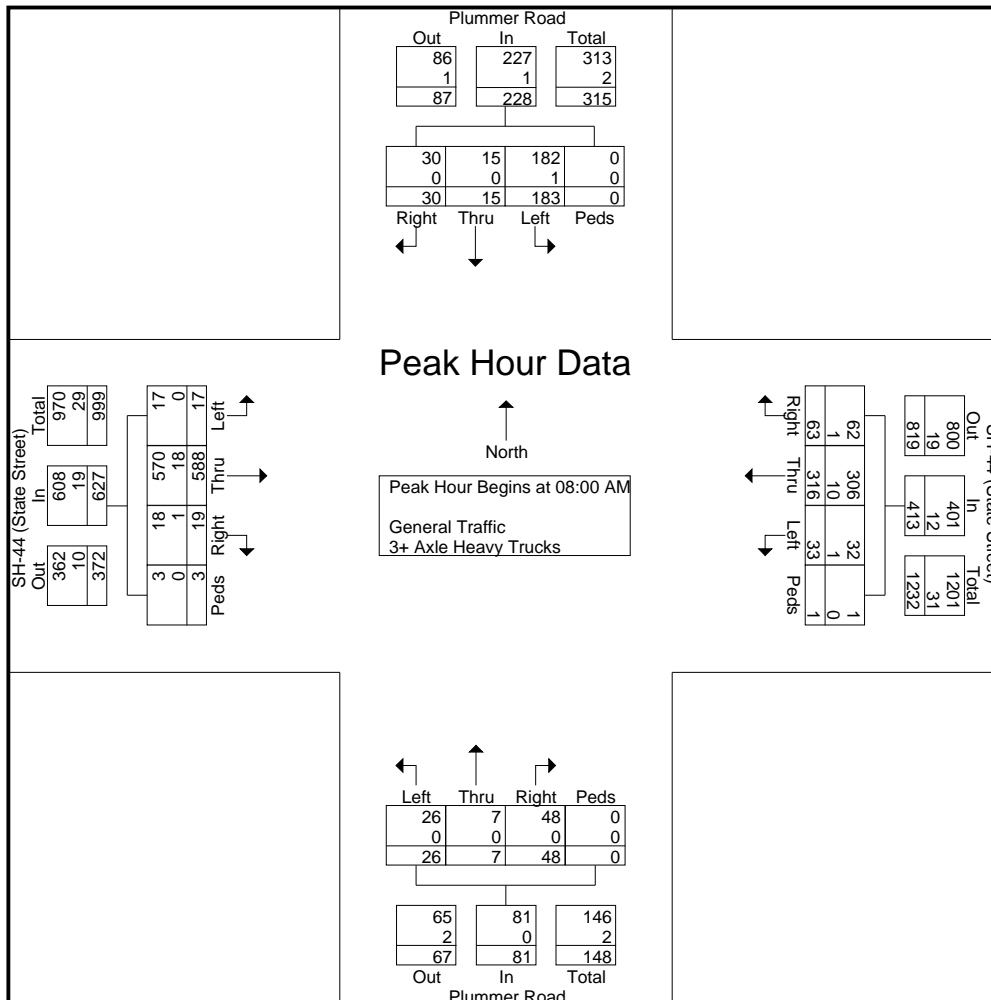
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Plummer Rd / SH-44
City, State: Star, Idaho
Control: Stop Sign

File Name : SH-44 & Plummer Rd
Site Code : 00000000
Start Date : 6/14/2022
Page No : 3

Start Time	Plummer Road From North					SH-44 (State Street) From East					Plummer Road From South					SH-44 (State Street) From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	7	4	42	0	53	16	64	6	0	86	11	2	7	0	20	4	161	1	0	166	325
08:15 AM	4	4	50	0	58	10	94	8	0	112	12	1	6	0	19	3	144	7	0	154	343
08:30 AM	10	4	49	0	63	13	79	9	1	102	12	0	8	0	20	7	131	4	0	142	327
08:45 AM	9	3	42	0	54	24	79	10	0	113	13	4	5	0	22	5	152	5	3	165	354
Total Volume	30	15	183	0	228	63	316	33	1	413	48	7	26	0	81	19	588	17	3	627	1349
% App. Total	13.2	6.6	80.3	0		15.3	76.5	8	0.2		59.3	8.6	32.1	0		3	93.8	2.7	0.5		
PHF	.750	.938	.915	.000	.905	.656	.840	.825	.250	.914	.923	.438	.813	.000	.920	.679	.913	.607	.250	.944	.953
General Traffic	30	15	182	0	227	62	306	32	1	401	48	7	26	0	81	18	570	17	3	608	1317
% General Traffic	100	100	99.5	0	99.6	98.4	96.8	97.0	100	97.1	100	100	100	0	100	94.7	96.9	100	100	97.0	97.6
3+ Axle Heavy Trucks	0	0	1	0	1	1	10	1	0	12	0	0	0	0	0	1	18	0	0	19	32
% 3+ Axle Heavy Trucks	0	0	0.5	0	0.4	1.6	3.2	3.0	0	2.9	0	0	0	0	0	5.3	3.1	0	0	3.0	2.4



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Plummer Rd / SH-44
City, State: Star, Idaho
Control: Stop Sign

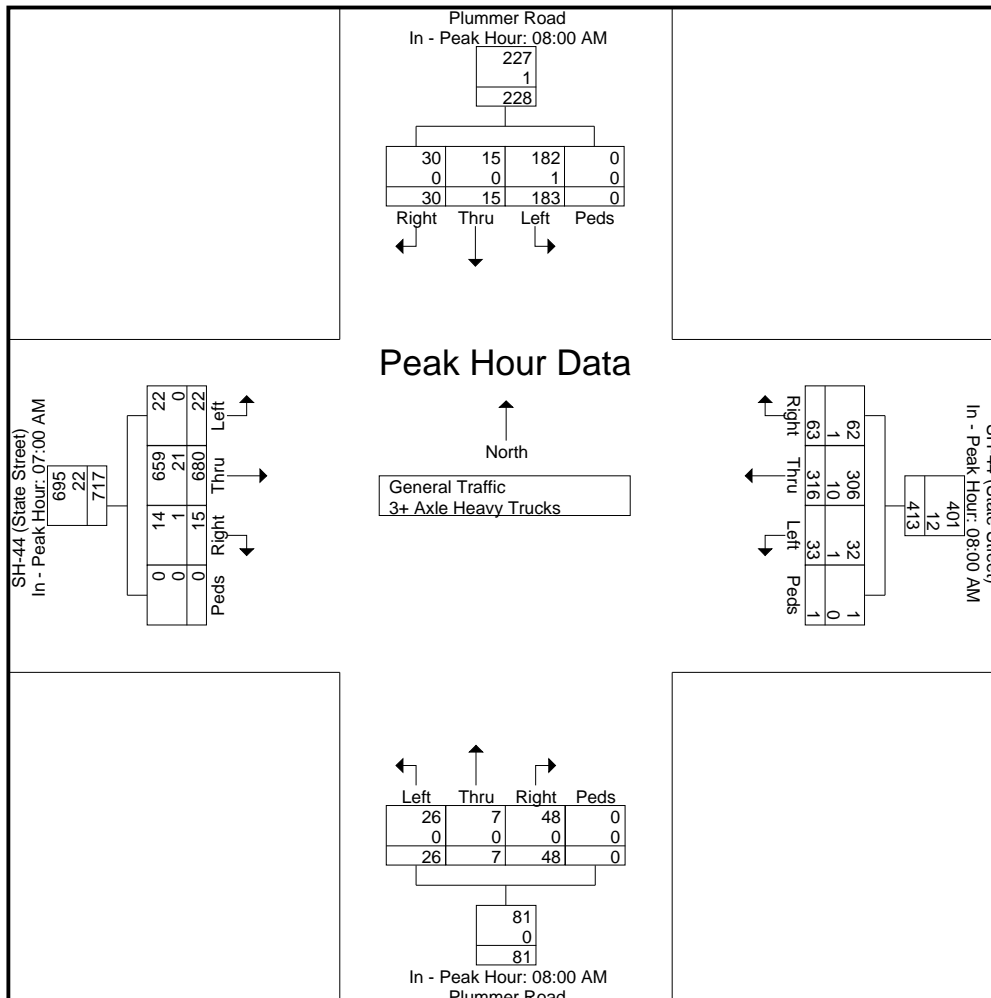
File Name : SH-44 & Plummer Rd
Site Code : 00000000
Start Date : 6/14/2022
Page No : 4

	Plummer Road From North					SH-44 (State Street) From East					Plummer Road From South					SH-44 (State Street) From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total

Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	08:00 AM					08:00 AM					08:00 AM					07:00 AM				
+0 mins.	7	4	42	0	53	16	64	6	0	86	11	2	7	0	20	3	171	3	0	177
+15 mins.	4	4	50	0	58	10	94	8	0	112	12	1	6	0	19	4	184	5	0	193
+30 mins.	10	4	49	0	63	13	79	9	1	102	12	0	8	0	20	5	157	8	0	170
+45 mins.	9	3	42	0	54	24	79	10	0	113	13	4	5	0	22	3	168	6	0	177
Total Volume	30	15	183	0	228	63	316	33	1	413	48	7	26	0	81	15	680	22	0	717
% App. Total	13.2	6.6	80.3	0		15.3	76.5	8	0.2		59.3	8.6	32.1	0		2.1	94.8	3.1	0	
PHF	.750	.938	.915	.000	.905	.656	.840	.825	.250	.914	.923	.438	.813	.000	.920	.750	.924	.688	.000	.929
General Traffic	30	15	182	0	227	62	306	32	1	401	48	7	26	0	81	14	659	22	0	695
% General Traffic	100	100	99.	0	99.6	98.	96.	97	100	97.1	100	100	100	0	100	93.	96.	100	0	96.9
			5			4	8									3	9			
3+ Axle Heavy Trucks	0	0	1	0	1	1	10	1	0	12	0	0	0	0	0	1	21	0	0	22
% 3+ Axle Heavy Trucks	0	0	0.5	0	0.4	1.6	3.2	3	0	2.9	0	0	0	0	0	6.7	3.1	0	0	3.1



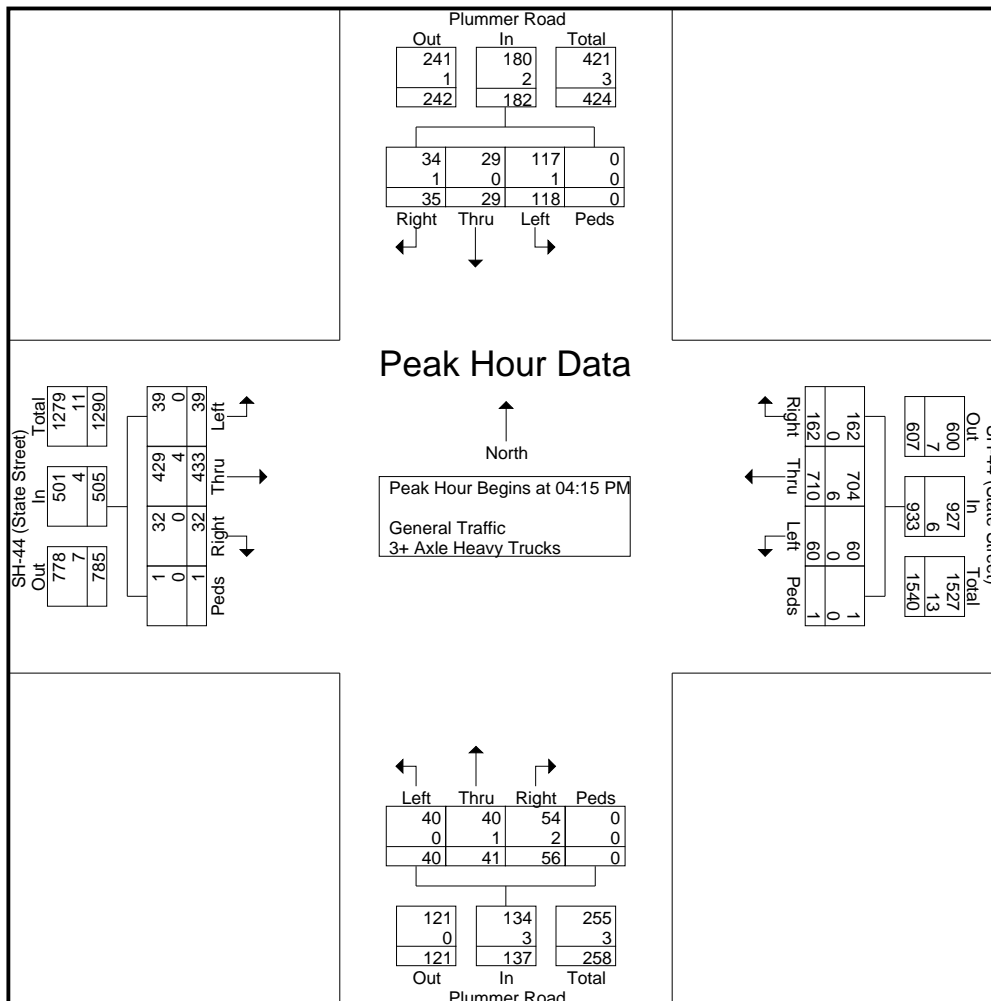
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Plummer Rd / SH-44
City, State: Star, Idaho
Control: Stop Sign

File Name : SH-44 & Plummer Rd
Site Code : 00000000
Start Date : 6/14/2022
Page No : 5

Start Time	Plummer Road From North					SH-44 (State Street) From East					Plummer Road From South					SH-44 (State Street) From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	7	6	32	0	45	38	187	13	0	238	13	11	8	0	32	7	97	9	0	113	428
04:30 PM	12	8	34	0	54	41	173	19	0	233	13	6	8	0	27	12	125	9	0	146	460
04:45 PM	10	8	18	0	36	44	172	16	0	232	19	12	12	0	43	8	93	12	1	114	425
05:00 PM	6	7	34	0	47	39	178	12	1	230	11	12	12	0	35	5	118	9	0	132	444
Total Volume	35	29	118	0	182	162	710	60	1	933	56	41	40	0	137	32	433	39	1	505	1757
% App. Total	19.2	15.9	64.8	0	98.9	17.4	76.1	6.4	0.1	99.4	40.9	29.9	29.2	0	97.8	6.3	85.7	7.7	0.2	99.2	99.1
PHF	.729	.906	.868	.000	.843	.920	.949	.789	.250	.980	.737	.854	.833	.000	.797	.667	.866	.813	.250	.865	.955
General Traffic	34	29	117	0	180	162	704	60	1	927	54	40	40	0	134	32	429	39	1	501	1742
% General Traffic	97.1	100	99.2	0	98.9	100	99.2	100	100	99.4	96.4	97.6	100	0	97.8	100	99.1	100	100	99.2	99.1
3+ Axle Heavy Trucks	1	0	1	0	2	0	6	0	0	6	2	1	0	0	3	0	4	0	0	4	15
% 3+ Axle Heavy Trucks	2.9	0	0.8	0	1.1	0	0.8	0	0	0.6	3.6	2.4	0	0	2.2	0	0.9	0	0	0.8	0.9



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Plummer Rd / SH-44
City, State: Star, Idaho
Control: Stop Sign

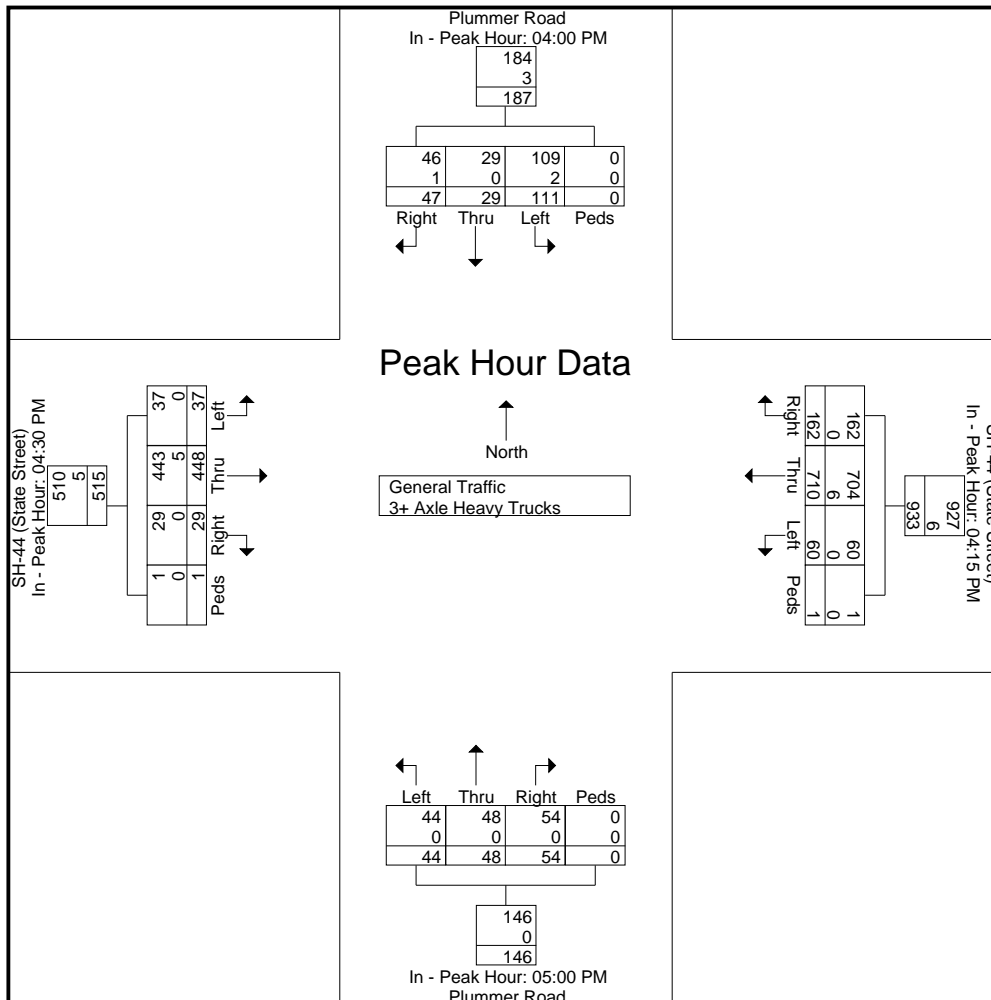
File Name : SH-44 & Plummer Rd
Site Code : 00000000
Start Date : 6/14/2022
Page No : 6

Start Time	Plummer Road From North					SH-44 (State Street) From East					Plummer Road From South					SH-44 (State Street) From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:00 PM					04:15 PM					05:00 PM					04:30 PM				
+0 mins.	18	7	27	0	52	38	187	13	0	238	11	12	12	0	35	12	125	9	0	146
+15 mins.	7	6	32	0	45	41	173	19	0	233	10	7	13	0	30	8	93	12	1	114
+30 mins.	12	8	34	0	54	44	172	16	0	232	17	11	9	0	37	5	118	9	0	132
+45 mins.	10	8	18	0	36	39	178	12	1	230	16	18	10	0	44	4	112	7	0	123
Total Volume	47	29	111	0	187	162	710	60	1	933	54	48	44	0	146	29	448	37	1	515
% App. Total	25.1	15.5	59.4	0		17.4	76.1	6.4	0.1		37	32.9	30.1	0		5.6	87	7.2	0.2	
PHF	.653	.906	.816	.000	.866	.920	.949	.789	.250	.980	.794	.667	.846	.000	.830	.604	.896	.771	.250	.882
General Traffic	46	29	109	0	184	162	704	60	1	927	54	48	44	0	146	29	443	37	1	510
% General Traffic	97.	100	98.	0	98.4	100	99.	100	100	99.4	100	100	100	0	100	100	98.	100	100	99
	9		2				2									9				
3+ Axle Heavy Trucks	1	0	2	0	3	0	6	0	0	6	0	0	0	0	0	0	5	0	0	5
% 3+ Axle Heavy Trucks	2.1	0	1.8	0	1.6	0	0.8	0	0	0.6	0	0	0	0	0	1.1	0	0	0	1



L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Plummer Rd / SH-44
City, State: Star, Idaho
Control: Stop Sign

File Name : SH-44 & Plummer Rd
Site Code : 00000000
Start Date : 6/14/2022
Page No : 7

Image 1



L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Intersection: Star Rd / SH-44
 City, State: Star, Idaho
 Control: Signalized

File Name : SH-44 & Star Rd-2
 Site Code : 00000000
 Start Date : 7/12/2022
 Page No : 1

Groups Printed- General Traffic - 3+ Axle Heavy Trucks

Start Time	Star Road From North					SH-44 (State Street) From East					Star Road From South					SH-44 (State Street) From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:00 AM	6	37	31	0	74	4	45	20	1	70	17	30	31	0	78	54	112	7	0	173	395
07:15 AM	5	40	32	0	77	2	57	20	0	79	15	17	28	0	60	50	117	14	0	181	397
07:30 AM	5	44	22	0	71	2	51	29	0	82	26	17	31	0	74	43	117	10	3	173	400
07:45 AM	10	36	29	0	75	11	50	16	0	77	24	19	37	0	80	56	100	9	2	167	399
Total	26	157	114	0	297	19	203	85	1	308	82	83	127	0	292	203	446	40	5	694	1591
08:00 AM	8	54	21	0	83	9	50	18	1	78	31	17	33	0	81	51	105	13	2	171	413
08:15 AM	8	62	28	0	98	15	62	26	0	103	21	34	40	1	96	48	92	7	1	148	445
08:30 AM	9	52	38	0	99	7	64	21	1	93	20	15	49	0	84	57	114	5	0	176	452
08:45 AM	16	46	29	0	91	19	70	20	0	109	21	35	43	0	99	49	100	20	0	169	468
Total	41	214	116	0	371	50	246	85	2	383	93	101	165	1	360	205	411	45	3	664	1778

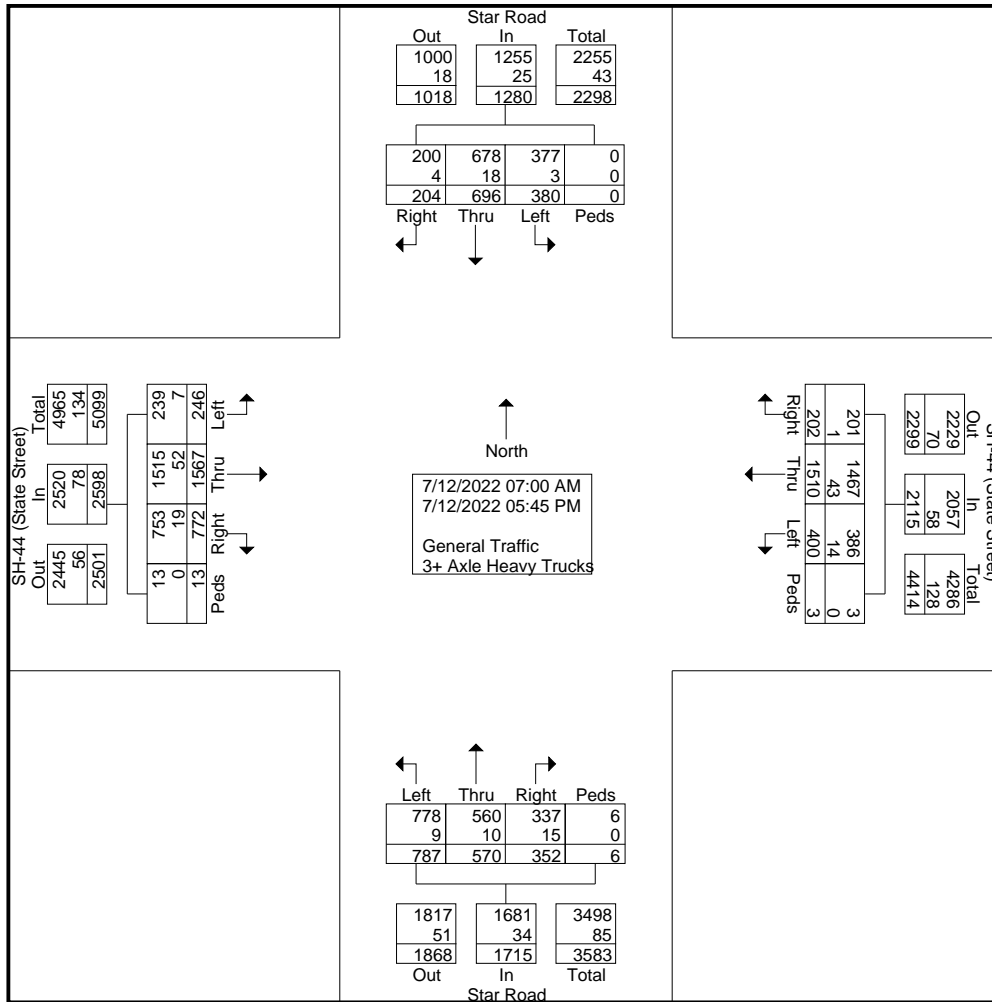
04:00 PM	14	40	17	0	71	12	147	38	0	197	33	39	55	2	129	36	89	13	5	143	540
04:15 PM	21	51	17	0	89	16	120	28	0	164	28	56	68	0	152	45	70	11	0	126	531
04:30 PM	16	38	19	0	73	16	123	24	0	163	11	57	70	1	139	48	95	28	0	171	546
04:45 PM	22	36	18	0	76	20	128	33	0	181	20	40	53	1	114	52	89	24	0	165	536
Total	73	165	71	0	309	64	518	123	0	705	92	192	246	4	534	181	343	76	5	605	2153
05:00 PM	20	23	15	0	58	16	151	26	0	193	26	56	64	1	147	47	93	19	0	159	557
05:15 PM	13	53	18	0	84	14	131	26	0	171	21	40	61	0	122	65	93	22	0	180	557
05:30 PM	17	50	18	0	85	18	138	26	0	182	15	44	52	0	111	35	86	20	0	141	519
05:45 PM	14	34	28	0	76	21	123	29	0	173	23	54	72	0	149	36	95	24	0	155	553
Total	64	160	79	0	303	69	543	107	0	719	85	194	249	1	529	183	367	85	0	635	2186
Grand Total	204	696	380	0	1280	202	1510	400	3	2115	352	570	787	6	1715	772	1567	246	13	2598	7708
Apprch %	15.9	54.4	29.7	0		9.6	71.4	18.9	0.1		20.5	33.2	45.9	0.3		29.7	60.3	9.5	0.5		
Total %	2.6	9	4.9	0	16.6	2.6	19.6	5.2	0	27.4	4.6	7.4	10.2	0.1	22.2	10	20.3	3.2	0.2	33.7	
General Traffic	200	678	377	0	1255	201	1467	386	3	2057	337	560	778	6	1681	753	1515	239	13	2520	7513
% General Traffic	98	97.4	99.2	0	98	99.5	97.2	96.5	100	97.3	95.7	98.2	98.9	100	98	97.5	96.7	97.2	100	97	97.5
3+ Axle Heavy Trucks	4	18	3	0	25	1	43	14	0	58	15	10	9	0	34	19	52	7	0	78	195
% 3+ Axle Heavy Trucks	2	2.6	0.8	0	2	0.5	2.8	3.5	0	2.7	4.3	1.8	1.1	0	2	2.5	3.3	2.8	0	3	2.5

L2 Data Collection

L2DataCollection.com
 Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Intersection: Star Rd / SH-44
 City, State: Star, Idaho
 Control: Signalized

File Name : SH-44 & Star Rd-2
 Site Code : 00000000
 Start Date : 7/12/2022
 Page No : 2



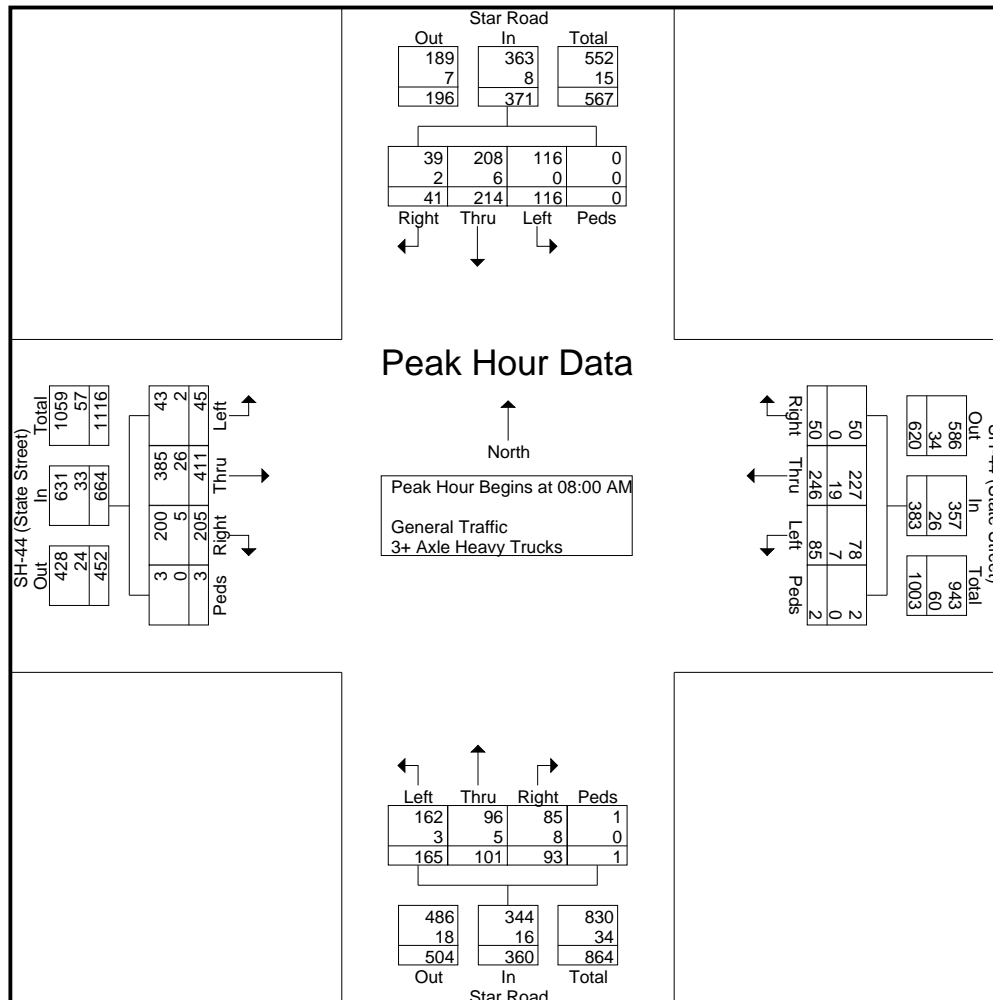
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Star Rd / SH-44
City, State: Star, Idaho
Control: Signalized

File Name : SH-44 & Star Rd-2
Site Code : 00000000
Start Date : 7/12/2022
Page No : 3

Start Time	Star Road From North					SH-44 (State Street) From East					Star Road From South					SH-44 (State Street) From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	8	54	21	0	83	9	50	18	1	78	31	17	33	0	81	51	105	13	2	171	413
08:15 AM	8	62	28	0	98	15	62	26	0	103	21	34	40	1	96	48	92	7	1	148	445
08:30 AM	9	52	38	0	99	7	64	21	1	93	20	15	49	0	84	57	114	5	0	176	452
08:45 AM	16	46	29	0	91	19	70	20	0	109	21	35	43	0	99	49	100	20	0	169	468
Total Volume	41	214	116	0	371	50	246	85	2	383	93	101	165	1	360	205	411	45	3	664	1778
% App. Total	11.1	57.7	31.3	0		13.1	64.2	22.2	0.5		25.8	28.1	45.8	0.3		30.9	61.9	6.8	0.5		
PHF	.641	.863	.763	.000	.937	.658	.879	.817	.500	.878	.750	.721	.842	.250	.909	.899	.901	.563	.375	.943	.950
General Traffic	39	208	116	0	363	50	227	78	2	357	85	96	162	1	344	200	385	43	3	631	1695
% General Traffic	95.1	97.2	100	0	97.8	100	92.3	91.8	100	93.2	91.4	95.0	98.2	100	95.6	97.6	93.7	95.6	100	95.0	95.3
3+ Axle Heavy Trucks	2	6	0	0	8	0	19	7	0	26	8	5	3	0	16	5	26	2	0	33	83
% 3+ Axle Heavy Trucks	4.9	2.8	0	0	2.2	0	7.7	8.2	0	6.8	8.6	5.0	1.8	0	4.4	2.4	6.3	4.4	0	5.0	4.7



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Star Rd / SH-44
City, State: Star, Idaho
Control: Signalized

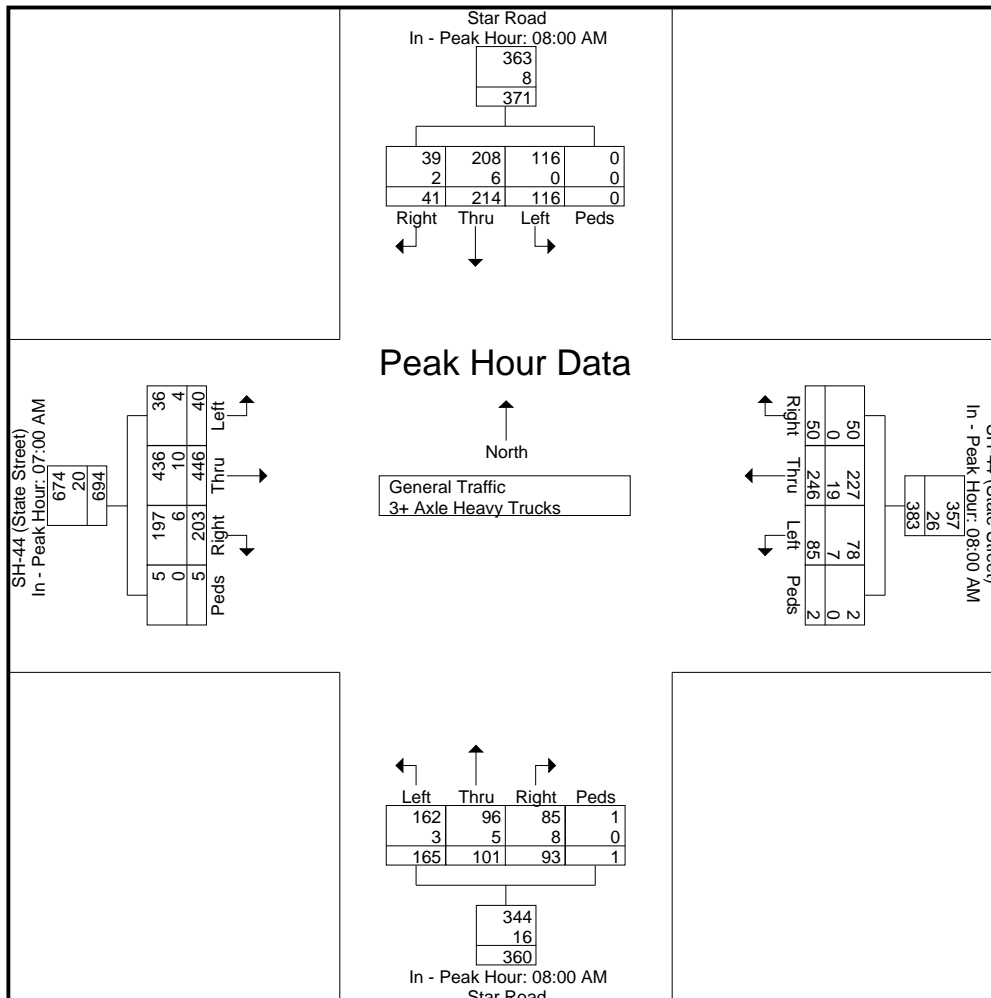
File Name : SH-44 & Star Rd-2
Site Code : 00000000
Start Date : 7/12/2022
Page No : 4

Start Time	Star Road From North					SH-44 (State Street) From East					Star Road From South					SH-44 (State Street) From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	08:00 AM					08:00 AM					08:00 AM					07:00 AM				
+0 mins.	8	54	21	0	83	9	50	18	1	78	31	17	33	0	81	54	112	7	0	173
+15 mins.	8	62	28	0	98	15	62	26	0	103	21	34	40	1	96	50	117	14	0	181
+30 mins.	9	52	38	0	99	7	64	21	1	93	20	15	49	0	84	43	117	10	3	173
+45 mins.	16	46	29	0	91	19	70	20	0	109	21	35	43	0	99	56	100	9	2	167
Total Volume	41	214	116	0	371	50	246	85	2	383	93	101	165	1	360	203	446	40	5	694
% App. Total	11.1	57.7	31.3	0		13.1	64.2	22.2	0.5		25.8	28.1	45.8	0.3		29.3	64.3	5.8	0.7	
PHF	.641	.863	.763	.000	.937	.658	.879	.817	.500	.878	.750	.721	.842	.250	.909	.906	.953	.714	.417	.959
General Traffic	39	208	116	0	363	50	227	78	2	357	85	96	162	1	344	197	436	36	5	674
% General Traffic	95.	97.	100	0	97.8	100	92.	91.	100	93.2	91.	95	98.	100	95.6	97	97.	90	100	97.1
3+ Axle Heavy Trucks	1	2	0	0	8	0	3	8	0	26	4	5	2	0	16	6	8	4	0	20
% 3+ Axle Heavy Trucks	4.9	2.8	0	0	2.2	0	7.7	8.2	0	6.8	8.6	5	1.8	0	4.4	3	2.2	10	0	2.9



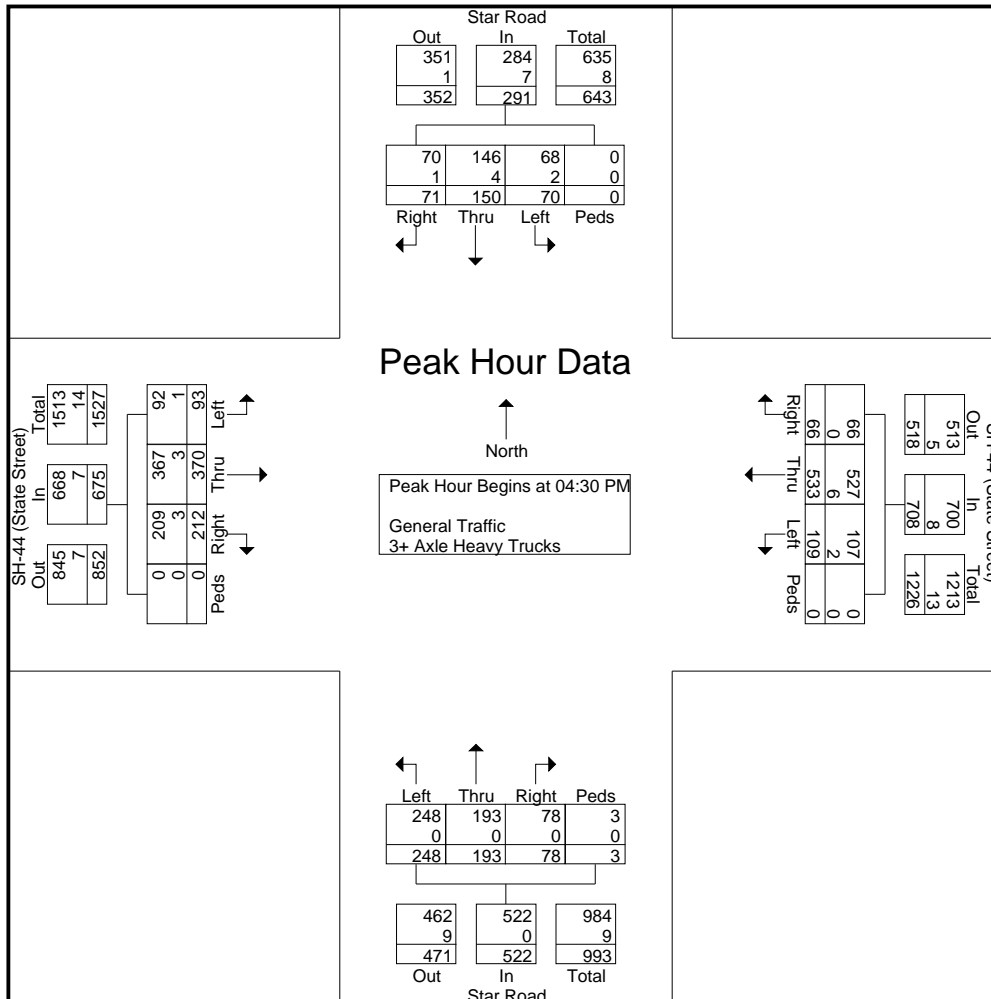
L2 Data Collection

L2DataCollection.com
 Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Intersection: Star Rd / SH-44
 City, State: Star, Idaho
 Control: Signalized

File Name : SH-44 & Star Rd-2
 Site Code : 00000000
 Start Date : 7/12/2022
 Page No : 5

Start Time	Star Road From North					SH-44 (State Street) From East					Star Road From South					SH-44 (State Street) From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	16	38	19	0	73	16	123	24	0	163	11	57	70	1	139	48	95	28	0	171	546
04:45 PM	22	36	18	0	76	20	128	33	0	181	20	40	53	1	114	52	89	24	0	165	536
05:00 PM	20	23	15	0	58	16	151	26	0	193	26	56	64	1	147	47	93	19	0	159	557
05:15 PM	13	53	18	0	84	14	131	26	0	171	21	40	61	0	122	65	93	22	0	180	557
Total Volume	71	150	70	0	291	66	533	109	0	708	78	193	248	3	522	212	370	93	0	675	2196
% App. Total	24.4	51.5	24.1	0		9.3	75.3	15.4	0		14.9	37	47.5	0.6		31.4	54.8	13.8	0		
PHF	.807	.708	.921	.000	.866	.825	.882	.826	.000	.917	.750	.846	.886	.750	.888	.815	.974	.830	.000	.938	.986
General Traffic	70	146	68	0	284	66	527	107	0	700	78	193	248	3	522	209	367	92	0	668	2174
% General Traffic	98.6	97.3	97.1	0	97.6	100	98.9	98.2	0	98.9	100	100	100	100	100	98.6	99.2	98.9	0	99.0	99.0
3+ Axle Heavy Trucks	1	4	2	0	7	0	6	2	0	8	0	0	0	0	0	3	3	1	0	7	22
% 3+ Axle Heavy Trucks	1.4	2.7	2.9	0	2.4	0	1.1	1.8	0	1.1	0	0	0	0	0	1.4	0.8	1.1	0	1.0	1.0



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Star Rd / SH-44
City, State: Star, Idaho
Control: Signalized

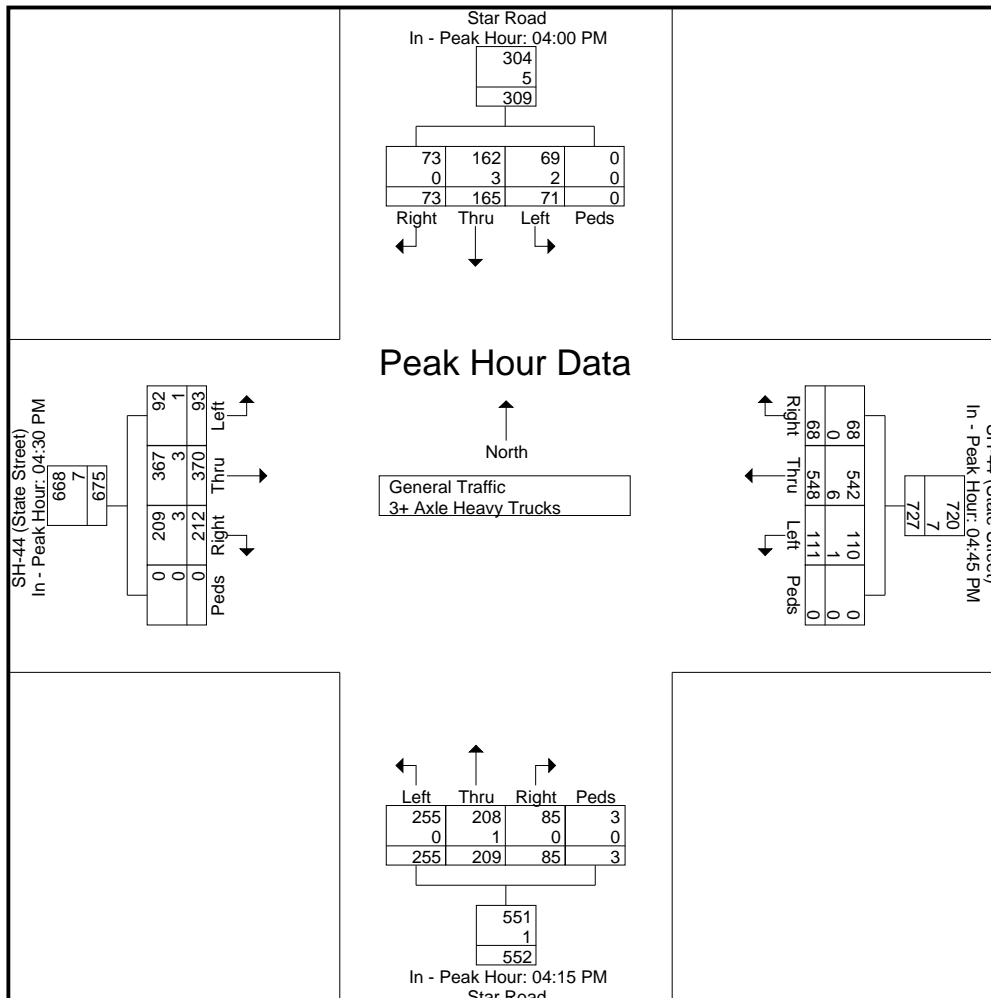
File Name : SH-44 & Star Rd-2
Site Code : 00000000
Start Date : 7/12/2022
Page No : 6

Start Time	Star Road From North					SH-44 (State Street) From East					Star Road From South					SH-44 (State Street) From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:00 PM					04:45 PM					04:15 PM					04:30 PM				
+0 mins.	14	40	17	0	71	20	128	33	0	181	28	56	68	0	152	48	95	28	0	171
+15 mins.	21	51	17	0	89	16	151	26	0	193	11	57	70	1	139	52	89	24	0	165
+30 mins.	16	38	19	0	73	14	131	26	0	171	20	40	53	1	114	47	93	19	0	159
+45 mins.	22	36	18	0	76	18	138	26	0	182	26	56	64	1	147	65	93	22	0	180
Total Volume	73	165	71	0	309	68	548	111	0	727	85	209	255	3	552	212	370	93	0	675
% App. Total	23.6	53.4	23	0		9.4	75.4	15.3	0		15.4	37.9	46.2	0.5		31.4	54.8	13.8	0	
PHF	.830	.809	.934	.000	.868	.850	.907	.841	.000	.942	.759	.917	.911	.750	.908	.815	.974	.830	.000	.938
General Traffic	73	162	69	0	304	68	542	110	0	720	85	208	255	3	551	209	367	92	0	668
% General Traffic	100	98.	97.	0	98.4	100	98.	99.	0	99	100	99.	100	100	99.8	98.	99.	98.	0	99
3+ Axle Heavy Trucks	0	3	2	0	5	0	6	1	0	7	0	1	0	0	1	3	3	1	0	7
% 3+ Axle Heavy Trucks	0	1.8	2.8	0	1.6	0	1.1	0.9	0	1	0	0.5	0	0	0.2	1.4	0.8	1.1	0	1



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
Intersection: Star Rd / SH-44
City, State: Star, Idaho
Control: Signalized

File Name : SH-44 & Star Rd-2
Site Code : 00000000
Start Date : 7/12/2022
Page No : 7

Image 1





Appendix D
Year 2022 Existing Traffic
Operation Worksheets

Intersection						
Int Delay, s/veh	7.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	2	61	24	3	2	1
Future Vol, veh/h	2	61	24	3	2	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	77	68	68	50	50
Heavy Vehicles, %	0	0	4	0	0	0
Mvmt Flow	3	79	35	4	4	2

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	79	5	6	0	0
Stage 1	5	-	-	-	-
Stage 2	74	-	-	-	-
Critical Hdwy	6.4	6.2	4.14	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.236	-	-
Pot Cap-1 Maneuver	929	1084	1602	-	-
Stage 1	1023	-	-	-	-
Stage 2	954	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	909	1084	1602	-	-
Mov Cap-2 Maneuver	909	-	-	-	-
Stage 1	1000	-	-	-	-
Stage 2	954	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	6.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1602	-	1077	-	-
HCM Lane V/C Ratio	0.022	-	0.076	-	-
HCM Control Delay (s)	7.3	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	46	17	247	664	1
Future Vol, veh/h	2	46	17	247	664	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	77	77	76	76
Heavy Vehicles, %	0	0	0	3	3	100
Mvmt Flow	2	50	22	321	874	1

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	1240	875	875	0	0
Stage 1	875	-	-	-	-
Stage 2	365	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-
Pot Cap-1 Maneuver	195	351	780	-	-
Stage 1	411	-	-	-	-
Stage 2	707	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	190	351	780	-	-
Mov Cap-2 Maneuver	190	-	-	-	-
Stage 1	399	-	-	-	-
Stage 2	707	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.5	0.6	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	780	-	339	-	-
HCM Lane V/C Ratio	0.028	-	0.154	-	-
HCM Control Delay (s)	9.8	-	17.5	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

Intersection						
Int Delay, s/veh	1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	8	1	29	6	1	62
Future Vol, veh/h	8	1	29	6	1	62
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	56	56	67	67	66	66
Heavy Vehicles, %	0	0	1	6	0	0
Mvmt Flow	14	2	43	9	2	94

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	146	48	0	0	52
Stage 1	48	-	-	-	-
Stage 2	98	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	851	1027	-	-	1567
Stage 1	980	-	-	-	-
Stage 2	931	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	850	1027	-	-	1567
Mov Cap-2 Maneuver	850	-	-	-	-
Stage 1	980	-	-	-	-
Stage 2	930	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	0.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	867	1567
HCM Lane V/C Ratio	-	-	0.019	0.001
HCM Control Delay (s)	-	-	9.2	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection	
Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	26	6	26	5	4	2	22	26	42	38	4
Future Vol, veh/h	4	26	6	26	5	4	2	22	26	42	38	4
Peak Hour Factor	0.75	0.75	0.75	0.80	0.80	0.80	0.81	0.81	0.81	0.84	0.84	0.84
Heavy Vehicles, %	0	4	0	46	20	0	23	0	0	0	0	0
Mvmt Flow	5	35	8	33	6	5	2	27	32	50	45	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.5	8.5	7.7	7.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	4%	11%	74%	50%
Vol Thru, %	44%	72%	14%	45%
Vol Right, %	52%	17%	11%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	50	36	35	84
LT Vol	2	4	26	42
Through Vol	22	26	5	38
RT Vol	26	6	4	4
Lane Flow Rate	62	48	44	100
Geometry Grp	1	1	1	1
Degree of Util (X)	0.072	0.057	0.062	0.116
Departure Headway (Hd)	4.224	4.242	5.082	4.179
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	834	850	696	845
Service Time	2.321	2.242	3.181	2.266
HCM Lane V/C Ratio	0.074	0.056	0.063	0.118
HCM Control Delay	7.7	7.5	8.5	7.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.2	0.2	0.4

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	125	40	15	31	5
Future Vol, veh/h	3	125	40	15	31	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	63	65	79	79
Heavy Vehicles, %	0	3	8	0	3	0
Mvmt Flow	3	144	63	23	39	6

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	86	0	-	0	225 75
Stage 1	-	-	-	-	75 -
Stage 2	-	-	-	-	150 -
Critical Hdwy	4.1	-	-	-	6.43 6.2
Critical Hdwy Stg 1	-	-	-	-	5.43 -
Critical Hdwy Stg 2	-	-	-	-	5.43 -
Follow-up Hdwy	2.2	-	-	-	3.527 3.3
Pot Cap-1 Maneuver	1523	-	-	-	761 992
Stage 1	-	-	-	-	945 -
Stage 2	-	-	-	-	875 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1523	-	-	-	759 992
Mov Cap-2 Maneuver	-	-	-	-	759 -
Stage 1	-	-	-	-	943 -
Stage 2	-	-	-	-	875 -

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	9.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1523	-	-	-	785
HCM Lane V/C Ratio	0.002	-	-	-	0.058
HCM Control Delay (s)	7.4	-	-	-	9.9
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Queues
110: SH 16 & Beacon Light Road

2022 Existing Conditions AM Peak Hour
01/12/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	11	124	115	63	40	45	64	279	145	178	642	5
v/c Ratio	0.05	0.55	0.35	0.23	0.13	0.10	0.22	0.37	0.20	0.31	0.75	0.01
Control Delay	31.2	56.3	5.3	33.7	36.6	0.4	13.5	25.0	4.8	12.4	32.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.2	56.3	5.3	33.7	36.6	0.4	13.5	25.0	4.8	12.4	32.7	0.0
Queue Length 50th (ft)	6	85	0	35	22	0	18	132	0	53	380	0
Queue Length 95th (ft)	17	125	0	63	52	0	37	202	27	99	#631	0
Internal Link Dist (ft)		2558			3836			8809			1084	
Turn Bay Length (ft)	100		100	100		100	100		100	100		100
Base Capacity (vph)	411	482	530	362	382	528	519	886	827	699	852	827
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.26	0.22	0.17	0.10	0.09	0.12	0.31	0.18	0.25	0.75	0.01

























Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
110: SH 16 & Beacon Light Road

2022 Existing Conditions AM Peak Hour

01/12/2023

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (vph)	8	93	86	50	32	36	50	218	113	153	552	4		
Future Volume (vph)	8	93	86	50	32	36	50	218	113	153	552	4		
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800		
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0	9.0	9.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		
Satd. Flow (prot)	1710	1782	1530	1644	1374	1485	1710	1800	1530	1693	1731	1530		
Flt Permitted	0.73	1.00	1.00	0.50	1.00	1.00	0.24	1.00	1.00	0.50	1.00	1.00		
Satd. Flow (perm)	1316	1782	1530	870	1374	1485	433	1800	1530	888	1731	1530		
Peak-hour factor, PHF	0.75	0.75	0.75	0.80	0.80	0.80	0.78	0.78	0.78	0.86	0.86	0.86		
Adj. Flow (vph)	11	124	115	62	40	45	64	279	145	178	642	5		
RTOR Reduction (vph)	0	0	97	0	0	36	0	0	85	0	0	3		
Lane Group Flow (vph)	11	124	18	63	40	9	64	279	60	178	642	2		
Heavy Vehicles (%)	0%	1%	0%	4%	31%	3%	0%	0%	0%	1%	4%	0%		
Turn Type	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Prot		
Protected Phases	1	6	6	5	2	2	3	8	8	7	4	4		
Permitted Phases	6			2			8			4				
Actuated Green, G (s)	18.6	17.5	17.5	30.4	23.4	23.4	52.6	47.5	47.5	62.2	52.3	52.3		
Effective Green, g (s)	18.6	17.5	17.5	30.4	23.4	23.4	52.6	47.5	47.5	62.2	52.3	52.3		
Actuated g/C Ratio	0.16	0.15	0.15	0.27	0.21	0.21	0.46	0.42	0.42	0.55	0.46	0.46		
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0	9.0	9.0		
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	5.0	5.0	2.0	5.0	5.0		
Lane Grp Cap (vph)	218	273	235	279	282	305	257	750	638	554	794	702		
v/s Ratio Prot	0.00	c0.07	0.01	c0.01	0.03	0.01	0.01	0.15	0.04	c0.03	c0.37	0.00		
v/s Ratio Perm	0.01			0.05			0.10			0.15				
v/c Ratio	0.05	0.45	0.08	0.23	0.14	0.03	0.25	0.37	0.09	0.32	0.81	0.00		
Uniform Delay, d1	40.1	43.9	41.3	32.0	37.0	36.2	19.1	22.9	20.2	13.4	26.5	16.7		
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	0.0	1.2	0.1	0.2	0.2	0.0	0.2	0.7	0.1	0.1	6.9	0.0		
Delay (s)	40.2	45.1	41.4	32.1	37.3	36.2	19.3	23.6	20.3	13.6	33.4	16.7		
Level of Service	D	D	D	C	D	D	B	C	C	B	C	B		
Approach Delay (s)		43.2			34.8			22.0			29.0			
Approach LOS		D			C			C			C			
Intersection Summary														
HCM 2000 Control Delay			29.6									HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio			0.68											
Actuated Cycle Length (s)			113.9								32.0			
Intersection Capacity Utilization			65.3%										ICU Level of Service	C
Analysis Period (min)			15											
c	Critical Lane Group													

HCM 6th Signalized Intersection Summary
110: SH 16 & Beacon Light Road

2022 Existing Conditions AM Peak Hour
01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	93	86	50	32	36	50	218	113	153	552	4
Future Volume (veh/h)	8	93	86	50	32	36	50	218	113	153	552	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1786	1800	1744	1365	1758	1800	1800	1800	1786	1744	1800
Adj Flow Rate, veh/h	11	124	115	62	40	45	64	279	145	178	642	5
Peak Hour Factor	0.75	0.75	0.75	0.80	0.80	0.80	0.78	0.78	0.78	0.86	0.86	0.86
Percent Heavy Veh, %	0	1	0	4	31	3	0	0	0	1	4	0
Cap, veh/h	254	201	172	206	196	214	246	718	608	504	764	668
Arrive On Green	0.01	0.11	0.11	0.04	0.14	0.14	0.04	0.40	0.40	0.08	0.44	0.44
Sat Flow, veh/h	1714	1786	1525	1661	1365	1490	1714	1800	1525	1701	1744	1525
Grp Volume(v), veh/h	11	124	115	62	40	45	64	279	145	178	642	5
Grp Sat Flow(s),veh/h/ln	1714	1786	1525	1661	1365	1490	1714	1800	1525	1701	1744	1525
Q Serve(g_s), s	0.5	5.9	6.4	2.9	2.3	2.4	1.9	9.8	5.6	5.4	29.1	0.2
Cycle Q Clear(g_c), s	0.5	5.9	6.4	2.9	2.3	2.4	1.9	9.8	5.6	5.4	29.1	0.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	254	201	172	206	196	214	246	718	608	504	764	668
V/C Ratio(X)	0.04	0.62	0.67	0.30	0.20	0.21	0.26	0.39	0.24	0.35	0.84	0.01
Avail Cap(c_a), veh/h	579	563	481	470	430	470	575	1034	876	763	1002	876
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.1	37.6	37.8	33.0	33.6	33.6	18.3	19.0	17.7	13.9	22.2	14.1
Incr Delay (d2), s/veh	0.0	3.1	4.5	0.3	0.5	0.5	0.2	0.7	0.4	0.2	6.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.7	2.6	1.2	0.8	0.9	0.7	4.1	2.0	2.0	12.6	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.2	40.6	42.3	33.3	34.1	34.1	18.5	19.7	18.2	14.1	29.1	14.1
LnGrp LOS	C	D	D	C	C	C	B	B	B	B	C	B
Approach Vol, veh/h		250			147			488			825	
Approach Delay, s/veh		41.1			33.7			19.1			25.8	
Approach LOS		D			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.2	19.7	13.0	47.9	10.9	17.0	16.5	44.4				
Change Period (Y+Rc), s	7.0	7.0	9.0	9.0	7.0	7.0	9.0	9.0				
Max Green Setting (Gmax), s	18.0	28.0	21.0	51.0	18.0	28.0	21.0	51.0				
Max Q Clear Time (g_c+I1), s	2.5	4.4	3.9	31.1	4.9	8.4	7.4	11.8				
Green Ext Time (p_c), s	0.0	0.3	0.1	7.8	0.0	1.0	0.2	4.9				
Intersection Summary												
HCM 6th Ctrl Delay				26.8								
HCM 6th LOS				C								

Intersection						
Int Delay, s/veh	0.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	358	7	5	99	5	7
Future Vol, veh/h	358	7	5	99	5	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	79	79	43	43
Heavy Vehicles, %	1	0	0	0	0	14
Mvmt Flow	402	8	6	125	12	16

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	410	0	543 406
Stage 1	-	-	-	-	406 -
Stage 2	-	-	-	-	137 -
Critical Hdwy	-	-	4.1	-	6.4 6.34
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	-	-	2.2	-	3.5 3.426
Pot Cap-1 Maneuver	-	-	1160	-	504 620
Stage 1	-	-	-	-	677 -
Stage 2	-	-	-	-	895 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1160	-	501 620
Mov Cap-2 Maneuver	-	-	-	-	501 -
Stage 1	-	-	-	-	677 -
Stage 2	-	-	-	-	890 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	11.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	564	-	-	1160	-
HCM Lane V/C Ratio	0.049	-	-	0.005	-
HCM Control Delay (s)	11.7	-	-	8.1	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection						
Int Delay, s/veh	5.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↶		↷	↶	↷	↷
Traffic Vol, veh/h	69	83	113	28	64	89
Future Vol, veh/h	69	83	113	28	64	89
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	100	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	80	80	85	85
Heavy Vehicles, %	3	1	4	0	3	2
Mvmt Flow	76	91	141	35	75	105

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	167	0	439
Stage 1	-	-	-	-	122
Stage 2	-	-	-	-	317
Critical Hdwy	-	-	4.14	-	6.43
Critical Hdwy Stg 1	-	-	-	-	5.43
Critical Hdwy Stg 2	-	-	-	-	5.43
Follow-up Hdwy	-	-	2.236	-	3.527
Pot Cap-1 Maneuver	-	-	1399	-	573
Stage 1	-	-	-	-	901
Stage 2	-	-	-	-	736
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1399	-	515
Mov Cap-2 Maneuver	-	-	-	-	515
Stage 1	-	-	-	-	901
Stage 2	-	-	-	-	662

Approach	EB	WB	NB
HCM Control Delay, s	0	6.3	11
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	515	929	-	-	1399	-
HCM Lane V/C Ratio	0.146	0.113	-	-	0.101	-
HCM Control Delay (s)	13.2	9.4	-	-	7.9	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0.5	0.4	-	-	0.3	-

Intersection						
Int Delay, s/veh	2.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	74	121	15	34	34	23
Future Vol, veh/h	74	121	15	34	34	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	82	82	66	66
Heavy Vehicles, %	3	0	7	6	3	0
Mvmt Flow	79	129	18	41	52	35

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	208	0	221
Stage 1	-	-	-	-	144
Stage 2	-	-	-	-	77
Critical Hdwy	-	-	4.17	-	6.43
Critical Hdwy Stg 1	-	-	-	-	5.43
Critical Hdwy Stg 2	-	-	-	-	5.43
Follow-up Hdwy	-	-	2.263	-	3.527
Pot Cap-1 Maneuver	-	-	1334	-	765
Stage 1	-	-	-	-	881
Stage 2	-	-	-	-	943
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1334	-	754
Mov Cap-2 Maneuver	-	-	-	-	754
Stage 1	-	-	-	-	881
Stage 2	-	-	-	-	930

Approach	EB	WB	NB
HCM Control Delay, s	0	2.4	10
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	810	-	-	1334	-
HCM Lane V/C Ratio	0.107	-	-	0.014	-
HCM Control Delay (s)	10	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0	-

Intersection						
Int Delay, s/veh	4.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	34	28	52	43	25	29
Future Vol, veh/h	34	28	52	43	25	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	74	74	91	91	79	79
Heavy Vehicles, %	12	4	0	2	4	0
Mvmt Flow	46	38	57	47	32	37

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	182	81	0	0	104	0
Stage 1	81	-	-	-	-	-
Stage 2	101	-	-	-	-	-
Critical Hdwy	6.52	6.24	-	-	4.14	-
Critical Hdwy Stg 1	5.52	-	-	-	-	-
Critical Hdwy Stg 2	5.52	-	-	-	-	-
Follow-up Hdwy	3.608	3.336	-	-	2.236	-
Pot Cap-1 Maneuver	785	973	-	-	1475	-
Stage 1	917	-	-	-	-	-
Stage 2	899	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	768	973	-	-	1475	-
Mov Cap-2 Maneuver	768	-	-	-	-	-
Stage 1	917	-	-	-	-	-
Stage 2	879	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.7	0	3.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	849	1475
HCM Lane V/C Ratio	-	-	0.099	0.021
HCM Control Delay (s)	-	-	9.7	7.5
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1

Intersection						
Int Delay, s/veh	6.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	92	73	17	18	1
Future Vol, veh/h	3	92	73	17	18	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	80	80	75	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	108	91	21	24	1

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	228	25	25	0	0
Stage 1	25	-	-	-	-
Stage 2	203	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	760	1051	1589	-	-
Stage 1	998	-	-	-	-
Stage 2	831	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	716	1051	1589	-	-
Mov Cap-2 Maneuver	716	-	-	-	-
Stage 1	940	-	-	-	-
Stage 2	831	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1589	-	1036	-	-
HCM Lane V/C Ratio	0.057	-	0.108	-	-
HCM Control Delay (s)	7.4	0	8.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.4	-	-

Intersection						
Int Delay, s/veh	2.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	35	636	266	29	46	38
Future Vol, veh/h	35	636	266	29	46	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	93	93	81	81
Heavy Vehicles, %	29	3	4	3	0	13
Mvmt Flow	37	677	286	31	57	47

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	317	0	0	1053	302
Stage 1	-	-	-	302	-
Stage 2	-	-	-	751	-
Critical Hdwy	4.39	-	-	6.4	6.33
Critical Hdwy Stg 1	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	5.4	-
Follow-up Hdwy	2.461	-	-	3.5	3.417
Pot Cap-1 Maneuver	1105	-	-	253	713
Stage 1	-	-	-	755	-
Stage 2	-	-	-	470	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1105	-	-	239	713
Mov Cap-2 Maneuver	-	-	-	239	-
Stage 1	-	-	-	714	-
Stage 2	-	-	-	470	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	20
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1105	-	-	-	342
HCM Lane V/C Ratio	0.034	-	-	-	0.303
HCM Control Delay (s)	8.4	0	-	-	20
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	1.3

Queues
118: Star Road & SH 44

2022 Existing Conditions AM Peak Hour

01/12/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	48	437	218	97	280	97	181	111	102	123	272
v/c Ratio	0.09	0.59	0.30	0.25	0.34	0.12	0.70	0.33	0.27	0.33	0.86
Control Delay	14.5	32.3	12.4	15.2	23.2	2.3	46.9	46.0	6.6	32.4	73.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.5	32.3	12.4	15.2	23.2	2.3	46.9	46.0	6.6	32.4	73.6
Queue Length 50th (ft)	17	271	48	36	145	0	108	77	0	71	211
Queue Length 95th (ft)	39	428	117	68	229	19	176	140	35	122	#324
Internal Link Dist (ft)		2598			5173			1764			5156
Turn Bay Length (ft)	100		100	100		100	100		100	100	
Base Capacity (vph)	624	744	725	429	818	812	277	404	423	419	405
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.59	0.30	0.23	0.34	0.12	0.65	0.27	0.24	0.29	0.67

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
118: Star Road & SH 44

2022 Existing Conditions AM Peak Hour

01/12/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	411	205	85	246	85	165	101	93	116	214	41
Future Volume (vph)	45	411	205	85	246	85	165	101	93	116	214	41
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	0.98
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1644	1698	1500	1583	1667	1530	1676	1714	1404	1710	1700	1700
Flt Permitted	0.58	1.00	1.00	0.33	1.00	1.00	0.25	1.00	1.00	0.69	1.00	1.00
Satd. Flow (perm)	1005	1698	1500	549	1667	1530	442	1714	1404	1234	1700	1700
Peak-hour factor, PHF	0.94	0.94	0.94	0.88	0.88	0.88	0.91	0.91	0.91	0.94	0.94	0.94
Adj. Flow (vph)	48	437	218	97	280	97	181	111	102	123	228	44
RTOR Reduction (vph)	0	0	67	0	0	50	0	0	82	0	6	0
Lane Group Flow (vph)	48	437	151	97	280	47	181	111	20	123	266	0
Heavy Vehicles (%)	4%	6%	2%	8%	8%	0%	2%	5%	9%	0%	3%	5%
Turn Type	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Perm	pm+pt	NA	NA
Protected Phases	1	6	6	5	2	2	3	8		7	4	
Permitted Phases	6			2			8		8	4		
Actuated Green, G (s)	60.8	55.7	55.7	71.2	60.9	60.9	37.2	24.7	24.7	33.2	22.7	22.7
Effective Green, g (s)	60.8	55.7	55.7	71.2	60.9	60.9	37.2	24.7	24.7	33.2	22.7	22.7
Actuated g/C Ratio	0.49	0.44	0.44	0.57	0.49	0.49	0.30	0.20	0.20	0.27	0.18	0.18
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	2.0	2.5	2.5	2.0	2.5	2.5	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	514	755	667	397	810	744	254	338	276	367	308	308
v/s Ratio Prot	0.00	c0.26	0.10	c0.02	c0.17	0.03	c0.07	0.06		0.03	c0.16	
v/s Ratio Perm	0.04			0.12			0.14		0.01	0.06		
v/c Ratio	0.09	0.58	0.23	0.24	0.35	0.06	0.71	0.33	0.07	0.34	0.86	0.86
Uniform Delay, d1	17.1	26.0	21.4	14.5	19.8	17.0	35.6	43.1	40.9	36.4	49.8	49.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.0	3.2	0.8	0.1	0.2	0.0	7.6	0.2	0.0	0.2	20.8	20.8
Delay (s)	17.1	29.2	22.2	14.6	20.0	17.1	43.3	43.3	41.0	36.6	70.6	70.6
Level of Service	B	C	C	B	C	B	D	D	D	D	E	E
Approach Delay (s)		26.2			18.3			42.7			60.0	
Approach LOS		C			B			D			E	
Intersection Summary												
HCM 2000 Control Delay			34.4				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			125.2				Sum of lost time (s)				24.0	
Intersection Capacity Utilization			72.0%				ICU Level of Service				C	
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
118: Star Road & SH 44

2022 Existing Conditions AM Peak Hour
01/12/2023

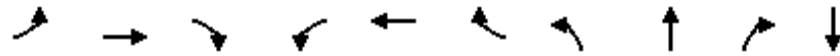


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Traffic Volume (veh/h)	45	411	205	85	246	85	165	101	93	116	214	41
Future Volume (veh/h)	45	411	205	85	246	85	165	101	93	116	214	41
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1744	1716	1772	1688	1688	1800	1772	1730	1674	1800	1758	1730
Adj Flow Rate, veh/h	48	437	218	97	280	97	181	111	102	123	228	44
Peak Hour Factor	0.94	0.94	0.94	0.88	0.88	0.88	0.91	0.91	0.91	0.94	0.94	0.94
Percent Heavy Veh, %	4	6	2	8	8	0	2	5	9	0	3	5
Cap, veh/h	488	797	697	346	806	728	262	360	295	372	256	49
Arrive On Green	0.03	0.46	0.46	0.05	0.48	0.48	0.10	0.21	0.21	0.07	0.18	0.18
Sat Flow, veh/h	1661	1716	1502	1607	1688	1525	1688	1730	1418	1714	1432	276
Grp Volume(v), veh/h	48	437	218	97	280	97	181	111	102	123	0	272
Grp Sat Flow(s),veh/h/ln	1661	1716	1502	1607	1688	1525	1688	1730	1418	1714	0	1708
Q Serve(g_s), s	1.7	21.3	10.6	3.6	12.1	4.1	10.0	6.3	7.1	6.7	0.0	18.1
Cycle Q Clear(g_c), s	1.7	21.3	10.6	3.6	12.1	4.1	10.0	6.3	7.1	6.7	0.0	18.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	488	797	697	346	806	728	262	360	295	372	0	305
V/C Ratio(X)	0.10	0.55	0.31	0.28	0.35	0.13	0.69	0.31	0.35	0.33	0.00	0.89
Avail Cap(c_a), veh/h	632	797	697	464	806	728	291	431	354	451	0	426
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.6	22.4	19.5	17.0	19.0	16.9	35.2	39.0	39.3	35.0	0.0	46.7
Incr Delay (d2), s/veh	0.0	2.7	1.2	0.2	0.2	0.1	4.5	0.2	0.3	0.2	0.0	12.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	9.0	3.9	1.3	4.7	1.5	4.4	2.7	2.5	2.8	0.0	8.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.6	25.1	20.7	17.2	19.2	17.0	39.8	39.1	39.5	35.2	0.0	59.5
LnGrp LOS	B	C	C	B	B	B	D	D	D	D	A	E
Approach Vol, veh/h		703			474			394			395	
Approach Delay, s/veh		23.1			18.3			39.5			51.9	
Approach LOS		C			B			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.9	61.5	18.0	26.8	11.5	60.0	14.6	30.2				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	14.0	54.0	14.0	29.0	14.0	54.0	14.0	29.0				
Max Q Clear Time (g_c+I1), s	3.7	14.1	12.0	20.1	5.6	23.3	8.7	9.1				
Green Ext Time (p_c), s	0.0	1.7	0.1	0.7	0.1	3.0	0.1	0.5				
Intersection Summary												
HCM 6th Ctrl Delay			31.0									
HCM 6th LOS			C									

Queues
119: Plummer Road & SH 44

2022 Existing Conditions AM Peak Hour

01/12/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	18	626	20	36	347	69	28	8	52	250
v/c Ratio	0.03	0.75	0.03	0.11	0.39	0.09	0.08	0.02	0.11	0.68
Control Delay	8.5	25.4	0.1	8.7	14.4	3.8	29.0	28.6	3.4	39.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.5	25.4	0.1	8.7	14.4	3.8	29.0	28.6	3.4	39.9
Queue Length 50th (ft)	3	262	0	7	78	0	11	3	0	116
Queue Length 95th (ft)	15	525	0	24	232	23	41	17	14	265
Internal Link Dist (ft)		5173			3517			675		5173
Turn Bay Length (ft)	100		100	100		100	100		100	
Base Capacity (vph)	628	1358	1148	417	1365	1187	675	991	878	739
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.46	0.02	0.09	0.25	0.06	0.04	0.01	0.06	0.34

Intersection Summary

HCM Signalized Intersection Capacity Analysis
119: Plummer Road & SH 44

2022 Existing Conditions AM Peak Hour

01/12/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (vph)	17	588	19	33	316	63	26	7	48	183	15	30		
Future Volume (vph)	17	588	19	33	316	63	26	7	48	183	15	30		
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800		
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0		5.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00			
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		0.98			
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		0.96			
Satd. Flow (prot)	1710	1748	1457	1660	1748	1500	1710	1800	1530		1686			
Flt Permitted	0.53	1.00	1.00	0.23	1.00	1.00	0.68	1.00	1.00		0.76			
Satd. Flow (perm)	952	1748	1457	409	1748	1500	1226	1800	1530		1338			
Peak-hour factor, PHF	0.94	0.94	0.94	0.91	0.91	0.91	0.92	0.92	0.92	0.91	0.91	0.91		
Adj. Flow (vph)	18	626	20	36	347	69	28	8	52	201	16	33		
RTOR Reduction (vph)	0	0	10	0	0	34	0	0	38	0	4	0		
Lane Group Flow (vph)	18	626	10	36	347	35	28	8	14	0	246	0		
Heavy Vehicles (%)	0%	3%	5%	3%	3%	2%	0%	0%	0%	1%	0%	0%		
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA			
Protected Phases	1	6		5	2			4			8			
Permitted Phases	6		6	2		2	4		4	8				
Actuated Green, G (s)	40.3	38.6	38.6	44.1	40.5	40.5	21.4	21.4	21.4		21.4			
Effective Green, g (s)	40.3	38.6	38.6	44.1	40.5	40.5	21.4	21.4	21.4		21.4			
Actuated g/C Ratio	0.50	0.48	0.48	0.55	0.50	0.50	0.27	0.27	0.27		0.27			
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0		5.0			
Vehicle Extension (s)	2.5	4.0	4.0	2.5	4.0	4.0	2.5	2.5	2.5		2.5			
Lane Grp Cap (vph)	491	837	697	279	878	753	325	477	406		355			
v/s Ratio Prot	0.00	c0.36		c0.01	0.20			0.00						
v/s Ratio Perm	0.02		0.01	0.06		0.02	0.02		0.01		c0.18			
v/c Ratio	0.04	0.75	0.01	0.13	0.40	0.05	0.09	0.02	0.03		0.69			
Uniform Delay, d1	10.2	17.0	11.0	10.6	12.4	10.2	22.2	21.8	21.9		26.6			
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00			
Incremental Delay, d2	0.0	3.9	0.0	0.2	0.4	0.0	0.1	0.0	0.0		5.3			
Delay (s)	10.2	21.0	11.0	10.8	12.8	10.2	22.3	21.8	22.0		31.9			
Level of Service	B	C	B	B	B	B	C	C	C		C			
Approach Delay (s)		20.4			12.3			22.1			31.9			
Approach LOS		C			B			C			C			
Intersection Summary														
HCM 2000 Control Delay			20.0									HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio			0.69											
Actuated Cycle Length (s)			80.6								17.0			
Intersection Capacity Utilization			63.6%										ICU Level of Service	B
Analysis Period (min)			15											
c Critical Lane Group														

HCM 6th Signalized Intersection Summary
119: Plummer Road & SH 44

2022 Existing Conditions AM Peak Hour
01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	588	19	33	316	63	26	7	48	183	15	30
Future Volume (veh/h)	17	588	19	33	316	63	26	7	48	183	15	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1758	1730	1758	1758	1772	1800	1800	1800	1786	1800	1800
Adj Flow Rate, veh/h	18	626	20	36	347	69	28	8	52	201	16	33
Peak Hour Factor	0.94	0.94	0.94	0.91	0.91	0.91	0.92	0.92	0.92	0.91	0.91	0.91
Percent Heavy Veh, %	0	3	5	3	3	2	0	0	0	1	0	0
Cap, veh/h	496	805	672	305	833	712	440	401	340	355	23	41
Arrive On Green	0.02	0.46	0.46	0.04	0.47	0.47	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1714	1758	1466	1674	1758	1502	1378	1800	1525	1112	102	185
Grp Volume(v), veh/h	18	626	20	36	347	69	28	8	52	250	0	0
Grp Sat Flow(s),veh/h/ln	1714	1758	1466	1674	1758	1502	1378	1800	1525	1399	0	0
Q Serve(g_s), s	0.3	18.1	0.5	0.7	7.8	1.5	0.0	0.2	1.7	10.0	0.0	0.0
Cycle Q Clear(g_c), s	0.3	18.1	0.5	0.7	7.8	1.5	0.9	0.2	1.7	10.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.80		0.13
Lane Grp Cap(c), veh/h	496	805	672	305	833	712	440	401	340	419	0	0
V/C Ratio(X)	0.04	0.78	0.03	0.12	0.42	0.10	0.06	0.02	0.15	0.60	0.00	0.00
Avail Cap(c_a), veh/h	743	1805	1505	520	1805	1542	955	1073	909	944	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.7	13.8	9.0	10.7	10.4	8.8	18.6	18.3	18.9	22.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.3	0.0	0.1	0.5	0.1	0.0	0.0	0.2	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	6.6	0.1	0.2	2.7	0.4	0.3	0.1	0.6	3.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.7	16.1	9.0	10.8	10.9	8.8	18.6	18.3	19.0	23.2	0.0	0.0
LnGrp LOS	A	B	A	B	B	A	B	B	B	C	A	A
Approach Vol, veh/h		664			452			88			250	
Approach Delay, s/veh		15.7			10.6			18.8			23.2	
Approach LOS		B			B			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.3	34.6		18.5	8.3	33.7		18.5				
Change Period (Y+Rc), s	6.0	6.0		5.0	6.0	6.0		5.0				
Max Green Setting (Gmax), s	10.0	62.0		36.0	10.0	62.0		36.0				
Max Q Clear Time (g_c+I1), s	2.3	9.8		3.7	2.7	20.1		12.2				
Green Ext Time (p_c), s	0.0	3.9		0.2	0.0	7.6		1.2				

Intersection Summary

HCM 6th Ctrl Delay	15.6
HCM 6th LOS	B

Intersection						
Int Delay, s/veh	7.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	61	24	3	2	1
Future Vol, veh/h	2	61	24	3	2	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	77	68	68	50	50
Heavy Vehicles, %	0	0	4	0	0	0
Mvmt Flow	3	79	35	4	4	2

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	79	5	6	0	0
Stage 1	5	-	-	-	-
Stage 2	74	-	-	-	-
Critical Hdwy	6.4	6.2	4.14	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.236	-	-
Pot Cap-1 Maneuver	929	1084	1602	-	-
Stage 1	1023	-	-	-	-
Stage 2	954	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	909	1084	1602	-	-
Mov Cap-2 Maneuver	909	-	-	-	-
Stage 1	1000	-	-	-	-
Stage 2	954	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	6.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1602	-	1077	-	-
HCM Lane V/C Ratio	0.022	-	0.076	-	-
HCM Control Delay (s)	7.3	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	46	17	247	664	1
Future Vol, veh/h	2	46	17	247	664	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	77	77	76	76
Heavy Vehicles, %	0	0	0	3	3	100
Mvmt Flow	2	50	22	321	874	1

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1240	875	875	0	-	0
Stage 1	875	-	-	-	-	-
Stage 2	365	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	195	351	780	-	-	-
Stage 1	411	-	-	-	-	-
Stage 2	707	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	190	351	780	-	-	-
Mov Cap-2 Maneuver	190	-	-	-	-	-
Stage 1	399	-	-	-	-	-
Stage 2	707	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.5	0.6	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	780	-	339	-	-
HCM Lane V/C Ratio	0.028	-	0.154	-	-
HCM Control Delay (s)	9.8	-	17.5	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

Intersection						
Int Delay, s/veh	1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	8	1	29	6	1	62
Future Vol, veh/h	8	1	29	6	1	62
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	56	56	67	67	66	66
Heavy Vehicles, %	0	0	1	6	0	0
Mvmt Flow	14	2	43	9	2	94

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	146	48	0	0	52
Stage 1	48	-	-	-	-
Stage 2	98	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	851	1027	-	-	1567
Stage 1	980	-	-	-	-
Stage 2	931	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	850	1027	-	-	1567
Mov Cap-2 Maneuver	850	-	-	-	-
Stage 1	980	-	-	-	-
Stage 2	930	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	0.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	867	1567
HCM Lane V/C Ratio	-	-	0.019	0.001
HCM Control Delay (s)	-	-	9.2	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection	
Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	26	6	26	5	4	2	22	26	42	38	4
Future Vol, veh/h	4	26	6	26	5	4	2	22	26	42	38	4
Peak Hour Factor	0.75	0.75	0.75	0.80	0.80	0.80	0.81	0.81	0.81	0.84	0.84	0.84
Heavy Vehicles, %	0	4	0	46	20	0	23	0	0	0	0	0
Mvmt Flow	5	35	8	33	6	5	2	27	32	50	45	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.5	8.5	7.7	7.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	4%	11%	74%	50%
Vol Thru, %	44%	72%	14%	45%
Vol Right, %	52%	17%	11%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	50	36	35	84
LT Vol	2	4	26	42
Through Vol	22	26	5	38
RT Vol	26	6	4	4
Lane Flow Rate	62	48	44	100
Geometry Grp	1	1	1	1
Degree of Util (X)	0.072	0.057	0.062	0.116
Departure Headway (Hd)	4.224	4.242	5.082	4.179
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	834	850	696	845
Service Time	2.321	2.242	3.181	2.266
HCM Lane V/C Ratio	0.074	0.056	0.063	0.118
HCM Control Delay	7.7	7.5	8.5	7.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.2	0.2	0.4

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	125	40	15	31	5
Future Vol, veh/h	3	125	40	15	31	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	63	65	79	79
Heavy Vehicles, %	0	3	8	0	3	0
Mvmt Flow	3	144	63	23	39	6

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	86	0	-	0	225 75
Stage 1	-	-	-	-	75 -
Stage 2	-	-	-	-	150 -
Critical Hdwy	4.1	-	-	-	6.43 6.2
Critical Hdwy Stg 1	-	-	-	-	5.43 -
Critical Hdwy Stg 2	-	-	-	-	5.43 -
Follow-up Hdwy	2.2	-	-	-	3.527 3.3
Pot Cap-1 Maneuver	1523	-	-	-	761 992
Stage 1	-	-	-	-	945 -
Stage 2	-	-	-	-	875 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1523	-	-	-	759 992
Mov Cap-2 Maneuver	-	-	-	-	759 -
Stage 1	-	-	-	-	943 -
Stage 2	-	-	-	-	875 -

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	9.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1523	-	-	-	785
HCM Lane V/C Ratio	0.002	-	-	-	0.058
HCM Control Delay (s)	7.4	-	-	-	9.9
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Queues
110: SH 16 & Beacon Light Road

2022 Existing Conditions PM Peak Hour

01/12/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	11	124	115	63	40	45	64	279	145	178	642	5
v/c Ratio	0.05	0.55	0.35	0.23	0.13	0.10	0.22	0.37	0.20	0.31	0.75	0.01
Control Delay	31.2	56.3	5.3	33.7	36.6	0.4	13.5	25.0	4.8	12.4	32.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.2	56.3	5.3	33.7	36.6	0.4	13.5	25.0	4.8	12.4	32.7	0.0
Queue Length 50th (ft)	6	85	0	35	22	0	18	132	0	53	380	0
Queue Length 95th (ft)	17	125	0	63	52	0	37	202	27	99	#631	0
Internal Link Dist (ft)		2558			3836			8809			1084	
Turn Bay Length (ft)	100		100	100		100	100		100	100		100
Base Capacity (vph)	411	482	530	362	382	528	519	886	827	699	852	827
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.26	0.22	0.17	0.10	0.09	0.12	0.31	0.18	0.25	0.75	0.01

























Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
110: SH 16 & Beacon Light Road

2022 Existing Conditions PM Peak Hour

01/12/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	93	86	50	32	36	50	218	113	153	552	4
Future Volume (vph)	8	93	86	50	32	36	50	218	113	153	552	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0	9.0	9.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1710	1782	1530	1644	1374	1485	1710	1800	1530	1693	1731	1530
Flt Permitted	0.73	1.00	1.00	0.50	1.00	1.00	0.24	1.00	1.00	0.50	1.00	1.00
Satd. Flow (perm)	1316	1782	1530	870	1374	1485	433	1800	1530	888	1731	1530
Peak-hour factor, PHF	0.75	0.75	0.75	0.80	0.80	0.80	0.78	0.78	0.78	0.86	0.86	0.86
Adj. Flow (vph)	11	124	115	62	40	45	64	279	145	178	642	5
RTOR Reduction (vph)	0	0	97	0	0	36	0	0	85	0	0	3
Lane Group Flow (vph)	11	124	18	63	40	9	64	279	60	178	642	2
Heavy Vehicles (%)	0%	1%	0%	4%	31%	3%	0%	0%	0%	1%	4%	0%
Turn Type	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Prot
Protected Phases	1	6	6	5	2	2	3	8	8	7	4	4
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	18.6	17.5	17.5	30.4	23.4	23.4	52.6	47.5	47.5	62.2	52.3	52.3
Effective Green, g (s)	18.6	17.5	17.5	30.4	23.4	23.4	52.6	47.5	47.5	62.2	52.3	52.3
Actuated g/C Ratio	0.16	0.15	0.15	0.27	0.21	0.21	0.46	0.42	0.42	0.55	0.46	0.46
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0	9.0	9.0
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	5.0	5.0	2.0	5.0	5.0
Lane Grp Cap (vph)	218	273	235	279	282	305	257	750	638	554	794	702
v/s Ratio Prot	0.00	c0.07	0.01	c0.01	0.03	0.01	0.01	0.15	0.04	c0.03	c0.37	0.00
v/s Ratio Perm	0.01			0.05			0.10			0.15		
v/c Ratio	0.05	0.45	0.08	0.23	0.14	0.03	0.25	0.37	0.09	0.32	0.81	0.00
Uniform Delay, d1	40.1	43.9	41.3	32.0	37.0	36.2	19.1	22.9	20.2	13.4	26.5	16.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.0	1.2	0.1	0.2	0.2	0.0	0.2	0.7	0.1	0.1	6.9	0.0
Delay (s)	40.2	45.1	41.4	32.1	37.3	36.2	19.3	23.6	20.3	13.6	33.4	16.7
Level of Service	D	D	D	C	D	D	B	C	C	B	C	B
Approach Delay (s)		43.2			34.8			22.0			29.0	
Approach LOS		D			C			C			C	
Intersection Summary												
HCM 2000 Control Delay			29.6									HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio			0.68									
Actuated Cycle Length (s)			113.9								32.0	
Intersection Capacity Utilization			65.3%									ICU Level of Service C
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
110: SH 16 & Beacon Light Road

2022 Existing Conditions PM Peak Hour
01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Traffic Volume (veh/h)	8	93	86	50	32	36	50	218	113	153	552	4
Future Volume (veh/h)	8	93	86	50	32	36	50	218	113	153	552	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1786	1800	1744	1365	1758	1800	1800	1800	1786	1744	1800
Adj Flow Rate, veh/h	11	124	115	62	40	45	64	279	145	178	642	5
Peak Hour Factor	0.75	0.75	0.75	0.80	0.80	0.80	0.78	0.78	0.78	0.86	0.86	0.86
Percent Heavy Veh, %	0	1	0	4	31	3	0	0	0	1	4	0
Cap, veh/h	254	201	172	206	196	214	246	718	608	504	764	668
Arrive On Green	0.01	0.11	0.11	0.04	0.14	0.14	0.04	0.40	0.40	0.08	0.44	0.44
Sat Flow, veh/h	1714	1786	1525	1661	1365	1490	1714	1800	1525	1701	1744	1525
Grp Volume(v), veh/h	11	124	115	62	40	45	64	279	145	178	642	5
Grp Sat Flow(s),veh/h/ln	1714	1786	1525	1661	1365	1490	1714	1800	1525	1701	1744	1525
Q Serve(g_s), s	0.5	5.9	6.4	2.9	2.3	2.4	1.9	9.8	5.6	5.4	29.1	0.2
Cycle Q Clear(g_c), s	0.5	5.9	6.4	2.9	2.3	2.4	1.9	9.8	5.6	5.4	29.1	0.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	254	201	172	206	196	214	246	718	608	504	764	668
V/C Ratio(X)	0.04	0.62	0.67	0.30	0.20	0.21	0.26	0.39	0.24	0.35	0.84	0.01
Avail Cap(c_a), veh/h	579	563	481	470	430	470	575	1034	876	763	1002	876
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.1	37.6	37.8	33.0	33.6	33.6	18.3	19.0	17.7	13.9	22.2	14.1
Incr Delay (d2), s/veh	0.0	3.1	4.5	0.3	0.5	0.5	0.2	0.7	0.4	0.2	6.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.7	2.6	1.2	0.8	0.9	0.7	4.1	2.0	2.0	12.6	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.2	40.6	42.3	33.3	34.1	34.1	18.5	19.7	18.2	14.1	29.1	14.1
LnGrp LOS	C	D	D	C	C	C	B	B	B	B	C	B
Approach Vol, veh/h		250			147			488			825	
Approach Delay, s/veh		41.1			33.7			19.1			25.8	
Approach LOS		D			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.2	19.7	13.0	47.9	10.9	17.0	16.5	44.4				
Change Period (Y+Rc), s	7.0	7.0	9.0	9.0	7.0	7.0	9.0	9.0				
Max Green Setting (Gmax), s	18.0	28.0	21.0	51.0	18.0	28.0	21.0	51.0				
Max Q Clear Time (g_c+I1), s	2.5	4.4	3.9	31.1	4.9	8.4	7.4	11.8				
Green Ext Time (p_c), s	0.0	0.3	0.1	7.8	0.0	1.0	0.2	4.9				
Intersection Summary												
HCM 6th Ctrl Delay				26.8								
HCM 6th LOS				C								

Intersection						
Int Delay, s/veh	0.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	358	7	5	99	5	7
Future Vol, veh/h	358	7	5	99	5	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	79	79	43	43
Heavy Vehicles, %	1	0	0	0	0	14
Mvmt Flow	402	8	6	125	12	16

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	410	0	543
Stage 1	-	-	-	-	406
Stage 2	-	-	-	-	137
Critical Hdwy	-	-	4.1	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.2	-	3.5
Pot Cap-1 Maneuver	-	-	1160	-	504
Stage 1	-	-	-	-	677
Stage 2	-	-	-	-	895
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1160	-	501
Mov Cap-2 Maneuver	-	-	-	-	501
Stage 1	-	-	-	-	677
Stage 2	-	-	-	-	890

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	11.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	564	-	-	1160	-
HCM Lane V/C Ratio	0.049	-	-	0.005	-
HCM Control Delay (s)	11.7	-	-	8.1	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection						
Int Delay, s/veh	5.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↶		↷	↶	↷	↷
Traffic Vol, veh/h	69	83	113	28	64	89
Future Vol, veh/h	69	83	113	28	64	89
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	100	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	80	80	85	85
Heavy Vehicles, %	3	1	4	0	3	2
Mvmt Flow	76	91	141	35	75	105

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	167	0	439
Stage 1	-	-	-	-	122
Stage 2	-	-	-	-	317
Critical Hdwy	-	-	4.14	-	6.43
Critical Hdwy Stg 1	-	-	-	-	5.43
Critical Hdwy Stg 2	-	-	-	-	5.43
Follow-up Hdwy	-	-	2.236	-	3.527
Pot Cap-1 Maneuver	-	-	1399	-	573
Stage 1	-	-	-	-	901
Stage 2	-	-	-	-	736
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1399	-	515
Mov Cap-2 Maneuver	-	-	-	-	515
Stage 1	-	-	-	-	901
Stage 2	-	-	-	-	662

Approach	EB	WB	NB
HCM Control Delay, s	0	6.3	11
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	515	929	-	-	1399	-
HCM Lane V/C Ratio	0.146	0.113	-	-	0.101	-
HCM Control Delay (s)	13.2	9.4	-	-	7.9	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0.5	0.4	-	-	0.3	-

Intersection						
Int Delay, s/veh	2.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	74	121	15	34	34	23
Future Vol, veh/h	74	121	15	34	34	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	82	82	66	66
Heavy Vehicles, %	3	0	7	6	3	0
Mvmt Flow	79	129	18	41	52	35

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	208	0	221
Stage 1	-	-	-	-	144
Stage 2	-	-	-	-	77
Critical Hdwy	-	-	4.17	-	6.43
Critical Hdwy Stg 1	-	-	-	-	5.43
Critical Hdwy Stg 2	-	-	-	-	5.43
Follow-up Hdwy	-	-	2.263	-	3.527
Pot Cap-1 Maneuver	-	-	1334	-	765
Stage 1	-	-	-	-	881
Stage 2	-	-	-	-	943
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1334	-	754
Mov Cap-2 Maneuver	-	-	-	-	754
Stage 1	-	-	-	-	881
Stage 2	-	-	-	-	930

Approach	EB	WB	NB
HCM Control Delay, s	0	2.4	10
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	810	-	-	1334	-
HCM Lane V/C Ratio	0.107	-	-	0.014	-
HCM Control Delay (s)	10	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0	-

Intersection						
Int Delay, s/veh	4.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	34	28	52	43	25	29
Future Vol, veh/h	34	28	52	43	25	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	74	74	91	91	79	79
Heavy Vehicles, %	12	4	0	2	4	0
Mvmt Flow	46	38	57	47	32	37

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	182	81	0	0	104	0
Stage 1	81	-	-	-	-	-
Stage 2	101	-	-	-	-	-
Critical Hdwy	6.52	6.24	-	-	4.14	-
Critical Hdwy Stg 1	5.52	-	-	-	-	-
Critical Hdwy Stg 2	5.52	-	-	-	-	-
Follow-up Hdwy	3.608	3.336	-	-	2.236	-
Pot Cap-1 Maneuver	785	973	-	-	1475	-
Stage 1	917	-	-	-	-	-
Stage 2	899	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	768	973	-	-	1475	-
Mov Cap-2 Maneuver	768	-	-	-	-	-
Stage 1	917	-	-	-	-	-
Stage 2	879	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.7	0	3.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	849	1475
HCM Lane V/C Ratio	-	-	0.099	0.021
HCM Control Delay (s)	-	-	9.7	7.5
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1

Intersection						
Int Delay, s/veh	6.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	92	73	17	18	1
Future Vol, veh/h	3	92	73	17	18	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	80	80	75	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	108	91	21	24	1

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	228	25	25	0	0
Stage 1	25	-	-	-	-
Stage 2	203	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	760	1051	1589	-	-
Stage 1	998	-	-	-	-
Stage 2	831	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	716	1051	1589	-	-
Mov Cap-2 Maneuver	716	-	-	-	-
Stage 1	940	-	-	-	-
Stage 2	831	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1589	-	1036	-	-
HCM Lane V/C Ratio	0.057	-	0.108	-	-
HCM Control Delay (s)	7.4	0	8.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.4	-	-

Intersection						
Int Delay, s/veh	2.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	35	636	266	29	46	38
Future Vol, veh/h	35	636	266	29	46	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	93	93	81	81
Heavy Vehicles, %	29	3	4	3	0	13
Mvmt Flow	37	677	286	31	57	47

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	317	0	-	0	1053 302
Stage 1	-	-	-	-	302 -
Stage 2	-	-	-	-	751 -
Critical Hdwy	4.39	-	-	-	6.4 6.33
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.461	-	-	-	3.5 3.417
Pot Cap-1 Maneuver	1105	-	-	-	253 713
Stage 1	-	-	-	-	755 -
Stage 2	-	-	-	-	470 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1105	-	-	-	239 713
Mov Cap-2 Maneuver	-	-	-	-	239 -
Stage 1	-	-	-	-	714 -
Stage 2	-	-	-	-	470 -

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	20
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1105	-	-	-	342
HCM Lane V/C Ratio	0.034	-	-	-	0.303
HCM Control Delay (s)	8.4	0	-	-	20
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	1.3

Queues
118: Star Road & SH 44

2022 Existing Conditions PM Peak Hour
01/12/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	48	437	218	97	280	97	181	111	102	123	272
v/c Ratio	0.09	0.59	0.30	0.25	0.34	0.12	0.70	0.33	0.27	0.33	0.86
Control Delay	14.5	32.3	12.4	15.2	23.2	2.3	46.9	46.0	6.6	32.4	73.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.5	32.3	12.4	15.2	23.2	2.3	46.9	46.0	6.6	32.4	73.6
Queue Length 50th (ft)	17	271	48	36	145	0	108	77	0	71	211
Queue Length 95th (ft)	39	428	117	68	229	19	176	140	35	122	#324
Internal Link Dist (ft)		2598			5173			1764			5156
Turn Bay Length (ft)	100		100	100		100	100		100	100	
Base Capacity (vph)	624	744	725	429	818	812	277	404	423	419	405
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.59	0.30	0.23	0.34	0.12	0.65	0.27	0.24	0.29	0.67

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
118: Star Road & SH 44

2022 Existing Conditions PM Peak Hour
01/12/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	411	205	85	246	85	165	101	93	116	214	41
Future Volume (vph)	45	411	205	85	246	85	165	101	93	116	214	41
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1644	1698	1500	1583	1667	1530	1676	1714	1404	1710	1700	
Flt Permitted	0.58	1.00	1.00	0.33	1.00	1.00	0.25	1.00	1.00	0.69	1.00	
Satd. Flow (perm)	1005	1698	1500	549	1667	1530	442	1714	1404	1234	1700	
Peak-hour factor, PHF	0.94	0.94	0.94	0.88	0.88	0.88	0.91	0.91	0.91	0.94	0.94	0.94
Adj. Flow (vph)	48	437	218	97	280	97	181	111	102	123	228	44
RTOR Reduction (vph)	0	0	67	0	0	50	0	0	82	0	6	0
Lane Group Flow (vph)	48	437	151	97	280	47	181	111	20	123	266	0
Heavy Vehicles (%)	4%	6%	2%	8%	8%	0%	2%	5%	9%	0%	3%	5%
Turn Type	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6	6	5	2	2	3	8		7	4	
Permitted Phases	6			2			8		8	4		
Actuated Green, G (s)	60.8	55.7	55.7	71.2	60.9	60.9	37.2	24.7	24.7	33.2	22.7	
Effective Green, g (s)	60.8	55.7	55.7	71.2	60.9	60.9	37.2	24.7	24.7	33.2	22.7	
Actuated g/C Ratio	0.49	0.44	0.44	0.57	0.49	0.49	0.30	0.20	0.20	0.27	0.18	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	2.0	2.5	2.5	2.0	2.5	2.5	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	514	755	667	397	810	744	254	338	276	367	308	
v/s Ratio Prot	0.00	c0.26	0.10	c0.02	c0.17	0.03	c0.07	0.06		0.03	c0.16	
v/s Ratio Perm	0.04			0.12			0.14		0.01	0.06		
v/c Ratio	0.09	0.58	0.23	0.24	0.35	0.06	0.71	0.33	0.07	0.34	0.86	
Uniform Delay, d1	17.1	26.0	21.4	14.5	19.8	17.0	35.6	43.1	40.9	36.4	49.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	3.2	0.8	0.1	0.2	0.0	7.6	0.2	0.0	0.2	20.8	
Delay (s)	17.1	29.2	22.2	14.6	20.0	17.1	43.3	43.3	41.0	36.6	70.6	
Level of Service	B	C	C	B	C	B	D	D	D	D	E	
Approach Delay (s)		26.2			18.3			42.7			60.0	
Approach LOS		C			B			D			E	
Intersection Summary												
HCM 2000 Control Delay			34.4									HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			125.2							24.0		
Intersection Capacity Utilization			72.0%									ICU Level of Service C
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
118: Star Road & SH 44

2022 Existing Conditions PM Peak Hour
01/12/2023

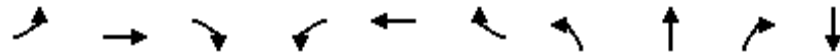


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Traffic Volume (veh/h)	45	411	205	85	246	85	165	101	93	116	214	41
Future Volume (veh/h)	45	411	205	85	246	85	165	101	93	116	214	41
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1744	1716	1772	1688	1688	1800	1772	1730	1674	1800	1758	1730
Adj Flow Rate, veh/h	48	437	218	97	280	97	181	111	102	123	228	44
Peak Hour Factor	0.94	0.94	0.94	0.88	0.88	0.88	0.91	0.91	0.91	0.94	0.94	0.94
Percent Heavy Veh, %	4	6	2	8	8	0	2	5	9	0	3	5
Cap, veh/h	488	797	697	346	806	728	262	360	295	372	256	49
Arrive On Green	0.03	0.46	0.46	0.05	0.48	0.48	0.10	0.21	0.21	0.07	0.18	0.18
Sat Flow, veh/h	1661	1716	1502	1607	1688	1525	1688	1730	1418	1714	1432	276
Grp Volume(v), veh/h	48	437	218	97	280	97	181	111	102	123	0	272
Grp Sat Flow(s),veh/h/ln	1661	1716	1502	1607	1688	1525	1688	1730	1418	1714	0	1708
Q Serve(g_s), s	1.7	21.3	10.6	3.6	12.1	4.1	10.0	6.3	7.1	6.7	0.0	18.1
Cycle Q Clear(g_c), s	1.7	21.3	10.6	3.6	12.1	4.1	10.0	6.3	7.1	6.7	0.0	18.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	488	797	697	346	806	728	262	360	295	372	0	305
V/C Ratio(X)	0.10	0.55	0.31	0.28	0.35	0.13	0.69	0.31	0.35	0.33	0.00	0.89
Avail Cap(c_a), veh/h	632	797	697	464	806	728	291	431	354	451	0	426
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.6	22.4	19.5	17.0	19.0	16.9	35.2	39.0	39.3	35.0	0.0	46.7
Incr Delay (d2), s/veh	0.0	2.7	1.2	0.2	0.2	0.1	4.5	0.2	0.3	0.2	0.0	12.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	9.0	3.9	1.3	4.7	1.5	4.4	2.7	2.5	2.8	0.0	8.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.6	25.1	20.7	17.2	19.2	17.0	39.8	39.1	39.5	35.2	0.0	59.5
LnGrp LOS	B	C	C	B	B	B	D	D	D	D	A	E
Approach Vol, veh/h		703			474			394			395	
Approach Delay, s/veh		23.1			18.3			39.5			51.9	
Approach LOS		C			B			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.9	61.5	18.0	26.8	11.5	60.0	14.6	30.2				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	14.0	54.0	14.0	29.0	14.0	54.0	14.0	29.0				
Max Q Clear Time (g_c+I1), s	3.7	14.1	12.0	20.1	5.6	23.3	8.7	9.1				
Green Ext Time (p_c), s	0.0	1.7	0.1	0.7	0.1	3.0	0.1	0.5				
Intersection Summary												
HCM 6th Ctrl Delay			31.0									
HCM 6th LOS			C									

Queues
119: Plummer Road & SH 44

2022 Existing Conditions PM Peak Hour

01/12/2023


























Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	18	626	20	36	347	69	28	8	52	250
v/c Ratio	0.03	0.75	0.03	0.11	0.39	0.09	0.08	0.02	0.11	0.68
Control Delay	8.5	25.4	0.1	8.7	14.4	3.8	29.0	28.6	3.4	39.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.5	25.4	0.1	8.7	14.4	3.8	29.0	28.6	3.4	39.9
Queue Length 50th (ft)	3	262	0	7	78	0	11	3	0	116
Queue Length 95th (ft)	15	525	0	24	232	23	41	17	14	265
Internal Link Dist (ft)		5173			3517			675		5173
Turn Bay Length (ft)	100		100	100		100	100		100	
Base Capacity (vph)	628	1358	1148	417	1365	1187	675	991	878	739
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.46	0.02	0.09	0.25	0.06	0.04	0.01	0.06	0.34

Intersection Summary

HCM Signalized Intersection Capacity Analysis
119: Plummer Road & SH 44

2022 Existing Conditions PM Peak Hour

01/12/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	588	19	33	316	63	26	7	48	183	15	30
Future Volume (vph)	17	588	19	33	316	63	26	7	48	183	15	30
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0		5.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		0.96	
Satd. Flow (prot)	1710	1748	1457	1660	1748	1500	1710	1800	1530		1686	
Flt Permitted	0.53	1.00	1.00	0.23	1.00	1.00	0.68	1.00	1.00		0.76	
Satd. Flow (perm)	952	1748	1457	409	1748	1500	1226	1800	1530		1338	
Peak-hour factor, PHF	0.94	0.94	0.94	0.91	0.91	0.91	0.92	0.92	0.92	0.91	0.91	0.91
Adj. Flow (vph)	18	626	20	36	347	69	28	8	52	201	16	33
RTOR Reduction (vph)	0	0	10	0	0	34	0	0	38	0	4	0
Lane Group Flow (vph)	18	626	10	36	347	35	28	8	14	0	246	0
Heavy Vehicles (%)	0%	3%	5%	3%	3%	2%	0%	0%	0%	1%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6		6	2		2	4		4	8		
Actuated Green, G (s)	40.3	38.6	38.6	44.1	40.5	40.5	21.4	21.4	21.4		21.4	
Effective Green, g (s)	40.3	38.6	38.6	44.1	40.5	40.5	21.4	21.4	21.4		21.4	
Actuated g/C Ratio	0.50	0.48	0.48	0.55	0.50	0.50	0.27	0.27	0.27		0.27	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0		5.0	
Vehicle Extension (s)	2.5	4.0	4.0	2.5	4.0	4.0	2.5	2.5	2.5		2.5	
Lane Grp Cap (vph)	491	837	697	279	878	753	325	477	406		355	
v/s Ratio Prot	0.00	c0.36		c0.01	0.20			0.00				
v/s Ratio Perm	0.02		0.01	0.06		0.02	0.02		0.01		c0.18	
v/c Ratio	0.04	0.75	0.01	0.13	0.40	0.05	0.09	0.02	0.03		0.69	
Uniform Delay, d1	10.2	17.0	11.0	10.6	12.4	10.2	22.2	21.8	21.9		26.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.0	3.9	0.0	0.2	0.4	0.0	0.1	0.0	0.0		5.3	
Delay (s)	10.2	21.0	11.0	10.8	12.8	10.2	22.3	21.8	22.0		31.9	
Level of Service	B	C	B	B	B	B	C	C	C		C	
Approach Delay (s)		20.4			12.3			22.1			31.9	
Approach LOS		C			B			C			C	
Intersection Summary												
HCM 2000 Control Delay			20.0				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			80.6				Sum of lost time (s)			17.0		
Intersection Capacity Utilization			63.6%				ICU Level of Service			B		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM 6th Signalized Intersection Summary
119: Plummer Road & SH 44

2022 Existing Conditions PM Peak Hour
01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘		↕	↘
Traffic Volume (veh/h)	17	588	19	33	316	63	26	7	48	183	15	30
Future Volume (veh/h)	17	588	19	33	316	63	26	7	48	183	15	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1758	1730	1758	1758	1772	1800	1800	1800	1786	1800	1800
Adj Flow Rate, veh/h	18	626	20	36	347	69	28	8	52	201	16	33
Peak Hour Factor	0.94	0.94	0.94	0.91	0.91	0.91	0.92	0.92	0.92	0.91	0.91	0.91
Percent Heavy Veh, %	0	3	5	3	3	2	0	0	0	1	0	0
Cap, veh/h	496	805	672	305	833	712	440	401	340	355	23	41
Arrive On Green	0.02	0.46	0.46	0.04	0.47	0.47	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1714	1758	1466	1674	1758	1502	1378	1800	1525	1112	102	185
Grp Volume(v), veh/h	18	626	20	36	347	69	28	8	52	250	0	0
Grp Sat Flow(s),veh/h/ln	1714	1758	1466	1674	1758	1502	1378	1800	1525	1399	0	0
Q Serve(g_s), s	0.3	18.1	0.5	0.7	7.8	1.5	0.0	0.2	1.7	10.0	0.0	0.0
Cycle Q Clear(g_c), s	0.3	18.1	0.5	0.7	7.8	1.5	0.9	0.2	1.7	10.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.80		0.13
Lane Grp Cap(c), veh/h	496	805	672	305	833	712	440	401	340	419	0	0
V/C Ratio(X)	0.04	0.78	0.03	0.12	0.42	0.10	0.06	0.02	0.15	0.60	0.00	0.00
Avail Cap(c_a), veh/h	743	1805	1505	520	1805	1542	955	1073	909	944	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.7	13.8	9.0	10.7	10.4	8.8	18.6	18.3	18.9	22.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.3	0.0	0.1	0.5	0.1	0.0	0.0	0.2	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	6.6	0.1	0.2	2.7	0.4	0.3	0.1	0.6	3.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.7	16.1	9.0	10.8	10.9	8.8	18.6	18.3	19.0	23.2	0.0	0.0
LnGrp LOS	A	B	A	B	B	A	B	B	B	C	A	A
Approach Vol, veh/h		664			452			88			250	
Approach Delay, s/veh		15.7			10.6			18.8			23.2	
Approach LOS		B			B			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.3	34.6		18.5	8.3	33.7		18.5				
Change Period (Y+Rc), s	6.0	6.0		5.0	6.0	6.0		5.0				
Max Green Setting (Gmax), s	10.0	62.0		36.0	10.0	62.0		36.0				
Max Q Clear Time (g_c+I1), s	2.3	9.8		3.7	2.7	20.1		12.2				
Green Ext Time (p_c), s	0.0	3.9		0.2	0.0	7.6		1.2				

Intersection Summary

HCM 6th Ctrl Delay	15.6
HCM 6th LOS	B



Appendix E
Year 2022 Mitigated Existing
Traffic Operation Worksheets



KITTELSON & ASSOCIATES, INC.
 610 SW Alder, Suite 700
 Portland, Oregon 97205
 (503) 228-5230

Project #: 25407
Project Name: Willow Brook Golf Community
Analyst: CHF
Date: 10/14/2022
File: H:\25\25407 - Willow Brook Community
 TIS\analysis\Signal Warrants\SWA - 117 - 2022
 Existing.xls\Data Input
Intersection: 17 - SH 44 / Can Ada Road
Scenario: 2022 Existing Conditions

Analysis Traffic Volumes

Hour	Major Street		Minor Street			
	Begin	End	EB	WB	NB	SB
5:00 PM	6:00 PM		727	537	0	80
2nd Highest Hour			727	537	0	79
3rd Highest Hour			657	485	0	72
4th Highest Hour			631	466	0	65
5th Highest Hour			561	414	0	54
6th Highest Hour			543	401	0	53
7th Highest Hour			517	382	0	50
8th Highest Hour			499	369	0	45
9th Highest Hour			473	349	0	44
10th Highest Hour			464	343	0	43
11th Highest Hour			447	330	0	41
12th Highest Hour			438	323	0	40
13th Highest Hour			420	311	0	40
14th Highest Hour			377	278	0	40
15th Highest Hour			298	220	0	32
16th Highest Hour			263	194	0	28
17th Highest Hour			201	149	0	23
18th Highest Hour			166	123	0	18
19th Highest Hour			140	104	0	16
20th Highest Hour			79	58	0	11
21st Highest Hour			53	39	0	5
22nd Highest Hour			44	32	0	4
23rd Highest Hour			26	19	0	3
24th Highest Hour			26	19	0	3

Warrant Summary

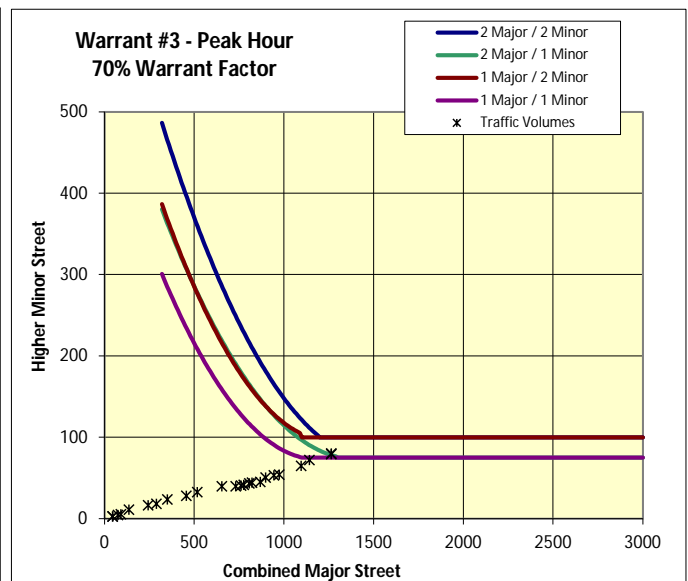
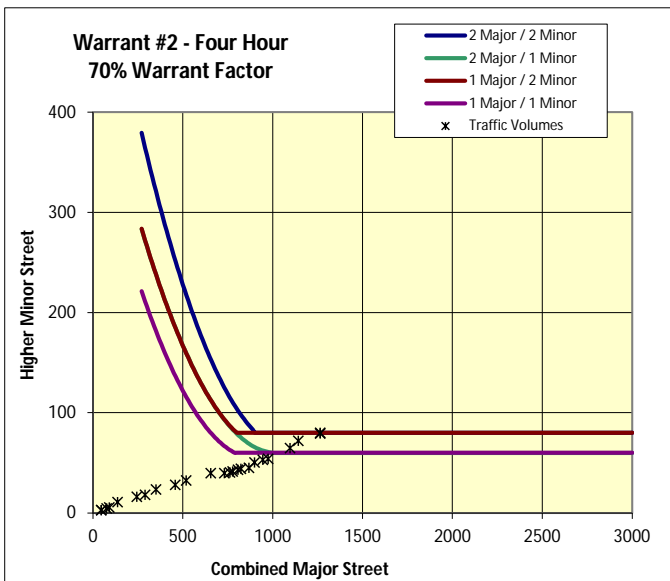
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	No
#2	Four-Hour Vehicular volume	Yes	Yes
#3	Peak Hour	Yes	Yes
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Minor
East-West Approach =	Major
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	Yes
Population < 10,000?	No
Warrant Factor	70%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	87%
Major Street: 8th-Highest Hour / Peak Hour	69%
Minor Street: 4th-Highest Hour / Peak Hour	81%
Minor Street: 8th-Highest Hour / Peak Hour	56%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	0	No	No
	B	750	75	2	No	No
80%	A	400	120	0	No	No
	B	600	60	4	No	No
70%	A	350	105	0	No	No
	B	525	53	6	No	No
56%	A	280	84	0	No	Yes
	B	420	42	11	Yes	Yes





Appendix F
Existing 48-Hour Segment
Traffic Count Data

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Radar Volume

Beacon Light Rd E of Palmer Rd
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Beacon Light Road east of Palmer
 Road
 Star, Idaho

6/14/2022 Time	Westbound	Eastbound	Total
12:00 AM	1	0	1
12:15	5	1	6
12:30	3	3	6
12:45	0	0	0
1:00	2	2	4
1:15	1	1	2
1:30	1	2	3
1:45	1	1	2
2:00	0	1	1
2:15	0	0	0
2:30	1	1	2
2:45	1	2	3
3:00	0	1	1
3:15	1	0	1
3:30	0	1	1
3:45	0	2	2
4:00	1	0	1
4:15	1	1	2
4:30	1	2	3
4:45	2	2	4
5:00	2	6	8
5:15	3	9	12
5:30	5	12	17
5:45	5	17	22
6:00	4	24	28
6:15	7	35	42
6:30	10	54	64
6:45	14	57	71
7:00	18	79	97
7:15	31	107	138
7:30	27	107	134
7:45	32	84	116
8:00	18	78	96
8:15	31	75	106
8:30	35	91	126
8:45	38	64	102
9:00	36	55	91
9:15	30	52	82
9:30	29	44	73
9:45	30	48	78
10:00	43	38	81
10:15	31	38	69
10:30	36	42	78
10:45	46	52	98
11:00	35	56	91
11:15	45	35	80
11:30	42	48	90
11:45	50	43	93
Total	755	1473	2228
Percent	33.9%	66.1%	
Peak	11:00	7:00	7:00
Volume	172	377	485
Peak Factor	0.860	0.881	0.879

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Radar Volume

Beacon Light Rd E of Palmer Rd
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Beacon Light Road east of Palmer
 Road
 Star, Idaho

6/14/2022 Time	Westbound	Eastbound	Total
12:00 PM	57	31	88
12:15	48	62	110
12:30	34	40	74
12:45	54	47	101
1:00	50	48	98
1:15	47	29	76
1:30	38	50	88
1:45	44	43	87
2:00	53	48	101
2:15	42	37	79
2:30	66	47	113
2:45	61	44	105
3:00	65	26	91
3:15	51	36	87
3:30	64	38	102
3:45	93	39	132
4:00	83	38	121
4:15	70	47	117
4:30	99	45	144
4:45	103	45	148
5:00	128	40	168
5:15	118	39	157
5:30	119	41	160
5:45	108	39	147
6:00	88	31	119
6:15	69	26	95
6:30	59	23	82
6:45	39	27	66
7:00	45	21	66
7:15	41	13	54
7:30	28	23	51
7:45	26	12	38
8:00	22	18	40
8:15	30	12	42
8:30	16	13	29
8:45	23	17	40
9:00	22	12	34
9:15	22	18	40
9:30	20	11	31
9:45	12	8	20
10:00	11	4	15
10:15	12	6	18
10:30	10	8	18
10:45	6	3	9
11:00	5	6	11
11:15	7	3	10
11:30	2	10	12
11:45	4	5	9
Total	2314	1329	3643
Percent	63.5%	36.5%	
Peak	5:00	12:15	4:45
Volume	473	197	633
Peak Factor	0.924	0.794	0.942

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Radar Volume

Beacon Light Rd E of Palmer Rd
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Beacon Light Road east of Palmer
 Road
 Star, Idaho

6/15/2022 Time	Westbound	Eastbound	Total
12:00 AM	6	1	7
12:15	4	3	7
12:30	0	0	0
12:45	2	1	3
1:00	0	0	0
1:15	4	2	6
1:30	1	1	2
1:45	0	1	1
2:00	0	1	1
2:15	0	0	0
2:30	2	0	2
2:45	0	3	3
3:00	0	0	0
3:15	1	0	1
3:30	0	3	3
3:45	1	1	2
4:00	0	3	3
4:15	3	0	3
4:30	3	3	6
4:45	0	0	0
5:00	3	5	8
5:15	5	6	11
5:30	8	20	28
5:45	6	12	18
6:00	5	25	30
6:15	10	45	55
6:30	7	57	64
6:45	26	51	77
7:00	14	99	113
7:15	20	100	120
7:30	25	92	117
7:45	23	84	107
8:00	42	65	107
8:15	27	74	101
8:30	33	69	102
8:45	39	75	114
9:00	40	70	110
9:15	34	51	85
9:30	37	75	112
9:45	48	56	104
10:00	41	46	87
10:15	34	60	94
10:30	42	54	96
10:45	54	57	111
11:00	30	60	90
11:15	45	55	100
11:30	36	48	84
11:45	42	42	84
Total	803	1576	2379
Percent	33.8%	66.2%	
Peak	10:00	7:00	7:00
Volume	171	375	457
Peak Factor	0.792	0.938	0.952

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Radar Volume

Beacon Light Rd E of Palmer Rd
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Beacon Light Road east of Palmer
 Road
 Star, Idaho

6/15/2022 Time	Westbound	Eastbound	Total
12:00 PM	48	41	89
12:15	44	49	93
12:30	50	50	100
12:45	49	42	91
1:00	72	40	112
1:15	56	50	106
1:30	51	45	96
1:45	67	56	123
2:00	43	46	89
2:15	55	66	121
2:30	57	49	106
2:45	61	53	114
3:00	96	31	127
3:15	67	53	120
3:30	59	48	107
3:45	88	55	143
4:00	86	44	130
4:15	84	51	135
4:30	118	49	167
4:45	106	34	140
5:00	125	48	173
5:15	141	38	179
5:30	134	40	174
5:45	132	33	165
6:00	113	30	143
6:15	76	36	112
6:30	78	23	101
6:45	47	35	82
7:00	60	30	90
7:15	41	30	71
7:30	28	21	49
7:45	27	22	49
8:00	23	23	46
8:15	26	20	46
8:30	26	31	57
8:45	31	28	59
9:00	25	13	38
9:15	21	14	35
9:30	24	17	41
9:45	18	11	29
10:00	11	12	23
10:15	9	21	30
10:30	9	13	22
10:45	9	5	14
11:00	8	7	15
11:15	3	7	10
11:30	8	5	13
11:45	3	10	13
Total	2613	1575	4188
Percent	62.4%	37.6%	
Peak	5:00	1:45	5:00
Volume	532	217	691
Peak Factor	0.943	0.822	0.965
Grand Total	6485	5953	12438
Percent	52.1%	47.9%	
AADT	ADT: 6,219	ADT: 6,219	

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Radar Volume

Beacon Light Rd E of SH-16
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Beacon Light Road east of SH-16
 Star, Idaho

6/14/2022	Westbound	Eastbound	Total
Time			
12:00 AM	2	0	2
12:15	5	1	6
12:30	3	2	5
12:45	0	1	1
1:00	1	1	2
1:15	1	1	2
1:30	1	2	3
1:45	1	1	2
2:00	0	1	1
2:15	0	0	0
2:30	1	1	2
2:45	1	2	3
3:00	0	1	1
3:15	1	0	1
3:30	0	1	1
3:45	0	2	2
4:00	1	0	1
4:15	1	2	3
4:30	1	3	4
4:45	2	1	3
5:00	2	6	8
5:15	3	8	11
5:30	5	12	17
5:45	6	16	22
6:00	3	22	25
6:15	7	36	43
6:30	11	56	67
6:45	13	65	78
7:00	11	75	86
7:15	35	106	141
7:30	28	107	135
7:45	30	79	109
8:00	21	78	99
8:15	30	80	110
8:30	35	83	118
8:45	41	64	105
9:00	38	52	90
9:15	31	54	85
9:30	30	44	74
9:45	34	48	82
10:00	41	36	77
10:15	33	39	72
10:30	36	40	76
10:45	45	55	100
11:00	45	52	97
11:15	47	32	79
11:30	45	48	93
11:45	45	41	86
Total	773	1457	2230
Percent	34.7%	65.3%	
Peak	10:45	7:15	7:15
Volume	182	370	484
Peak Factor	0.968	0.864	0.858

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Radar Volume

Beacon Light Rd E of SH-16
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Beacon Light Road east of SH-16
 Star, Idaho

6/14/2022	Westbound	Eastbound	Total
Time			
12:00 PM	63	32	95
12:15	44	62	106
12:30	36	36	72
12:45	57	47	104
1:00	53	47	100
1:15	52	27	79
1:30	42	50	92
1:45	50	45	95
2:00	51	43	94
2:15	51	40	91
2:30	67	46	113
2:45	62	46	108
3:00	67	26	93
3:15	55	40	95
3:30	65	34	99
3:45	109	36	145
4:00	75	49	124
4:15	82	44	126
4:30	104	49	153
4:45	100	39	139
5:00	133	42	175
5:15	121	41	162
5:30	127	38	165
5:45	114	44	158
6:00	87	29	116
6:15	75	27	102
6:30	60	20	80
6:45	44	29	73
7:00	46	18	64
7:15	43	13	56
7:30	31	25	56
7:45	25	12	37
8:00	25	17	42
8:15	30	13	43
8:30	14	11	25
8:45	24	17	41
9:00	20	10	30
9:15	23	17	40
9:30	19	10	29
9:45	12	10	22
10:00	8	6	14
10:15	13	3	16
10:30	11	10	21
10:45	6	3	9
11:00	5	6	11
11:15	6	3	9
11:30	4	11	15
11:45	4	5	9
Total	2415	1328	3743
Percent	64.5%	35.5%	
Peak	5:00	12:15	5:00
Volume	495	192	660
Peak Factor	0.930	0.774	0.943

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Radar Volume

Beacon Light Rd E of SH-16
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Beacon Light Road east of SH-16
 Star, Idaho

6/15/2022	Westbound	Eastbound	Total
Time			
12:00 AM	4	1	5
12:15	6	3	9
12:30	0	0	0
12:45	2	1	3
1:00	1	0	1
1:15	4	1	5
1:30	1	1	2
1:45	0	1	1
2:00	0	1	1
2:15	0	0	0
2:30	1	1	2
2:45	1	2	3
3:00	0	0	0
3:15	1	0	1
3:30	0	3	3
3:45	1	1	2
4:00	0	3	3
4:15	3	0	3
4:30	3	3	6
4:45	0	0	0
5:00	3	5	8
5:15	5	6	11
5:30	8	24	32
5:45	6	9	15
6:00	4	26	30
6:15	9	44	53
6:30	7	62	69
6:45	24	54	78
7:00	16	102	118
7:15	20	100	120
7:30	25	93	118
7:45	25	78	103
8:00	37	77	114
8:15	33	78	111
8:30	33	72	105
8:45	42	80	122
9:00	40	74	114
9:15	37	58	95
9:30	35	72	107
9:45	52	61	113
10:00	42	51	93
10:15	37	61	98
10:30	46	50	96
10:45	55	63	118
11:00	36	64	100
11:15	47	54	101
11:30	42	50	92
11:45	41	45	86
Total	835	1635	2470
Percent	33.8%	66.2%	
Peak	10:30	7:00	7:00
Volume	184	373	459
Peak Factor	0.836	0.914	0.956

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Radar Volume

Beacon Light Rd E of SH-16
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Beacon Light Road east of SH-16
 Star, Idaho

6/15/2022 Time	Westbound	Eastbound	Total
12:00 PM	61	41	102
12:15	46	58	104
12:30	52	55	107
12:45	56	39	95
1:00	80	45	125
1:15	57	52	109
1:30	55	50	105
1:45	63	51	114
2:00	45	44	89
2:15	56	65	121
2:30	61	42	103
2:45	65	49	114
3:00	101	32	133
3:15	64	49	113
3:30	61	53	114
3:45	88	56	144
4:00	85	49	134
4:15	89	48	137
4:30	122	46	168
4:45	113	35	148
5:00	125	44	169
5:15	147	39	186
5:30	144	43	187
5:45	138	31	169
6:00	115	28	143
6:15	88	37	125
6:30	76	21	97
6:45	46	37	83
7:00	62	28	90
7:15	45	29	74
7:30	31	22	53
7:45	29	21	50
8:00	24	23	47
8:15	27	22	49
8:30	24	30	54
8:45	35	25	60
9:00	27	13	40
9:15	21	14	35
9:30	22	15	37
9:45	17	14	31
10:00	12	9	21
10:15	10	23	33
10:30	7	12	19
10:45	8	5	13
11:00	8	7	15
11:15	5	7	12
11:30	8	4	12
11:45	3	11	14
Total	2724	1573	4297
Percent	63.4%	36.6%	
Peak	5:00	1:30	5:00
Volume	554	210	711
Peak Factor	0.942	0.808	0.951
Grand Total	6747	5993	12740
Percent	53.0%	47.0%	
AADT		ADT: 6,370	AADT: 6,370

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Radar Volume

Beacon Light Rd W of Pollard Rd
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Beacon Light Road west of Pollard
 Star, Idaho

6/14/2022	Westbound	Eastbound	Total
Time			
12:00 AM	4	1	5
12:15	0	1	1
12:30	0	1	1
12:45	0	0	0
1:00	0	0	0
1:15	1	0	1
1:30	0	0	0
1:45	0	0	0
2:00	0	0	0
2:15	1	0	1
2:30	0	0	0
2:45	0	1	1
3:00	0	0	0
3:15	0	0	0
3:30	0	2	2
3:45	0	0	0
4:00	0	0	0
4:15	0	1	1
4:30	0	0	0
4:45	0	5	5
5:00	1	3	4
5:15	1	6	7
5:30	2	5	7
5:45	3	7	10
6:00	2	12	14
6:15	4	25	29
6:30	7	21	28
6:45	5	24	29
7:00	11	28	39
7:15	17	40	57
7:30	11	50	61
7:45	12	20	32
8:00	5	33	38
8:15	28	37	65
8:30	9	40	49
8:45	19	42	61
9:00	30	29	59
9:15	17	29	46
9:30	19	27	46
9:45	19	26	45
10:00	30	14	44
10:15	18	16	34
10:30	24	31	55
10:45	18	29	47
11:00	24	31	55
11:15	19	19	38
11:30	19	32	51
11:45	22	28	50
Total	402	716	1118
Percent	36.0%	64.0%	
Peak	9:45	8:00	8:15
Volume	91	152	234
Peak Factor	0.758	0.905	0.900

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Radar Volume

Beacon Light Rd W of Pollard Rd
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Beacon Light Road west of Pollard
 Star, Idaho

6/14/2022	Westbound	Eastbound	Total
Time			
12:00 PM	39	30	69
12:15	30	28	58
12:30	25	26	51
12:45	24	27	51
1:00	30	33	63
1:15	28	19	47
1:30	37	29	66
1:45	30	33	63
2:00	39	28	67
2:15	28	23	51
2:30	30	23	53
2:45	21	29	50
3:00	31	21	52
3:15	41	29	70
3:30	21	29	50
3:45	39	25	64
4:00	40	20	60
4:15	43	29	72
4:30	42	16	58
4:45	45	19	64
5:00	73	19	92
5:15	50	19	69
5:30	55	20	75
5:45	37	22	59
6:00	30	19	49
6:15	39	16	55
6:30	26	8	34
6:45	26	15	41
7:00	25	11	36
7:15	19	8	27
7:30	24	15	39
7:45	20	7	27
8:00	17	6	23
8:15	20	7	27
8:30	15	3	18
8:45	18	15	33
9:00	8	1	9
9:15	18	8	26
9:30	15	6	21
9:45	10	5	15
10:00	8	1	9
10:15	10	5	15
10:30	7	2	9
10:45	4	2	6
11:00	2	3	5
11:15	4	1	5
11:30	4	1	5
11:45	2	2	4
Total	1249	763	2012
Percent	62.1%	37.9%	
Peak	4:45	12:15	4:45
Volume	223	114	300
Peak Factor	0.764	0.864	0.815

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Radar Volume

Beacon Light Rd W of Pollard Rd
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Beacon Light Road west of Pollard
 Star, Idaho

6/15/2022	Westbound	Eastbound	Total
Time			
12:00 AM	2	1	3
12:15	2	1	3
12:30	2	0	2
12:45	1	0	1
1:00	1	0	1
1:15	0	0	0
1:30	1	0	1
1:45	1	0	1
2:00	0	1	1
2:15	0	0	0
2:30	0	0	0
2:45	0	0	0
3:00	0	0	0
3:15	0	1	1
3:30	0	2	2
3:45	0	1	1
4:00	0	1	1
4:15	0	0	0
4:30	0	1	1
4:45	2	1	3
5:00	1	3	4
5:15	1	12	13
5:30	1	6	7
5:45	1	8	9
6:00	2	19	21
6:15	6	17	23
6:30	8	24	32
6:45	13	18	31
7:00	13	31	44
7:15	11	48	59
7:30	12	28	40
7:45	12	27	39
8:00	12	39	51
8:15	19	42	61
8:30	8	37	45
8:45	10	37	47
9:00	17	24	41
9:15	21	27	48
9:30	26	35	61
9:45	23	24	47
10:00	11	32	43
10:15	26	19	45
10:30	29	33	62
10:45	30	29	59
11:00	26	30	56
11:15	25	27	52
11:30	40	31	71
11:45	19	44	63
Total	435	761	1196
Percent	36.4%	63.6%	
Peak	10:45	8:00	11:00
Volume	121	155	242
Peak Factor	0.756	0.923	0.852

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Radar Volume

Beacon Light Rd W of Pollard Rd
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Beacon Light Road west of Pollard
 Star, Idaho

6/15/2022 Time	Westbound	Eastbound	Total
12:00 PM	33	24	57
12:15	24	29	53
12:30	27	25	52
12:45	35	25	60
1:00	35	21	56
1:15	32	28	60
1:30	29	28	57
1:45	39	25	64
2:00	22	20	42
2:15	32	34	66
2:30	31	24	55
2:45	43	27	70
3:00	44	28	72
3:15	30	32	62
3:30	38	28	66
3:45	36	23	59
4:00	36	23	59
4:15	35	23	58
4:30	43	31	74
4:45	44	23	67
5:00	48	27	75
5:15	64	25	89
5:30	45	20	65
5:45	59	26	85
6:00	45	16	61
6:15	42	23	65
6:30	43	22	65
6:45	24	12	36
7:00	34	27	61
7:15	29	13	42
7:30	16	11	27
7:45	25	8	33
8:00	34	4	38
8:15	16	8	24
8:30	18	14	32
8:45	17	5	22
9:00	24	12	36
9:15	18	5	23
9:30	24	3	27
9:45	14	5	19
10:00	10	7	17
10:15	8	8	16
10:30	4	5	9
10:45	8	2	10
11:00	8	2	10
11:15	4	0	4
11:30	4	2	6
11:45	2	1	3
Total	1375	834	2209
Percent	62.2%	37.8%	
Peak	5:00	2:45	5:00
Volume	216	115	314
Peak Factor	0.844	0.898	0.882
Grand Total	3461	3074	6535
Percent	53.0%	47.0%	
AADT		ADT: 3,268	AADT: 3,268

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Beacon Light Rd W of SH-16
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Beacon Light Road west of SH-16
 Star, Idaho

6/14/2022	Westbound	Eastbound	Total
Time			
12:00 AM	4	0	4
12:15	0	1	1
12:30	1	1	2
12:45	0	0	0
1:00	0	0	0
1:15	1	0	1
1:30	0	0	0
1:45	0	0	0
2:00	0	0	0
2:15	0	0	0
2:30	2	1	3
2:45	0	2	2
3:00	0	0	0
3:15	0	0	0
3:30	0	2	2
3:45	0	2	2
4:00	0	0	0
4:15	0	1	1
4:30	0	0	0
4:45	1	5	6
5:00	2	3	5
5:15	2	5	7
5:30	5	4	9
5:45	6	13	19
6:00	5	14	19
6:15	11	24	35
6:30	12	31	43
6:45	13	25	38
7:00	28	39	67
7:15	20	51	71
7:30	15	65	80
7:45	24	32	56
8:00	12	46	58
8:15	41	56	97
8:30	21	56	77
8:45	20	70	90
9:00	41	48	89
9:15	29	41	70
9:30	29	31	60
9:45	28	40	68
10:00	47	29	76
10:15	28	29	57
10:30	24	49	73
10:45	35	41	76
11:00	35	50	85
11:15	41	32	73
11:30	29	44	73
11:45	30	41	71
Total	642	1024	1666
Percent	38.5%	61.5%	
Peak	10:45	8:15	8:15
Volume	140	230	353
Peak Factor	0.854	0.821	0.910

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Beacon Light Rd W of SH-16
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Beacon Light Road west of SH-16
 Star, Idaho

6/14/2022	Westbound	Eastbound	Total
Time			
12:00 PM	58	40	98
12:15	33	42	75
12:30	29	40	69
12:45	34	38	72
1:00	45	46	91
1:15	32	36	68
1:30	44	39	83
1:45	40	51	91
2:00	48	40	88
2:15	30	35	65
2:30	36	47	83
2:45	45	40	85
3:00	45	26	71
3:15	54	41	95
3:30	37	45	82
3:45	62	37	99
4:00	46	49	95
4:15	56	58	114
4:30	65	29	94
4:45	61	25	86
5:00	104	37	141
5:15	78	37	115
5:30	76	24	100
5:45	58	32	90
6:00	47	25	72
6:15	46	23	69
6:30	40	15	55
6:45	41	24	65
7:00	33	17	50
7:15	28	14	42
7:30	24	24	48
7:45	24	21	45
8:00	18	18	36
8:15	25	17	42
8:30	12	15	27
8:45	21	18	39
9:00	19	12	31
9:15	28	11	39
9:30	17	14	31
9:45	13	8	21
10:00	11	2	13
10:15	10	8	18
10:30	12	4	16
10:45	7	2	9
11:00	0	2	2
11:15	5	4	9
11:30	4	1	5
11:45	4	3	7
Total	1705	1236	2941
Percent	58.0%	42.0%	
Peak	4:45	3:30	5:00
Volume	319	189	446
Peak Factor	0.767	0.815	0.791

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Beacon Light Rd W of SH-16
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Beacon Light Road west of SH-16
 Star, Idaho

6/15/2022	Westbound	Eastbound	Total
Time			
12:00 AM	1	1	2
12:15	4	1	5
12:30	3	0	3
12:45	1	0	1
1:00	1	1	2
1:15	0	0	0
1:30	2	2	4
1:45	0	0	0
2:00	4	1	5
2:15	0	0	0
2:30	0	0	0
2:45	0	0	0
3:00	0	0	0
3:15	0	1	1
3:30	0	2	2
3:45	0	1	1
4:00	0	1	1
4:15	0	1	1
4:30	2	1	3
4:45	2	1	3
5:00	5	3	8
5:15	2	12	14
5:30	1	8	9
5:45	1	11	12
6:00	10	21	31
6:15	10	24	34
6:30	12	29	41
6:45	17	21	38
7:00	23	49	72
7:15	17	66	83
7:30	28	41	69
7:45	17	34	51
8:00	19	51	70
8:15	28	56	84
8:30	27	43	70
8:45	25	58	83
9:00	29	40	69
9:15	29	33	62
9:30	41	54	95
9:45	40	38	78
10:00	22	46	68
10:15	36	30	66
10:30	46	45	91
10:45	44	43	87
11:00	39	53	92
11:15	40	41	81
11:30	51	43	94
11:45	40	53	93
Total	719	1060	1779
Percent	40.4%	59.6%	
Peak	10:45	8:00	11:00
Volume	174	208	360
Peak Factor	0.853	0.897	0.957

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Beacon Light Rd W of SH-16
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Beacon Light Road west of SH-16
 Star, Idaho

6/15/2022	Westbound	Eastbound	Total
Time			
12:00 PM	55	38	93
12:15	33	49	82
12:30	46	49	95
12:45	49	45	94
1:00	45	35	80
1:15	49	43	92
1:30	37	37	74
1:45	56	38	94
2:00	34	37	71
2:15	42	46	88
2:30	53	39	92
2:45	55	48	103
3:00	57	46	103
3:15	38	55	93
3:30	59	44	103
3:45	44	35	79
4:00	52	44	96
4:15	51	42	93
4:30	75	47	122
4:45	67	44	111
5:00	71	36	107
5:15	89	37	126
5:30	72	34	106
5:45	79	34	113
6:00	67	27	94
6:15	55	30	85
6:30	47	31	78
6:45	32	34	66
7:00	43	29	72
7:15	32	25	57
7:30	23	13	36
7:45	29	16	45
8:00	26	8	34
8:15	26	20	46
8:30	19	27	46
8:45	28	20	48
9:00	22	21	43
9:15	27	13	40
9:30	23	5	28
9:45	21	9	30
10:00	12	12	24
10:15	13	13	26
10:30	7	7	14
10:45	10	2	12
11:00	7	1	8
11:15	5	1	6
11:30	4	3	7
11:45	5	2	7
Total	1891	1371	3262
Percent	58.0%	42.0%	
Peak	5:00	2:45	4:30
Volume	311	193	466
Peak Factor	0.874	0.877	0.925
Grand Total	4957	4691	9648
Percent	51.4%	48.6%	
AADT		ADT: 4,824	AADT: 4,824

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Can Ada Rd north of SH-44
 Start Date: 7/12/2022
 End Date: 7/13/2022
 Can Ada Road north of SH-44
 Star, Idaho

7/12/2022	Southbound	Northbound	Total
Time			
12:00 AM	1	4	5
12:15	2	2	4
12:30	1	4	5
12:45	0	1	1
1:00	1	1	2
1:15	1	1	2
1:30	0	0	0
1:45	0	0	0
2:00	0	1	1
2:15	2	1	3
2:30	1	1	2
2:45	1	1	2
3:00	0	0	0
3:15	0	0	0
3:30	1	0	1
3:45	3	0	3
4:00	0	0	0
4:15	2	0	2
4:30	4	0	4
4:45	4	0	4
5:00	7	2	9
5:15	10	1	11
5:30	6	7	13
5:45	12	4	16
6:00	16	4	20
6:15	12	10	22
6:30	10	12	22
6:45	11	13	24
7:00	18	14	32
7:15	22	30	52
7:30	30	24	54
7:45	22	20	42
8:00	29	21	50
8:15	26	14	40
8:30	22	33	55
8:45	29	24	53
9:00	26	34	60
9:15	28	16	44
9:30	28	24	52
9:45	26	33	59
10:00	29	32	61
10:15	31	18	49
10:30	36	28	64
10:45	20	14	34
11:00	19	27	46
11:15	19	28	47
11:30	36	41	77
11:45	36	26	62
Total	640	571	1211
Percent	52.8%	47.2%	
Peak	9:45	11:00	9:45
Volume	122	123	233
Peak Factor	0.847	0.744	0.910

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Can Ada Rd north of SH-44
 Start Date: 7/12/2022
 End Date: 7/13/2022
 Can Ada Road north of SH-44
 Star, Idaho

7/12/2022	Southbound	Northbound	Total
Time			
12:00 PM	30	24	54
12:15	34	46	80
12:30	34	32	66
12:45	26	22	48
1:00	22	36	58
1:15	46	20	66
1:30	29	32	61
1:45	18	42	60
2:00	28	30	58
2:15	18	20	38
2:30	33	28	61
2:45	25	28	53
3:00	23	36	59
3:15	9	18	27
3:30	28	18	46
3:45	26	32	58
4:00	23	20	43
4:15	18	32	50
4:30	15	18	33
4:45	20	15	35
5:00	20	14	34
5:15	18	23	41
5:30	32	24	56
5:45	11	19	30
6:00	12	15	27
6:15	10	21	31
6:30	8	18	26
6:45	7	24	31
7:00	12	16	28
7:15	7	8	15
7:30	12	4	16
7:45	12	14	26
8:00	10	15	25
8:15	10	8	18
8:30	9	16	25
8:45	9	11	20
9:00	7	13	20
9:15	8	4	12
9:30	5	18	23
9:45	6	5	11
10:00	3	4	7
10:15	2	5	7
10:30	4	8	12
10:45	0	6	6
11:00	0	6	6
11:15	5	1	6
11:30	2	5	7
11:45	0	4	4
Total	746	878	1624
Percent	45.9%	54.1%	
Peak	12:30	12:15	12:15
Volume	128	136	252
Peak Factor	0.696	0.739	0.788

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Can Ada Rd north of SH-44
 Start Date: 7/12/2022
 End Date: 7/13/2022
 Can Ada Road north of SH-44
 Star, Idaho

7/13/2022	Southbound	Northbound	Total
Time			
12:00 AM	0	4	4
12:15	2	2	4
12:30	3	4	7
12:45	1	2	3
1:00	0	2	2
1:15	1	1	2
1:30	2	2	4
1:45	0	0	0
2:00	0	1	1
2:15	0	1	1
2:30	1	0	1
2:45	0	0	0
3:00	0	1	1
3:15	1	0	1
3:30	0	3	3
3:45	3	0	3
4:00	1	0	1
4:15	1	0	1
4:30	3	1	4
4:45	1	0	1
5:00	9	1	10
5:15	8	0	8
5:30	9	2	11
5:45	11	1	12
6:00	6	1	7
6:15	11	7	18
6:30	16	14	30
6:45	15	11	26
7:00	12	12	24
7:15	13	10	23
7:30	20	22	42
7:45	20	22	42
8:00	22	8	30
8:15	20	16	36
8:30	31	16	47
8:45	26	24	50
9:00	15	20	35
9:15	26	7	33
9:30	22	17	39
9:45	25	19	44
10:00	15	20	35
10:15	30	16	46
10:30	18	20	38
10:45	25	16	41
11:00	20	17	37
11:15	19	24	43
11:30	27	18	45
11:45	24	12	36
Total	535	397	932
Percent	57.4%	42.6%	
Peak	8:00	10:30	8:15
Volume	99	77	168
Peak Factor	0.798	0.802	0.840

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Can Ada Rd north of SH-44
 Start Date: 7/12/2022
 End Date: 7/13/2022
 Can Ada Road north of SH-44
 Star, Idaho

7/13/2022	Southbound	Northbound	Total
Time			
12:00 PM	21	24	45
12:15	20	24	44
12:30	22	26	48
12:45	20	20	40
1:00	32	15	47
1:15	125	22	147
1:30	150	10	160
1:45	139	6	145
2:00	100	14	114
2:15	28	31	59
2:30	23	36	59
2:45	13	28	41
3:00	22	18	40
3:15	12	16	28
3:30	20	26	46
3:45	28	32	60
4:00	24	18	42
4:15	20	20	40
4:30	12	23	35
4:45	16	32	48
5:00	22	19	41
5:15	20	18	38
5:30	16	13	29
5:45	17	22	39
6:00	19	21	40
6:15	14	18	32
6:30	17	23	40
6:45	15	14	29
7:00	8	11	19
7:15	11	14	25
7:30	10	14	24
7:45	9	12	21
8:00	9	11	20
8:15	7	11	18
8:30	12	11	23
8:45	5	22	27
9:00	12	17	29
9:15	14	12	26
9:30	6	7	13
9:45	5	5	10
10:00	6	10	16
10:15	6	7	13
10:30	6	5	11
10:45	0	4	4
11:00	6	4	10
11:15	1	2	3
11:30	2	4	6
11:45	0	2	2
Total	1122	774	1896
Percent	59.2%	40.8%	
Peak	1:15	2:15	1:15
Volume	514	113	566
Peak Factor	0.857	0.785	0.884
Grand Total	3043	2620	5663
Percent	53.7%	46.3%	
AADT		ADT: 2,832	AADT: 2,832

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Can Ada Rd S of Lanktree Gulch Rd
 Start Date: 6/28/2022
 End Date: 6/29/2022
 Can Ada Road south of Lanktree
 Gulch Road
 Star, Idaho

6/28/2022 Time	Southbound	Northbound	Total
12:00 AM	1	0	1
12:15	0	1	1
12:30	0	0	0
12:45	2	2	4
1:00	0	1	1
1:15	0	0	0
1:30	0	0	0
1:45	0	0	0
2:00	0	1	1
2:15	0	0	0
2:30	1	0	1
2:45	0	0	0
3:00	0	0	0
3:15	1	0	1
3:30	0	0	0
3:45	1	0	1
4:00	0	0	0
4:15	0	0	0
4:30	6	0	6
4:45	3	0	3
5:00	4	1	5
5:15	7	0	7
5:30	7	1	8
5:45	7	0	7
6:00	10	2	12
6:15	6	2	8
6:30	16	0	16
6:45	9	7	16
7:00	13	2	15
7:15	20	9	29
7:30	18	9	27
7:45	28	13	41
8:00	19	4	23
8:15	15	14	29
8:30	28	12	40
8:45	20	19	39
9:00	22	12	34
9:15	17	5	22
9:30	16	6	22
9:45	15	7	22
10:00	18	9	27
10:15	23	15	38
10:30	11	16	27
10:45	13	10	23
11:00	16	16	32
11:15	26	6	32
11:30	18	8	26
11:45	16	18	34
Total	453	228	681
Percent	66.5%	33.5%	
Peak	7:45	8:15	8:15
Volume	90	57	142
Peak Factor	0.804	0.750	0.888

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Can Ada Rd S of Lanktree Gulch Rd
 Start Date: 6/28/2022
 End Date: 6/29/2022
 Can Ada Road south of Lanktree
 Gulch Road
 Star, Idaho

6/28/2022 Time	Southbound	Northbound	Total
12:00 PM	18	14	32
12:15	8	18	26
12:30	9	14	23
12:45	24	14	38
1:00	30	22	52
1:15	20	12	32
1:30	16	20	36
1:45	12	13	25
2:00	10	16	26
2:15	12	17	29
2:30	16	16	32
2:45	16	26	42
3:00	20	19	39
3:15	6	16	22
3:30	15	21	36
3:45	14	17	31
4:00	16	14	30
4:15	22	22	44
4:30	19	18	37
4:45	16	15	31
5:00	14	20	34
5:15	24	29	53
5:30	13	30	43
5:45	14	12	26
6:00	10	30	40
6:15	17	16	33
6:30	7	11	18
6:45	12	15	27
7:00	5	15	20
7:15	9	10	19
7:30	12	14	26
7:45	10	11	21
8:00	7	21	28
8:15	10	14	24
8:30	5	9	14
8:45	5	10	15
9:00	2	12	14
9:15	6	8	14
9:30	7	13	20
9:45	4	4	8
10:00	3	6	9
10:15	0	6	6
10:30	3	0	3
10:45	3	1	4
11:00	3	1	4
11:15	2	1	3
11:30	2	2	4
11:45	0	1	1
Total	528	666	1194
Percent	44.2%	55.8%	
Peak	12:45	5:15	5:15
Volume	90	101	162
Peak Factor	0.750	0.842	0.764

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Can Ada Rd S of Lanktree Gulch Rd
 Start Date: 6/28/2022
 End Date: 6/29/2022
 Can Ada Road south of Lanktree
 Gulch Road
 Star, Idaho

6/29/2022 Time	Southbound	Northbound	Total
12:00 AM	2	0	2
12:15	1	1	2
12:30	2	2	4
12:45	0	2	2
1:00	1	0	1
1:15	0	0	0
1:30	0	0	0
1:45	0	1	1
2:00	0	0	0
2:15	0	1	1
2:30	0	0	0
2:45	0	0	0
3:00	1	0	1
3:15	0	0	0
3:30	0	0	0
3:45	0	0	0
4:00	0	0	0
4:15	2	0	2
4:30	3	0	3
4:45	4	1	5
5:00	2	0	2
5:15	6	0	6
5:30	2	0	2
5:45	4	1	5
6:00	8	3	11
6:15	8	1	9
6:30	12	0	12
6:45	16	1	17
7:00	8	5	13
7:15	30	3	33
7:30	16	7	23
7:45	27	10	37
8:00	25	8	33
8:15	24	12	36
8:30	26	9	35
8:45	18	17	35
9:00	14	9	23
9:15	22	11	33
9:30	15	11	26
9:45	18	9	27
10:00	20	12	32
10:15	12	12	24
10:30	16	10	26
10:45	14	12	26
11:00	18	14	32
11:15	16	10	26
11:30	21	13	34
11:45	14	15	29
Total	448	223	671
Percent	66.8%	33.2%	
Peak	7:45	11:00	7:45
Volume	102	52	141
Peak Factor	0.944	0.867	0.953

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Can Ada Rd S of Lanktree Gulch Rd
 Start Date: 6/28/2022
 End Date: 6/29/2022
 Can Ada Road south of Lanktree
 Gulch Road
 Star, Idaho

6/29/2022 Time	Southbound	Northbound	Total
12:00 PM	10	8	18
12:15	14	16	30
12:30	15	12	27
12:45	14	17	31
1:00	8	11	19
1:15	14	13	27
1:30	10	18	28
1:45	13	16	29
2:00	13	14	27
2:15	10	16	26
2:30	16	14	30
2:45	17	18	35
3:00	8	14	22
3:15	16	20	36
3:30	16	22	38
3:45	22	18	40
4:00	8	22	30
4:15	15	17	32
4:30	14	22	36
4:45	16	22	38
5:00	9	24	33
5:15	24	26	50
5:30	12	18	30
5:45	9	30	39
6:00	6	30	36
6:15	17	18	35
6:30	19	21	40
6:45	13	23	36
7:00	10	17	27
7:15	11	28	39
7:30	10	4	14
7:45	8	12	20
8:00	10	14	24
8:15	5	9	14
8:30	4	6	10
8:45	4	7	11
9:00	3	9	12
9:15	5	5	10
9:30	9	9	18
9:45	6	5	11
10:00	8	6	14
10:15	5	2	7
10:30	8	7	15
10:45	4	2	6
11:00	3	5	8
11:15	0	4	4
11:30	0	4	4
11:45	0	1	1
Total	491	676	1167
Percent	42.1%	57.9%	
Peak	4:30	5:15	4:30
Volume	63	104	157
Peak Factor	0.656	0.867	0.785
Grand Total	1920	1793	3713
Percent	51.7%	48.3%	
AADT		AADT: 1,856	AADT: 1,856

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Can Ada Rd S of New Hope Rd
 Start Date: 7/12/2022
 End Date: 7/13/2022
 Can Ada Road south of New Hope
 Road
 Star, Idaho

7/12/2022 Time	Southbound	Northbound	Total
12:00 AM	0	3	3
12:15	3	0	3
12:30	1	3	4
12:45	1	2	3
1:00	1	0	1
1:15	1	2	3
1:30	0	1	1
1:45	1	0	1
2:00	0	1	1
2:15	1	0	1
2:30	0	0	0
2:45	0	0	0
3:00	0	0	0
3:15	0	0	0
3:30	0	0	0
3:45	2	0	2
4:00	0	0	0
4:15	1	0	1
4:30	1	0	1
4:45	4	0	4
5:00	6	0	6
5:15	4	0	4
5:30	4	5	9
5:45	3	3	6
6:00	8	1	9
6:15	4	6	10
6:30	6	8	14
6:45	5	5	10
7:00	5	12	17
7:15	11	23	34
7:30	21	18	39
7:45	18	14	32
8:00	24	18	42
8:15	26	18	44
8:30	22	16	38
8:45	20	27	47
9:00	26	27	53
9:15	34	15	49
9:30	10	24	34
9:45	22	22	44
10:00	14	22	36
10:15	26	22	48
10:30	26	26	52
10:45	21	16	37
11:00	19	20	39
11:15	16	16	32
11:30	30	43	73
11:45	26	24	50
Total	474	463	937
Percent	50.6%	49.4%	
Peak	8:30	11:00	11:00
Volume	102	103	194
Peak Factor	0.750	0.599	0.664

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Can Ada Rd S of New Hope Rd
 Start Date: 7/12/2022
 End Date: 7/13/2022
 Can Ada Road south of New Hope
 Road
 Star, Idaho

7/12/2022 Time	Southbound	Northbound	Total
12:00 PM	22	24	46
12:15	36	34	70
12:30	25	28	53
12:45	26	25	51
1:00	24	28	52
1:15	31	18	49
1:30	24	35	59
1:45	28	30	58
2:00	24	23	47
2:15	11	28	39
2:30	31	15	46
2:45	20	28	48
3:00	16	12	28
3:15	6	23	29
3:30	18	16	34
3:45	22	26	48
4:00	20	20	40
4:15	16	17	33
4:30	12	22	34
4:45	19	10	29
5:00	22	12	34
5:15	16	22	38
5:30	15	16	31
5:45	20	14	34
6:00	10	12	22
6:15	10	18	28
6:30	1	11	12
6:45	7	14	21
7:00	9	12	21
7:15	8	2	10
7:30	9	6	15
7:45	10	10	20
8:00	9	6	15
8:15	8	9	17
8:30	7	11	18
8:45	7	11	18
9:00	7	13	20
9:15	5	4	9
9:30	4	12	16
9:45	6	7	13
10:00	1	1	2
10:15	1	5	6
10:30	4	2	6
10:45	1	2	3
11:00	1	2	3
11:15	2	1	3
11:30	2	2	4
11:45	0	2	2
Total	633	701	1334
Percent	47.5%	52.5%	
Peak	12:15	1:30	12:15
Volume	111	116	226
Peak Factor	0.771	0.829	0.807

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Can Ada Rd S of New Hope Rd
 Start Date: 7/12/2022
 End Date: 7/13/2022
 Can Ada Road south of New Hope
 Road
 Star, Idaho

7/13/2022 Time	Southbound	Northbound	Total
12:00 AM	0	3	3
12:15	2	0	2
12:30	1	3	4
12:45	1	1	2
1:00	0	0	0
1:15	1	2	3
1:30	1	0	1
1:45	0	0	0
2:00	0	0	0
2:15	0	0	0
2:30	0	0	0
2:45	0	0	0
3:00	2	1	3
3:15	0	0	0
3:30	0	0	0
3:45	2	0	2
4:00	1	0	1
4:15	0	0	0
4:30	1	0	1
4:45	1	0	1
5:00	8	0	8
5:15	3	0	3
5:30	5	1	6
5:45	4	1	5
6:00	4	0	4
6:15	6	5	11
6:30	10	5	15
6:45	8	8	16
7:00	6	8	14
7:15	7	9	16
7:30	10	12	22
7:45	18	17	35
8:00	16	12	28
8:15	22	6	28
8:30	28	12	40
8:45	16	15	31
9:00	12	12	24
9:15	16	9	25
9:30	22	13	35
9:45	19	14	33
10:00	16	14	30
10:15	20	10	30
10:30	13	15	28
10:45	22	10	32
11:00	16	16	32
11:15	24	23	47
11:30	20	26	46
11:45	23	8	31
Total	407	291	698
Percent	58.3%	41.7%	
Peak	7:45	10:45	10:45
Volume	84	75	157
Peak Factor	0.750	0.721	0.835

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Can Ada Rd S of New Hope Rd
 Start Date: 7/12/2022
 End Date: 7/13/2022
 Can Ada Road south of New Hope
 Road
 Star, Idaho

7/13/2022 Time	Southbound	Northbound	Total
12:00 PM	22	18	40
12:15	30	16	46
12:30	20	20	40
12:45	13	27	40
1:00	20	13	33
1:15	22	32	54
1:30	14	28	42
1:45	36	26	62
2:00	14	32	46
2:15	16	23	39
2:30	14	32	46
2:45	18	16	34
3:00	16	18	34
3:15	22	24	46
3:30	13	22	35
3:45	16	22	38
4:00	26	21	47
4:15	10	19	29
4:30	27	18	45
4:45	12	33	45
5:00	22	13	35
5:15	20	18	38
5:30	19	12	31
5:45	16	17	33
6:00	18	23	41
6:15	7	17	24
6:30	11	18	29
6:45	6	4	10
7:00	4	7	11
7:15	8	8	16
7:30	12	6	18
7:45	6	12	18
8:00	7	8	15
8:15	9	8	17
8:30	10	6	16
8:45	6	12	18
9:00	5	13	18
9:15	10	9	19
9:30	3	9	12
9:45	3	1	4
10:00	4	5	9
10:15	10	2	12
10:30	6	4	10
10:45	1	3	4
11:00	4	1	5
11:15	2	0	2
11:30	2	1	3
11:45	0	1	1
Total	612	698	1310
Percent	46.7%	53.3%	
Peak	1:00	1:15	1:15
Volume	92	118	204
Peak Factor	0.639	0.922	0.823
Grand Total	2126	2153	4279
Percent	49.7%	50.3%	
AADT		ADT: 2,140	AADT: 2,140

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Can Ada Rd S of Purple Sage Rd
 Start Date: 6/28/2022
 End Date: 6/29/2022
 Can Ada Road south of Purple Sage
 Road
 Star, Idaho

6/28/2022 Time	Southbound	Northbound	Total
12:00 AM	0	3	3
12:15	1	1	2
12:30	0	0	0
12:45	1	1	2
1:00	0	1	1
1:15	0	0	0
1:30	0	0	0
1:45	0	0	0
2:00	0	0	0
2:15	0	0	0
2:30	1	0	1
2:45	0	0	0
3:00	0	0	0
3:15	1	0	1
3:30	0	0	0
3:45	1	0	1
4:00	0	0	0
4:15	0	0	0
4:30	4	1	5
4:45	3	0	3
5:00	4	1	5
5:15	7	1	8
5:30	5	1	6
5:45	4	0	4
6:00	8	3	11
6:15	6	4	10
6:30	14	0	14
6:45	9	3	12
7:00	10	2	12
7:15	16	6	22
7:30	18	4	22
7:45	21	12	33
8:00	20	6	26
8:15	16	11	27
8:30	25	8	33
8:45	15	13	28
9:00	10	11	21
9:15	17	4	21
9:30	14	5	19
9:45	14	4	18
10:00	14	6	20
10:15	19	11	30
10:30	10	15	25
10:45	15	4	19
11:00	10	11	21
11:15	17	5	22
11:30	16	4	20
11:45	14	14	28
Total	380	176	556
Percent	68.3%	31.7%	
Peak	7:45	8:15	7:45
Volume	82	43	119
Peak Factor	0.820	0.827	0.902

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Can Ada Rd S of Purple Sage Rd
 Start Date: 6/28/2022
 End Date: 6/29/2022
 Can Ada Road south of Purple Sage
 Road
 Star, Idaho

6/28/2022 Time	Southbound	Northbound	Total
12:00 PM	9	9	18
12:15	5	16	21
12:30	5	13	18
12:45	20	6	26
1:00	14	20	34
1:15	10	8	18
1:30	12	16	28
1:45	10	11	21
2:00	8	9	17
2:15	8	12	20
2:30	14	11	25
2:45	10	20	30
3:00	17	12	29
3:15	8	12	20
3:30	12	19	31
3:45	12	16	28
4:00	12	12	24
4:15	15	14	29
4:30	11	14	25
4:45	10	14	24
5:00	12	18	30
5:15	17	22	39
5:30	11	28	39
5:45	8	13	21
6:00	11	23	34
6:15	11	18	29
6:30	6	10	16
6:45	9	15	24
7:00	5	12	17
7:15	7	10	17
7:30	7	13	20
7:45	6	9	15
8:00	6	16	22
8:15	6	11	17
8:30	4	9	13
8:45	4	7	11
9:00	2	13	15
9:15	5	7	12
9:30	4	11	15
9:45	1	3	4
10:00	0	6	6
10:15	0	4	4
10:30	2	0	2
10:45	2	1	3
11:00	3	1	4
11:15	2	0	2
11:30	4	4	8
11:45	0	0	0
Total	377	548	925
Percent	40.8%	59.2%	
Peak	12:45	5:15	5:15
Volume	56	86	133
Peak Factor	0.700	0.768	0.853

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Can Ada Rd S of Purple Sage Rd
 Start Date: 6/28/2022
 End Date: 6/29/2022
 Can Ada Road south of Purple Sage
 Road
 Star, Idaho

6/29/2022 Time	Southbound	Northbound	Total
12:00 AM	2	0	2
12:15	1	1	2
12:30	1	1	2
12:45	0	2	2
1:00	0	0	0
1:15	0	0	0
1:30	0	0	0
1:45	0	1	1
2:00	0	0	0
2:15	0	0	0
2:30	0	0	0
2:45	0	0	0
3:00	1	0	1
3:15	0	0	0
3:30	0	0	0
3:45	0	0	0
4:00	0	0	0
4:15	2	0	2
4:30	2	0	2
4:45	4	0	4
5:00	3	1	4
5:15	5	0	5
5:30	3	0	3
5:45	2	2	4
6:00	3	4	7
6:15	5	1	6
6:30	9	1	10
6:45	12	2	14
7:00	8	4	12
7:15	30	4	34
7:30	15	5	20
7:45	25	4	29
8:00	25	6	31
8:15	20	10	30
8:30	26	10	36
8:45	12	12	24
9:00	12	11	23
9:15	18	6	24
9:30	14	9	23
9:45	13	9	22
10:00	10	4	14
10:15	12	12	24
10:30	9	10	19
10:45	11	6	17
11:00	14	14	28
11:15	16	8	24
11:30	12	12	24
11:45	10	14	24
Total	367	186	553
Percent	66.4%	33.6%	
Peak	7:45	11:00	7:45
Volume	96	48	126
Peak Factor	0.923	0.857	0.875

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Can Ada Rd S of Purple Sage Rd
 Start Date: 6/28/2022
 End Date: 6/29/2022
 Can Ada Road south of Purple Sage
 Road
 Star, Idaho

6/29/2022 Time	Southbound	Northbound	Total
12:00 PM	6	8	14
12:15	15	12	27
12:30	9	9	18
12:45	11	13	24
1:00	6	10	16
1:15	11	10	21
1:30	9	14	23
1:45	11	15	26
2:00	14	14	28
2:15	10	10	20
2:30	10	9	19
2:45	10	16	26
3:00	4	11	15
3:15	10	16	26
3:30	14	21	35
3:45	16	18	34
4:00	6	16	22
4:15	14	18	32
4:30	11	19	30
4:45	8	22	30
5:00	10	21	31
5:15	18	24	42
5:30	11	16	27
5:45	6	32	38
6:00	5	27	32
6:15	15	14	29
6:30	14	16	30
6:45	8	17	25
7:00	5	10	15
7:15	8	22	30
7:30	6	5	11
7:45	6	11	17
8:00	5	7	12
8:15	4	7	11
8:30	2	2	4
8:45	1	4	5
9:00	1	6	7
9:15	7	4	11
9:30	8	8	16
9:45	3	6	9
10:00	4	6	10
10:15	4	0	4
10:30	8	8	16
10:45	4	1	5
11:00	3	5	8
11:15	0	3	3
11:30	0	3	3
11:45	0	0	0
Total	371	566	937
Percent	39.6%	60.4%	
Peak	3:30	5:15	5:15
Volume	50	99	139
Peak Factor	0.781	0.773	0.827
Grand Total	1495	1476	2971
Percent	50.3%	49.7%	
AADT		ADT: 1,486	AADT: 1,486

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KIYY0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: AxleHits / 2

Deep Canyon Dr W of SH-16
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Deep Canyon Drive west of SH-16
 Star, Idaho

6/14/2022	Westbound	Eastbound	Total
Time			
12:00 AM	0	0	0
12:15	3	0	3
12:30	1	0	1
12:45	1	0	1
1:00	1	1	2
1:15	2	0	2
1:30	0	0	0
1:45	0	0	0
2:00	1	0	1
2:15	0	0	0
2:30	0	0	0
2:45	0	1	1
3:00	0	0	0
3:15	0	0	0
3:30	0	0	0
3:45	0	0	0
4:00	0	0	0
4:15	0	0	0
4:30	0	1	1
4:45	0	2	2
5:00	0	5	5
5:15	0	2	2
5:30	1	5	6
5:45	2	4	6
6:00	1	1	2
6:15	0	7	7
6:30	1	6	7
6:45	3	9	12
7:00	1	13	14
7:15	2	11	13
7:30	8	14	22
7:45	9	12	21
8:00	5	18	23
8:15	9	15	24
8:30	8	14	22
8:45	5	26	31
9:00	9	12	21
9:15	8	16	24
9:30	4	21	25
9:45	5	11	16
10:00	10	11	21
10:15	13	19	32
10:30	7	19	26
10:45	12	12	24
11:00	10	12	22
11:15	16	7	23
11:30	21	14	35
11:45	15	17	32
Total	194	338	532
Percent	36.5%	63.5%	
Peak	11:00	8:45	11:00
Volume	62	75	112
Peak Factor	0.738	0.721	0.800

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KIYY0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: AxleHits / 2

Deep Canyon Dr W of SH-16
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Deep Canyon Drive west of SH-16
 Star, Idaho

6/14/2022	Westbound	Eastbound	Total
Time			
12:00 PM	14	6	20
12:15	12	13	25
12:30	17	14	31
12:45	11	18	29
1:00	23	12	35
1:15	12	19	31
1:30	5	20	25
1:45	6	8	14
2:00	17	13	30
2:15	13	15	28
2:30	14	12	26
2:45	13	5	18
3:00	8	12	20
3:15	9	17	26
3:30	18	11	29
3:45	18	17	35
4:00	20	12	32
4:15	19	3	22
4:30	21	9	30
4:45	8	7	15
5:00	14	9	23
5:15	13	12	25
5:30	11	14	25
5:45	17	13	30
6:00	18	4	22
6:15	14	6	20
6:30	7	10	17
6:45	9	6	15
7:00	13	4	17
7:15	8	7	15
7:30	7	4	11
7:45	5	6	11
8:00	7	2	9
8:15	7	2	9
8:30	2	1	3
8:45	6	2	8
9:00	13	2	15
9:15	6	1	7
9:30	11	1	12
9:45	5	1	6
10:00	3	2	5
10:15	2	0	2
10:30	2	1	3
10:45	1	0	1
11:00	1	0	1
11:15	2	1	3
11:30	1	2	3
11:45	2	0	2
Total	485	356	841
Percent	57.7%	42.3%	
Peak	3:45	12:45	12:30
Volume	78	69	126
Peak Factor	0.929	0.863	0.900

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KIYY0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: AxleHits / 2

Deep Canyon Dr W of SH-16
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Deep Canyon Drive west of SH-16
 Star, Idaho

6/15/2022	Westbound	Eastbound	Total
Time			
12:00 AM	4	1	5
12:15	1	1	2
12:30	0	0	0
12:45	0	0	0
1:00	1	0	1
1:15	1	3	4
1:30	1	4	5
1:45	0	0	0
2:00	1	0	1
2:15	0	0	0
2:30	0	0	0
2:45	0	0	0
3:00	0	0	0
3:15	0	1	1
3:30	0	0	0
3:45	1	1	2
4:00	0	0	0
4:15	0	2	2
4:30	0	3	3
4:45	0	1	1
5:00	0	4	4
5:15	1	1	2
5:30	0	5	5
5:45	1	3	4
6:00	1	3	4
6:15	0	4	4
6:30	0	8	8
6:45	2	10	12
7:00	4	5	9
7:15	2	15	17
7:30	3	9	12
7:45	6	8	14
8:00	3	8	11
8:15	5	10	15
8:30	7	11	18
8:45	8	16	24
9:00	6	26	32
9:15	8	9	17
9:30	10	18	28
9:45	9	14	23
10:00	9	13	22
10:15	11	15	26
10:30	9	11	20
10:45	12	15	27
11:00	9	12	21
11:15	8	11	19
11:30	8	18	26
11:45	10	6	16
Total	162	305	467
Percent	34.7%	65.3%	
Peak	10:00	8:45	8:45
Volume	41	69	101
Peak Factor	0.854	0.663	0.789

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KIYY0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: AxleHits / 2

Deep Canyon Dr W of SH-16
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Deep Canyon Drive west of SH-16
 Star, Idaho

6/15/2022	Westbound	Eastbound	Total
Time			
12:00 PM	13	11	24
12:15	6	16	22
12:30	13	16	29
12:45	15	6	21
1:00	10	14	24
1:15	10	14	24
1:30	12	13	25
1:45	13	13	26
2:00	7	7	14
2:15	9	10	19
2:30	10	11	21
2:45	14	17	31
3:00	12	14	26
3:15	16	15	31
3:30	15	16	31
3:45	15	11	26
4:00	17	19	36
4:15	15	6	21
4:30	15	6	21
4:45	18	7	25
5:00	17	11	28
5:15	22	11	33
5:30	12	6	18
5:45	21	8	29
6:00	16	5	21
6:15	15	6	21
6:30	14	10	24
6:45	14	6	20
7:00	12	13	25
7:15	15	2	17
7:30	9	2	11
7:45	7	11	18
8:00	10	5	15
8:15	9	7	16
8:30	11	4	15
8:45	4	4	8
9:00	7	5	12
9:15	7	7	14
9:30	8	9	17
9:45	5	3	8
10:00	8	2	10
10:15	6	2	8
10:30	5	1	6
10:45	3	0	3
11:00	5	1	6
11:15	1	2	3
11:30	5	1	6
11:45	2	1	3
Total	525	387	912
Percent	57.6%	42.4%	
Peak	4:30	2:45	3:15
Volume	72	62	124
Peak Factor	0.818	0.912	0.861
Grand Total	1366	1386	2752
Percent	49.6%	50.4%	
AADT	ADT: 1,376	ADT: 1,376	

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Deer Canyon N of Purple Sage-2
 Start Date: 7/12/2022
 End Date: 7/14/2022
 Deer Canyon north of Purple Sage
 Star, Idaho

7/12/2022	Southbound	Northbound	Total
Time			
12:00 AM	*	*	0
12:15	*	*	0
12:30	*	*	0
12:45	*	*	0
1:00	0	0	0
1:15	0	0	0
1:30	0	0	0
1:45	0	0	0
2:00	1	0	1
2:15	0	0	0
2:30	0	0	0
2:45	0	0	0
3:00	0	0	0
3:15	0	0	0
3:30	0	2	2
3:45	0	0	0
4:00	0	0	0
4:15	0	0	0
4:30	0	0	0
4:45	0	0	0
5:00	0	0	0
5:15	0	0	0
5:30	0	1	1
5:45	1	0	1
6:00	1	1	2
6:15	0	0	0
6:30	1	2	3
6:45	0	2	2
7:00	1	0	1
7:15	0	3	3
7:30	1	4	5
7:45	1	1	2
8:00	2	1	3
8:15	2	1	3
8:30	0	0	0
8:45	1	0	1
9:00	2	1	3
9:15	0	1	1
9:30	1	2	3
9:45	2	2	4
10:00	1	2	3
10:15	2	0	2
10:30	1	0	1
10:45	2	2	4
11:00	1	2	3
11:15	2	0	2
11:30	2	0	2
11:45	1	2	3
Total	29	32	61
Percent	47.5%	52.5%	
Peak	10:45	6:45	7:15
Volume	7	9	13
Peak Factor	0.875	0.563	0.650

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Deer Canyon N of Purple Sage-2
 Start Date: 7/12/2022
 End Date: 7/14/2022
 Deer Canyon north of Purple Sage
 Star, Idaho

7/12/2022	Southbound	Northbound	Total
Time			
12:00 PM	4	2	6
12:15	3	0	3
12:30	2	4	6
12:45	2	4	6
1:00	3	2	5
1:15	0	4	4
1:30	0	0	0
1:45	0	2	2
2:00	3	0	3
2:15	1	0	1
2:30	2	2	4
2:45	3	1	4
3:00	1	0	1
3:15	1	0	1
3:30	0	0	0
3:45	4	4	8
4:00	1	0	1
4:15	2	1	3
4:30	2	1	3
4:45	2	3	5
5:00	2	3	5
5:15	3	2	5
5:30	4	0	4
5:45	2	2	4
6:00	5	0	5
6:15	1	2	3
6:30	1	1	2
6:45	2	1	3
7:00	1	1	2
7:15	2	0	2
7:30	3	1	4
7:45	3	1	4
8:00	1	1	2
8:15	0	2	2
8:30	2	1	3
8:45	0	2	2
9:00	2	2	4
9:15	1	2	3
9:30	0	0	0
9:45	1	0	1
10:00	0	0	0
10:15	0	1	1
10:30	0	0	0
10:45	0	0	0
11:00	0	0	0
11:15	0	0	0
11:30	0	0	0
11:45	4	0	4
Total	76	55	131
Percent	58.0%	42.0%	
Peak	5:15	12:30	12:00 PM
Volume	14	14	21
Peak Factor	0.700	0.875	0.875

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Deer Canyon N of Purple Sage-2
 Start Date: 7/12/2022
 End Date: 7/14/2022
 Deer Canyon north of Purple Sage
 Star, Idaho

7/13/2022	Southbound	Northbound	Total
Time			
12:00 AM	1	0	1
12:15	0	1	1
12:30	0	0	0
12:45	0	1	1
1:00	0	0	0
1:15	0	0	0
1:30	0	0	0
1:45	1	0	1
2:00	0	0	0
2:15	0	0	0
2:30	0	0	0
2:45	0	0	0
3:00	0	0	0
3:15	0	0	0
3:30	0	0	0
3:45	0	0	0
4:00	0	0	0
4:15	0	0	0
4:30	0	0	0
4:45	0	0	0
5:00	1	0	1
5:15	0	0	0
5:30	0	1	1
5:45	0	0	0
6:00	1	1	2
6:15	0	0	0
6:30	1	1	2
6:45	0	4	4
7:00	1	0	1
7:15	2	3	5
7:30	1	2	3
7:45	1	0	1
8:00	0	1	1
8:15	1	0	1
8:30	1	5	6
8:45	3	1	4
9:00	2	2	4
9:15	0	1	1
9:30	1	0	1
9:45	1	2	3
10:00	2	0	2
10:15	1	3	4
10:30	6	1	7
10:45	0	1	1
11:00	5	4	9
11:15	4	0	4
11:30	1	2	3
11:45	0	1	1
Total	38	38	76
Percent	50.0%	50.0%	
Peak	10:30	6:45	10:15
Volume	15	9	21
Peak Factor	0.625	0.563	0.583

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Deer Canyon N of Purple Sage-2
 Start Date: 7/12/2022
 End Date: 7/14/2022
 Deer Canyon north of Purple Sage
 Star, Idaho

7/13/2022	Southbound	Northbound	Total
Time			
12:00 PM	0	2	2
12:15	0	1	1
12:30	4	2	6
12:45	1	2	3
1:00	2	2	4
1:15	1	4	5
1:30	6	3	9
1:45	4	0	4
2:00	2	1	3
2:15	0	1	1
2:30	1	1	2
2:45	1	1	2
3:00	2	3	5
3:15	6	1	7
3:30	2	1	3
3:45	4	3	7
4:00	6	6	12
4:15	3	0	3
4:30	4	4	8
4:45	4	1	5
5:00	2	2	4
5:15	2	1	3
5:30	3	0	3
5:45	3	2	5
6:00	1	0	1
6:15	1	1	2
6:30	2	3	5
6:45	1	0	1
7:00	0	0	0
7:15	1	2	3
7:30	0	1	1
7:45	0	0	0
8:00	1	1	2
8:15	2	1	3
8:30	1	1	2
8:45	1	2	3
9:00	0	4	4
9:15	1	1	2
9:30	1	1	2
9:45	0	0	0
10:00	0	0	0
10:15	0	0	0
10:30	0	0	0
10:45	0	0	0
11:00	0	0	0
11:15	0	2	2
11:30	1	1	2
11:45	0	1	1
Total	77	66	143
Percent	53.8%	46.2%	
Peak	3:15	3:45	3:45
Volume	18	13	30
Peak Factor	0.750	0.542	0.625

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Deer Canyon N of Purple Sage-2
 Start Date: 7/12/2022
 End Date: 7/14/2022
 Deer Canyon north of Purple Sage
 Star, Idaho

7/14/2022	Southbound	Northbound	Total
Time			
12:00 AM	0	0	0
12:15	0	1	1
12:30	0	0	0
12:45	0	0	0
1:00	*	*	0
1:15	*	*	0
1:30	*	*	0
1:45	*	*	0
2:00	*	*	0
2:15	*	*	0
2:30	*	*	0
2:45	*	*	0
3:00	*	*	0
3:15	*	*	0
3:30	*	*	0
3:45	*	*	0
4:00	*	*	0
4:15	*	*	0
4:30	*	*	0
4:45	*	*	0
5:00	*	*	0
5:15	*	*	0
5:30	*	*	0
5:45	*	*	0
6:00	*	*	0
6:15	*	*	0
6:30	*	*	0
6:45	*	*	0
7:00	*	*	0
7:15	*	*	0
7:30	*	*	0
7:45	*	*	0
8:00	*	*	0
8:15	*	*	0
8:30	*	*	0
8:45	*	*	0
9:00	*	*	0
9:15	*	*	0
9:30	*	*	0
9:45	*	*	0
10:00	*	*	0
10:15	*	*	0
10:30	*	*	0
10:45	*	*	0
11:00	*	*	0
11:15	*	*	0
11:30	*	*	0
11:45	*	*	0
Total	0	1	1
Percent	0.0%	100.0%	
Peak		12:00 AM	12:00 AM
Volume		1	1
Peak Factor		0.250	0.250
Grand Total	220	192	412
Percent	53.4%	46.6%	
AADT		AADT: 219	

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277

Floating Feather Rd E of Plummer
Rd

Type: Volume / Direction
Tech: Judd / Klaren / Macomb
Count: Axle Hits / 2

Start Date: 6/14/2022
End Date: 6/15/2022
Floating Feather Road east of
Plummer Road
Star, Idaho

6/14/2022 Time	Westbound	Eastbound	Total
12:00 AM	3	2	5
12:15	3	0	3
12:30	3	1	4
12:45	0	0	0
1:00	0	1	1
1:15	1	0	1
1:30	0	0	0
1:45	0	0	0
2:00	0	0	0
2:15	1	1	2
2:30	1	0	1
2:45	0	0	0
3:00	0	0	0
3:15	0	0	0
3:30	0	1	1
3:45	0	1	1
4:00	0	0	0
4:15	0	1	1
4:30	0	0	0
4:45	0	0	0
5:00	0	7	7
5:15	0	4	4
5:30	0	2	2
5:45	0	5	5
6:00	1	6	7
6:15	4	6	10
6:30	1	11	12
6:45	6	14	20
7:00	1	28	29
7:15	9	26	35
7:30	14	24	38
7:45	11	29	40
8:00	15	28	43
8:15	11	32	43
8:30	12	31	43
8:45	16	20	36
9:00	15	17	32
9:15	10	22	32
9:30	7	20	27
9:45	12	22	34
10:00	10	20	30
10:15	21	22	43
10:30	12	30	42
10:45	24	14	38
11:00	20	24	44
11:15	18	19	37
11:30	27	26	53
11:45	22	24	46
Total	311	541	852
Percent	36.5%	63.5%	
Peak	10:45	7:45	11:00
Volume	89	120	180
Peak Factor	0.824	0.938	0.849

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277

Floating Feather Rd E of Plummer
Rd

Type: Volume / Direction
Tech: Judd / Klaren / Macomb
Count: Axle Hits / 2

Start Date: 6/14/2022
End Date: 6/15/2022
Floating Feather Road east of
Plummer Road
Star, Idaho

6/14/2022 Time	Westbound	Eastbound	Total
12:00 PM	32	21	53
12:15	27	14	41
12:30	22	29	51
12:45	27	23	50
1:00	24	26	50
1:15	20	24	44
1:30	20	16	36
1:45	22	24	46
2:00	22	24	46
2:15	23	18	41
2:30	24	28	52
2:45	22	18	40
3:00	32	16	48
3:15	32	21	53
3:30	28	26	54
3:45	33	20	53
4:00	35	26	61
4:15	30	23	53
4:30	34	15	49
4:45	41	11	52
5:00	38	20	58
5:15	47	28	75
5:30	51	14	65
5:45	46	20	66
6:00	22	15	37
6:15	32	14	46
6:30	12	12	24
6:45	10	15	25
7:00	21	13	34
7:15	12	9	21
7:30	18	8	26
7:45	17	8	25
8:00	15	5	20
8:15	15	9	24
8:30	10	11	21
8:45	13	3	16
9:00	11	10	21
9:15	20	3	23
9:30	8	11	19
9:45	10	4	14
10:00	6	3	9
10:15	4	6	10
10:30	6	4	10
10:45	2	1	3
11:00	4	0	4
11:15	2	1	3
11:30	0	0	0
11:45	1	0	1
Total	1003	670	1673
Percent	60.0%	40.0%	
Peak	5:00	12:30	5:00
Volume	182	102	264
Peak Factor	0.892	0.879	0.880

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277

Floating Feather Rd E of Plummer
Rd

Type: Volume / Direction
Tech: Judd / Klaren / Macomb
Count: Axle Hits / 2

Start Date: 6/14/2022
End Date: 6/15/2022
Floating Feather Road east of
Plummer Road
Star, Idaho

6/15/2022 Time	Westbound	Eastbound	Total
12:00 AM	0	0	0
12:15	4	0	4
12:30	0	1	1
12:45	0	0	0
1:00	0	2	2
1:15	0	0	0
1:30	0	1	1
1:45	0	0	0
2:00	1	0	1
2:15	0	0	0
2:30	0	0	0
2:45	0	0	0
3:00	0	0	0
3:15	0	0	0
3:30	0	0	0
3:45	0	0	0
4:00	0	1	1
4:15	1	2	3
4:30	0	0	0
4:45	0	4	4
5:00	0	6	6
5:15	1	4	5
5:30	0	4	4
5:45	1	3	4
6:00	4	6	10
6:15	0	6	6
6:30	4	13	17
6:45	4	8	12
7:00	2	32	34
7:15	3	29	32
7:30	6	27	33
7:45	8	18	26
8:00	6	22	28
8:15	6	16	22
8:30	13	26	39
8:45	18	29	47
9:00	11	24	35
9:15	20	27	47
9:30	10	22	32
9:45	17	20	37
10:00	12	24	36
10:15	12	20	32
10:30	13	20	33
10:45	20	24	44
11:00	10	26	36
11:15	14	21	35
11:30	22	20	42
11:45	28	34	62
Total	271	542	813
Percent	33.3%	66.7%	
Peak	11:00	7:00	11:00
Volume	74	106	175
Peak Factor	0.661	0.828	0.706

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277

Floating Feather Rd E of Plummer
Rd

Type: Volume / Direction
Tech: Judd / Klaren / Macomb
Count: Axle Hits / 2

Start Date: 6/14/2022
End Date: 6/15/2022
Floating Feather Road east of
Plummer Road
Star, Idaho

6/15/2022 Time	Westbound	Eastbound	Total
12:00 PM	27	18	45
12:15	19	29	48
12:30	25	38	63
12:45	25	19	44
1:00	15	24	39
1:15	21	20	41
1:30	30	22	52
1:45	19	26	45
2:00	18	20	38
2:15	15	19	34
2:30	24	14	38
2:45	24	18	42
3:00	21	15	36
3:15	38	24	62
3:30	37	24	61
3:45	30	22	52
4:00	34	22	56
4:15	40	16	56
4:30	44	22	66
4:45	61	33	94
5:00	41	19	60
5:15	53	22	75
5:30	52	12	64
5:45	58	14	72
6:00	49	12	61
6:15	31	22	53
6:30	21	21	42
6:45	22	17	39
7:00	21	27	48
7:15	19	23	42
7:30	8	8	16
7:45	12	6	18
8:00	9	10	19
8:15	12	9	21
8:30	23	12	35
8:45	12	10	22
9:00	15	10	25
9:15	25	4	29
9:30	9	4	13
9:45	5	4	9
10:00	7	5	12
10:15	8	4	12
10:30	7	4	11
10:45	6	2	8
11:00	1	0	1
11:15	0	1	1
11:30	1	1	2
11:45	4	0	4
Total	1098	728	1826
Percent	60.1%	39.9%	
Peak	5:15	12:15	4:30
Volume	212	110	295
Peak Factor	0.914	0.724	0.785
Grand Total	2683	2481	5164
Percent	52.0%	48.0%	
AADT		ADT: 2,582	AADT: 2,582

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Floating Feather Rd E of SH-16-2
 Start Date: 7/11/2022
 End Date: 7/14/2022
 Floating Feather Road east of SH-16
 Star, Idaho

7/11/2022	Westbound	Eastbound	Total
Time			
12:00 AM	*	*	0
12:15	*	*	0
12:30	*	*	0
12:45	*	*	0
1:00	*	*	0
1:15	*	*	0
1:30	*	*	0
1:45	*	*	0
2:00	*	*	0
2:15	*	*	0
2:30	*	*	0
2:45	*	*	0
3:00	*	*	0
3:15	*	*	0
3:30	*	*	0
3:45	*	*	0
4:00	*	*	0
4:15	*	*	0
4:30	*	*	0
4:45	*	*	0
5:00	*	*	0
5:15	*	*	0
5:30	*	*	0
5:45	*	*	0
6:00	*	*	0
6:15	*	*	0
6:30	*	*	0
6:45	*	*	0
7:00	*	*	0
7:15	*	*	0
7:30	*	*	0
7:45	*	*	0
8:00	*	*	0
8:15	*	*	0
8:30	*	*	0
8:45	*	*	0
9:00	*	*	0
9:15	*	*	0
9:30	*	*	0
9:45	*	*	0
10:00	*	*	0
10:15	*	*	0
10:30	*	*	0
10:45	*	*	0
11:00	*	*	0
11:15	*	*	0
11:30	*	*	0
11:45	*	*	0
Total	0	0	0
Percent	-	-	
Peak			
Volume			
Peak Factor			

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Floating Feather Rd E of SH-16-2
 Start Date: 7/11/2022
 End Date: 7/14/2022
 Floating Feather Road east of SH-16
 Star, Idaho

7/11/2022	Westbound	Eastbound	Total
Time			
12:00 PM	*	*	0
12:15	*	*	0
12:30	*	*	0
12:45	*	*	0
1:00	*	*	0
1:15	*	*	0
1:30	*	*	0
1:45	*	*	0
2:00	*	*	0
2:15	*	*	0
2:30	*	*	0
2:45	*	*	0
3:00	*	*	0
3:15	*	*	0
3:30	*	*	0
3:45	*	*	0
4:00	*	*	0
4:15	*	*	0
4:30	*	*	0
4:45	*	*	0
5:00	*	*	0
5:15	*	*	0
5:30	*	*	0
5:45	*	*	0
6:00	*	*	0
6:15	*	*	0
6:30	*	*	0
6:45	*	*	0
7:00	*	*	0
7:15	*	*	0
7:30	*	*	0
7:45	*	*	0
8:00	*	*	0
8:15	*	*	0
8:30	*	*	0
8:45	*	*	0
9:00	*	*	0
9:15	*	*	0
9:30	*	*	0
9:45	*	*	0
10:00	*	*	0
10:15	*	*	0
10:30	*	*	0
10:45	7	5	12
11:00	5	2	7
11:15	2	1	3
11:30	4	5	9
11:45	3	2	5
Total	21	15	36
Percent	58.3%	41.7%	
Peak	10:45	10:45	10:45
Volume	18	13	31
Peak Factor	0.643	0.650	0.646

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Floating Feather Rd E of SH-16-2
 Start Date: 7/11/2022
 End Date: 7/14/2022
 Floating Feather Road east of SH-16
 Star, Idaho

7/12/2022	Westbound	Eastbound	Total
Time			
12:00 AM	0	0	0
12:15	0	1	1
12:30	1	1	2
12:45	0	0	0
1:00	1	0	1
1:15	1	0	1
1:30	1	0	1
1:45	1	1	2
2:00	0	0	0
2:15	1	0	1
2:30	0	0	0
2:45	0	0	0
3:00	0	0	0
3:15	0	0	0
3:30	0	0	0
3:45	0	0	0
4:00	0	0	0
4:15	1	0	1
4:30	0	0	0
4:45	0	2	2
5:00	0	1	1
5:15	2	4	6
5:30	4	1	5
5:45	4	10	14
6:00	3	11	14
6:15	3	11	14
6:30	5	18	23
6:45	5	22	27
7:00	7	19	26
7:15	11	32	43
7:30	12	35	47
7:45	20	30	50
8:00	10	32	42
8:15	7	21	28
8:30	17	25	42
8:45	16	30	46
9:00	10	24	34
9:15	16	18	34
9:30	10	14	24
9:45	14	16	30
10:00	10	17	27
10:15	10	16	26
10:30	13	28	41
10:45	16	17	33
11:00	24	10	34
11:15	6	14	20
11:30	16	10	26
11:45	11	11	22
Total	289	502	791
Percent	36.5%	63.5%	
Peak	10:15	7:15	7:15
Volume	63	129	182
Peak Factor	0.656	0.921	0.910

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Floating Feather Rd E of SH-16-2
 Start Date: 7/11/2022
 End Date: 7/14/2022
 Floating Feather Road east of SH-16
 Star, Idaho

7/12/2022	Westbound	Eastbound	Total
Time			
12:00 PM	16	15	31
12:15	15	14	29
12:30	16	10	26
12:45	22	12	34
1:00	9	19	28
1:15	19	17	36
1:30	12	8	20
1:45	28	14	42
2:00	15	24	39
2:15	10	24	34
2:30	21	9	30
2:45	18	12	30
3:00	22	20	42
3:15	30	12	42
3:30	24	16	40
3:45	29	16	45
4:00	24	13	37
4:15	22	18	40
4:30	42	5	47
4:45	34	10	44
5:00	46	18	64
5:15	56	18	74
5:30	52	10	62
5:45	52	16	68
6:00	32	16	48
6:15	20	10	30
6:30	26	6	32
6:45	24	10	34
7:00	15	11	26
7:15	16	12	28
7:30	7	6	13
7:45	10	10	20
8:00	14	9	23
8:15	23	12	35
8:30	8	7	15
8:45	8	5	13
9:00	8	5	13
9:15	14	4	18
9:30	5	5	10
9:45	5	4	9
10:00	0	4	4
10:15	4	3	7
10:30	5	5	10
10:45	5	10	15
11:00	8	6	14
11:15	2	1	3
11:30	1	0	1
11:45	2	1	3
Total	896	512	1408
Percent	63.6%	36.4%	
Peak	5:00	1:45	5:00
Volume	206	71	268
Peak Factor	0.920	0.740	0.905

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Floating Feather Rd E of SH-16-2
 Start Date: 7/11/2022
 End Date: 7/14/2022
 Floating Feather Road east of SH-16
 Star, Idaho

7/13/2022	Westbound	Eastbound	Total
Time			
12:00 AM	1	1	2
12:15	0	3	3
12:30	1	2	3
12:45	2	0	2
1:00	2	1	3
1:15	1	0	1
1:30	1	0	1
1:45	0	0	0
2:00	0	0	0
2:15	2	0	2
2:30	0	0	0
2:45	0	0	0
3:00	0	0	0
3:15	0	0	0
3:30	0	0	0
3:45	0	0	0
4:00	1	0	1
4:15	4	0	4
4:30	0	0	0
4:45	0	2	2
5:00	0	1	1
5:15	2	2	4
5:30	3	5	8
5:45	2	6	8
6:00	2	12	14
6:15	4	10	14
6:30	4	11	15
6:45	5	16	21
7:00	4	16	20
7:15	4	23	27
7:30	12	20	32
7:45	13	42	55
8:00	6	28	34
8:15	14	28	42
8:30	9	18	27
8:45	17	34	51
9:00	15	23	38
9:15	8	23	31
9:30	12	23	35
9:45	10	21	31
10:00	16	20	36
10:15	11	22	33
10:30	14	16	30
10:45	12	14	26
11:00	12	18	30
11:15	18	19	37
11:30	10	10	20
11:45	18	16	34
Total	272	506	778
Percent	35.0%	65.0%	
Peak	11:00	7:30	7:30
Volume	58	118	163
Peak Factor	0.806	0.702	0.741

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Floating Feather Rd E of SH-16-2
 Start Date: 7/11/2022
 End Date: 7/14/2022
 Floating Feather Road east of SH-16
 Star, Idaho

7/13/2022	Westbound	Eastbound	Total
Time			
12:00 PM	9	14	23
12:15	13	8	21
12:30	8	12	20
12:45	2	1	3
1:00	0	0	0
1:15	0	0	0
1:30	0	0	0
1:45	0	0	0
2:00	0	0	0
2:15	0	0	0
2:30	0	0	0
2:45	0	0	0
3:00	0	0	0
3:15	0	0	0
3:30	0	0	0
3:45	0	0	0
4:00	0	0	0
4:15	0	0	0
4:30	0	0	0
4:45	0	0	0
5:00	0	0	0
5:15	0	0	0
5:30	0	0	0
5:45	0	0	0
6:00	0	0	0
6:15	0	0	0
6:30	0	0	0
6:45	0	0	0
7:00	0	0	0
7:15	0	0	0
7:30	0	0	0
7:45	0	0	0
8:00	0	0	0
8:15	0	0	0
8:30	0	0	0
8:45	0	0	0
9:00	0	0	0
9:15	0	0	0
9:30	0	0	0
9:45	0	0	0
10:00	0	0	0
10:15	0	0	0
10:30	0	0	0
10:45	0	0	0
11:00	0	0	0
11:15	0	0	0
11:30	0	0	0
11:45	0	0	0
Total	32	35	67
Percent	47.8%	52.2%	
Peak	12:00 PM	12:00 PM	12:00 PM
Volume	32	35	67
Peak Factor	0.615	0.625	0.728

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Floating Feather Rd E of SH-16-2
 Start Date: 7/11/2022
 End Date: 7/14/2022
 Floating Feather Road east of SH-16
 Star, Idaho

7/14/2022	Westbound	Eastbound	Total
Time			
12:00 AM	0	0	0
12:15	0	0	0
12:30	0	0	0
12:45	0	0	0
1:00	0	0	0
1:15	0	0	0
1:30	0	0	0
1:45	0	0	0
2:00	0	0	0
2:15	0	0	0
2:30	0	0	0
2:45	0	0	0
3:00	0	0	0
3:15	0	0	0
3:30	0	0	0
3:45	0	0	0
4:00	3	4	7
4:15	0	0	0
4:30	0	0	0
4:45	0	0	0
5:00	0	0	0
5:15	0	1	1
5:30	1	2	3
5:45	2	4	6
6:00	0	12	12
6:15	0	8	8
6:30	4	13	17
6:45	1	16	17
7:00	6	15	21
7:15	14	34	48
7:30	12	34	46
7:45	16	44	60
8:00	4	34	38
8:15	7	22	29
8:30	12	14	26
8:45	22	28	50
9:00	20	22	42
9:15	16	26	42
9:30	14	16	30
9:45	8	20	28
10:00	12	14	26
10:15	18	23	41
10:30	18	21	39
10:45	14	24	38
11:00	13	28	41
11:15	14	9	23
11:30	14	18	32
11:45	10	20	30
Total	275	526	801
Percent	34.3%	65.7%	
Peak	8:45	7:15	7:15
Volume	72	146	192
Peak Factor	0.818	0.830	0.800
Grand Total	1785	2096	3881
Percent	46.0%	54.0%	
AADT		AADT: 1,629	AADT: 1,629

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Floating Feather Rd E of Star Rd
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Floating Feather Road east of Star
 Road
 Star, Idaho

6/14/2022 Time	Westbound	Eastbound	Total
12:00 AM	5	5	10
12:15	2	0	2
12:30	1	2	3
12:45	2	3	5
1:00	0	1	1
1:15	1	1	2
1:30	0	1	1
1:45	0	0	0
2:00	0	1	1
2:15	1	0	1
2:30	2	1	3
2:45	0	1	1
3:00	0	0	0
3:15	0	0	0
3:30	0	3	3
3:45	2	0	2
4:00	1	1	2
4:15	2	3	5
4:30	3	3	6
4:45	4	2	6
5:00	5	4	9
5:15	3	8	11
5:30	5	9	14
5:45	6	11	17
6:00	1	11	12
6:15	9	15	24
6:30	9	23	32
6:45	18	38	56
7:00	7	45	52
7:15	15	40	55
7:30	24	28	52
7:45	18	44	62
8:00	24	46	70
8:15	27	50	77
8:30	21	46	67
8:45	30	52	82
9:00	38	42	80
9:15	22	34	56
9:30	29	32	61
9:45	29	44	73
10:00	26	34	60
10:15	36	42	78
10:30	38	47	85
10:45	36	34	70
11:00	32	62	94
11:15	38	44	82
11:30	50	38	88
11:45	34	50	84
Total	656	1001	1657
Percent	39.6%	60.4%	
Peak	10:45	8:00	11:00
Volume	156	194	348
Peak Factor	0.780	0.933	0.926

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Floating Feather Rd E of Star Rd
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Floating Feather Road east of Star
 Road
 Star, Idaho

6/14/2022 Time	Westbound	Eastbound	Total
12:00 PM	51	41	92
12:15	46	36	82
12:30	50	46	96
12:45	33	64	97
1:00	44	48	92
1:15	44	52	96
1:30	58	44	102
1:45	34	41	75
2:00	48	48	96
2:15	49	44	93
2:30	37	43	80
2:45	52	28	80
3:00	50	35	85
3:15	52	39	91
3:30	54	40	94
3:45	52	50	102
4:00	61	42	103
4:15	58	48	106
4:30	60	44	104
4:45	56	21	77
5:00	52	48	100
5:15	70	42	112
5:30	64	33	97
5:45	60	44	104
6:00	50	42	92
6:15	54	28	82
6:30	29	43	72
6:45	46	32	78
7:00	42	33	75
7:15	26	26	52
7:30	36	20	56
7:45	30	8	38
8:00	24	27	51
8:15	28	19	47
8:30	21	14	35
8:45	30	17	47
9:00	12	18	30
9:15	22	8	30
9:30	22	16	38
9:45	16	7	23
10:00	12	12	24
10:15	17	7	24
10:30	16	10	26
10:45	7	6	13
11:00	10	3	13
11:15	2	3	5
11:30	7	2	9
11:45	2	3	5
Total	1796	1425	3221
Percent	55.8%	44.2%	
Peak	5:00	12:30	3:45
Volume	246	210	415
Peak Factor	0.879	0.820	0.979

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Floating Feather Rd E of Star Rd
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Floating Feather Road east of Star
 Road
 Star, Idaho

6/15/2022 Time	Westbound	Eastbound	Total
12:00 AM	1	4	5
12:15	7	0	7
12:30	2	6	8
12:45	2	1	3
1:00	1	2	3
1:15	1	1	2
1:30	0	0	0
1:45	0	1	1
2:00	0	0	0
2:15	1	0	1
2:30	0	0	0
2:45	0	1	1
3:00	0	0	0
3:15	0	0	0
3:30	2	0	2
3:45	0	2	2
4:00	0	1	1
4:15	2	3	5
4:30	2	1	3
4:45	5	4	9
5:00	2	4	6
5:15	3	8	11
5:30	2	2	4
5:45	10	12	22
6:00	6	14	20
6:15	8	26	34
6:30	10	27	37
6:45	15	23	38
7:00	18	51	69
7:15	20	56	76
7:30	15	51	66
7:45	14	40	54
8:00	14	48	62
8:15	34	36	70
8:30	24	52	76
8:45	36	42	78
9:00	40	44	84
9:15	32	42	74
9:30	32	40	72
9:45	28	44	72
10:00	34	62	96
10:15	32	34	66
10:30	32	40	72
10:45	38	44	82
11:00	38	48	86
11:15	42	56	98
11:30	35	46	81
11:45	32	62	94
Total	672	1081	1753
Percent	38.3%	61.7%	
Peak	10:45	11:00	11:00
Volume	153	212	359
Peak Factor	0.911	0.855	0.916

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Floating Feather Rd E of Star Rd
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Floating Feather Road east of Star
 Road
 Star, Idaho

6/15/2022 Time	Westbound	Eastbound	Total
12:00 PM	58	30	88
12:15	48	40	88
12:30	29	48	77
12:45	45	54	99
1:00	48	50	98
1:15	48	35	83
1:30	47	48	95
1:45	30	41	71
2:00	42	33	75
2:15	38	38	76
2:30	39	40	79
2:45	49	38	87
3:00	46	49	95
3:15	50	28	78
3:30	46	53	99
3:45	59	49	108
4:00	60	42	102
4:15	56	39	95
4:30	75	56	131
4:45	70	46	116
5:00	64	42	106
5:15	78	44	122
5:30	68	42	110
5:45	64	25	89
6:00	82	24	106
6:15	80	44	124
6:30	41	45	86
6:45	40	48	88
7:00	46	31	77
7:15	32	28	60
7:30	23	19	42
7:45	32	18	50
8:00	29	23	52
8:15	42	27	69
8:30	39	14	53
8:45	23	20	43
9:00	30	20	50
9:15	23	24	47
9:30	16	12	28
9:45	12	11	23
10:00	9	13	22
10:15	15	6	21
10:30	12	4	16
10:45	9	6	15
11:00	7	6	13
11:15	3	5	8
11:30	1	7	8
11:45	3	3	6
Total	1906	1468	3374
Percent	56.5%	43.5%	
Peak	5:30	12:15	4:30
Volume	294	192	475
Peak Factor	0.896	0.889	0.906
Grand Total	5030	4975	10005
Percent	50.3%	49.7%	
AADT	ADT: 5,002	ADT: 5,002	

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Floating Feather Rd west of SH-16
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Floating Feather Road west of
 SH-16
 Star, Idaho

6/14/2022 Time	Westbound	Eastbound	Total
12:00 AM	2	2	4
12:15	3	0	3
12:30	1	1	2
12:45	0	0	0
1:00	0	1	1
1:15	1	0	1
1:30	0	0	0
1:45	0	0	0
2:00	0	0	0
2:15	1	0	1
2:30	0	0	0
2:45	0	0	0
3:00	0	0	0
3:15	0	0	0
3:30	0	0	0
3:45	0	0	0
4:00	0	0	0
4:15	0	1	1
4:30	0	0	0
4:45	0	0	0
5:00	0	1	1
5:15	0	1	1
5:30	0	1	1
5:45	3	2	5
6:00	4	5	9
6:15	4	2	6
6:30	2	6	8
6:45	6	2	8
7:00	4	10	14
7:15	11	13	24
7:30	14	16	30
7:45	23	12	35
8:00	17	20	37
8:15	18	24	42
8:30	13	20	33
8:45	10	14	24
9:00	12	9	21
9:15	8	10	18
9:30	3	7	10
9:45	3	12	15
10:00	10	12	22
10:15	16	13	29
10:30	8	11	19
10:45	20	11	31
11:00	22	16	38
11:15	10	10	20
11:30	20	13	33
11:45	32	22	54
Total	301	300	601
Percent	50.1%	49.9%	
Peak	11:00	8:00	7:45
Volume	84	78	147
Peak Factor	0.656	0.813	0.875

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Floating Feather Rd west of SH-16
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Floating Feather Road west of
 SH-16
 Star, Idaho

6/14/2022 Time	Westbound	Eastbound	Total
12:00 PM	24	11	35
12:15	17	10	27
12:30	17	18	35
12:45	12	9	21
1:00	14	9	23
1:15	14	10	24
1:30	16	15	31
1:45	19	12	31
2:00	12	8	20
2:15	14	7	21
2:30	15	15	30
2:45	12	9	21
3:00	17	8	25
3:15	21	12	33
3:30	11	26	37
3:45	25	5	30
4:00	12	14	26
4:15	17	21	38
4:30	14	14	28
4:45	26	6	32
5:00	30	9	39
5:15	26	12	38
5:30	28	8	36
5:45	15	11	26
6:00	14	6	20
6:15	15	7	22
6:30	9	4	13
6:45	3	8	11
7:00	10	4	14
7:15	7	7	14
7:30	6	4	10
7:45	9	3	12
8:00	6	3	9
8:15	7	3	10
8:30	6	6	12
8:45	1	3	4
9:00	9	6	15
9:15	6	2	8
9:30	5	3	8
9:45	5	4	9
10:00	3	4	7
10:15	3	0	3
10:30	3	2	5
10:45	3	1	4
11:00	0	0	0
11:15	2	0	2
11:30	0	0	0
11:45	0	0	0
Total	560	359	919
Percent	60.9%	39.1%	
Peak	4:45	3:30	4:45
Volume	110	66	145
Peak Factor	0.917	0.635	0.929

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Floating Feather Rd west of SH-16
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Floating Feather Road west of
 SH-16
 Star, Idaho

6/15/2022 Time	Westbound	Eastbound	Total
12:00 AM	0	0	0
12:15	3	0	3
12:30	0	1	1
12:45	0	0	0
1:00	0	1	1
1:15	0	0	0
1:30	0	0	0
1:45	0	0	0
2:00	0	0	0
2:15	0	0	0
2:30	0	0	0
2:45	0	0	0
3:00	0	0	0
3:15	0	0	0
3:30	0	0	0
3:45	0	0	0
4:00	0	0	0
4:15	0	2	2
4:30	0	0	0
4:45	0	0	0
5:00	0	1	1
5:15	2	3	5
5:30	0	2	2
5:45	1	0	1
6:00	3	3	6
6:15	2	2	4
6:30	1	6	7
6:45	1	4	5
7:00	6	10	16
7:15	4	7	11
7:30	4	17	21
7:45	10	10	20
8:00	12	10	22
8:15	8	12	20
8:30	4	10	14
8:45	7	11	18
9:00	12	16	28
9:15	11	12	23
9:30	2	7	9
9:45	12	7	19
10:00	10	14	24
10:15	12	10	22
10:30	8	14	22
10:45	10	14	24
11:00	4	8	12
11:15	6	12	18
11:30	8	12	20
11:45	14	17	31
Total	177	255	432
Percent	41.0%	59.0%	
Peak	9:45	10:00	10:00
Volume	42	52	92
Peak Factor	0.875	0.929	0.958

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Floating Feather Rd west of SH-16
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Floating Feather Road west of
 SH-16
 Star, Idaho

6/15/2022 Time	Westbound	Eastbound	Total
12:00 PM	13	15	28
12:15	12	17	29
12:30	28	16	44
12:45	18	14	32
1:00	12	20	32
1:15	11	14	25
1:30	13	9	22
1:45	10	10	20
2:00	12	13	25
2:15	13	8	21
2:30	12	13	25
2:45	12	22	34
3:00	11	7	18
3:15	19	14	33
3:30	12	12	24
3:45	24	16	40
4:00	19	11	30
4:15	24	11	35
4:30	24	8	32
4:45	30	9	39
5:00	23	14	37
5:15	33	10	43
5:30	37	11	48
5:45	33	8	41
6:00	25	8	33
6:15	9	4	13
6:30	19	6	25
6:45	13	10	23
7:00	8	10	18
7:15	9	3	12
7:30	4	7	11
7:45	10	4	14
8:00	7	6	13
8:15	8	7	15
8:30	13	2	15
8:45	12	2	14
9:00	6	2	8
9:15	6	3	9
9:30	7	2	9
9:45	4	2	6
10:00	3	1	4
10:15	5	6	11
10:30	4	4	8
10:45	6	1	7
11:00	1	0	1
11:15	1	2	3
11:30	1	0	1
11:45	2	0	2
Total	638	394	1032
Percent	61.8%	38.2%	
Peak	5:15	12:15	5:00
Volume	128	67	169
Peak Factor	0.865	0.838	0.880
Grand Total	1676	1308	2984
Percent	56.2%	43.8%	
AADT		AADT: 1,492	

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Floating Feather Rd west of Star Rd
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Floating Feather Road west of Star
 Road
 Star, Idaho

6/14/2022 Time	Westbound	Eastbound	Total
12:00 AM	2	2	4
12:15	1	1	2
12:30	0	1	1
12:45	2	2	4
1:00	0	1	1
1:15	0	0	0
1:30	0	1	1
1:45	1	0	1
2:00	0	1	1
2:15	2	0	2
2:30	0	0	0
2:45	0	0	0
3:00	0	1	1
3:15	0	1	1
3:30	0	2	2
3:45	0	2	2
4:00	0	2	2
4:15	2	2	4
4:30	0	7	7
4:45	0	3	3
5:00	4	5	9
5:15	0	9	9
5:30	2	10	12
5:45	5	9	14
6:00	2	20	22
6:15	3	24	27
6:30	8	28	36
6:45	19	44	63
7:00	14	38	52
7:15	15	23	38
7:30	7	25	32
7:45	16	36	52
8:00	33	39	72
8:15	36	48	84
8:30	26	53	79
8:45	31	64	95
9:00	34	62	96
9:15	38	44	82
9:30	32	49	81
9:45	39	42	81
10:00	24	44	68
10:15	34	35	69
10:30	43	41	84
10:45	34	48	82
11:00	33	60	93
11:15	48	46	94
11:30	40	49	89
11:45	42	66	108
Total	672	1090	1762
Percent	38.1%	61.9%	
Peak	11:00	8:15	11:00
Volume	163	227	384
Peak Factor	0.849	0.887	0.889

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Floating Feather Rd west of Star Rd
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Floating Feather Road west of Star
 Road
 Star, Idaho

6/14/2022 Time	Westbound	Eastbound	Total
12:00 PM	38	50	88
12:15	43	44	87
12:30	58	50	108
12:45	34	51	85
1:00	56	48	104
1:15	56	40	96
1:30	44	52	96
1:45	38	51	89
2:00	50	42	92
2:15	66	37	103
2:30	60	62	122
2:45	37	43	80
3:00	48	24	72
3:15	40	42	82
3:30	54	38	92
3:45	43	49	92
4:00	62	36	98
4:15	58	39	97
4:30	58	36	94
4:45	41	38	79
5:00	50	38	88
5:15	61	47	108
5:30	42	46	88
5:45	44	38	82
6:00	44	34	78
6:15	44	38	82
6:30	41	33	74
6:45	40	30	70
7:00	32	19	51
7:15	34	34	68
7:30	34	16	50
7:45	34	14	48
8:00	20	16	36
8:15	27	15	42
8:30	19	8	27
8:45	24	6	30
9:00	22	10	32
9:15	23	5	28
9:30	20	8	28
9:45	15	14	29
10:00	14	9	23
10:15	12	8	20
10:30	14	5	19
10:45	10	4	14
11:00	11	1	12
11:15	4	2	6
11:30	2	1	3
11:45	3	5	8
Total	1724	1376	3100
Percent	55.6%	44.4%	
Peak	3:45	12:00 PM	1:45
Volume	221	195	406
Peak Factor	0.891	0.956	0.832

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Floating Feather Rd west of Star Rd
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Floating Feather Road west of Star
 Road
 Star, Idaho

6/15/2022 Time	Westbound	Eastbound	Total
12:00 AM	4	2	6
12:15	5	0	5
12:30	1	2	3
12:45	2	1	3
1:00	2	1	3
1:15	1	1	2
1:30	0	1	1
1:45	0	1	1
2:00	1	0	1
2:15	1	0	1
2:30	0	0	0
2:45	0	1	1
3:00	0	0	0
3:15	0	0	0
3:30	0	1	1
3:45	0	2	2
4:00	2	0	2
4:15	1	5	6
4:30	0	6	6
4:45	0	6	6
5:00	1	4	5
5:15	3	10	13
5:30	0	4	4
5:45	4	12	16
6:00	6	20	26
6:15	4	17	21
6:30	6	27	33
6:45	22	26	48
7:00	11	32	43
7:15	26	36	62
7:30	18	32	50
7:45	20	54	74
8:00	30	52	82
8:15	27	46	73
8:30	34	55	89
8:45	34	61	95
9:00	35	42	77
9:15	40	43	83
9:30	24	46	70
9:45	30	62	92
10:00	32	54	86
10:15	34	42	76
10:30	38	50	88
10:45	46	53	99
11:00	34	44	78
11:15	49	56	105
11:30	42	52	94
11:45	31	50	81
Total	701	1112	1813
Percent	38.7%	61.3%	
Peak	10:45	8:00	10:45
Volume	171	214	376
Peak Factor	0.872	0.877	0.895

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Floating Feather Rd west of Star Rd
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Floating Feather Road west of Star
 Road
 Star, Idaho

6/15/2022 Time	Westbound	Eastbound	Total
12:00 PM	53	59	112
12:15	35	50	85
12:30	43	36	79
12:45	46	51	97
1:00	57	41	98
1:15	55	45	100
1:30	48	50	98
1:45	32	48	80
2:00	46	49	95
2:15	58	36	94
2:30	38	53	91
2:45	44	44	88
3:00	39	42	81
3:15	58	42	100
3:30	40	44	84
3:45	51	60	111
4:00	42	60	102
4:15	44	42	86
4:30	50	44	94
4:45	60	50	110
5:00	52	54	106
5:15	53	46	99
5:30	54	37	91
5:45	42	36	78
6:00	49	20	69
6:15	50	41	91
6:30	34	36	70
6:45	32	32	64
7:00	46	25	71
7:15	28	18	46
7:30	24	18	42
7:45	40	9	49
8:00	32	29	61
8:15	28	17	45
8:30	23	8	31
8:45	23	13	36
9:00	23	11	34
9:15	29	11	40
9:30	12	12	24
9:45	14	6	20
10:00	6	8	14
10:15	5	1	6
10:30	8	4	12
10:45	11	2	13
11:00	10	3	13
11:15	3	1	4
11:30	2	2	4
11:45	1	1	2
Total	1673	1447	3120
Percent	53.6%	46.4%	
Peak	4:45	3:15	4:30
Volume	219	206	409
Peak Factor	0.913	0.858	0.930
Grand Total	4770	5025	9795
Percent	48.7%	51.3%	
AADT	ADT: 4,898	ADT: 4,898	

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axl;e Hits / 2

Lanktree Gulch Dr E of Can Ada Rd
 Start Date: 6/28/2022
 End Date: 6/29/2022
 Lanktree Gulch Drive east of Can
 Ada Road
 Star, Idaho

6/28/2022 Time	Westbound	Eastbound	Total
12:00 AM	0	0	0
12:15	0	0	0
12:30	0	0	0
12:45	1	1	2
1:00	0	0	0
1:15	0	0	0
1:30	0	0	0
1:45	0	0	0
2:00	0	1	1
2:15	0	0	0
2:30	0	0	0
2:45	0	0	0
3:00	0	0	0
3:15	0	0	0
3:30	0	0	0
3:45	0	0	0
4:00	0	0	0
4:15	0	0	0
4:30	0	0	0
4:45	0	0	0
5:00	0	0	0
5:15	1	0	1
5:30	4	1	5
5:45	3	0	3
6:00	1	0	1
6:15	1	1	2
6:30	1	0	1
6:45	2	3	5
7:00	1	2	3
7:15	4	1	5
7:30	2	4	6
7:45	6	4	10
8:00	0	2	2
8:15	0	4	4
8:30	2	3	5
8:45	5	10	15
9:00	13	4	17
9:15	3	3	6
9:30	3	4	7
9:45	6	3	9
10:00	6	8	14
10:15	3	4	7
10:30	1	2	3
10:45	0	8	8
11:00	6	4	10
11:15	10	3	13
11:30	6	12	18
11:45	6	5	11
Total	97	97	194
Percent	50.0%	50.0%	
Peak	11:00	10:45	11:00
Volume	28	27	52
Peak Factor	0.700	0.563	0.722

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axl;e Hits / 2

Lanktree Gulch Dr E of Can Ada Rd
 Start Date: 6/28/2022
 End Date: 6/29/2022
 Lanktree Gulch Drive east of Can
 Ada Road
 Star, Idaho

6/28/2022 Time	Westbound	Eastbound	Total
12:00 PM	4	0	4
12:15	3	1	4
12:30	5	2	7
12:45	4	6	10
1:00	9	4	13
1:15	10	6	16
1:30	3	2	5
1:45	3	2	5
2:00	2	6	8
2:15	2	5	7
2:30	4	5	9
2:45	6	6	12
3:00	5	10	15
3:15	2	5	7
3:30	4	5	9
3:45	5	6	11
4:00	4	3	7
4:15	8	12	20
4:30	4	5	9
4:45	9	4	13
5:00	4	4	8
5:15	7	5	12
5:30	3	4	7
5:45	4	1	5
6:00	0	4	4
6:15	5	3	8
6:30	2	2	4
6:45	3	2	5
7:00	1	4	5
7:15	3	1	4
7:30	4	2	6
7:45	5	4	9
8:00	1	4	5
8:15	0	2	2
8:30	2	3	5
8:45	3	4	7
9:00	1	3	4
9:15	1	1	2
9:30	2	1	3
9:45	3	2	5
10:00	3	0	3
10:15	0	2	2
10:30	1	0	1
10:45	1	0	1
11:00	0	0	0
11:15	0	1	1
11:30	1	2	3
11:45	0	1	1
Total	156	157	313
Percent	49.8%	50.2%	
Peak	12:30	2:15	4:15
Volume	28	26	50
Peak Factor	0.700	0.650	0.625

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axl;e Hits / 2

Lanktree Gulch Dr E of Can Ada Rd
 Start Date: 6/28/2022
 End Date: 6/29/2022
 Lanktree Gulch Drive east of Can
 Ada Road
 Star, Idaho

6/29/2022 Time	Westbound	Eastbound	Total
12:00 AM	0	0	0
12:15	0	0	0
12:30	0	0	0
12:45	0	0	0
1:00	1	0	1
1:15	0	0	0
1:30	0	0	0
1:45	0	0	0
2:00	0	0	0
2:15	0	0	0
2:30	0	1	1
2:45	0	0	0
3:00	0	0	0
3:15	0	0	0
3:30	0	0	0
3:45	0	0	0
4:00	0	0	0
4:15	0	0	0
4:30	0	0	0
4:45	0	0	0
5:00	0	0	0
5:15	0	0	0
5:30	1	0	1
5:45	0	0	0
6:00	6	0	6
6:15	3	0	3
6:30	2	1	3
6:45	4	0	4
7:00	2	1	3
7:15	1	2	3
7:30	2	3	5
7:45	4	4	8
8:00	2	4	6
8:15	4	2	6
8:30	1	2	3
8:45	6	8	14
9:00	4	2	6
9:15	3	4	7
9:30	5	3	8
9:45	5	1	6
10:00	4	6	10
10:15	5	3	8
10:30	8	6	14
10:45	5	8	13
11:00	4	4	8
11:15	4	6	10
11:30	6	0	6
11:45	8	5	13
Total	100	76	176
Percent	56.8%	43.2%	
Peak	9:45	10:30	10:00
Volume	22	24	45
Peak Factor	0.688	0.750	0.804

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axl;e Hits / 2

Lanktree Gulch Dr E of Can Ada Rd
 Start Date: 6/28/2022
 End Date: 6/29/2022
 Lanktree Gulch Drive east of Can
 Ada Road
 Star, Idaho

6/29/2022 Time	Westbound	Eastbound	Total
12:00 PM	4	3	7
12:15	2	3	5
12:30	6	5	11
12:45	4	4	8
1:00	1	4	5
1:15	3	6	9
1:30	2	3	5
1:45	4	4	8
2:00	1	6	7
2:15	0	3	3
2:30	3	4	7
2:45	9	3	12
3:00	3	1	4
3:15	8	4	12
3:30	4	6	10
3:45	5	5	10
4:00	2	5	7
4:15	4	3	7
4:30	0	3	3
4:45	4	4	8
5:00	2	4	6
5:15	7	5	12
5:30	3	4	7
5:45	6	2	8
6:00	4	6	10
6:15	1	3	4
6:30	8	5	13
6:45	6	10	16
7:00	6	8	14
7:15	6	7	13
7:30	8	0	8
7:45	1	3	4
8:00	3	6	9
8:15	2	4	6
8:30	2	6	8
8:45	3	1	4
9:00	2	4	6
9:15	1	1	2
9:30	5	4	9
9:45	1	1	2
10:00	4	0	4
10:15	1	1	2
10:30	0	0	0
10:45	0	1	1
11:00	0	0	0
11:15	0	0	0
11:30	0	1	1
11:45	0	0	0
Total	151	166	317
Percent	47.6%	52.4%	
Peak	6:30	6:30	6:30
Volume	26	30	56
Peak Factor	0.813	0.750	0.875
Grand Total	504	496	1000
Percent	50.4%	49.6%	
AADT		ADT: 500	AADT: 500

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

New Hope Rd east of Can Ada Rd
 Start Date: 7/12/2022
 End Date: 7/13/2022
 New Hope Road east of Can Ada
 Road
 Star, Idaho

7/12/2022 Time	Westbound	Eastbound	Total
12:00 AM	1	1	2
12:15	2	0	2
12:30	0	0	0
12:45	0	1	1
1:00	0	0	0
1:15	0	0	0
1:30	1	1	2
1:45	1	0	1
2:00	1	0	1
2:15	0	0	0
2:30	0	0	0
2:45	0	0	0
3:00	0	1	1
3:15	0	0	0
3:30	0	1	1
3:45	1	0	1
4:00	0	0	0
4:15	0	1	1
4:30	1	0	1
4:45	0	1	1
5:00	1	2	3
5:15	1	7	8
5:30	1	5	6
5:45	0	14	14
6:00	2	5	7
6:15	2	11	13
6:30	6	18	24
6:45	2	19	21
7:00	6	18	24
7:15	7	21	28
7:30	14	32	46
7:45	13	34	47
8:00	12	25	37
8:15	20	26	46
8:30	19	22	41
8:45	11	20	31
9:00	20	33	53
9:15	25	21	46
9:30	8	30	38
9:45	20	28	48
10:00	22	37	59
10:15	26	21	47
10:30	24	28	52
10:45	22	16	38
11:00	20	18	38
11:15	22	27	49
11:30	29	44	73
11:45	29	20	49
Total	392	609	1001
Percent	39.2%	60.8%	
Peak	11:00	7:30	11:00
Volume	100	117	209
Peak Factor	0.862	0.860	0.716

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

New Hope Rd east of Can Ada Rd
 Start Date: 7/12/2022
 End Date: 7/13/2022
 New Hope Road east of Can Ada
 Road
 Star, Idaho

7/12/2022 Time	Westbound	Eastbound	Total
12:00 PM	28	31	59
12:15	29	27	56
12:30	27	30	57
12:45	22	22	44
1:00	33	26	59
1:15	25	22	47
1:30	18	30	48
1:45	32	24	56
2:00	17	17	34
2:15	11	30	41
2:30	32	18	50
2:45	17	22	39
3:00	17	13	30
3:15	18	12	30
3:30	25	13	38
3:45	28	15	43
4:00	25	16	41
4:15	15	10	25
4:30	18	16	34
4:45	24	8	32
5:00	22	14	36
5:15	22	16	38
5:30	31	18	49
5:45	44	10	54
6:00	22	10	32
6:15	10	8	18
6:30	8	8	16
6:45	29	6	35
7:00	13	5	18
7:15	8	3	11
7:30	12	6	18
7:45	11	10	21
8:00	8	6	14
8:15	8	6	14
8:30	4	5	9
8:45	12	4	16
9:00	7	5	12
9:15	10	5	15
9:30	5	6	11
9:45	4	10	14
10:00	6	5	11
10:15	3	4	7
10:30	4	1	5
10:45	2	2	4
11:00	4	2	6
11:15	2	0	2
11:30	1	0	1
11:45	2	0	2
Total	775	577	1352
Percent	57.3%	42.7%	
Peak	5:00	12:00 PM	12:00 PM
Volume	119	110	216
Peak Factor	0.676	0.887	0.915

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

New Hope Rd east of Can Ada Rd
 Start Date: 7/12/2022
 End Date: 7/13/2022
 New Hope Road east of Can Ada
 Road
 Star, Idaho

7/13/2022 Time	Westbound	Eastbound	Total
12:00 AM	3	0	3
12:15	0	1	1
12:30	1	1	2
12:45	0	1	1
1:00	1	0	1
1:15	2	2	4
1:30	0	0	0
1:45	0	0	0
2:00	0	0	0
2:15	0	1	1
2:30	0	0	0
2:45	0	0	0
3:00	0	0	0
3:15	0	1	1
3:30	0	0	0
3:45	1	0	1
4:00	0	0	0
4:15	0	2	2
4:30	1	0	1
4:45	0	1	1
5:00	2	1	3
5:15	1	4	5
5:30	0	3	3
5:45	1	2	3
6:00	2	5	7
6:15	2	6	8
6:30	3	14	17
6:45	5	14	19
7:00	4	22	26
7:15	4	16	20
7:30	5	22	27
7:45	12	16	28
8:00	6	11	17
8:15	11	18	29
8:30	13	15	28
8:45	10	14	24
9:00	6	12	18
9:15	8	16	24
9:30	6	18	24
9:45	8	11	19
10:00	17	18	35
10:15	14	16	30
10:30	16	16	32
10:45	14	10	24
11:00	14	10	24
11:15	24	17	41
11:30	14	22	36
11:45	16	12	28
Total	247	371	618
Percent	40.0%	60.0%	
Peak	10:30	7:00	11:00
Volume	68	76	129
Peak Factor	0.708	0.864	0.787

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

New Hope Rd east of Can Ada Rd
 Start Date: 7/12/2022
 End Date: 7/13/2022
 New Hope Road east of Can Ada
 Road
 Star, Idaho

7/13/2022 Time	Westbound	Eastbound	Total
12:00 PM	16	8	24
12:15	28	16	44
12:30	27	15	42
12:45	16	16	32
1:00	13	14	27
1:15	24	25	49
1:30	19	21	40
1:45	42	12	54
2:00	28	18	46
2:15	24	28	52
2:30	10	30	40
2:45	22	12	34
3:00	16	22	38
3:15	33	22	55
3:30	16	28	44
3:45	17	10	27
4:00	35	13	48
4:15	14	21	35
4:30	40	20	60
4:45	24	22	46
5:00	36	14	50
5:15	32	8	40
5:30	28	12	40
5:45	37	11	48
6:00	24	8	32
6:15	14	7	21
6:30	20	16	36
6:45	12	7	19
7:00	9	3	12
7:15	14	8	22
7:30	18	6	24
7:45	9	4	13
8:00	11	3	14
8:15	10	5	15
8:30	10	6	16
8:45	6	2	8
9:00	14	4	18
9:15	4	3	7
9:30	6	6	12
9:45	7	2	9
10:00	8	1	9
10:15	8	0	8
10:30	4	0	4
10:45	0	1	1
11:00	1	3	4
11:15	2	0	2
11:30	0	1	1
11:45	1	2	3
Total	809	516	1325
Percent	61.1%	38.9%	
Peak	5:00	2:15	4:30
Volume	133	92	196
Peak Factor	0.899	0.767	0.817
Grand Total	2223	2073	4296
Percent	51.7%	48.3%	
AADT		AADT: 2,148	AADT: 2,148

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Plummer Rd north of SH-44
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Plummer Road north of SH-44
 Star, Idaho

6/14/2022	Southbound	Northbound	Total
Time			
12:00 AM	1	3	4
12:15	1	1	2
12:30	1	0	1
12:45	0	2	2
1:00	2	1	3
1:15	2	0	2
1:30	0	1	1
1:45	0	1	1
2:00	2	2	4
2:15	0	2	2
2:30	0	1	1
2:45	0	0	0
3:00	0	0	0
3:15	1	1	2
3:30	1	2	3
3:45	1	0	1
4:00	1	0	1
4:15	9	3	12
4:30	4	0	4
4:45	5	0	5
5:00	10	2	12
5:15	20	1	21
5:30	15	1	16
5:45	15	5	20
6:00	24	3	27
6:15	23	6	29
6:30	36	9	45
6:45	36	14	50
7:00	46	13	59
7:15	46	22	68
7:30	35	18	53
7:45	48	26	74
8:00	54	20	74
8:15	56	16	72
8:30	66	19	85
8:45	54	29	83
9:00	59	40	99
9:15	48	26	74
9:30	46	32	78
9:45	58	24	82
10:00	40	26	66
10:15	56	38	94
10:30	48	37	85
10:45	55	22	77
11:00	52	42	94
11:15	62	48	110
11:30	76	37	113
11:45	57	46	103
Total	1272	642	1914
Percent	66.5%	33.5%	
Peak	11:00	11:00	11:00
Volume	247	173	420
Peak Factor	0.813	0.901	0.929

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Plummer Rd north of SH-44
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Plummer Road north of SH-44
 Star, Idaho

6/14/2022	Southbound	Northbound	Total
Time			
12:00 PM	50	51	101
12:15	45	46	91
12:30	50	42	92
12:45	48	40	88
1:00	52	45	97
1:15	50	50	100
1:30	51	46	97
1:45	62	42	104
2:00	46	70	116
2:15	52	54	106
2:30	53	52	105
2:45	29	39	68
3:00	38	50	88
3:15	40	62	102
3:30	38	50	88
3:45	46	38	84
4:00	51	52	103
4:15	53	62	115
4:30	46	53	99
4:45	44	68	112
5:00	38	61	99
5:15	42	38	80
5:30	43	50	93
5:45	44	64	108
6:00	51	64	115
6:15	40	56	96
6:30	38	52	90
6:45	30	52	82
7:00	32	37	69
7:15	24	36	60
7:30	23	36	59
7:45	14	48	62
8:00	12	28	40
8:15	22	24	46
8:30	13	31	44
8:45	18	20	38
9:00	9	28	37
9:15	6	22	28
9:30	8	19	27
9:45	7	15	22
10:00	8	29	37
10:15	8	20	28
10:30	11	13	24
10:45	5	7	12
11:00	3	7	10
11:15	3	6	9
11:30	0	7	7
11:45	2	2	4
Total	1498	1884	3382
Percent	44.3%	55.7%	
Peak	1:00	4:15	1:45
Volume	215	244	431
Peak Factor	0.867	0.897	0.929

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Plummer Rd north of SH-44
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Plummer Road north of SH-44
 Star, Idaho

6/15/2022	Southbound	Northbound	Total
Time			
12:00 AM	3	3	6
12:15	2	8	10
12:30	1	1	2
12:45	0	1	1
1:00	0	1	1
1:15	0	4	4
1:30	1	0	1
1:45	0	0	0
2:00	2	1	3
2:15	0	1	1
2:30	0	1	1
2:45	0	1	1
3:00	0	1	1
3:15	1	1	2
3:30	1	0	1
3:45	1	3	4
4:00	2	1	3
4:15	1	1	2
4:30	4	1	5
4:45	6	0	6
5:00	7	1	8
5:15	13	1	14
5:30	11	2	13
5:45	18	3	21
6:00	20	2	22
6:15	26	6	32
6:30	30	8	38
6:45	31	14	45
7:00	38	10	48
7:15	50	12	62
7:30	52	26	78
7:45	44	20	64
8:00	62	15	77
8:15	55	32	87
8:30	72	40	112
8:45	66	50	116
9:00	48	40	88
9:15	49	35	84
9:30	72	34	106
9:45	42	28	70
10:00	66	37	103
10:15	52	50	102
10:30	69	34	103
10:45	55	36	91
11:00	52	41	93
11:15	57	44	101
11:30	57	44	101
11:45	67	19	86
Total	1306	714	2020
Percent	64.7%	35.3%	
Peak	8:00	8:30	8:15
Volume	255	165	403
Peak Factor	0.885	0.825	0.869

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Plummer Rd north of SH-44
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Plummer Road north of SH-44
 Star, Idaho

6/15/2022	Southbound	Northbound	Total
Time			
12:00 PM	62	62	124
12:15	52	56	108
12:30	64	56	120
12:45	55	56	111
1:00	38	48	86
1:15	51	54	105
1:30	44	56	100
1:45	46	44	90
2:00	52	45	97
2:15	29	57	86
2:30	40	48	88
2:45	35	50	85
3:00	42	60	102
3:15	38	61	99
3:30	50	60	110
3:45	42	38	80
4:00	50	64	114
4:15	46	62	108
4:30	47	61	108
4:45	38	60	98
5:00	53	42	95
5:15	46	51	97
5:30	40	59	99
5:45	37	45	82
6:00	28	58	86
6:15	32	58	90
6:30	34	56	90
6:45	36	31	67
7:00	32	50	82
7:15	19	37	56
7:30	26	40	66
7:45	23	36	59
8:00	15	42	57
8:15	19	28	47
8:30	16	25	41
8:45	17	36	53
9:00	15	32	47
9:15	13	21	34
9:30	15	22	37
9:45	8	17	25
10:00	3	16	19
10:15	6	13	19
10:30	6	10	16
10:45	4	15	19
11:00	3	9	12
11:15	1	10	11
11:30	2	8	10
11:45	2	8	10
Total	1472	1973	3445
Percent	42.7%	57.3%	
Peak	12:00 PM	4:00	12:00 PM
Volume	233	247	463
Peak Factor	0.910	0.965	0.933
Grand Total	5548	5213	10761
Percent	51.6%	48.4%	
AADT	ADT: 5,380	ADT: 5,380	

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Radar Volume

Pollard Rd S of Beacon Light Rd
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Pollard Road south of Beacon Light Rd
 Star, Idaho

6/14/2022 Time	Southbound	Northbound	Total
12:00 AM	1	1	2
12:15	1	2	3
12:30	0	1	1
12:45	0	0	0
1:00	0	0	0
1:15	0	0	0
1:30	0	0	0
1:45	0	0	0
2:00	0	0	0
2:15	1	0	1
2:30	0	1	1
2:45	0	0	0
3:00	0	0	0
3:15	0	0	0
3:30	1	0	1
3:45	0	0	0
4:00	0	0	0
4:15	0	0	0
4:30	0	0	0
4:45	0	0	0
5:00	6	0	6
5:15	1	0	1
5:30	1	1	2
5:45	5	0	5
6:00	3	1	4
6:15	3	3	6
6:30	6	0	6
6:45	7	4	11
7:00	11	2	13
7:15	9	5	14
7:30	12	7	19
7:45	12	7	19
8:00	12	5	17
8:15	12	9	21
8:30	13	6	19
8:45	9	6	15
9:00	12	13	25
9:15	11	8	19
9:30	12	10	22
9:45	8	4	12
10:00	7	3	10
10:15	10	7	17
10:30	15	4	19
10:45	8	7	15
11:00	10	13	23
11:15	8	7	15
11:30	8	8	16
11:45	9	7	16
Total	244	152	396
Percent	61.6%	38.4%	
Peak	7:45	8:45	8:45
Volume	49	37	81
Peak Factor	0.942	0.712	0.810

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Radar Volume

Pollard Rd S of Beacon Light Rd
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Pollard Road south of Beacon Light
 Rd
 Star, Idaho

6/14/2022 Time	Southbound	Northbound	Total
12:00 PM	14	14	28
12:15	11	10	21
12:30	14	8	22
12:45	10	13	23
1:00	17	13	30
1:15	10	7	17
1:30	8	12	20
1:45	14	11	25
2:00	19	22	41
2:15	14	41	55
2:30	13	7	20
2:45	15	16	31
3:00	9	10	19
3:15	13	12	25
3:30	10	9	19
3:45	14	22	36
4:00	46	40	86
4:15	13	16	29
4:30	9	16	25
4:45	8	17	25
5:00	15	12	27
5:15	18	22	40
5:30	11	26	37
5:45	10	16	26
6:00	11	12	23
6:15	7	15	22
6:30	7	10	17
6:45	10	3	13
7:00	3	12	15
7:15	5	2	7
7:30	3	13	16
7:45	3	8	11
8:00	4	8	12
8:15	5	7	12
8:30	6	3	9
8:45	2	11	13
9:00	6	6	12
9:15	2	9	11
9:30	7	4	11
9:45	4	7	11
10:00	1	2	3
10:15	5	2	7
10:30	3	4	7
10:45	0	0	0
11:00	0	3	3
11:15	1	0	1
11:30	0	0	0
11:45	0	1	1
Total	430	534	964
Percent	44.6%	55.4%	
Peak	3:15	3:45	3:45
Volume	83	94	176
Peak Factor	0.451	0.588	0.512

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Radar Volume

Pollard Rd S of Beacon Light Rd
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Pollard Road south of Beacon Light Rd
 Star, Idaho

6/15/2022 Time	Southbound	Northbound	Total
12:00 AM	0	0	0
12:15	0	2	2
12:30	0	0	0
12:45	0	0	0
1:00	1	0	1
1:15	0	0	0
1:30	1	0	1
1:45	1	1	2
2:00	0	2	2
2:15	0	0	0
2:30	0	0	0
2:45	0	0	0
3:00	0	0	0
3:15	0	0	0
3:30	0	0	0
3:45	0	0	0
4:00	0	0	0
4:15	1	1	2
4:30	1	0	1
4:45	2	0	2
5:00	3	0	3
5:15	3	0	3
5:30	2	0	2
5:45	3	0	3
6:00	2	4	6
6:15	4	0	4
6:30	5	4	9
6:45	0	4	4
7:00	12	2	14
7:15	15	4	19
7:30	12	3	15
7:45	7	6	13
8:00	5	4	9
8:15	11	6	17
8:30	8	12	20
8:45	20	10	30
9:00	12	9	21
9:15	12	7	19
9:30	12	6	18
9:45	14	13	27
10:00	12	3	15
10:15	17	6	23
10:30	9	4	13
10:45	8	10	18
11:00	12	5	17
11:15	9	12	21
11:30	14	10	24
11:45	12	22	34
Total	262	172	434
Percent	60.4%	39.6%	
Peak	8:45	11:00	11:00
Volume	56	49	96
Peak Factor	0.700	0.557	0.706

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Radar Volume

Pollard Rd S of Beacon Light Rd
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Pollard Road south of Beacon Light
 Rd
 Star, Idaho

6/15/2022 Time	Southbound	Northbound	Total
12:00 PM	16	15	31
12:15	8	5	13
12:30	19	15	34
12:45	16	14	30
1:00	11	7	18
1:15	9	16	25
1:30	13	20	33
1:45	13	11	24
2:00	11	12	23
2:15	16	13	29
2:30	14	15	29
2:45	21	14	35
3:00	11	23	34
3:15	11	16	27
3:30	18	19	37
3:45	11	14	25
4:00	8	22	30
4:15	15	15	30
4:30	16	22	38
4:45	23	29	52
5:00	11	15	26
5:15	13	20	33
5:30	8	14	22
5:45	7	21	28
6:00	8	24	32
6:15	8	15	23
6:30	17	16	33
6:45	9	6	15
7:00	16	15	31
7:15	15	7	22
7:30	4	7	11
7:45	7	3	10
8:00	6	4	10
8:15	3	7	10
8:30	7	8	15
8:45	9	6	15
9:00	8	8	16
9:15	3	8	11
9:30	0	5	5
9:45	2	2	4
10:00	1	2	3
10:15	2	2	4
10:30	1	4	5
10:45	1	1	2
11:00	0	0	0
11:15	0	0	0
11:30	1	0	1
11:45	0	1	1
Total	447	538	985
Percent	45.4%	54.6%	
Peak	4:15	4:00	4:00
Volume	65	88	150
Peak Factor	0.707	0.759	0.721
Grand Total	1383	1396	2779
Percent	49.8%	50.2%	
AADT		AADT: 1,390	AADT: 1,390

L2 Data Collection

L2DataCollection.com

Study: KITT0277

Idaho (208) 860-7554 Utah (801) 413-2993

Purple Sage Rd W of Deep Canyon
Dr

Start Date: 6/28/2022

End Date: 6/29/2022

Type: Volume / Direction
Tech: Judd / Klaren / Macomb
Count: Axle Hits / 2

Purple Sage Road west of Deep
Canyon Drive
Star, Idaho

6/28/2022 Time	Westbound	Eastbound	Total
12:00 AM	2	0	2
12:15	0	1	1
12:30	0	0	0
12:45	0	0	0
1:00	2	0	2
1:15	0	0	0
1:30	0	0	0
1:45	0	0	0
2:00	0	0	0
2:15	1	0	1
2:30	0	1	1
2:45	0	0	0
3:00	0	0	0
3:15	0	1	1
3:30	0	0	0
3:45	0	1	1
4:00	0	0	0
4:15	0	0	0
4:30	0	6	6
4:45	0	3	3
5:00	1	3	4
5:15	1	6	7
5:30	1	4	5
5:45	0	4	4
6:00	4	8	12
6:15	3	5	8
6:30	2	16	18
6:45	3	11	14
7:00	1	9	10
7:15	5	19	24
7:30	3	17	20
7:45	11	22	33
8:00	4	20	24
8:15	8	15	23
8:30	8	22	30
8:45	9	16	25
9:00	14	14	28
9:15	10	17	27
9:30	5	13	18
9:45	3	16	19
10:00	6	12	18
10:15	8	15	23
10:30	10	10	20
10:45	5	12	17
11:00	7	10	17
11:15	4	13	17
11:30	5	7	12
11:45	12	10	22
Total	158	359	517
Percent	30.6%	69.4%	
Peak	8:30	7:45	7:45
Volume	41	79	110
Peak Factor	0.732	0.898	0.833

L2 Data Collection

L2DataCollection.com

Study: KITT0277

Idaho (208) 860-7554 Utah (801) 413-2993

Purple Sage Rd W of Deep Canyon
Dr

Type: Volume / Direction
Tech: Judd / Klaren / Maccomb
Count: Axle Hits / 2

Start Date: 6/28/2022
End Date: 6/29/2022
Purple Sage Road west of Deep
Canyon Drive
Star, Idaho

6/28/2022 Time	Westbound	Eastbound	Total
12:00 PM	13	9	22
12:15	15	4	19
12:30	12	8	20
12:45	8	24	32
1:00	15	11	26
1:15	4	12	16
1:30	17	7	24
1:45	9	6	15
2:00	9	6	15
2:15	11	6	17
2:30	14	16	30
2:45	16	6	22
3:00	15	13	28
3:15	6	11	17
3:30	18	10	28
3:45	16	10	26
4:00	16	15	31
4:15	15	15	30
4:30	16	12	28
4:45	14	7	21
5:00	18	16	34
5:15	19	16	35
5:30	24	14	38
5:45	15	10	25
6:00	20	13	33
6:15	15	11	26
6:30	9	8	17
6:45	17	5	22
7:00	10	4	14
7:15	8	4	12
7:30	11	8	19
7:45	9	6	15
8:00	13	7	20
8:15	9	6	15
8:30	6	2	8
8:45	3	3	6
9:00	12	4	16
9:15	6	6	12
9:30	11	6	17
9:45	6	2	8
10:00	4	2	6
10:15	3	0	3
10:30	0	2	2
10:45	3	3	6
11:00	1	3	4
11:15	2	7	9
11:30	2	2	4
11:45	1	1	2
Total	516	379	895
Percent	57.7%	42.3%	
Peak	5:15	5:00	5:00
Volume	78	56	132
Peak Factor	0.813	0.875	0.868

L2 Data Collection

L2DataCollection.com

Study: KITT0277

Idaho (208) 860-7554 Utah (801) 413-2993

Purple Sage Rd W of Deep Canyon
Dr

Type: Volume / Direction
Tech: Judd / Klaren / Macomb
Count: Axle Hits / 2

Start Date: 6/28/2022
End Date: 6/29/2022
Purple Sage Road west of Deep
Canyon Drive
Star, Idaho

6/29/2022 Time	Westbound	Eastbound	Total
12:00 AM	0	1	1
12:15	3	2	5
12:30	1	0	1
12:45	1	0	1
1:00	0	0	0
1:15	0	1	1
1:30	0	0	0
1:45	1	0	1
2:00	0	0	0
2:15	0	0	0
2:30	0	0	0
2:45	1	0	1
3:00	0	1	1
3:15	0	0	0
3:30	0	0	0
3:45	0	0	0
4:00	0	0	0
4:15	0	2	2
4:30	0	2	2
4:45	0	5	5
5:00	1	3	4
5:15	0	3	3
5:30	0	4	4
5:45	1	4	5
6:00	7	3	10
6:15	0	5	5
6:30	2	12	14
6:45	2	12	14
7:00	2	9	11
7:15	2	28	30
7:30	4	18	22
7:45	5	22	27
8:00	5	32	37
8:15	12	16	28
8:30	8	20	28
8:45	8	7	15
9:00	10	20	30
9:15	5	15	20
9:30	4	15	19
9:45	8	16	24
10:00	10	6	16
10:15	10	12	22
10:30	7	8	15
10:45	11	13	24
11:00	12	14	26
11:15	5	12	17
11:30	9	10	19
11:45	11	9	20
Total	168	362	530
Percent	31.7%	68.3%	
Peak	10:15	7:15	7:45
Volume	40	100	120
Peak Factor	0.833	0.781	0.811

L2 Data Collection

L2DataCollection.com

Study: KITT0277

Idaho (208) 860-7554 Utah (801) 413-2993

Purple Sage Rd W of Deep Canyon
Dr

Type: Volume / Direction
Tech: Judd / Klaren / Macomb
Count: Axle Hits / 2

Start Date: 6/28/2022
End Date: 6/29/2022
Purple Sage Road west of Deep
Canyon Drive
Star, Idaho

6/29/2022 Time	Westbound	Eastbound	Total
12:00 PM	10	7	17
12:15	16	12	28
12:30	6	6	12
12:45	7	8	15
1:00	10	8	18
1:15	10	10	20
1:30	13	9	22
1:45	12	13	25
2:00	16	12	28
2:15	8	8	16
2:30	4	11	15
2:45	20	10	30
3:00	11	6	17
3:15	11	6	17
3:30	22	15	37
3:45	18	12	30
4:00	17	12	29
4:15	17	9	26
4:30	20	10	30
4:45	21	12	33
5:00	15	10	25
5:15	23	15	38
5:30	14	16	30
5:45	19	6	25
6:00	24	8	32
6:15	23	14	37
6:30	10	10	20
6:45	17	6	23
7:00	14	6	20
7:15	18	9	27
7:30	6	10	16
7:45	6	5	11
8:00	13	2	15
8:15	4	8	12
8:30	6	4	10
8:45	3	1	4
9:00	4	1	5
9:15	4	5	9
9:30	7	5	12
9:45	6	5	11
10:00	6	4	10
10:15	0	4	4
10:30	5	6	11
10:45	1	3	4
11:00	6	4	10
11:15	1	0	1
11:30	3	1	4
11:45	0	0	0
Total	527	364	891
Percent	59.1%	40.9%	
Peak	5:15	4:45	4:30
Volume	80	53	126
Peak Factor	0.833	0.828	0.829
Grand Total	1369	1464	2833
Percent	48.3%	51.7%	
AADT	ADT: 1,416	ADT: 1,416	AADT: 1,416

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Star Rd N of SH-44
 Start Date: 6/13/2022
 End Date: 6/15/2022
 Star Road north of SH-44
 Star, Idaho

6/13/2022	Southbound	Northbound	Total
Time			
12:00 AM	*	*	0
12:15	*	*	0
12:30	*	*	0
12:45	*	*	0
1:00	*	*	0
1:15	*	*	0
1:30	*	*	0
1:45	*	*	0
2:00	*	*	0
2:15	*	*	0
2:30	*	*	0
2:45	*	*	0
3:00	*	*	0
3:15	*	*	0
3:30	*	*	0
3:45	*	*	0
4:00	*	*	0
4:15	*	*	0
4:30	*	*	0
4:45	*	*	0
5:00	*	*	0
5:15	*	*	0
5:30	*	*	0
5:45	*	*	0
6:00	*	*	0
6:15	*	*	0
6:30	*	*	0
6:45	*	*	0
7:00	*	*	0
7:15	*	*	0
7:30	*	*	0
7:45	*	*	0
8:00	*	*	0
8:15	*	*	0
8:30	*	*	0
8:45	*	*	0
9:00	*	*	0
9:15	*	*	0
9:30	*	*	0
9:45	*	*	0
10:00	*	*	0
10:15	*	*	0
10:30	*	*	0
10:45	*	*	0
11:00	*	*	0
11:15	*	*	0
11:30	*	*	0
11:45	*	*	0
Total	0	0	0
Percent	-	-	
Peak			
Volume			
Peak Factor			

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Star Rd N of SH-44
 Start Date: 6/13/2022
 End Date: 6/15/2022
 Star Road north of SH-44
 Star, Idaho

6/13/2022	Southbound	Northbound	Total
Time			
12:00 PM	*	*	0
12:15	*	*	0
12:30	*	*	0
12:45	*	*	0
1:00	*	*	0
1:15	*	*	0
1:30	*	*	0
1:45	*	*	0
2:00	*	*	0
2:15	*	*	0
2:30	*	*	0
2:45	*	*	0
3:00	*	*	0
3:15	*	*	0
3:30	*	*	0
3:45	*	*	0
4:00	*	*	0
4:15	*	*	0
4:30	*	*	0
4:45	*	*	0
5:00	*	*	0
5:15	*	*	0
5:30	*	*	0
5:45	*	*	0
6:00	*	*	0
6:15	*	*	0
6:30	*	*	0
6:45	*	*	0
7:00	*	*	0
7:15	*	*	0
7:30	*	*	0
7:45	*	*	0
8:00	*	*	0
8:15	*	*	0
8:30	*	*	0
8:45	*	*	0
9:00	*	*	0
9:15	*	*	0
9:30	*	*	0
9:45	*	*	0
10:00	*	*	0
10:15	*	*	0
10:30	*	*	0
10:45	*	*	0
11:00	5	20	25
11:15	9	9	18
11:30	12	8	20
11:45	3	10	13
Total	29	47	76
Percent	38.2%	61.8%	
Peak	11:00	11:00	11:00
Volume	29	47	76
Peak Factor	0.604	0.588	0.760

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Star Rd N of SH-44
 Start Date: 6/13/2022
 End Date: 6/15/2022
 Star Road north of SH-44
 Star, Idaho

6/14/2022	Southbound	Northbound	Total
Time			
12:00 AM	6	6	12
12:15	4	4	8
12:30	3	4	7
12:45	4	7	11
1:00	6	2	8
1:15	0	1	1
1:30	0	3	3
1:45	3	2	5
2:00	2	1	3
2:15	2	8	10
2:30	4	3	7
2:45	2	3	5
3:00	4	1	5
3:15	4	2	6
3:30	4	2	6
3:45	4	1	5
4:00	5	0	5
4:15	5	1	6
4:30	17	0	17
4:45	13	4	17
5:00	19	4	23
5:15	24	8	32
5:30	36	13	49
5:45	30	15	45
6:00	38	10	48
6:15	46	23	69
6:30	67	21	88
6:45	70	30	100
7:00	88	42	130
7:15	67	40	107
7:30	102	32	134
7:45	86	46	132
8:00	77	65	142
8:15	84	50	134
8:30	94	55	149
8:45	101	64	165
9:00	102	70	172
9:15	86	54	140
9:30	103	56	159
9:45	78	62	140
10:00	90	71	161
10:15	80	54	134
10:30	72	68	140
10:45	92	66	158
11:00	106	68	174
11:15	79	76	155
11:30	100	70	170
11:45	96	90	186
Total	2205	1378	3583
Percent	61.5%	38.5%	
Peak	8:45	11:00	11:00
Volume	392	304	685
Peak Factor	0.951	0.844	0.921

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Star Rd N of SH-44
 Start Date: 6/13/2022
 End Date: 6/15/2022
 Star Road north of SH-44
 Star, Idaho

6/14/2022	Southbound	Northbound	Total
Time			
12:00 PM	90	70	160
12:15	94	98	192
12:30	98	96	194
12:45	98	88	186
1:00	88	86	174
1:15	88	92	180
1:30	104	70	174
1:45	92	80	172
2:00	68	84	152
2:15	86	104	190
2:30	80	94	174
2:45	99	64	163
3:00	80	88	168
3:15	74	84	158
3:30	88	86	174
3:45	88	116	204
4:00	102	113	215
4:15	80	78	158
4:30	85	106	191
4:45	73	80	153
5:00	82	82	164
5:15	93	110	203
5:30	98	81	179
5:45	76	88	164
6:00	72	88	160
6:15	81	104	185
6:30	62	94	156
6:45	60	68	128
7:00	45	50	95
7:15	50	58	108
7:30	50	54	104
7:45	50	51	101
8:00	30	53	83
8:15	41	50	91
8:30	23	41	64
8:45	35	45	80
9:00	18	54	72
9:15	27	48	75
9:30	28	41	69
9:45	26	42	68
10:00	15	23	38
10:15	19	26	45
10:30	7	24	31
10:45	10	22	32
11:00	12	16	28
11:15	6	9	15
11:30	4	10	14
11:45	4	11	15
Total	2879	3220	6099
Percent	47.2%	52.8%	
Peak	12:00 PM	3:45	3:45
Volume	380	413	768
Peak Factor	0.969	0.890	0.893

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Star Rd N of SH-44
 Start Date: 6/13/2022
 End Date: 6/15/2022
 Star Road north of SH-44
 Star, Idaho

6/15/2022	Southbound	Northbound	Total
Time			
12:00 AM	6	9	15
12:15	4	6	10
12:30	5	7	12
12:45	3	7	10
1:00	2	6	8
1:15	2	4	6
1:30	1	4	5
1:45	0	0	0
2:00	2	3	5
2:15	1	1	2
2:30	1	1	2
2:45	1	2	3
3:00	3	1	4
3:15	0	1	1
3:30	5	2	7
3:45	4	2	6
4:00	3	2	5
4:15	10	2	12
4:30	22	1	23
4:45	10	6	16
5:00	13	4	17
5:15	31	3	34
5:30	24	6	30
5:45	38	10	48
6:00	33	8	41
6:15	44	35	79
6:30	74	20	94
6:45	68	40	108
7:00	82	43	125
7:15	76	56	132
7:30	82	50	132
7:45	98	55	153
8:00	92	44	136
8:15	102	46	148
8:30	98	64	162
8:45	111	63	174
9:00	82	64	146
9:15	93	67	160
9:30	87	54	141
9:45	106	72	178
10:00	85	69	154
10:15	88	76	164
10:30	96	76	172
10:45	86	70	156
11:00	78	86	164
11:15	91	79	170
11:30	92	72	164
11:45	102	102	204
Total	2237	1501	3738
Percent	59.8%	40.2%	
Peak	8:00	11:00	11:00
Volume	403	339	702
Peak Factor	0.908	0.831	0.860

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Star Rd N of SH-44
 Start Date: 6/13/2022
 End Date: 6/15/2022
 Star Road north of SH-44
 Star, Idaho

6/15/2022	Southbound	Northbound	Total
Time			
12:00 PM	111	70	181
12:15	104	94	198
12:30	94	94	188
12:45	109	111	220
1:00	94	98	192
1:15	88	94	182
1:30	93	94	187
1:45	105	86	191
2:00	98	91	189
2:15	78	85	163
2:30	108	98	206
2:45	95	86	181
3:00	92	104	196
3:15	90	78	168
3:30	94	96	190
3:45	108	111	219
4:00	104	100	204
4:15	100	85	185
4:30	96	110	206
4:45	103	123	226
5:00	100	114	214
5:15	94	112	206
5:30	90	90	180
5:45	90	84	174
6:00	90	86	176
6:15	111	95	206
6:30	68	64	132
6:45	72	89	161
7:00	58	83	141
7:15	48	62	110
7:30	50	58	108
7:45	40	72	112
8:00	48	56	104
8:15	40	58	98
8:30	28	46	74
8:45	46	47	93
9:00	32	53	85
9:15	26	63	89
9:30	29	31	60
9:45	22	44	66
10:00	19	27	46
10:15	11	26	37
10:30	16	24	40
10:45	10	26	36
11:00	*	*	0
11:15	*	*	0
11:30	*	*	0
11:45	*	*	0
Total	3202	3418	6620
Percent	48.4%	51.6%	
Peak	12:00 PM	4:30	4:30
Volume	418	459	852
Peak Factor	0.941	0.933	0.942
Grand Total	10552	9564	20116
Percent	52.5%	47.5%	
AADT	ADT: 9,682	ADT: 9,682	

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Star Rd S of SH-44
 Start Date: 6/13/2022
 End Date: 6/15/2022
 Star Road south of SH-44
 Star, Idaho

6/13/2022	Southbound	Northbound	Total
Time			
12:00 AM	*	*	0
12:15	*	*	0
12:30	*	*	0
12:45	*	*	0
1:00	*	*	0
1:15	*	*	0
1:30	*	*	0
1:45	*	*	0
2:00	*	*	0
2:15	*	*	0
2:30	*	*	0
2:45	*	*	0
3:00	*	*	0
3:15	*	*	0
3:30	*	*	0
3:45	*	*	0
4:00	*	*	0
4:15	*	*	0
4:30	*	*	0
4:45	*	*	0
5:00	*	*	0
5:15	*	*	0
5:30	*	*	0
5:45	*	*	0
6:00	*	*	0
6:15	*	*	0
6:30	*	*	0
6:45	*	*	0
7:00	*	*	0
7:15	*	*	0
7:30	*	*	0
7:45	*	*	0
8:00	*	*	0
8:15	*	*	0
8:30	*	*	0
8:45	*	*	0
9:00	*	*	0
9:15	*	*	0
9:30	*	*	0
9:45	*	*	0
10:00	*	*	0
10:15	*	*	0
10:30	*	*	0
10:45	*	*	0
11:00	*	*	0
11:15	*	*	0
11:30	*	*	0
11:45	*	*	0
Total	0	0	0
Percent	-	-	
Peak			
Volume			
Peak Factor			

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Star Rd S of SH-44
 Start Date: 6/13/2022
 End Date: 6/15/2022
 Star Road south of SH-44
 Star, Idaho

6/13/2022	Southbound	Northbound	Total
Time			
12:00 PM	*	*	0
12:15	*	*	0
12:30	*	*	0
12:45	*	*	0
1:00	*	*	0
1:15	*	*	0
1:30	*	*	0
1:45	*	*	0
2:00	*	*	0
2:15	*	*	0
2:30	*	*	0
2:45	*	*	0
3:00	*	*	0
3:15	*	*	0
3:30	*	*	0
3:45	*	*	0
4:00	*	*	0
4:15	*	*	0
4:30	*	*	0
4:45	*	*	0
5:00	*	*	0
5:15	*	*	0
5:30	*	*	0
5:45	*	*	0
6:00	*	*	0
6:15	*	*	0
6:30	*	*	0
6:45	*	*	0
7:00	*	*	0
7:15	*	*	0
7:30	*	*	0
7:45	*	*	0
8:00	*	*	0
8:15	*	*	0
8:30	*	*	0
8:45	*	*	0
9:00	*	*	0
9:15	*	*	0
9:30	*	*	0
9:45	*	*	0
10:00	*	*	0
10:15	*	*	0
10:30	*	*	0
10:45	*	*	0
11:00	14	16	30
11:15	7	13	20
11:30	10	10	20
11:45	1	6	7
<hr/>			
Total	32	45	77
Percent	41.6%	58.4%	
<hr/>			
Peak	11:00	11:00	11:00
Volume	32	45	77
Peak Factor	0.571	0.703	0.642

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Star Rd S of SH-44
 Start Date: 6/13/2022
 End Date: 6/15/2022
 Star Road south of SH-44
 Star, Idaho

6/14/2022	Southbound	Northbound	Total
Time			
12:00 AM	14	9	23
12:15	3	10	13
12:30	2	9	11
12:45	7	6	13
1:00	5	3	8
1:15	2	4	6
1:30	4	8	12
1:45	5	4	9
2:00	5	3	8
2:15	4	8	12
2:30	0	4	4
2:45	0	2	2
3:00	8	2	10
3:15	3	2	5
3:30	8	4	12
3:45	9	2	11
4:00	11	2	13
4:15	9	4	13
4:30	24	3	27
4:45	23	9	32
5:00	25	8	33
5:15	38	10	48
5:30	47	18	65
5:45	50	28	78
6:00	54	34	88
6:15	88	33	121
6:30	88	52	140
6:45	106	83	189
7:00	116	76	192
7:15	108	68	176
7:30	128	96	224
7:45	106	89	195
8:00	96	92	188
8:15	109	98	207
8:30	130	78	208
8:45	128	106	234
9:00	130	70	200
9:15	93	70	163
9:30	109	99	208
9:45	102	98	200
10:00	102	90	192
10:15	99	85	184
10:30	119	88	207
10:45	117	116	233
11:00	122	96	218
11:15	104	114	218
11:30	95	106	201
11:45	115	95	210
Total	2870	2194	5064
Percent	56.7%	43.3%	
Peak	8:15	10:45	10:30
Volume	497	432	876
Peak Factor	0.956	0.931	0.940

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Star Rd S of SH-44
 Start Date: 6/13/2022
 End Date: 6/15/2022
 Star Road south of SH-44
 Star, Idaho

6/14/2022	Southbound	Northbound	Total
Time			
12:00 PM	130	96	226
12:15	87	114	201
12:30	110	111	221
12:45	134	102	236
1:00	118	128	246
1:15	94	112	206
1:30	109	98	207
1:45	98	106	204
2:00	95	108	203
2:15	126	112	238
2:30	102	118	220
2:45	102	95	197
3:00	118	122	240
3:15	106	115	221
3:30	110	104	214
3:45	139	139	278
4:00	137	128	265
4:15	133	112	245
4:30	130	143	273
4:45	104	122	226
5:00	97	136	233
5:15	122	130	252
5:30	120	146	266
5:45	122	137	259
6:00	90	152	242
6:15	130	126	256
6:30	86	94	180
6:45	75	102	177
7:00	68	72	140
7:15	70	68	138
7:30	56	72	128
7:45	54	66	120
8:00	40	36	76
8:15	34	56	90
8:30	35	59	94
8:45	26	58	84
9:00	36	64	100
9:15	33	55	88
9:30	22	38	60
9:45	20	42	62
10:00	26	24	50
10:15	28	31	59
10:30	16	28	44
10:45	16	24	40
11:00	13	17	30
11:15	11	18	29
11:30	13	12	25
11:45	1	18	19
Total	3742	4166	7908
Percent	47.3%	52.7%	
Peak	3:45	5:15	3:45
Volume	539	565	1061
Peak Factor	0.969	0.929	0.954

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Star Rd S of SH-44
 Start Date: 6/13/2022
 End Date: 6/15/2022
 Star Road south of SH-44
 Star, Idaho

6/15/2022	Southbound	Northbound	Total
Time			
12:00 AM	7	4	11
12:15	7	7	14
12:30	3	8	11
12:45	1	7	8
1:00	2	5	7
1:15	6	6	12
1:30	2	3	5
1:45	5	3	8
2:00	1	1	2
2:15	1	1	2
2:30	6	4	10
2:45	3	4	7
3:00	5	2	7
3:15	3	2	5
3:30	13	4	17
3:45	8	1	9
4:00	7	2	9
4:15	9	5	14
4:30	28	4	32
4:45	15	6	21
5:00	23	12	35
5:15	38	8	46
5:30	40	8	48
5:45	51	32	83
6:00	58	26	84
6:15	90	56	146
6:30	118	77	195
6:45	112	79	191
7:00	114	85	199
7:15	132	85	217
7:30	122	83	205
7:45	106	101	207
8:00	124	82	206
8:15	114	72	186
8:30	128	121	249
8:45	122	86	208
9:00	100	127	227
9:15	123	92	215
9:30	123	85	208
9:45	98	79	177
10:00	102	110	212
10:15	119	94	213
10:30	129	102	231
10:45	104	114	218
11:00	116	102	218
11:15	107	122	229
11:30	104	86	190
11:45	122	130	252
Total	2971	2335	5306
Percent	56.0%	44.0%	
Peak	8:00	10:30	8:30
Volume	488	440	899
Peak Factor	0.953	0.902	0.903

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Axle Hits / 2

Star Rd S of SH-44
 Start Date: 6/13/2022
 End Date: 6/15/2022
 Star Road south of SH-44
 Star, Idaho

6/15/2022	Southbound	Northbound	Total
Time			
12:00 PM	106	112	218
12:15	114	115	229
12:30	123	134	257
12:45	118	102	220
1:00	112	96	208
1:15	124	140	264
1:30	98	122	220
1:45	107	112	219
2:00	118	130	248
2:15	122	122	244
2:30	118	136	254
2:45	124	132	256
3:00	142	102	244
3:15	228	0	228
3:30	133	150	283
3:45	116	138	254
4:00	137	136	273
4:15	132	112	244
4:30	141	132	273
4:45	136	152	288
5:00	126	126	252
5:15	160	108	268
5:30	118	110	228
5:45	118	112	230
6:00	114	134	248
6:15	117	127	244
6:30	86	89	175
6:45	88	88	176
7:00	66	86	152
7:15	67	67	134
7:30	76	60	136
7:45	48	70	118
8:00	48	62	110
8:15	56	74	130
8:30	42	64	106
8:45	43	58	101
9:00	31	66	97
9:15	36	52	88
9:30	35	38	73
9:45	32	48	80
10:00	41	32	73
10:15	18	23	41
10:30	17	31	48
10:45	15	26	41
11:00	*	*	0
11:15	*	*	0
11:30	*	*	0
11:45	*	*	0
Total	4147	4126	8273
Percent	50.1%	49.9%	
Peak	2:45	3:30	4:30
Volume	627	536	1081
Peak Factor	0.688	0.893	0.938
Grand Total	13762	12866	26628
Percent	51.7%	48.3%	
AA DT		ADT: 12,972	AA DT: 12,972

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Radar Volume

Wing Rd N of Beacon Light Rd
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Wing Road south of Beacon Light
 Road
 Star, Idaho

6/14/2022 Time	Southbound	Northbound	Total
12:00 AM	2	0	2
12:15	0	0	0
12:30	0	0	0
12:45	0	0	0
1:00	1	0	1
1:15	0	0	0
1:30	1	0	1
1:45	0	0	0
2:00	0	0	0
2:15	0	0	0
2:30	0	0	0
2:45	0	0	0
3:00	0	0	0
3:15	0	0	0
3:30	0	0	0
3:45	0	0	0
4:00	0	0	0
4:15	0	1	1
4:30	0	0	0
4:45	0	1	1
5:00	0	1	1
5:15	2	1	3
5:30	0	4	4
5:45	3	1	4
6:00	1	2	3
6:15	2	8	10
6:30	3	8	11
6:45	4	13	17
7:00	4	2	6
7:15	6	11	17
7:30	6	11	17
7:45	5	2	7
8:00	4	7	11
8:15	6	4	10
8:30	4	13	17
8:45	3	8	11
9:00	10	11	21
9:15	1	6	7
9:30	3	11	14
9:45	8	13	21
10:00	4	4	8
10:15	9	7	16
10:30	10	11	21
10:45	6	6	12
11:00	11	8	19
11:15	5	5	10
11:30	9	10	19
11:45	12	6	18
Total	145	196	341
Percent	42.5%	57.5%	
Peak	11:00	9:00	10:15
Volume	37	41	68
Peak Factor	0.771	0.788	0.810

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Radar Volume

Wing Rd N of Beacon Light Rd
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Wing Road south of Beacon Light
 Road
 Star, Idaho

6/14/2022 Time	Southbound	Northbound	Total
12:00 PM	9	12	21
12:15	8	13	21
12:30	10	13	23
12:45	8	8	16
1:00	7	11	18
1:15	6	12	18
1:30	14	6	20
1:45	11	14	25
2:00	9	11	20
2:15	9	12	21
2:30	8	11	19
2:45	9	8	17
3:00	13	10	23
3:15	11	8	19
3:30	6	9	15
3:45	9	32	41
4:00	9	38	47
4:15	4	8	12
4:30	12	7	19
4:45	13	11	24
5:00	15	9	24
5:15	15	6	21
5:30	8	8	16
5:45	12	7	19
6:00	2	8	10
6:15	13	9	22
6:30	7	4	11
6:45	5	3	8
7:00	6	2	8
7:15	9	5	14
7:30	5	12	17
7:45	8	3	11
8:00	6	1	7
8:15	12	3	15
8:30	4	2	6
8:45	3	4	7
9:00	5	2	7
9:15	8	5	13
9:30	5	2	7
9:45	5	1	6
10:00	3	0	3
10:15	1	4	5
10:30	1	0	1
10:45	2	1	3
11:00	1	1	2
11:15	0	1	1
11:30	1	1	2
11:45	2	0	2
Total	349	358	707
Percent	49.4%	50.6%	
Peak	4:30	3:15	3:15
Volume	55	87	122
Peak Factor	0.917	0.572	0.649

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Radar Volume

Wing Rd N of Beacon Light Rd
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Wing Road south of Beacon Light
 Road
 Star, Idaho

6/15/2022 Time	Southbound	Northbound	Total
12:00 AM	1	0	1
12:15	2	1	3
12:30	3	0	3
12:45	0	0	0
1:00	1	0	1
1:15	0	0	0
1:30	1	0	1
1:45	1	1	2
2:00	0	0	0
2:15	0	0	0
2:30	0	0	0
2:45	0	0	0
3:00	0	0	0
3:15	0	0	0
3:30	0	0	0
3:45	0	0	0
4:00	0	0	0
4:15	0	0	0
4:30	0	0	0
4:45	1	0	1
5:00	0	0	0
5:15	1	6	7
5:30	0	3	3
5:45	1	1	2
6:00	0	4	4
6:15	3	10	13
6:30	3	9	12
6:45	4	4	8
7:00	6	8	14
7:15	8	16	24
7:30	3	5	8
7:45	3	3	6
8:00	6	3	9
8:15	4	7	11
8:30	5	11	16
8:45	4	10	14
9:00	5	7	12
9:15	3	11	14
9:30	8	6	14
9:45	11	5	16
10:00	3	5	8
10:15	11	13	24
10:30	11	13	24
10:45	7	12	19
11:00	4	7	11
11:15	12	11	23
11:30	8	7	15
11:45	7	18	25
Total	151	217	368
Percent	41.0%	59.0%	
Peak	9:45	10:15	10:15
Volume	36	45	78
Peak Factor	0.818	0.865	0.813

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: KITT0277
 Type: Volume / Direction
 Tech: Judd / Klaren / Macomb
 Count: Radar Volume

Wing Rd N of Beacon Light Rd
 Start Date: 6/14/2022
 End Date: 6/15/2022
 Wing Road south of Beacon Light
 Road
 Star, Idaho

6/15/2022 Time	Southbound	Northbound	Total
12:00 PM	4	7	11
12:15	8	9	17
12:30	7	5	12
12:45	17	8	25
1:00	11	10	21
1:15	6	10	16
1:30	11	8	19
1:45	11	7	18
2:00	5	1	6
2:15	12	9	21
2:30	7	8	15
2:45	6	8	14
3:00	10	8	18
3:15	9	14	23
3:30	8	7	15
3:45	6	8	14
4:00	7	6	13
4:15	11	5	16
4:30	5	11	16
4:45	8	9	17
5:00	14	10	24
5:15	14	4	18
5:30	10	3	13
5:45	13	10	23
6:00	7	17	24
6:15	12	8	20
6:30	11	11	22
6:45	5	3	8
7:00	6	6	12
7:15	5	4	9
7:30	5	4	9
7:45	7	6	13
8:00	12	1	13
8:15	6	5	11
8:30	4	3	7
8:45	2	1	3
9:00	5	3	8
9:15	6	1	7
9:30	10	2	12
9:45	4	0	4
10:00	4	1	5
10:15	4	3	7
10:30	3	0	3
10:45	4	0	4
11:00	0	0	0
11:15	0	1	1
11:30	5	2	7
11:45	2	0	2
Total	349	267	616
Percent	56.7%	43.3%	
Peak	5:00	5:45	5:45
Volume	51	46	89
Peak Factor	0.911	0.676	0.927
Grand Total	994	1038	2032
Percent	48.9%	51.1%	
AADT		AADT: 1,016	AADT: 1,016



Appendix G Crash Data

Beacon Light Road - SH 16 to Palmer Lane																
Accident #	Vehicle Type	Driver Action	Unit Travel Direction	Most Harmful Event	Contributing Circumstance 1	Contributing Circumstance 2	Contributing Circumstance 3	Road Condition	Weather	Surface	Light	Fatalities	Injuries	Serial Number	AccidentDate	Severity
1	Car	Going Straight	E	Overturn	Alcohol Impaired	Overcorrected	Failed to Maintain Lane	None	Clear	Dry	Dark, No Street Lights	0	4	20C549941	5/1/2020	A Injury Accident
2	Car	Going Straight	E	Animal - Wild	Animal(s) in Roadway	None	None	None	Clear	Dry	Day	0	0	18C499471	10/3/2018	Property Dmg Report

Can Ada Road / New Hope Road																		
Accident #	Street1	Street2	Accident Date	Serial #	Light	Weather	Wet/Dry	Units	Fatalities	Injuries	Severity	Unit Type	Action	Injury	Citation	Event	Contrib Circ	Number Of Injuries
1	New Hope Rd	Can Ada Rd	11/7/2020 16:41	20C558589	Day	Rain	Wet	1	0	0	Property Dmg Report	Car	Going Straight	No Apparent Injury	DRIVING A A Reckless	Traffic Sign Support	Drug Impaired	0

Can Ada Road / SH 44

Accident #	Street1	Street2	Accident Date	Serial #	Light	Weather	Wet/Dry	Units	Fatalities	Injuries	Severity	Direction	Unit Type	Action	Injury	Citation	Unit #	Person	Event	Contrib Circ	Number Of Injuries
1	Can Ada Rd	SH 44	12/21/2021 20:13	21C592192	Dark, Street Lights On	Fog	Dry	1	0	0	Property Dmg Report	S	Car	Going Straight	No Apparent Injury	Not Cited	1	1	Immersion	Failed to Obey Stop Sign	0
2	Can Ada Rd	SH 44	7/29/2021 13:06	21C578905	Day	Clear	Dry	2	0	0	Property Dmg Report	S	SUV/Crossover	Turning Right	No Apparent Injury	DRIVING A A Inattentive or careless	1	3	Same Direction Turning	Improper Lane Change	0
	Can Ada Rd	SH 44	7/29/2021 13:06	21C578905	Day	Clear	Dry	2	0	0	Property Dmg Report	S	Truck - 3+ Axle	Turning Left	No Apparent Injury		2	3	Same Direction Turning	Improper Overtaking	0
3	SH 44	Can Ada Rd	11/6/2018 14:44	18C501700	Day	Cloudy	Dry	2	0	1	C Injury Accident	S	Car	Turning Left	No Apparent Injury	DRIVING A A Stop for stop sign	1	3	Angle Turning	Failed to Yield	1
	SH 44	Can Ada Rd	11/6/2018 14:44	18C501700	Day	Cloudy	Dry	2	0	1	C Injury Accident	W	Motorcycle	Going Straight	Possible Injury	Not Cited	2	3	Angle Turning		1
4	Can Ada Rd	SH 44	9/13/2018 17:34	18C500261	Day	Clear	Dry	2	0	0	Property Dmg Report	S	Pickup	Turning Left	No Apparent Injury	DRIVING A A Following too close	1	2	Rear-End Turning	Following Too Close	0
	Can Ada Rd	SH 44	9/13/2018 17:34	18C500261	Day	Clear	Dry	2	0	0	Property Dmg Report	S	SUV/Crossover	Turning Right	No Apparent Injury	Not Cited	2	2	Rear-End Turning		0
5	SH 44	Can Ada Rd	4/22/2018 17:59	18C486066	Day	Clear	Dry	2	0	2	B Injury Accident	E	Pickup	Going Straight	Suspected Minor Injury	DRIVING A A Following too close	1	2	Rear-End	Inattention	2
	SH 44	Can Ada Rd	4/22/2018 17:59	18C486066	Day	Clear	Dry	2	0	2	B Injury Accident	E	Pickup	Slowing in Traffic	Suspected Minor Injury		2	2	Rear-End		2
6	SH 44	Can Ada Rd	3/31/2018 16:18	18C484133	Day	Clear	Dry	2	0	0	Property Dmg Report	S	Car	Turning Left	No Apparent Injury	DRIVING A A Stop for stop sign	1	3	Rear-End	Failed to Yield	0
	SH 44	Can Ada Rd	3/31/2018 16:18	18C484133	Day	Clear	Dry	2	0	0	Property Dmg Report	E	Pickup	Going Straight	No Apparent Injury	Not Cited	2	3	Rear-End		0
7	SH 44	Can Ada Rd	7/9/2017 1:10	17C461130	Dark, Street Lights On	Clear	Wet	2	0	2	C Injury Accident	S	Car	Turning Left	Possible Injury	DRIVING A A Stop for stop sign	1	2	Angle	Inattention	2
	SH 44	Can Ada Rd	7/9/2017 1:10	17C461130	Dark, Street Lights On	Clear	Wet	2	0	2	C Injury Accident	W	Pickup	Going Straight	Possible Injury	Not Cited	2	2	Angle		2

Can Ada Road - New Hope Road to Lanktree Gulch Road																
Accident #	Vehicle Type	Driver Action	Unit Travel Direction	Most Harmful Event	Contributing Circumstance 1	Contributing Circumstance 2	Contributing Circumstance 3	Road Condition	Weather	Surface	Light	Fatalities	Injuries	Serial Number	AccidentDate	Severity
1	Car	Negotiating Curve	S	Tree	Alcohol Impaired	Speed Too Fast For Conditions	Failed to Maintain Lane	None	Clear	Dry	Dark, Street Lights On	0	1	20C560611	11/19/2020	C Injury Accident

Can Ada Road - SH 44 to New Hope Road															
Accident #	Vehicle Type	Driver Action	Unit Travel Direction	Most Harmful Event	Contributing Circumstance 1	Contributing Circumstance 2	Contributing Circumstance 3	Weather	Surface	Light	Fatalities	Injuries	Serial Number	AccidentDate	Severity
1	Car	Going Straight	N	Same Direction Turning	improper Overtaking	None	None	Cloudy	Dry	Day	0	0	17C463868	8/7/2017	Property Dmg Report
	SUV/Crossover	Turning Right	E	Same Direction Turning	Failed to Maintain Lane	None	None				0	0	17C463868	8/7/2017	Property Dmg Report
2	Car	Going Straight	N	Overturn	Inattention	Failed to Maintain Lane	Distracted IN or ON Vehicle	Blowing Snow	Wet	Dark, No Street Lights	0	1	20C563133	12/30/2020	8 Injury Accident
3	SUV/Crossover	Avoiding Obstacle	S	Rear-End	None	None	None	Clear	Dry	Day	0	0	19C515141	4/27/2019	Property Dmg Report
	SUV/Crossover	Going Straight	S	Rear-End	Inattention	Following Too Close	None				0	0	19C515141	4/27/2019	Property Dmg Report

Deep Canyon Drive - Purple Sage to SH 16															
Accident #	Vehicle Type	Driver Action	Unit Travel Direction	Most Harmful Event	Contributing Circumstance 1	Contributing Circumstance 2	Contributing Circumstance 3	Weather	Surface	Light	Fatalities	Injuries	Serial Number	AccidentDate	Severity
1	Pickup	Avoiding Obstacle	E	Overturn	None	Overcorrected	Animal(s) in Roadway	Clear	Dry	Dark, No Street Lights	0	1	19C533190	11/18/2019	B Injury Accident
2	Car	Going Straight	E	Head-On	Speed Too Fast For Conditions	None	None	Blowing Snow	Snow	Dark, Street Lights On	0	5	17C451308	1/18/2017	C Injury Accident
	Bus - 16 or more seats	Going Straight	W	Head-On	None	None	None				0	0	17C451308	1/18/2017	C Injury Accident
3	Pickup	Negotiating Curve	W	Overturn	Overcorrected	Failed to Maintain Lane	None	Clear	Dry	Dark, No Street Lights	0	0	17C460795	6/17/2017	Property Dmg Report
	Car	Negotiating Curve	E	Non-Contact Unit	Drove Left of Center	None	None				0	0	17C460795	6/17/2017	Property Dmg Report

Lanktree Gulch Road - Can Ada to High Country													
Accident #	Vehicle Type	Driver Action	Unit Travel Direction	Most Harmful Event	Contributing Circumstance 1	Weather	Surface	Light	Fatalities	Injuries	Serial Number	AccidentDate	Severity
1	SUV/Crossover	Negotiating Curve	W	Overturn	Speed Too Fast For Conditions	Clear	Dry	Day	0	1	19C528954	9/15/2019	C Injury Accident



Appendix H
Proposed Growth Rate
Email Discussions

Sam Mantsch

From: Paige Bankhead <pbankhead@achdidaho.org>
Sent: Friday, July 29, 2022 11:13 AM
To: Sam Mantsch
Cc: Sonia Daleiden; Regan Hansen; Chris Hopper; Jamie Markosian; Mindy Wallace; Jason Brinkman
Subject: RE: Willow Brook Golf Community TIS - Scoping Memorandum

Hi Sam,

Thank you! The scoping memo is acceptable.

Paige Bankhead, PE
Traffic Engineer

Ada County Highway District
Development Services
1301 N. Orchard St. Ste. 200
Phone: (208) 387-6293



From: Sam Mantsch <smantsch@kittelton.com>
Sent: Monday, July 25, 2022 4:34 PM
To: Paige Bankhead <pbankhead@achdidaho.org>
Cc: Sonia Daleiden <sdaleiden@kittelton.com>; Regan Hansen <Regan.Hansen@itd.idaho.gov>; Chris Hopper <CHopper@canyonhd4.org>; Jamie Markosian <jmarkosian@kittelton.com>; Mindy Wallace <Mwallace@achdidaho.org>; Jason Brinkman <Jason.Brinkman@itd.idaho.gov>
Subject: RE: Willow Brook Golf Community TIS - Scoping Memorandum

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Hi Paige,

Please find the attached updated scoping memo for the Willow Brook Golf Community TIS per your comments from May 9. Please specifically review the proposed growth rates which are now shown with existing traffic volumes and projected 2030 and 2045 traffic volumes. Let us know if you find any roadways to have unrealistic growth rates and we can further refine them.

Thank you,

Sam Mantsch
Transportation Analyst
(he/him)

[Kittelson & Associates, Inc.](#)
Transportation Engineering / Planning
208.472.9823 (direct)

From: Paige Bankhead <pbankhead@achdidaho.org>
Sent: Monday, May 16, 2022 3:10 PM
To: Sam Mantsch <smantsch@kittelson.com>; Jamie Markosian <jmarkosian@kittelson.com>; Mindy Wallace <Mwallace@achdidaho.org>; Jason Brinkman <Jason.Brinkman@itd.idaho.gov>
Cc: Sonia Daleiden <sdaleiden@kittelson.com>; Regan Hansen <Regan.Hansen@itd.idaho.gov>; Chris Hopper <CHopper@canyonhd4.org>
Subject: RE: Willow Brook Golf Community TIS - Scoping Memorandum

Hi Sam,

Just following up on our phone conversation, thanks for clearing that up. I will be on the lookout for the updated memo after you have collected counts to see if growth rates are reasonable.

Thanks!

Paige Bankhead, PE
Traffic Engineer

Ada County Highway District
Development Services
1301 N. Orchard St. Ste. 200
Phone: (208) 387-6293



We currently have a high volume of development applications and traffic impact studies that are under review and review times are longer than usual. Thank you in advance for your patience.

From: Sam Mantsch <smantsch@kittelson.com>
Sent: Monday, May 16, 2022 1:03 PM
To: Paige Bankhead <pbankhead@achdidaho.org>; Jamie Markosian <jmarkosian@kittelson.com>; Mindy Wallace <Mwallace@achdidaho.org>; Jason Brinkman <Jason.Brinkman@itd.idaho.gov>
Cc: Sonia Daleiden <sdaleiden@kittelson.com>; Regan Hansen <Regan.Hansen@itd.idaho.gov>; Chris Hopper <CHopper@canyonhd4.org>
Subject: RE: Willow Brook Golf Community TIS - Scoping Memorandum

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Thanks Paige,

I want to make sure we don't have a disconnect on the trip distribution. We will be accounting for 100% of the external trips. 80% of those trips will extend beyond the limits of the study intersections/roadways (represented by the distribution arrows). The other 20% will be external to the site, but will not make it beyond the study intersections/roadways (mostly ending in the City of Star).

We will update you when we have reviewed the growth rates.

Thank you,

Sam Mantsch
Transportation Analyst
(he/him)

[Kittelson & Associates, Inc.](#)
Transportation Engineering / Planning
208.472.9823 (direct)

From: Paige Bankhead <pbankhead@achdidaho.org>
Sent: Friday, May 13, 2022 3:11 PM
To: Sam Mantsch <smantsch@kittelson.com>; Jamie Markosian <jmarkosian@kittelson.com>; Mindy Wallace <Mwallace@achdidaho.org>; Jason Brinkman <Jason.Brinkman@itd.idaho.gov>
Cc: Sonia Daleiden <sdaleiden@kittelson.com>; Regan Hansen <Regan.Hansen@itd.idaho.gov>; Chris Hopper <CHopper@canyonhd4.org>
Subject: RE: Willow Brook Golf Community TIS - Scoping Memorandum

Hi Sam,

1. The trip distribution percentages typically reflect and are applied to the external trips since the percentages are applied outside of the site. The external trips already account for the internal trip capture. I see what you are getting at with the internal trip capture, but we want to see the trip distribution applied to the external trips, not the total trips. The trip distribution figure for 2045 should equate to 100%.
2. Yes- we agree with the proposed study area and intersections. Please send me an update on this when you have had a chance to review the collected counts and growth rates.

Thanks!

Paige Bankhead, PE
Traffic Engineer

Ada County Highway District
Development Services
1301 N. Orchard St. Ste. 200
Phone: (208) 387-6293



We currently have a high volume of development applications and traffic impact studies that are under review and review times are longer than usual. Thank you in advance for your patience.

From: Sam Mantsch <smantsch@kittelson.com>

Sent: Friday, May 13, 2022 12:35 PM

To: Paige Bankhead <pbankhead@achdidaho.org>; Jamie Markosian <jmarkosian@kittelson.com>; Mindy Wallace <Mwallace@achdidaho.org>; Jason Brinkman <Jason.Brinkman@itd.idaho.gov>

Cc: Sonia Daleiden <sdaleiden@kittelson.com>; Regan Hansen <Regan.Hansen@itd.idaho.gov>; Chris Hopper <CHopper@canyonhd4.org>

Subject: RE: Willow Brook Golf Community TIS - Scoping Memorandum

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Hi Paige,

We've reviewed your comments and addressed several of them in the scoping memo. Before we resubmit it, we would like to clarify a few of the comments.

1. As noted in Figure 5, the 2040 trip distribution currently includes 20% of trips that have an origin/destination within the study area (mostly to City of Star commercial areas). If we show the distribution arrows totaling 100% rather than 80%, we may be overestimating traffic on some of the roadways. How should we proceed?
2. We are willing to look at the projected growth rates and reevaluate if they are realistic compared to existing traffic. At this stage we have not collected traffic counts and we would like to be confirm the study area before we proceed with data collection. Does ACHD agree with the proposed study intersections and roadway segments?

Jason/Regan,

Does ITD have any additional comments on the scope of work, specifically related to the study area?

Thanks and have a great weekend!

Sam Mantsch
Transportation Analyst
(he/him)

[Kittelson & Associates, Inc.](#)
Transportation Engineering / Planning
208.472.9823 (direct)

From: Paige Bankhead <pbankhead@achdidaho.org>

Sent: Monday, May 9, 2022 9:52 AM

To: Jamie Markosian <jmarkosian@kittelson.com>; Mindy Wallace <Mwallace@achdidaho.org>; Jason Brinkman

<Jason.Brinkman@itd.idaho.gov>

Cc: Sam Mantsch <smantsch@kittelson.com>; Sonia Daleiden <sdaleiden@kittelson.com>; Regan Hansen <Regan.Hansen@itd.idaho.gov>; Chris Hopper <CHopper@canyonhd4.org>

Subject: RE: Willow Brook Golf Community TIS - Scoping Memorandum

Hi Jamie,

Thanks for your patience on this. Please address the following comments and resubmit the memo for review.

- The trip generation does not assume a supermarket for the retail plaza, please note this is in the trip generation section.
- The 2040 trip distribution figure needs to show the trip distribution for the external traffic in the development that equates to 100%.
- Please ensure that 48 hour counts are collected for the road segments to calculate the ADT per Policy 7106.5.2. We have noticed that 24 hour counts are frequently being collected instead of 48 hour and we are reminding consultants of this Policy.
 - Please also ensure that 48 hour counts are collected for all legs of an unsignalized intersection in case signal warrants are necessary. Turning movement counts aren't necessary for this timeframe, only for the peak hours.
- The scoping memo indicates that Wing Road and Aerie Way will be constructed by 2045. Please clarify how these will be constructed, as these are off-site road segments that cross several parcels and BLM. The memo indicates that the study will evaluate the need and timing of these improvements. Staff assumes this means the study will analyze a study without those road segments, but please ensure a scenario without the roads is evaluated.
- Just to be clear, please do not assume any ACHD road improvements will be in place.
- Some of the growth rates proposed seem high, especially for roads that lead directly to the development since site traffic will be added to these roadways in the total build out scenario. I'm assuming some of these roads currently have very low volumes which may necessitate a high growth rate, but please evaluate if these growth rates seem reasonable compared to the existing volumes collected and projected volumes. Please provide justification or re-evaluate the growth rates.
 - Conversely, it would be expected for Star Road south of SH-44 that the growth rate would be higher than 2% for 2031 to 2045 given the future development along that road segment. Please specify a growth rate for this segment.

Roadway	2022-2030	2031-2045
Deep Canyon Drive	2%	12%
Purple Sage Road	8%	4%
Lanktree Gulch Road	5%	9%
New Hope Road	6%	2%
Beacon Light Road	9%	2%
Floating Feather Road	7%	3%
SH 44	5%	1%
Can Ada Road	8%	4%
Star Road	2%	2%
Plummer Road	11%	1%
Pollard Road	18%	1%
SH 16	4%	1%
Palmer Lane	17%	3%

Please let me know if you have any questions.

Thanks,

Paige Bankhead, PE
Traffic Engineer

Ada County Highway District
Development Services
1301 N. Orchard St. Ste. 200
Phone: (208) 387-6293



We currently have a high volume of development applications and traffic impact studies that are under review and review times are longer than usual. Thank you in advance for your patience.

From: Jamie Markosian <jmarkosian@kittelson.com>
Sent: Thursday, April 28, 2022 3:32 PM
To: Mindy Wallace <Mwallace@achdidaho.org>; Jason Brinkman <Jason.Brinkman@itd.idaho.gov>
Cc: Sam Mantsch <smantsch@kittelson.com>; Sonia Daleiden <sdaleiden@kittelson.com>; Regan Hansen <Regan.Hansen@itd.idaho.gov>; Chris Hopper <CHopper@canyonhd4.org>; Paige Bankhead

<pbankhead@achdidaho.org>

Subject: Willow Brook Golf Community TIS - Scoping Memorandum

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Good afternoon Mindy and Jason,

There have been some new developments on the Willow Brook Golf Community project which we have been taking time to work with the client to finalize before getting this scoping memorandum to you for review. The following elements of the project have changed:

- a. There is no longer any parcel of the project located within Canyon County. All parcels in Canyon County have been sold off and are not in control of our client, nor will they be included in the project or future permitting/annexation/rezoning requests associated with the Willow Brook development. The whole project is now solely within Ada County.
- b. The land use and residential densities for the project have been adjusted
 - i. ~50 fewer single family homes
 - ii. ~450 fewer townhomes

With these considerations in mind, we have updated the scoping memorandum attached to reflect what we believe is a reasonable scope of work for a TIS of similar format to what we have already discussed (i.e., detailed 'Phase 1' TIS to account for initial 30% of housing units and the golf course accompanied by a planning level analysis of the complete build-out of the project). Please review and let us know if you find this scope acceptable. If everything looks good, we will begin coordinating our data collection effort and begin the TIS activities.

Thanks and please don't hesitate to reach out if you have any questions.

Jamie

Jamie Markosian, PE
Senior Engineer

****I am working a reduced hours schedule as I transition back to work from parental leave. Thank you in advance for your patience and understanding****

[Kittelson & Associates, Inc.](#)

Transportation Engineering / Planning
101 South Capitol Boulevard, Suite 600
Boise, ID 83702
208.338.2683
208.472.9813 (direct)



Appendix I
COMPASS Model for the
Willow Brook Development

Willow Brook (Ada) Proposed Development

The following summarizes the results of an area of influence model run for a proposed development located west of SH-16 and north of Lanktree Gulch Rd. The proposed development shown in Figure 1 will consist of 1,002 single family units, 616 townhome units, an 18-hole public golf course, and 60,000 square feet of commercial use with an anticipated build out by 2045. This analysis includes results for Phase 1 by 2030 and for build out of the Ada County portion by 2045. This analysis does not consider any additional units or uses for Willow Brook within Canyon County.

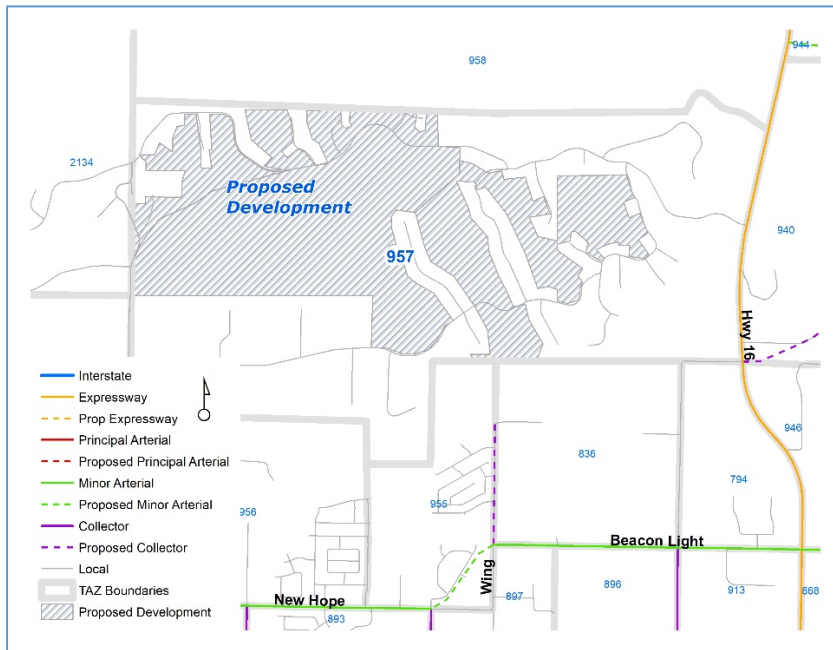


Figure 1

Table 1 provides the existing demographics for TAZ 957 and the proposed development's demographics used for the area of influence model run. Temporary TAZs were used to isolate the impact of this development. A separate 2045 scenario was run to include a new proposed collector from the site to SH-16.

Table 1

	2021		2030 (Proposed)		2045 (Proposed)		2050	
	HH	Jobs	HH	Jobs	HH	Jobs	HH	Jobs
TAZ 957	235	53	236	55	247	270	247	270
Temp TAZ 1552	n/a	n/a	485	25	916	25	n/a	n/a
Temp TAZs 1553-1555	n/a	n/a	0	0	702	100	n/a	n/a
Surrounding TAZs	520	108	953	230	1,046	450	1,069	480
Total	755	161	1,674	310	2,911	845	1,316	750

Figure 2, Figure 3, Figure 4 : 2030 Peak Hour Results

Figure 5, Figure 6, Figure 7, Figure 8, and Figure 9: 2045 Peak Hour Results

Figure 10: Surrounding Area TAZs

Figure 11, Figure 12, Figure 13, Figure 14, Figure 15, and Figure 16: Compounded Annual Growth Rates

Note to Reviewers: The primary purpose of this report is to help agencies determine the scope of a Traffic Impact Study (TIS) and to assist TIS preparers in establishing trip distributions. New demand forecasted by the regional model for a proposed development may not match ITE Trip Generation estimates and they are not intended to replace the trip generation process of the TIS.

Disclaimer Regarding Updated Model: The results documented in this report are based on the latest regional model, maintained by COMPASS, released in October of 2021, and based on the COMPASS 2050 Vision adopted in August 2021. Due to changes in demographics, TAZs, model network and model parameters, results should not be compared to those provided prior to October of 2021.

Figure 2: Area of Influence (2030 percent contribution to the total peak hour demand)

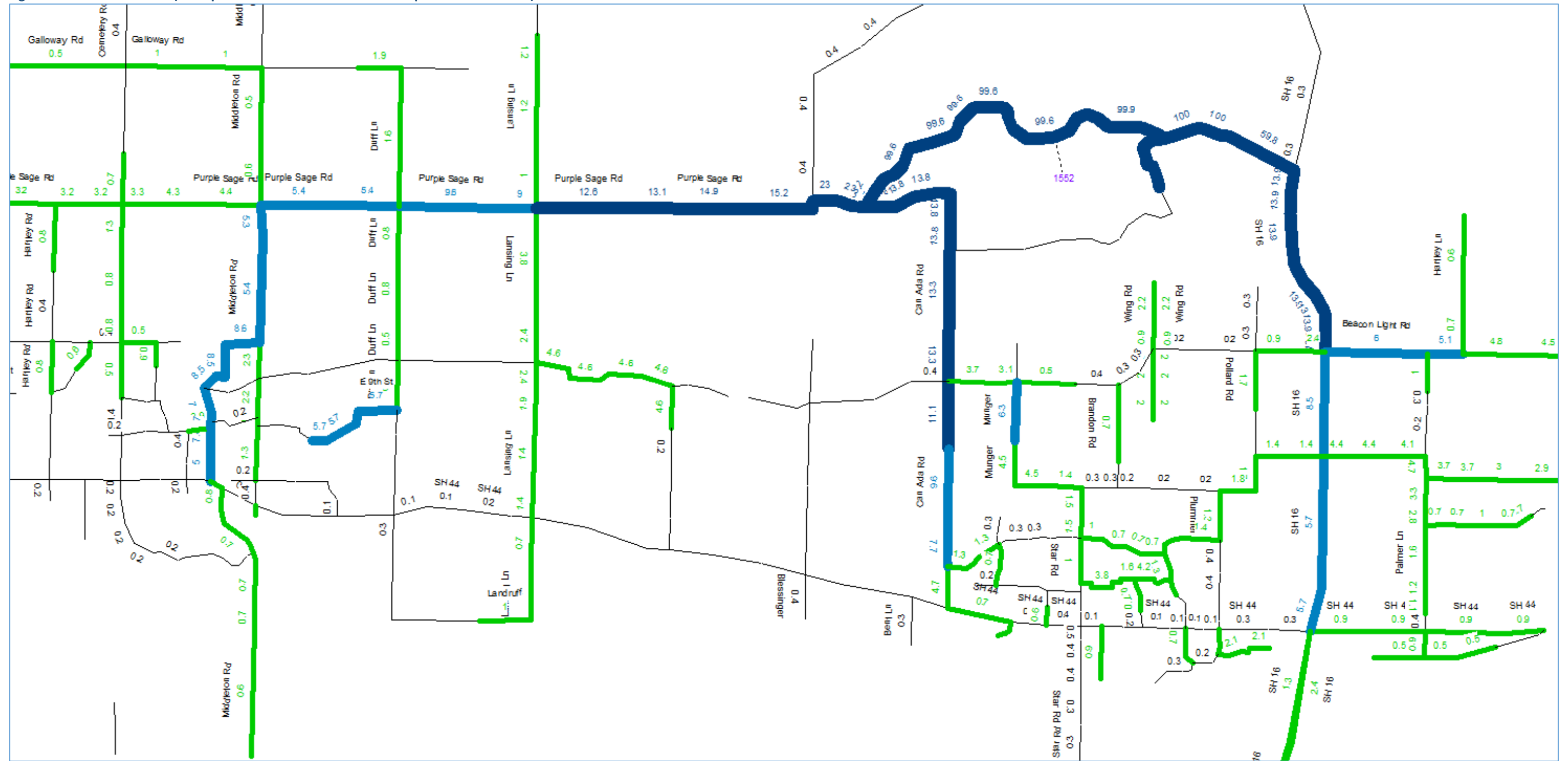


Figure 3: Peak Hour Demand with Proposed Development (2030)

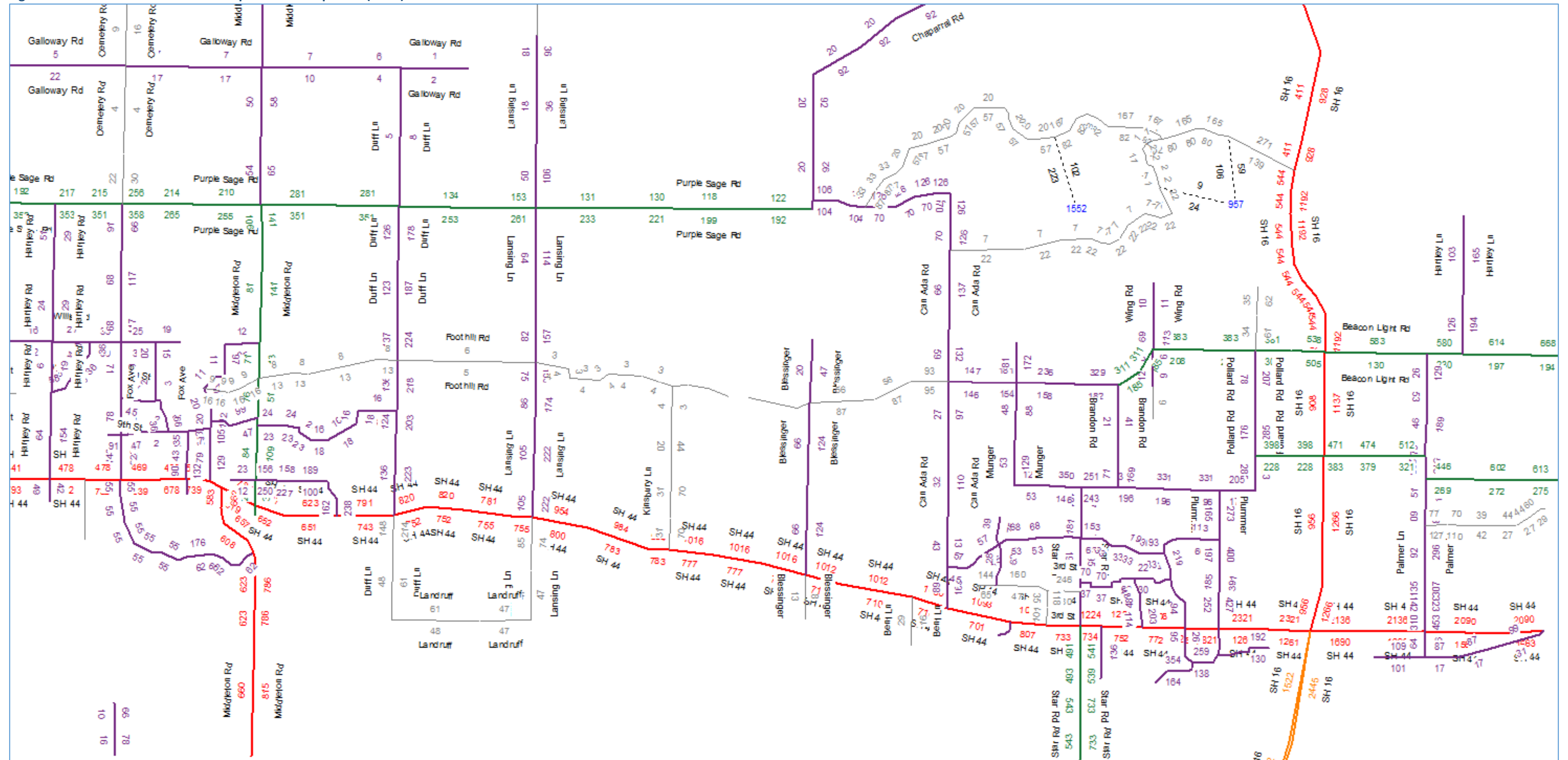


Figure 4: Peak Hour Demand without Proposed Development (2030)

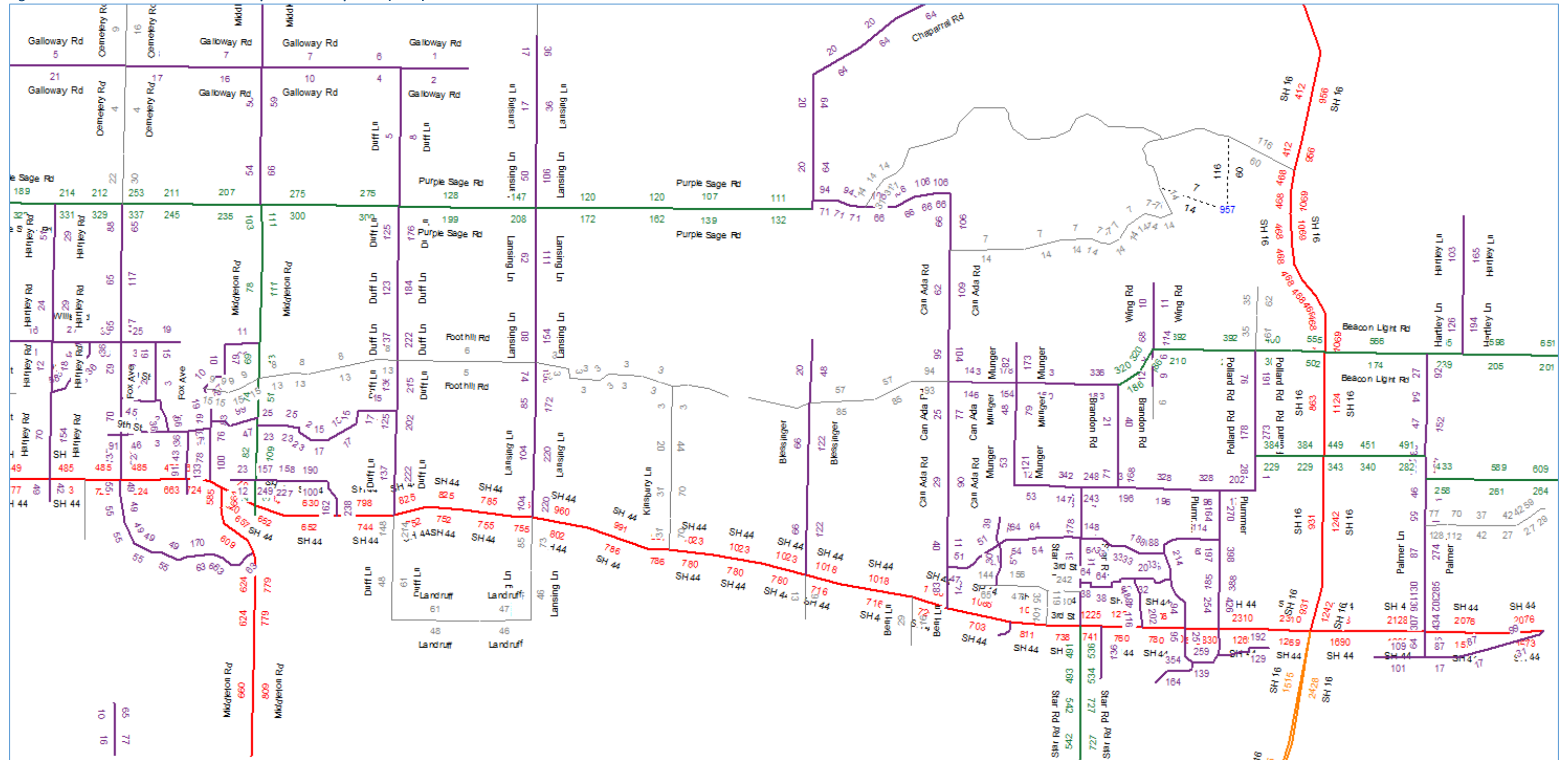


Figure 5: Area of Influence (2045 percent contribution to the total peak hour demand)

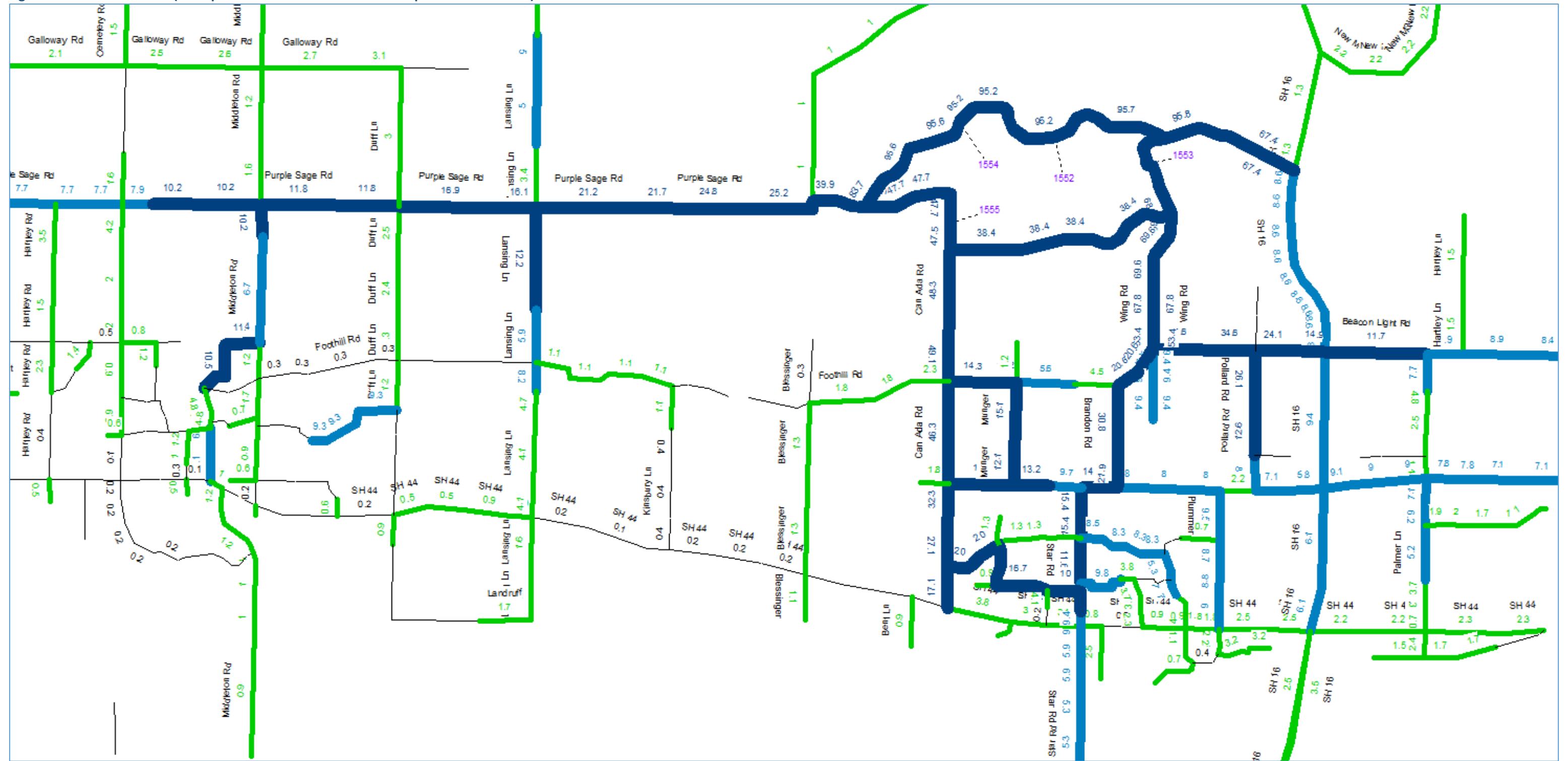


Figure 6: Peak Hour Demand with Proposed Development (2045)

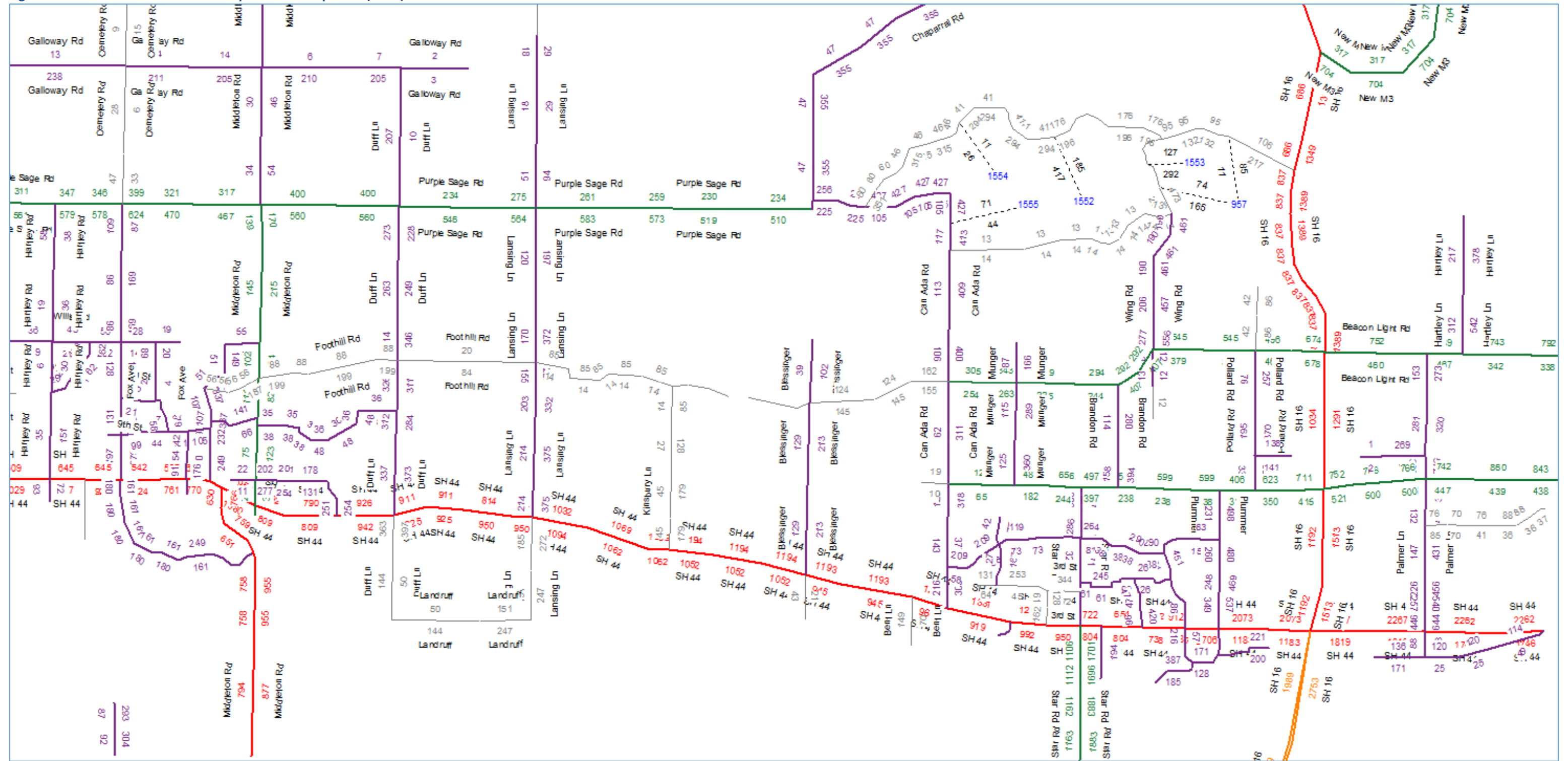


Figure 7: Area of Influence with Proposed Collector to SH-16 (2045 percent contribution to the total peak hour demand)

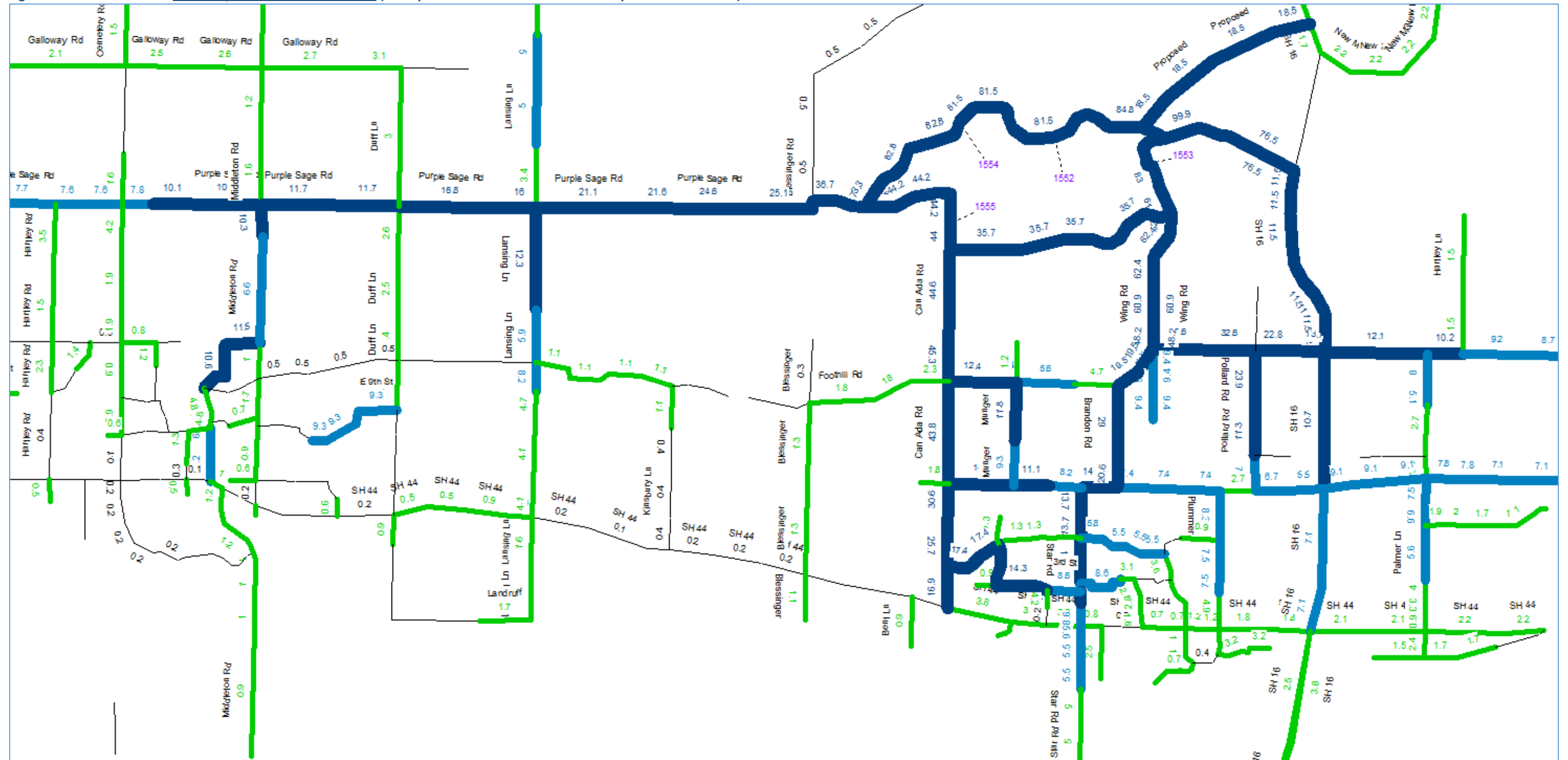


Figure 8: Peak Hour Demand with Proposed Development and Proposed Collector to SH-16 (2045)

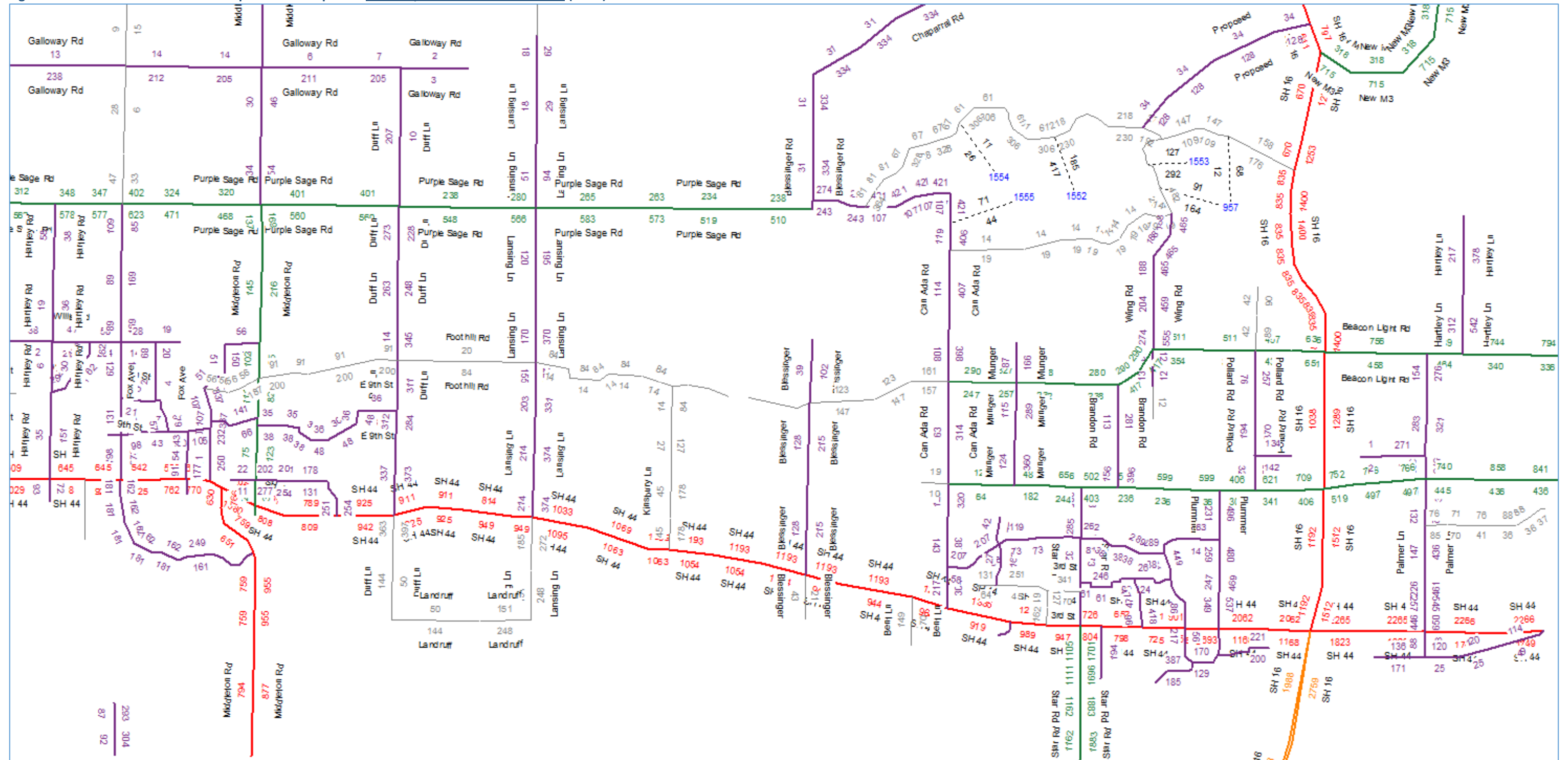


Figure 9: Peak Hour Demand without Proposed Development (2045)

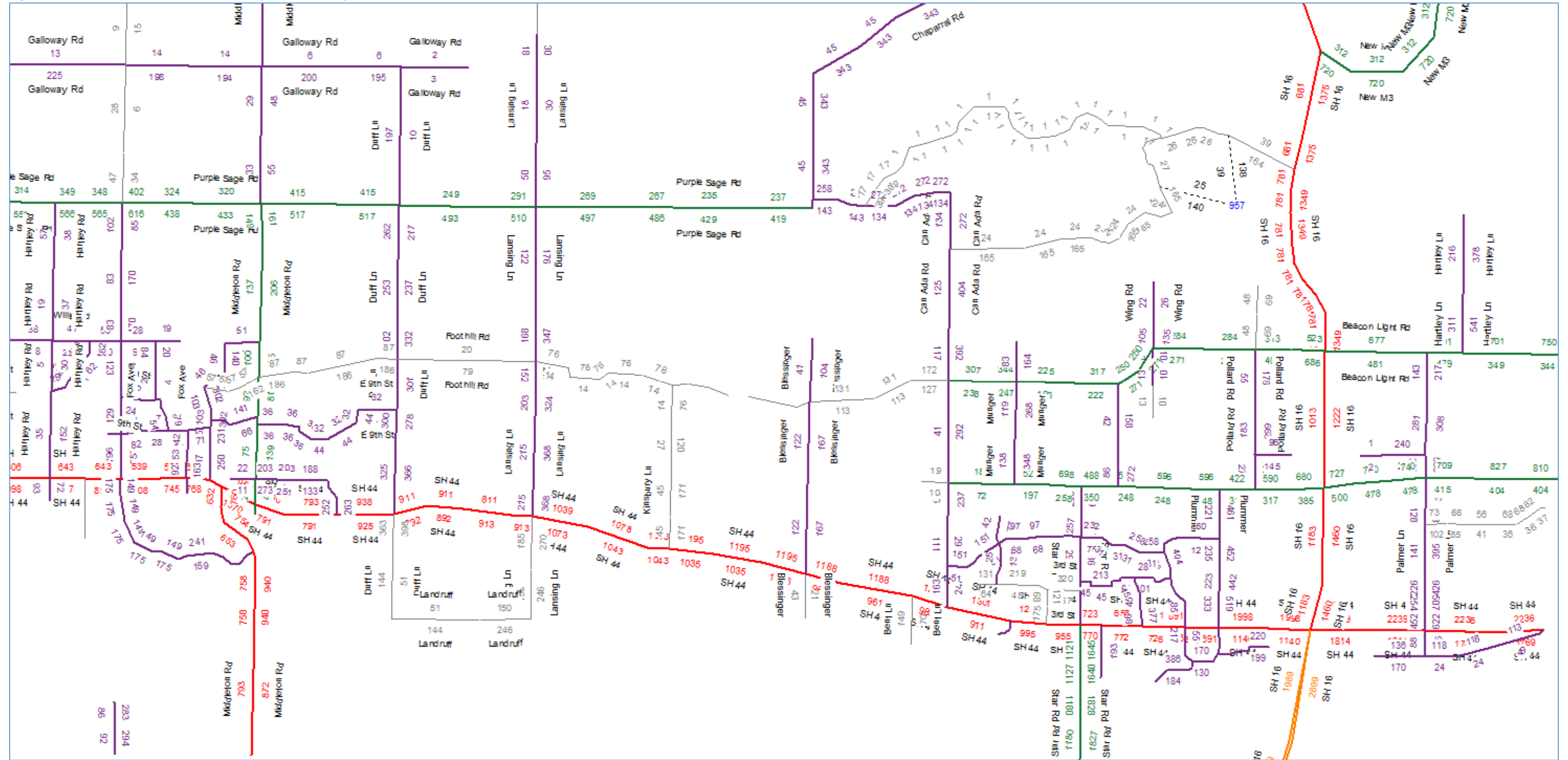


Figure 10: Surrounding Area TAZs

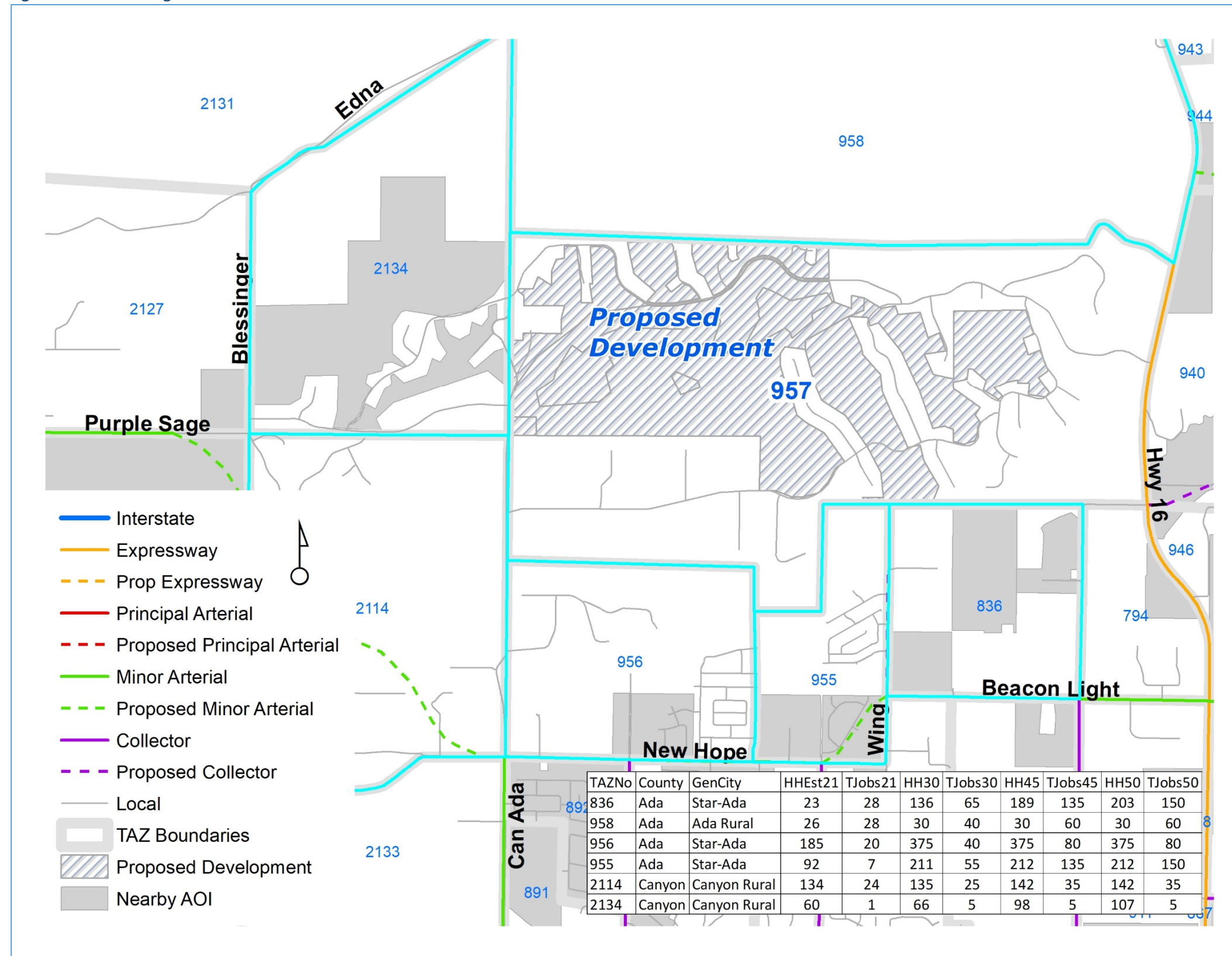


Figure 11: 2021 to 2025 Compounded Annual Growth Rates

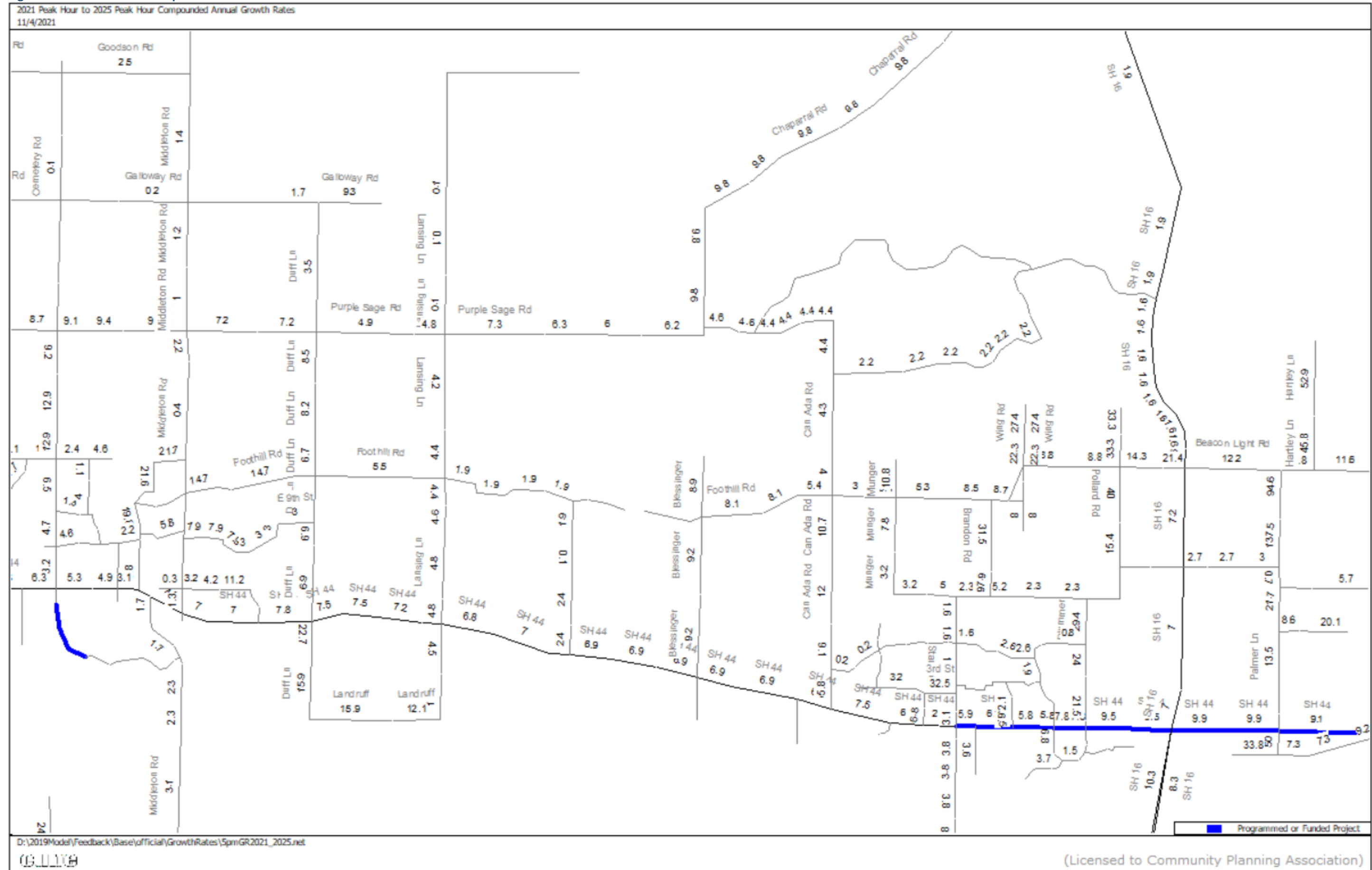


Figure 12: 2025 to 2030 Compounded Annual Growth Rates

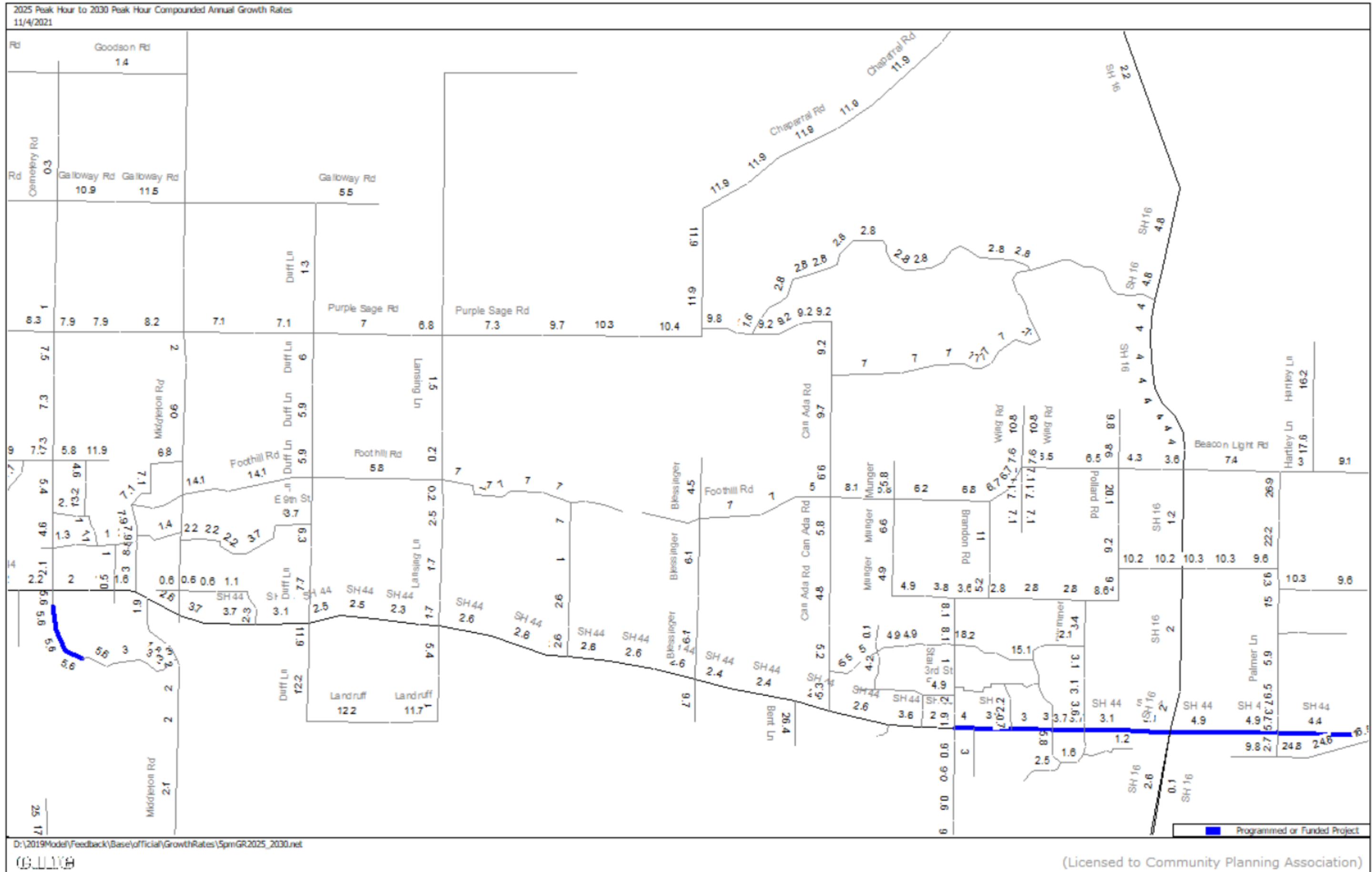
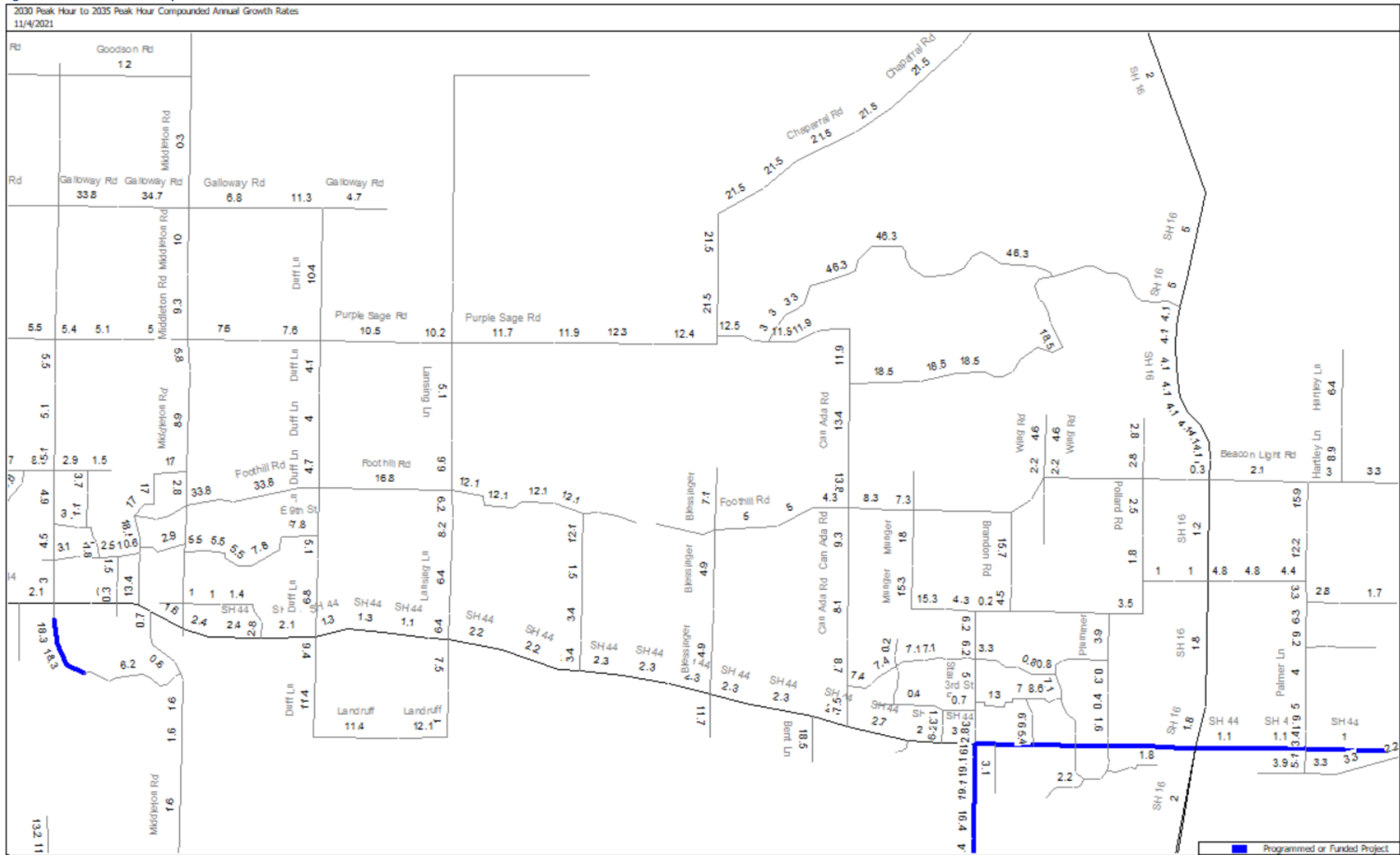


Figure 13: 2030 to 2035 Compounded Annual Growth Rates

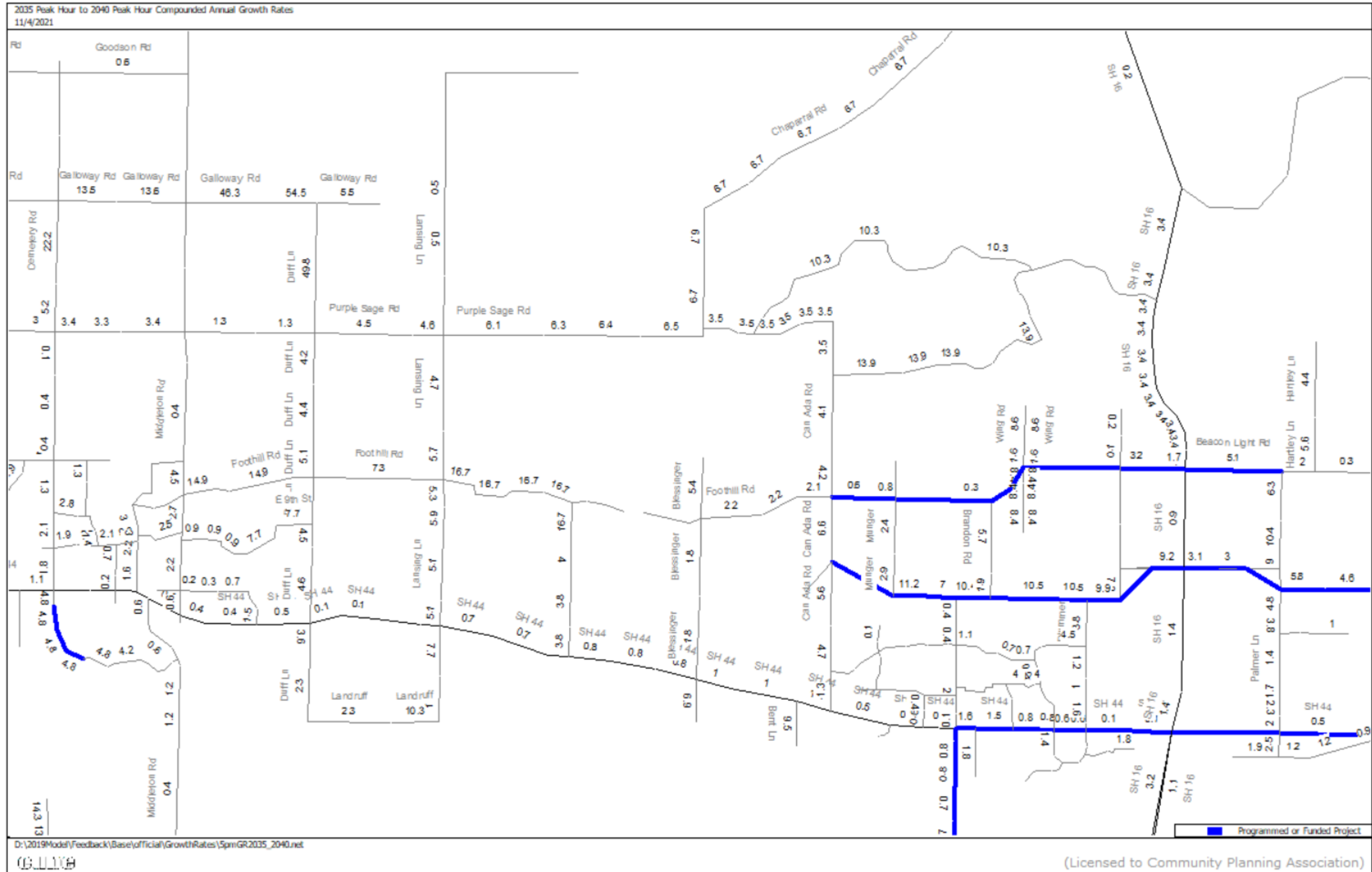


D:\2019Model\Feedback\Base\official\GrowthRates\5pmGR2030_2035.net



(Licensed to Community Planning Association)

Figure 14: 2035 to 2040 Compounded Annual Growth Rates





Appendix J
Year 2030 Background Traffic
Operation Worksheets

Intersection						
Int Delay, s/veh	7.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	4	113	44	6	4	1
Future Vol, veh/h	4	113	44	6	4	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	4	0	0	0
Mvmt Flow	4	126	49	7	4	1

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	110	5	5	0	0
Stage 1	5	-	-	-	-
Stage 2	105	-	-	-	-
Critical Hdwy	6.4	6.2	4.14	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.236	-	-
Pot Cap-1 Maneuver	892	1084	1603	-	-
Stage 1	1023	-	-	-	-
Stage 2	924	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	864	1084	1603	-	-
Mov Cap-2 Maneuver	864	-	-	-	-
Stage 1	991	-	-	-	-
Stage 2	924	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	6.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1603	-	1075	-	-
HCM Lane V/C Ratio	0.03	-	0.121	-	-
HCM Control Delay (s)	7.3	0	8.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y		Y	↑	↑	
Traffic Vol, veh/h	2	54	23	338	909	1
Future Vol, veh/h	2	54	23	338	909	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	3	3	100
Mvmt Flow	2	60	26	376	1010	1

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1439	1011	1011	0	-	0
Stage 1	1011	-	-	-	-	-
Stage 2	428	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	148	293	694	-	-	-
Stage 1	355	-	-	-	-	-
Stage 2	662	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	143	293	694	-	-	-
Mov Cap-2 Maneuver	143	-	-	-	-	-
Stage 1	342	-	-	-	-	-
Stage 2	662	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21.3	0.7	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	694	-	282	-	-
HCM Lane V/C Ratio	0.037	-	0.221	-	-
HCM Control Delay (s)	10.4	-	21.3	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.8	-	-

Intersection						
Int Delay, s/veh	0.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	1	54	11	2	115
Future Vol, veh/h	12	1	54	11	2	115
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	1	6	0	0
Mvmt Flow	13	1	60	12	2	128

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	198	66	0	0	72
Stage 1	66	-	-	-	-
Stage 2	132	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	795	1003	-	-	1541
Stage 1	962	-	-	-	-
Stage 2	899	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	794	1003	-	-	1541
Mov Cap-2 Maneuver	794	-	-	-	-
Stage 1	962	-	-	-	-
Stage 2	898	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	0.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	807	1541
HCM Lane V/C Ratio	-	-	0.018	0.001
HCM Control Delay (s)	-	-	9.5	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	41	10	41	8	6	4	41	48	78	70	7
Future Vol, veh/h	6	41	10	41	8	6	4	41	48	78	70	7
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	0	4	0	46	20	0	23	0	0	0	0	0
Mvmt Flow	6	43	11	43	8	6	4	43	51	82	74	7
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.9	9	8.1	8.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	4%	11%	75%	50%
Vol Thru, %	44%	72%	15%	45%
Vol Right, %	52%	18%	11%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	93	57	55	155
LT Vol	4	6	41	78
Through Vol	41	41	8	70
RT Vol	48	10	6	7
Lane Flow Rate	98	60	58	163
Geometry Grp	1	1	1	1
Degree of Util (X)	0.122	0.075	0.087	0.199
Departure Headway (Hd)	4.469	4.491	5.434	4.383
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	805	799	661	821
Service Time	2.484	2.514	3.458	2.398
HCM Lane V/C Ratio	0.122	0.075	0.088	0.199
HCM Control Delay	8.1	7.9	9	8.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	0.2	0.3	0.7

Intersection						
Int Delay, s/veh	10.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	52	940	393	43	85	70
Future Vol, veh/h	52	940	393	43	85	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	29	3	4	3	0	13
Mvmt Flow	55	1000	418	46	90	74

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	464	0	-	0	1551 441
Stage 1	-	-	-	-	441 -
Stage 2	-	-	-	-	1110 -
Critical Hdwy	4.39	-	-	-	6.4 6.33
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.461	-	-	-	3.5 3.417
Pot Cap-1 Maneuver	969	-	-	-	126 594
Stage 1	-	-	-	-	653 -
Stage 2	-	-	-	-	318 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	969	-	-	-	110 594
Mov Cap-2 Maneuver	-	-	-	-	110 -
Stage 1	-	-	-	-	569 -
Stage 2	-	-	-	-	318 -

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	108.6
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	969	-	-	-	174
HCM Lane V/C Ratio	0.057	-	-	-	0.948
HCM Control Delay (s)	8.9	0	-	-	108.6
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.2	-	-	-	7.3

Intersection						
Int Delay, s/veh	7.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T		T		T	
Traffic Vol, veh/h	6	83	146	19	2	4
Future Vol, veh/h	6	83	146	19	2	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	2	1	0	0	0
Mvmt Flow	7	92	162	21	2	4

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	349	4	6	0	0
Stage 1	4	-	-	-	-
Stage 2	345	-	-	-	-
Critical Hdwy	6.4	6.22	4.11	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.318	2.209	-	-
Pot Cap-1 Maneuver	652	1080	1622	-	-
Stage 1	1024	-	-	-	-
Stage 2	722	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	586	1080	1622	-	-
Mov Cap-2 Maneuver	586	-	-	-	-
Stage 1	921	-	-	-	-
Stage 2	722	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	6.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1622	-	1022	-	-
HCM Lane V/C Ratio	0.1	-	0.097	-	-
HCM Control Delay (s)	7.5	0	8.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.3	-	0.3	-	-

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	40	70	1130	517	1
Future Vol, veh/h	1	40	70	1130	517	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	2	2	2	0
Mvmt Flow	1	44	77	1242	568	1

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	1965	569	569	0	0
Stage 1	569	-	-	-	-
Stage 2	1396	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-
Pot Cap-1 Maneuver	70	525	1003	-	-
Stage 1	570	-	-	-	-
Stage 2	232	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	65	525	1003	-	-
Mov Cap-2 Maneuver	65	-	-	-	-
Stage 1	526	-	-	-	-
Stage 2	232	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.9	0.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1003	-	448	-	-
HCM Lane V/C Ratio	0.077	-	0.101	-	-
HCM Control Delay (s)	8.9	-	13.9	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.3	-	-

Intersection						
Int Delay, s/veh	1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	18	10	170	31	2	78
Future Vol, veh/h	18	10	170	31	2	78
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	1	6	0	0
Mvmt Flow	20	11	189	34	2	87

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	297	206	0	0	223
Stage 1	206	-	-	-	-
Stage 2	91	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	698	840	-	-	1358
Stage 1	833	-	-	-	-
Stage 2	938	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	697	840	-	-	1358
Mov Cap-2 Maneuver	697	-	-	-	-
Stage 1	833	-	-	-	-
Stage 2	936	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.1	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	742	1358
HCM Lane V/C Ratio	-	-	0.042	0.002
HCM Control Delay (s)	-	-	10.1	7.7
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	18	3	46	62	70	19	63	31	56	65	11
Future Vol, veh/h	5	18	3	46	62	70	19	63	31	56	65	11
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	0	0	7	3	0	0	0	0	3	0	0
Mvmt Flow	6	20	3	51	69	78	21	70	34	62	72	12
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8	9	8.3	8.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	17%	19%	26%	42%
Vol Thru, %	56%	69%	35%	49%
Vol Right, %	27%	12%	39%	8%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	113	26	178	132
LT Vol	19	5	46	56
Through Vol	63	18	62	65
RT Vol	31	3	70	11
Lane Flow Rate	126	29	198	147
Geometry Grp	1	1	1	1
Degree of Util (X)	0.156	0.038	0.247	0.19
Departure Headway (Hd)	4.473	4.739	4.502	4.659
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	801	754	797	770
Service Time	2.504	2.777	2.53	2.689
HCM Lane V/C Ratio	0.157	0.038	0.248	0.191
HCM Control Delay	8.3	8	9	8.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	0.1	1	0.7

Intersection						
Int Delay, s/veh	46.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	49	745	1002	72	100	48
Future Vol, veh/h	49	745	1002	72	100	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	6	2	1	2	2	12
Mvmt Flow	52	793	1066	77	106	51

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	1143	0	-	0	2002 1105
Stage 1	-	-	-	-	1105 -
Stage 2	-	-	-	-	897 -
Critical Hdwy	4.16	-	-	-	6.42 6.32
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.254	-	-	-	3.518 3.408
Pot Cap-1 Maneuver	597	-	-	-	~ 66 245
Stage 1	-	-	-	-	317 -
Stage 2	-	-	-	-	398 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	597	-	-	-	~ 56 245
Mov Cap-2 Maneuver	-	-	-	-	~ 56 -
Stage 1	-	-	-	-	268 -
Stage 2	-	-	-	-	398 -

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	\$ 626.7
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	597	-	-	-	75
HCM Lane V/C Ratio	0.087	-	-	-	2.099
HCM Control Delay (s)	11.6	0	-	-	\$ 626.7
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0.3	-	-	-	14.4

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon



Appendix K
Year 2030 Mitigated Background
Traffic Operation Worksheets

Queues
117: SH 44 & Can Ada Road

2030 Background Conditions Mitigations AM Peak Hour

01/12/2023



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	55	1000	418	46	90	74
v/c Ratio	0.12	0.84	0.41	0.05	0.35	0.28
Control Delay	3.8	15.6	9.3	2.9	26.8	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.8	15.6	9.3	2.9	26.8	9.6
Queue Length 50th (ft)	5	187	81	0	30	0
Queue Length 95th (ft)	15	#548	157	13	66	30
Internal Link Dist (ft)		3717	2513		4604	
Turn Bay Length (ft)	100			100	100	
Base Capacity (vph)	465	1356	1072	937	582	509
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.74	0.39	0.05	0.15	0.15

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis Background Conditions Mitigations AM Peak Hour
 117: SH 44 & Can Ada Road

01/12/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	52	940	393	43	85	70
Future Volume (vph)	52	940	393	43	85	70
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1326	1748	1731	1485	1710	1354
Flt Permitted	0.41	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	578	1748	1731	1485	1710	1354
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	55	1000	418	46	90	74
RTOR Reduction (vph)	0	0	0	20	0	63
Lane Group Flow (vph)	55	1000	418	26	90	11
Heavy Vehicles (%)	29%	3%	4%	3%	0%	13%
Turn Type	pm+pt	NA	NA	Perm	Prot	Prot
Protected Phases	7	4	8		6	6
Permitted Phases	4			8		
Actuated Green, G (s)	40.1	40.1	32.8	32.8	8.4	8.4
Effective Green, g (s)	40.1	40.1	32.8	32.8	8.4	8.4
Actuated g/C Ratio	0.70	0.70	0.57	0.57	0.15	0.15
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	439	1219	987	847	249	197
v/s Ratio Prot	0.01	c0.57	0.24		c0.05	0.01
v/s Ratio Perm	0.08			0.02		
v/c Ratio	0.13	0.82	0.42	0.03	0.36	0.05
Uniform Delay, d1	3.3	6.2	7.0	5.4	22.1	21.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	4.5	0.3	0.0	0.9	0.1
Delay (s)	3.4	10.7	7.3	5.4	23.0	21.2
Level of Service	A	B	A	A	C	C
Approach Delay (s)		10.3	7.1		22.2	
Approach LOS		B	A		C	

Intersection Summary			
HCM 2000 Control Delay	10.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	57.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary 2030 Background Conditions Mitigations AM Peak Hour
 117: SH 44 & Can Ada Road

01/12/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	52	940	393	43	85	70	
Future Volume (veh/h)	52	940	393	43	85	70	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1393	1758	1744	1758	1800	1617	
Adj Flow Rate, veh/h	55	1000	418	46	90	74	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	
Percent Heavy Veh, %	29	3	4	3	0	13	
Cap, veh/h	506	1189	901	770	198	158	
Arrive On Green	0.06	0.68	0.52	0.52	0.12	0.12	
Sat Flow, veh/h	1327	1758	1744	1490	1714	1371	
Grp Volume(v), veh/h	55	1000	418	46	90	74	
Grp Sat Flow(s),veh/h/ln	1327	1758	1744	1490	1714	1371	
Q Serve(g_s), s	0.7	18.5	6.6	0.7	2.1	2.2	
Cycle Q Clear(g_c), s	0.7	18.5	6.6	0.7	2.1	2.2	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	506	1189	901	770	198	158	
V/C Ratio(X)	0.11	0.84	0.46	0.06	0.45	0.47	
Avail Cap(c_a), veh/h	589	1726	1325	1132	733	586	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	4.2	5.3	6.6	5.2	17.9	17.9	
Incr Delay (d2), s/veh	0.1	2.6	0.4	0.0	1.6	2.1	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.1	3.2	1.7	0.1	0.8	1.8	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	4.3	7.9	7.0	5.2	19.5	20.0	
LnGrp LOS	A	A	A	A	B	C	
Approach Vol, veh/h		1055	464		164		
Approach Delay, s/veh		7.7	6.8		19.7		
Approach LOS		A	A		B		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				33.8	9.5	6.9	26.9
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				42.5	18.5	5.1	32.9
Max Q Clear Time (g_c+I1), s				20.5	4.2	2.7	8.6
Green Ext Time (p_c), s				8.8	0.4	0.0	2.8
Intersection Summary							
HCM 6th Ctrl Delay			8.6				
HCM 6th LOS			A				

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑↑	↑↑	↗		↗
Traffic Vol, veh/h	52	1025	393	43	0	155
Future Vol, veh/h	52	1025	393	43	0	155
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	55	1090	418	46	0	165

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	464	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.14	-	6.94
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.22	-	3.32
Pot Cap-1 Maneuver	1094	-	0
Stage 1	-	-	0
Stage 2	-	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1094	-	797
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	10.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1094	-	-	-	797
HCM Lane V/C Ratio	0.051	-	-	-	0.207
HCM Control Delay (s)	8.5	-	-	-	10.7
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.8

Intersection												
Int Delay, s/veh	6.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗	↗	↘	↗	↗			↗			↗
Traffic Vol, veh/h	25	869	63	49	467	103	0	0	120	0	0	525
Future Vol, veh/h	25	869	63	49	467	103	0	0	120	0	0	525
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	200	200	-	200	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	915	66	52	492	108	0	0	126	0	0	553

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	600	0	0	981	0	0	-	-	458	-	-	246
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.14	-	-	4.14	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	973	-	-	699	-	-	0	0	550	0	0	754
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	973	-	-	699	-	-	-	-	550	-	-	754
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.8			13.5			21.7		
HCM LOS							B			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	550	973	-	-	699	-	-	754
HCM Lane V/C Ratio	0.23	0.027	-	-	0.074	-	-	0.733
HCM Control Delay (s)	13.5	8.8	-	-	10.6	-	-	21.7
HCM Lane LOS	B	A	-	-	B	-	-	C
HCM 95th %tile Q(veh)	0.9	0.1	-	-	0.2	-	-	6.5

Queues
117: SH 44 & Can Ada Road

2030 Background Conditions Mitigations PM Peak Hour

01/12/2023



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	52	793	1066	77	106	51
v/c Ratio	0.24	0.60	0.88	0.07	0.48	0.23
Control Delay	5.6	7.1	22.7	3.9	40.1	12.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.6	7.1	22.7	3.9	40.1	12.4
Queue Length 50th (ft)	5	135	424	7	52	0
Queue Length 95th (ft)	15	275	#832	24	101	30
Internal Link Dist (ft)		3717	2513		4604	
Turn Bay Length (ft)	100			100	100	
Base Capacity (vph)	214	1443	1237	1052	391	358
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.55	0.86	0.07	0.27	0.14

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis Background Conditions Mitigations PM Peak Hour
 117: SH 44 & Can Ada Road

01/12/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	49	745	1002	72	100	48
Future Volume (vph)	49	745	1002	72	100	48
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1613	1765	1782	1500	1676	1366
Flt Permitted	0.09	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	159	1765	1782	1500	1676	1366
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	52	793	1066	77	106	51
RTOR Reduction (vph)	0	0	0	12	0	44
Lane Group Flow (vph)	52	793	1066	65	106	7
Heavy Vehicles (%)	6%	2%	1%	2%	2%	12%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	60.6	60.6	53.3	53.3	10.3	10.3
Effective Green, g (s)	60.6	60.6	53.3	53.3	10.3	10.3
Actuated g/C Ratio	0.76	0.76	0.67	0.67	0.13	0.13
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	171	1338	1188	1000	216	176
v/s Ratio Prot	0.01	c0.45	c0.60		c0.06	
v/s Ratio Perm	0.22			0.04		0.00
v/c Ratio	0.30	0.59	0.90	0.07	0.49	0.04
Uniform Delay, d1	12.9	4.2	11.0	4.6	32.4	30.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.7	9.1	0.0	1.8	0.1
Delay (s)	13.9	4.9	20.1	4.7	34.1	30.5
Level of Service	B	A	C	A	C	C
Approach Delay (s)		5.5	19.1		33.0	
Approach LOS		A	B		C	

Intersection Summary			
HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	79.9	Sum of lost time (s)	13.5
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary 2030 Background Conditions Mitigations PM Peak Hour
 117: SH 44 & Can Ada Road

01/12/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	49	745	1002	72	100	48	
Future Volume (veh/h)	49	745	1002	72	100	48	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1716	1772	1786	1772	1772	1632	
Adj Flow Rate, veh/h	52	793	1066	77	106	51	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	
Percent Heavy Veh, %	6	2	1	2	2	12	
Cap, veh/h	257	1370	1180	992	160	131	
Arrive On Green	0.05	0.77	0.66	0.66	0.09	0.09	
Sat Flow, veh/h	1634	1772	1786	1502	1688	1383	
Grp Volume(v), veh/h	52	793	1066	77	106	51	
Grp Sat Flow(s),veh/h/ln	1634	1772	1786	1502	1688	1383	
Q Serve(g_s), s	0.6	12.5	34.2	1.2	4.1	2.4	
Cycle Q Clear(g_c), s	0.6	12.5	34.2	1.2	4.1	2.4	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	257	1370	1180	992	160	131	
V/C Ratio(X)	0.20	0.58	0.90	0.08	0.66	0.39	
Avail Cap(c_a), veh/h	302	1641	1405	1181	447	366	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	13.2	3.2	9.7	4.1	29.7	28.9	
Incr Delay (d2), s/veh	0.4	0.4	7.5	0.0	4.6	1.9	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.4	2.2	11.8	0.3	1.8	0.1	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	13.6	3.6	17.3	4.2	34.4	30.8	
LnGrp LOS	B	A	B	A	C	C	
Approach Vol, veh/h		845	1143		157		
Approach Delay, s/veh		4.2	16.4		33.2		
Approach LOS		A	B		C		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				57.1	10.9	7.6	49.4
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				63.0	18.0	5.0	53.5
Max Q Clear Time (g_c+I1), s				14.5	6.1	2.6	36.2
Green Ext Time (p_c), s				7.3	0.3	0.0	8.8
Intersection Summary							
HCM 6th Ctrl Delay			12.8				
HCM 6th LOS			B				

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑↑	↑↑	↗		↗
Traffic Vol, veh/h	49	845	1002	29	0	148
Future Vol, veh/h	49	845	1002	29	0	148
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	52	899	1066	31	0	157

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1097	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.14	-	6.94
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.22	-	3.32
Pot Cap-1 Maneuver	632	-	0
Stage 1	-	-	0
Stage 2	-	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	632	-	491
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	15.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	632	-	-	-	491
HCM Lane V/C Ratio	0.082	-	-	-	0.321
HCM Control Delay (s)	11.2	-	-	-	15.8
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	1.4

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗			↗			↗
Traffic Vol, veh/h	39	433	61	60	710	203	0	0	137	0	0	182
Future Vol, veh/h	39	433	61	60	710	203	0	0	137	0	0	182
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	200	200	-	200	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	98	98	98	80	80	80	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	45	498	70	61	724	207	0	0	171	0	0	217

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	931	0	0	568	0	0	-	-	249	-	-	362
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.14	-	-	4.14	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	731	-	-	1000	-	-	0	0	751	0	0	635
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	731	-	-	1000	-	-	-	-	751	-	-	635
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.7			0.5			11.2			13.6		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	751	731	-	-	1000	-	-	635
HCM Lane V/C Ratio	0.228	0.061	-	-	0.061	-	-	0.341
HCM Control Delay (s)	11.2	10.2	-	-	8.8	-	-	13.6
HCM Lane LOS	B	B	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.9	0.2	-	-	0.2	-	-	1.5



KITTELSON & ASSOCIATES, INC.
 610 SW Alder, Suite 700
 Portland, Oregon 97205
 (503) 228-5230

Analysis Traffic Volumes

Hour	Major Street		Minor Street			
	Begin	End	EB	WB	NB	SB
5:00 PM	6:00 PM		793	1074	0	148
2nd Highest Hour			793	1074	0	146
3rd Highest Hour			717	970	0	133
4th Highest Hour			688	932	0	120
5th Highest Hour			611	828	0	100
6th Highest Hour			592	802	0	98
7th Highest Hour			564	763	0	93
8th Highest Hour			545	738	0	83
9th Highest Hour			516	699	0	81
10th Highest Hour			506	686	0	80
11th Highest Hour			487	660	0	76
12th Highest Hour			478	647	0	75
13th Highest Hour			459	621	0	73
14th Highest Hour			411	556	0	73
15th Highest Hour			325	440	0	60
16th Highest Hour			287	388	0	52
17th Highest Hour			220	298	0	43
18th Highest Hour			182	246	0	33
19th Highest Hour			153	207	0	30
20th Highest Hour			86	116	0	20
21st Highest Hour			57	78	0	10
22nd Highest Hour			48	65	0	8
23rd Highest Hour			29	39	0	5
24th Highest Hour			29	39	0	5

Project #: 25407
Project Name: Willow Brook Golf Community
Analyst: CHF
Date: 10/14/2022
File: H:\25\25407 - Willow Brook Community
 TIS\analysis\Signal Warrants\SWA - 117 - 2030
 Background.xls\Warrant Summary(70%)
Intersection: 17 - SH 44 / Can Ada Road
Scenario: 2030 Background Conditions

Warrant Summary

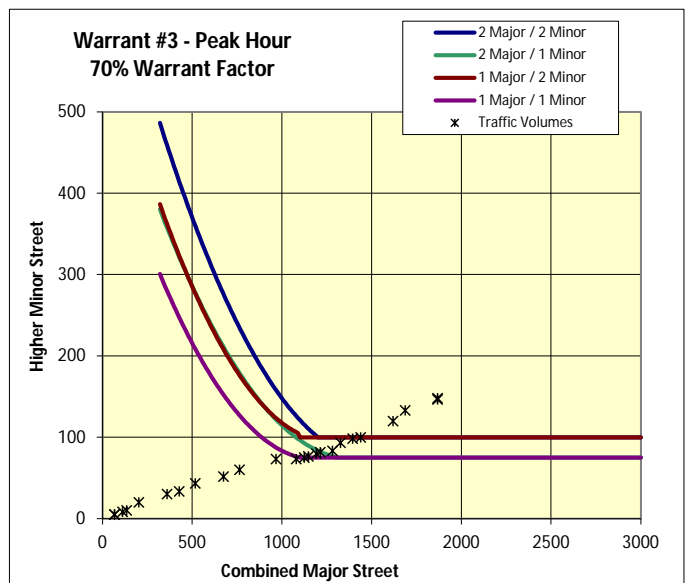
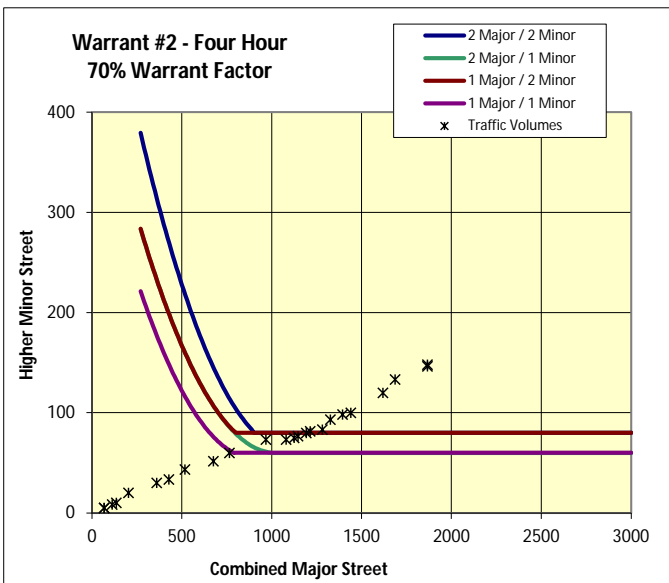
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	Yes
#2	Four-Hour Vehicular volume	Yes	Yes
#3	Peak Hour	Yes	Yes
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Minor
East-West Approach =	Major
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	Yes
Population < 10,000?	No
Warrant Factor	70%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	87%
Major Street: 8th-Highest Hour / Peak Hour	69%
Minor Street: 4th-Highest Hour / Peak Hour	81%
Minor Street: 8th-Highest Hour / Peak Hour	56%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	0	No	Yes
	B	750	75	12	Yes	Yes
80%	A	400	120	4	No	Yes
	B	600	60	15	Yes	Yes
70%	A	350	105	4	No	Yes
	B	525	53	15	Yes	Yes
56%	A	280	84	8	Yes	Yes
	B	420	42	17	Yes	Yes





Appendix L
Year 2045 Background Traffic
Operation Worksheets

Intersection						
Int Delay, s/veh	7.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	10	150	263	33	3	7
Future Vol, veh/h	10	150	263	33	3	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	2	1	0	0	0
Mvmt Flow	11	167	292	37	3	8

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	628	7	11	0	0
Stage 1	7	-	-	-	-
Stage 2	621	-	-	-	-
Critical Hdwy	6.4	6.22	4.11	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.318	2.209	-	-
Pot Cap-1 Maneuver	450	1075	1615	-	-
Stage 1	1021	-	-	-	-
Stage 2	540	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	367	1075	1615	-	-
Mov Cap-2 Maneuver	367	-	-	-	-
Stage 1	832	-	-	-	-
Stage 2	540	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.6	6.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1615	-	959	-	-
HCM Lane V/C Ratio	0.181	-	0.185	-	-
HCM Control Delay (s)	7.7	0	9.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.7	-	0.7	-	-

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T		T		T	
Traffic Vol, veh/h	2	54	94	1312	601	2
Future Vol, veh/h	2	54	94	1312	601	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	2	2	2	0
Mvmt Flow	2	59	103	1442	660	2

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	2309	661	662	0	0
Stage 1	661	-	-	-	-
Stage 2	1648	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-
Pot Cap-1 Maneuver	43	466	927	-	-
Stage 1	517	-	-	-	-
Stage 2	174	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	19	466	927	-	-
Mov Cap-2 Maneuver	19	-	-	-	-
Stage 1	229	-	-	-	-
Stage 2	174	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	23.7	0.6	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	927	-	253	-	-
HCM Lane V/C Ratio	0.111	-	0.243	-	-
HCM Control Delay (s)	9.4	0	23.7	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.4	-	0.9	-	-

Intersection						
Int Delay, s/veh	0.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	24	14	307	42	2	140
Future Vol, veh/h	24	14	307	42	2	140
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	1	6	0	0
Mvmt Flow	27	16	341	47	2	156

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	525	365	0	0	388
Stage 1	365	-	-	-	-
Stage 2	160	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	516	685	-	-	1182
Stage 1	707	-	-	-	-
Stage 2	874	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	515	685	-	-	1182
Mov Cap-2 Maneuver	515	-	-	-	-
Stage 1	707	-	-	-	-
Stage 2	872	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.9	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	567	1182
HCM Lane V/C Ratio	-	-	0.074	0.002
HCM Control Delay (s)	-	-	11.9	8.1
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0

Intersection	
Intersection Delay, s/veh	10.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	24	4	62	84	94	33	113	57	100	117	20
Future Vol, veh/h	6	24	4	62	84	94	33	113	57	100	117	20
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	0	0	7	3	0	0	0	0	3	0	0
Mvmt Flow	7	27	4	69	93	104	37	126	63	111	130	22
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.9	11.2	10.2	11.1
HCM LOS	A	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	16%	18%	26%	42%
Vol Thru, %	56%	71%	35%	49%
Vol Right, %	28%	12%	39%	8%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	203	34	240	237
LT Vol	33	6	62	100
Through Vol	113	24	84	117
RT Vol	57	4	94	20
Lane Flow Rate	226	38	267	263
Geometry Grp	1	1	1	1
Degree of Util (X)	0.306	0.058	0.375	0.369
Departure Headway (Hd)	4.884	5.573	5.059	5.045
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	726	646	704	706
Service Time	2.981	3.573	3.152	3.138
HCM Lane V/C Ratio	0.311	0.059	0.379	0.373
HCM Control Delay	10.2	8.9	11.2	11.1
HCM Lane LOS	B	A	B	B
HCM 95th-tile Q	1.3	0.2	1.7	1.7

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	56	139	485	110	62	27
Future Vol, veh/h	56	139	485	110	62	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	2	1	0	0	0
Mvmt Flow	62	154	539	122	69	30

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	661	0	-	0	878
Stage 1	-	-	-	-	600
Stage 2	-	-	-	-	278
Critical Hdwy	4.1	-	-	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	2.2	-	-	-	3.5
Pot Cap-1 Maneuver	937	-	-	-	321
Stage 1	-	-	-	-	552
Stage 2	-	-	-	-	774
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	937	-	-	-	300
Mov Cap-2 Maneuver	-	-	-	-	300
Stage 1	-	-	-	-	516
Stage 2	-	-	-	-	774

Approach	EB	WB	SB
HCM Control Delay, s	2.6	0	12.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	937	-	-	-	505
HCM Lane V/C Ratio	0.066	-	-	-	0.059
HCM Control Delay (s)	9.1	-	-	-	12.6
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.2

Intersection												
Int Delay, s/veh	921.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Vol, veh/h	5	190	8	164	579	126	310	218	157	61	31	9
Future Vol, veh/h	5	190	8	164	579	126	310	218	157	61	31	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	1	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	6	211	9	182	643	140	344	242	174	68	34	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	783	0	0	220	0	0	1327	1375	216	1443	1239	643
Stage 1	-	-	-	-	-	-	228	228	-	1007	1007	-
Stage 2	-	-	-	-	-	-	1099	1147	-	436	232	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	844	-	-	1361	-	-	~ 134	~ 147	829	111	177	477
Stage 1	-	-	-	-	-	-	779	719	-	293	321	-
Stage 2	-	-	-	-	-	-	~ 260	276	-	603	716	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	844	-	-	1361	-	-	~ 86	~ 110	829	-	133	477
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 86	~ 110	-	-	133	-
Stage 1	-	-	-	-	-	-	773	713	-	291	243	-
Stage 2	-	-	-	-	-	-	~ 165	~ 209	-	312	710	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	1.5	\$ 2498.7	
HCM LOS			F	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	119	844	-	-	1361	-	-	-
HCM Lane V/C Ratio	6.396	0.007	-	-	0.134	-	-	-
HCM Control Delay (s)	\$ 2498.7	9.3	0	-	8.1	0	-	-
HCM Lane LOS	F	A	A	-	A	A	-	-
HCM 95th %tile Q(veh)	83.7	0	-	-	0.5	-	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Queues
110: SH 16 & Beacon Light Road

2045 Background Conditions PM Peak Hour

01/12/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	71	132	126	176	503	615	149	996	96	101	517	44
v/c Ratio	0.68	0.36	0.26	0.48	1.09	1.19	0.46	1.23	0.12	0.96	0.68	0.06
Control Delay	68.9	54.1	1.3	41.8	118.1	139.1	21.3	149.3	0.3	108.2	40.1	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.9	54.1	1.3	41.8	118.1	139.1	21.3	149.3	0.3	108.2	40.1	0.1
Queue Length 50th (ft)	48	112	0	127	~550	~603	69	~1197	0	50	406	0
Queue Length 95th (ft)	#99	180	0	195	#780	#848	108	#1459	0	#178	545	0
Internal Link Dist (ft)		2558			3836			8809			1084	
Turn Bay Length (ft)	100		100	100		100	100		100	100		100
Base Capacity (vph)	105	370	488	369	463	516	332	811	788	105	760	770
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.36	0.26	0.48	1.09	1.19	0.45	1.23	0.12	0.96	0.68	0.06

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Background Conditions PM Peak Hour
 110: SH 16 & Beacon Light Road 01/12/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	129	123	172	493	603	146	976	94	99	507	43
Future Volume (vph)	70	129	123	172	493	603	146	976	94	99	507	43
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0	9.0	9.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1710	1765	1530	1660	1782	1530	1693	1765	1485	1710	1765	1530
Flt Permitted	0.13	1.00	1.00	0.51	1.00	1.00	0.27	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	229	1765	1530	889	1782	1530	478	1765	1485	111	1765	1530
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	71	132	126	176	503	615	149	996	96	101	517	44
RTOR Reduction (vph)	0	0	100	0	0	118	0	0	52	0	0	25
Lane Group Flow (vph)	71	132	26	176	503	497	149	996	44	101	517	19
Heavy Vehicles (%)	0%	2%	0%	3%	1%	0%	1%	2%	3%	0%	2%	0%
Turn Type	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Prot
Protected Phases	1	6	6	5	2	2	3	8	8	7	4	4
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	36.5	31.5	31.5	51.0	39.0	39.0	78.4	69.0	69.0	69.6	64.6	64.6
Effective Green, g (s)	36.5	31.5	31.5	51.0	39.0	39.0	78.4	69.0	69.0	69.6	64.6	64.6
Actuated g/C Ratio	0.24	0.21	0.21	0.34	0.26	0.26	0.52	0.46	0.46	0.46	0.43	0.43
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0	9.0	9.0
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	5.0	5.0	2.0	5.0	5.0
Lane Grp Cap (vph)	105	370	321	366	463	397	325	811	683	104	760	658
v/s Ratio Prot	0.02	0.07	0.02	c0.04	0.28	c0.32	0.03	c0.56	0.03	c0.03	0.29	0.01
v/s Ratio Perm	0.14			0.12			0.21			0.41		
v/c Ratio	0.68	0.36	0.08	0.48	1.09	1.25	0.46	1.23	0.06	0.97	0.68	0.03
Uniform Delay, d1	47.4	50.6	47.6	36.9	55.5	55.5	22.3	40.5	22.5	36.2	34.4	24.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.7	0.6	0.1	0.4	67.2	132.2	0.4	113.5	0.1	78.3	3.2	0.0
Delay (s)	60.1	51.2	47.7	37.3	122.7	187.7	22.7	154.0	22.6	114.5	37.6	24.7
Level of Service	E	D	D	D	F	F	C	F	C	F	D	C
Approach Delay (s)		51.8			142.0			128.0			48.5	
Approach LOS		D			F			F			D	
Intersection Summary												
HCM 2000 Control Delay			111.1			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.21									
Actuated Cycle Length (s)			150.0	Sum of lost time (s)					32.0			
Intersection Capacity Utilization			118.2%	ICU Level of Service			H					
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
110: SH 16 & Beacon Light Road

2045 Background Conditions PM Peak Hour

01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Traffic Volume (veh/h)	70	129	123	172	493	603	146	976	94	99	507	43
Future Volume (veh/h)	70	129	123	172	493	603	146	976	94	99	507	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1772	1800	1758	1786	1800	1786	1772	1758	1800	1772	1800
Adj Flow Rate, veh/h	71	132	126	176	503	615	149	996	96	101	517	44
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	2	0	3	1	0	1	2	3	0	2	0
Cap, veh/h	105	366	315	352	464	397	322	815	685	105	764	658
Arrive On Green	0.03	0.21	0.21	0.09	0.26	0.26	0.06	0.46	0.46	0.03	0.43	0.43
Sat Flow, veh/h	1714	1772	1525	1674	1786	1525	1701	1772	1490	1714	1772	1525
Grp Volume(v), veh/h	71	132	126	176	503	615	149	996	96	101	517	44
Grp Sat Flow(s),veh/h/ln	1714	1772	1525	1674	1786	1525	1701	1772	1490	1714	1772	1525
Q Serve(g_s), s	4.9	9.6	10.7	12.2	39.0	39.0	7.3	69.0	5.6	5.0	35.1	2.5
Cycle Q Clear(g_c), s	4.9	9.6	10.7	12.2	39.0	39.0	7.3	69.0	5.6	5.0	35.1	2.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	105	366	315	352	464	397	322	815	685	105	764	658
V/C Ratio(X)	0.68	0.36	0.40	0.50	1.08	1.55	0.46	1.22	0.14	0.96	0.68	0.07
Avail Cap(c_a), veh/h	105	366	315	352	464	397	330	815	685	105	764	658
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.4	51.0	51.5	40.8	55.5	55.5	26.1	40.5	23.4	37.0	34.2	25.0
Incr Delay (d2), s/veh	13.2	0.6	0.8	0.4	66.1	260.0	0.4	110.8	0.2	74.5	3.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	4.4	4.2	5.1	26.0	43.6	3.0	54.7	2.0	4.3	15.8	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.5	51.6	52.3	41.2	121.6	315.5	26.5	151.3	23.6	111.4	37.4	25.1
LnGrp LOS	E	D	D	D	F	F	C	F	C	F	D	C
Approach Vol, veh/h		329			1294			1241			662	
Approach Delay, s/veh		54.0			202.8			126.5			47.9	
Approach LOS		D			F			F			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	46.0	18.3	73.7	20.0	38.0	14.0	78.0				
Change Period (Y+Rc), s	7.0	7.0	9.0	9.0	7.0	7.0	9.0	9.0				
Max Green Setting (Gmax), s	5.0	39.0	10.0	64.0	13.0	31.0	5.0	69.0				
Max Q Clear Time (g_c+I1), s	6.9	41.0	9.3	37.1	14.2	12.7	7.0	71.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	7.2	0.0	1.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay				133.0								
HCM 6th LOS				F								

Intersection						
Int Delay, s/veh	23.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	416	19	5	1263	115	22
Future Vol, veh/h	416	19	5	1263	115	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	0	0	1	5	0
Mvmt Flow	438	20	5	1329	121	23

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	458	0	1787
Stage 1	-	-	-	-	448
Stage 2	-	-	-	-	1339
Critical Hdwy	-	-	4.1	-	6.45
Critical Hdwy Stg 1	-	-	-	-	5.45
Critical Hdwy Stg 2	-	-	-	-	5.45
Follow-up Hdwy	-	-	2.2	-	3.545
Pot Cap-1 Maneuver	-	-	1114	-	~ 88
Stage 1	-	-	-	-	637
Stage 2	-	-	-	-	241
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1114	-	~ 87
Mov Cap-2 Maneuver	-	-	-	-	~ 87
Stage 1	-	-	-	-	637
Stage 2	-	-	-	-	237

Approach	EB	WB	NB
HCM Control Delay, s	0	0	\$ 316.3
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	101	-	-	1114	-
HCM Lane V/C Ratio	1.428	-	-	0.005	-
HCM Control Delay (s)	\$ 316.3	-	-	8.2	0
HCM Lane LOS	F	-	-	A	A
HCM 95th %tile Q(veh)	10.5	-	-	0	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection						
Int Delay, s/veh	129.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↑	↔	↔
Traffic Vol, veh/h	120	182	584	222	139	172
Future Vol, veh/h	120	182	584	222	139	172
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	100	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	2	2	0	0	0
Mvmt Flow	132	200	642	244	153	189

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	332	0	1760 232
Stage 1	-	-	-	-	232 -
Stage 2	-	-	-	-	1528 -
Critical Hdwy	-	-	4.12	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	-	-	2.218	-	3.5 3.3
Pot Cap-1 Maneuver	-	-	1227	-	~94 812
Stage 1	-	-	-	-	811 -
Stage 2	-	-	-	-	200 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1227	-	~45 812
Mov Cap-2 Maneuver	-	-	-	-	~45 -
Stage 1	-	-	-	-	811 -
Stage 2	-	-	-	-	~95 -

Approach	EB	WB	NB
HCM Control Delay, s	0	8	\$ 571.8
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	45	812	-	-	1227	-
HCM Lane V/C Ratio	3.394	0.233	-	-	0.523	-
HCM Control Delay (s)	\$ 1265.9	10.8	-	-	11.1	-
HCM Lane LOS	F	B	-	-	B	-
HCM 95th %tile Q(veh)	16.9	0.9	-	-	3.2	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection						
Int Delay, s/veh	114.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	166	246	91	388	361	67
Future Vol, veh/h	166	246	91	388	361	67
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	184	273	101	431	401	74

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	457	0	954 321
Stage 1	-	-	-	-	321 -
Stage 2	-	-	-	-	633 -
Critical Hdwy	-	-	4.1	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	-	-	2.2	-	3.5 3.3
Pot Cap-1 Maneuver	-	-	1114	- ~	289 724
Stage 1	-	-	-	-	740 -
Stage 2	-	-	-	-	533 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1114	- ~	255 724
Mov Cap-2 Maneuver	-	-	-	- ~	255 -
Stage 1	-	-	-	-	740 -
Stage 2	-	-	-	-	470 -

Approach	EB	WB	NB
HCM Control Delay, s	0	1.6	\$ 349.9
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	284	-	-	1114	-
HCM Lane V/C Ratio	1.674	-	-	0.091	-
HCM Control Delay (s)	\$ 349.9	-	-	8.6	0
HCM Lane LOS	F	-	-	A	A
HCM 95th %tile Q(veh)	29.9	-	-	0.3	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection						
Int Delay, s/veh	13.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	265	24	218	109	35	319
Future Vol, veh/h	265	24	218	109	35	319
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	4	0	0
Mvmt Flow	294	27	242	121	39	354

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	735	303	0	0	363
Stage 1	303	-	-	-	-
Stage 2	432	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	390	741	-	-	1207
Stage 1	754	-	-	-	-
Stage 2	659	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	374	741	-	-	1207
Mov Cap-2 Maneuver	374	-	-	-	-
Stage 1	754	-	-	-	-
Stage 2	633	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	45.2	0	0.8
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	390	1207
HCM Lane V/C Ratio	-	-	0.823	0.032
HCM Control Delay (s)	-	-	45.2	8.1
HCM Lane LOS	-	-	E	A
HCM 95th %tile Q(veh)	-	-	7.5	0.1

Intersection						
Int Delay, s/veh	6.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T		T		T	
Traffic Vol, veh/h	3	72	470	131	16	5
Future Vol, veh/h	3	72	470	131	16	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	4	0	0
Mvmt Flow	3	78	511	142	17	5

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	1184	20	22	0	0
Stage 1	20	-	-	-	-
Stage 2	1164	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-
Pot Cap-1 Maneuver	211	1064	1607	-	-
Stage 1	1008	-	-	-	-
Stage 2	300	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	138	1064	1607	-	-
Mov Cap-2 Maneuver	138	-	-	-	-
Stage 1	660	-	-	-	-
Stage 2	300	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	6.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1607	-	839	-	-
HCM Lane V/C Ratio	0.318	-	0.097	-	-
HCM Control Delay (s)	8.3	0	9.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	1.4	-	0.3	-	-

Intersection						
Int Delay, s/veh	417					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	88	865	1163	130	180	87
Future Vol, veh/h	88	865	1163	130	180	87
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	6	2	1	2	2	12
Mvmt Flow	94	920	1237	138	191	93

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	1375	0	-	0	2414 1306
Stage 1	-	-	-	-	1306 -
Stage 2	-	-	-	-	1108 -
Critical Hdwy	4.16	-	-	-	6.42 6.32
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.254	-	-	-	3.518 3.408
Pot Cap-1 Maneuver	486	-	-	-	~ 36 186
Stage 1	-	-	-	-	254 -
Stage 2	-	-	-	-	316 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	486	-	-	-	~ 22 186
Mov Cap-2 Maneuver	-	-	-	-	~ 22 -
Stage 1	-	-	-	-	~ 153 -
Stage 2	-	-	-	-	316 -

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	\$ 3920.4
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	486	-	-	-	31
HCM Lane V/C Ratio	0.193	-	-	-	9.163
HCM Control Delay (s)	14.2	0	-	-	\$ 3920.4
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0.7	-	-	-	34.7

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	162	641	368	189	923	114	395	307	124	111	352
v/c Ratio	1.36	0.80	0.48	0.78	1.11	0.14	1.28	0.63	0.25	0.44	1.17
Control Delay	234.3	43.8	17.6	41.5	100.7	1.2	183.9	53.4	9.9	40.5	156.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	234.3	43.8	17.6	41.5	100.7	1.2	183.9	53.4	9.9	40.5	156.3
Queue Length 50th (ft)	~152	515	134	87	~990	0	~424	257	8	71	~385
Queue Length 95th (ft)	#305	687	226	#167	#1248	12	#636	364	59	118	#590
Internal Link Dist (ft)		2598			5173			1764			5156
Turn Bay Length (ft)	100		100	100		100	100		100	100	
Base Capacity (vph)	119	798	766	241	835	801	309	486	496	253	300
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.36	0.80	0.48	0.78	1.11	0.14	1.28	0.63	0.25	0.44	1.17

Intersection Summary

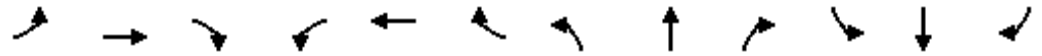
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Background Conditions PM Peak Hour
 118: Star Road & SH 44 01/12/2023



























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↑	↗	↖	↗	↖
Traffic Volume (vph)	160	635	364	187	914	113	391	304	123	110	237	112
Future Volume (vph)	160	635	364	187	914	113	391	304	123	110	237	112
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95	0.95
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1693	1782	1515	1676	1782	1530	1710	1800	1530	1660	1674	1674
Flt Permitted	0.06	1.00	1.00	0.17	1.00	1.00	0.13	1.00	1.00	0.54	1.00	1.00
Satd. Flow (perm)	110	1782	1515	293	1782	1530	232	1800	1530	940	1674	1674
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	162	641	368	189	923	114	395	307	124	111	239	113
RTOR Reduction (vph)	0	0	87	0	0	61	0	0	82	0	12	0
Lane Group Flow (vph)	162	641	281	189	923	53	395	307	42	111	340	0
Heavy Vehicles (%)	1%	1%	1%	2%	1%	0%	0%	0%	0%	3%	3%	1%
Turn Type	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	NA
Protected Phases	1	6	6	5	2	2	3	8	8	7	4	4
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	71.0	65.0	65.0	77.0	68.0	68.0	53.0	39.2	39.2	32.8	25.0	25.0
Effective Green, g (s)	71.0	65.0	65.0	77.0	68.0	68.0	53.0	39.2	39.2	32.8	25.0	25.0
Actuated g/C Ratio	0.49	0.45	0.45	0.53	0.47	0.47	0.37	0.27	0.27	0.23	0.17	0.17
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	2.0	2.5	2.5	2.0	2.5	2.5	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	119	798	679	241	835	717	309	486	413	251	288	288
v/s Ratio Prot	c0.06	0.36	0.19	0.05	c0.52	0.03	c0.19	0.17	0.03	0.02	0.20	0.20
v/s Ratio Perm	c0.61			0.37			c0.27			0.08		
v/c Ratio	1.36	0.80	0.41	0.78	1.11	0.07	1.28	0.63	0.10	0.44	1.18	1.18
Uniform Delay, d1	36.9	34.5	27.1	25.8	38.5	21.2	44.6	46.5	39.7	46.6	60.0	60.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	207.3	8.4	1.9	14.2	64.1	0.0	147.9	2.0	0.0	0.5	111.7	111.7
Delay (s)	244.2	42.9	28.9	40.0	102.6	21.2	192.5	48.5	39.7	47.0	171.7	171.7
Level of Service	F	D	C	D	F	C	F	D	D	D	F	F
Approach Delay (s)		66.4			85.4			116.1			141.8	
Approach LOS		E			F			F			F	

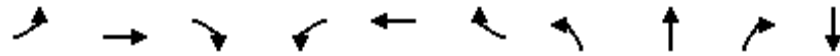
Intersection Summary		
HCM 2000 Control Delay	93.3	HCM 2000 Level of Service F
HCM 2000 Volume to Capacity ratio	1.33	
Actuated Cycle Length (s)	145.0	Sum of lost time (s) 24.0
Intersection Capacity Utilization	123.4%	ICU Level of Service H
Analysis Period (min)	15	
c Critical Lane Group		

HCM 6th Signalized Intersection Summary
118: Star Road & SH 44

2045 Background Conditions PM Peak Hour

01/12/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	635	364	187	914	113	391	304	123	110	237	112
Future Volume (veh/h)	160	635	364	187	914	113	391	304	123	110	237	112
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1786	1786	1786	1772	1786	1800	1800	1800	1800	1758	1758	1786
Adj Flow Rate, veh/h	162	641	368	189	923	114	395	307	124	111	239	113
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	1	1	1	2	1	0	0	0	0	3	3	1
Cap, veh/h	120	801	678	232	838	715	310	484	410	255	195	92
Arrive On Green	0.04	0.45	0.45	0.06	0.47	0.47	0.15	0.27	0.27	0.06	0.17	0.17
Sat Flow, veh/h	1701	1786	1514	1688	1786	1525	1714	1800	1525	1674	1128	533
Grp Volume(v), veh/h	162	641	368	189	923	114	395	307	124	111	0	352
Grp Sat Flow(s),veh/h/ln	1701	1786	1514	1688	1786	1525	1714	1800	1525	1674	0	1662
Q Serve(g_s), s	6.0	44.8	25.7	9.0	68.0	6.2	22.0	21.8	9.4	8.0	0.0	25.0
Cycle Q Clear(g_c), s	6.0	44.8	25.7	9.0	68.0	6.2	22.0	21.8	9.4	8.0	0.0	25.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.32
Lane Grp Cap(c), veh/h	120	801	678	232	838	715	310	484	410	255	0	287
V/C Ratio(X)	1.35	0.80	0.54	0.81	1.10	0.16	1.28	0.63	0.30	0.44	0.00	1.23
Avail Cap(c_a), veh/h	120	801	678	232	838	715	310	484	410	255	0	287
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.6	34.4	29.2	30.0	38.5	22.1	44.3	46.7	42.2	46.6	0.0	60.0
Incr Delay (d2), s/veh	202.3	8.3	3.1	18.3	62.9	0.1	146.6	2.1	0.2	0.4	0.0	129.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.0	21.2	10.0	4.7	43.8	2.3	22.0	10.1	3.6	3.4	0.0	20.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	240.0	42.7	32.3	48.3	101.4	22.2	190.9	48.8	42.3	47.0	0.0	189.6
LnGrp LOS	F	D	C	D	F	C	F	D	D	D	A	F
Approach Vol, veh/h		1171			1226			826			463	
Approach Delay, s/veh		66.7			85.8			115.8			155.4	
Approach LOS		E			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	74.0	28.0	31.0	15.0	71.0	14.0	45.0				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	6.0	68.0	22.0	25.0	9.0	65.0	8.0	39.0				
Max Q Clear Time (g_c+I1), s	8.0	70.0	24.0	27.0	11.0	46.8	10.0	23.8				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	4.5	0.0	1.2				
Intersection Summary												
HCM 6th Ctrl Delay				95.2								
HCM 6th LOS				F								



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	71	782	58	108	1282	293	113	116	158	514
v/c Ratio	0.68	0.80	0.07	0.50	1.32	0.34	0.35	0.21	0.28	1.36
Control Delay	50.6	35.4	3.9	20.7	180.2	16.0	44.2	40.0	6.6	218.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.6	35.4	3.9	20.7	180.2	16.0	44.2	40.0	6.6	218.9
Queue Length 50th (ft)	26	600	0	41	~1613	121	86	85	0	~657
Queue Length 95th (ft)	#97	794	22	68	#1880	186	147	139	54	#890
Internal Link Dist (ft)		5173			3517			675		5173
Turn Bay Length (ft)	100		100	100		100	100		100	
Base Capacity (vph)	105	974	862	215	974	863	323	541	560	377
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.80	0.07	0.50	1.32	0.34	0.35	0.21	0.28	1.36

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Background Conditions PM Peak Hour
 119: Plummer Road & SH 44 01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	743	55	103	1218	278	107	110	150	316	78	94
Future Volume (vph)	67	743	55	103	1218	278	107	110	150	316	78	94
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0		5.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1710	1782	1530	1710	1782	1530	1710	1765	1471		1678	
Flt Permitted	0.05	1.00	1.00	0.16	1.00	1.00	0.59	1.00	1.00		0.70	
Satd. Flow (perm)	88	1782	1530	290	1782	1530	1055	1765	1471		1214	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	71	782	58	108	1282	293	113	116	158	333	82	99
RTOR Reduction (vph)	0	0	26	0	0	27	0	0	110	0	6	0
Lane Group Flow (vph)	71	782	32	108	1282	266	113	116	48	0	508	0
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	2%	4%	1%	0%	3%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6		6	2		2	4		4	8		
Actuated Green, G (s)	87.0	82.0	82.0	87.0	82.0	82.0	46.0	46.0	46.0		46.0	
Effective Green, g (s)	87.0	82.0	82.0	87.0	82.0	82.0	46.0	46.0	46.0		46.0	
Actuated g/C Ratio	0.58	0.55	0.55	0.58	0.55	0.55	0.31	0.31	0.31		0.31	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0		5.0	
Vehicle Extension (s)	2.5	4.0	4.0	2.5	4.0	4.0	2.5	2.5	2.5		2.5	
Lane Grp Cap (vph)	105	974	836	215	974	836	323	541	451		372	
v/s Ratio Prot	c0.02	0.44		0.02	c0.72			0.07				
v/s Ratio Perm	0.37		0.02	0.27		0.17	0.11		0.03		c0.42	
v/c Ratio	0.68	0.80	0.04	0.50	1.32	0.32	0.35	0.21	0.11		1.37	
Uniform Delay, d1	34.9	27.5	15.7	22.6	34.0	18.7	40.4	38.6	37.3		52.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	
Incremental Delay, d2	14.5	5.1	0.0	1.3	149.6	0.3	0.5	0.1	0.1		181.5	
Delay (s)	49.4	32.6	15.8	24.0	183.6	19.0	40.9	38.7	37.4		233.5	
Level of Service	D	C	B	C	F	B	D	D	D		F	
Approach Delay (s)		32.8			144.7			38.8			233.5	
Approach LOS		C			F			D			F	

Intersection Summary		
HCM 2000 Control Delay	116.9	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	1.31	F
Actuated Cycle Length (s)	150.0	Sum of lost time (s)
Intersection Capacity Utilization	121.5%	ICU Level of Service
Analysis Period (min)	15	H
c Critical Lane Group		

HCM 6th Signalized Intersection Summary
119: Plummer Road & SH 44

2045 Background Conditions PM Peak Hour
01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	743	55	103	1218	278	107	110	150	316	78	94
Future Volume (veh/h)	67	743	55	103	1218	278	107	110	150	316	78	94
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1786	1800	1800	1786	1800	1800	1772	1744	1786	1800	1758
Adj Flow Rate, veh/h	71	782	58	108	1282	293	113	116	158	333	82	99
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	1	0	0	1	0	0	2	4	1	0	3
Cap, veh/h	102	975	833	233	978	835	406	544	454	251	52	63
Arrive On Green	0.03	0.55	0.55	0.03	0.55	0.55	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1714	1786	1525	1714	1786	1525	1222	1772	1478	689	170	205
Grp Volume(v), veh/h	71	782	58	108	1282	293	113	116	158	514	0	0
Grp Sat Flow(s),veh/h/ln	1714	1786	1525	1714	1786	1525	1222	1772	1478	1063	0	0
Q Serve(g_s), s	2.7	53.0	2.7	4.2	82.0	16.1	0.0	7.3	12.4	38.7	0.0	0.0
Cycle Q Clear(g_c), s	2.7	53.0	2.7	4.2	82.0	16.1	11.1	7.3	12.4	46.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.65		0.19
Lane Grp Cap(c), veh/h	102	975	833	233	978	835	406	544	454	366	0	0
V/C Ratio(X)	0.69	0.80	0.07	0.46	1.31	0.35	0.28	0.21	0.35	1.40	0.00	0.00
Avail Cap(c_a), veh/h	105	978	835	233	978	835	406	544	454	366	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	36.3	27.5	16.1	25.3	33.9	19.0	39.8	38.5	40.2	57.6	0.0	0.0
Incr Delay (d2), s/veh	16.1	5.1	0.0	1.1	147.2	0.4	0.3	0.1	0.3	197.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	23.6	1.0	1.7	74.4	5.9	3.3	3.2	4.6	34.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.4	32.6	16.1	26.4	181.1	19.3	40.1	38.6	40.6	254.9	0.0	0.0
LnGrp LOS	D	C	B	C	F	B	D	D	D	F	A	A
Approach Vol, veh/h		911			1683			387			514	
Approach Delay, s/veh		33.1			143.0			39.8			254.9	
Approach LOS		C			F			D			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.7	88.0		51.0	11.0	87.7		51.0				
Change Period (Y+Rc), s	6.0	6.0		5.0	6.0	6.0		5.0				
Max Green Setting (Gmax), s	5.0	82.0		46.0	5.0	82.0		46.0				
Max Q Clear Time (g_c+I1), s	4.7	84.0		14.4	6.2	55.0		48.0				
Green Ext Time (p_c), s	0.0	0.0		1.2	0.0	9.5		0.0				
Intersection Summary												
HCM 6th Ctrl Delay	119.4											
HCM 6th LOS	F											

Intersection						
Int Delay, s/veh	8.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	203	80	10	7	1
Future Vol, veh/h	7	203	80	10	7	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	4	0	89	0
Mvmt Flow	8	226	89	11	8	1

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	198	9	9	0	0
Stage 1	9	-	-	-	-
Stage 2	189	-	-	-	-
Critical Hdwy	6.4	6.2	4.14	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.236	-	-
Pot Cap-1 Maneuver	795	1079	1598	-	-
Stage 1	1019	-	-	-	-
Stage 2	848	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	750	1079	1598	-	-
Mov Cap-2 Maneuver	750	-	-	-	-
Stage 1	962	-	-	-	-
Stage 2	848	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.3	6.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1598	-	1063	-	-
HCM Lane V/C Ratio	0.056	-	0.22	-	-
HCM Control Delay (s)	7.4	0	9.3	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.8	-	-

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T		T		T	
Traffic Vol, veh/h	3	73	31	392	1055	2
Future Vol, veh/h	3	73	31	392	1055	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	3	3	100
Mvmt Flow	3	81	34	436	1172	2

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1677	1173	1174	0	-	0
Stage 1	1173	-	-	-	-	-
Stage 2	504	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	106	236	602	-	-	-
Stage 1	297	-	-	-	-	-
Stage 2	611	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	98	236	602	-	-	-
Mov Cap-2 Maneuver	98	-	-	-	-	-
Stage 1	275	-	-	-	-	-
Stage 2	611	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	30.5	0.8	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	602	-	224	-	-
HCM Lane V/C Ratio	0.057	-	0.377	-	-
HCM Control Delay (s)	11.3	0	30.5	-	-
HCM Lane LOS	B	A	D	-	-
HCM 95th %tile Q(veh)	0.2	-	1.7	-	-

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	16	2	97	15	2	207
Future Vol, veh/h	16	2	97	15	2	207
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	1	6	0	0
Mvmt Flow	18	2	108	17	2	230

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	351	117	0	0	125	0
Stage 1	117	-	-	-	-	-
Stage 2	234	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	650	941	-	-	1474	-
Stage 1	913	-	-	-	-	-
Stage 2	810	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	649	941	-	-	1474	-
Mov Cap-2 Maneuver	649	-	-	-	-	-
Stage 1	913	-	-	-	-	-
Stage 2	808	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.5	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	672	1474
HCM Lane V/C Ratio	-	-	0.03	0.002
HCM Control Delay (s)	-	-	10.5	7.4
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection	
Intersection Delay, s/veh	9.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	56	13	56	11	9	7	73	87	140	127	13
Future Vol, veh/h	9	56	13	56	11	9	7	73	87	140	127	13
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	0	4	0	46	20	0	23	0	0	0	0	0
Mvmt Flow	9	59	14	59	12	9	7	77	92	147	134	14
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.8	10	9.3	10.5
HCM LOS	A	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	4%	12%	74%	50%
Vol Thru, %	44%	72%	14%	45%
Vol Right, %	52%	17%	12%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	167	78	76	280
LT Vol	7	9	56	140
Through Vol	73	56	11	127
RT Vol	87	13	9	13
Lane Flow Rate	176	82	80	295
Geometry Grp	1	1	1	1
Degree of Util (X)	0.233	0.115	0.133	0.379
Departure Headway (Hd)	4.774	5.05	5.974	4.626
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	749	704	597	775
Service Time	2.825	3.118	4.043	2.671
HCM Lane V/C Ratio	0.235	0.116	0.134	0.381
HCM Control Delay	9.3	8.8	10	10.5
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.9	0.4	0.5	1.8

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑	↗			↘
Traffic Vol, veh/h	6	268	107	40	83	13
Future Vol, veh/h	6	268	107	40	83	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	3	8	0	3	0
Mvmt Flow	7	298	119	44	92	14

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	163	0	-	0	453 141
Stage 1	-	-	-	-	141 -
Stage 2	-	-	-	-	312 -
Critical Hdwy	4.1	-	-	-	6.43 6.2
Critical Hdwy Stg 1	-	-	-	-	5.43 -
Critical Hdwy Stg 2	-	-	-	-	5.43 -
Follow-up Hdwy	2.2	-	-	-	3.527 3.3
Pot Cap-1 Maneuver	1428	-	-	-	563 912
Stage 1	-	-	-	-	883 -
Stage 2	-	-	-	-	740 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1428	-	-	-	560 912
Mov Cap-2 Maneuver	-	-	-	-	560 -
Stage 1	-	-	-	-	879 -
Stage 2	-	-	-	-	740 -

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1428	-	-	-	912
HCM Lane V/C Ratio	0.005	-	-	-	0.016
HCM Control Delay (s)	7.5	-	-	-	9
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection												
Int Delay, s/veh	14.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Vol, veh/h	3	402	5	40	134	78	9	48	140	113	39	26
Future Vol, veh/h	3	402	5	40	134	78	9	48	140	113	39	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	3	0	7	8	0	0	0	3	0	0	0
Mvmt Flow	3	447	6	44	149	87	10	53	156	126	43	29

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	236	0	0	453	0	0	773	780	450	798	696	149
Stage 1	-	-	-	-	-	-	456	456	-	237	237	-
Stage 2	-	-	-	-	-	-	317	324	-	561	459	-
Critical Hdwy	4.1	-	-	4.17	-	-	7.1	6.5	6.23	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.263	-	-	3.5	4	3.327	3.5	4	3.3
Pot Cap-1 Maneuver	1343	-	-	1082	-	-	319	329	607	306	368	903
Stage 1	-	-	-	-	-	-	588	572	-	771	713	-
Stage 2	-	-	-	-	-	-	698	653	-	516	570	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1343	-	-	1082	-	-	269	313	607	190	350	903
Mov Cap-2 Maneuver	-	-	-	-	-	-	269	313	-	190	350	-
Stage 1	-	-	-	-	-	-	586	570	-	769	679	-
Stage 2	-	-	-	-	-	-	603	622	-	347	568	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0.1		1.3		19.1		63.4	
HCM LOS					C		F	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	472	1343	-	-	1082	-	-	242
HCM Lane V/C Ratio	0.464	0.002	-	-	0.041	-	-	0.817
HCM Control Delay (s)	19.1	7.7	0	-	8.5	0	-	63.4
HCM Lane LOS	C	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	2.4	0	-	-	0.1	-	-	6.3

Queues
110: SH 16 & Beacon Light Road

2045 Background Conditions AM Peak Hour

01/12/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	23	277	257	149	96	108	88	384	200	270	974	7
v/c Ratio	0.09	0.95	0.57	1.02	0.34	0.22	0.79	0.45	0.24	0.51	1.06	0.01
Control Delay	40.4	99.2	13.0	127.3	53.7	1.0	66.5	27.6	2.4	15.2	81.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.4	99.2	13.0	127.3	53.7	1.0	66.5	27.6	2.4	15.2	81.1	0.0
Queue Length 50th (ft)	16	253	12	~121	79	0	31	235	0	103	~976	0
Queue Length 95th (ft)	40	#430	97	#227	138	0	#129	329	30	149	#1235	0
Internal Link Dist (ft)		2558			3836			8809			1084	
Turn Bay Length (ft)	100		100	100		100	100		100	100		100
Base Capacity (vph)	265	292	453	146	282	497	112	844	838	542	915	882
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.95	0.57	1.02	0.34	0.22	0.79	0.45	0.24	0.50	1.06	0.01

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

























HCM Signalized Intersection Capacity Analysis 2045 Background Conditions AM Peak Hour
 110: SH 16 & Beacon Light Road 01/12/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	21	249	231	134	86	97	79	346	180	243	877	6	
Future Volume (vph)	21	249	231	134	86	97	79	346	180	243	877	6	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0	9.0	9.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1710	1782	1530	1644	1374	1485	1710	1800	1530	1693	1731	1530	
Flt Permitted	0.69	1.00	1.00	0.23	1.00	1.00	0.06	1.00	1.00	0.39	1.00	1.00	
Satd. Flow (perm)	1251	1782	1530	406	1374	1485	110	1800	1530	692	1731	1530	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.86	
Adj. Flow (vph)	23	277	257	149	96	108	88	384	200	270	974	7	
RTOR Reduction (vph)	0	0	198	0	0	86	0	0	108	0	0	3	
Lane Group Flow (vph)	23	277	59	149	96	22	88	384	92	270	974	4	
Heavy Vehicles (%)	0%	1%	0%	4%	31%	3%	0%	0%	0%	1%	4%	0%	
Turn Type	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Prot	
Protected Phases	1	6	6	5	2	2	3	8	8	7	4	4	
Permitted Phases	6			2			8			4			
Actuated Green, G (s)	28.7	25.7	25.7	34.7	28.7	28.7	70.7	65.7	65.7	87.3	74.0	74.0	
Effective Green, g (s)	28.7	25.7	25.7	34.7	28.7	28.7	70.7	65.7	65.7	87.3	74.0	74.0	
Actuated g/C Ratio	0.20	0.18	0.18	0.24	0.20	0.20	0.50	0.46	0.46	0.61	0.52	0.52	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0	9.0	9.0	
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	5.0	5.0	2.0	5.0	5.0	
Lane Grp Cap (vph)	261	320	275	150	276	298	110	828	704	516	897	793	
v/s Ratio Prot	0.00	0.16	0.04	c0.04	0.07	0.01	0.03	0.21	0.06	c0.05	c0.56	0.00	
v/s Ratio Perm	0.02			c0.20			0.37			0.27			
v/c Ratio	0.09	0.87	0.21	0.99	0.35	0.07	0.80	0.46	0.13	0.52	1.09	0.00	
Uniform Delay, d1	46.2	56.8	49.9	53.5	49.0	46.2	33.2	26.4	22.1	14.8	34.3	16.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	20.9	0.4	71.1	0.8	0.1	31.1	0.9	0.2	0.4	56.1	0.0	
Delay (s)	46.2	77.7	50.3	124.6	49.7	46.3	64.3	27.3	22.3	15.2	90.5	16.6	
Level of Service	D	E	D	F	D	D	E	C	C	B	F	B	
Approach Delay (s)		63.8			80.3			30.6			73.8		
Approach LOS		E			F			C			E		
Intersection Summary													
HCM 2000 Control Delay			62.4									HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio			1.09										
Actuated Cycle Length (s)			142.7									Sum of lost time (s)	32.0
Intersection Capacity Utilization			101.7%									ICU Level of Service	G
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary
110: SH 16 & Beacon Light Road

2045 Background Conditions AM Peak Hour

01/12/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	249	231	134	86	97	79	346	180	243	877	6
Future Volume (veh/h)	21	249	231	134	86	97	79	346	180	243	877	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1786	1800	1744	1365	1758	1800	1800	1800	1786	1744	1800
Adj Flow Rate, veh/h	23	277	257	149	96	108	88	384	200	270	974	7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.86
Percent Heavy Veh, %	0	1	0	4	31	3	0	0	0	1	4	0
Cap, veh/h	237	293	251	132	254	277	113	844	715	486	922	806
Arrive On Green	0.02	0.16	0.16	0.04	0.19	0.19	0.04	0.47	0.47	0.10	0.53	0.53
Sat Flow, veh/h	1714	1786	1525	1661	1365	1490	1714	1800	1525	1701	1744	1525
Grp Volume(v), veh/h	23	277	257	149	96	108	88	384	200	270	974	7
Grp Sat Flow(s),veh/h/ln	1714	1786	1525	1661	1365	1490	1714	1800	1525	1701	1744	1525
Q Serve(g_s), s	1.6	21.5	23.0	6.0	8.6	8.9	3.8	20.2	11.2	11.3	74.0	0.3
Cycle Q Clear(g_c), s	1.6	21.5	23.0	6.0	8.6	8.9	3.8	20.2	11.2	11.3	74.0	0.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	237	293	251	132	254	277	113	844	715	486	922	806
V/C Ratio(X)	0.10	0.94	1.03	1.13	0.38	0.39	0.78	0.45	0.28	0.56	1.06	0.01
Avail Cap(c_a), veh/h	262	293	251	132	254	277	113	844	715	506	922	806
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.2	57.9	58.5	55.9	49.9	50.0	33.5	25.1	22.7	17.5	33.0	15.6
Incr Delay (d2), s/veh	0.1	37.8	63.6	117.4	0.9	0.9	26.8	0.8	0.5	0.7	45.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	12.8	13.3	6.3	3.0	3.4	2.4	8.9	4.2	4.5	41.9	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.3	95.6	122.1	173.3	50.8	50.9	60.3	25.9	23.2	18.2	78.8	15.6
LnGrp LOS	D	F	F	F	D	D	E	C	C	B	F	B
Approach Vol, veh/h		557			353			672			1251	
Approach Delay, s/veh		105.9			102.5			29.6			65.4	
Approach LOS		F			F			C			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.0	33.0	14.0	83.0	13.0	30.0	22.3	74.7				
Change Period (Y+Rc), s	7.0	7.0	9.0	9.0	7.0	7.0	9.0	9.0				
Max Green Setting (Gmax), s	5.0	24.0	5.0	74.0	6.0	23.0	15.0	64.0				
Max Q Clear Time (g_c+I1), s	3.6	10.9	5.8	76.0	8.0	25.0	13.3	22.2				
Green Ext Time (p_c), s	0.0	0.7	0.0	0.0	0.0	0.0	0.1	7.3				
Intersection Summary												
HCM 6th Ctrl Delay			69.5									
HCM 6th LOS			E									

Intersection						
Int Delay, s/veh	2.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	960	19	24	468	27	38
Future Vol, veh/h	960	19	24	468	27	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	0	0	0	0	14
Mvmt Flow	1067	21	27	520	30	42

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	1088	0	1652
Stage 1	-	-	-	-	1078
Stage 2	-	-	-	-	574
Critical Hdwy	-	-	4.1	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.2	-	3.5
Pot Cap-1 Maneuver	-	-	649	-	110
Stage 1	-	-	-	-	330
Stage 2	-	-	-	-	567
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	649	-	104
Mov Cap-2 Maneuver	-	-	-	-	104
Stage 1	-	-	-	-	330
Stage 2	-	-	-	-	534

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	45.7
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	158	-	-	649	-
HCM Lane V/C Ratio	0.457	-	-	0.041	-
HCM Control Delay (s)	45.7	-	-	10.8	0
HCM Lane LOS	E	-	-	B	A
HCM 95th %tile Q(veh)	2.1	-	-	0.1	-

Intersection						
Int Delay, s/veh	10.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↑	↔	↔
Traffic Vol, veh/h	185	222	302	75	101	140
Future Vol, veh/h	185	222	302	75	101	140
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	100	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	1	4	0	3	2
Mvmt Flow	206	247	336	83	112	156

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	453	0	1085 330
Stage 1	-	-	-	-	330 -
Stage 2	-	-	-	-	755 -
Critical Hdwy	-	-	4.14	-	6.43 6.22
Critical Hdwy Stg 1	-	-	-	-	5.43 -
Critical Hdwy Stg 2	-	-	-	-	5.43 -
Follow-up Hdwy	-	-	2.236	-	3.527 3.318
Pot Cap-1 Maneuver	-	-	1097	-	239 712
Stage 1	-	-	-	-	726 -
Stage 2	-	-	-	-	462 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1097	-	166 712
Mov Cap-2 Maneuver	-	-	-	-	166 -
Stage 1	-	-	-	-	726 -
Stage 2	-	-	-	-	321 -

Approach	EB	WB	NB
HCM Control Delay, s	0	7.8	33
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	166	712	-	-	1097	-
HCM Lane V/C Ratio	0.676	0.218	-	-	0.306	-
HCM Control Delay (s)	62.9	11.5	-	-	9.7	-
HCM Lane LOS	F	B	-	-	A	-
HCM 95th %tile Q(veh)	3.9	0.8	-	-	1.3	-

Intersection						
Int Delay, s/veh	3.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	198	324	40	91	91	62
Future Vol, veh/h	198	324	40	91	91	62
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	0	7	6	3	0
Mvmt Flow	213	348	43	98	98	67

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	561	0	571 387
Stage 1	-	-	-	-	387 -
Stage 2	-	-	-	-	184 -
Critical Hdwy	-	-	4.17	-	6.43 6.2
Critical Hdwy Stg 1	-	-	-	-	5.43 -
Critical Hdwy Stg 2	-	-	-	-	5.43 -
Follow-up Hdwy	-	-	2.263	-	3.527 3.3
Pot Cap-1 Maneuver	-	-	986	-	481 665
Stage 1	-	-	-	-	684 -
Stage 2	-	-	-	-	845 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	986	-	459 665
Mov Cap-2 Maneuver	-	-	-	-	459 -
Stage 1	-	-	-	-	684 -
Stage 2	-	-	-	-	806 -

Approach	EB	WB	NB
HCM Control Delay, s	0	2.7	15
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	525	-	-	986	-
HCM Lane V/C Ratio	0.313	-	-	0.044	-
HCM Control Delay (s)	15	-	-	8.8	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.3	-	-	0.1	-

Intersection						
Int Delay, s/veh	4.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	TT		TT		TT	TT
Traffic Vol, veh/h	91	75	227	188	109	127
Future Vol, veh/h	91	75	227	188	109	127
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	12	4	0	2	4	0
Mvmt Flow	97	80	241	200	116	135

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	708	341	0	0	441
Stage 1	341	-	-	-	-
Stage 2	367	-	-	-	-
Critical Hdwy	6.52	6.24	-	-	4.14
Critical Hdwy Stg 1	5.52	-	-	-	-
Critical Hdwy Stg 2	5.52	-	-	-	-
Follow-up Hdwy	3.608	3.336	-	-	2.236
Pot Cap-1 Maneuver	387	697	-	-	1108
Stage 1	698	-	-	-	-
Stage 2	679	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	343	697	-	-	1108
Mov Cap-2 Maneuver	343	-	-	-	-
Stage 1	698	-	-	-	-
Stage 2	602	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.3	0	4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	445	1108
HCM Lane V/C Ratio	-	-	0.397	0.105
HCM Control Delay (s)	-	-	18.3	8.6
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	1.9	0.3

Intersection						
Int Delay, s/veh	7.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	8	246	399	93	98	1
Future Vol, veh/h	8	246	399	93	98	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	33	8	3	0	6	0
Mvmt Flow	9	273	443	103	109	1

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	1099	110	110	0	0
Stage 1	110	-	-	-	-
Stage 2	989	-	-	-	-
Critical Hdwy	6.73	6.28	4.13	-	-
Critical Hdwy Stg 1	5.73	-	-	-	-
Critical Hdwy Stg 2	5.73	-	-	-	-
Follow-up Hdwy	3.797	3.372	2.227	-	-
Pot Cap-1 Maneuver	205	927	1474	-	-
Stage 1	843	-	-	-	-
Stage 2	316	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	140	927	1474	-	-
Mov Cap-2 Maneuver	140	-	-	-	-
Stage 1	574	-	-	-	-
Stage 2	316	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.1	6.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1474	-	788	-	-
HCM Lane V/C Ratio	0.301	-	0.358	-	-
HCM Control Delay (s)	8.5	0	12.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	1.3	-	1.6	-	-

Intersection						
Int Delay, s/veh	157.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	↷
Traffic Vol, veh/h	93	1091	456	77	153	127
Future Vol, veh/h	93	1091	456	77	153	127
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	29	3	4	3	0	13
Mvmt Flow	99	1161	485	82	163	135

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	567	0	-	0	1885 526
Stage 1	-	-	-	-	526 -
Stage 2	-	-	-	-	1359 -
Critical Hdwy	4.39	-	-	-	6.4 6.33
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.461	-	-	-	3.5 3.417
Pot Cap-1 Maneuver	884	-	-	-	~ 79 531
Stage 1	-	-	-	-	597 -
Stage 2	-	-	-	-	241 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	884	-	-	-	~ 54 531
Mov Cap-2 Maneuver	-	-	-	-	~ 54 -
Stage 1	-	-	-	-	409 -
Stage 2	-	-	-	-	241 -

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	\$ 1121.7
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	884	-	-	-	91
HCM Lane V/C Ratio	0.112	-	-	-	3.273
HCM Control Delay (s)	9.6	0	-	-	\$ 1121.7
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.4	-	-	-	29.6

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Queues
118: Star Road & SH 44

2045 Background Conditions AM Peak Hour

01/12/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	81	742	371	154	444	91	274	167	155	193	423
v/c Ratio	0.25	0.99	0.51	1.19	0.59	0.12	1.10	0.35	0.31	0.47	1.05
Control Delay	20.4	72.8	23.7	167.3	34.5	2.8	127.8	46.4	7.9	37.4	113.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.4	72.8	23.7	167.3	34.5	2.8	127.8	46.4	7.9	37.4	113.3
Queue Length 50th (ft)	38	714	183	~124	319	0	~255	132	1	128	~447
Queue Length 95th (ft)	69	#999	281	#278	437	23	#444	203	58	194	#667
Internal Link Dist (ft)		2598			5173			1764			5156
Turn Bay Length (ft)	100		100	100		100	100		100	100	
Base Capacity (vph)	329	747	721	129	755	753	248	471	497	410	401
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.99	0.51	1.19	0.59	0.12	1.10	0.35	0.31	0.47	1.05

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Background Conditions AM Peak Hour
 118: Star Road & SH 44 01/12/2023



























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	705	352	146	422	86	260	159	147	183	337	65
Future Volume (vph)	77	705	352	146	422	86	260	159	147	183	337	65
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1644	1698	1500	1583	1667	1530	1676	1714	1404	1710	1700	
Flt Permitted	0.36	1.00	1.00	0.07	1.00	1.00	0.10	1.00	1.00	0.65	1.00	
Satd. Flow (perm)	625	1698	1500	123	1667	1530	172	1714	1404	1173	1700	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	81	742	371	154	444	91	274	167	155	193	355	68
RTOR Reduction (vph)	0	0	61	0	0	50	0	0	111	0	5	0
Lane Group Flow (vph)	81	742	310	154	444	41	274	167	44	193	418	0
Heavy Vehicles (%)	4%	6%	2%	8%	8%	0%	2%	5%	9%	0%	3%	5%
Turn Type	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6	6	5	2	2	3	8		7	4	
Permitted Phases	6			2			8		8	4		
Actuated Green, G (s)	71.0	66.0	66.0	75.0	68.0	68.0	59.0	41.3	41.3	46.7	35.0	
Effective Green, g (s)	71.0	66.0	66.0	75.0	68.0	68.0	59.0	41.3	41.3	46.7	35.0	
Actuated g/C Ratio	0.47	0.44	0.44	0.50	0.45	0.45	0.39	0.28	0.28	0.31	0.23	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	2.0	2.5	2.5	2.0	2.5	2.5	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	329	747	660	129	755	693	248	471	386	407	396	
v/s Ratio Prot	0.01	0.44	0.21	c0.06	0.27	0.03	c0.13	0.10		0.04	0.25	
v/s Ratio Perm	0.11			c0.54			c0.30		0.03	0.11		
v/c Ratio	0.25	0.99	0.47	1.19	0.59	0.06	1.10	0.35	0.11	0.47	1.06	
Uniform Delay, d1	23.2	41.8	29.6	34.7	30.6	23.0	46.5	43.6	40.7	40.1	57.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	31.3	2.4	140.5	1.0	0.0	88.1	0.2	0.0	0.3	60.9	
Delay (s)	23.3	73.1	32.0	175.2	31.5	23.1	134.6	43.8	40.7	40.4	118.4	
Level of Service	C	E	C	F	C	C	F	D	D	D	F	
Approach Delay (s)		57.0			62.5			84.7			94.0	
Approach LOS		E			E			F			F	

Intersection Summary		
HCM 2000 Control Delay	70.9	HCM 2000 Level of Service E
HCM 2000 Volume to Capacity ratio	1.20	
Actuated Cycle Length (s)	150.0	Sum of lost time (s) 24.0
Intersection Capacity Utilization	105.8%	ICU Level of Service G
Analysis Period (min)	15	
c Critical Lane Group		

HCM 6th Signalized Intersection Summary
118: Star Road & SH 44

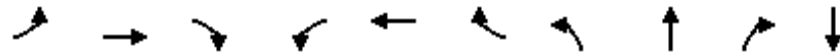
2045 Background Conditions AM Peak Hour
01/12/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	705	352	146	422	86	260	159	147	183	337	65
Future Volume (veh/h)	77	705	352	146	422	86	260	159	147	183	337	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1744	1716	1772	1688	1688	1800	1772	1730	1674	1800	1758	1730
Adj Flow Rate, veh/h	81	742	371	154	444	91	274	167	155	193	355	68
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	6	2	8	8	0	2	5	9	0	3	5
Cap, veh/h	324	755	661	129	765	692	251	473	388	395	335	64
Arrive On Green	0.03	0.44	0.44	0.05	0.45	0.45	0.12	0.27	0.27	0.08	0.23	0.23
Sat Flow, veh/h	1661	1716	1502	1607	1688	1525	1688	1730	1418	1714	1434	275
Grp Volume(v), veh/h	81	742	371	154	444	91	274	167	155	193	0	423
Grp Sat Flow(s),veh/h/ln	1661	1716	1502	1607	1688	1525	1688	1730	1418	1714	0	1708
Q Serve(g_s), s	4.1	64.0	27.6	7.0	29.3	5.2	18.0	11.6	13.4	12.0	0.0	35.0
Cycle Q Clear(g_c), s	4.1	64.0	27.6	7.0	29.3	5.2	18.0	11.6	13.4	12.0	0.0	35.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	324	755	661	129	765	692	251	473	388	395	0	399
V/C Ratio(X)	0.25	0.98	0.56	1.19	0.58	0.13	1.09	0.35	0.40	0.49	0.00	1.06
Avail Cap(c_a), veh/h	324	755	661	129	765	692	251	473	388	395	0	399
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.6	41.4	31.2	37.6	30.4	23.8	46.1	43.8	44.5	40.4	0.0	57.5
Incr Delay (d2), s/veh	0.1	28.8	3.4	139.1	1.0	0.1	84.2	0.2	0.2	0.3	0.0	62.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	32.8	10.7	7.6	12.2	1.9	12.8	5.1	4.8	5.6	0.0	22.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.8	70.3	34.7	176.7	31.4	23.9	130.3	44.0	44.7	40.7	0.0	119.7
LnGrp LOS	C	E	C	F	C	C	F	D	D	D	A	F
Approach Vol, veh/h		1194			689			596				616
Approach Delay, s/veh		56.1			62.9			83.9				94.9
Approach LOS		E			E			F				F
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	74.0	24.0	41.0	13.0	72.0	18.0	47.0				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	5.0	68.0	18.0	35.0	7.0	66.0	12.0	41.0				
Max Q Clear Time (g_c+I1), s	6.1	31.3	20.0	37.0	9.0	66.0	14.0	15.4				
Green Ext Time (p_c), s	0.0	2.7	0.0	0.0	0.0	0.0	0.0	0.9				
Intersection Summary												
HCM 6th Ctrl Delay				70.7								
HCM 6th LOS				E								

Queues
119: Plummer Road & SH 44

2045 Background Conditions AM Peak Hour

01/12/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	31	1062	35	60	571	114	47	13	86	642
v/c Ratio	0.10	1.26	0.05	0.44	0.64	0.14	0.11	0.02	0.14	1.32
Control Delay	15.0	161.6	1.8	28.1	31.3	11.0	33.3	31.5	6.7	193.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.0	161.6	1.8	28.1	31.3	11.0	33.3	31.5	6.7	193.0
Queue Length 50th (ft)	13	~1301	0	25	413	28	30	8	0	~806
Queue Length 95th (ft)	29	#1593	9	59	564	66	63	25	39	#1067
Internal Link Dist (ft)		5173			3517			675		5173
Turn Bay Length (ft)	100		100	100		100	100		100	
Base Capacity (vph)	359	840	730	159	889	791	429	655	612	488
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	1.26	0.05	0.38	0.64	0.14	0.11	0.02	0.14	1.32

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Background Conditions AM Peak Hour
 119: Plummer Road & SH 44 01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↑	↗		↕	
Traffic Volume (vph)	29	1009	33	57	542	108	45	12	82	490	40	80
Future Volume (vph)	29	1009	33	57	542	108	45	12	82	490	40	80
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0		5.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		0.96	
Satd. Flow (prot)	1710	1748	1457	1660	1748	1500	1710	1800	1530		1686	
Flt Permitted	0.29	1.00	1.00	0.05	1.00	1.00	0.65	1.00	1.00		0.76	
Satd. Flow (perm)	519	1748	1457	94	1748	1500	1179	1800	1530		1332	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	31	1062	35	60	571	114	47	13	86	516	42	84
RTOR Reduction (vph)	0	0	18	0	0	29	0	0	55	0	4	0
Lane Group Flow (vph)	31	1062	17	60	571	85	47	13	31	0	638	0
Heavy Vehicles (%)	0%	3%	5%	3%	3%	2%	0%	0%	0%	1%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6		6	2		2	4		4	8		
Actuated Green, G (s)	75.4	71.4	71.4	81.0	74.2	74.2	53.1	53.1	53.1		53.1	
Effective Green, g (s)	75.4	71.4	71.4	81.0	74.2	74.2	53.1	53.1	53.1		53.1	
Actuated g/C Ratio	0.51	0.48	0.48	0.55	0.50	0.50	0.36	0.36	0.36		0.36	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0		5.0	
Vehicle Extension (s)	2.5	4.0	4.0	2.5	4.0	4.0	2.5	2.5	2.5		2.5	
Lane Grp Cap (vph)	295	841	701	123	874	750	422	644	547		476	
v/s Ratio Prot	0.00	c0.61		c0.02	c0.33			0.01				
v/s Ratio Perm	0.05		0.01	0.24		0.06	0.04		0.02		c0.48	
v/c Ratio	0.11	1.26	0.02	0.49	0.65	0.11	0.11	0.02	0.06		1.34	
Uniform Delay, d1	20.6	38.5	20.2	33.0	27.5	19.6	31.8	30.8	31.2		47.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.1	127.8	0.0	2.2	2.0	0.1	0.1	0.0	0.0		167.0	
Delay (s)	20.7	166.2	20.2	35.3	29.5	19.7	31.9	30.8	31.2		214.6	
Level of Service	C	F	C	D	C	B	C	C	C		F	
Approach Delay (s)		157.7			28.4			31.4			214.6	
Approach LOS		F			C			C			F	

Intersection Summary		
HCM 2000 Control Delay	128.3	HCM 2000 Level of Service F
HCM 2000 Volume to Capacity ratio	1.25	
Actuated Cycle Length (s)	148.3	Sum of lost time (s) 17.0
Intersection Capacity Utilization	110.8%	ICU Level of Service H
Analysis Period (min)	15	
c Critical Lane Group		

HCM 6th Signalized Intersection Summary
119: Plummer Road & SH 44

2045 Background Conditions AM Peak Hour
01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↑	↗		↕	
Traffic Volume (veh/h)	29	1009	33	57	542	108	45	12	82	490	40	80
Future Volume (veh/h)	29	1009	33	57	542	108	45	12	82	490	40	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1758	1730	1758	1758	1772	1800	1800	1800	1786	1800	1800
Adj Flow Rate, veh/h	31	1062	35	60	571	114	47	13	86	516	42	84
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	3	5	3	3	2	0	0	0	1	0	0
Cap, veh/h	281	851	710	103	863	737	580	660	559	442	32	65
Arrive On Green	0.02	0.48	0.48	0.03	0.49	0.49	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	1714	1758	1466	1674	1758	1502	1285	1800	1525	1083	88	176
Grp Volume(v), veh/h	31	1062	35	60	571	114	47	13	86	642	0	0
Grp Sat Flow(s),veh/h/ln	1714	1758	1466	1674	1758	1502	1285	1800	1525	1348	0	0
Q Serve(g_s), s	1.3	70.0	1.8	2.6	35.4	6.0	0.0	0.7	5.5	52.3	0.0	0.0
Cycle Q Clear(g_c), s	1.3	70.0	1.8	2.6	35.4	6.0	3.1	0.7	5.5	53.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.80		0.13
Lane Grp Cap(c), veh/h	281	851	710	103	863	737	580	660	559	539	0	0
V/C Ratio(X)	0.11	1.25	0.05	0.59	0.66	0.15	0.08	0.02	0.15	1.19	0.00	0.00
Avail Cap(c_a), veh/h	358	851	710	166	863	737	580	660	559	539	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	22.0	37.3	19.7	34.5	27.7	20.3	30.0	29.2	30.7	48.3	0.0	0.0
Incr Delay (d2), s/veh	0.1	121.2	0.0	3.9	2.1	0.1	0.0	0.0	0.1	103.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	58.1	0.6	1.1	15.4	2.2	1.1	0.3	2.1	35.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.1	158.5	19.7	38.4	29.9	20.4	30.0	29.2	30.8	151.5	0.0	0.0
LnGrp LOS	C	F	B	D	C	C	C	C	C	F	A	A
Approach Vol, veh/h		1128			745			146			642	
Approach Delay, s/veh		150.4			29.1			30.4			151.5	
Approach LOS		F			C			C			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.6	77.0		58.0	10.6	76.0		58.0				
Change Period (Y+Rc), s	6.0	6.0		5.0	6.0	6.0		5.0				
Max Green Setting (Gmax), s	10.0	70.0		53.0	10.0	70.0		53.0				
Max Q Clear Time (g_c+I1), s	3.3	37.4		7.5	4.6	72.0		55.0				
Green Ext Time (p_c), s	0.0	6.9		0.4	0.0	0.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay	110.1
HCM 6th LOS	F



Appendix M
Year 2045 Mitigated Background
Traffic Operation Worksheets

Queues
109: Pollard Road & Beacon Light Road

2045 Background Mitigations AM Peak Hour

01/12/2023



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	3	453	44	149	87	10	209	126	72
v/c Ratio	0.01	0.68	0.13	0.22	0.12	0.03	0.51	0.34	0.13
Control Delay	8.3	22.5	9.1	12.2	0.5	11.8	11.9	14.7	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.3	22.5	9.1	12.2	0.5	11.8	11.9	14.7	11.1
Queue Length 50th (ft)	1	85	6	23	0	2	12	20	7
Queue Length 95th (ft)	4	#300	22	81	2	10	64	61	41
Internal Link Dist (ft)		3919		2558			3989		3904
Turn Bay Length (ft)	100		100		100	100		100	
Base Capacity (vph)	556	776	344	797	823	387	777	371	772
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.58	0.13	0.19	0.11	0.03	0.27	0.34	0.09

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Background Mitigations AM Peak Hour
 109: Pollard Road & Beacon Light Road 01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	402	5	40	134	78	9	48	140	113	39	26
Future Volume (vph)	3	402	5	40	134	78	9	48	140	113	39	26
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.89		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1710	1745		1598	1667	1530	1710	1563		1710	1691	
Flt Permitted	0.66	1.00		0.29	1.00	1.00	0.71	1.00		0.45	1.00	
Satd. Flow (perm)	1192	1745		492	1667	1530	1278	1563		809	1691	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	3	447	6	44	149	87	10	53	156	126	43	29
RTOR Reduction (vph)	0	1	0	0	0	56	0	123	0	0	21	0
Lane Group Flow (vph)	3	452	0	44	149	31	10	86	0	126	51	0
Heavy Vehicles (%)	0%	3%	0%	7%	8%	0%	0%	0%	3%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	18.8	18.0		20.4	18.8	18.8	11.7	10.9		17.7	13.9	
Effective Green, g (s)	18.8	18.0		20.4	18.8	18.8	11.7	10.9		17.7	13.9	
Actuated g/C Ratio	0.36	0.34		0.39	0.36	0.36	0.22	0.21		0.34	0.27	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	436	600		225	599	549	292	325		339	449	
v/s Ratio Prot	0.00	c0.26		c0.01	0.09		0.00	0.05		c0.03	0.03	
v/s Ratio Perm	0.00			0.07		0.02	0.01			c0.10		
v/c Ratio	0.01	0.75		0.20	0.25	0.06	0.03	0.26		0.37	0.11	
Uniform Delay, d1	10.7	15.2		10.6	11.8	11.0	15.9	17.3		12.5	14.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	5.3		0.4	0.2	0.0	0.0	0.4		0.7	0.1	
Delay (s)	10.8	20.5		11.1	12.0	11.0	15.9	17.8		13.2	14.6	
Level of Service	B	C		B	B	B	B	B		B	B	
Approach Delay (s)		20.5			11.5			17.7			13.7	
Approach LOS		C			B			B			B	

Intersection Summary		
HCM 2000 Control Delay	16.6	HCM 2000 Level of Service B
HCM 2000 Volume to Capacity ratio	0.59	
Actuated Cycle Length (s)	52.3	Sum of lost time (s) 18.0
Intersection Capacity Utilization	60.2%	ICU Level of Service B
Analysis Period (min)	15	
c Critical Lane Group		

HCM 6th Signalized Intersection Summary
 109: Pollard Road & Beacon Light Road

2045 Background Mitigations AM Peak Hour
 01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↖	↖	↗		↖	↗	
Traffic Volume (veh/h)	3	402	5	40	134	78	9	48	140	113	39	26
Future Volume (veh/h)	3	402	5	40	134	78	9	48	140	113	39	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1758	1800	1702	1688	1800	1800	1800	1758	1800	1800	1800
Adj Flow Rate, veh/h	3	447	6	44	149	87	10	53	156	126	43	29
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	3	0	7	8	0	0	0	3	0	0	0
Cap, veh/h	492	534	7	287	592	535	420	74	217	367	256	173
Arrive On Green	0.00	0.31	0.31	0.05	0.35	0.35	0.01	0.18	0.18	0.08	0.26	0.26
Sat Flow, veh/h	1714	1730	23	1621	1688	1525	1714	402	1184	1714	1002	676
Grp Volume(v), veh/h	3	0	453	44	149	87	10	0	209	126	0	72
Grp Sat Flow(s),veh/h/ln	1714	0	1754	1621	1688	1525	1714	0	1587	1714	0	1678
Q Serve(g_s), s	0.1	0.0	11.5	0.9	3.0	1.9	0.2	0.0	5.9	2.7	0.0	1.6
Cycle Q Clear(g_c), s	0.1	0.0	11.5	0.9	3.0	1.9	0.2	0.0	5.9	2.7	0.0	1.6
Prop In Lane	1.00		0.01	1.00		1.00	1.00		0.75	1.00		0.40
Lane Grp Cap(c), veh/h	492	0	541	287	592	535	420	0	291	367	0	429
V/C Ratio(X)	0.01	0.00	0.84	0.15	0.25	0.16	0.02	0.00	0.72	0.34	0.00	0.17
Avail Cap(c_a), veh/h	665	0	679	381	653	591	578	0	611	405	0	650
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.3	0.0	15.4	11.7	11.0	10.7	15.5	0.0	18.3	13.6	0.0	13.8
Incr Delay (d2), s/veh	0.0	0.0	7.4	0.2	0.2	0.1	0.0	0.0	3.3	0.6	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	5.0	0.3	1.0	0.5	0.1	0.0	2.2	0.9	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.3	0.0	22.8	11.9	11.3	10.8	15.5	0.0	21.7	14.2	0.0	14.0
LnGrp LOS	B	A	C	B	B	B	B	A	C	B	A	B
Approach Vol, veh/h		456			280			219			198	
Approach Delay, s/veh		22.7			11.2			21.4			14.1	
Approach LOS		C			B			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.6	13.3	6.7	19.2	5.1	16.7	4.7	21.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.1	18.4	5.0	18.5	5.0	18.5	5.0	18.5				
Max Q Clear Time (g_c+I1), s	4.7	7.9	2.9	13.5	2.2	3.6	2.1	5.0				
Green Ext Time (p_c), s	0.0	0.8	0.0	1.2	0.0	0.2	0.0	0.9				
Intersection Summary												
HCM 6th Ctrl Delay			18.2									
HCM 6th LOS			B									

Queues
110: SH 16 & Beacon Light Road

2045 Background Mitigations AM Peak Hour

























01/12/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	23	277	257	149	96	108	88	384	200	270	974	7
v/c Ratio	0.07	0.74	0.47	0.54	0.22	0.13	0.48	0.43	0.34	0.57	0.76	0.01
Control Delay	24.8	52.6	6.0	34.4	32.5	2.9	28.2	34.7	2.7	22.0	34.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.8	52.6	6.0	34.4	32.5	2.9	28.2	34.7	2.7	22.0	34.1	0.0
Queue Length 50th (ft)	11	189	0	77	49	0	31	114	0	108	315	0
Queue Length 95th (ft)	29	282	48	128	105	26	67	180	18	188	440	0
Internal Link Dist (ft)		2558			3836			8809			1084	
Turn Bay Length (ft)	100		100	100		100	100		100	100		100
Base Capacity (vph)	346	534	656	277	462	878	184	1054	654	511	1399	755
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.52	0.39	0.54	0.21	0.12	0.48	0.36	0.31	0.53	0.70	0.01

Intersection Summary

HCM Signalized Intersection Capacity Analysis 2045 Background Mitigations AM Peak Hour
 110: SH 16 & Beacon Light Road 01/12/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	249	231	134	86	97	79	346	180	243	877	6
Future Volume (vph)	21	249	231	134	86	97	79	346	180	243	877	6
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1710	1782	1530	1644	1374	1485	1710	3420	1530	1693	3288	1530
Flt Permitted	0.69	1.00	1.00	0.33	1.00	1.00	0.21	1.00	1.00	0.39	1.00	1.00
Satd. Flow (perm)	1251	1782	1530	568	1374	1485	385	3420	1530	689	3288	1530
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	23	277	257	149	96	108	88	384	200	270	974	7
RTOR Reduction (vph)	0	0	195	0	0	62	0	0	146	0	0	4
Lane Group Flow (vph)	23	277	62	149	96	46	88	384	54	270	974	3
Heavy Vehicles (%)	0%	1%	0%	4%	31%	3%	0%	0%	0%	1%	4%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2	7	3	8		7	4	
Permitted Phases	6		6	2		2	8		8	4		4
Actuated Green, G (s)	28.9	27.1	27.1	41.5	33.4	48.2	34.2	30.4	30.4	54.2	41.4	41.4
Effective Green, g (s)	28.9	27.1	27.1	41.5	33.4	48.2	34.2	30.4	30.4	54.2	41.4	41.4
Actuated g/C Ratio	0.26	0.24	0.24	0.37	0.30	0.43	0.30	0.27	0.27	0.48	0.37	0.37
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0	2.0	2.0	5.0	5.0	2.0	5.0	5.0
Lane Grp Cap (vph)	329	429	368	287	408	636	161	924	413	464	1211	563
v/s Ratio Prot	0.00	c0.16		c0.04	0.07	0.01	0.02	0.11		c0.08	c0.30	
v/s Ratio Perm	0.02		0.04	0.15		0.02	0.15		0.04	0.20		0.00
v/c Ratio	0.07	0.65	0.17	0.52	0.24	0.07	0.55	0.42	0.13	0.58	0.80	0.00
Uniform Delay, d1	31.4	38.3	33.7	25.7	29.8	18.9	29.8	33.7	31.0	18.6	31.9	22.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.0	3.3	0.2	0.7	0.3	0.0	2.0	0.6	0.3	1.2	4.5	0.0
Delay (s)	31.5	41.7	34.0	26.4	30.1	18.9	31.8	34.3	31.3	19.8	36.4	22.5
Level of Service	C	D	C	C	C	B	C	C	C	B	D	C
Approach Delay (s)		37.7			25.1			33.1			32.7	
Approach LOS		D			C			C			C	
Intersection Summary												
HCM 2000 Control Delay			32.8									HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			112.4								32.0	
Intersection Capacity Utilization			78.5%									ICU Level of Service D
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
110: SH 16 & Beacon Light Road

2045 Background Mitigations AM Peak Hour

01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↑↑	↗	↖	↑↑	↗
Traffic Volume (veh/h)	21	249	231	134	86	97	79	346	180	243	877	6
Future Volume (veh/h)	21	249	231	134	86	97	79	346	180	243	877	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1786	1800	1744	1365	1758	1800	1800	1800	1786	1744	1800
Adj Flow Rate, veh/h	23	277	257	149	96	108	88	384	200	270	974	7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	1	0	4	31	3	0	0	0	1	4	0
Cap, veh/h	345	358	306	242	347	569	213	986	440	453	1222	563
Arrive On Green	0.02	0.20	0.20	0.08	0.25	0.25	0.05	0.29	0.29	0.13	0.37	0.37
Sat Flow, veh/h	1714	1786	1525	1661	1365	1490	1714	3420	1525	1701	3313	1525
Grp Volume(v), veh/h	23	277	257	149	96	108	88	384	200	270	974	7
Grp Sat Flow(s),veh/h/ln	1714	1786	1525	1661	1365	1490	1714	1710	1525	1701	1657	1525
Q Serve(g_s), s	1.1	15.3	16.9	7.4	5.9	5.0	3.8	9.4	11.2	11.2	27.5	0.3
Cycle Q Clear(g_c), s	1.1	15.3	16.9	7.4	5.9	5.0	3.8	9.4	11.2	11.2	27.5	0.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	345	358	306	242	347	569	213	986	440	453	1222	563
V/C Ratio(X)	0.07	0.77	0.84	0.62	0.28	0.19	0.41	0.39	0.45	0.60	0.80	0.01
Avail Cap(c_a), veh/h	387	529	452	242	444	676	213	1014	452	528	1394	642
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.9	39.5	40.2	31.0	31.3	21.5	26.3	29.8	30.5	21.0	29.5	20.9
Incr Delay (d2), s/veh	0.0	4.1	8.8	3.4	0.4	0.2	0.5	0.5	1.6	0.6	3.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	7.1	7.0	3.2	2.0	1.8	1.5	3.9	4.3	4.4	11.3	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.9	43.7	49.0	34.4	31.7	21.7	26.8	30.4	32.0	21.6	33.2	20.9
LnGrp LOS	C	D	D	C	C	C	C	C	C	C	C	C
Approach Vol, veh/h		557			353			672			1251	
Approach Delay, s/veh		45.7			29.8			30.4			30.7	
Approach LOS		D			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.4	33.5	14.0	47.6	15.0	28.0	22.4	39.2				
Change Period (Y+Rc), s	7.0	7.0	9.0	9.0	7.0	7.0	9.0	9.0				
Max Green Setting (Gmax), s	5.0	34.0	5.0	44.0	8.0	31.0	18.0	31.0				
Max Q Clear Time (g_c+I1), s	3.1	7.9	5.8	29.5	9.4	18.9	13.2	13.2				
Green Ext Time (p_c), s	0.0	0.9	0.0	9.1	0.0	2.1	0.2	5.5				
Intersection Summary												
HCM 6th Ctrl Delay			33.4									
HCM 6th LOS			C									

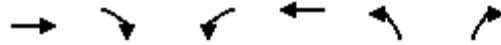
Queues
111: Palmer Lane & Beacon Light Road

2045 Background Mitigations AM Peak Hour
01/12/2023



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1067	21	27	520	30	42
v/c Ratio	0.60	0.03	0.07	0.27	0.10	0.15
Control Delay	8.3	3.5	3.5	4.2	16.5	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.3	3.5	3.5	4.2	16.5	8.6
Queue Length 50th (ft)	52	0	2	20	5	0
Queue Length 95th (ft)	171	9	7	38	26	21
Internal Link Dist (ft)	3836			6200		
Turn Bay Length (ft)		100	100		100	100
Base Capacity (vph)	2291	1041	374	3057	886	715
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.02	0.07	0.17	0.03	0.06
Intersection Summary						

HCM Signalized Intersection Capacity Analysis 2045 Background Mitigations AM Peak Hour
 111: Palmer Lane & Beacon Light Road 01/12/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↵	↑↑	↵	↑
Traffic Volume (vph)	960	19	24	468	27	38
Future Volume (vph)	960	19	24	468	27	38
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3386	1530	1710	3420	1710	1342
Flt Permitted	1.00	1.00	0.17	1.00	0.95	1.00
Satd. Flow (perm)	3386	1530	306	3420	1710	1342
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1067	21	27	520	30	42
RTOR Reduction (vph)	0	9	0	0	0	35
Lane Group Flow (vph)	1067	12	27	520	30	7
Heavy Vehicles (%)	1%	0%	0%	0%	0%	14%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	19.0	19.0	24.2	24.2	6.5	6.5
Effective Green, g (s)	19.0	19.0	24.2	24.2	6.5	6.5
Actuated g/C Ratio	0.48	0.48	0.61	0.61	0.16	0.16
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1620	732	211	2084	279	219
v/s Ratio Prot	c0.32		0.00	c0.15	c0.02	
v/s Ratio Perm		0.01	0.08			0.01
v/c Ratio	0.66	0.02	0.13	0.25	0.11	0.03
Uniform Delay, d1	7.9	5.4	4.2	3.6	14.1	14.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.0	0.3	0.1	0.2	0.1
Delay (s)	8.9	5.4	4.5	3.6	14.3	14.0
Level of Service	A	A	A	A	B	B
Approach Delay (s)	8.8			3.7	14.1	
Approach LOS	A			A	B	

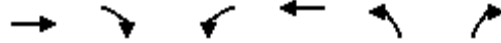
Intersection Summary			
HCM 2000 Control Delay	7.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	39.7	Sum of lost time (s)	13.5
Intersection Capacity Utilization	39.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
 111: Palmer Lane & Beacon Light Road

2045 Background Mitigations AM Peak Hour
 01/12/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Volume (veh/h)	960	19	24	468	27	38
Future Volume (veh/h)	960	19	24	468	27	38
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1786	1800	1800	1800	1800	1603
Adj Flow Rate, veh/h	1067	21	27	520	30	42
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	1	0	0	0	0	14
Cap, veh/h	1578	709	367	2120	233	184
Arrive On Green	0.47	0.47	0.03	0.62	0.14	0.14
Sat Flow, veh/h	3483	1525	1714	3510	1714	1359
Grp Volume(v), veh/h	1067	21	27	520	30	42
Grp Sat Flow(s),veh/h/ln	1697	1525	1714	1710	1714	1359
Q Serve(g_s), s	9.0	0.3	0.3	2.5	0.6	1.0
Cycle Q Clear(g_c), s	9.0	0.3	0.3	2.5	0.6	1.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1578	709	367	2120	233	184
V/C Ratio(X)	0.68	0.03	0.07	0.25	0.13	0.23
Avail Cap(c_a), veh/h	2165	973	544	3064	838	664
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.7	5.3	5.5	3.1	14.0	14.2
Incr Delay (d2), s/veh	0.5	0.0	0.1	0.1	0.2	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.1	0.1	0.3	0.2	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	8.2	5.4	5.6	3.2	14.3	14.8
LnGrp LOS	A	A	A	A	B	B
Approach Vol, veh/h	1088			547	72	
Approach Delay, s/veh	8.1			3.3	14.6	
Approach LOS	A			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		9.5	5.7	21.6		27.3
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		18.0	5.0	23.5		33.0
Max Q Clear Time (g_c+I1), s		3.0	2.3	11.0		4.5
Green Ext Time (p_c), s		0.1	0.0	6.1		3.8
Intersection Summary						
HCM 6th Ctrl Delay			6.9			
HCM 6th LOS			A			



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	206	247	336	83	112	156
v/c Ratio	0.47	0.44	0.52	0.08	0.34	0.37
Control Delay	17.7	5.1	8.1	4.3	19.2	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.7	5.1	8.1	4.3	19.2	6.7
Queue Length 50th (ft)	42	0	33	7	23	0
Queue Length 95th (ft)	95	39	81	22	65	37
Internal Link Dist (ft)	2600		1170		5156	
Turn Bay Length (ft)	100		100		100	
Base Capacity (vph)	766	802	672	1441	727	745
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.31	0.50	0.06	0.15	0.21

Intersection Summary

HCM Signalized Intersection Capacity Analysis 2045 Background Mitigations AM Peak Hour
 113: Star Road & Floating Feather Road 01/12/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↖	↑	↖	↗
Traffic Volume (vph)	185	222	302	75	101	140
Future Volume (vph)	185	222	302	75	101	140
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1748	1515	1644	1800	1660	1500
Flt Permitted	1.00	1.00	0.45	1.00	0.95	1.00
Satd. Flow (perm)	1748	1515	770	1800	1660	1500
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	206	247	336	83	112	156
RTOR Reduction (vph)	0	183	0	0	0	125
Lane Group Flow (vph)	206	64	336	83	112	31
Heavy Vehicles (%)	3%	1%	4%	0%	3%	2%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	10.9	10.9	24.7	24.7	8.4	8.4
Effective Green, g (s)	10.9	10.9	24.7	24.7	8.4	8.4
Actuated g/C Ratio	0.26	0.26	0.59	0.59	0.20	0.20
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	452	392	644	1056	331	299
v/s Ratio Prot	0.12		c0.12	0.05	c0.07	
v/s Ratio Perm		0.04	c0.19			0.02
v/c Ratio	0.46	0.16	0.52	0.08	0.34	0.10
Uniform Delay, d1	13.1	12.1	4.9	3.8	14.5	13.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.2	0.8	0.0	0.6	0.2
Delay (s)	13.8	12.3	5.6	3.8	15.1	13.9
Level of Service	B	B	A	A	B	B
Approach Delay (s)	13.0			5.3	14.4	
Approach LOS	B			A	B	

Intersection Summary

HCM 2000 Control Delay	10.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	42.1	Sum of lost time (s)	13.5
Intersection Capacity Utilization	45.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
113: Star Road & Floating Feather Road

2045 Background Mitigations AM Peak Hour

01/12/2023

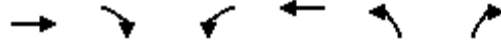


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (veh/h)	185	222	302	75	101	140
Future Volume (veh/h)	185	222	302	75	101	140
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1758	1786	1744	1800	1758	1772
Adj Flow Rate, veh/h	206	247	336	83	112	156
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	1	4	0	3	2
Cap, veh/h	436	375	660	1022	289	259
Arrive On Green	0.25	0.25	0.19	0.57	0.17	0.17
Sat Flow, veh/h	1758	1514	1661	1800	1674	1502
Grp Volume(v), veh/h	206	247	336	83	112	156
Grp Sat Flow(s),veh/h/ln	1758	1514	1661	1800	1674	1502
Q Serve(g_s), s	3.5	5.1	4.4	0.7	2.1	3.3
Cycle Q Clear(g_c), s	3.5	5.1	4.4	0.7	2.1	3.3
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	436	375	660	1022	289	259
V/C Ratio(X)	0.47	0.66	0.51	0.08	0.39	0.60
Avail Cap(c_a), veh/h	912	786	847	1713	869	779
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.1	11.7	6.2	3.4	12.7	13.2
Incr Delay (d2), s/veh	0.8	2.0	0.6	0.0	0.8	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	1.5	0.9	0.1	0.7	1.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	11.9	13.7	6.8	3.4	13.6	15.5
LnGrp LOS	B	B	A	A	B	B
Approach Vol, veh/h	453			419	268	
Approach Delay, s/veh	12.9			6.1	14.7	
Approach LOS	B			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		10.5	11.1	13.1		24.2
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		18.0	10.5	18.0		33.0
Max Q Clear Time (g_c+I1), s		5.3	6.4	7.1		2.7
Green Ext Time (p_c), s		0.7	0.4	1.6		0.4
Intersection Summary						
HCM 6th Ctrl Delay			10.8			
HCM 6th LOS			B			

Queues
114: Plummer Road & Floating Feather Road

2045 Background Mitigations AM Peak Hour

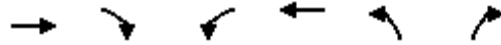
01/12/2023



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	213	348	43	98	98	67
v/c Ratio	0.36	0.47	0.09	0.14	0.23	0.15
Control Delay	11.0	4.0	4.9	5.2	13.8	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.0	4.0	4.9	5.2	13.8	6.0
Queue Length 50th (ft)	17	0	3	7	9	0
Queue Length 95th (ft)	79	39	13	24	52	23
Internal Link Dist (ft)	3891			1279	5173	
Turn Bay Length (ft)		100	100		100	
Base Capacity (vph)	1115	1101	463	1449	1088	1026
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.32	0.09	0.07	0.09	0.07

Intersection Summary

HCM Signalized Intersection Capacity Analysis 2045 Background Mitigations AM Peak Hour
 114: Plummer Road & Floating Feather Road 01/12/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↖	↑	↘	↗
Traffic Volume (vph)	198	324	40	91	91	62
Future Volume (vph)	198	324	40	91	91	62
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1748	1530	1598	1698	1660	1530
Flt Permitted	1.00	1.00	0.44	1.00	0.95	1.00
Satd. Flow (perm)	1748	1530	736	1698	1660	1530
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	213	348	43	98	98	67
RTOR Reduction (vph)	0	239	0	0	0	51
Lane Group Flow (vph)	213	109	43	98	98	16
Heavy Vehicles (%)	3%	0%	7%	6%	3%	0%
Turn Type	NA	Perm	pm+pt	NA	Prot	Prot
Protected Phases	4		3	8	2	2
Permitted Phases		4	8			
Actuated Green, G (s)	10.5	10.5	16.4	16.4	8.1	8.1
Effective Green, g (s)	10.5	10.5	16.4	16.4	8.1	8.1
Actuated g/C Ratio	0.31	0.31	0.49	0.49	0.24	0.24
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	547	479	396	831	401	369
v/s Ratio Prot	c0.12		0.00	c0.06	c0.06	0.01
v/s Ratio Perm		0.07	0.05			
v/c Ratio	0.39	0.23	0.11	0.12	0.24	0.04
Uniform Delay, d1	9.0	8.5	4.8	4.6	10.2	9.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.2	0.1	0.1	0.3	0.0
Delay (s)	9.5	8.7	4.9	4.7	10.6	9.8
Level of Service	A	A	A	A	B	A
Approach Delay (s)	9.0			4.8	10.2	
Approach LOS	A			A	B	

Intersection Summary			
HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	33.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	32.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
 114: Plummer Road & Floating Feather Road

2045 Background Mitigations AM Peak Hour

01/12/2023



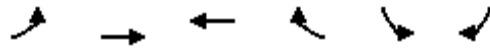
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (veh/h)	198	324	40	91	91	62
Future Volume (veh/h)	198	324	40	91	91	62
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1758	1800	1702	1716	1758	1800
Adj Flow Rate, veh/h	213	348	43	98	98	67
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	0	7	6	3	0
Cap, veh/h	576	499	515	908	282	257
Arrive On Green	0.33	0.33	0.05	0.53	0.17	0.17
Sat Flow, veh/h	1758	1525	1621	1716	1674	1525
Grp Volume(v), veh/h	213	348	43	98	98	67
Grp Sat Flow(s),veh/h/ln	1758	1525	1621	1716	1674	1525
Q Serve(g_s), s	2.8	5.9	0.4	0.8	1.5	1.1
Cycle Q Clear(g_c), s	2.8	5.9	0.4	0.8	1.5	1.1
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	576	499	515	908	282	257
V/C Ratio(X)	0.37	0.70	0.08	0.11	0.35	0.26
Avail Cap(c_a), veh/h	1064	924	706	1587	1042	949
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.7	8.7	5.1	3.5	10.9	10.8
Incr Delay (d2), s/veh	0.4	1.8	0.1	0.1	0.7	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.4	0.1	0.1	0.5	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	8.0	10.5	5.2	3.5	11.7	11.3
LnGrp LOS	A	B	A	A	B	B
Approach Vol, veh/h	561			141	165	
Approach Delay, s/veh	9.6			4.0	11.5	
Approach LOS	A			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		9.5	6.0	14.2		20.2
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		18.5	5.0	18.0		27.5
Max Q Clear Time (g_c+I1), s		3.5	2.4	7.9		2.8
Green Ext Time (p_c), s		0.4	0.0	1.9		0.5
Intersection Summary						
HCM 6th Ctrl Delay			9.0			
HCM 6th LOS			A			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	64	1161	485	53	163	135
v/c Ratio	0.17	0.65	0.36	0.08	0.41	0.32
Control Delay	6.0	8.9	10.8	4.3	18.1	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.0	8.9	10.8	4.3	18.1	6.0
Queue Length 50th (ft)	6	82	45	0	32	0
Queue Length 95th (ft)	21	160	86	17	79	31
Internal Link Dist (ft)		3717	2513		4604	
Turn Bay Length (ft)	200			150	100	
Base Capacity (vph)	384	2325	1527	718	805	709
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.50	0.32	0.07	0.20	0.19

Intersection Summary

HCM Signalized Intersection Capacity Analysis 2045 Background Mitigations AM Peak Hour
 117: SH 44 & Can Ada Road 01/12/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	60	1091	456	50	153	127
Future Volume (vph)	60	1091	456	50	153	127
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1326	3320	3288	1485	1710	1354
Flt Permitted	0.38	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	524	3320	3288	1485	1710	1354
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	64	1161	485	53	163	135
RTOR Reduction (vph)	0	0	0	32	0	105
Lane Group Flow (vph)	64	1161	485	21	163	30
Heavy Vehicles (%)	29%	3%	4%	3%	0%	13%
Turn Type	pm+pt	NA	NA	Perm	Prot	Prot
Protected Phases	7	4	8		6	6
Permitted Phases	4			8		
Actuated Green, G (s)	24.1	24.1	16.9	16.9	9.5	9.5
Effective Green, g (s)	24.1	24.1	16.9	16.9	9.5	9.5
Actuated g/C Ratio	0.57	0.57	0.40	0.40	0.22	0.22
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	347	1878	1304	589	381	301
v/s Ratio Prot	0.01	c0.35	0.15		c0.10	0.02
v/s Ratio Perm	0.09			0.01		
v/c Ratio	0.18	0.62	0.37	0.04	0.43	0.10
Uniform Delay, d1	4.5	6.2	9.1	7.9	14.2	13.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.6	0.2	0.0	0.8	0.1
Delay (s)	4.7	6.8	9.3	7.9	15.0	13.3
Level of Service	A	A	A	A	B	B
Approach Delay (s)		6.7	9.1		14.2	
Approach LOS		A	A		B	

Intersection Summary			
HCM 2000 Control Delay	8.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	42.6	Sum of lost time (s)	13.5
Intersection Capacity Utilization	48.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
 117: SH 44 & Can Ada Road

2045 Background Mitigations AM Peak Hour
 01/12/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	60	1091	456	50	153	127	
Future Volume (veh/h)	60	1091	456	50	153	127	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1393	1758	1744	1758	1800	1617	
Adj Flow Rate, veh/h	64	1161	485	53	163	135	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	
Percent Heavy Veh, %	29	3	4	3	0	13	
Cap, veh/h	468	1838	1144	514	300	240	
Arrive On Green	0.07	0.55	0.35	0.35	0.17	0.17	
Sat Flow, veh/h	1327	3428	3400	1490	1714	1371	
Grp Volume(v), veh/h	64	1161	485	53	163	135	
Grp Sat Flow(s),veh/h/ln	1327	1670	1657	1490	1714	1371	
Q Serve(g_s), s	0.9	7.8	3.7	0.8	2.8	3.0	
Cycle Q Clear(g_c), s	0.9	7.8	3.7	0.8	2.8	3.0	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	468	1838	1144	514	300	240	
V/C Ratio(X)	0.14	0.63	0.42	0.10	0.54	0.56	
Avail Cap(c_a), veh/h	582	2807	1823	819	969	775	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	5.3	5.1	8.2	7.3	12.3	12.4	
Incr Delay (d2), s/veh	0.1	0.4	0.2	0.1	1.5	2.1	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.1	1.2	0.9	0.2	1.0	0.1	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	5.4	5.4	8.5	7.4	13.8	14.4	
LnGrp LOS	A	A	A	A	B	B	
Approach Vol, veh/h		1225	538		298		
Approach Delay, s/veh		5.4	8.4		14.1		
Approach LOS		A	A		B		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				22.5	10.2	6.7	15.8
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				27.5	18.5	5.0	18.0
Max Q Clear Time (g_c+I1), s				9.8	5.0	2.9	5.7
Green Ext Time (p_c), s				8.2	0.8	0.0	2.7
Intersection Summary							
HCM 6th Ctrl Delay			7.5				
HCM 6th LOS			A				

Queues
118: Star Road & SH 44

2045 Background Mitigations AM Peak Hour

01/12/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	81	742	371	154	444	91	274	167	155	193	355	68
v/c Ratio	0.22	0.74	0.51	0.57	0.37	0.13	0.78	0.38	0.32	0.47	0.88	0.15
Control Delay	17.3	35.5	5.7	24.3	24.6	0.4	58.4	32.1	6.0	25.0	60.3	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.3	35.5	5.7	24.3	24.6	0.4	58.4	32.1	6.0	25.0	60.3	0.7
Queue Length 50th (ft)	28	225	0	57	113	0	89	85	0	78	214	0
Queue Length 95th (ft)	56	296	67	98	157	1	#147	144	42	130	#358	0
Internal Link Dist (ft)		2598			5173			1764			5156	
Turn Bay Length (ft)	200		200	200		200	150		150	100		100
Base Capacity (vph)	370	1009	724	280	1192	678	372	500	526	412	456	501
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.74	0.51	0.55	0.37	0.13	0.74	0.33	0.29	0.47	0.78	0.14

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Background Mitigations AM Peak Hour
 118: Star Road & SH 44 01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	705	352	146	422	86	260	159	147	183	337	65
Future Volume (vph)	77	705	352	146	422	86	260	159	147	183	337	65
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1644	3226	1500	1583	3167	1530	3252	1714	1404	1710	1748	1457
Flt Permitted	0.49	1.00	1.00	0.20	1.00	1.00	0.95	1.00	1.00	0.65	1.00	1.00
Satd. Flow (perm)	856	3226	1500	327	3167	1530	3252	1714	1404	1173	1748	1457
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	81	742	371	154	444	91	274	167	155	193	355	68
RTOR Reduction (vph)	0	0	251	0	0	57	0	0	116	0	0	53
Lane Group Flow (vph)	81	742	120	154	444	34	274	167	39	193	355	15
Heavy Vehicles (%)	4%	6%	2%	8%	8%	0%	2%	5%	9%	0%	3%	5%
Turn Type	pm+pt	NA	Prot	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6	6	5	2		3	8		7	4	
Permitted Phases	6			2		2			8	4		4
Actuated Green, G (s)	36.2	31.5	31.5	45.6	36.2	36.2	10.5	24.7	24.7	30.0	22.1	22.1
Effective Green, g (s)	36.2	31.5	31.5	45.6	36.2	36.2	10.5	24.7	24.7	30.0	22.1	22.1
Actuated g/C Ratio	0.37	0.32	0.32	0.47	0.37	0.37	0.11	0.25	0.25	0.31	0.23	0.23
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	2.0	2.5	2.5	2.0	2.5	2.5	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	355	1042	484	274	1175	568	350	434	355	404	396	330
v/s Ratio Prot	0.01	c0.23	0.08	c0.05	0.14		c0.08	c0.10		0.04	c0.20	
v/s Ratio Perm	0.07			0.21		0.02			0.03	0.11		0.01
v/c Ratio	0.23	0.71	0.25	0.56	0.38	0.06	0.78	0.38	0.11	0.48	0.90	0.05
Uniform Delay, d1	20.3	29.0	24.3	17.3	22.4	19.7	42.4	30.1	28.0	26.3	36.6	29.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	4.1	1.2	1.6	0.1	0.0	10.1	0.2	0.1	0.3	21.6	0.0
Delay (s)	20.4	33.2	25.5	18.8	22.6	19.7	52.5	30.3	28.0	26.7	58.2	29.5
Level of Service	C	C	C	B	C	B	D	C	C	C	E	C
Approach Delay (s)		29.9			21.4			39.9			45.1	
Approach LOS		C			C			D			D	

Intersection Summary		
HCM 2000 Control Delay	33.0	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.76	
Actuated Cycle Length (s)	97.5	Sum of lost time (s) 24.0
Intersection Capacity Utilization	75.7%	ICU Level of Service D
Analysis Period (min)	15	
c Critical Lane Group		

HCM 6th Signalized Intersection Summary
118: Star Road & SH 44

2045 Background Mitigations AM Peak Hour

01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	705	352	146	422	86	260	159	147	183	337	65
Future Volume (veh/h)	77	705	352	146	422	86	260	159	147	183	337	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1744	1716	1772	1688	1688	1800	1772	1730	1674	1800	1758	1730
Adj Flow Rate, veh/h	81	742	371	154	444	91	274	167	155	193	355	68
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	6	2	8	8	0	2	5	9	0	3	5
Cap, veh/h	379	1063	490	273	1160	552	342	420	345	402	397	331
Arrive On Green	0.05	0.33	0.33	0.08	0.36	0.36	0.10	0.24	0.24	0.09	0.23	0.23
Sat Flow, veh/h	1661	3260	1502	1607	3207	1525	3274	1730	1418	1714	1758	1466
Grp Volume(v), veh/h	81	742	371	154	444	91	274	167	155	193	355	68
Grp Sat Flow(s),veh/h/ln	1661	1630	1502	1607	1603	1525	1637	1730	1418	1714	1758	1466
Q Serve(g_s), s	3.0	18.3	20.4	5.8	9.4	3.7	7.5	7.4	8.5	8.0	18.0	3.5
Cycle Q Clear(g_c), s	3.0	18.3	20.4	5.8	9.4	3.7	7.5	7.4	8.5	8.0	18.0	3.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	379	1063	490	273	1160	552	342	420	345	402	397	331
V/C Ratio(X)	0.21	0.70	0.76	0.56	0.38	0.16	0.80	0.40	0.45	0.48	0.90	0.21
Avail Cap(c_a), veh/h	408	1063	490	314	1185	564	391	526	432	402	478	398
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.2	27.1	27.8	20.4	21.8	19.9	40.3	29.2	29.6	24.7	34.6	28.9
Incr Delay (d2), s/veh	0.1	3.8	10.5	0.7	0.2	0.1	8.7	0.2	0.3	0.3	15.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	7.5	8.5	2.1	3.5	1.3	3.4	3.1	2.9	3.2	9.2	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.3	30.9	38.3	21.1	21.9	20.0	49.0	29.4	29.9	25.1	50.0	29.0
LnGrp LOS	B	C	D	C	C	C	D	C	C	C	D	C
Approach Vol, veh/h		1194			689			596			616	
Approach Delay, s/veh		32.4			21.5			38.5			39.9	
Approach LOS		C			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.4	39.3	15.6	26.8	13.7	36.0	14.0	28.4				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	6.0	34.0	11.0	25.0	10.0	30.0	8.0	28.0				
Max Q Clear Time (g_c+I1), s	5.0	11.4	9.5	20.0	7.8	22.4	10.0	10.5				
Green Ext Time (p_c), s	0.0	2.7	0.1	0.7	0.0	3.3	0.0	0.8				
Intersection Summary												
HCM 6th Ctrl Delay			32.6									
HCM 6th LOS			C									

Queues

2045 Background Mitigations AM Peak Hour

119: Plummer Road & SH 44

























01/12/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	31	1062	35	60	571	114	47	13	86	516	42	84
v/c Ratio	0.08	0.76	0.05	0.29	0.39	0.15	0.19	0.08	0.29	0.71	0.08	0.15
Control Delay	9.6	22.7	0.1	12.8	14.9	1.1	20.0	34.0	2.4	32.9	23.2	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.6	22.7	0.1	12.8	14.9	1.1	20.0	34.0	2.4	32.9	23.2	2.7
Queue Length 50th (ft)	7	225	0	13	75	0	15	6	0	119	16	0
Queue Length 95th (ft)	19	311	0	31	145	8	37	22	0	175	41	15
Internal Link Dist (ft)		5173			3517			675			5173	
Turn Bay Length (ft)	100		100	100		100	100		100	200		200
Base Capacity (vph)	394	1520	765	209	1602	817	242	497	554	787	795	747
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.70	0.05	0.29	0.36	0.14	0.19	0.03	0.16	0.66	0.05	0.11

Intersection Summary

HCM Signalized Intersection Capacity Analysis 2045 Background Mitigations AM Peak Hour
 119: Plummer Road & SH 44 01/12/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	1009	33	57	542	108	45	12	82	490	40	80
Future Volume (vph)	29	1009	33	57	542	108	45	12	82	490	40	80
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1710	3320	1457	1660	3320	1500	1710	1800	1530	3285	1800	1530
Flt Permitted	0.39	1.00	1.00	0.13	1.00	1.00	0.73	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	700	3320	1457	223	3320	1500	1313	1800	1530	3285	1800	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	31	1062	35	60	571	114	47	13	86	516	42	84
RTOR Reduction (vph)	0	0	21	0	0	66	0	0	76	0	0	60
Lane Group Flow (vph)	31	1062	14	60	571	48	47	13	10	516	42	24
Heavy Vehicles (%)	0%	3%	5%	3%	3%	2%	0%	0%	0%	1%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2			6
Actuated Green, G (s)	32.2	30.4	30.4	34.0	31.3	31.3	11.2	8.4	8.4	15.6	21.2	21.2
Effective Green, g (s)	32.2	30.4	30.4	34.0	31.3	31.3	11.2	8.4	8.4	15.6	21.2	21.2
Actuated g/C Ratio	0.43	0.40	0.40	0.45	0.42	0.42	0.15	0.11	0.11	0.21	0.28	0.28
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	324	1343	589	152	1383	625	210	201	171	682	508	431
v/s Ratio Prot	0.00	c0.32		c0.01	0.17		0.01	0.01		c0.16	0.02	
v/s Ratio Perm	0.04		0.01	0.16		0.03	c0.02		0.01			0.02
v/c Ratio	0.10	0.79	0.02	0.39	0.41	0.08	0.22	0.06	0.06	0.76	0.08	0.06
Uniform Delay, d1	12.6	19.6	13.4	13.8	15.4	13.2	28.0	29.8	29.8	28.0	19.8	19.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	3.3	0.0	1.7	0.2	0.1	0.5	0.1	0.1	4.8	0.1	0.1
Delay (s)	12.7	22.8	13.5	15.4	15.6	13.2	28.5	30.0	29.9	32.8	19.9	19.7
Level of Service	B	C	B	B	B	B	C	C	C	C	B	B
Approach Delay (s)		22.3			15.2			29.5			30.2	
Approach LOS		C			B			C			C	
Intersection Summary												
HCM 2000 Control Delay			22.6									HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio			0.68									
Actuated Cycle Length (s)			75.1							18.0		
Intersection Capacity Utilization			66.3%									ICU Level of Service C
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
119: Plummer Road & SH 44

2045 Background Mitigations AM Peak Hour

01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗	↘	↑	↗	↗↘	↑	↗
Traffic Volume (veh/h)	29	1009	33	57	542	108	45	12	82	490	40	80
Future Volume (veh/h)	29	1009	33	57	542	108	45	12	82	490	40	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1758	1730	1758	1758	1772	1800	1800	1800	1786	1800	1800
Adj Flow Rate, veh/h	31	1062	35	60	571	114	47	13	86	516	42	84
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	3	5	3	3	2	0	0	0	1	0	0
Cap, veh/h	390	1323	581	252	1382	621	297	158	134	638	427	362
Arrive On Green	0.03	0.40	0.40	0.05	0.41	0.41	0.04	0.09	0.09	0.19	0.24	0.24
Sat Flow, veh/h	1714	3340	1466	1674	3340	1502	1714	1800	1525	3300	1800	1525
Grp Volume(v), veh/h	31	1062	35	60	571	114	47	13	86	516	42	84
Grp Sat Flow(s),veh/h/ln	1714	1670	1466	1674	1670	1502	1714	1800	1525	1650	1800	1525
Q Serve(g_s), s	0.7	18.6	1.0	1.4	8.0	3.2	1.6	0.4	3.6	9.9	1.2	2.9
Cycle Q Clear(g_c), s	0.7	18.6	1.0	1.4	8.0	3.2	1.6	0.4	3.6	9.9	1.2	2.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	390	1323	581	252	1382	621	297	158	134	638	427	362
V/C Ratio(X)	0.08	0.80	0.06	0.24	0.41	0.18	0.16	0.08	0.64	0.81	0.10	0.23
Avail Cap(c_a), veh/h	464	1591	698	294	1591	715	354	517	438	823	827	701
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.3	17.7	12.4	13.5	13.7	12.3	25.6	27.7	29.2	25.5	19.7	20.4
Incr Delay (d2), s/veh	0.1	2.6	0.0	0.5	0.2	0.1	0.2	0.2	5.0	4.7	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	6.9	0.3	0.5	2.8	1.0	0.6	0.2	1.4	4.1	0.5	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.4	20.2	12.4	14.0	13.9	12.4	25.9	27.9	34.2	30.2	19.8	20.7
LnGrp LOS	B	C	B	B	B	B	C	C	C	C	B	C
Approach Vol, veh/h		1128			745			146				642
Approach Delay, s/veh		19.8			13.7			30.9				28.3
Approach LOS		B			B			C				C
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.3	10.3	7.8	30.7	7.4	20.2	6.7	31.9				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	16.5	19.0	5.0	31.5	5.1	30.4	5.0	31.5				
Max Q Clear Time (g_c+I1), s	11.9	5.6	3.4	20.6	3.6	4.9	2.7	10.0				
Green Ext Time (p_c), s	0.9	0.2	0.0	5.6	0.0	0.4	0.0	4.3				
Intersection Summary												
HCM 6th Ctrl Delay				20.7								
HCM 6th LOS				C								

Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑↑	↑↑	↗		↗
Traffic Vol, veh/h	93	1244	456	77	0	280
Future Vol, veh/h	93	1244	456	77	0	280
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	99	1323	485	82	0	298

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	567	0	-	0	243
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	4.14	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	-	3.32
Pot Cap-1 Maneuver	1001	-	-	-	758
Stage 1	-	-	-	-	0
Stage 2	-	-	-	-	0
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1001	-	-	-	758
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	12.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1001	-	-	-	758
HCM Lane V/C Ratio	0.099	-	-	-	0.393
HCM Control Delay (s)	9	-	-	-	12.8
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.3	-	-	-	1.9

Intersection												
Int Delay, s/veh	10.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗	↗	↘	↗↗	↗			↗			↗
Traffic Vol, veh/h	29	1499	73	57	587	120	0	0	139	0	0	610
Future Vol, veh/h	29	1499	73	57	587	120	0	0	139	0	0	610
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	200	200	-	200	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	31	1578	77	60	618	126	0	0	146	0	0	642

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	744	0	0	1655	0	0	-	-	789	-	-	309
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.14	-	-	4.14	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	859	-	-	386	-	-	0	0	333	0	0	687
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	859	-	-	386	-	-	-	-	333	-	-	687
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0.2		1.2		24		44.7	
HCM LOS					C		E	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	333	859	-	-	386	-	-	687
HCM Lane V/C Ratio	0.439	0.036	-	-	0.155	-	-	0.935
HCM Control Delay (s)	24	9.3	-	-	16	-	-	44.7
HCM Lane LOS	C	A	-	-	C	-	-	E
HCM 95th %tile Q(veh)	2.2	0.1	-	-	0.5	-	-	13

Queues
109: Pollard Road & Beacon Light Road

2045 Background Mitigations PM Peak Hour

01/12/2023

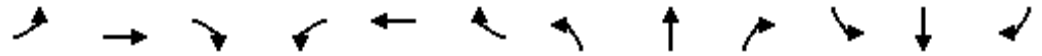


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	6	220	182	643	140	344	416	68	44
v/c Ratio	0.03	0.43	0.38	0.82	0.19	0.68	0.76	0.27	0.12
Control Delay	10.8	23.4	14.3	29.2	4.3	27.7	34.5	19.3	22.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.8	23.4	14.3	29.2	4.3	27.7	34.5	19.3	22.0
Queue Length 50th (ft)	2	83	50	248	3	113	163	19	12
Queue Length 95th (ft)	7	138	86	#514	37	#280	#386	54	44
Internal Link Dist (ft)		3919		2558			3989		3904
Turn Bay Length (ft)	100		100		100	100		100	
Base Capacity (vph)	222	922	485	1005	918	503	585	252	487
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.24	0.38	0.64	0.15	0.68	0.71	0.27	0.09

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Background Mitigations PM Peak Hour
 109: Pollard Road & Beacon Light Road 01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	190	8	164	579	126	310	218	157	61	31	9
Future Volume (vph)	5	190	8	164	579	126	310	218	157	61	31	9
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.94		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1710	1772		1710	1782	1530	1710	1687		1710	1739	
Flt Permitted	0.19	1.00		0.46	1.00	1.00	0.58	1.00		0.33	1.00	
Satd. Flow (perm)	347	1772		837	1782	1530	1037	1687		589	1739	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	6	211	9	182	643	140	344	242	174	68	34	10
RTOR Reduction (vph)	0	2	0	0	0	74	0	28	0	0	8	0
Lane Group Flow (vph)	6	218	0	182	643	66	344	388	0	68	36	0
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	25.4	24.6		37.2	31.9	31.9	30.9	22.6		20.8	17.0	
Effective Green, g (s)	25.4	24.6		37.2	31.9	31.9	30.9	22.6		20.8	17.0	
Actuated g/C Ratio	0.33	0.32		0.48	0.41	0.41	0.40	0.29		0.27	0.22	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	128	565		495	737	633	497	494		214	383	
v/s Ratio Prot	0.00	0.12		c0.04	c0.36		c0.08	c0.23		0.02	0.02	
v/s Ratio Perm	0.01			0.14		0.04	0.19			0.07		
v/c Ratio	0.05	0.39		0.37	0.87	0.10	0.69	0.79		0.32	0.09	
Uniform Delay, d1	18.6	20.4		12.0	20.7	13.8	18.3	25.0		21.7	23.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.4		0.5	11.1	0.1	4.1	8.1		0.9	0.1	
Delay (s)	18.7	20.8		12.4	31.8	13.9	22.4	33.1		22.5	24.0	
Level of Service	B	C		B	C	B	C	C		C	C	
Approach Delay (s)		20.8			25.6			28.3			23.1	
Approach LOS		C			C			C			C	

Intersection Summary		
HCM 2000 Control Delay	25.9	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.87	
Actuated Cycle Length (s)	77.1	Sum of lost time (s) 18.0
Intersection Capacity Utilization	77.7%	ICU Level of Service D
Analysis Period (min)	15	
c Critical Lane Group		

HCM 6th Signalized Intersection Summary
109: Pollard Road & Beacon Light Road

2045 Background Mitigations PM Peak Hour

01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	190	8	164	579	126	310	218	157	61	31	9
Future Volume (veh/h)	5	190	8	164	579	126	310	218	157	61	31	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1786	1800	1800	1786	1800	1800	1800	1800	1800	1800	1800
Adj Flow Rate, veh/h	6	211	9	182	643	140	344	242	174	68	34	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	1	0	0	1	0	0	0	0	0	0	0
Cap, veh/h	172	561	24	533	739	631	568	271	195	227	277	81
Arrive On Green	0.01	0.33	0.33	0.09	0.41	0.41	0.12	0.28	0.28	0.05	0.21	0.21
Sat Flow, veh/h	1714	1700	73	1714	1786	1525	1714	974	700	1714	1336	393
Grp Volume(v), veh/h	6	0	220	182	643	140	344	0	416	68	0	44
Grp Sat Flow(s),veh/h/ln	1714	0	1773	1714	1786	1525	1714	0	1674	1714	0	1729
Q Serve(g_s), s	0.2	0.0	6.9	4.7	23.9	4.3	8.9	0.0	17.3	2.2	0.0	1.5
Cycle Q Clear(g_c), s	0.2	0.0	6.9	4.7	23.9	4.3	8.9	0.0	17.3	2.2	0.0	1.5
Prop In Lane	1.00		0.04	1.00		1.00	1.00		0.42	1.00		0.23
Lane Grp Cap(c), veh/h	172	0	585	533	739	631	568	0	466	227	0	358
V/C Ratio(X)	0.03	0.00	0.38	0.34	0.87	0.22	0.61	0.00	0.89	0.30	0.00	0.12
Avail Cap(c_a), veh/h	276	0	879	568	962	821	568	0	529	260	0	456
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.2	0.0	18.6	12.9	19.5	13.7	19.6	0.0	25.1	21.8	0.0	23.4
Incr Delay (d2), s/veh	0.1	0.0	0.4	0.4	7.0	0.2	1.8	0.0	16.0	0.7	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	2.7	1.7	10.4	1.4	5.0	0.0	8.5	0.9	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.2	0.0	19.0	13.3	26.5	13.9	21.4	0.0	41.0	22.5	0.0	23.5
LnGrp LOS	B	A	B	B	C	B	C	A	D	C	A	C
Approach Vol, veh/h		226			965			760				112
Approach Delay, s/veh		18.9			22.2			32.2				22.9
Approach LOS		B			C			C				C
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.2	24.7	11.1	28.4	13.4	19.5	5.1	34.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.1	22.9	8.1	35.9	8.9	19.1	5.0	39.0				
Max Q Clear Time (g_c+I1), s	4.2	19.3	6.7	8.9	10.9	3.5	2.2	25.9				
Green Ext Time (p_c), s	0.0	0.9	0.1	1.3	0.0	0.1	0.0	4.1				

Intersection Summary

HCM 6th Ctrl Delay	25.5
HCM 6th LOS	C

Queues
110: SH 16 & Beacon Light Road

2045 Background Mitigations PM Peak Hour

01/12/2023

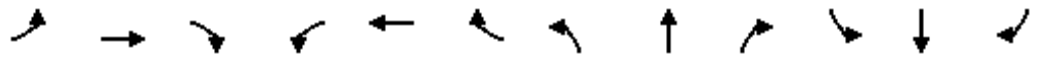


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	71	132	126	176	503	615	149	996	96	101	517	44
v/c Ratio	0.46	0.30	0.26	0.41	0.87	0.79	0.38	0.84	0.16	0.38	0.38	0.06
Control Delay	39.6	41.9	5.4	31.9	60.7	33.9	23.9	49.1	1.6	22.5	29.6	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.6	41.9	5.4	31.9	60.7	33.9	23.9	49.1	1.6	22.5	29.6	0.2
Queue Length 50th (ft)	40	95	0	107	436	434	69	428	0	46	170	0
Queue Length 95th (ft)	81	164	38	182	638	596	126	#665	9	89	244	0
Internal Link Dist (ft)		2558			3836			8809			1084	
Turn Bay Length (ft)	100		100	100		100	100		100	100		100
Base Capacity (vph)	153	684	680	429	775	896	402	1352	684	392	1777	858
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.19	0.19	0.41	0.65	0.69	0.37	0.74	0.14	0.26	0.29	0.05

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Background Mitigations PM Peak Hour
 110: SH 16 & Beacon Light Road 01/12/2023



























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	129	123	172	493	603	146	976	94	99	507	43
Future Volume (vph)	70	129	123	172	493	603	146	976	94	99	507	43
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1710	1765	1530	1660	1782	1530	1693	3353	1485	1710	3353	1530
Flt Permitted	0.19	1.00	1.00	0.55	1.00	1.00	0.45	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	340	1765	1530	954	1782	1530	800	3353	1485	169	3353	1530
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	71	132	126	176	503	615	149	996	96	101	517	44
RTOR Reduction (vph)	0	0	93	0	0	34	0	0	62	0	0	26
Lane Group Flow (vph)	71	132	33	176	503	581	149	996	34	101	517	18
Heavy Vehicles (%)	0%	2%	0%	3%	1%	0%	1%	2%	3%	0%	2%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2	7	3	8		7	4	
Permitted Phases	6		6	2		2	8		8	4		4
Actuated Green, G (s)	38.7	35.0	35.0	52.4	42.7	58.5	55.4	46.5	46.5	68.3	53.4	53.4
Effective Green, g (s)	38.7	35.0	35.0	52.4	42.7	58.5	55.4	46.5	46.5	68.3	53.4	53.4
Actuated g/C Ratio	0.29	0.26	0.26	0.39	0.32	0.44	0.42	0.35	0.35	0.51	0.40	0.40
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	137	465	403	437	573	743	393	1174	520	270	1349	615
v/s Ratio Prot	0.01	0.07		c0.03	c0.28	c0.09	0.03	c0.30		0.04	0.15	
v/s Ratio Perm	0.14		0.02	0.12		0.29	0.13		0.02	0.15		0.01
v/c Ratio	0.52	0.28	0.08	0.40	0.88	0.78	0.38	0.85	0.06	0.37	0.38	0.03
Uniform Delay, d1	38.1	38.9	36.8	27.4	42.5	31.7	24.7	39.8	28.6	22.5	28.0	24.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.3	0.3	0.1	0.6	14.2	5.4	0.6	5.9	0.1	0.9	0.2	0.0
Delay (s)	41.4	39.2	36.9	28.1	56.7	37.0	25.3	45.7	28.7	23.4	28.2	24.0
Level of Service	D	D	D	C	E	D	C	D	C	C	C	C
Approach Delay (s)		38.8			43.5			42.0			27.2	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	39.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	132.7	Sum of lost time (s)	24.0
Intersection Capacity Utilization	87.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
110: SH 16 & Beacon Light Road

2045 Background Mitigations PM Peak Hour

01/12/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	129	123	172	493	603	146	976	94	99	507	43
Future Volume (veh/h)	70	129	123	172	493	603	146	976	94	99	507	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1772	1800	1758	1786	1800	1786	1772	1758	1800	1772	1800
Adj Flow Rate, veh/h	71	132	126	176	503	615	149	996	96	101	517	44
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	2	0	3	1	0	1	2	3	0	2	0
Cap, veh/h	199	628	541	523	709	688	337	1127	499	175	1085	492
Arrive On Green	0.04	0.35	0.35	0.08	0.40	0.40	0.07	0.33	0.33	0.05	0.32	0.32
Sat Flow, veh/h	1714	1772	1525	1674	1786	1525	1701	3367	1490	1714	3367	1525
Grp Volume(v), veh/h	71	132	126	176	503	615	149	996	96	101	517	44
Grp Sat Flow(s),veh/h/ln	1714	1772	1525	1674	1786	1525	1701	1683	1490	1714	1683	1525
Q Serve(g_s), s	3.6	7.0	7.9	8.8	32.0	50.2	7.9	37.9	6.2	5.3	16.7	2.7
Cycle Q Clear(g_c), s	3.6	7.0	7.9	8.8	32.0	50.2	7.9	37.9	6.2	5.3	16.7	2.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	199	628	541	523	709	688	337	1127	499	175	1085	492
V/C Ratio(X)	0.36	0.21	0.23	0.34	0.71	0.89	0.44	0.88	0.19	0.58	0.48	0.09
Avail Cap(c_a), veh/h	199	641	552	526	725	702	337	1268	561	398	1665	754
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.1	30.5	30.8	23.5	34.3	34.2	29.0	42.6	32.0	33.9	36.7	32.0
Incr Delay (d2), s/veh	1.1	0.2	0.2	0.4	3.1	13.7	0.9	7.1	0.2	3.0	0.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	3.1	3.0	3.6	14.5	20.9	3.4	16.8	2.3	2.4	6.9	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.2	30.7	31.0	23.8	37.4	47.9	29.9	49.7	32.2	36.9	37.1	32.1
LnGrp LOS	C	C	C	C	D	D	C	D	C	D	D	C
Approach Vol, veh/h		329			1294			1241			662	
Approach Delay, s/veh		30.7			40.6			46.0			36.7	
Approach LOS		C			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	59.8	15.0	49.7	16.8	54.0	13.3	51.3				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	5.0	55.0	9.0	67.0	11.0	49.0	25.0	51.0				
Max Q Clear Time (g_c+I1), s	5.6	52.2	9.9	18.7	10.8	9.9	7.3	39.9				
Green Ext Time (p_c), s	0.0	1.6	0.0	4.1	0.0	1.2	0.2	5.5				
Intersection Summary												
HCM 6th Ctrl Delay			40.8									
HCM 6th LOS			D									

Queues
111: Palmer Lane & Beacon Light Road

2045 Background Mitigations PM Peak Hour
01/12/2023



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	438	20	5	1329	121	23
v/c Ratio	0.24	0.02	0.01	0.68	0.36	0.07
Control Delay	6.8	4.4	4.2	8.6	18.8	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.8	4.4	4.2	8.6	18.8	7.9
Queue Length 50th (ft)	21	0	1	93	28	0
Queue Length 95th (ft)	73	10	4	179	62	13
Internal Link Dist (ft)	3836			6200		
Turn Bay Length (ft)		100	100		100	100
Base Capacity (vph)	1853	846	547	2282	738	706
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.02	0.01	0.58	0.16	0.03
Intersection Summary						

HCM Signalized Intersection Capacity Analysis 2045 Background Mitigations PM Peak Hour
 111: Palmer Lane & Beacon Light Road 01/12/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	416	19	5	1263	115	22
Future Volume (vph)	416	19	5	1263	115	22
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3386	1530	1710	3386	1629	1530
Flt Permitted	1.00	1.00	0.41	1.00	0.95	1.00
Satd. Flow (perm)	3386	1530	747	3386	1629	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	438	20	5	1329	121	23
RTOR Reduction (vph)	0	10	0	0	0	19
Lane Group Flow (vph)	438	10	5	1329	121	4
Heavy Vehicles (%)	1%	0%	0%	1%	5%	0%
Turn Type	NA	Perm	pm+pt	NA	Prot	Prot
Protected Phases	4		3	8	1	1
Permitted Phases		4	8			
Actuated Green, G (s)	22.5	22.5	27.9	27.9	8.6	8.6
Effective Green, g (s)	22.5	22.5	27.9	27.9	8.6	8.6
Actuated g/C Ratio	0.49	0.49	0.61	0.61	0.19	0.19
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1674	756	477	2076	307	289
v/s Ratio Prot	0.13		0.00	c0.39	c0.07	0.00
v/s Ratio Perm		0.01	0.01			
v/c Ratio	0.26	0.01	0.01	0.64	0.39	0.02
Uniform Delay, d1	6.7	5.9	3.6	5.6	16.2	15.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.0	0.7	0.8	0.0
Delay (s)	6.8	5.9	3.6	6.3	17.0	15.0
Level of Service	A	A	A	A	B	B
Approach Delay (s)	6.7			6.3	16.7	
Approach LOS	A			A	B	

Intersection Summary			
HCM 2000 Control Delay	7.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	45.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
111: Palmer Lane & Beacon Light Road

2045 Background Mitigations PM Peak Hour
01/12/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↵	↑↑	↵	↑
Traffic Volume (veh/h)	416	19	5	1263	115	22
Future Volume (veh/h)	416	19	5	1263	115	22
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1786	1800	1800	1786	1730	1800
Adj Flow Rate, veh/h	438	20	5	1329	121	23
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	0	0	1	5	0
Cap, veh/h	1528	687	573	1999	242	224
Arrive On Green	0.45	0.45	0.01	0.59	0.15	0.15
Sat Flow, veh/h	3483	1525	1714	3483	1647	1525
Grp Volume(v), veh/h	438	20	5	1329	121	23
Grp Sat Flow(s),veh/h/ln	1697	1525	1714	1697	1647	1525
Q Serve(g_s), s	2.8	0.2	0.0	9.0	2.3	0.4
Cycle Q Clear(g_c), s	2.8	0.2	0.0	9.0	2.3	0.4
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1528	687	573	1999	242	224
V/C Ratio(X)	0.29	0.03	0.01	0.66	0.50	0.10
Avail Cap(c_a), veh/h	1793	806	813	2739	895	828
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	5.9	5.2	4.3	4.7	13.4	12.6
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.4	1.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.1	0.0	1.2	0.8	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	6.0	5.2	4.3	5.1	15.0	12.8
LnGrp LOS	A	A	A	A	B	B
Approach Vol, veh/h	458			1334	144	
Approach Delay, s/veh	6.0			5.1	14.6	
Approach LOS	A			A	B	
Timer - Assigned Phs			3	4	6	8
Phs Duration (G+Y+Rc), s			4.7	19.8	9.5	24.6
Change Period (Y+Rc), s			4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s			5.0	18.0	18.5	27.5
Max Q Clear Time (g_c+I1), s			2.0	4.8	4.3	11.0
Green Ext Time (p_c), s			0.0	2.4	0.3	9.1
Intersection Summary						
HCM 6th Ctrl Delay			6.0			
HCM 6th LOS			A			

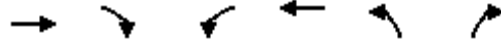
Notes

User approved pedestrian interval to be less than phase max green.

Queues
113: Star Road & Floating Feather Road

2045 Background Mitigations PM Peak Hour

01/12/2023



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	132	200	642	244	153	189
v/c Ratio	0.40	0.45	0.81	0.22	0.45	0.42
Control Delay	23.5	7.6	16.9	5.1	24.1	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.5	7.6	16.9	5.1	24.1	7.0
Queue Length 50th (ft)	36	0	93	25	41	0
Queue Length 95th (ft)	86	45	#282	63	97	44
Internal Link Dist (ft)	2600		1170		5156	
Turn Bay Length (ft)	100		100		100	
Base Capacity (vph)	664	680	864	1532	631	684
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.29	0.74	0.16	0.24	0.28

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Background Mitigations PM Peak Hour
 113: Star Road & Floating Feather Road 01/12/2023



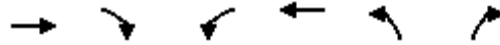
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	120	182	584	222	139	172
Future Volume (vph)	120	182	584	222	139	172
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1800	1500	1676	1800	1710	1530
Flt Permitted	1.00	1.00	0.46	1.00	0.95	1.00
Satd. Flow (perm)	1800	1500	808	1800	1710	1530
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	132	200	642	244	153	189
RTOR Reduction (vph)	0	162	0	0	0	151
Lane Group Flow (vph)	132	38	642	244	153	38
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%
Turn Type	NA	Perm	pm+pt	NA	Prot	Prot
Protected Phases	4		3	8	2	2
Permitted Phases		4	8			
Actuated Green, G (s)	9.6	9.6	31.2	31.2	10.0	10.0
Effective Green, g (s)	9.6	9.6	31.2	31.2	10.0	10.0
Actuated g/C Ratio	0.19	0.19	0.62	0.62	0.20	0.20
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	344	286	797	1118	340	304
v/s Ratio Prot	0.07		c0.27	0.14	c0.09	0.02
v/s Ratio Perm		0.03	c0.23			
v/c Ratio	0.38	0.13	0.81	0.22	0.45	0.12
Uniform Delay, d1	17.7	16.8	6.3	4.2	17.7	16.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.2	6.0	0.1	0.9	0.2
Delay (s)	18.4	17.1	12.2	4.3	18.6	16.7
Level of Service	B	B	B	A	B	B
Approach Delay (s)	17.6			10.0	17.6	
Approach LOS	B			B	B	

Intersection Summary			
HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	50.2	Sum of lost time (s)	13.5
Intersection Capacity Utilization	56.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
113: Star Road & Floating Feather Road

2045 Background Mitigations PM Peak Hour

01/12/2023

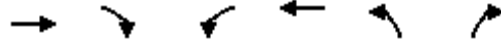


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (veh/h)	120	182	584	222	139	172
Future Volume (veh/h)	120	182	584	222	139	172
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1800	1772	1772	1800	1800	1800
Adj Flow Rate, veh/h	132	200	642	244	153	189
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	2	2	0	0	0
Cap, veh/h	342	286	858	1126	305	271
Arrive On Green	0.19	0.19	0.34	0.63	0.18	0.18
Sat Flow, veh/h	1800	1502	1688	1800	1714	1525
Grp Volume(v), veh/h	132	200	642	244	153	189
Grp Sat Flow(s),veh/h/ln	1800	1502	1688	1800	1714	1525
Q Serve(g_s), s	2.9	5.7	12.1	2.7	3.7	5.3
Cycle Q Clear(g_c), s	2.9	5.7	12.1	2.7	3.7	5.3
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	342	286	858	1126	305	271
V/C Ratio(X)	0.39	0.70	0.75	0.22	0.50	0.70
Avail Cap(c_a), veh/h	708	590	1045	1691	674	600
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.2	17.3	7.5	3.7	17.0	17.7
Incr Delay (d2), s/veh	0.7	3.1	2.4	0.1	1.3	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	2.0	3.2	0.6	1.4	1.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	16.9	20.4	9.9	3.8	18.3	20.9
LnGrp LOS	B	C	A	A	B	C
Approach Vol, veh/h	332			886	342	
Approach Delay, s/veh	19.0			8.2	19.7	
Approach LOS	B			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		12.6	19.9	13.2		33.1
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		18.0	20.5	18.0		43.0
Max Q Clear Time (g_c+I1), s		7.3	14.1	7.7		4.7
Green Ext Time (p_c), s		0.8	1.4	1.0		1.5
Intersection Summary						
HCM 6th Ctrl Delay			13.0			
HCM 6th LOS			B			

Queues
114: Plummer Road & Floating Feather Road

2045 Background Mitigations PM Peak Hour

01/12/2023

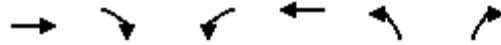


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	184	273	101	431	401	74
v/c Ratio	0.35	0.43	0.22	0.58	0.66	0.13
Control Delay	16.1	4.8	9.0	13.1	19.0	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.1	4.8	9.0	13.1	19.0	4.3
Queue Length 50th (ft)	40	0	14	72	82	0
Queue Length 95th (ft)	88	42	37	149	#192	21
Internal Link Dist (ft)	3891			1279	5173	
Turn Bay Length (ft)		100	100		100	
Base Capacity (vph)	847	864	458	1272	827	778
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.32	0.22	0.34	0.48	0.10

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Background Mitigations PM Peak Hour
 114: Plummer Road & Floating Feather Road 01/12/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	166	246	91	388	361	67
Future Volume (vph)	166	246	91	388	361	67
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1800	1530	1710	1800	1710	1530
Flt Permitted	1.00	1.00	0.47	1.00	0.95	1.00
Satd. Flow (perm)	1800	1530	840	1800	1710	1530
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	184	273	101	431	401	74
RTOR Reduction (vph)	0	196	0	0	0	49
Lane Group Flow (vph)	184	77	101	431	401	25
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	NA	Perm	pm+pt	NA	Prot	Prot
Protected Phases	4		3	8	2	2
Permitted Phases		4	8			
Actuated Green, G (s)	12.0	12.0	19.0	19.0	14.5	14.5
Effective Green, g (s)	12.0	12.0	19.0	19.0	14.5	14.5
Actuated g/C Ratio	0.28	0.28	0.45	0.45	0.34	0.34
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	508	432	426	804	583	522
v/s Ratio Prot	0.10		0.01	c0.24	c0.23	0.02
v/s Ratio Perm		0.05	0.09			
v/c Ratio	0.36	0.18	0.24	0.54	0.69	0.05
Uniform Delay, d1	12.2	11.5	7.2	8.5	12.1	9.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.2	0.3	0.7	3.4	0.0
Delay (s)	12.6	11.7	7.5	9.2	15.4	9.4
Level of Service	B	B	A	A	B	A
Approach Delay (s)	12.1			8.9	14.5	
Approach LOS	B			A	B	

Intersection Summary			
HCM 2000 Control Delay	11.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	42.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	50.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
 114: Plummer Road & Floating Feather Road

2045 Background Mitigations PM Peak Hour

01/12/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (veh/h)	166	246	91	388	361	67
Future Volume (veh/h)	166	246	91	388	361	67
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1800	1800	1800
Adj Flow Rate, veh/h	184	273	101	431	401	74
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	459	389	503	832	509	453
Arrive On Green	0.26	0.26	0.09	0.46	0.30	0.30
Sat Flow, veh/h	1800	1525	1714	1800	1714	1525
Grp Volume(v), veh/h	184	273	101	431	401	74
Grp Sat Flow(s),veh/h/ln	1800	1525	1714	1800	1714	1525
Q Serve(g_s), s	3.2	6.1	1.4	6.3	8.0	1.3
Cycle Q Clear(g_c), s	3.2	6.1	1.4	6.3	8.0	1.3
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	459	389	503	832	509	453
V/C Ratio(X)	0.40	0.70	0.20	0.52	0.79	0.16
Avail Cap(c_a), veh/h	867	735	584	1325	849	755
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.5	12.6	7.7	7.1	12.1	9.7
Incr Delay (d2), s/veh	0.6	2.3	0.2	0.5	2.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	1.9	0.4	1.6	2.7	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.1	14.9	7.8	7.6	14.8	9.9
LnGrp LOS	B	B	A	A	B	A
Approach Vol, veh/h	457			532	475	
Approach Delay, s/veh	13.8			7.6	14.1	
Approach LOS	B			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		15.6	7.7	14.0		21.8
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		18.5	5.0	18.0		27.5
Max Q Clear Time (g_c+I1), s		10.0	3.4	8.1		8.3
Green Ext Time (p_c), s		1.1	0.0	1.5		2.6
Intersection Summary						
HCM 6th Ctrl Delay			11.6			
HCM 6th LOS			B			

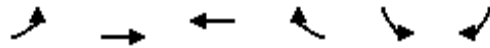


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	61	920	1237	89	191	93
v/c Ratio	0.21	0.47	0.77	0.12	0.50	0.24
Control Delay	6.7	7.1	17.5	3.5	22.6	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.7	7.1	17.5	3.5	22.6	6.4
Queue Length 50th (ft)	6	66	168	0	54	0
Queue Length 95th (ft)	22	128	#334	22	104	28
Internal Link Dist (ft)		3717	2513		4604	
Turn Bay Length (ft)	200			150	100	
Base Capacity (vph)	291	2401	1726	808	654	590
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.38	0.72	0.11	0.29	0.16

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Background Mitigations PM Peak Hour
 117: SH 44 & Can Ada Road 01/12/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	57	865	1163	84	180	87
Future Volume (vph)	57	865	1163	84	180	87
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1613	3353	3386	1500	1676	1366
Flt Permitted	0.15	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	248	3353	3386	1500	1676	1366
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	61	920	1237	89	191	93
RTOR Reduction (vph)	0	0	0	48	0	73
Lane Group Flow (vph)	61	920	1237	41	191	20
Heavy Vehicles (%)	6%	2%	1%	2%	2%	12%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	30.0	30.0	22.9	22.9	10.9	10.9
Effective Green, g (s)	30.0	30.0	22.9	22.9	10.9	10.9
Actuated g/C Ratio	0.60	0.60	0.46	0.46	0.22	0.22
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	220	2015	1553	688	366	298
v/s Ratio Prot	0.01	c0.27	c0.37		c0.11	
v/s Ratio Perm	0.15			0.03		0.01
v/c Ratio	0.28	0.46	0.80	0.06	0.52	0.07
Uniform Delay, d1	6.8	5.5	11.5	7.5	17.2	15.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.2	2.9	0.0	1.3	0.1
Delay (s)	7.4	5.6	14.4	7.5	18.5	15.6
Level of Service	A	A	B	A	B	B
Approach Delay (s)		5.7	14.0		17.6	
Approach LOS		A	B		B	

Intersection Summary

HCM 2000 Control Delay	11.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	49.9	Sum of lost time (s)	13.5
Intersection Capacity Utilization	59.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
 117: SH 44 & Can Ada Road

2045 Background Mitigations PM Peak Hour
 01/12/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↙	↑↑	↑↑	↘	↙	↘	
Traffic Volume (veh/h)	57	865	1163	84	180	87	
Future Volume (veh/h)	57	865	1163	84	180	87	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1716	1772	1786	1772	1772	1632	
Adj Flow Rate, veh/h	61	920	1237	89	191	93	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	
Percent Heavy Veh, %	6	2	1	2	2	12	
Cap, veh/h	326	2119	1588	703	281	230	
Arrive On Green	0.06	0.63	0.47	0.47	0.17	0.17	
Sat Flow, veh/h	1634	3455	3483	1502	1688	1383	
Grp Volume(v), veh/h	61	920	1237	89	191	93	
Grp Sat Flow(s),veh/h/ln	1634	1683	1697	1502	1688	1383	
Q Serve(g_s), s	0.7	6.1	13.5	1.5	4.7	2.7	
Cycle Q Clear(g_c), s	0.7	6.1	13.5	1.5	4.7	2.7	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	326	2119	1588	703	281	230	
V/C Ratio(X)	0.19	0.43	0.78	0.13	0.68	0.40	
Avail Cap(c_a), veh/h	413	2517	1806	799	688	564	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	7.4	4.2	9.8	6.6	17.3	16.4	
Incr Delay (d2), s/veh	0.3	0.1	2.0	0.1	2.9	1.1	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.2	1.1	4.0	0.4	1.8	0.1	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	7.7	4.3	11.8	6.7	20.2	17.6	
LnGrp LOS	A	A	B	A	C	B	
Approach Vol, veh/h		981	1326		284		
Approach Delay, s/veh		4.5	11.5		19.3		
Approach LOS		A	B		B		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				32.3	11.9	7.1	25.2
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				33.0	18.0	5.0	23.5
Max Q Clear Time (g_c+I1), s				8.1	6.7	2.7	15.5
Green Ext Time (p_c), s				7.2	0.7	0.0	5.2
Intersection Summary							
HCM 6th Ctrl Delay			9.7				
HCM 6th LOS			A				

Queues
118: Star Road & SH 44

2045 Background Mitigations PM Peak Hour

01/12/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	162	641	368	189	923	114	395	307	124	111	239	113
v/c Ratio	0.85	0.55	0.41	0.61	0.79	0.17	0.85	0.59	0.21	0.38	0.75	0.22
Control Delay	64.4	27.4	3.4	37.9	33.8	0.5	57.0	34.2	0.8	23.4	49.9	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.4	27.4	3.4	37.9	33.8	0.5	57.0	34.2	0.8	23.4	49.9	1.0
Queue Length 50th (ft)	68	157	10	80	248	0	116	159	0	41	133	0
Queue Length 95th (ft)	#179	240	48	152	#372	0	#215	245	0	76	212	0
Internal Link Dist (ft)		2598			5173			1764			5156	
Turn Bay Length (ft)	200		200	200		200	150		150	100		100
Base Capacity (vph)	190	1159	893	328	1197	689	476	636	689	293	482	632
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.55	0.41	0.58	0.77	0.17	0.83	0.48	0.18	0.38	0.50	0.18

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Background Mitigations PM Peak Hour
 118: Star Road & SH 44 01/12/2023



























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	635	364	187	914	113	391	304	123	110	237	112
Future Volume (vph)	160	635	364	187	914	113	391	304	123	110	237	112
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1693	3386	1515	1676	3386	1530	3317	1800	1530	1660	1748	1515
Flt Permitted	0.16	1.00	1.00	0.41	1.00	1.00	0.95	1.00	1.00	0.57	1.00	1.00
Satd. Flow (perm)	284	3386	1515	721	3386	1530	3317	1800	1530	1002	1748	1515
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	162	641	368	189	923	114	395	307	124	111	239	113
RTOR Reduction (vph)	0	0	160	0	0	75	0	0	89	0	0	91
Lane Group Flow (vph)	162	641	208	189	923	39	395	307	35	111	239	22
Heavy Vehicles (%)	1%	1%	1%	2%	1%	0%	0%	0%	0%	3%	3%	1%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6	3	5	2		3	8		7	4	
Permitted Phases	6		6	2		2			8	4		4
Actuated Green, G (s)	31.1	31.1	43.9	31.3	31.3	31.3	12.8	26.1	26.1	22.7	18.0	18.0
Effective Green, g (s)	31.1	31.1	43.9	31.3	31.3	31.3	12.8	26.1	26.1	22.7	18.0	18.0
Actuated g/C Ratio	0.34	0.34	0.48	0.34	0.34	0.34	0.14	0.28	0.28	0.25	0.20	0.20
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	2.0	2.5	2.0	2.0	2.5	2.5	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	187	1143	722	309	1150	519	460	510	433	280	341	296
v/s Ratio Prot	c0.06	0.19	0.04	0.04	c0.27		c0.12	0.17		0.02	c0.14	
v/s Ratio Perm	c0.24		0.10	0.17		0.03			0.02	0.08		0.01
v/c Ratio	0.87	0.56	0.29	0.61	0.80	0.07	0.86	0.60	0.08	0.40	0.70	0.07
Uniform Delay, d1	26.1	24.9	14.6	27.2	27.6	20.6	38.8	28.5	24.2	28.0	34.5	30.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	30.8	2.0	0.1	2.5	4.0	0.0	14.2	1.4	0.0	0.3	5.2	0.0
Delay (s)	56.9	26.9	14.7	29.7	31.6	20.6	53.0	29.9	24.2	28.4	39.8	30.3
Level of Service	E	C	B	C	C	C	D	C	C	C	D	C
Approach Delay (s)		27.2			30.3			40.1			34.7	
Approach LOS		C			C			D			C	

Intersection Summary		
HCM 2000 Control Delay	32.1	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.81	
Actuated Cycle Length (s)	92.1	Sum of lost time (s) 24.0
Intersection Capacity Utilization	81.0%	ICU Level of Service D
Analysis Period (min)	15	
c Critical Lane Group		

HCM 6th Signalized Intersection Summary
118: Star Road & SH 44

2045 Background Mitigations PM Peak Hour

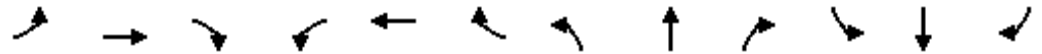
01/12/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	635	364	187	914	113	391	304	123	110	237	112
Future Volume (veh/h)	160	635	364	187	914	113	391	304	123	110	237	112
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1786	1786	1786	1772	1786	1800	1800	1800	1800	1758	1758	1786
Adj Flow Rate, veh/h	162	641	368	189	923	114	395	307	124	111	239	113
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	1	1	1	2	1	0	0	0	0	3	3	1
Cap, veh/h	202	1220	756	285	1178	530	467	424	359	274	289	249
Arrive On Green	0.07	0.36	0.36	0.06	0.35	0.35	0.14	0.24	0.24	0.07	0.16	0.16
Sat Flow, veh/h	1701	3393	1514	1688	3393	1525	3326	1800	1525	1674	1758	1514
Grp Volume(v), veh/h	162	641	368	189	923	114	395	307	124	111	239	113
Grp Sat Flow(s),veh/h/ln	1701	1697	1514	1688	1697	1525	1663	1800	1525	1674	1758	1514
Q Serve(g_s), s	6.0	12.9	6.5	0.0	21.0	4.5	10.0	13.6	4.3	4.7	11.3	5.8
Cycle Q Clear(g_c), s	6.0	12.9	6.5	0.0	21.0	4.5	10.0	13.6	4.3	4.7	11.3	5.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	202	1220	756	285	1178	530	467	424	359	274	289	249
V/C Ratio(X)	0.80	0.53	0.49	0.66	0.78	0.22	0.85	0.72	0.35	0.41	0.83	0.45
Avail Cap(c_a), veh/h	202	1220	756	325	1259	566	501	668	566	274	510	439
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.6	21.8	4.0	33.9	25.2	19.9	36.2	30.4	15.2	27.5	34.8	32.5
Incr Delay (d2), s/veh	19.0	1.6	2.2	2.8	3.0	0.1	11.2	0.9	0.2	0.4	2.3	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	5.2	3.0	3.9	8.6	1.6	4.7	5.8	2.0	1.9	4.9	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.6	23.4	6.3	36.7	28.2	20.0	47.3	31.3	15.4	27.8	37.1	33.0
LnGrp LOS	D	C	A	D	C	C	D	C	B	C	D	C
Approach Vol, veh/h		1171			1226			826			463	
Approach Delay, s/veh		21.0			28.7			36.6			33.9	
Approach LOS		C			C			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	35.9	18.1	20.2	10.9	37.0	12.0	26.3				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	6.0	32.0	13.0	25.0	7.0	31.0	6.0	32.0				
Max Q Clear Time (g_c+I1), s	8.0	23.0	12.0	13.3	2.0	14.9	6.7	15.6				
Green Ext Time (p_c), s	0.0	3.9	0.1	0.9	0.1	4.4	0.0	1.3				
Intersection Summary												
HCM 6th Ctrl Delay			28.7									
HCM 6th LOS			C									

Queues
119: Plummer Road & SH 44

2045 Background Mitigations PM Peak Hour

01/12/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	71	782	58	108	1282	293	113	116	158	333	82	99
v/c Ratio	0.35	0.53	0.08	0.31	0.83	0.38	0.36	0.49	0.47	0.74	0.20	0.23
Control Delay	13.9	18.4	0.2	11.1	25.1	9.0	24.6	39.9	10.8	46.0	29.6	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.9	18.4	0.2	11.1	25.1	9.0	24.6	39.9	10.8	46.0	29.6	4.7
Queue Length 50th (ft)	15	148	0	23	287	42	42	56	0	86	36	0
Queue Length 95th (ft)	36	221	0	51	#427	106	80	106	51	#160	74	25
Internal Link Dist (ft)		5173			3517			675			5173	
Turn Bay Length (ft)	100		100	100		100	100		100	200		200
Base Capacity (vph)	201	1588	785	352	1673	831	313	441	486	454	550	542
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.49	0.07	0.31	0.77	0.35	0.36	0.26	0.33	0.73	0.15	0.18

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Background Mitigations PM Peak Hour
 119: Plummer Road & SH 44 01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗	↘	↑	↗	↗↘	↑	↗
Traffic Volume (vph)	67	743	55	103	1218	278	107	110	150	316	78	94
Future Volume (vph)	67	743	55	103	1218	278	107	110	150	316	78	94
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1710	3386	1530	1710	3386	1530	1710	1765	1471	3285	1800	1485
Flt Permitted	0.12	1.00	1.00	0.25	1.00	1.00	0.70	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	211	3386	1530	453	3386	1530	1267	1765	1471	3285	1800	1485
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	71	782	58	108	1282	293	113	116	158	333	82	99
RTOR Reduction (vph)	0	0	33	0	0	83	0	0	135	0	0	77
Lane Group Flow (vph)	71	782	25	108	1282	210	113	116	23	333	82	22
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	2%	4%	1%	0%	3%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2			6
Actuated Green, G (s)	37.9	34.1	34.1	40.7	35.5	35.5	16.4	11.7	11.7	10.6	17.6	17.6
Effective Green, g (s)	37.9	34.1	34.1	40.7	35.5	35.5	16.4	11.7	11.7	10.6	17.6	17.6
Actuated g/C Ratio	0.48	0.43	0.43	0.51	0.45	0.45	0.21	0.15	0.15	0.13	0.22	0.22
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	172	1450	655	313	1510	682	287	259	216	437	397	328
v/s Ratio Prot	0.02	0.23		c0.02	c0.38		0.02	c0.07		c0.10	0.05	
v/s Ratio Perm	0.18		0.02	0.15		0.14	0.06		0.02			0.01
v/c Ratio	0.41	0.54	0.04	0.35	0.85	0.31	0.39	0.45	0.11	0.76	0.21	0.07
Uniform Delay, d1	14.5	16.9	13.2	11.0	19.7	14.2	26.9	31.0	29.4	33.3	25.3	24.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.6	0.4	0.0	0.7	4.7	0.3	0.9	1.2	0.2	7.7	0.3	0.1
Delay (s)	16.1	17.3	13.2	11.6	24.3	14.4	27.8	32.2	29.6	41.0	25.6	24.6
Level of Service	B	B	B	B	C	B	C	C	C	D	C	C
Approach Delay (s)		16.9			21.8			29.9			35.4	
Approach LOS		B			C			C			D	

Intersection Summary		
HCM 2000 Control Delay	23.4	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.73	
Actuated Cycle Length (s)	79.6	Sum of lost time (s) 18.0
Intersection Capacity Utilization	67.1%	ICU Level of Service C
Analysis Period (min)	15	
c Critical Lane Group		

HCM 6th Signalized Intersection Summary
119: Plummer Road & SH 44

2045 Background Mitigations PM Peak Hour
01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗	↘	↑	↗	↗↘	↑	↗
Traffic Volume (veh/h)	67	743	55	103	1218	278	107	110	150	316	78	94
Future Volume (veh/h)	67	743	55	103	1218	278	107	110	150	316	78	94
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1786	1800	1800	1786	1800	1800	1772	1744	1786	1800	1758
Adj Flow Rate, veh/h	71	782	58	108	1282	293	113	116	158	333	82	99
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	1	0	0	1	0	0	2	4	1	0	3
Cap, veh/h	219	1495	672	377	1522	684	392	247	206	416	343	284
Arrive On Green	0.05	0.44	0.44	0.06	0.45	0.45	0.07	0.14	0.14	0.13	0.19	0.19
Sat Flow, veh/h	1714	3393	1525	1714	3393	1525	1714	1772	1478	3300	1800	1490
Grp Volume(v), veh/h	71	782	58	108	1282	293	113	116	158	333	82	99
Grp Sat Flow(s),veh/h/ln	1714	1697	1525	1714	1697	1525	1714	1772	1478	1650	1800	1490
Q Serve(g_s), s	1.7	12.8	1.7	2.6	25.6	10.0	4.2	4.6	7.9	7.5	3.0	4.4
Cycle Q Clear(g_c), s	1.7	12.8	1.7	2.6	25.6	10.0	4.2	4.6	7.9	7.5	3.0	4.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	219	1495	672	377	1522	684	392	247	206	416	343	284
V/C Ratio(X)	0.32	0.52	0.09	0.29	0.84	0.43	0.29	0.47	0.77	0.80	0.24	0.35
Avail Cap(c_a), veh/h	244	1581	711	431	1665	749	406	441	367	453	546	452
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.5	15.5	12.4	11.5	18.7	14.4	25.3	30.3	31.7	32.5	26.2	26.8
Incr Delay (d2), s/veh	0.8	0.3	0.1	0.4	3.8	0.4	0.4	1.4	5.9	9.2	0.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	4.6	0.5	0.9	9.9	3.3	1.7	2.0	3.1	3.4	1.3	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.4	15.8	12.5	11.9	22.5	14.8	25.7	31.7	37.6	41.7	26.6	27.5
LnGrp LOS	B	B	B	B	C	B	C	C	D	D	C	C
Approach Vol, veh/h		911			1683			387			514	
Approach Delay, s/veh		15.7			20.5			32.4			36.6	
Approach LOS		B			C			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.1	15.1	9.0	38.2	10.2	19.1	8.4	38.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	10.5	19.0	6.9	35.6	6.3	23.2	5.0	37.5				
Max Q Clear Time (g_c+I1), s	9.5	9.9	4.6	14.8	6.2	6.4	3.7	27.6				
Green Ext Time (p_c), s	0.1	0.8	0.0	5.8	0.0	0.6	0.0	6.7				
Intersection Summary												
HCM 6th Ctrl Delay				22.9								
HCM 6th LOS				C								

Intersection						
Int Delay, s/veh	3.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑↑	↑↑	↗		↗
Traffic Vol, veh/h	88	1059	1163	130	0	267
Future Vol, veh/h	88	1059	1163	130	0	267
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	94	1127	1237	138	0	284

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1375	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.14	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.22	-	-
Pot Cap-1 Maneuver	495	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	495	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	27.9
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	495	-	-	-	432
HCM Lane V/C Ratio	0.189	-	-	-	0.658
HCM Control Delay (s)	14	-	-	-	27.9
HCM Lane LOS	B	-	-	-	D
HCM 95th %tile Q(veh)	0.7	-	-	-	4.6

Intersection												
Int Delay, s/veh	27											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗			↗			↗
Traffic Vol, veh/h	67	1059	133	103	1325	388	0	0	367	0	0	487
Future Vol, veh/h	67	1059	133	103	1325	388	0	0	367	0	0	487
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	200	200	-	200	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	70	1103	139	107	1380	404	0	0	382	0	0	507

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1784	0	0	1242	0	0	-	-	552	-	-	690
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.14	-	-	4.14	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	344	-	-	556	-	-	0	0	477	0	0	~ 388
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	344	-	-	556	-	-	-	-	477	-	-	~ 388
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1			0.7			36.6			184.7		
HCM LOS							E			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	477	344	-	-	556	-	-	388
HCM Lane V/C Ratio	0.801	0.203	-	-	0.193	-	-	1.307
HCM Control Delay (s)	36.6	18.1	-	-	13	-	-	184.7
HCM Lane LOS	E	C	-	-	B	-	-	F
HCM 95th %tile Q(veh)	7.4	0.7	-	-	0.7	-	-	23.1

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

MOVEMENT SUMMARY

Site: 109 [Beacon Light Road / Pollard Road AM (Site Folder: General)]

2045 Background
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist ft]				
South: RoadName														
3	L2	9	0.0	10	0.0	0.296	8.3	LOS A	1.3	33.5	0.64	0.64	0.64	33.4
8	T1	48	0.0	53	0.0	0.296	8.3	LOS A	1.3	33.5	0.64	0.64	0.64	33.3
18	R2	140	3.1	156	3.1	0.296	8.4	LOS A	1.3	33.5	0.64	0.64	0.64	32.3
Approach		197	2.2	219	2.2	0.296	8.4	LOS A	1.3	33.5	0.64	0.64	0.64	32.6
East: RoadName														
1	L2	40	6.7	44	6.7	0.110	3.8	LOS A	0.4	11.5	0.17	0.07	0.17	34.8
6	T1	134	8.0	149	8.0	0.110	3.8	LOS A	0.5	11.7	0.17	0.07	0.17	35.2
16	R2	78	0.0	87	0.0	0.110	3.6	LOS A	0.5	11.7	0.18	0.07	0.18	34.8
Approach		252	5.3	280	5.3	0.110	3.7	LOS A	0.5	11.7	0.17	0.07	0.17	35.0
North: RoadName														
7	L2	113	0.0	126	0.0	0.179	4.9	LOS A	0.8	21.2	0.39	0.26	0.39	33.6
4	T1	39	0.0	43	0.0	0.179	4.9	LOS A	0.8	21.2	0.39	0.26	0.39	33.5
14	R2	26	0.0	29	0.0	0.179	4.9	LOS A	0.8	21.2	0.39	0.26	0.39	32.6
Approach		178	0.0	198	0.0	0.179	4.9	LOS A	0.8	21.2	0.39	0.26	0.39	33.4
West: RoadName														
5	L2	3	0.0	3	0.0	0.202	4.9	LOS A	0.9	22.5	0.36	0.24	0.36	35.4
2	T1	402	3.3	447	3.3	0.202	5.0	LOS A	0.9	22.5	0.36	0.24	0.36	35.2
12	R2	5	0.0	6	0.0	0.202	4.9	LOS A	0.9	22.5	0.36	0.24	0.36	34.2
Approach		410	3.2	456	3.2	0.202	5.0	LOS A	0.9	22.5	0.36	0.24	0.36	35.2
All Vehicles		1037	3.0	1152	3.0	0.296	5.3	LOS A	1.3	33.5	0.37	0.28	0.37	34.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Geometric Delay is not included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 109 [Beacon Light Road / Pollard Road PM (Site Folder: General)]

2045 Background
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] ft				
South: RoadName														
3	L2	310	0.0	344	0.0	0.739	16.4	LOS C	13.8	344.2	0.86	1.02	1.48	29.1
8	T1	218	0.0	242	0.0	0.739	16.4	LOS C	13.8	344.2	0.86	1.02	1.48	29.0
18	R2	157	0.0	174	0.0	0.739	16.4	LOS C	13.8	344.2	0.86	1.02	1.48	28.3
Approach		685	0.0	761	0.0	0.739	16.4	LOS C	13.8	344.2	0.86	1.02	1.48	28.9
East: RoadName														
1	L2	164	0.0	182	0.0	0.586	13.3	LOS B	4.9	121.9	0.75	0.92	1.22	30.5
6	T1	579	0.9	643	0.9	0.586	13.3	LOS B	4.9	121.9	0.75	0.92	1.22	30.8
16	R2	126	0.0	140	0.0	0.586	13.3	LOS B	4.8	121.9	0.75	0.92	1.22	30.3
Approach		869	0.6	966	0.6	0.586	13.3	LOS B	4.9	121.9	0.75	0.92	1.22	30.7
North: RoadName														
7	L2	61	0.0	68	0.0	0.270	13.2	LOS B	1.0	26.2	0.76	0.78	0.81	30.1
4	T1	31	0.0	34	0.0	0.270	13.2	LOS B	1.0	26.2	0.76	0.78	0.81	30.0
14	R2	9	0.0	10	0.0	0.270	13.2	LOS B	1.0	26.2	0.76	0.78	0.81	29.2
Approach		101	0.0	112	0.0	0.270	13.2	LOS B	1.0	26.2	0.76	0.78	0.81	30.0
West: RoadName														
5	L2	5	0.0	6	0.0	0.104	4.2	LOS A	0.4	10.5	0.38	0.27	0.38	35.7
2	T1	190	1.4	211	1.4	0.104	4.2	LOS A	0.4	10.5	0.38	0.27	0.38	35.6
12	R2	8	0.0	9	0.0	0.104	4.2	LOS A	0.4	10.5	0.38	0.27	0.38	34.6
Approach		203	1.3	226	1.3	0.104	4.2	LOS A	0.4	10.5	0.38	0.27	0.38	35.6
All Vehicles		1858	0.4	2064	0.4	0.739	13.4	LOS B	13.8	344.2	0.75	0.88	1.20	30.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Geometric Delay is not included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SIDRA INTERSECTION 9.0 | Copyright © 2000-2020 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: KITTELSON AND ASSOCIATES INC | Licence: NETWORK / Enterprise | Processed: Thursday, September 29, 2022 1:10:24

PM

Project: H:\25\25407 - Willow Brook Community TIS\Traffic Operations\Mitigations\Sidra\2045_BG.sip9

MOVEMENT SUMMARY

Site: 111 [Beacon Light Road / Palmer Lane AM (Site Folder: General)]

2045 Background
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist ft]				
South: RoadName														
3	L2	27	0.0	30	0.0	0.170	10.4	LOS B	0.6	15.6	0.70	0.70	0.70	31.2
18	R2	38	14.3	42	14.3	0.170	11.5	LOS B	0.6	15.6	0.70	0.70	0.70	30.0
Approach		65	8.4	72	8.4	0.170	11.0	LOS B	0.6	15.6	0.70	0.70	0.70	30.5
East: RoadName														
1	L2	24	0.0	27	0.0	0.198	4.2	LOS A	0.9	23.5	0.12	0.04	0.12	35.5
6	T1	468	0.0	520	0.0	0.198	4.2	LOS A	0.9	23.5	0.12	0.04	0.12	35.6
Approach		492	0.0	547	0.0	0.198	4.2	LOS A	0.9	23.5	0.12	0.04	0.12	35.6
West: RoadName														
2	T1	960	0.8	1067	0.8	0.396	6.3	LOS A	2.4	61.5	0.15	0.05	0.15	34.6
12	R2	19	0.0	21	0.0	0.396	6.3	LOS A	2.4	61.5	0.15	0.05	0.15	33.6
Approach		979	0.8	1088	0.8	0.396	6.3	LOS A	2.4	61.5	0.15	0.05	0.15	34.6
All Vehicles		1536	0.9	1707	0.9	0.396	5.8	LOS A	2.4	61.5	0.16	0.07	0.16	34.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: Same as Sign Control.
 Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
 LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
 Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
 Roundabout Capacity Model: US HCM 6.
 Delay Model: HCM Delay Formula (Geometric Delay is not included).
 Queue Model: HCM Queue Formula.
 Gap-Acceptance Capacity: Traditional M1.
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 111 [Beacon Light Road / Palmer Lane PM (Site Folder: General)]

2045 Background
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist ft]				
South: RoadName														
3	L2	115	4.8	121	4.8	0.170	6.0	LOS A	0.7	18.5	0.53	0.45	0.53	32.4
18	R2	22	0.0	23	0.0	0.170	5.8	LOS A	0.7	18.5	0.53	0.45	0.53	31.6
Approach		137	4.0	144	4.0	0.170	6.0	LOS A	0.7	18.5	0.53	0.45	0.53	32.3
East: RoadName														
1	L2	5	0.0	5	0.0	0.531	8.7	LOS A	3.8	95.1	0.43	0.26	0.43	33.5
6	T1	1263	0.6	1329	0.6	0.531	8.7	LOS A	3.8	95.1	0.43	0.26	0.43	33.4
Approach		1268	0.6	1335	0.6	0.531	8.7	LOS A	3.8	95.1	0.43	0.26	0.43	33.4
West: RoadName														
2	T1	416	0.6	438	0.6	0.163	3.9	LOS A	0.7	18.7	0.04	0.01	0.04	35.9
12	R2	19	0.0	20	0.0	0.163	3.9	LOS A	0.7	18.7	0.04	0.01	0.04	34.8
Approach		435	0.6	458	0.6	0.163	3.9	LOS A	0.7	18.7	0.04	0.01	0.04	35.9
All Vehicles		1840	0.8	1937	0.8	0.531	7.4	LOS A	3.8	95.1	0.34	0.21	0.34	33.8

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: Same as Sign Control.
 Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
 LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
 Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
 Roundabout Capacity Model: US HCM 6.
 Delay Model: HCM Delay Formula (Geometric Delay is not included).
 Queue Model: HCM Queue Formula.
 Gap-Acceptance Capacity: Traditional M1.
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 113 [Floating Feather Road / Star Road AM (Site Folder: General)]

2045 Background
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist ft]				
South: RoadName														
3	L2	101	3.1	112	3.1	0.247	5.7	LOS A	1.2	31.0	0.41	0.28	0.41	33.7
18	R2	140	2.2	156	2.2	0.247	5.6	LOS A	1.2	31.0	0.41	0.28	0.41	32.7
Approach		241	2.6	268	2.6	0.247	5.6	LOS A	1.2	31.0	0.41	0.28	0.41	33.1
East: RoadName														
1	L2	302	4.4	336	4.4	0.354	6.5	LOS A	2.0	52.0	0.34	0.19	0.34	32.3
6	T1	75	0.0	83	0.0	0.354	6.4	LOS A	2.0	52.0	0.34	0.19	0.34	32.4
Approach		377	3.5	419	3.5	0.354	6.5	LOS A	2.0	52.0	0.34	0.19	0.34	32.3
West: RoadName														
2	T1	185	2.9	206	2.9	0.478	9.7	LOS A	3.1	79.7	0.63	0.59	0.71	32.8
12	R2	222	1.2	247	1.2	0.478	9.6	LOS A	3.1	79.7	0.63	0.59	0.71	31.9
Approach		407	2.0	452	2.0	0.478	9.6	LOS A	3.1	79.7	0.63	0.59	0.71	32.3
All Vehicles		1025	2.7	1139	2.7	0.478	7.5	LOS A	3.1	79.7	0.47	0.37	0.50	32.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: Same as Sign Control.
 Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
 LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
 Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
 Roundabout Capacity Model: US HCM 6.
 Delay Model: HCM Delay Formula (Geometric Delay is not included).
 Queue Model: HCM Queue Formula.
 Gap-Acceptance Capacity: Traditional M1.
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 113 [Floating Feather Road / Star Road PM (Site Folder: General)]

2045 Background
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist ft]				
South: RoadName														
3	L2	139	0.0	153	0.0	0.283	5.6	LOS A	1.5	38.7	0.34	0.20	0.34	33.7
18	R2	172	0.0	189	0.0	0.283	5.6	LOS A	1.5	38.7	0.34	0.20	0.34	32.7
Approach		311	0.0	342	0.0	0.283	5.6	LOS A	1.5	38.7	0.34	0.20	0.34	33.1
East: RoadName														
1	L2	584	1.8	642	1.8	0.760	15.9	LOS C	13.5	340.5	0.77	0.63	0.96	28.8
6	T1	222	0.0	244	0.0	0.760	15.9	LOS C	13.5	340.5	0.77	0.63	0.96	28.7
Approach		806	1.3	886	1.3	0.760	15.9	LOS C	13.5	340.5	0.77	0.63	0.96	28.8
West: RoadName														
2	T1	120	0.0	132	0.0	0.472	11.9	LOS B	3.0	74.4	0.73	0.83	1.02	31.7
12	R2	182	1.5	200	1.5	0.472	12.0	LOS B	3.0	74.4	0.73	0.83	1.02	30.9
Approach		302	0.9	332	0.9	0.472	12.0	LOS B	3.0	74.4	0.73	0.83	1.02	31.2
All Vehicles		1419	0.9	1559	0.9	0.760	12.8	LOS B	13.5	340.5	0.67	0.58	0.84	30.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: Same as Sign Control.
 Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
 LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
 Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
 Roundabout Capacity Model: US HCM 6.
 Delay Model: HCM Delay Formula (Geometric Delay is not included).
 Queue Model: HCM Queue Formula.
 Gap-Acceptance Capacity: Traditional M1.
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 114 [Floating Feather Road / Plummer Road AM (Site Folder: General)]

2045 Background
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] ft				
South: RoadName														
3	L2	91	2.9	98	2.9	0.152	4.7	LOS A	0.7	17.4	0.38	0.25	0.38	33.7
18	R2	62	0.0	67	0.0	0.152	4.6	LOS A	0.7	17.4	0.38	0.25	0.38	32.8
Approach		153	1.7	165	1.7	0.152	4.7	LOS A	0.7	17.4	0.38	0.25	0.38	33.3
East: RoadName														
1	L2	40	6.7	43	6.7	0.120	4.1	LOS A	0.5	13.7	0.25	0.12	0.25	34.7
6	T1	91	5.9	98	5.9	0.120	4.1	LOS A	0.5	13.7	0.25	0.12	0.25	34.8
Approach		131	6.1	141	6.1	0.120	4.1	LOS A	0.5	13.7	0.25	0.12	0.25	34.8
West: RoadName														
2	T1	198	2.7	213	2.7	0.431	7.0	LOS A	3.0	75.5	0.24	0.10	0.24	34.1
12	R2	324	0.0	348	0.0	0.431	7.0	LOS A	3.0	75.5	0.24	0.10	0.24	33.2
Approach		522	1.0	561	1.0	0.431	7.0	LOS A	3.0	75.5	0.24	0.10	0.24	33.5
All Vehicles		806	2.0	867	2.0	0.431	6.1	LOS A	3.0	75.5	0.27	0.13	0.27	33.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: Same as Sign Control.
 Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
 LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
 Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
 Roundabout Capacity Model: US HCM 6.
 Delay Model: HCM Delay Formula (Geometric Delay is not included).
 Queue Model: HCM Queue Formula.
 Gap-Acceptance Capacity: Traditional M1.
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 114 [Floating Feather Road / Plummer Road PM (Site Folder: General)]

2045 Background
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] ft				
South: RoadName														
3	L2	361	0.0	401	0.0	0.416	7.5	LOS A	2.6	64.8	0.47	0.32	0.47	31.9
18	R2	67	0.0	74	0.0	0.416	7.5	LOS A	2.6	64.8	0.47	0.32	0.47	31.0
Approach		428	0.0	476	0.0	0.416	7.5	LOS A	2.6	64.8	0.47	0.32	0.47	31.7
East: RoadName														
1	L2	91	0.0	101	0.0	0.581	12.1	LOS B	5.6	139.7	0.74	0.83	1.08	31.4
6	T1	388	0.0	431	0.0	0.581	12.1	LOS B	5.6	139.7	0.74	0.83	1.08	31.3
Approach		479	0.0	532	0.0	0.581	12.1	LOS B	5.6	139.7	0.74	0.83	1.08	31.4
West: RoadName														
2	T1	166	0.0	184	0.0	0.368	6.4	LOS A	2.3	56.9	0.33	0.18	0.33	34.5
12	R2	246	0.0	273	0.0	0.368	6.4	LOS A	2.3	56.9	0.33	0.18	0.33	33.5
Approach		412	0.0	458	0.0	0.368	6.4	LOS A	2.3	56.9	0.33	0.18	0.33	33.9
All Vehicles		1319	0.0	1466	0.0	0.581	8.8	LOS A	5.6	139.7	0.52	0.46	0.65	32.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: Same as Sign Control.
 Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
 LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
 Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
 Roundabout Capacity Model: US HCM 6.
 Delay Model: HCM Delay Formula (Geometric Delay is not included).
 Queue Model: HCM Queue Formula.
 Gap-Acceptance Capacity: Traditional M1.
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.



KITTELSON & ASSOCIATES, INC.
 610 SW Alder, Suite 700
 Portland, Oregon 97205
 (503) 228-5230

Project #: 25407
Project Name: Willow Brook Golf Community
Analyst: CHF
Date: 1/13/2023
File: H:\25\25407 - Willow Brook Community
 TIS\analysis\Signal Warrants\[SWA - 104 - 2045
 Backround.xls]Data Inout
Intersection: 4 - Deep Canyon Drive / SH 16
Scenario: 2045 Background Conditions

Analysis Traffic Volumes

Hour	Major Street		Minor Street			
	Begin	End	NB	SB	EB	WB
7:00 AM	8:00 AM		424	1057	76	0
2nd Highest Hour			424	1057	60	0
3rd Highest Hour			383	955	57	0
4th Highest Hour			368	917	50	0
5th Highest Hour			327	815	47	0
6th Highest Hour			317	790	43	0
7th Highest Hour			301	751	43	0
8th Highest Hour			291	726	40	0
9th Highest Hour			276	688	40	0
10th Highest Hour			271	675	39	0
11th Highest Hour			261	649	35	0
12th Highest Hour			255	637	33	0
13th Highest Hour			245	611	27	0
14th Highest Hour			220	548	26	0
15th Highest Hour			174	433	25	0
16th Highest Hour			153	382	24	0
17th Highest Hour			117	293	14	0
18th Highest Hour			97	242	14	0
19th Highest Hour			82	204	6	0
20th Highest Hour			46	115	4	0
21st Highest Hour			31	76	3	0
22nd Highest Hour			26	64	1	0
23rd Highest Hour			15	38	1	0
24th Highest Hour			15	38	1	0

Warrant Summary

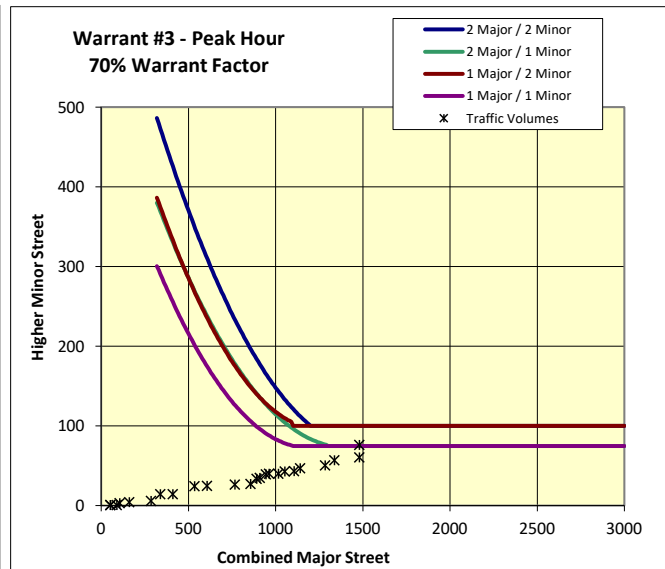
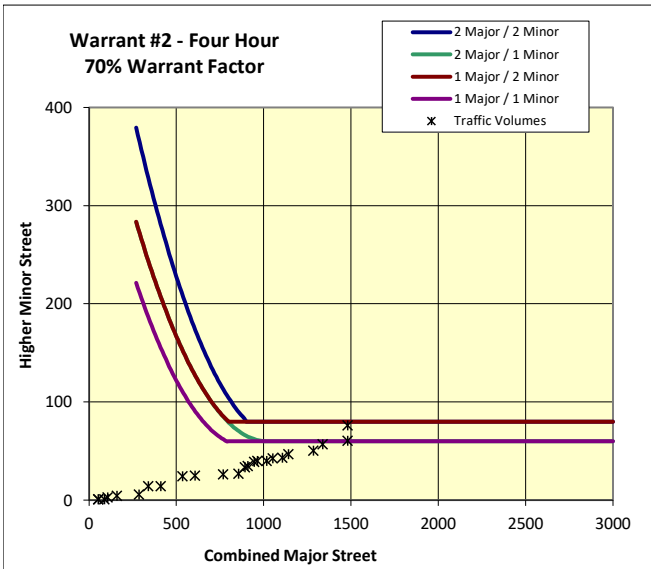
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	No
#2	Four-Hour Vehicular volume	Yes	No
#3	Peak Hour	Yes	Yes
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Major
East-West Approach =	Minor
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	Yes
Population < 10,000?	No
Warrant Factor	70%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	87%
Major Street: 8th-Highest Hour / Peak Hour	69%
Minor Street: 4th-Highest Hour / Peak Hour	66%
Minor Street: 8th-Highest Hour / Peak Hour	52%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	0	No	No
	B	750	75	1	No	
80%	A	400	120	0	No	No
	B	600	60	2	No	
70%	A	350	105	0	No	No
	B	525	53	3	No	
56%	A	280	84	0	No	No
	B	420	42	7	No	





KITTELSON & ASSOCIATES, INC.
 610 SW Alder, Suite 700
 Portland, Oregon 97205
 (503) 228-5230

Project #: 25407
Project Name: Willow Brook Golf Community
Analyst: CHF
Date: 10/17/2022
File: H:\25\25407 - Willow Brook Community
 TIS\analysis\Signal Warrants\[SWA - 109 - 2045
 Backround.xls]Warrant Summarv(70%)
Intersection: 9 - Beacon Light Rd & Pollard Rd
Scenario: 2045 Background

Analysis Traffic Volumes

Hour	Major Street		Minor Street			
	Begin	End	EB	WB	NB	SB
5:00 PM	6:00 PM		204	869	685	100
2nd Highest Hour			202	859	611	89
3rd Highest Hour			183	781	530	77
4th Highest Hour			165	703	523	76
5th Highest Hour			138	586	464	68
6th Highest Hour			135	576	457	67
7th Highest Hour			128	547	442	65
8th Highest Hour			115	488	405	59
9th Highest Hour			112	478	383	56
10th Highest Hour			110	469	368	54
11th Highest Hour			105	449	361	53
12th Highest Hour			103	439	361	53
13th Highest Hour			101	430	354	52
14th Highest Hour			101	430	295	43
15th Highest Hour			83	352	287	42
16th Highest Hour			71	303	206	30
17th Highest Hour			60	254	206	30
18th Highest Hour			46	195	140	20
19th Highest Hour			41	176	88	13
20th Highest Hour			28	117	74	11
21st Highest Hour			14	59	37	5
22nd Highest Hour			11	49	29	4
23rd Highest Hour			7	29	29	4
24th Highest Hour			7	29	22	3

Warrant Summary

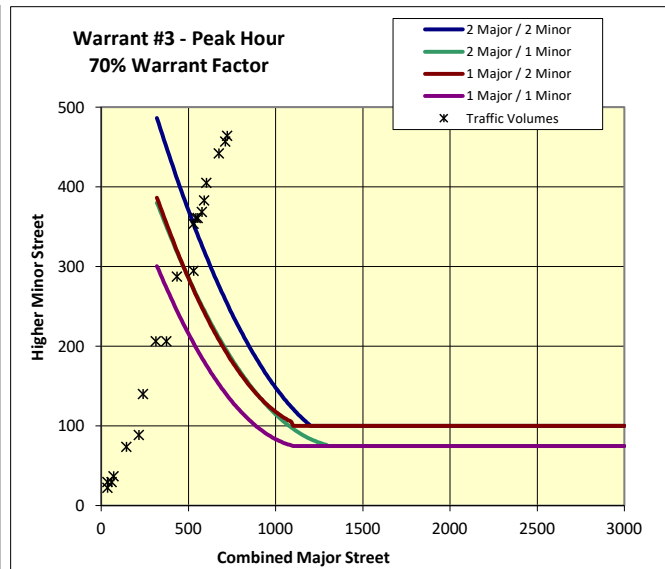
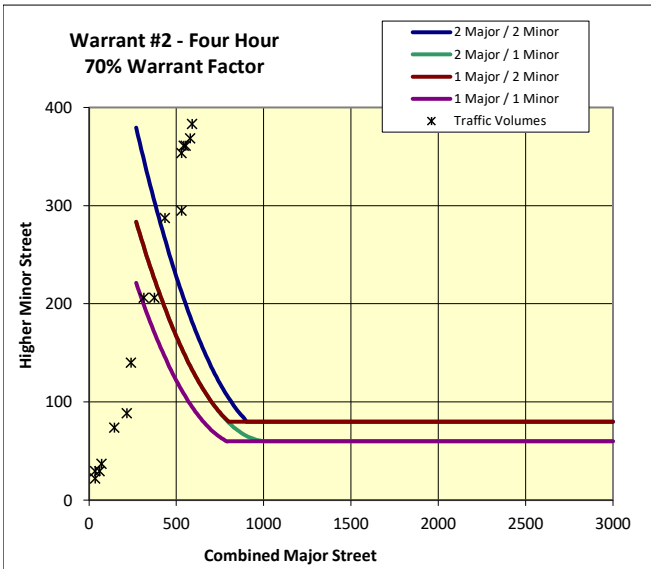
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	Yes
#2	Four-Hour Vehicular volume	Yes	Yes
#3	Peak Hour	Yes	Yes
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Minor
East-West Approach =	Major
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	Yes
Population < 10,000?	No
Warrant Factor	70%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	81%
Major Street: 8th-Highest Hour / Peak Hour	56%
Minor Street: 4th-Highest Hour / Peak Hour	76%
Minor Street: 8th-Highest Hour / Peak Hour	59%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	14	Yes	Yes
	B	750	75	4	No	
80%	A	400	120	15	Yes	Yes
	B	600	60	8	Yes	Yes
70%	A	350	105	16	Yes	Yes
	B	525	53	14	Yes	Yes
56%	A	280	84	17	Yes	Yes
	B	420	42	15	Yes	Yes





KITTELSON & ASSOCIATES, INC.
 610 SW Alder, Suite 700
 Portland, Oregon 97205
 (503) 228-5230

Project #: 25407
Project Name: Willow Brook Golf Community
Analyst: CHF
Date: 10/14/2022
File: H:\25\25407 - Willow Brook Community
 TIS\analysis\Signal Warrants\SWA - 111 - 2045
 Background.xls\Data Input
Intersection: 11 - Beacon Light Rd & Palmer Ln
Scenario: 2045 Background

Analysis Traffic Volumes

Hour	Begin	End	Major Street		Minor Street	
			EB	WB	NB	SB
5:00 PM	6:00 PM		434	1268	137	0
2nd Highest Hour			429	1254	122	0
3rd Highest Hour			390	1140	106	0
4th Highest Hour			351	1026	105	0
5th Highest Hour			293	855	93	0
6th Highest Hour			288	841	91	0
7th Highest Hour			273	798	88	0
8th Highest Hour			244	712	81	0
9th Highest Hour			239	698	77	0
10th Highest Hour			234	684	74	0
11th Highest Hour			224	655	72	0
12th Highest Hour			219	641	72	0
13th Highest Hour			215	627	71	0
14th Highest Hour			215	627	59	0
15th Highest Hour			176	513	57	0
16th Highest Hour			151	442	41	0
17th Highest Hour			127	370	41	0
18th Highest Hour			98	285	28	0
19th Highest Hour			88	256	18	0
20th Highest Hour			59	171	15	0
21st Highest Hour			29	85	7	0
22nd Highest Hour			24	71	6	0
23rd Highest Hour			15	43	6	0
24th Highest Hour			15	43	4	0

Warrant Summary

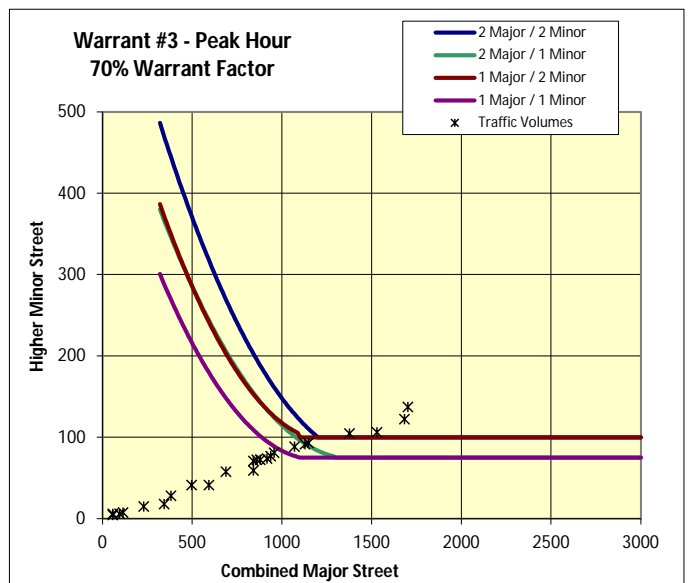
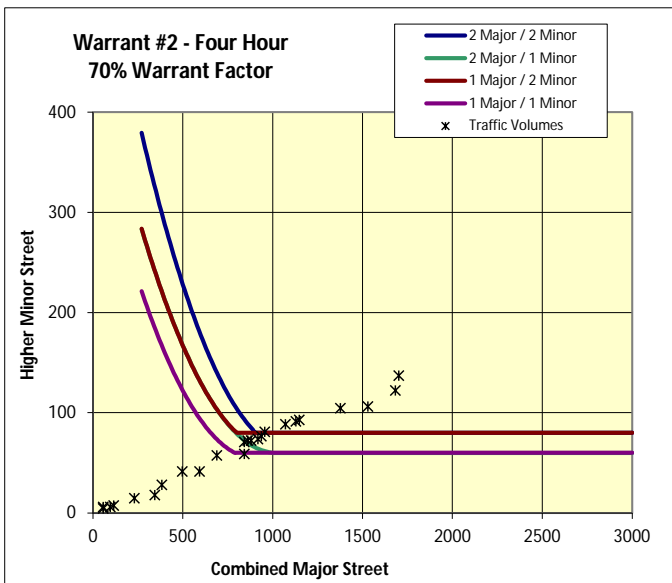
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	Yes
#2	Four-Hour Vehicular volume	Yes	Yes
#3	Peak Hour	Yes	Yes
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Minor
East-West Approach =	Major
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	Yes
Population < 10,000?	No
Warrant Factor	70%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	81%
Major Street: 8th-Highest Hour / Peak Hour	56%
Minor Street: 4th-Highest Hour / Peak Hour	76%
Minor Street: 8th-Highest Hour / Peak Hour	59%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	0	No	Yes
	B	750	75	9	Yes	Yes
80%	A	400	120	2	No	Yes
	B	600	60	13	Yes	Yes
70%	A	350	105	4	No	Yes
	B	525	53	15	Yes	Yes
56%	A	280	84	7	No	Yes
	B	420	42	17	Yes	Yes





KITTELSON & ASSOCIATES, INC.
 610 SW Alder, Suite 700
 Portland, Oregon 97205
 (503) 228-5230

Project #: 25407
Project Name: Willow Brook Golf Community
Analyst: CHF
Date: 10/14/2022
File: H:\25\25407 - Willow Brook Community
 TIS\analysis\Signal Warrants\SWA - 113 - 2045
 Background.xls>Data Input
Intersection: 13 - Floating Feather Rd & Star Rd
Scenario: 2045 Background

Analysis Traffic Volumes

Hour	Major Street		Minor Street			
	Begin	End	EB	WB	NB	SB
5:00 PM	6:00 PM		302	806	311	0
2nd Highest Hour			299	797	278	0
3rd Highest Hour			271	724	241	0
4th Highest Hour			244	652	237	0
5th Highest Hour			204	543	211	0
6th Highest Hour			200	534	207	0
7th Highest Hour			190	507	201	0
8th Highest Hour			170	453	184	0
9th Highest Hour			166	444	174	0
10th Highest Hour			163	435	167	0
11th Highest Hour			156	417	164	0
12th Highest Hour			153	408	164	0
13th Highest Hour			149	398	161	0
14th Highest Hour			149	398	134	0
15th Highest Hour			122	326	130	0
16th Highest Hour			105	281	94	0
17th Highest Hour			88	235	94	0
18th Highest Hour			68	181	64	0
19th Highest Hour			61	163	40	0
20th Highest Hour			41	109	33	0
21st Highest Hour			20	54	17	0
22nd Highest Hour			17	45	13	0
23rd Highest Hour			10	27	13	0
24th Highest Hour			10	27	10	0

Warrant Summary

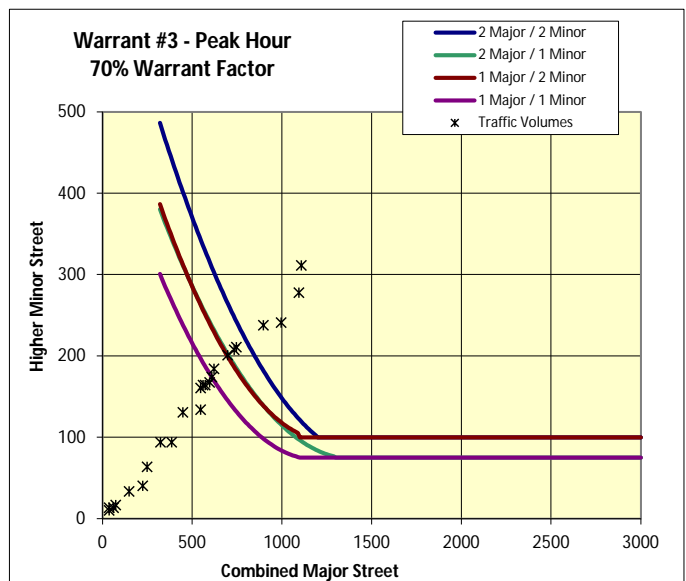
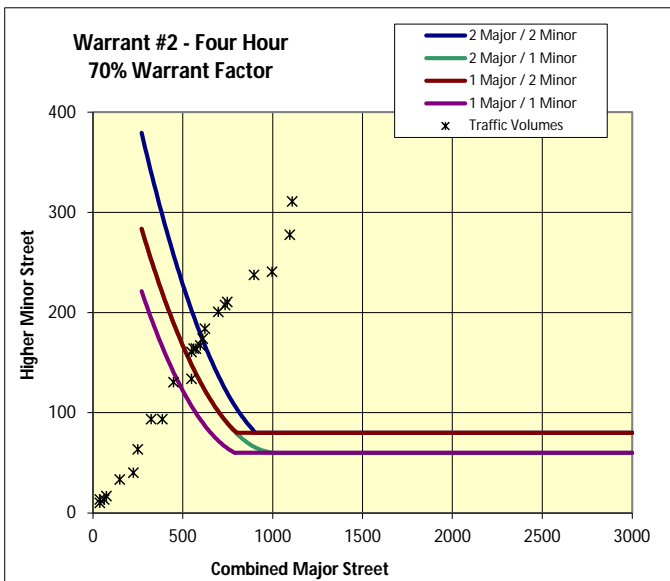
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	Yes
#2	Four-Hour Vehicular volume	Yes	Yes
#3	Peak Hour	Yes	Yes
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Minor
East-West Approach =	Major
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	Yes
Population < 10,000?	No
Warrant Factor	70%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	81%
Major Street: 8th-Highest Hour / Peak Hour	56%
Minor Street: 4th-Highest Hour / Peak Hour	76%
Minor Street: 8th-Highest Hour / Peak Hour	59%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	13	Yes	Yes
	B	750	75	4	No	
80%	A	400	120	15	Yes	Yes
	B	600	60	9	Yes	
70%	A	350	105	15	Yes	Yes
	B	525	53	14	Yes	
56%	A	280	84	17	Yes	Yes
	B	420	42	15	Yes	





KITTELSON & ASSOCIATES, INC.
 610 SW Alder, Suite 700
 Portland, Oregon 97205
 (503) 228-5230

Project #: 25407
Project Name: Willow Brook Golf Community
Analyst: CHF
Date: 10/14/2022
File: H:\25\25407 - Willow Brook Community
 TIS\analysis\Signal Warrants\SWA - 114 - 2045
 Background.xls>Data Input
Intersection: 14 - Floating Feather Rd & Plummer Ln
Scenario: 2045 Background

Analysis Traffic Volumes

Hour	Major Street		Minor Street			
	Begin	End	EB	WB	NB	SB
5:00 PM	6:00 PM		412	479	428	0
2nd Highest Hour			407	474	382	0
3rd Highest Hour			370	431	331	0
4th Highest Hour			333	388	327	0
5th Highest Hour			278	323	290	0
6th Highest Hour			273	318	285	0
7th Highest Hour			259	301	276	0
8th Highest Hour			231	269	253	0
9th Highest Hour			227	264	239	0
10th Highest Hour			222	258	230	0
11th Highest Hour			213	248	226	0
12th Highest Hour			208	242	226	0
13th Highest Hour			204	237	221	0
14th Highest Hour			204	237	184	0
15th Highest Hour			167	194	179	0
16th Highest Hour			144	167	129	0
17th Highest Hour			120	140	129	0
18th Highest Hour			93	108	87	0
19th Highest Hour			83	97	55	0
20th Highest Hour			56	65	46	0
21st Highest Hour			28	32	23	0
22nd Highest Hour			23	27	18	0
23rd Highest Hour			14	16	18	0
24th Highest Hour			14	16	14	0

Warrant Summary

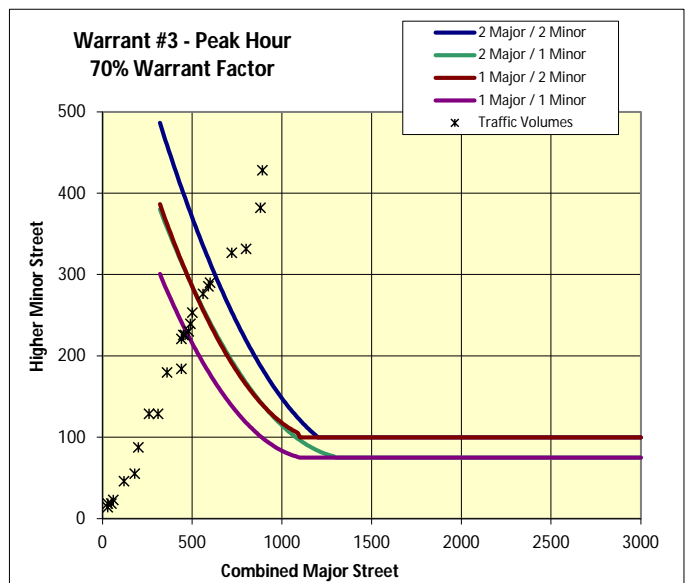
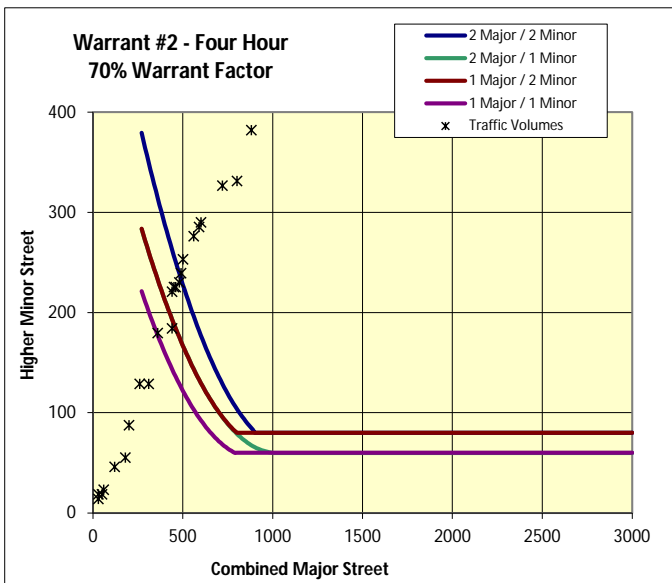
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	Yes
#2	Four-Hour Vehicular volume	Yes	Yes
#3	Peak Hour	Yes	Yes
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Minor
East-West Approach =	Major
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	Yes
Population < 10,000?	No
Warrant Factor	70%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	81%
Major Street: 8th-Highest Hour / Peak Hour	56%
Minor Street: 4th-Highest Hour / Peak Hour	76%
Minor Street: 8th-Highest Hour / Peak Hour	59%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	8	Yes	Yes
	B	750	75	3	No	
80%	A	400	120	14	Yes	Yes
	B	600	60	5	No	
70%	A	350	105	15	Yes	Yes
	B	525	53	7	No	
56%	A	280	84	16	Yes	Yes
	B	420	42	14	Yes	





KITTELSON & ASSOCIATES, INC.
 610 SW Alder, Suite 700
 Portland, Oregon 97205
 (503) 228-5230

Project #: 25407
Project Name: Willow Brook Golf Community
Analyst: CHF
Date: 10/14/2022
File: H:\25\25407 - Willow Brook Community
 TIS\analysis\Signal Warrants\SWA - 115 - 2045
 Background.xls>Data Input
Intersection: 15 - Floating Feather Rd & Pollard Rd
Scenario: 2045 Background

Analysis Traffic Volumes

Hour	Begin	End	Major Street		Minor Street	
			EB	WB	NB	SB
5:00 PM	6:00 PM		0	289	327	353
2nd Highest Hour			0	286	292	315
3rd Highest Hour			0	260	253	273
4th Highest Hour			0	234	250	269
5th Highest Hour			0	195	222	239
6th Highest Hour			0	192	218	235
7th Highest Hour			0	182	211	228
8th Highest Hour			0	162	193	209
9th Highest Hour			0	159	183	197
10th Highest Hour			0	156	176	190
11th Highest Hour			0	149	172	186
12th Highest Hour			0	146	172	186
13th Highest Hour			0	143	169	182
14th Highest Hour			0	143	141	152
15th Highest Hour			0	117	137	148
16th Highest Hour			0	101	98	106
17th Highest Hour			0	84	98	106
18th Highest Hour			0	65	67	72
19th Highest Hour			0	58	42	46
20th Highest Hour			0	39	35	38
21st Highest Hour			0	19	18	19
22nd Highest Hour			0	16	14	15
23rd Highest Hour			0	10	14	15
24th Highest Hour			0	10	11	11

Warrant Summary

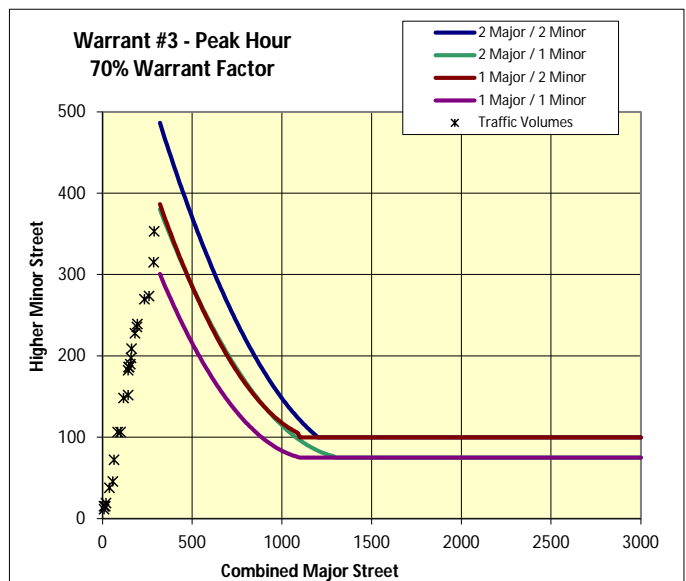
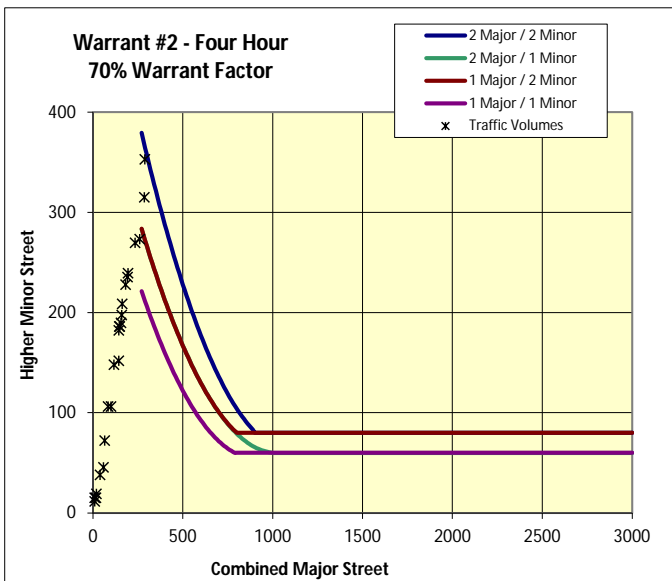
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	No
#2	Four-Hour Vehicular volume	Yes	Yes
#3	Peak Hour	Yes	Yes
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Minor
East-West Approach =	Major
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	Yes
Population < 10,000?	No
Warrant Factor	70%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	81%
Major Street: 8th-Highest Hour / Peak Hour	56%
Minor Street: 4th-Highest Hour / Peak Hour	76%
Minor Street: 8th-Highest Hour / Peak Hour	59%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	0	No	No
	B	750	75	0	No	No
80%	A	400	120	0	No	No
	B	600	60	0	No	No
70%	A	350	105	0	No	No
	B	525	53	0	No	No
56%	A	280	84	2	No	No
	B	420	42	0	No	No





KITTELSON & ASSOCIATES, INC.
 610 SW Alder, Suite 700
 Portland, Oregon 97205
 (503) 228-5230

Project #: 25407
Project Name: Willow Brook Golf Community
Analyst: CHF
Date: 10/14/2022
File: H:\25\25407 - Willow Brook Community
 TIS\analysis\Signal Warrants\SWA - 117 - 2045
 Background.xls\Data Input
Intersection: 17 - SH 44 / Can Ada Road
Scenario: 2045 Background Conditions

Analysis Traffic Volumes

Hour	Major Street		Minor Street			
	Begin	End	EB	WB	NB	SB
5:00 PM	6:00 PM		952	1293	0	267
2nd Highest Hour			952	1293	0	264
3rd Highest Hour			860	1168	0	240
4th Highest Hour			826	1122	0	216
5th Highest Hour			734	997	0	180
6th Highest Hour			711	966	0	177
7th Highest Hour			677	919	0	168
8th Highest Hour			654	888	0	150
9th Highest Hour			619	841	0	147
10th Highest Hour			608	826	0	144
11th Highest Hour			585	794	0	138
12th Highest Hour			573	779	0	135
13th Highest Hour			551	748	0	132
14th Highest Hour			493	670	0	132
15th Highest Hour			390	530	0	108
16th Highest Hour			344	467	0	93
17th Highest Hour			264	358	0	78
18th Highest Hour			218	296	0	60
19th Highest Hour			184	249	0	54
20th Highest Hour			103	140	0	36
21st Highest Hour			69	93	0	18
22nd Highest Hour			57	78	0	15
23rd Highest Hour			34	47	0	9
24th Highest Hour			34	47	0	9

Warrant Summary

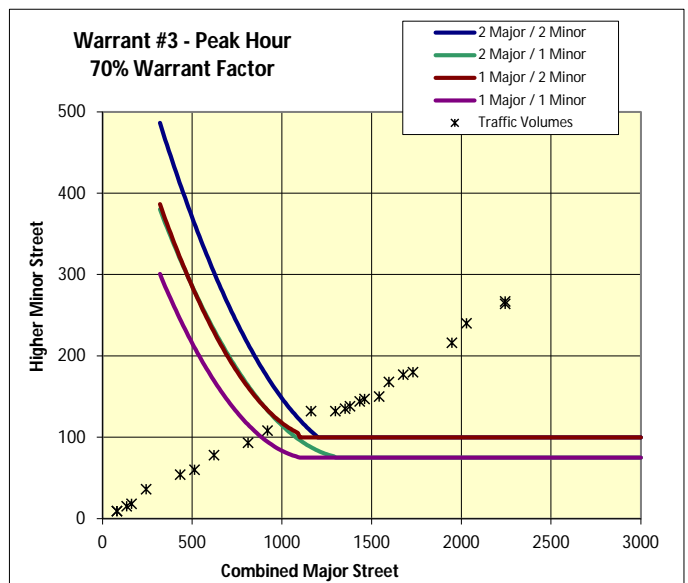
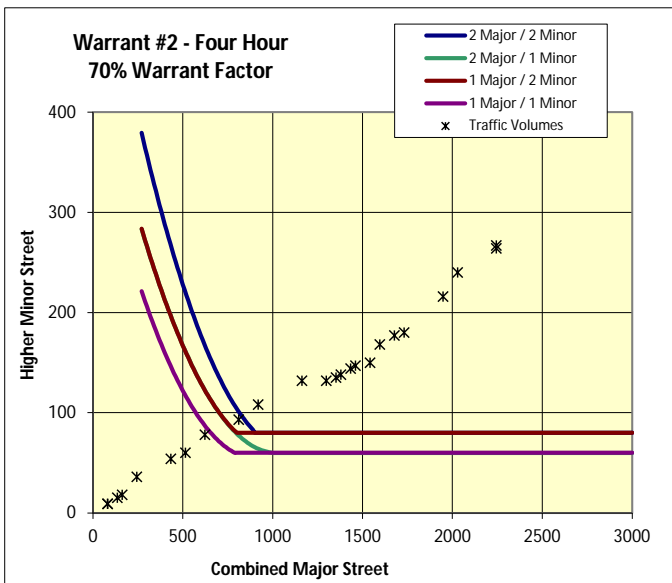
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	Yes
#2	Four-Hour Vehicular volume	Yes	Yes
#3	Peak Hour	Yes	Yes
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Minor
East-West Approach =	Major
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	Yes
Population < 10,000?	No
Warrant Factor	70%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	87%
Major Street: 8th-Highest Hour / Peak Hour	69%
Minor Street: 4th-Highest Hour / Peak Hour	81%
Minor Street: 8th-Highest Hour / Peak Hour	56%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	8	Yes	Yes
	B	750	75	16	Yes	Yes
80%	A	400	120	14	Yes	Yes
	B	600	60	17	Yes	Yes
70%	A	350	105	15	Yes	Yes
	B	525	53	17	Yes	Yes
56%	A	280	84	16	Yes	Yes
	B	420	42	19	Yes	Yes





KITTELSON & ASSOCIATES, INC.
 610 SW Alder, Suite 700
 Portland, Oregon 97205
 (503) 228-5230

Project #: 25407
Project Name: Willow Brook Golf Community
Analyst: CHF
Date: 10/14/2022
File: H:\25\25407 - Willow Brook Community
 TIS\analysis\Signal Warrants\SWA - 119 - 2045
 Background.xls\Data Input
Intersection: 19 - SH 44 & Plummer Ln
Scenario: 2045 Background

Analysis Traffic Volumes

Hour	Major Street		Minor Street			
	Begin	End	EB	WB	NB	SB
5:00 PM	6:00 PM		865	1599	367	487
2nd Highest Hour			865	1599	328	435
3rd Highest Hour			782	1445	284	377
4th Highest Hour			750	1387	280	372
5th Highest Hour			667	1233	249	330
6th Highest Hour			646	1194	245	325
7th Highest Hour			615	1137	237	314
8th Highest Hour			594	1098	217	288
9th Highest Hour			563	1040	205	272
10th Highest Hour			552	1021	197	262
11th Highest Hour			532	983	193	257
12th Highest Hour			521	963	193	257
13th Highest Hour			500	925	189	251
14th Highest Hour			448	828	158	209
15th Highest Hour			354	655	154	204
16th Highest Hour			313	578	110	147
17th Highest Hour			240	443	110	147
18th Highest Hour			198	366	75	99
19th Highest Hour			167	308	47	63
20th Highest Hour			94	173	39	52
21st Highest Hour			63	116	20	26
22nd Highest Hour			52	96	16	21
23rd Highest Hour			31	58	16	21
24th Highest Hour			31	58	12	16

Warrant Summary

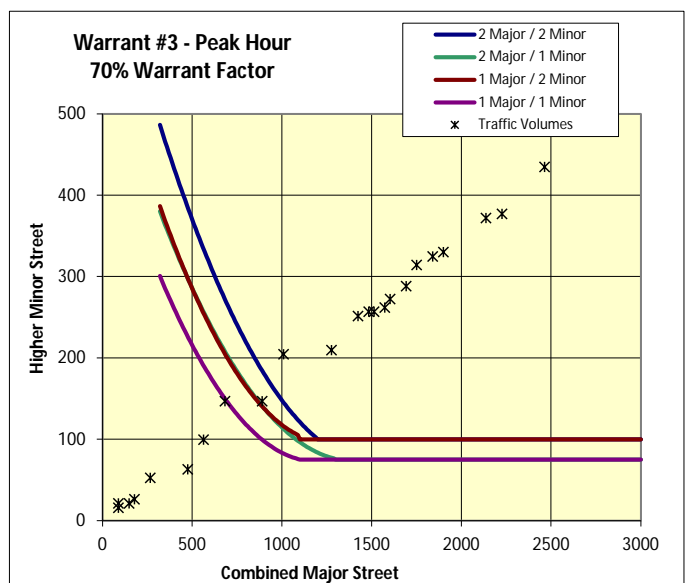
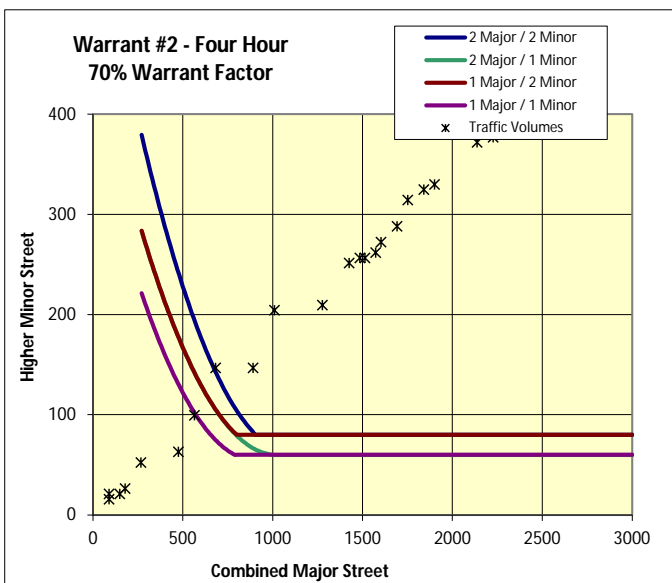
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	Yes
#2	Four-Hour Vehicular volume	Yes	Yes
#3	Peak Hour	Yes	Yes
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Minor
East-West Approach =	Major
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	Yes
Population < 10,000?	No
Warrant Factor	70%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	87%
Major Street: 8th-Highest Hour / Peak Hour	69%
Minor Street: 4th-Highest Hour / Peak Hour	76%
Minor Street: 8th-Highest Hour / Peak Hour	59%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	15	Yes	Yes
	B	750	75	16	Yes	Yes
80%	A	400	120	17	Yes	Yes
	B	600	60	17	Yes	Yes
70%	A	350	105	17	Yes	Yes
	B	525	53	18	Yes	Yes
56%	A	280	84	18	Yes	Yes
	B	420	42	19	Yes	Yes





Appendix N
Year 2045 Background (with
Select Roadway
Improvements) Traffic
Operation Worksheets

Intersection						
Int Delay, s/veh	8.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	203	80	10	7	1
Future Vol, veh/h	7	203	80	10	7	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	4	0	89	0
Mvmt Flow	8	226	89	11	8	1

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	198	9	9	0	0
Stage 1	9	-	-	-	-
Stage 2	189	-	-	-	-
Critical Hdwy	6.4	6.2	4.14	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.236	-	-
Pot Cap-1 Maneuver	795	1079	1598	-	-
Stage 1	1019	-	-	-	-
Stage 2	848	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	750	1079	1598	-	-
Mov Cap-2 Maneuver	750	-	-	-	-
Stage 1	962	-	-	-	-
Stage 2	848	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.3	6.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1598	-	1063	-	-
HCM Lane V/C Ratio	0.056	-	0.22	-	-
HCM Control Delay (s)	7.4	0	9.3	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.8	-	-

Intersection						
Int Delay, s/veh	2.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	15	23	40	1	1	7
Future Vol, veh/h	15	23	40	1	1	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	17	26	44	1	1	8

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	45	0	-	0	105 45
Stage 1	-	-	-	-	45 -
Stage 2	-	-	-	-	60 -
Critical Hdwy	4.1	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.2	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	1576	-	-	-	898 1031
Stage 1	-	-	-	-	983 -
Stage 2	-	-	-	-	968 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1576	-	-	-	888 1031
Mov Cap-2 Maneuver	-	-	-	-	888 -
Stage 1	-	-	-	-	972 -
Stage 2	-	-	-	-	968 -

Approach	EB	WB	SB
HCM Control Delay, s	2.9	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1576	-	-	-	1011
HCM Lane V/C Ratio	0.011	-	-	-	0.009
HCM Control Delay (s)	7.3	0	-	-	8.6
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

MOVEMENT SUMMARY

Site: 1031 [Aerie Way / SH 16 (W) BG AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

2045 Background (With Select Roadway Improvements)

Site Category: (None)

Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist]				mph
South: RoadName															
3	L2	All MCs	1	4.0	1	4.0	0.073	3.2	LOS A	0.3	7.1	0.03	0.00	0.03	34.2
8	T1	All MCs	1	0.0	1	0.0	0.073	2.9	LOS A	0.3	7.1	0.03	0.00	0.03	35.0
18	R2	All MCs	101	0.0	101	0.0	0.073	2.9	LOS A	0.3	7.1	0.03	0.00	0.03	34.7
Approach			103	0.0	103	0.0	0.073	2.9	LOS A	0.3	7.1	0.03	0.00	0.03	34.7
East: RoadName															
1	L2	All MCs	553	0.0	553	0.0	0.203	3.7	LOS A	0.9	23.6	0.03	0.00	0.03	31.5
6	T1	All MCs	7	0.0	7	0.0	0.203	3.6	LOS A	0.9	22.9	0.03	0.00	0.03	32.1
16	R2	All MCs	1	0.0	1	0.0	0.203	3.6	LOS A	0.9	22.9	0.03	0.00	0.03	31.8
Approach			561	0.0	561	0.0	0.203	3.7	LOS A	0.9	23.6	0.03	0.00	0.03	31.5
North: RoadName															
7	L2	All MCs	1	0.0	1	0.0	0.004	4.1	LOS A	0.0	0.3	0.46	0.29	0.46	32.9
4	T1	All MCs	1	0.0	1	0.0	0.004	4.1	LOS A	0.0	0.3	0.46	0.29	0.46	33.5
14	R2	All MCs	1	0.0	1	0.0	0.004	4.1	LOS A	0.0	0.3	0.46	0.29	0.46	33.3
Approach			3	0.0	3	0.0	0.004	4.1	LOS A	0.0	0.3	0.46	0.29	0.46	33.2
West: RoadName															
5	L2	All MCs	1	0.0	1	0.0	0.023	4.3	LOS A	0.1	2.0	0.47	0.35	0.47	33.5
2	T1	All MCs	2	0.0	2	0.0	0.023	4.3	LOS A	0.1	2.0	0.47	0.35	0.47	34.2
12	R2	All MCs	17	0.0	17	0.0	0.023	4.3	LOS A	0.1	2.0	0.47	0.35	0.47	33.9
Approach			20	0.0	20	0.0	0.023	4.3	LOS A	0.1	2.0	0.47	0.35	0.47	33.9
All Vehicles			688	0.0	688	0.0	0.203	3.6	LOS A	0.9	23.6	0.05	0.02	0.05	32.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SIDRA INTERSECTION 9.1 | Copyright © 2000-2022 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: KITTELSON AND ASSOCIATES INC | Licence: NETWORK / Enterprise Level 3 | Processed: Thursday, January 12, 2023 11:14:52 AM

Project: H:\25\25407 - Willow Brook Community TIS\Traffic Operations\Mitigations\Sidra\103.sip9

MOVEMENT SUMMARY

Site: 1032 [Aerie Way / SH 16 (E) BG AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

2045 Background (With Select Roadway Improvements)

Site Category: (None)

Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.]	[Dist]				mph
South: RoadName															
3	L2	All MCs	7	4.0	7	4.0	0.005	2.9	LOSA	0.0	0.5	0.20	0.07	0.20	31.7
18	R2	All MCs	657	0.0	657	0.0	0.392	0.1	LOSA	0.0	0.0	0.00	0.00	0.00	36.6
Approach			663	0.0	663	0.0	0.392	0.2	LOSA	0.0	0.5	0.00	0.00	0.00	36.5
East: RoadName															
1	L2	All MCs	62	0.0	62	0.0	0.218	3.8	LOSA	1.1	26.8	0.05	0.01	0.05	33.4
6	T1	All MCs	553	0.0	553	0.0	0.218	3.8	LOSA	1.1	26.8	0.05	0.01	0.05	34.4
Approach			616	0.0	616	0.0	0.218	3.8	LOSA	1.1	26.8	0.05	0.01	0.05	34.3
West: RoadName															
2	T1	All MCs	101	0.0	101	0.0	0.080	3.4	LOSA	0.4	9.0	0.18	0.07	0.18	34.9
12	R2	All MCs	2	0.0	2	0.0	0.080	3.4	LOSA	0.4	9.0	0.18	0.07	0.18	34.7
Approach			103	0.0	103	0.0	0.080	3.4	LOSA	0.4	9.0	0.18	0.07	0.18	34.9
All Vehicles			1382	0.0	1382	0.0	0.392	2.0	LOSA	1.1	26.8	0.04	0.01	0.04	35.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stoptline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SIDRA INTERSECTION 9.1 | Copyright © 2000-2022 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: KITTELSON AND ASSOCIATES INC | Licence: NETWORK / Enterprise Level 3 | Processed: Thursday, January 12, 2023

11:15:10 AM

Project: H:\25\25407 - Willow Brook Community TIS\Traffic Operations\Mitigations\Sidra\103.sip9

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗		↕
Traffic Vol, veh/h	0	58	497	597	0	1580
Future Vol, veh/h	0	58	497	597	0	1580
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	-	0	-	505	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	64	552	663	0	1756

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	276	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-
Pot Cap-1 Maneuver	0	721	-	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %					
Mov Cap-1 Maneuver	-	721	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	721
HCM Lane V/C Ratio	-	-	0.089
HCM Control Delay (s)	-	-	10.5
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.3

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	2	44	19	399	1070	1
Future Vol, veh/h	2	44	19	399	1070	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	3	3	100
Mvmt Flow	2	49	21	443	1189	1

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1675	1190	1190	0	-	0
Stage 1	1190	-	-	-	-	-
Stage 2	485	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	106	231	594	-	-	-
Stage 1	291	-	-	-	-	-
Stage 2	623	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	101	231	594	-	-	-
Mov Cap-2 Maneuver	101	-	-	-	-	-
Stage 1	277	-	-	-	-	-
Stage 2	623	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	26.4	0.5	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	594	-	219	-	-
HCM Lane V/C Ratio	0.036	-	0.233	-	-
HCM Control Delay (s)	11.3	0	26.4	-	-
HCM Lane LOS	B	A	D	-	-
HCM 95th %tile Q(veh)	0.1	-	0.9	-	-

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	1	97	11	2	207
Future Vol, veh/h	12	1	97	11	2	207
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	1	6	0	0
Mvmt Flow	13	1	108	12	2	230

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	348	114	0	0	120
Stage 1	114	-	-	-	-
Stage 2	234	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	653	944	-	-	1480
Stage 1	916	-	-	-	-
Stage 2	810	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	652	944	-	-	1480
Mov Cap-2 Maneuver	652	-	-	-	-
Stage 1	916	-	-	-	-
Stage 2	808	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.5	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	668	1480
HCM Lane V/C Ratio	-	-	0.022	0.002
HCM Control Delay (s)	-	-	10.5	7.4
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection

Int Delay, s/veh 3.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	28	5	21	29	4	14
Future Vol, veh/h	28	5	21	29	4	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	31	6	23	32	4	16

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	37	0	112
Stage 1	-	-	-	-	34
Stage 2	-	-	-	-	78
Critical Hdwy	-	-	4.1	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.2	-	3.5
Pot Cap-1 Maneuver	-	-	1587	-	890
Stage 1	-	-	-	-	994
Stage 2	-	-	-	-	950
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1587	-	877
Mov Cap-2 Maneuver	-	-	-	-	877
Stage 1	-	-	-	-	994
Stage 2	-	-	-	-	936

Approach	EB	WB	NB
HCM Control Delay, s	0	3.1	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1002	-	-	1587	-
HCM Lane V/C Ratio	0.02	-	-	0.015	-
HCM Control Delay (s)	8.7	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Intersection Delay, s/veh	9.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	56	13	50	11	6	7	70	52	105	151	13
Future Vol, veh/h	9	56	13	50	11	6	7	70	52	105	151	13
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	0	4	0	46	20	0	23	0	0	0	0	0
Mvmt Flow	9	59	14	53	12	6	7	74	55	111	159	14
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.6	9.7	8.9	10.1
HCM LOS	A	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	12%	75%	39%
Vol Thru, %	54%	72%	16%	56%
Vol Right, %	40%	17%	9%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	129	78	67	269
LT Vol	7	9	50	105
Through Vol	70	56	11	151
RT Vol	52	13	6	13
Lane Flow Rate	136	82	71	283
Geometry Grp	1	1	1	1
Degree of Util (X)	0.181	0.112	0.115	0.356
Departure Headway (Hd)	4.791	4.907	5.866	4.522
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	747	727	609	796
Service Time	2.833	2.96	3.921	2.556
HCM Lane V/C Ratio	0.182	0.113	0.117	0.356
HCM Control Delay	8.9	8.6	9.7	10.1
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.7	0.4	0.4	1.6

Intersection						
Int Delay, s/veh	2.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↙	↑	↘			↗
Traffic Vol, veh/h	18	268	107	46	97	27
Future Vol, veh/h	18	268	107	46	97	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	3	8	0	3	0
Mvmt Flow	20	298	119	51	108	30

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	170	0	-	0	483
Stage 1	-	-	-	-	145
Stage 2	-	-	-	-	338
Critical Hdwy	4.1	-	-	-	6.43
Critical Hdwy Stg 1	-	-	-	-	5.43
Critical Hdwy Stg 2	-	-	-	-	5.43
Follow-up Hdwy	2.2	-	-	-	3.527
Pot Cap-1 Maneuver	1420	-	-	-	541
Stage 1	-	-	-	-	880
Stage 2	-	-	-	-	720
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1420	-	-	-	533
Mov Cap-2 Maneuver	-	-	-	-	533
Stage 1	-	-	-	-	868
Stage 2	-	-	-	-	720

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1420	-	-	-	908
HCM Lane V/C Ratio	0.014	-	-	-	0.033
HCM Control Delay (s)	7.6	-	-	-	9.1
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection												
Int Delay, s/veh	15.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Vol, veh/h	3	416	5	40	140	78	9	48	140	113	39	26
Future Vol, veh/h	3	416	5	40	140	78	9	48	140	113	39	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	3	0	7	8	0	0	0	3	0	0	0
Mvmt Flow	3	462	6	44	156	87	10	53	156	126	43	29

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	243	0	0	468	0	0	795	802	465	820	718	156
Stage 1	-	-	-	-	-	-	471	471	-	244	244	-
Stage 2	-	-	-	-	-	-	324	331	-	576	474	-
Critical Hdwy	4.1	-	-	4.17	-	-	7.1	6.5	6.23	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.263	-	-	3.5	4	3.327	3.5	4	3.3
Pot Cap-1 Maneuver	1335	-	-	1068	-	-	308	320	595	296	357	895
Stage 1	-	-	-	-	-	-	577	563	-	764	708	-
Stage 2	-	-	-	-	-	-	692	649	-	506	561	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1335	-	-	1068	-	-	259	304	595	182	339	895
Mov Cap-2 Maneuver	-	-	-	-	-	-	259	304	-	182	339	-
Stage 1	-	-	-	-	-	-	575	561	-	762	674	-
Stage 2	-	-	-	-	-	-	597	618	-	337	559	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			1.3			19.7			70.5		
HCM LOS							C			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	460	1335	-	-	1068	-	-	233
HCM Lane V/C Ratio	0.476	0.002	-	-	0.042	-	-	0.849
HCM Control Delay (s)	19.7	7.7	0	-	8.5	0	-	70.5
HCM Lane LOS	C	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	2.5	0	-	-	0.1	-	-	6.7

Queues
110: SH 16 & Beacon Light Road

2045 Background Conditions (With Improvements) AM Peak Hour

01/13/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	23	277	271	149	96	108	94	378	200	270	959	7
v/c Ratio	0.09	0.97	0.63	1.03	0.34	0.22	0.90	0.43	0.23	0.50	1.01	0.01
Control Delay	43.7	108.3	19.0	133.8	57.1	1.1	94.0	27.3	2.9	15.0	66.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.7	108.3	19.0	133.8	57.1	1.1	94.0	27.3	2.9	15.0	66.4	0.0
Queue Length 50th (ft)	17	273	40	~131	85	0	42	238	0	107	~955	0
Queue Length 95th (ft)	43	#461	140	#244	146	0	#162	334	38	153	#1247	0
Internal Link Dist (ft)		2558			3836			5106			1084	
Turn Bay Length (ft)	100		100	100		100	100		100	100		100
Base Capacity (vph)	257	285	433	144	282	483	104	876	852	558	946	902
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.97	0.63	1.03	0.34	0.22	0.90	0.43	0.23	0.48	1.01	0.01

Intersection Summary

























~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Data Back Analysis Conditions (With Improvements) AM Peak Hour
 110: SH 16 & Beacon Light Road 01/13/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	249	244	134	86	97	85	340	180	243	863	6
Future Volume (vph)	21	249	244	134	86	97	85	340	180	243	863	6
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0	9.0	9.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1710	1782	1530	1644	1374	1485	1710	1800	1530	1693	1731	1530
Flt Permitted	0.69	1.00	1.00	0.21	1.00	1.00	0.05	1.00	1.00	0.40	1.00	1.00
Satd. Flow (perm)	1251	1782	1530	360	1374	1485	99	1800	1530	710	1731	1530
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	23	277	271	149	96	108	94	378	200	270	959	7
RTOR Reduction (vph)	0	0	186	0	0	86	0	0	104	0	0	3
Lane Group Flow (vph)	23	277	85	149	96	22	94	378	96	270	959	4
Heavy Vehicles (%)	0%	1%	0%	4%	31%	3%	0%	0%	0%	1%	4%	0%
Turn Type	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Prot
Protected Phases	1	6	6	5	2	2	3	8	8	7	4	4
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	29.8	26.8	26.8	37.8	30.8	30.8	78.0	73.0	73.0	96.0	82.0	82.0
Effective Green, g (s)	29.8	26.8	26.8	37.8	30.8	30.8	78.0	73.0	73.0	96.0	82.0	82.0
Actuated g/C Ratio	0.20	0.18	0.18	0.25	0.20	0.20	0.51	0.48	0.48	0.63	0.54	0.54
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0	9.0	9.0
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	5.0	5.0	2.0	5.0	5.0
Lane Grp Cap (vph)	252	312	268	147	276	299	103	859	730	536	928	821
v/s Ratio Prot	0.00	0.16	0.06	c0.05	0.07	0.01	0.03	0.21	0.06	c0.05	c0.55	0.00
v/s Ratio Perm	0.02			c0.20			0.44			0.27		
v/c Ratio	0.09	0.89	0.32	1.01	0.35	0.07	0.91	0.44	0.13	0.50	1.03	0.00
Uniform Delay, d1	50.2	61.5	55.0	56.1	52.4	49.4	34.2	26.4	22.2	14.6	35.4	16.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	24.8	0.7	77.9	0.8	0.1	60.3	0.8	0.2	0.3	38.5	0.0
Delay (s)	50.2	86.3	55.7	134.0	53.1	49.5	94.6	27.1	22.4	14.9	73.9	16.4
Level of Service	D	F	E	F	D	D	F	C	C	B	E	B
Approach Delay (s)		70.3			86.2			35.2			60.7	
Approach LOS		E			F			D			E	
Intersection Summary												
HCM 2000 Control Delay			59.7									HCM 2000 Level of Service E
HCM 2000 Volume to Capacity ratio			1.06									
Actuated Cycle Length (s)			152.8								32.0	Sum of lost time (s)
Intersection Capacity Utilization			101.3%									ICU Level of Service G
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Background Conditions (With Improvements) AM Peak Hour
 110: SH 16 & Beacon Light Road 01/13/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	249	244	134	86	97	85	340	180	243	863	6
Future Volume (veh/h)	21	249	244	134	86	97	85	340	180	243	863	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1786	1800	1744	1365	1758	1800	1800	1800	1786	1744	1800
Adj Flow Rate, veh/h	23	277	271	149	96	108	94	378	200	270	959	7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	1	0	4	31	3	0	0	0	1	4	0
Cap, veh/h	232	286	244	130	254	277	105	880	746	500	953	834
Arrive On Green	0.02	0.16	0.16	0.05	0.19	0.19	0.03	0.49	0.49	0.09	0.55	0.55
Sat Flow, veh/h	1714	1786	1525	1661	1365	1490	1714	1800	1525	1701	1744	1525
Grp Volume(v), veh/h	23	277	271	149	96	108	94	378	200	270	959	7
Grp Sat Flow(s),veh/h/ln	1714	1786	1525	1661	1365	1490	1714	1800	1525	1701	1744	1525
Q Serve(g_s), s	1.7	23.1	24.0	7.0	9.2	9.5	4.2	20.4	11.6	11.6	82.0	0.3
Cycle Q Clear(g_c), s	1.7	23.1	24.0	7.0	9.2	9.5	4.2	20.4	11.6	11.6	82.0	0.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	232	286	244	130	254	277	105	880	746	500	953	834
V/C Ratio(X)	0.10	0.97	1.11	1.14	0.38	0.39	0.89	0.43	0.27	0.54	1.01	0.01
Avail Cap(c_a), veh/h	254	286	244	130	254	277	105	880	746	527	953	834
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.1	62.6	63.0	58.6	53.4	53.6	36.0	24.8	22.6	17.3	34.0	15.5
Incr Delay (d2), s/veh	0.1	44.7	90.4	122.2	0.9	0.9	54.3	0.7	0.4	0.4	30.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	14.1	15.5	6.3	3.3	3.7	3.3	9.0	4.3	4.6	41.7	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.2	107.3	153.4	180.9	54.4	54.5	90.4	25.5	23.0	17.7	64.6	15.5
LnGrp LOS	D	F	F	F	D	D	F	C	C	B	F	B
Approach Vol, veh/h		571			353			672			1236	
Approach Delay, s/veh		127.0			107.8			33.8			54.1	
Approach LOS		F			F			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.1	34.9	14.0	91.0	14.0	31.0	22.7	82.3				
Change Period (Y+Rc), s	7.0	7.0	9.0	9.0	7.0	7.0	9.0	9.0				
Max Green Setting (Gmax), s	5.0	26.0	5.0	82.0	7.0	24.0	16.0	71.0				
Max Q Clear Time (g_c+I1), s	3.7	11.5	6.2	84.0	9.0	26.0	13.6	22.4				
Green Ext Time (p_c), s	0.0	0.7	0.0	0.0	0.0	0.0	0.1	7.4				
Intersection Summary												
HCM 6th Ctrl Delay				70.7								
HCM 6th LOS				E								

Intersection						
Int Delay, s/veh	2.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	960	19	24	468	27	38
Future Vol, veh/h	960	19	24	468	27	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	0	0	0	0	14
Mvmt Flow	1067	21	27	520	30	42

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	1088	0	1652 1078
Stage 1	-	-	-	-	1078 -
Stage 2	-	-	-	-	574 -
Critical Hdwy	-	-	4.1	-	6.4 6.34
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	-	-	2.2	-	3.5 3.426
Pot Cap-1 Maneuver	-	-	649	-	110 252
Stage 1	-	-	-	-	330 -
Stage 2	-	-	-	-	567 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	649	-	104 252
Mov Cap-2 Maneuver	-	-	-	-	104 -
Stage 1	-	-	-	-	330 -
Stage 2	-	-	-	-	534 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	45.7
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	158	-	-	649	-
HCM Lane V/C Ratio	0.457	-	-	0.041	-
HCM Control Delay (s)	45.7	-	-	10.8	0
HCM Lane LOS	E	-	-	B	A
HCM 95th %tile Q(veh)	2.1	-	-	0.1	-

Intersection						
Int Delay, s/veh	1.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	TT		TT			TT
Traffic Vol, veh/h	18	2	130	41	35	262
Future Vol, veh/h	18	2	130	41	35	262
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	20	2	144	46	39	291

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	536	167	0	0	190
Stage 1	167	-	-	-	-
Stage 2	369	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	509	882	-	-	1396
Stage 1	867	-	-	-	-
Stage 2	704	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	492	882	-	-	1396
Mov Cap-2 Maneuver	492	-	-	-	-
Stage 1	867	-	-	-	-
Stage 2	681	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.3	0	0.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	515	1396
HCM Lane V/C Ratio	-	-	0.043	0.028
HCM Control Delay (s)	-	-	12.3	7.7
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1

Intersection						
Int Delay, s/veh	10.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	185	222	302	75	101	140
Future Vol, veh/h	185	222	302	75	101	140
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	100	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	1	4	0	3	2
Mvmt Flow	206	247	336	83	112	156

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	453	0	1085 330
Stage 1	-	-	-	-	330 -
Stage 2	-	-	-	-	755 -
Critical Hdwy	-	-	4.14	-	6.43 6.22
Critical Hdwy Stg 1	-	-	-	-	5.43 -
Critical Hdwy Stg 2	-	-	-	-	5.43 -
Follow-up Hdwy	-	-	2.236	-	3.527 3.318
Pot Cap-1 Maneuver	-	-	1097	-	239 712
Stage 1	-	-	-	-	726 -
Stage 2	-	-	-	-	462 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1097	-	166 712
Mov Cap-2 Maneuver	-	-	-	-	166 -
Stage 1	-	-	-	-	726 -
Stage 2	-	-	-	-	321 -

Approach	EB	WB	NB
HCM Control Delay, s	0	7.8	33
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	166	712	-	-	1097	-
HCM Lane V/C Ratio	0.676	0.218	-	-	0.306	-
HCM Control Delay (s)	62.9	11.5	-	-	9.7	-
HCM Lane LOS	F	B	-	-	A	-
HCM 95th %tile Q(veh)	3.9	0.8	-	-	1.3	-

Intersection						
Int Delay, s/veh	3.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	198	324	40	91	91	62
Future Vol, veh/h	198	324	40	91	91	62
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	0	7	6	3	0
Mvmt Flow	213	348	43	98	98	67

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	561	0	571
Stage 1	-	-	-	-	387
Stage 2	-	-	-	-	184
Critical Hdwy	-	-	4.17	-	6.43
Critical Hdwy Stg 1	-	-	-	-	5.43
Critical Hdwy Stg 2	-	-	-	-	5.43
Follow-up Hdwy	-	-	2.263	-	3.527
Pot Cap-1 Maneuver	-	-	986	-	481
Stage 1	-	-	-	-	684
Stage 2	-	-	-	-	845
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	986	-	459
Mov Cap-2 Maneuver	-	-	-	-	459
Stage 1	-	-	-	-	684
Stage 2	-	-	-	-	806

Approach	EB	WB	NB
HCM Control Delay, s	0	2.7	15
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	525	-	-	986	-
HCM Lane V/C Ratio	0.313	-	-	0.044	-
HCM Control Delay (s)	15	-	-	8.8	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.3	-	-	0.1	-

Intersection

Int Delay, s/veh 9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	227	188	91	75	109	127
Future Vol, veh/h	227	188	91	75	109	127
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	4	4	0
Mvmt Flow	241	200	97	80	116	135

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	177	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.1	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.2	-	-
Pot Cap-1 Maneuver	1411	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1411	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	4.4	0	23.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1411	-	-	-	442
HCM Lane V/C Ratio	0.171	-	-	-	0.568
HCM Control Delay (s)	8.1	0	-	-	23.3
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.6	-	-	-	3.4

Intersection												
Int Delay, s/veh	7.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	0	246	0	0	0	399	93	0	0	98	5
Future Vol, veh/h	8	0	246	0	0	0	399	93	0	0	98	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	33	0	8	0	0	0	3	0	0	0	6	0
Mvmt Flow	9	0	273	0	0	0	443	103	0	0	109	6

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1101	1101	112	1238	1104	103	115	0	0	103	0	0
Stage 1	112	112	-	989	989	-	-	-	-	-	-	-
Stage 2	989	989	-	249	115	-	-	-	-	-	-	-
Critical Hdwy	7.43	6.5	6.28	7.1	6.5	6.2	4.13	-	-	4.1	-	-
Critical Hdwy Stg 1	6.43	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.43	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.797	4	3.372	3.5	4	3.3	2.227	-	-	2.2	-	-
Pot Cap-1 Maneuver	165	214	925	154	213	957	1468	-	-	1502	-	-
Stage 1	823	807	-	300	327	-	-	-	-	-	-	-
Stage 2	261	327	-	759	804	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	124	146	925	82	145	957	1468	-	-	1502	-	-
Mov Cap-2 Maneuver	124	146	-	82	145	-	-	-	-	-	-	-
Stage 1	560	807	-	204	222	-	-	-	-	-	-	-
Stage 2	177	222	-	535	804	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	12.4		0		6.9		0	
HCM LOS	B		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1468	-	-	769	-	1502	-
HCM Lane V/C Ratio	0.302	-	-	0.367	-	-	-
HCM Control Delay (s)	8.5	0	-	12.4	0	0	-
HCM Lane LOS	A	A	-	B	A	A	-
HCM 95th %tile Q(veh)	1.3	-	-	1.7	-	0	-

Intersection

Int Delay, s/veh 157.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	93	1091	456	77	153	127
Future Vol, veh/h	93	1091	456	77	153	127
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	29	3	4	3	0	13
Mvmt Flow	99	1161	485	82	163	135

Major/Minor

	Major1	Major2	Minor2		
Conflicting Flow All	567	0	0	1885	526
Stage 1	-	-	-	526	-
Stage 2	-	-	-	1359	-
Critical Hdwy	4.39	-	-	6.4	6.33
Critical Hdwy Stg 1	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	5.4	-
Follow-up Hdwy	2.461	-	-	3.5	3.417
Pot Cap-1 Maneuver	884	-	-	~ 79	531
Stage 1	-	-	-	597	-
Stage 2	-	-	-	241	-
Platoon blocked, %		-	-		
Mov Cap-1 Maneuver	884	-	-	~ 54	531
Mov Cap-2 Maneuver	-	-	-	~ 54	-
Stage 1	-	-	-	409	-
Stage 2	-	-	-	241	-

Approach

	EB	WB	SB
HCM Control Delay, s	0.8	0	\$ 1121.7
HCM LOS			F

Minor Lane/Major Mvmt

	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	884	-	-	-	91
HCM Lane V/C Ratio	0.112	-	-	-	3.273
HCM Control Delay (s)	9.6	0	-	-	\$ 1121.7
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.4	-	-	-	29.6

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Queues
118: Star Road & SH 44

2045 Background Conditions (With Improvements) AM Peak Hour

01/13/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	81	742	371	154	444	91	274	167	155	193	423
v/c Ratio	0.25	0.99	0.51	1.19	0.59	0.12	1.10	0.35	0.31	0.47	1.05
Control Delay	20.4	72.8	23.7	167.3	34.5	2.8	127.8	46.4	7.9	37.4	113.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.4	72.8	23.7	167.3	34.5	2.8	127.8	46.4	7.9	37.4	113.3
Queue Length 50th (ft)	38	714	183	~124	319	0	~255	132	1	128	~447
Queue Length 95th (ft)	69	#999	281	#278	437	23	#444	203	58	194	#667
Internal Link Dist (ft)		2598			5173			1764			5156
Turn Bay Length (ft)	100		100	100		100	100		100	100	
Base Capacity (vph)	329	747	721	129	755	753	248	471	497	410	401
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.99	0.51	1.19	0.59	0.12	1.10	0.35	0.31	0.47	1.05

Intersection Summary

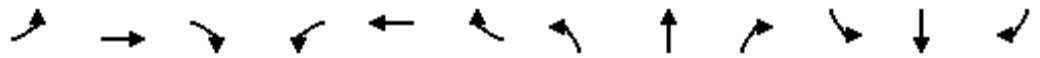
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis Conditions (With Improvements) AM Peak Hour
 118: Star Road & SH 44 01/13/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	705	352	146	422	86	260	159	147	183	337	65
Future Volume (vph)	77	705	352	146	422	86	260	159	147	183	337	65
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1644	1698	1500	1583	1667	1530	1676	1714	1404	1710	1700	
Flt Permitted	0.36	1.00	1.00	0.07	1.00	1.00	0.10	1.00	1.00	0.65	1.00	
Satd. Flow (perm)	625	1698	1500	123	1667	1530	172	1714	1404	1173	1700	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	81	742	371	154	444	91	274	167	155	193	355	68
RTOR Reduction (vph)	0	0	61	0	0	50	0	0	111	0	5	0
Lane Group Flow (vph)	81	742	310	154	444	41	274	167	44	193	418	0
Heavy Vehicles (%)	4%	6%	2%	8%	8%	0%	2%	5%	9%	0%	3%	5%
Turn Type	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6	6	5	2	2	3	8		7	4	
Permitted Phases	6			2			8		8	4		
Actuated Green, G (s)	71.0	66.0	66.0	75.0	68.0	68.0	59.0	41.3	41.3	46.7	35.0	
Effective Green, g (s)	71.0	66.0	66.0	75.0	68.0	68.0	59.0	41.3	41.3	46.7	35.0	
Actuated g/C Ratio	0.47	0.44	0.44	0.50	0.45	0.45	0.39	0.28	0.28	0.31	0.23	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	2.0	2.5	2.5	2.0	2.5	2.5	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	329	747	660	129	755	693	248	471	386	407	396	
v/s Ratio Prot	0.01	0.44	0.21	c0.06	0.27	0.03	c0.13	0.10		0.04	0.25	
v/s Ratio Perm	0.11			c0.54			c0.30		0.03	0.11		
v/c Ratio	0.25	0.99	0.47	1.19	0.59	0.06	1.10	0.35	0.11	0.47	1.06	
Uniform Delay, d1	23.2	41.8	29.6	34.7	30.6	23.0	46.5	43.6	40.7	40.1	57.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	31.3	2.4	140.5	1.0	0.0	88.1	0.2	0.0	0.3	60.9	
Delay (s)	23.3	73.1	32.0	175.2	31.5	23.1	134.6	43.8	40.7	40.4	118.4	
Level of Service	C	E	C	F	C	C	F	D	D	D	F	
Approach Delay (s)		57.0			62.5			84.7			94.0	
Approach LOS		E			E			F			F	

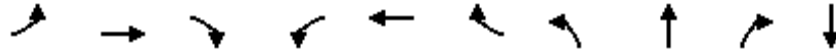
Intersection Summary		
HCM 2000 Control Delay	70.9	HCM 2000 Level of Service E
HCM 2000 Volume to Capacity ratio	1.20	
Actuated Cycle Length (s)	150.0	Sum of lost time (s) 24.0
Intersection Capacity Utilization	105.8%	ICU Level of Service G
Analysis Period (min)	15	
c Critical Lane Group		

HCM 6th Signalized Intersection Background Conditions (With Improvements) AM Peak Hour
 118: Star Road & SH 44

01/13/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	705	352	146	422	86	260	159	147	183	337	65
Future Volume (veh/h)	77	705	352	146	422	86	260	159	147	183	337	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1744	1716	1772	1688	1688	1800	1772	1730	1674	1800	1758	1730
Adj Flow Rate, veh/h	81	742	371	154	444	91	274	167	155	193	355	68
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	6	2	8	8	0	2	5	9	0	3	5
Cap, veh/h	324	755	661	129	765	692	251	473	388	395	335	64
Arrive On Green	0.03	0.44	0.44	0.05	0.45	0.45	0.12	0.27	0.27	0.08	0.23	0.23
Sat Flow, veh/h	1661	1716	1502	1607	1688	1525	1688	1730	1418	1714	1434	275
Grp Volume(v), veh/h	81	742	371	154	444	91	274	167	155	193	0	423
Grp Sat Flow(s),veh/h/ln	1661	1716	1502	1607	1688	1525	1688	1730	1418	1714	0	1708
Q Serve(g_s), s	4.1	64.0	27.6	7.0	29.3	5.2	18.0	11.6	13.4	12.0	0.0	35.0
Cycle Q Clear(g_c), s	4.1	64.0	27.6	7.0	29.3	5.2	18.0	11.6	13.4	12.0	0.0	35.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	324	755	661	129	765	692	251	473	388	395	0	399
V/C Ratio(X)	0.25	0.98	0.56	1.19	0.58	0.13	1.09	0.35	0.40	0.49	0.00	1.06
Avail Cap(c_a), veh/h	324	755	661	129	765	692	251	473	388	395	0	399
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.6	41.4	31.2	37.6	30.4	23.8	46.1	43.8	44.5	40.4	0.0	57.5
Incr Delay (d2), s/veh	0.1	28.8	3.4	139.1	1.0	0.1	84.2	0.2	0.2	0.3	0.0	62.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	32.8	10.7	7.6	12.2	1.9	12.8	5.1	4.8	5.6	0.0	22.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.8	70.3	34.7	176.7	31.4	23.9	130.3	44.0	44.7	40.7	0.0	119.7
LnGrp LOS	C	E	C	F	C	C	F	D	D	D	A	F
Approach Vol, veh/h		1194			689			596				616
Approach Delay, s/veh		56.1			62.9			83.9				94.9
Approach LOS		E			E			F				F
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	74.0	24.0	41.0	13.0	72.0	18.0	47.0				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	5.0	68.0	18.0	35.0	7.0	66.0	12.0	41.0				
Max Q Clear Time (g_c+I1), s	6.1	31.3	20.0	37.0	9.0	66.0	14.0	15.4				
Green Ext Time (p_c), s	0.0	2.7	0.0	0.0	0.0	0.0	0.0	0.9				
Intersection Summary												
HCM 6th Ctrl Delay				70.7								
HCM 6th LOS				E								



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	31	1062	35	60	571	114	47	13	86	642
v/c Ratio	0.10	1.26	0.05	0.44	0.64	0.14	0.11	0.02	0.14	1.32
Control Delay	15.0	161.6	1.8	28.1	31.3	11.0	33.3	31.5	6.7	193.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.0	161.6	1.8	28.1	31.3	11.0	33.3	31.5	6.7	193.0
Queue Length 50th (ft)	13	~1301	0	25	413	28	30	8	0	~806
Queue Length 95th (ft)	29	#1593	9	59	564	66	63	25	39	#1067
Internal Link Dist (ft)		5173			3517			675		5173
Turn Bay Length (ft)	100		100	100		100	100		100	
Base Capacity (vph)	359	840	730	159	889	791	429	655	612	488
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	1.26	0.05	0.38	0.64	0.14	0.11	0.02	0.14	1.32

Intersection Summary
























~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Data Back Analysis Conditions (With Improvements) AM Peak Hour
 119: Plummer Road & SH 44 01/13/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	1009	33	57	542	108	45	12	82	490	40	80
Future Volume (vph)	29	1009	33	57	542	108	45	12	82	490	40	80
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0		5.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		0.96	
Satd. Flow (prot)	1710	1748	1457	1660	1748	1500	1710	1800	1530		1686	
Flt Permitted	0.29	1.00	1.00	0.05	1.00	1.00	0.65	1.00	1.00		0.76	
Satd. Flow (perm)	519	1748	1457	94	1748	1500	1179	1800	1530		1332	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	31	1062	35	60	571	114	47	13	86	516	42	84
RTOR Reduction (vph)	0	0	18	0	0	29	0	0	55	0	4	0
Lane Group Flow (vph)	31	1062	17	60	571	85	47	13	31	0	638	0
Heavy Vehicles (%)	0%	3%	5%	3%	3%	2%	0%	0%	0%	1%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6		6	2		2	4		4	8		
Actuated Green, G (s)	75.4	71.4	71.4	81.0	74.2	74.2	53.1	53.1	53.1		53.1	
Effective Green, g (s)	75.4	71.4	71.4	81.0	74.2	74.2	53.1	53.1	53.1		53.1	
Actuated g/C Ratio	0.51	0.48	0.48	0.55	0.50	0.50	0.36	0.36	0.36		0.36	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0		5.0	
Vehicle Extension (s)	2.5	4.0	4.0	2.5	4.0	4.0	2.5	2.5	2.5		2.5	
Lane Grp Cap (vph)	295	841	701	123	874	750	422	644	547		476	
v/s Ratio Prot	0.00	c0.61		c0.02	c0.33			0.01				
v/s Ratio Perm	0.05		0.01	0.24		0.06	0.04		0.02		c0.48	
v/c Ratio	0.11	1.26	0.02	0.49	0.65	0.11	0.11	0.02	0.06		1.34	
Uniform Delay, d1	20.6	38.5	20.2	33.0	27.5	19.6	31.8	30.8	31.2		47.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.1	127.8	0.0	2.2	2.0	0.1	0.1	0.0	0.0		167.0	
Delay (s)	20.7	166.2	20.2	35.3	29.5	19.7	31.9	30.8	31.2		214.6	
Level of Service	C	F	C	D	C	B	C	C	C		F	
Approach Delay (s)		157.7			28.4			31.4			214.6	
Approach LOS		F			C			C			F	
Intersection Summary												
HCM 2000 Control Delay			128.3			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.25									
Actuated Cycle Length (s)			148.3			Sum of lost time (s)			17.0			
Intersection Capacity Utilization			110.8%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Background Conditions (With Improvements) AM Peak Hour
 119: Plummer Road & SH 44

01/13/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘		↕	
Traffic Volume (veh/h)	29	1009	33	57	542	108	45	12	82	490	40	80
Future Volume (veh/h)	29	1009	33	57	542	108	45	12	82	490	40	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1758	1730	1758	1758	1772	1800	1800	1800	1786	1800	1800
Adj Flow Rate, veh/h	31	1062	35	60	571	114	47	13	86	516	42	84
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	3	5	3	3	2	0	0	0	1	0	0
Cap, veh/h	281	851	710	103	863	737	580	660	559	442	32	65
Arrive On Green	0.02	0.48	0.48	0.03	0.49	0.49	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	1714	1758	1466	1674	1758	1502	1285	1800	1525	1083	88	176
Grp Volume(v), veh/h	31	1062	35	60	571	114	47	13	86	642	0	0
Grp Sat Flow(s),veh/h/ln	1714	1758	1466	1674	1758	1502	1285	1800	1525	1348	0	0
Q Serve(g_s), s	1.3	70.0	1.8	2.6	35.4	6.0	0.0	0.7	5.5	52.3	0.0	0.0
Cycle Q Clear(g_c), s	1.3	70.0	1.8	2.6	35.4	6.0	3.1	0.7	5.5	53.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.80		0.13
Lane Grp Cap(c), veh/h	281	851	710	103	863	737	580	660	559	539	0	0
V/C Ratio(X)	0.11	1.25	0.05	0.59	0.66	0.15	0.08	0.02	0.15	1.19	0.00	0.00
Avail Cap(c_a), veh/h	358	851	710	166	863	737	580	660	559	539	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	22.0	37.3	19.7	34.5	27.7	20.3	30.0	29.2	30.7	48.3	0.0	0.0
Incr Delay (d2), s/veh	0.1	121.2	0.0	3.9	2.1	0.1	0.0	0.0	0.1	103.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	58.1	0.6	1.1	15.4	2.2	1.1	0.3	2.1	35.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.1	158.5	19.7	38.4	29.9	20.4	30.0	29.2	30.8	151.5	0.0	0.0
LnGrp LOS	C	F	B	D	C	C	C	C	C	F	A	A
Approach Vol, veh/h		1128			745			146			642	
Approach Delay, s/veh		150.4			29.1			30.4			151.5	
Approach LOS		F			C			C			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.6	77.0		58.0	10.6	76.0		58.0				
Change Period (Y+Rc), s	6.0	6.0		5.0	6.0	6.0		5.0				
Max Green Setting (Gmax), s	10.0	70.0		53.0	10.0	70.0		53.0				
Max Q Clear Time (g_c+I1), s	3.3	37.4		7.5	4.6	72.0		55.0				
Green Ext Time (p_c), s	0.0	6.9		0.4	0.0	0.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay	110.1
HCM 6th LOS	F

Intersection						
Int Delay, s/veh	7.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	150	263	33	3	7
Future Vol, veh/h	10	150	263	33	3	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	2	1	0	0	0
Mvmt Flow	11	167	292	37	3	8

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	628	7	11	0	0
Stage 1	7	-	-	-	-
Stage 2	621	-	-	-	-
Critical Hdwy	6.4	6.22	4.11	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.318	2.209	-	-
Pot Cap-1 Maneuver	450	1075	1615	-	-
Stage 1	1021	-	-	-	-
Stage 2	540	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	367	1075	1615	-	-
Mov Cap-2 Maneuver	367	-	-	-	-
Stage 1	832	-	-	-	-
Stage 2	540	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.6	6.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1615	-	959	-	-
HCM Lane V/C Ratio	0.181	-	0.185	-	-
HCM Control Delay (s)	7.7	0	9.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.7	-	0.7	-	-

Intersection

Int Delay, s/veh 3.2

Movement EBL EBT WBT WBR SBL SBR

Lane Configurations		↕	↔		↕	
Traffic Vol, veh/h	11	17	29	1	1	19
Future Vol, veh/h	11	17	29	1	1	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	12	19	32	1	1	21

Major/Minor Major1 Major2 Minor2

Conflicting Flow All	33	0	-	0	76	33
Stage 1	-	-	-	-	33	-
Stage 2	-	-	-	-	43	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1592	-	-	-	932	1046
Stage 1	-	-	-	-	995	-
Stage 2	-	-	-	-	985	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1592	-	-	-	925	1046
Mov Cap-2 Maneuver	-	-	-	-	925	-
Stage 1	-	-	-	-	987	-
Stage 2	-	-	-	-	985	-

Approach EB WB SB

HCM Control Delay, s	2.9	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt EBL EBT WBT WBR SBLn1

Capacity (veh/h)	1592	-	-	-	1039
HCM Lane V/C Ratio	0.008	-	-	-	0.021
HCM Control Delay (s)	7.3	0	-	-	8.5
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

MOVEMENT SUMMARY

Site: 1031 [Aerie Way / SH 16 (W) BG PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

2045 Background (With Select Roadway Improvements)

Site Category: (None)

Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.]	[Dist]				mph
			veh/h		veh/h					veh	ft				
South: RoadName															
3	L2	All MCs	1	4.0	1	4.0	0.117	3.4	LOSA	0.5	11.9	0.03	0.00	0.03	34.0
8	T1	All MCs	1	0.0	1	0.0	0.117	3.2	LOSA	0.5	11.9	0.03	0.00	0.03	34.9
18	R2	All MCs	163	0.0	163	0.0	0.117	3.2	LOSA	0.5	11.9	0.03	0.00	0.03	34.6
Approach			166	0.0	166	0.0	0.117	3.2	LOSA	0.5	11.9	0.03	0.00	0.03	34.6
East: RoadName															
1	L2	All MCs	163	0.0	163	0.0	0.082	3.1	LOSA	0.3	8.3	0.03	0.00	0.03	32.2
6	T1	All MCs	62	0.0	62	0.0	0.082	3.0	LOSA	0.3	8.0	0.03	0.00	0.03	33.8
16	R2	All MCs	1	0.0	1	0.0	0.082	3.0	LOSA	0.3	8.0	0.03	0.00	0.03	33.5
Approach			227	0.0	227	0.0	0.082	3.0	LOSA	0.3	8.3	0.03	0.00	0.03	32.6
North: RoadName															
7	L2	All MCs	1	0.0	1	0.0	0.003	3.1	LOSA	0.0	0.3	0.29	0.13	0.29	33.4
4	T1	All MCs	1	0.0	1	0.0	0.003	3.1	LOSA	0.0	0.3	0.29	0.13	0.29	34.1
14	R2	All MCs	1	0.0	1	0.0	0.003	3.1	LOSA	0.0	0.3	0.29	0.13	0.29	33.8
Approach			3	0.0	3	0.0	0.003	3.1	LOSA	0.0	0.3	0.29	0.13	0.29	33.7
West: RoadName															
5	L2	All MCs	1	0.0	1	0.0	0.031	3.2	LOSA	0.1	2.8	0.25	0.13	0.25	34.1
2	T1	All MCs	1	0.0	1	0.0	0.031	3.2	LOSA	0.1	2.8	0.25	0.13	0.25	34.9
12	R2	All MCs	36	0.0	36	0.0	0.031	3.2	LOSA	0.1	2.8	0.25	0.13	0.25	34.6
Approach			38	0.0	38	0.0	0.031	3.2	LOSA	0.1	2.8	0.25	0.13	0.25	34.6
All Vehicles			433	0.0	433	0.0	0.117	3.1	LOSA	0.5	11.9	0.05	0.02	0.05	33.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SIDRA INTERSECTION 9.1 | Copyright © 2000-2022 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: KITTELSON AND ASSOCIATES INC | Licence: NETWORK / Enterprise Level 3 | Processed: Thursday, January 12, 2023 11:15:03 AM

Project: H:\25\25407 - Willow Brook Community TIS\Traffic Operations\Mitigations\Sidra\103.sip9

MOVEMENT SUMMARY

Site: 1032 [Aerie Way / SH 16 (E) BG PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

2045 Background (With Select Roadway Improvements)

Site Category: (None)

Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.]	[Dist]				mph
South: RoadName															
3	L2	All MCs	62	4.0	62	4.0	0.053	3.5	LOSA	0.2	5.2	0.27	0.14	0.27	31.4
18	R2	All MCs	1017	0.0	1017	0.0	0.607	0.3	LOSA	0.0	0.0	0.00	0.00	0.00	36.4
Approach			1079	0.2	1079	0.2	0.607	0.5	LOSA	0.2	5.2	0.02	0.01	0.02	36.0
East: RoadName															
1	L2	All MCs	252	0.0	252	0.0	0.188	4.2	LOSA	0.9	21.9	0.19	0.07	0.19	31.3
6	T1	All MCs	163	0.0	163	0.0	0.122	3.6	LOSA	0.5	13.2	0.17	0.06	0.17	34.8
Approach			416	0.0	416	0.0	0.188	3.9	LOSA	0.9	21.9	0.18	0.07	0.18	32.6
West: RoadName															
2	T1	All MCs	163	0.0	163	0.0	0.154	4.7	LOSA	0.7	17.7	0.41	0.26	0.41	34.2
12	R2	All MCs	1	0.0	1	0.0	0.154	4.7	LOSA	0.7	17.7	0.41	0.26	0.41	33.9
Approach			164	0.0	164	0.0	0.154	4.7	LOSA	0.7	17.7	0.41	0.26	0.41	34.2
All Vehicles			1659	0.2	1659	0.2	0.607	1.8	LOSA	0.9	21.9	0.10	0.05	0.10	34.9

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SIDRA INTERSECTION 9.1 | Copyright © 2000-2022 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: KITTELSON AND ASSOCIATES INC | Licence: NETWORK / Enterprise Level 3 | Processed: Thursday, January 12, 2023

11:15:16 AM

Project: H:\25\25407 - Willow Brook Community TIS\Traffic Operations\Mitigations\Sidra\103.sip9

Intersection						
Int Delay, s/veh	1.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗		↕
Traffic Vol, veh/h	0	228	1248	971	0	1401
Future Vol, veh/h	0	228	1248	971	0	1401
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	-	0	-	505	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	253	1387	1079	0	1557

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	694	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-
Pot Cap-1 Maneuver	0	385	-	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	-	385	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	30.6	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	385
HCM Lane V/C Ratio	-	-	0.658
HCM Control Delay (s)	-	-	30.6
HCM Lane LOS	-	-	D
HCM 95th %tile Q(veh)	-	-	4.5

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	32	56	1331	612	1
Future Vol, veh/h	1	32	56	1331	612	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	2	2	2	0
Mvmt Flow	1	35	62	1463	673	1

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	2261	674	674	0	-	0
Stage 1	674	-	-	-	-	-
Stage 2	1587	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-	-
Pot Cap-1 Maneuver	46	458	917	-	-	-
Stage 1	510	-	-	-	-	-
Stage 2	187	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	29	458	917	-	-	-
Mov Cap-2 Maneuver	29	-	-	-	-	-
Stage 1	326	-	-	-	-	-
Stage 2	187	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.9	0.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	917	-	316	-	-
HCM Lane V/C Ratio	0.067	-	0.115	-	-
HCM Control Delay (s)	9.2	0	17.9	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.2	-	0.4	-	-

Intersection						
Int Delay, s/veh	0.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	18	10	310	32	2	141
Future Vol, veh/h	18	10	310	32	2	141
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	1	6	0	0
Mvmt Flow	20	11	344	36	2	157

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	523	362	0	0	380
Stage 1	362	-	-	-	-
Stage 2	161	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	518	687	-	-	1190
Stage 1	709	-	-	-	-
Stage 2	873	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	517	687	-	-	1190
Mov Cap-2 Maneuver	517	-	-	-	-
Stage 1	709	-	-	-	-
Stage 2	871	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.7	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	567	1190
HCM Lane V/C Ratio	-	-	0.055	0.002
HCM Control Delay (s)	-	-	11.7	8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0

Intersection						
Int Delay, s/veh	3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	73	7	29	61	10	39
Future Vol, veh/h	73	7	29	61	10	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	81	8	32	68	11	43

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	89	0	217
Stage 1	-	-	-	-	85
Stage 2	-	-	-	-	132
Critical Hdwy	-	-	4.1	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.2	-	3.5
Pot Cap-1 Maneuver	-	-	1519	-	776
Stage 1	-	-	-	-	943
Stage 2	-	-	-	-	899
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1519	-	759
Mov Cap-2 Maneuver	-	-	-	-	759
Stage 1	-	-	-	-	943
Stage 2	-	-	-	-	879

Approach	EB	WB	NB
HCM Control Delay, s	0	2.4	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	925	-	-	1519	-
HCM Lane V/C Ratio	0.059	-	-	0.021	-
HCM Control Delay (s)	9.1	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Intersection	
Intersection Delay, s/veh	10.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	24	4	52	84	71	33	123	41	75	126	20
Future Vol, veh/h	6	24	4	52	84	71	33	123	41	75	126	20
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	0	0	7	3	0	0	0	0	3	0	0
Mvmt Flow	7	27	4	58	93	79	37	137	46	83	140	22
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.7	10.5	9.9	10.5
HCM LOS	A	B	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	17%	18%	25%	34%
Vol Thru, %	62%	71%	41%	57%
Vol Right, %	21%	12%	34%	9%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	197	34	207	221
LT Vol	33	6	52	75
Through Vol	123	24	84	126
RT Vol	41	4	71	20
Lane Flow Rate	219	38	230	246
Geometry Grp	1	1	1	1
Degree of Util (X)	0.292	0.057	0.32	0.335
Departure Headway (Hd)	4.798	5.41	5.014	4.913
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	742	666	711	724
Service Time	2.874	3.41	3.093	2.988
HCM Lane V/C Ratio	0.295	0.057	0.323	0.34
HCM Control Delay	9.9	8.7	10.5	10.5
HCM Lane LOS	A	A	B	B
HCM 95th-tile Q	1.2	0.2	1.4	1.5

Intersection						
Int Delay, s/veh	2.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↙	↑	↘			↗
Traffic Vol, veh/h	87	139	485	128	72	52
Future Vol, veh/h	87	139	485	128	72	52
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	2	1	0	0	0
Mvmt Flow	97	154	539	142	80	58

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	681	0	-	0	958
Stage 1	-	-	-	-	610
Stage 2	-	-	-	-	348
Critical Hdwy	4.1	-	-	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	2.2	-	-	-	3.5
Pot Cap-1 Maneuver	921	-	-	-	288
Stage 1	-	-	-	-	546
Stage 2	-	-	-	-	719
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	921	-	-	-	258
Mov Cap-2 Maneuver	-	-	-	-	258
Stage 1	-	-	-	-	489
Stage 2	-	-	-	-	719

Approach	EB	WB	SB
HCM Control Delay, s	3.6	0	13.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	921	-	-	-	498
HCM Lane V/C Ratio	0.105	-	-	-	0.116
HCM Control Delay (s)	9.4	-	-	-	13.2
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.4	-	-	-	0.4

Intersection												
Int Delay, s/veh	984.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Vol, veh/h	5	201	8	164	597	126	310	218	157	61	31	9
Future Vol, veh/h	5	201	8	164	597	126	310	218	157	61	31	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	1	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	6	223	9	182	663	140	344	242	174	68	34	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	803	0	0	232	0	0	1359	1407	228	1475	1271	663
Stage 1	-	-	-	-	-	-	240	240	-	1027	1027	-
Stage 2	-	-	-	-	-	-	1119	1167	-	448	244	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	830	-	-	1348	-	-	~ 127	~ 140	816	106	169	465
Stage 1	-	-	-	-	-	-	768	711	-	285	314	-
Stage 2	-	-	-	-	-	-	~ 253	270	-	594	708	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	830	-	-	1348	-	-	~ 80	~ 104	816	-	126	465
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 80	~ 104	-	-	126	-
Stage 1	-	-	-	-	-	-	762	705	-	283	235	-
Stage 2	-	-	-	-	-	-	~ 158	~ 202	-	304	702	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	1.5	\$ 2710.5	
HCM LOS			F	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	111	830	-	-	1348	-	-	-
HCM Lane V/C Ratio	6.857	0.007	-	-	0.135	-	-	-
HCM Control Delay (s)	\$ 2710.5	9.4	0	-	8.1	0	-	-
HCM Lane LOS	F	A	A	-	A	A	-	-
HCM 95th %tile Q(veh)	84.6	0	-	-	0.5	-	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Queues
110: SH 16 & Beacon Light Road

2045 Background Conditions (With Improvements) PM Peak Hour

01/13/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	71	132	137	176	503	615	167	977	96	101	506	44
v/c Ratio	0.68	0.36	0.28	0.48	1.09	1.19	0.49	1.20	0.12	0.97	0.69	0.06
Control Delay	68.9	54.1	1.4	41.8	118.1	139.1	21.8	140.0	0.3	109.6	41.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.9	54.1	1.4	41.8	118.1	139.1	21.8	140.0	0.3	109.6	41.8	0.1
Queue Length 50th (ft)	48	112	0	127	~550	~603	79	~1158	0	50	403	0
Queue Length 95th (ft)	#99	180	0	195	#780	#848	121	#1420	0	#180	548	0
Internal Link Dist (ft)		2558			3836			5106			1084	
Turn Bay Length (ft)	100		100	100		100	100		100	100		100
Base Capacity (vph)	105	370	488	369	463	516	360	811	788	104	738	754
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.36	0.28	0.48	1.09	1.19	0.46	1.20	0.12	0.97	0.69	0.06

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Data Back Analysis Conditions (With Improvements) PM Peak Hour
 110: SH 16 & Beacon Light Road 01/13/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	129	134	172	493	603	164	957	94	99	496	43
Future Volume (vph)	70	129	134	172	493	603	164	957	94	99	496	43
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0	9.0	9.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1710	1765	1530	1660	1782	1530	1693	1765	1485	1710	1765	1530
Flt Permitted	0.13	1.00	1.00	0.51	1.00	1.00	0.26	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	229	1765	1530	889	1782	1530	465	1765	1485	115	1765	1530
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	71	132	137	176	503	615	167	977	96	101	506	44
RTOR Reduction (vph)	0	0	108	0	0	118	0	0	52	0	0	26
Lane Group Flow (vph)	71	132	29	176	503	497	167	977	44	101	506	18
Heavy Vehicles (%)	0%	2%	0%	3%	1%	0%	1%	2%	3%	0%	2%	0%
Turn Type	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Prot
Protected Phases	1	6	6	5	2	2	3	8	8	7	4	4
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	36.5	31.5	31.5	51.0	39.0	39.0	80.2	69.0	69.0	67.8	62.8	62.8
Effective Green, g (s)	36.5	31.5	31.5	51.0	39.0	39.0	80.2	69.0	69.0	67.8	62.8	62.8
Actuated g/C Ratio	0.24	0.21	0.21	0.34	0.26	0.26	0.53	0.46	0.46	0.45	0.42	0.42
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0	9.0	9.0
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	5.0	5.0	2.0	5.0	5.0
Lane Grp Cap (vph)	105	370	321	366	463	397	340	811	683	105	738	640
v/s Ratio Prot	0.02	0.07	0.02	c0.04	0.28	c0.32	c0.04	c0.55	0.03	0.03	0.29	0.01
v/s Ratio Perm	0.14			0.12			0.23			0.40		
v/c Ratio	0.68	0.36	0.09	0.48	1.09	1.25	0.49	1.20	0.06	0.96	0.69	0.03
Uniform Delay, d1	47.4	50.6	47.7	36.9	55.5	55.5	22.1	40.5	22.5	37.2	35.6	25.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.7	0.6	0.1	0.4	67.2	132.2	0.4	103.7	0.1	74.9	3.4	0.0
Delay (s)	60.1	51.2	47.8	37.3	122.7	187.7	22.5	144.2	22.6	112.1	39.0	25.7
Level of Service	E	D	D	D	F	F	C	F	C	F	D	C
Approach Delay (s)		51.7			142.0			118.4			49.4	
Approach LOS		D			F			F			D	
Intersection Summary												
HCM 2000 Control Delay			107.9			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.20									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)			32.0			
Intersection Capacity Utilization			117.2%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Background Conditions (With Improvements) PM Peak Hour
 110: SH 16 & Beacon Light Road 01/13/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	129	134	172	493	603	164	957	94	99	496	43
Future Volume (veh/h)	70	129	134	172	493	603	164	957	94	99	496	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1772	1800	1758	1786	1800	1786	1772	1758	1800	1772	1800
Adj Flow Rate, veh/h	71	132	137	176	503	615	167	977	96	101	506	44
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	2	0	3	1	0	1	2	3	0	2	0
Cap, veh/h	105	366	315	350	464	397	333	815	685	105	752	648
Arrive On Green	0.03	0.21	0.21	0.09	0.26	0.26	0.07	0.46	0.46	0.03	0.42	0.42
Sat Flow, veh/h	1714	1772	1525	1674	1786	1525	1701	1772	1490	1714	1772	1525
Grp Volume(v), veh/h	71	132	137	176	503	615	167	977	96	101	506	44
Grp Sat Flow(s),veh/h/ln	1714	1772	1525	1674	1786	1525	1701	1772	1490	1714	1772	1525
Q Serve(g_s), s	4.9	9.6	11.7	12.2	39.0	39.0	8.3	69.0	5.6	5.0	34.5	2.6
Cycle Q Clear(g_c), s	4.9	9.6	11.7	12.2	39.0	39.0	8.3	69.0	5.6	5.0	34.5	2.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	105	366	315	350	464	397	333	815	685	105	752	648
V/C Ratio(X)	0.68	0.36	0.43	0.50	1.08	1.55	0.50	1.20	0.14	0.96	0.67	0.07
Avail Cap(c_a), veh/h	105	366	315	350	464	397	364	815	685	105	752	648
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.4	51.0	51.9	40.8	55.5	55.5	26.3	40.5	23.4	37.6	34.8	25.6
Incr Delay (d2), s/veh	13.2	0.6	0.9	0.4	66.1	260.0	0.4	101.2	0.2	74.5	3.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	4.4	4.6	5.1	26.0	43.6	3.4	52.5	2.0	4.3	15.6	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.5	51.6	52.8	41.3	121.6	315.5	26.7	141.7	23.6	112.0	37.9	25.7
LnGrp LOS	E	D	D	D	F	F	C	F	C	F	D	C
Approach Vol, veh/h		340			1294			1240			651	
Approach Delay, s/veh		54.2			202.8			117.0			48.6	
Approach LOS		D			F			F			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	46.0	19.3	72.7	20.0	38.0	14.0	78.0				
Change Period (Y+Rc), s	7.0	7.0	9.0	9.0	7.0	7.0	9.0	9.0				
Max Green Setting (Gmax), s	5.0	39.0	13.0	61.0	13.0	31.0	5.0	69.0				
Max Q Clear Time (g_c+I1), s	6.9	41.0	10.3	36.5	14.2	13.7	7.0	71.0				
Green Ext Time (p_c), s	0.0	0.0	0.1	6.8	0.0	1.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	129.8											
HCM 6th LOS	F											

Intersection						
Int Delay, s/veh	23.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	416	19	5	1263	115	22
Future Vol, veh/h	416	19	5	1263	115	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	0	0	1	5	0
Mvmt Flow	438	20	5	1329	121	23

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	458	0	1787
Stage 1	-	-	-	-	448
Stage 2	-	-	-	-	1339
Critical Hdwy	-	-	4.1	-	6.45
Critical Hdwy Stg 1	-	-	-	-	5.45
Critical Hdwy Stg 2	-	-	-	-	5.45
Follow-up Hdwy	-	-	2.2	-	3.545
Pot Cap-1 Maneuver	-	-	1114	-	~ 88
Stage 1	-	-	-	-	637
Stage 2	-	-	-	-	241
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1114	-	~ 87
Mov Cap-2 Maneuver	-	-	-	-	~ 87
Stage 1	-	-	-	-	637
Stage 2	-	-	-	-	237

Approach	EB	WB	NB
HCM Control Delay, s	0	0	\$ 316.3
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	101	-	-	1114	-
HCM Lane V/C Ratio	1.428	-	-	0.005	-
HCM Control Delay (s)	\$ 316.3	-	-	8.2	0
HCM Lane LOS	F	-	-	A	A
HCM 95th %tile Q(veh)	10.5	-	-	0	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection						
Int Delay, s/veh	1.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	36	24	188	30	25	231
Future Vol, veh/h	36	24	188	30	25	231
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	40	27	209	33	28	257

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	539	226	0	0	242
Stage 1	226	-	-	-	-
Stage 2	313	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	507	818	-	-	1336
Stage 1	816	-	-	-	-
Stage 2	746	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	495	818	-	-	1336
Mov Cap-2 Maneuver	495	-	-	-	-
Stage 1	816	-	-	-	-
Stage 2	728	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.9	0	0.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	588	1336
HCM Lane V/C Ratio	-	-	0.113	0.021
HCM Control Delay (s)	-	-	11.9	7.8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.4	0.1

Intersection

Int Delay, s/veh 129.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↑	↔	↔
Traffic Vol, veh/h	120	182	584	222	139	172
Future Vol, veh/h	120	182	584	222	139	172
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	100	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	2	2	0	0	0
Mvmt Flow	132	200	642	244	153	189

Major/Minor

	Major1	Major2	Minor1		
Conflicting Flow All	0	0	332	0	1760 232
Stage 1	-	-	-	-	232 -
Stage 2	-	-	-	-	1528 -
Critical Hdwy	-	-	4.12	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	-	-	2.218	-	3.5 3.3
Pot Cap-1 Maneuver	-	-	1227	-	~94 812
Stage 1	-	-	-	-	811 -
Stage 2	-	-	-	-	200 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1227	-	~45 812
Mov Cap-2 Maneuver	-	-	-	-	~45 -
Stage 1	-	-	-	-	811 -
Stage 2	-	-	-	-	~95 -

Approach

	EB	WB	NB
HCM Control Delay, s	0	8	\$ 571.8
HCM LOS			F

Minor Lane/Major Mvmt

	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	45	812	-	-	1227	-
HCM Lane V/C Ratio	3.394	0.233	-	-	0.523	-
HCM Control Delay (s)	\$ 1265.9	10.8	-	-	11.1	-
HCM Lane LOS	F	B	-	-	B	-
HCM 95th %tile Q(veh)	16.9	0.9	-	-	3.2	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection

Int Delay, s/veh 114.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	166	246	91	388	361	67
Future Vol, veh/h	166	246	91	388	361	67
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	184	273	101	431	401	74

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	457	954
Stage 1	-	-	-	321
Stage 2	-	-	-	633
Critical Hdwy	-	-	4.1	6.4
Critical Hdwy Stg 1	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	5.4
Follow-up Hdwy	-	-	2.2	3.5
Pot Cap-1 Maneuver	-	-	1114	~ 289
Stage 1	-	-	-	740
Stage 2	-	-	-	533
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1114	~ 255
Mov Cap-2 Maneuver	-	-	-	~ 255
Stage 1	-	-	-	740
Stage 2	-	-	-	470

Approach	EB	WB	NB
HCM Control Delay, s	0	1.6	\$ 349.9
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	284	-	-	1114	-
HCM Lane V/C Ratio	1.674	-	-	0.091	-
HCM Control Delay (s)	\$ 349.9	-	-	8.6	0
HCM Lane LOS	F	-	-	A	A
HCM 95th %tile Q(veh)	29.9	-	-	0.3	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection						
Int Delay, s/veh	9.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	218	109	265	24	35	319
Future Vol, veh/h	218	109	265	24	35	319
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	242	121	294	27	39	354

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	321	0	0	913	308
Stage 1	-	-	-	308	-
Stage 2	-	-	-	605	-
Critical Hdwy	4.1	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	3.5	3.3
Pot Cap-1 Maneuver	1250	-	-	306	737
Stage 1	-	-	-	750	-
Stage 2	-	-	-	549	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1250	-	-	242	737
Mov Cap-2 Maneuver	-	-	-	242	-
Stage 1	-	-	-	594	-
Stage 2	-	-	-	549	-

Approach	EB	WB	SB
HCM Control Delay, s	5.7	0	20.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1250	-	-	-	613
HCM Lane V/C Ratio	0.194	-	-	-	0.642
HCM Control Delay (s)	8.6	0	-	-	20.8
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.7	-	-	-	4.6

Intersection												
Int Delay, s/veh	6.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	0	72	0	0	0	470	131	0	0	16	5
Future Vol, veh/h	3	0	72	0	0	0	470	131	0	0	16	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	4	0	0	0	0
Mvmt Flow	3	0	78	0	0	0	511	142	0	0	17	5

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1184	1184	20	1223	1186	142	22	0	0	142	0	0
Stage 1	20	20	-	1164	1164	-	-	-	-	-	-	-
Stage 2	1164	1164	-	59	22	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	168	191	1064	158	190	911	1607	-	-	1453	-	-
Stage 1	1004	883	-	239	271	-	-	-	-	-	-	-
Stage 2	239	271	-	958	881	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	123	125	1064	107	124	911	1607	-	-	1453	-	-
Mov Cap-2 Maneuver	123	125	-	107	124	-	-	-	-	-	-	-
Stage 1	658	883	-	157	178	-	-	-	-	-	-	-
Stage 2	157	178	-	888	881	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.9	0	6.5	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1607	-	-	815	-	1453	-
HCM Lane V/C Ratio	0.318	-	-	0.1	-	-	-
HCM Control Delay (s)	8.3	0	-	9.9	0	0	-
HCM Lane LOS	A	A	-	A	A	A	-
HCM 95th %tile Q(veh)	1.4	-	-	0.3	-	0	-

Intersection						
Int Delay, s/veh	417					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	88	865	1163	130	180	87
Future Vol, veh/h	88	865	1163	130	180	87
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	6	2	1	2	2	12
Mvmt Flow	94	920	1237	138	191	93

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	1375	0	-	0	2414 1306
Stage 1	-	-	-	-	1306 -
Stage 2	-	-	-	-	1108 -
Critical Hdwy	4.16	-	-	-	6.42 6.32
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.254	-	-	-	3.518 3.408
Pot Cap-1 Maneuver	486	-	-	-	~ 36 186
Stage 1	-	-	-	-	254 -
Stage 2	-	-	-	-	316 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	486	-	-	-	~ 22 186
Mov Cap-2 Maneuver	-	-	-	-	~ 22 -
Stage 1	-	-	-	-	~ 153 -
Stage 2	-	-	-	-	316 -

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	\$ 3920.4
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	486	-	-	-	31
HCM Lane V/C Ratio	0.193	-	-	-	9.163
HCM Control Delay (s)	14.2	0	-	-	\$ 3920.4
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0.7	-	-	-	34.7

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	162	641	368	189	923	114	395	307	124	111	352
v/c Ratio	1.36	0.80	0.48	0.78	1.11	0.14	1.28	0.63	0.25	0.44	1.17
Control Delay	234.3	43.8	17.6	41.5	100.7	1.2	183.9	53.4	9.9	40.5	156.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	234.3	43.8	17.6	41.5	100.7	1.2	183.9	53.4	9.9	40.5	156.3
Queue Length 50th (ft)	~152	515	134	87	~990	0	~424	257	8	71	~385
Queue Length 95th (ft)	#305	687	226	#167	#1248	12	#636	364	59	118	#590
Internal Link Dist (ft)		2598			5173			1764			5156
Turn Bay Length (ft)	100		100	100		100	100		100	100	
Base Capacity (vph)	119	798	766	241	835	801	309	486	496	253	300
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.36	0.80	0.48	0.78	1.11	0.14	1.28	0.63	0.25	0.44	1.17

Intersection Summary

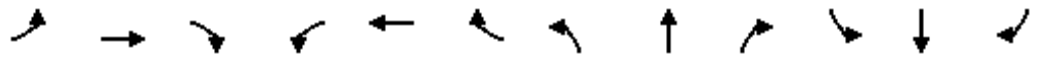
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Data Back Analysis Conditions (With Improvements) PM Peak Hour
 118: Star Road & SH 44 01/13/2023

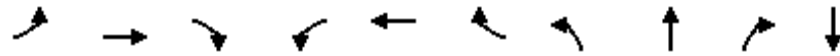


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Traffic Volume (vph)	160	635	364	187	914	113	391	304	123	110	237	112
Future Volume (vph)	160	635	364	187	914	113	391	304	123	110	237	112
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95	0.95
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1693	1782	1515	1676	1782	1530	1710	1800	1530	1660	1674	1674
Flt Permitted	0.06	1.00	1.00	0.17	1.00	1.00	0.13	1.00	1.00	0.54	1.00	1.00
Satd. Flow (perm)	110	1782	1515	293	1782	1530	232	1800	1530	940	1674	1674
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	162	641	368	189	923	114	395	307	124	111	239	113
RTOR Reduction (vph)	0	0	87	0	0	61	0	0	82	0	12	0
Lane Group Flow (vph)	162	641	281	189	923	53	395	307	42	111	340	0
Heavy Vehicles (%)	1%	1%	1%	2%	1%	0%	0%	0%	0%	3%	3%	1%
Turn Type	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	NA
Protected Phases	1	6	6	5	2	2	3	8	8	7	4	4
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	71.0	65.0	65.0	77.0	68.0	68.0	53.0	39.2	39.2	32.8	25.0	25.0
Effective Green, g (s)	71.0	65.0	65.0	77.0	68.0	68.0	53.0	39.2	39.2	32.8	25.0	25.0
Actuated g/C Ratio	0.49	0.45	0.45	0.53	0.47	0.47	0.37	0.27	0.27	0.23	0.17	0.17
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	2.0	2.5	2.5	2.0	2.5	2.5	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	119	798	679	241	835	717	309	486	413	251	288	288
v/s Ratio Prot	c0.06	0.36	0.19	0.05	c0.52	0.03	c0.19	0.17	0.03	0.02	0.20	0.20
v/s Ratio Perm	c0.61			0.37			c0.27			0.08		
v/c Ratio	1.36	0.80	0.41	0.78	1.11	0.07	1.28	0.63	0.10	0.44	1.18	1.18
Uniform Delay, d1	36.9	34.5	27.1	25.8	38.5	21.2	44.6	46.5	39.7	46.6	60.0	60.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	207.3	8.4	1.9	14.2	64.1	0.0	147.9	2.0	0.0	0.5	111.7	111.7
Delay (s)	244.2	42.9	28.9	40.0	102.6	21.2	192.5	48.5	39.7	47.0	171.7	171.7
Level of Service	F	D	C	D	F	C	F	D	D	D	F	F
Approach Delay (s)		66.4			85.4			116.1			141.8	
Approach LOS		E			F			F			F	

Intersection Summary		
HCM 2000 Control Delay	93.3	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	1.33	F
Actuated Cycle Length (s)	145.0	Sum of lost time (s)
Intersection Capacity Utilization	123.4%	24.0
Analysis Period (min)	15	ICU Level of Service
		H
c Critical Lane Group		

HCM 6th Signalized Intersection Background Conditions (With Improvements) PM Peak Hour
 118: Star Road & SH 44 01/13/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	635	364	187	914	113	391	304	123	110	237	112
Future Volume (veh/h)	160	635	364	187	914	113	391	304	123	110	237	112
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1786	1786	1786	1772	1786	1800	1800	1800	1800	1758	1758	1786
Adj Flow Rate, veh/h	162	641	368	189	923	114	395	307	124	111	239	113
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	1	1	1	2	1	0	0	0	0	3	3	1
Cap, veh/h	120	801	678	232	838	715	310	484	410	255	195	92
Arrive On Green	0.04	0.45	0.45	0.06	0.47	0.47	0.15	0.27	0.27	0.06	0.17	0.17
Sat Flow, veh/h	1701	1786	1514	1688	1786	1525	1714	1800	1525	1674	1128	533
Grp Volume(v), veh/h	162	641	368	189	923	114	395	307	124	111	0	352
Grp Sat Flow(s),veh/h/ln	1701	1786	1514	1688	1786	1525	1714	1800	1525	1674	0	1662
Q Serve(g_s), s	6.0	44.8	25.7	9.0	68.0	6.2	22.0	21.8	9.4	8.0	0.0	25.0
Cycle Q Clear(g_c), s	6.0	44.8	25.7	9.0	68.0	6.2	22.0	21.8	9.4	8.0	0.0	25.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.32
Lane Grp Cap(c), veh/h	120	801	678	232	838	715	310	484	410	255	0	287
V/C Ratio(X)	1.35	0.80	0.54	0.81	1.10	0.16	1.28	0.63	0.30	0.44	0.00	1.23
Avail Cap(c_a), veh/h	120	801	678	232	838	715	310	484	410	255	0	287
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.6	34.4	29.2	30.0	38.5	22.1	44.3	46.7	42.2	46.6	0.0	60.0
Incr Delay (d2), s/veh	202.3	8.3	3.1	18.3	62.9	0.1	146.6	2.1	0.2	0.4	0.0	129.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.0	21.2	10.0	4.7	43.8	2.3	22.0	10.1	3.6	3.4	0.0	20.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	240.0	42.7	32.3	48.3	101.4	22.2	190.9	48.8	42.3	47.0	0.0	189.6
LnGrp LOS	F	D	C	D	F	C	F	D	D	D	A	F
Approach Vol, veh/h		1171			1226			826				463
Approach Delay, s/veh		66.7			85.8			115.8				155.4
Approach LOS		E			F			F				F
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	74.0	28.0	31.0	15.0	71.0	14.0	45.0				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	6.0	68.0	22.0	25.0	9.0	65.0	8.0	39.0				
Max Q Clear Time (g_c+I1), s	8.0	70.0	24.0	27.0	11.0	46.8	10.0	23.8				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	4.5	0.0	1.2				
Intersection Summary												
HCM 6th Ctrl Delay												95.2
HCM 6th LOS												F



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	71	782	58	108	1282	293	113	116	158	514
v/c Ratio	0.68	0.80	0.07	0.50	1.32	0.34	0.35	0.21	0.28	1.36
Control Delay	50.6	35.4	3.9	20.7	180.2	16.0	44.2	40.0	6.6	218.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.6	35.4	3.9	20.7	180.2	16.0	44.2	40.0	6.6	218.9
Queue Length 50th (ft)	26	600	0	41	~1613	121	86	85	0	~657
Queue Length 95th (ft)	#97	794	22	68	#1880	186	147	139	54	#890
Internal Link Dist (ft)		5173			3517			675		5173
Turn Bay Length (ft)	100		100	100		100	100		100	
Base Capacity (vph)	105	974	862	215	974	863	323	541	560	377
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.80	0.07	0.50	1.32	0.34	0.35	0.21	0.28	1.36

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Data Back Analysis Conditions (With Improvements) PM Peak Hour
 119: Plummer Road & SH 44 01/13/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	67	743	55	103	1218	278	107	110	150	316	78	94	
Future Volume (vph)	67	743	55	103	1218	278	107	110	150	316	78	94	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0		5.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00		
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		0.97		
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		0.97		
Satd. Flow (prot)	1710	1782	1530	1710	1782	1530	1710	1765	1471		1678		
Flt Permitted	0.05	1.00	1.00	0.16	1.00	1.00	0.59	1.00	1.00		0.70		
Satd. Flow (perm)	88	1782	1530	290	1782	1530	1055	1765	1471		1214		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	71	782	58	108	1282	293	113	116	158	333	82	99	
RTOR Reduction (vph)	0	0	26	0	0	27	0	0	110	0	6	0	
Lane Group Flow (vph)	71	782	32	108	1282	266	113	116	48	0	508	0	
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	2%	4%	1%	0%	3%	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA		
Protected Phases	1	6		5	2			4			8		
Permitted Phases	6		6	2		2	4		4	8			
Actuated Green, G (s)	87.0	82.0	82.0	87.0	82.0	82.0	46.0	46.0	46.0		46.0		
Effective Green, g (s)	87.0	82.0	82.0	87.0	82.0	82.0	46.0	46.0	46.0		46.0		
Actuated g/C Ratio	0.58	0.55	0.55	0.58	0.55	0.55	0.31	0.31	0.31		0.31		
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0		5.0		
Vehicle Extension (s)	2.5	4.0	4.0	2.5	4.0	4.0	2.5	2.5	2.5		2.5		
Lane Grp Cap (vph)	105	974	836	215	974	836	323	541	451		372		
v/s Ratio Prot	c0.02	0.44		0.02	c0.72			0.07					
v/s Ratio Perm	0.37		0.02	0.27		0.17	0.11		0.03		c0.42		
v/c Ratio	0.68	0.80	0.04	0.50	1.32	0.32	0.35	0.21	0.11		1.37		
Uniform Delay, d1	34.9	27.5	15.7	22.6	34.0	18.7	40.4	38.6	37.3		52.0		
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00		
Incremental Delay, d2	14.5	5.1	0.0	1.3	149.6	0.3	0.5	0.1	0.1		181.5		
Delay (s)	49.4	32.6	15.8	24.0	183.6	19.0	40.9	38.7	37.4		233.5		
Level of Service	D	C	B	C	F	B	D	D	D		F		
Approach Delay (s)		32.8			144.7			38.8			233.5		
Approach LOS		C			F			D			F		
Intersection Summary													
HCM 2000 Control Delay			116.9									HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio			1.31										
Actuated Cycle Length (s)			150.0									Sum of lost time (s)	17.0
Intersection Capacity Utilization			121.5%									ICU Level of Service	H
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Background Conditions (With Improvements) PM Peak Hour
 119: Plummer Road & SH 44 01/13/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	67	743	55	103	1218	278	107	110	150	316	78	94	
Future Volume (veh/h)	67	743	55	103	1218	278	107	110	150	316	78	94	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No			No			No			No		
Adj Sat Flow, veh/h/ln	1800	1786	1800	1800	1786	1800	1800	1772	1744	1786	1800	1758	
Adj Flow Rate, veh/h	71	782	58	108	1282	293	113	116	158	333	82	99	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	0	1	0	0	1	0	0	2	4	1	0	3	
Cap, veh/h	102	975	833	233	978	835	406	544	454	251	52	63	
Arrive On Green	0.03	0.55	0.55	0.03	0.55	0.55	0.31	0.31	0.31	0.31	0.31	0.31	
Sat Flow, veh/h	1714	1786	1525	1714	1786	1525	1222	1772	1478	689	170	205	
Grp Volume(v), veh/h	71	782	58	108	1282	293	113	116	158	514	0	0	
Grp Sat Flow(s),veh/h/ln	1714	1786	1525	1714	1786	1525	1222	1772	1478	1063	0	0	
Q Serve(g_s), s	2.7	53.0	2.7	4.2	82.0	16.1	0.0	7.3	12.4	38.7	0.0	0.0	
Cycle Q Clear(g_c), s	2.7	53.0	2.7	4.2	82.0	16.1	11.1	7.3	12.4	46.0	0.0	0.0	
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.65		0.19	
Lane Grp Cap(c), veh/h	102	975	833	233	978	835	406	544	454	366	0	0	
V/C Ratio(X)	0.69	0.80	0.07	0.46	1.31	0.35	0.28	0.21	0.35	1.40	0.00	0.00	
Avail Cap(c_a), veh/h	105	978	835	233	978	835	406	544	454	366	0	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	
Uniform Delay (d), s/veh	36.3	27.5	16.1	25.3	33.9	19.0	39.8	38.5	40.2	57.6	0.0	0.0	
Incr Delay (d2), s/veh	16.1	5.1	0.0	1.1	147.2	0.4	0.3	0.1	0.3	197.3	0.0	0.0	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	1.9	23.6	1.0	1.7	74.4	5.9	3.3	3.2	4.6	34.2	0.0	0.0	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	52.4	32.6	16.1	26.4	181.1	19.3	40.1	38.6	40.6	254.9	0.0	0.0	
LnGrp LOS	D	C	B	C	F	B	D	D	D	F	A	A	
Approach Vol, veh/h					1683					387			514
Approach Delay, s/veh					143.0					39.8			254.9
Approach LOS					F					D			F
Timer - Assigned Phs	1	2	4		5	6	8						
Phs Duration (G+Y+Rc), s	10.7	88.0	51.0		11.0	87.7	51.0						
Change Period (Y+Rc), s	6.0	6.0	5.0		6.0	6.0	5.0						
Max Green Setting (Gmax), s	5.0	82.0	46.0		5.0	82.0	46.0						
Max Q Clear Time (g_c+I1), s	4.7	84.0	14.4		6.2	55.0	48.0						
Green Ext Time (p_c), s	0.0	0.0	1.2		0.0	9.5	0.0						
Intersection Summary													
HCM 6th Ctrl Delay					119.4								
HCM 6th LOS					F								



Appendix O
Year 2045 Mitigated
Background (with Select
Roadway Improvements)
Traffic Operation Worksheets

Queues
109: Pollard Road & Beacon Light Road

2045 Background (With Imp) Mit AM Peak Hour

01/13/2023



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	3	468	44	156	87	10	209	126	72
v/c Ratio	0.01	0.69	0.13	0.22	0.12	0.03	0.51	0.35	0.14
Control Delay	7.7	21.1	8.7	11.7	0.7	13.4	12.5	16.5	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.7	21.1	8.7	11.7	0.7	13.4	12.5	16.5	12.2
Queue Length 50th (ft)	1	89	6	24	0	2	13	23	7
Queue Length 95th (ft)	4	#299	22	83	5	11	68	68	43
Internal Link Dist (ft)		3919		2558			3989		3904
Turn Bay Length (ft)	100		100		100	100		100	
Base Capacity (vph)	565	942	347	952	944	385	807	364	799
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.50	0.13	0.16	0.09	0.03	0.26	0.35	0.09

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Background (With Imp) Mit AM Peak Hour
 109: Pollard Road & Beacon Light Road

01/13/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	416	5	40	140	78	9	48	140	113	39	26
Future Volume (vph)	3	416	5	40	140	78	9	48	140	113	39	26
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.89		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1710	1745		1598	1667	1530	1710	1563		1710	1691	
Flt Permitted	0.66	1.00		0.29	1.00	1.00	0.71	1.00		0.44	1.00	
Satd. Flow (perm)	1184	1745		481	1667	1530	1278	1563		797	1691	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	3	462	6	44	156	87	10	53	156	126	43	29
RTOR Reduction (vph)	0	1	0	0	0	55	0	124	0	0	21	0
Lane Group Flow (vph)	3	467	0	44	156	32	10	85	0	126	51	0
Heavy Vehicles (%)	0%	3%	0%	7%	8%	0%	0%	0%	3%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	19.8	19.1		21.4	19.9	19.9	11.8	11.1		18.0	14.2	
Effective Green, g (s)	19.8	19.1		21.4	19.9	19.9	11.8	11.1		18.0	14.2	
Actuated g/C Ratio	0.37	0.36		0.40	0.37	0.37	0.22	0.21		0.34	0.27	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	445	622		223	620	569	287	324		332	448	
v/s Ratio Prot	0.00	c0.27		c0.01	0.09		0.00	0.05		c0.03	0.03	
v/s Ratio Perm	0.00			0.07		0.02	0.01			c0.10		
v/c Ratio	0.01	0.75		0.20	0.25	0.06	0.03	0.26		0.38	0.11	
Uniform Delay, d1	10.6	15.1		10.6	11.6	10.8	16.3	17.8		12.9	14.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	5.1		0.4	0.2	0.0	0.0	0.4		0.7	0.1	
Delay (s)	10.6	20.2		11.0	11.9	10.8	16.4	18.2		13.6	15.0	
Level of Service	B	C		B	B	B	B	B		B	B	
Approach Delay (s)		20.2			11.4			18.1			14.1	
Approach LOS		C			B			B			B	

Intersection Summary

HCM 2000 Control Delay	16.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	53.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
109: Pollard Road & Beacon Light Road

2045 Background (With Imp) Mit AM Peak Hour

01/13/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↖	↖	↗		↖	↗	
Traffic Volume (veh/h)	3	416	5	40	140	78	9	48	140	113	39	26
Future Volume (veh/h)	3	416	5	40	140	78	9	48	140	113	39	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1758	1800	1702	1688	1800	1800	1800	1758	1800	1800	1800
Adj Flow Rate, veh/h	3	462	6	44	156	87	10	53	156	126	43	29
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	3	0	7	8	0	0	0	3	0	0	0
Cap, veh/h	501	562	7	290	618	559	414	73	216	358	253	171
Arrive On Green	0.00	0.32	0.32	0.05	0.37	0.37	0.01	0.18	0.18	0.08	0.25	0.25
Sat Flow, veh/h	1714	1731	22	1621	1688	1525	1714	402	1184	1714	1002	676
Grp Volume(v), veh/h	3	0	468	44	156	87	10	0	209	126	0	72
Grp Sat Flow(s),veh/h/ln	1714	0	1754	1621	1688	1525	1714	0	1587	1714	0	1678
Q Serve(g_s), s	0.1	0.0	12.2	0.9	3.2	1.9	0.2	0.0	6.1	2.8	0.0	1.7
Cycle Q Clear(g_c), s	0.1	0.0	12.2	0.9	3.2	1.9	0.2	0.0	6.1	2.8	0.0	1.7
Prop In Lane	1.00		0.01	1.00		1.00	1.00		0.75	1.00		0.40
Lane Grp Cap(c), veh/h	501	0	569	290	618	559	414	0	289	358	0	424
V/C Ratio(X)	0.01	0.00	0.82	0.15	0.25	0.16	0.02	0.00	0.72	0.35	0.00	0.17
Avail Cap(c_a), veh/h	671	0	798	383	768	694	569	0	620	392	0	655
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.2	0.0	15.4	11.6	10.9	10.5	16.1	0.0	19.0	14.2	0.0	14.4
Incr Delay (d2), s/veh	0.0	0.0	4.9	0.2	0.2	0.1	0.0	0.0	3.4	0.6	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	4.8	0.3	1.0	0.6	0.1	0.0	2.3	1.0	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.2	0.0	20.2	11.9	11.2	10.7	16.1	0.0	22.4	14.8	0.0	14.6
LnGrp LOS	B	A	C	B	B	B	B	A	C	B	A	B
Approach Vol, veh/h		471			287			219			198	
Approach Delay, s/veh		20.2			11.1			22.1			14.7	
Approach LOS		C			B			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.6	13.5	6.8	20.5	5.1	17.0	4.7	22.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.1	19.3	5.1	22.5	5.1	19.3	5.1	22.5				
Max Q Clear Time (g_c+I1), s	4.8	8.1	2.9	14.2	2.2	3.7	2.1	5.2				
Green Ext Time (p_c), s	0.0	0.9	0.0	1.9	0.0	0.2	0.0	1.0				
Intersection Summary												
HCM 6th Ctrl Delay			17.4									
HCM 6th LOS			B									

Queues
110: SH 16 & Beacon Light Road

2045 Background (With Imp) Mit AM Peak Hour
01/13/2023



























Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	23	277	271	149	96	108	94	378	200	270	959	7
v/c Ratio	0.07	0.73	0.50	0.54	0.22	0.16	0.47	0.42	0.34	0.57	0.77	0.01
Control Delay	24.7	52.2	7.0	34.4	32.4	0.5	25.4	34.7	2.7	22.2	36.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.7	52.2	7.0	34.4	32.4	0.5	25.4	34.7	2.7	22.2	36.0	0.0
Queue Length 50th (ft)	11	189	0	77	49	0	33	112	0	108	318	0
Queue Length 95th (ft)	29	282	58	128	105	0	70	176	18	188	443	0
Internal Link Dist (ft)		2558			3836			5106			1084	
Turn Bay Length (ft)	100		100	100		100	100		100	100		100
Base Capacity (vph)	347	532	654	277	460	685	212	1056	655	513	1330	727
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.52	0.41	0.54	0.21	0.16	0.44	0.36	0.31	0.53	0.72	0.01

Intersection Summary

HCM Signalized Intersection Capacity Analysis 2045 Background (With Imp) Mit AM Peak Hour
 110: SH 16 & Beacon Light Road

01/13/2023

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	21	249	244	134	86	97	85	340	180	243	863	6	
Future Volume (vph)	21	249	244	134	86	97	85	340	180	243	863	6	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0	9.0	9.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1710	1782	1530	1644	1374	1485	1710	3420	1530	1693	3288	1530	
Flt Permitted	0.69	1.00	1.00	0.33	1.00	1.00	0.20	1.00	1.00	0.39	1.00	1.00	
Satd. Flow (perm)	1251	1782	1530	570	1374	1485	367	3420	1530	697	3288	1530	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	23	277	271	149	96	108	94	378	200	270	959	7	
RTOR Reduction (vph)	0	0	205	0	0	76	0	0	146	0	0	5	
Lane Group Flow (vph)	23	277	66	149	96	32	94	378	54	270	959	2	
Heavy Vehicles (%)	0%	1%	0%	4%	31%	3%	0%	0%	0%	1%	4%	0%	
Turn Type	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Prot	
Protected Phases	1	6	6	5	2	2	3	8	8	7	4	4	
Permitted Phases	6			2			8			4			
Actuated Green, G (s)	29.1	27.3	27.3	41.7	33.6	33.6	35.7	30.5	30.5	54.3	40.1	40.1	
Effective Green, g (s)	29.1	27.3	27.3	41.7	33.6	33.6	35.7	30.5	30.5	54.3	40.1	40.1	
Actuated g/C Ratio	0.26	0.24	0.24	0.37	0.30	0.30	0.32	0.27	0.27	0.48	0.36	0.36	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0	9.0	9.0	
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	5.0	5.0	2.0	5.0	5.0	
Lane Grp Cap (vph)	330	431	370	288	409	442	178	925	414	466	1169	544	
v/s Ratio Prot	0.00	c0.16	0.04	c0.04	0.07	0.02	0.02	0.11	0.04	c0.08	c0.29	0.00	
v/s Ratio Perm	0.02			0.15			0.14			0.20			
v/c Ratio	0.07	0.64	0.18	0.52	0.23	0.07	0.53	0.41	0.13	0.58	0.82	0.00	
Uniform Delay, d1	31.4	38.3	33.8	25.7	29.8	28.4	28.3	33.7	31.1	18.7	33.0	23.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	3.3	0.2	0.7	0.3	0.1	1.3	0.6	0.3	1.1	5.3	0.0	
Delay (s)	31.5	41.6	34.0	26.4	30.1	28.4	29.6	34.3	31.4	19.7	38.3	23.4	
Level of Service	C	D	C	C	C	C	C	C	C	B	D	C	
Approach Delay (s)		37.6			28.0			32.8			34.2		
Approach LOS		D			C			C			C		
Intersection Summary													
HCM 2000 Control Delay			33.8									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.77										
Actuated Cycle Length (s)			112.7									Sum of lost time (s)	32.0
Intersection Capacity Utilization			78.5%									ICU Level of Service	D
Analysis Period (min)			15										
c	Critical Lane Group												

HCM 6th Signalized Intersection Summary
110: SH 16 & Beacon Light Road

2045 Background (With Imp) Mit AM Peak Hour

01/13/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	249	244	134	86	97	85	340	180	243	863	6
Future Volume (veh/h)	21	249	244	134	86	97	85	340	180	243	863	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1786	1800	1744	1365	1758	1800	1800	1800	1786	1744	1800
Adj Flow Rate, veh/h	23	277	271	149	96	108	94	378	200	270	959	7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	1	0	4	31	3	0	0	0	1	4	0
Cap, veh/h	355	373	319	249	357	390	217	960	428	451	1182	544
Arrive On Green	0.02	0.21	0.21	0.08	0.26	0.26	0.05	0.28	0.28	0.13	0.36	0.36
Sat Flow, veh/h	1714	1786	1525	1661	1365	1490	1714	3420	1525	1701	3313	1525
Grp Volume(v), veh/h	23	277	271	149	96	108	94	378	200	270	959	7
Grp Sat Flow(s),veh/h/ln	1714	1786	1525	1661	1365	1490	1714	1710	1525	1701	1657	1525
Q Serve(g_s), s	1.1	15.3	18.0	7.4	5.9	6.1	4.1	9.4	11.4	11.5	27.6	0.3
Cycle Q Clear(g_c), s	1.1	15.3	18.0	7.4	5.9	6.1	4.1	9.4	11.4	11.5	27.6	0.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	355	373	319	249	357	390	217	960	428	451	1182	544
V/C Ratio(X)	0.06	0.74	0.85	0.60	0.27	0.28	0.43	0.39	0.47	0.60	0.81	0.01
Avail Cap(c_a), veh/h	396	526	449	249	441	481	239	1008	449	521	1323	609
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.4	39.0	40.0	30.6	30.8	30.9	26.8	30.6	31.3	21.8	30.6	21.9
Incr Delay (d2), s/veh	0.0	3.5	10.5	2.8	0.4	0.4	0.5	0.6	1.7	0.7	4.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	7.0	7.6	3.1	2.0	0.0	1.7	3.9	4.4	4.6	11.5	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.5	42.4	50.5	33.4	31.2	31.3	27.3	31.2	33.0	22.4	35.0	21.9
LnGrp LOS	C	D	D	C	C	C	C	C	C	C	D	C
Approach Vol, veh/h		571			353			672			1236	
Approach Delay, s/veh		45.8			32.1			31.2			32.2	
Approach LOS		D			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.4	34.5	14.7	46.5	15.0	29.0	22.7	38.5				
Change Period (Y+Rc), s	7.0	7.0	9.0	9.0	7.0	7.0	9.0	9.0				
Max Green Setting (Gmax), s	5.0	34.0	7.0	42.0	8.0	31.0	18.0	31.0				
Max Q Clear Time (g_c+I1), s	3.1	8.1	6.1	29.6	9.4	20.0	13.5	13.4				
Green Ext Time (p_c), s	0.0	0.9	0.0	8.0	0.0	2.0	0.2	5.4				
Intersection Summary												
HCM 6th Ctrl Delay			34.7									
HCM 6th LOS			C									

Queues
111: Palmer Lane & Beacon Light Road

2045 Background (With Imp) Mit AM Peak Hour

01/13/2023



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1067	21	27	520	30	42
v/c Ratio	0.60	0.03	0.07	0.27	0.10	0.15
Control Delay	8.3	3.5	3.5	4.2	16.5	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.3	3.5	3.5	4.2	16.5	8.6
Queue Length 50th (ft)	52	0	2	20	5	0
Queue Length 95th (ft)	171	9	7	38	26	21
Internal Link Dist (ft)	3836			6200		
Turn Bay Length (ft)		100	100		100	100
Base Capacity (vph)	2291	1041	374	3057	886	715
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.02	0.07	0.17	0.03	0.06

Intersection Summary

HCM Signalized Intersection Capacity Analysis 2045 Background (With Imp) Mit AM Peak Hour
 111: Palmer Lane & Beacon Light Road

01/13/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	960	19	24	468	27	38
Future Volume (vph)	960	19	24	468	27	38
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3386	1530	1710	3420	1710	1342
Flt Permitted	1.00	1.00	0.17	1.00	0.95	1.00
Satd. Flow (perm)	3386	1530	306	3420	1710	1342
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1067	21	27	520	30	42
RTOR Reduction (vph)	0	9	0	0	0	35
Lane Group Flow (vph)	1067	12	27	520	30	7
Heavy Vehicles (%)	1%	0%	0%	0%	0%	14%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	19.0	19.0	24.2	24.2	6.5	6.5
Effective Green, g (s)	19.0	19.0	24.2	24.2	6.5	6.5
Actuated g/C Ratio	0.48	0.48	0.61	0.61	0.16	0.16
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1620	732	211	2084	279	219
v/s Ratio Prot	c0.32		0.00	c0.15	c0.02	
v/s Ratio Perm		0.01	0.08			0.01
v/c Ratio	0.66	0.02	0.13	0.25	0.11	0.03
Uniform Delay, d1	7.9	5.4	4.2	3.6	14.1	14.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.0	0.3	0.1	0.2	0.1
Delay (s)	8.9	5.4	4.5	3.6	14.3	14.0
Level of Service	A	A	A	A	B	B
Approach Delay (s)	8.8			3.7	14.1	
Approach LOS	A			A	B	

Intersection Summary

HCM 2000 Control Delay	7.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	39.7	Sum of lost time (s)	13.5
Intersection Capacity Utilization	39.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
 111: Palmer Lane & Beacon Light Road

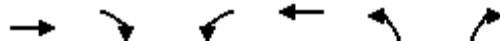
2045 Background (With Imp) Mit AM Peak Hour
 01/13/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↵	↑↑	↵	↑
Traffic Volume (veh/h)	960	19	24	468	27	38
Future Volume (veh/h)	960	19	24	468	27	38
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1786	1800	1800	1800	1800	1603
Adj Flow Rate, veh/h	1067	21	27	520	30	42
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	1	0	0	0	0	14
Cap, veh/h	1578	709	367	2120	233	184
Arrive On Green	0.47	0.47	0.03	0.62	0.14	0.14
Sat Flow, veh/h	3483	1525	1714	3510	1714	1359
Grp Volume(v), veh/h	1067	21	27	520	30	42
Grp Sat Flow(s),veh/h/ln	1697	1525	1714	1710	1714	1359
Q Serve(g_s), s	9.0	0.3	0.3	2.5	0.6	1.0
Cycle Q Clear(g_c), s	9.0	0.3	0.3	2.5	0.6	1.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1578	709	367	2120	233	184
V/C Ratio(X)	0.68	0.03	0.07	0.25	0.13	0.23
Avail Cap(c_a), veh/h	2165	973	544	3064	838	664
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.7	5.3	5.5	3.1	14.0	14.2
Incr Delay (d2), s/veh	0.5	0.0	0.1	0.1	0.2	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.1	0.1	0.3	0.2	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	8.2	5.4	5.6	3.2	14.3	14.8
LnGrp LOS	A	A	A	A	B	B
Approach Vol, veh/h	1088			547	72	
Approach Delay, s/veh	8.1			3.3	14.6	
Approach LOS	A			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		9.5	5.7	21.6		27.3
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		18.0	5.0	23.5		33.0
Max Q Clear Time (g_c+I1), s		3.0	2.3	11.0		4.5
Green Ext Time (p_c), s		0.1	0.0	6.1		3.8
Intersection Summary						
HCM 6th Ctrl Delay			6.9			
HCM 6th LOS			A			

Queues
113: Star Road & Floating Feather Road

2045 Background (With Imp) Mit AM Peak Hour
01/13/2023



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	206	247	336	83	112	156
v/c Ratio	0.47	0.44	0.52	0.08	0.34	0.37
Control Delay	17.7	5.1	8.1	4.3	19.2	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.7	5.1	8.1	4.3	19.2	6.7
Queue Length 50th (ft)	42	0	33	7	23	0
Queue Length 95th (ft)	95	39	81	22	65	37
Internal Link Dist (ft)	2600			1170	5156	
Turn Bay Length (ft)		100	100		100	
Base Capacity (vph)	766	802	672	1441	727	745
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.31	0.50	0.06	0.15	0.21
Intersection Summary						

HCM Signalized Intersection Capacity Analysis 2045 Background (With Imp) Mit AM Peak Hour
 113: Star Road & Floating Feather Road

01/13/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	185	222	302	75	101	140
Future Volume (vph)	185	222	302	75	101	140
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1748	1515	1644	1800	1660	1500
Flt Permitted	1.00	1.00	0.45	1.00	0.95	1.00
Satd. Flow (perm)	1748	1515	770	1800	1660	1500
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	206	247	336	83	112	156
RTOR Reduction (vph)	0	183	0	0	0	125
Lane Group Flow (vph)	206	64	336	83	112	31
Heavy Vehicles (%)	3%	1%	4%	0%	3%	2%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	10.9	10.9	24.7	24.7	8.4	8.4
Effective Green, g (s)	10.9	10.9	24.7	24.7	8.4	8.4
Actuated g/C Ratio	0.26	0.26	0.59	0.59	0.20	0.20
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	452	392	644	1056	331	299
v/s Ratio Prot	0.12		c0.12	0.05	c0.07	
v/s Ratio Perm		0.04	c0.19			0.02
v/c Ratio	0.46	0.16	0.52	0.08	0.34	0.10
Uniform Delay, d1	13.1	12.1	4.9	3.8	14.5	13.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.2	0.8	0.0	0.6	0.2
Delay (s)	13.8	12.3	5.6	3.8	15.1	13.9
Level of Service	B	B	A	A	B	B
Approach Delay (s)	13.0			5.3	14.4	
Approach LOS	B			A	B	

Intersection Summary			
HCM 2000 Control Delay	10.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	42.1	Sum of lost time (s)	13.5
Intersection Capacity Utilization	45.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
113: Star Road & Floating Feather Road

2045 Background (With Imp) Mit AM Peak Hour

01/13/2023

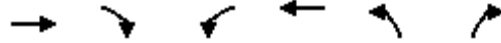


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (veh/h)	185	222	302	75	101	140
Future Volume (veh/h)	185	222	302	75	101	140
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1758	1786	1744	1800	1758	1772
Adj Flow Rate, veh/h	206	247	336	83	112	156
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	1	4	0	3	2
Cap, veh/h	436	375	660	1022	289	259
Arrive On Green	0.25	0.25	0.19	0.57	0.17	0.17
Sat Flow, veh/h	1758	1514	1661	1800	1674	1502
Grp Volume(v), veh/h	206	247	336	83	112	156
Grp Sat Flow(s),veh/h/ln	1758	1514	1661	1800	1674	1502
Q Serve(g_s), s	3.5	5.1	4.4	0.7	2.1	3.3
Cycle Q Clear(g_c), s	3.5	5.1	4.4	0.7	2.1	3.3
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	436	375	660	1022	289	259
V/C Ratio(X)	0.47	0.66	0.51	0.08	0.39	0.60
Avail Cap(c_a), veh/h	912	786	847	1713	869	779
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.1	11.7	6.2	3.4	12.7	13.2
Incr Delay (d2), s/veh	0.8	2.0	0.6	0.0	0.8	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	1.5	0.9	0.1	0.7	1.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	11.9	13.7	6.8	3.4	13.6	15.5
LnGrp LOS	B	B	A	A	B	B
Approach Vol, veh/h	453			419	268	
Approach Delay, s/veh	12.9			6.1	14.7	
Approach LOS	B			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		10.5	11.1	13.1		24.2
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		18.0	10.5	18.0		33.0
Max Q Clear Time (g_c+I1), s		5.3	6.4	7.1		2.7
Green Ext Time (p_c), s		0.7	0.4	1.6		0.4
Intersection Summary						
HCM 6th Ctrl Delay			10.8			
HCM 6th LOS			B			

Queues
114: Plummer Road & Floating Feather Road

2045 Background (With Imp) Mit AM Peak Hour

01/13/2023



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	213	348	43	98	98	67
v/c Ratio	0.36	0.47	0.09	0.14	0.23	0.15
Control Delay	11.0	4.0	4.9	5.2	13.8	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.0	4.0	4.9	5.2	13.8	6.0
Queue Length 50th (ft)	17	0	3	7	9	0
Queue Length 95th (ft)	79	39	13	24	52	23
Internal Link Dist (ft)	3891			1279	5173	
Turn Bay Length (ft)		100	100		100	
Base Capacity (vph)	1115	1101	463	1449	1088	1026
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.32	0.09	0.07	0.09	0.07

Intersection Summary

HCM Signalized Intersection Capacity Analysis 2045 Background (With Imp) Mit AM Peak Hour
 114: Plummer Road & Floating Feather Road

01/13/2023



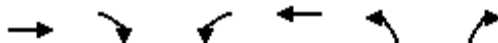
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↖	↑	↘	↗
Traffic Volume (vph)	198	324	40	91	91	62
Future Volume (vph)	198	324	40	91	91	62
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1748	1530	1598	1698	1660	1530
Flt Permitted	1.00	1.00	0.44	1.00	0.95	1.00
Satd. Flow (perm)	1748	1530	736	1698	1660	1530
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	213	348	43	98	98	67
RTOR Reduction (vph)	0	239	0	0	0	51
Lane Group Flow (vph)	213	109	43	98	98	16
Heavy Vehicles (%)	3%	0%	7%	6%	3%	0%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	10.5	10.5	16.4	16.4	8.1	8.1
Effective Green, g (s)	10.5	10.5	16.4	16.4	8.1	8.1
Actuated g/C Ratio	0.31	0.31	0.49	0.49	0.24	0.24
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	547	479	396	831	401	369
v/s Ratio Prot	c0.12		0.00	c0.06	c0.06	
v/s Ratio Perm		0.07	0.05			0.01
v/c Ratio	0.39	0.23	0.11	0.12	0.24	0.04
Uniform Delay, d1	9.0	8.5	4.8	4.6	10.2	9.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.2	0.1	0.1	0.3	0.0
Delay (s)	9.5	8.7	4.9	4.7	10.6	9.8
Level of Service	A	A	A	A	B	A
Approach Delay (s)	9.0			4.8	10.2	
Approach LOS	A			A	B	

Intersection Summary			
HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	33.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	32.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
114: Plummer Road & Floating Feather Road

2045 Background (With Imp) Mit AM Peak Hour

01/13/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (veh/h)	198	324	40	91	91	62
Future Volume (veh/h)	198	324	40	91	91	62
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1758	1800	1702	1716	1758	1800
Adj Flow Rate, veh/h	213	348	43	98	98	67
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	0	7	6	3	0
Cap, veh/h	576	499	515	908	282	257
Arrive On Green	0.33	0.33	0.05	0.53	0.17	0.17
Sat Flow, veh/h	1758	1525	1621	1716	1674	1525
Grp Volume(v), veh/h	213	348	43	98	98	67
Grp Sat Flow(s),veh/h/ln	1758	1525	1621	1716	1674	1525
Q Serve(g_s), s	2.8	5.9	0.4	0.8	1.5	1.1
Cycle Q Clear(g_c), s	2.8	5.9	0.4	0.8	1.5	1.1
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	576	499	515	908	282	257
V/C Ratio(X)	0.37	0.70	0.08	0.11	0.35	0.26
Avail Cap(c_a), veh/h	1064	924	706	1587	1042	949
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.7	8.7	5.1	3.5	10.9	10.8
Incr Delay (d2), s/veh	0.4	1.8	0.1	0.1	0.7	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.4	0.1	0.1	0.5	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	8.0	10.5	5.2	3.5	11.7	11.3
LnGrp LOS	A	B	A	A	B	B
Approach Vol, veh/h	561			141	165	
Approach Delay, s/veh	9.6			4.0	11.5	
Approach LOS	A			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		9.5	6.0	14.2		20.2
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		18.5	5.0	18.0		27.5
Max Q Clear Time (g_c+I1), s		3.5	2.4	7.9		2.8
Green Ext Time (p_c), s		0.4	0.0	1.9		0.5
Intersection Summary						
HCM 6th Ctrl Delay			9.0			
HCM 6th LOS			A			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	64	1161	485	53	163	135
v/c Ratio	0.17	0.65	0.36	0.08	0.41	0.32
Control Delay	6.0	8.9	10.8	4.3	18.1	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.0	8.9	10.8	4.3	18.1	6.0
Queue Length 50th (ft)	6	82	45	0	32	0
Queue Length 95th (ft)	21	160	86	17	79	31
Internal Link Dist (ft)		3717	2513		4604	
Turn Bay Length (ft)	200			150	100	
Base Capacity (vph)	384	2325	1527	718	805	709
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.50	0.32	0.07	0.20	0.19

Intersection Summary

HCM Signalized Intersection Capacity Analysis 2045 Background (With Imp) Mit AM Peak Hour
 117: SH 44 & Can Ada Road

01/13/2023



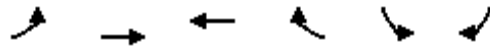
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	60	1091	456	50	153	127
Future Volume (vph)	60	1091	456	50	153	127
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1326	3320	3288	1485	1710	1354
Flt Permitted	0.38	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	524	3320	3288	1485	1710	1354
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	64	1161	485	53	163	135
RTOR Reduction (vph)	0	0	0	32	0	105
Lane Group Flow (vph)	64	1161	485	21	163	30
Heavy Vehicles (%)	29%	3%	4%	3%	0%	13%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	24.1	24.1	16.9	16.9	9.5	9.5
Effective Green, g (s)	24.1	24.1	16.9	16.9	9.5	9.5
Actuated g/C Ratio	0.57	0.57	0.40	0.40	0.22	0.22
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	347	1878	1304	589	381	301
v/s Ratio Prot	0.01	c0.35	0.15		c0.10	
v/s Ratio Perm	0.09			0.01		0.02
v/c Ratio	0.18	0.62	0.37	0.04	0.43	0.10
Uniform Delay, d1	4.5	6.2	9.1	7.9	14.2	13.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.6	0.2	0.0	0.8	0.1
Delay (s)	4.7	6.8	9.3	7.9	15.0	13.3
Level of Service	A	A	A	A	B	B
Approach Delay (s)		6.7	9.1		14.2	
Approach LOS		A	A		B	

Intersection Summary			
HCM 2000 Control Delay	8.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	42.6	Sum of lost time (s)	13.5
Intersection Capacity Utilization	48.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
117: SH 44 & Can Ada Road

2045 Background (With Imp) Mit AM Peak Hour

01/13/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	60	1091	456	50	153	127	
Future Volume (veh/h)	60	1091	456	50	153	127	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1393	1758	1744	1758	1800	1617	
Adj Flow Rate, veh/h	64	1161	485	53	163	135	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	
Percent Heavy Veh, %	29	3	4	3	0	13	
Cap, veh/h	468	1838	1144	514	300	240	
Arrive On Green	0.07	0.55	0.35	0.35	0.17	0.17	
Sat Flow, veh/h	1327	3428	3400	1490	1714	1371	
Grp Volume(v), veh/h	64	1161	485	53	163	135	
Grp Sat Flow(s),veh/h/ln	1327	1670	1657	1490	1714	1371	
Q Serve(g_s), s	0.9	7.8	3.7	0.8	2.8	3.0	
Cycle Q Clear(g_c), s	0.9	7.8	3.7	0.8	2.8	3.0	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	468	1838	1144	514	300	240	
V/C Ratio(X)	0.14	0.63	0.42	0.10	0.54	0.56	
Avail Cap(c_a), veh/h	582	2807	1823	819	969	775	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	5.3	5.1	8.2	7.3	12.3	12.4	
Incr Delay (d2), s/veh	0.1	0.4	0.2	0.1	1.5	2.1	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.1	1.2	0.9	0.2	1.0	0.1	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	5.4	5.4	8.5	7.4	13.8	14.4	
LnGrp LOS	A	A	A	A	B	B	
Approach Vol, veh/h		1225	538		298		
Approach Delay, s/veh		5.4	8.4		14.1		
Approach LOS		A	A		B		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				22.5	10.2	6.7	15.8
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				27.5	18.5	5.0	18.0
Max Q Clear Time (g_c+I1), s				9.8	5.0	2.9	5.7
Green Ext Time (p_c), s				8.2	0.8	0.0	2.7
Intersection Summary							
HCM 6th Ctrl Delay			7.5				
HCM 6th LOS			A				

Queues
118: Star Road & SH 44

2045 Background (With Imp) Mit AM Peak Hour
01/13/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	81	742	371	154	444	91	274	167	155	193	355	68
v/c Ratio	0.22	0.73	0.51	0.61	0.38	0.14	0.77	0.38	0.32	0.45	0.86	0.14
Control Delay	17.8	34.7	5.7	28.8	25.5	0.4	57.0	31.7	5.9	22.8	55.7	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.8	34.7	5.7	28.8	25.5	0.4	57.0	31.7	5.9	22.8	55.7	0.6
Queue Length 50th (ft)	28	215	0	56	111	0	86	84	0	76	207	0
Queue Length 95th (ft)	59	296	67	#110	163	1	#147	142	41	125	#335	0
Internal Link Dist (ft)		2598			5173			1764			5156	
Turn Bay Length (ft)	200		200	200		200	150		150	100		100
Base Capacity (vph)	375	1021	728	253	1156	663	377	524	543	439	497	532
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.73	0.51	0.61	0.38	0.14	0.73	0.32	0.29	0.44	0.71	0.13

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Background (With Imp) Mit AM Peak Hour
 118: Star Road & SH 44

01/13/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	705	352	146	422	86	260	159	147	183	337	65
Future Volume (vph)	77	705	352	146	422	86	260	159	147	183	337	65
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1644	3226	1500	1583	3167	1530	3252	1714	1404	1710	1748	1457
Flt Permitted	0.49	1.00	1.00	0.21	1.00	1.00	0.95	1.00	1.00	0.65	1.00	1.00
Satd. Flow (perm)	856	3226	1500	344	3167	1530	3252	1714	1404	1173	1748	1457
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	81	742	371	154	444	91	274	167	155	193	355	68
RTOR Reduction (vph)	0	0	250	0	0	58	0	0	116	0	0	52
Lane Group Flow (vph)	81	742	121	154	444	33	274	167	39	193	355	16
Heavy Vehicles (%)	4%	6%	2%	8%	8%	0%	2%	5%	9%	0%	3%	5%
Turn Type	pm+pt	NA	Prot	pm+pt	NA	Prot	Prot	NA	Prot	pm+pt	NA	Perm
Protected Phases	1	6	6	5	2	2	3	8	8	7	4	
Permitted Phases	6			2						4		4
Actuated Green, G (s)	36.1	31.4	31.4	42.7	34.7	34.7	10.5	24.3	24.3	31.2	22.5	22.5
Effective Green, g (s)	36.1	31.4	31.4	42.7	34.7	34.7	10.5	24.3	24.3	31.2	22.5	22.5
Actuated g/C Ratio	0.37	0.33	0.33	0.44	0.36	0.36	0.11	0.25	0.25	0.32	0.23	0.23
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	2.0	2.5	2.5	2.0	2.5	2.5	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	358	1050	488	255	1139	550	354	432	353	428	407	340
v/s Ratio Prot	0.01	c0.23	0.08	c0.05	0.14	0.02	c0.08	0.10	0.03	0.04	c0.20	
v/s Ratio Perm	0.07			c0.22						0.11		0.01
v/c Ratio	0.23	0.71	0.25	0.60	0.39	0.06	0.77	0.39	0.11	0.45	0.87	0.05
Uniform Delay, d1	19.8	28.5	23.8	18.2	23.0	20.2	41.8	29.9	27.7	24.9	35.6	28.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	4.0	1.2	2.8	0.2	0.0	9.3	0.2	0.1	0.3	17.7	0.0
Delay (s)	20.0	32.5	25.0	20.9	23.1	20.2	51.1	30.1	27.8	25.1	53.3	28.7
Level of Service	B	C	C	C	C	C	D	C	C	C	D	C
Approach Delay (s)		29.3			22.3			39.1			41.7	
Approach LOS		C			C			D			D	

Intersection Summary

HCM 2000 Control Delay	32.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	96.4	Sum of lost time (s)	24.0
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
118: Star Road & SH 44

2045 Background (With Imp) Mit AM Peak Hour

01/13/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗	↘↗	↑	↗	↘	↑	↗
Traffic Volume (veh/h)	77	705	352	146	422	86	260	159	147	183	337	65
Future Volume (veh/h)	77	705	352	146	422	86	260	159	147	183	337	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1744	1716	1772	1688	1688	1800	1772	1730	1674	1800	1758	1730
Adj Flow Rate, veh/h	81	742	371	154	444	91	274	167	155	193	355	68
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	6	2	8	8	0	2	5	9	0	3	5
Cap, veh/h	378	1061	489	272	1157	550	342	405	332	409	399	333
Arrive On Green	0.05	0.33	0.33	0.08	0.36	0.36	0.10	0.23	0.23	0.10	0.23	0.23
Sat Flow, veh/h	1661	3260	1502	1607	3207	1525	3274	1730	1418	1714	1758	1466
Grp Volume(v), veh/h	81	742	371	154	444	91	274	167	155	193	355	68
Grp Sat Flow(s),veh/h/ln	1661	1630	1502	1607	1603	1525	1637	1730	1418	1714	1758	1466
Q Serve(g_s), s	3.0	18.3	20.4	5.8	9.5	3.7	7.5	7.5	8.7	7.9	18.0	3.5
Cycle Q Clear(g_c), s	3.0	18.3	20.4	5.8	9.5	3.7	7.5	7.5	8.7	7.9	18.0	3.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	378	1061	489	272	1157	550	342	405	332	409	399	333
V/C Ratio(X)	0.21	0.70	0.76	0.57	0.38	0.17	0.80	0.41	0.47	0.47	0.89	0.20
Avail Cap(c_a), veh/h	407	1061	489	279	1157	550	391	544	446	409	515	429
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.3	27.2	27.9	20.5	21.9	20.0	40.4	29.9	30.4	24.0	34.5	28.9
Incr Delay (d2), s/veh	0.1	3.8	10.6	1.5	0.2	0.1	8.8	0.3	0.4	0.3	12.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	7.5	8.5	2.2	3.5	1.3	3.4	3.1	2.9	3.2	8.9	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.4	31.0	38.5	22.1	22.0	20.1	49.1	30.2	30.8	24.3	46.9	29.0
LnGrp LOS	B	C	D	C	C	C	D	C	C	C	D	C
Approach Vol, veh/h		1194			689			596			616	
Approach Delay, s/veh		32.5			21.8			39.0			37.9	
Approach LOS		C			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.4	39.3	15.6	26.9	13.6	36.0	15.0	27.6				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	6.0	32.0	11.0	27.0	8.0	30.0	9.0	29.0				
Max Q Clear Time (g_c+I1), s	5.0	11.5	9.5	20.0	7.8	22.4	9.9	10.7				
Green Ext Time (p_c), s	0.0	2.6	0.1	0.9	0.0	3.3	0.0	0.8				
Intersection Summary												
HCM 6th Ctrl Delay			32.5									
HCM 6th LOS			C									

Queues
119: Plummer Road & SH 44

2045 Background (With Imp) Mit AM Peak Hour

01/13/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	31	1062	35	60	571	114	47	13	86	516	42	84
v/c Ratio	0.08	0.76	0.05	0.29	0.39	0.15	0.21	0.09	0.31	0.70	0.08	0.16
Control Delay	9.9	23.9	0.1	13.4	16.1	1.4	22.8	38.5	2.9	34.9	25.2	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.9	23.9	0.1	13.4	16.1	1.4	22.8	38.5	2.9	34.9	25.2	3.4
Queue Length 50th (ft)	7	239	0	14	105	0	16	7	0	129	17	0
Queue Length 95th (ft)	20	327	0	33	153	13	40	24	1	190	43	21
Internal Link Dist (ft)		5173			3517			675			5173	
Turn Bay Length (ft)	100		100	100		100	100		100	200		200
Base Capacity (vph)	394	1677	817	204	1698	847	225	485	532	862	834	770
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.63	0.04	0.29	0.34	0.13	0.21	0.03	0.16	0.60	0.05	0.11

Intersection Summary

HCM Signalized Intersection Capacity Analysis 2045 Background (With Imp) Mit AM Peak Hour
 119: Plummer Road & SH 44

01/13/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	1009	33	57	542	108	45	12	82	490	40	80
Future Volume (vph)	29	1009	33	57	542	108	45	12	82	490	40	80
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1710	3320	1457	1660	3320	1500	1710	1800	1530	3285	1800	1530
Flt Permitted	0.39	1.00	1.00	0.13	1.00	1.00	0.73	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	697	3320	1457	225	3320	1500	1313	1800	1530	3285	1800	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	31	1062	35	60	571	114	47	13	86	516	42	84
RTOR Reduction (vph)	0	0	21	0	0	66	0	0	77	0	0	60
Lane Group Flow (vph)	31	1062	14	60	571	48	47	13	9	516	42	24
Heavy Vehicles (%)	0%	3%	5%	3%	3%	2%	0%	0%	0%	1%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2			6
Actuated Green, G (s)	36.0	33.3	33.3	38.0	34.3	34.3	11.2	8.5	8.5	17.3	23.1	23.1
Effective Green, g (s)	36.0	33.3	33.3	38.0	34.3	34.3	11.2	8.5	8.5	17.3	23.1	23.1
Actuated g/C Ratio	0.45	0.41	0.41	0.47	0.42	0.42	0.14	0.11	0.11	0.21	0.29	0.29
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	344	1368	600	171	1409	636	195	189	160	703	514	437
v/s Ratio Prot	0.00	c0.32		c0.02	0.17		0.01	0.01		c0.16	0.02	
v/s Ratio Perm	0.04		0.01	0.15		0.03	c0.03		0.01			0.02
v/c Ratio	0.09	0.78	0.02	0.35	0.41	0.08	0.24	0.07	0.06	0.73	0.08	0.05
Uniform Delay, d1	12.7	20.5	14.1	14.0	16.2	13.8	30.8	32.6	32.5	29.6	21.1	20.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	2.8	0.0	1.2	0.2	0.1	0.6	0.2	0.1	4.0	0.1	0.1
Delay (s)	12.9	23.4	14.1	15.3	16.4	13.9	31.5	32.7	32.7	33.6	21.2	21.0
Level of Service	B	C	B	B	B	B	C	C	C	C	C	C
Approach Delay (s)		22.8			15.9			32.3			31.1	
Approach LOS		C			B			C			C	

Intersection Summary

HCM 2000 Control Delay	23.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	80.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
119: Plummer Road & SH 44

2045 Background (With Imp) Mit AM Peak Hour

01/13/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗	↘	↑	↗	↘↗	↑	↗
Traffic Volume (veh/h)	29	1009	33	57	542	108	45	12	82	490	40	80
Future Volume (veh/h)	29	1009	33	57	542	108	45	12	82	490	40	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1758	1730	1758	1758	1772	1800	1800	1800	1786	1800	1800
Adj Flow Rate, veh/h	31	1062	35	60	571	114	47	13	86	516	42	84
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	3	5	3	3	2	0	0	0	1	0	0
Cap, veh/h	396	1365	599	255	1422	639	289	156	132	645	430	365
Arrive On Green	0.03	0.41	0.41	0.05	0.43	0.43	0.04	0.09	0.09	0.20	0.24	0.24
Sat Flow, veh/h	1714	3340	1466	1674	3340	1502	1714	1800	1525	3300	1800	1525
Grp Volume(v), veh/h	31	1062	35	60	571	114	47	13	86	516	42	84
Grp Sat Flow(s),veh/h/ln	1714	1670	1466	1674	1670	1502	1714	1800	1525	1650	1800	1525
Q Serve(g_s), s	0.7	19.1	1.0	1.4	8.2	3.3	1.7	0.5	3.8	10.3	1.3	3.1
Cycle Q Clear(g_c), s	0.7	19.1	1.0	1.4	8.2	3.3	1.7	0.5	3.8	10.3	1.3	3.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	396	1365	599	255	1422	639	289	156	132	645	430	365
V/C Ratio(X)	0.08	0.78	0.06	0.24	0.40	0.18	0.16	0.08	0.65	0.80	0.10	0.23
Avail Cap(c_a), veh/h	464	1809	794	293	1809	813	342	520	441	929	894	758
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.4	17.8	12.4	13.5	13.8	12.4	27.0	29.1	30.6	26.6	20.5	21.2
Incr Delay (d2), s/veh	0.1	1.6	0.0	0.5	0.2	0.1	0.3	0.2	5.3	3.3	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	6.9	0.3	0.5	2.8	1.0	0.7	0.2	1.5	4.1	0.5	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.5	19.4	12.4	14.0	14.0	12.5	27.2	29.3	35.9	29.8	20.6	21.5
LnGrp LOS	B	B	B	B	B	B	C	C	D	C	C	C
Approach Vol, veh/h		1128			745			146				642
Approach Delay, s/veh		18.9			13.7			32.5				28.2
Approach LOS		B			B			C				C
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.0	10.5	7.9	32.8	7.5	21.0	6.7	34.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	19.5	20.0	5.0	37.5	5.1	34.4	5.0	37.5				
Max Q Clear Time (g_c+I1), s	12.3	5.8	3.4	21.1	3.7	5.1	2.7	10.2				
Green Ext Time (p_c), s	1.2	0.2	0.0	7.2	0.0	0.5	0.0	4.6				
Intersection Summary												
HCM 6th Ctrl Delay				20.4								
HCM 6th LOS				C								

Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑↑	↑↑	↗		↗
Traffic Vol, veh/h	93	1244	456	77	0	280
Future Vol, veh/h	93	1244	456	77	0	280
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	99	1323	485	82	0	298

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	567	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.14	-	6.94
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.22	-	3.32
Pot Cap-1 Maneuver	1001	-	0
Stage 1	-	-	0
Stage 2	-	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1001	-	758
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	12.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1001	-	-	-	758
HCM Lane V/C Ratio	0.099	-	-	-	0.393
HCM Control Delay (s)	9	-	-	-	12.8
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.3	-	-	-	1.9

Intersection												
Int Delay, s/veh	10.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗	↘	↘	↗↗	↘			↘			↘
Traffic Vol, veh/h	29	1499	73	57	587	120	0	0	139	0	0	610
Future Vol, veh/h	29	1499	73	57	587	120	0	0	139	0	0	610
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	200	200	-	200	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	31	1578	77	60	618	126	0	0	146	0	0	642

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	744	0	0	1655	0	0	-	-	789	-	-	309
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.14	-	-	4.14	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	859	-	-	386	-	-	0	0	333	0	0	687
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	859	-	-	386	-	-	-	-	333	-	-	687
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			1.2			24			44.7		
HCM LOS							C			E		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	333	859	-	-	386	-	-	687
HCM Lane V/C Ratio	0.439	0.036	-	-	0.155	-	-	0.935
HCM Control Delay (s)	24	9.3	-	-	16	-	-	44.7
HCM Lane LOS	C	A	-	-	C	-	-	E
HCM 95th %tile Q(veh)	2.2	0.1	-	-	0.5	-	-	13

Queues
109: Pollard Road & Beacon Light Road

2045 Background (With Imp) Mit PM Peak Hour

01/13/2023

























Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	6	232	182	663	140	344	416	68	44
v/c Ratio	0.03	0.45	0.38	0.84	0.19	0.69	0.77	0.28	0.12
Control Delay	10.6	23.2	14.1	29.9	4.2	28.6	35.7	19.8	22.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.6	23.2	14.1	29.9	4.2	28.6	35.7	19.8	22.4
Queue Length 50th (ft)	2	87	49	257	3	117	167	19	13
Queue Length 95th (ft)	7	143	85	#534	37	#287	#393	55	44
Internal Link Dist (ft)		3919		2558			3989		3904
Turn Bay Length (ft)	100		100		100	100		100	
Base Capacity (vph)	216	929	482	1010	922	496	567	245	471
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.25	0.38	0.66	0.15	0.69	0.73	0.28	0.09

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Background (With Imp) Mit PM Peak Hour
 109: Pollard Road & Beacon Light Road

01/13/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	201	8	164	597	126	310	218	157	61	31	9
Future Volume (vph)	5	201	8	164	597	126	310	218	157	61	31	9
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.94		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1710	1772		1710	1782	1530	1710	1687		1710	1739	
Flt Permitted	0.18	1.00		0.46	1.00	1.00	0.58	1.00		0.32	1.00	
Satd. Flow (perm)	318	1772		820	1782	1530	1035	1687		570	1739	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	6	223	9	182	663	140	344	242	174	68	34	10
RTOR Reduction (vph)	0	2	0	0	0	74	0	27	0	0	8	0
Lane Group Flow (vph)	6	230	0	182	663	66	344	389	0	68	36	0
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	26.2	25.4		37.9	32.6	32.6	30.7	22.4		20.7	16.9	
Effective Green, g (s)	26.2	25.4		37.9	32.6	32.6	30.7	22.4		20.7	16.9	
Actuated g/C Ratio	0.34	0.33		0.49	0.42	0.42	0.40	0.29		0.27	0.22	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	121	580		492	748	642	490	486		207	378	
v/s Ratio Prot	0.00	0.13		c0.04	c0.37		c0.08	c0.23		0.02	0.02	
v/s Ratio Perm	0.02			0.14		0.04	0.19			0.07		
v/c Ratio	0.05	0.40		0.37	0.89	0.10	0.70	0.80		0.33	0.10	
Uniform Delay, d1	18.5	20.2		11.8	20.8	13.6	18.8	25.5		22.0	24.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.4		0.5	12.2	0.1	4.5	9.2		0.9	0.1	
Delay (s)	18.6	20.6		12.3	33.0	13.7	23.3	34.7		23.0	24.4	
Level of Service	B	C		B	C	B	C	C		C	C	
Approach Delay (s)		20.6			26.5			29.5			23.5	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM 2000 Control Delay			26.7									HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio			0.89									
Actuated Cycle Length (s)			77.6								18.0	Sum of lost time (s)
Intersection Capacity Utilization			78.7%									ICU Level of Service D
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
 109: Pollard Road & Beacon Light Road

2045 Background (With Imp) Mit PM Peak Hour
 01/13/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↖	↖	↗		↖	↗	
Traffic Volume (veh/h)	5	201	8	164	597	126	310	218	157	61	31	9
Future Volume (veh/h)	5	201	8	164	597	126	310	218	157	61	31	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1786	1800	1800	1786	1800	1800	1800	1800	1800	1800	1800
Adj Flow Rate, veh/h	6	223	9	182	663	140	344	242	174	68	34	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	1	0	0	1	0	0	0	0	0	0	0
Cap, veh/h	167	580	23	533	755	645	560	269	193	220	276	81
Arrive On Green	0.01	0.34	0.34	0.09	0.42	0.42	0.12	0.28	0.28	0.05	0.21	0.21
Sat Flow, veh/h	1714	1705	69	1714	1786	1525	1714	974	700	1714	1336	393
Grp Volume(v), veh/h	6	0	232	182	663	140	344	0	416	68	0	44
Grp Sat Flow(s),veh/h/ln	1714	0	1774	1714	1786	1525	1714	0	1674	1714	0	1729
Q Serve(g_s), s	0.2	0.0	7.4	4.8	25.3	4.3	8.9	0.0	17.7	2.3	0.0	1.5
Cycle Q Clear(g_c), s	0.2	0.0	7.4	4.8	25.3	4.3	8.9	0.0	17.7	2.3	0.0	1.5
Prop In Lane	1.00		0.04	1.00		1.00	1.00		0.42	1.00		0.23
Lane Grp Cap(c), veh/h	167	0	604	533	755	645	560	0	462	220	0	357
V/C Ratio(X)	0.04	0.00	0.38	0.34	0.88	0.22	0.61	0.00	0.90	0.31	0.00	0.12
Avail Cap(c_a), veh/h	269	0	874	564	952	813	560	0	506	251	0	434
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.3	0.0	18.5	12.9	19.6	13.6	20.4	0.0	25.9	22.4	0.0	23.9
Incr Delay (d2), s/veh	0.1	0.0	0.4	0.4	7.9	0.2	2.0	0.0	18.2	0.8	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	2.9	1.7	11.1	1.4	1.0	0.0	9.0	0.9	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.4	0.0	18.9	13.3	27.5	13.8	22.3	0.0	44.1	23.2	0.0	24.1
LnGrp LOS	B	A	B	B	C	B	C	A	D	C	A	C
Approach Vol, veh/h		238			985			760				112
Approach Delay, s/veh		18.9			22.9			34.2				23.6
Approach LOS		B			C			C				C
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.3	24.9	11.2	29.7	13.4	19.8	5.1	35.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.1	22.4	8.0	36.5	8.9	18.6	5.0	39.5				
Max Q Clear Time (g_c+I1), s	4.3	19.7	6.8	9.4	10.9	3.5	2.2	27.3				
Green Ext Time (p_c), s	0.0	0.7	0.1	1.4	0.0	0.1	0.0	4.1				
Intersection Summary												
HCM 6th Ctrl Delay				26.6								
HCM 6th LOS				C								

Queues
110: SH 16 & Beacon Light Road

2045 Background (With Imp) Mit PM Peak Hour

01/13/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	71	132	137	176	503	615	167	977	96	101	506	44
v/c Ratio	0.45	0.30	0.28	0.40	0.87	0.79	0.42	0.84	0.16	0.39	0.39	0.07
Control Delay	36.6	39.8	5.5	29.7	58.1	32.6	23.9	47.0	0.9	22.5	30.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.6	39.8	5.5	29.7	58.1	32.6	23.9	47.0	0.9	22.5	30.2	0.2
Queue Length 50th (ft)	36	87	0	97	397	392	76	398	0	44	164	0
Queue Length 95th (ft)	78	159	40	174	#647	549	133	#643	3	84	230	0
Internal Link Dist (ft)		2558			3836			5106			1084	
Turn Bay Length (ft)	100		100	100		100	100		100	100		100
Base Capacity (vph)	157	639	651	435	733	925	409	1241	646	420	1683	822
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.21	0.21	0.40	0.69	0.66	0.41	0.79	0.15	0.24	0.30	0.05

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Background (With Imp) Mit PM Peak Hour
 110: SH 16 & Beacon Light Road

01/13/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	129	134	172	493	603	164	957	94	99	496	43
Future Volume (vph)	70	129	134	172	493	603	164	957	94	99	496	43
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1710	1765	1530	1660	1782	1530	1693	3353	1485	1710	3353	1530
Flt Permitted	0.19	1.00	1.00	0.55	1.00	1.00	0.43	1.00	1.00	0.10	1.00	1.00
Satd. Flow (perm)	347	1765	1530	954	1782	1530	773	3353	1485	184	3353	1530
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	71	132	137	176	503	615	167	977	96	101	506	44
RTOR Reduction (vph)	0	0	101	0	0	37	0	0	63	0	0	27
Lane Group Flow (vph)	71	132	36	176	503	578	167	977	33	101	506	17
Heavy Vehicles (%)	0%	2%	0%	3%	1%	0%	1%	2%	3%	0%	2%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2	7	3	8		7	4	
Permitted Phases	6		6	2		2	8		8	4		4
Actuated Green, G (s)	37.0	33.2	33.2	50.4	40.6	54.7	53.4	43.8	43.8	62.4	48.3	48.3
Effective Green, g (s)	37.0	33.2	33.2	50.4	40.6	54.7	53.4	43.8	43.8	62.4	48.3	48.3
Actuated g/C Ratio	0.29	0.26	0.26	0.40	0.32	0.43	0.42	0.35	0.35	0.49	0.38	0.38
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	142	463	402	443	572	735	396	1162	514	261	1282	585
v/s Ratio Prot	0.01	0.07		c0.04	c0.28	c0.09	0.03	c0.29		0.04	c0.15	
v/s Ratio Perm	0.13		0.02	0.12		0.29	0.15		0.02	0.15		0.01
v/c Ratio	0.50	0.29	0.09	0.40	0.88	0.79	0.42	0.84	0.06	0.39	0.39	0.03
Uniform Delay, d1	34.9	37.1	35.1	25.8	40.5	30.8	23.4	38.0	27.6	22.0	28.4	24.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.8	0.3	0.1	0.6	14.4	5.6	0.7	5.6	0.1	1.0	0.2	0.0
Delay (s)	37.7	37.4	35.2	26.4	54.9	36.3	24.1	43.7	27.6	23.0	28.6	24.4
Level of Service	D	D	D	C	D	D	C	D	C	C	C	C
Approach Delay (s)		36.6			42.2			39.8			27.4	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	38.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	126.3	Sum of lost time (s)	24.0
Intersection Capacity Utilization	86.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
110: SH 16 & Beacon Light Road

2045 Background (With Imp) Mit PM Peak Hour

01/13/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	129	134	172	493	603	164	957	94	99	496	43
Future Volume (veh/h)	70	129	134	172	493	603	164	957	94	99	496	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1772	1800	1758	1786	1800	1786	1772	1758	1800	1772	1800
Adj Flow Rate, veh/h	71	132	137	176	503	615	167	977	96	101	506	44
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	2	0	3	1	0	1	2	3	0	2	0
Cap, veh/h	201	618	532	520	699	683	345	1094	484	179	1018	461
Arrive On Green	0.04	0.35	0.35	0.08	0.39	0.39	0.08	0.32	0.32	0.06	0.30	0.30
Sat Flow, veh/h	1714	1772	1525	1674	1786	1525	1701	3367	1490	1714	3367	1525
Grp Volume(v), veh/h	71	132	137	176	503	615	167	977	96	101	506	44
Grp Sat Flow(s),veh/h/ln	1714	1772	1525	1674	1786	1525	1701	1683	1490	1714	1683	1525
Q Serve(g_s), s	3.4	6.7	8.2	8.3	30.3	47.5	8.6	35.1	5.9	5.1	15.7	2.6
Cycle Q Clear(g_c), s	3.4	6.7	8.2	8.3	30.3	47.5	8.6	35.1	5.9	5.1	15.7	2.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	201	618	532	520	699	683	345	1094	484	179	1018	461
V/C Ratio(X)	0.35	0.21	0.26	0.34	0.72	0.90	0.48	0.89	0.20	0.57	0.50	0.10
Avail Cap(c_a), veh/h	202	618	532	528	702	685	345	1191	527	433	1615	732
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.7	29.1	29.6	22.5	32.8	32.5	28.2	40.8	31.0	32.8	36.4	31.9
Incr Delay (d2), s/veh	1.0	0.2	0.3	0.4	3.6	15.0	1.1	8.4	0.2	2.8	0.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	2.9	3.1	3.4	13.7	20.0	3.6	15.7	2.2	2.3	6.5	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.7	29.3	29.9	22.8	36.3	47.5	29.3	49.2	31.2	35.6	36.8	32.0
LnGrp LOS	C	C	C	C	D	D	C	D	C	D	D	C
Approach Vol, veh/h		340			1294			1240			651	
Approach Delay, s/veh		29.4			39.8			45.1			36.3	
Approach LOS		C			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.9	55.8	16.0	44.4	16.4	50.4	13.1	47.3				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	5.0	50.0	10.0	61.0	11.0	44.0	26.0	45.0				
Max Q Clear Time (g_c+I1), s	5.4	49.5	10.6	17.7	10.3	10.2	7.1	37.1				
Green Ext Time (p_c), s	0.0	0.3	0.0	4.0	0.0	1.2	0.2	4.2				

Intersection Summary

HCM 6th Ctrl Delay	40.0
HCM 6th LOS	D

Queues
111: Palmer Lane & Beacon Light Road

2045 Background (With Imp) Mit PM Peak Hour
01/13/2023



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	438	20	5	1329	121	23
v/c Ratio	0.24	0.02	0.01	0.68	0.36	0.07
Control Delay	6.8	4.4	4.2	8.6	18.8	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.8	4.4	4.2	8.6	18.8	7.9
Queue Length 50th (ft)	21	0	1	93	28	0
Queue Length 95th (ft)	73	10	4	179	62	13
Internal Link Dist (ft)	3836			6200		
Turn Bay Length (ft)		100	100		100	100
Base Capacity (vph)	1853	846	547	2282	738	706
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.02	0.01	0.58	0.16	0.03

Intersection Summary

HCM Signalized Intersection Capacity Analysis 2045 Background (With Imp) Mit PM Peak Hour
 111: Palmer Lane & Beacon Light Road

01/13/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	416	19	5	1263	115	22
Future Volume (vph)	416	19	5	1263	115	22
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3386	1530	1710	3386	1629	1530
Flt Permitted	1.00	1.00	0.41	1.00	0.95	1.00
Satd. Flow (perm)	3386	1530	747	3386	1629	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	438	20	5	1329	121	23
RTOR Reduction (vph)	0	10	0	0	0	19
Lane Group Flow (vph)	438	10	5	1329	121	4
Heavy Vehicles (%)	1%	0%	0%	1%	5%	0%
Turn Type	NA	Perm	pm+pt	NA	Prot	Prot
Protected Phases	4		3	8	1	1
Permitted Phases		4	8			
Actuated Green, G (s)	22.5	22.5	27.9	27.9	8.6	8.6
Effective Green, g (s)	22.5	22.5	27.9	27.9	8.6	8.6
Actuated g/C Ratio	0.49	0.49	0.61	0.61	0.19	0.19
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1674	756	477	2076	307	289
v/s Ratio Prot	0.13		0.00	c0.39	c0.07	0.00
v/s Ratio Perm		0.01	0.01			
v/c Ratio	0.26	0.01	0.01	0.64	0.39	0.02
Uniform Delay, d1	6.7	5.9	3.6	5.6	16.2	15.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.0	0.7	0.8	0.0
Delay (s)	6.8	5.9	3.6	6.3	17.0	15.0
Level of Service	A	A	A	A	B	B
Approach Delay (s)	6.7			6.3	16.7	
Approach LOS	A			A	B	

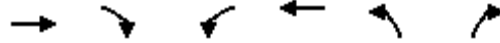
Intersection Summary

HCM 2000 Control Delay	7.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	45.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
111: Palmer Lane & Beacon Light Road

2045 Background (With Imp) Mit PM Peak Hour

01/13/2023

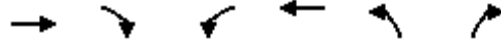


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↖	↑↑	↖	↗
Traffic Volume (veh/h)	416	19	5	1263	115	22
Future Volume (veh/h)	416	19	5	1263	115	22
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1786	1800	1800	1786	1730	1800
Adj Flow Rate, veh/h	438	20	5	1329	121	23
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	0	0	1	5	0
Cap, veh/h	1528	687	573	1999	242	224
Arrive On Green	0.45	0.45	0.01	0.59	0.15	0.15
Sat Flow, veh/h	3483	1525	1714	3483	1647	1525
Grp Volume(v), veh/h	438	20	5	1329	121	23
Grp Sat Flow(s),veh/h/ln	1697	1525	1714	1697	1647	1525
Q Serve(g_s), s	2.8	0.2	0.0	9.0	2.3	0.4
Cycle Q Clear(g_c), s	2.8	0.2	0.0	9.0	2.3	0.4
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1528	687	573	1999	242	224
V/C Ratio(X)	0.29	0.03	0.01	0.66	0.50	0.10
Avail Cap(c_a), veh/h	1793	806	813	2739	895	828
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	5.9	5.2	4.3	4.7	13.4	12.6
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.4	1.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.1	0.0	1.2	0.8	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	6.0	5.2	4.3	5.1	15.0	12.8
LnGrp LOS	A	A	A	A	B	B
Approach Vol, veh/h	458			1334	144	
Approach Delay, s/veh	6.0			5.1	14.6	
Approach LOS	A			A	B	
Timer - Assigned Phs			3	4	6	8
Phs Duration (G+Y+Rc), s			4.7	19.8	9.5	24.6
Change Period (Y+Rc), s			4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s			5.0	18.0	18.5	27.5
Max Q Clear Time (g_c+I1), s			2.0	4.8	4.3	11.0
Green Ext Time (p_c), s			0.0	2.4	0.3	9.1
Intersection Summary						
HCM 6th Ctrl Delay			6.0			
HCM 6th LOS			A			

Queues
113: Star Road & Floating Feather Road

2045 Background (With Imp) Mit PM Peak Hour

01/13/2023



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	132	200	642	244	153	189
v/c Ratio	0.40	0.45	0.81	0.22	0.45	0.42
Control Delay	23.5	7.6	16.9	5.1	24.1	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.5	7.6	16.9	5.1	24.1	7.0
Queue Length 50th (ft)	36	0	93	25	41	0
Queue Length 95th (ft)	86	45	#282	63	97	44
Internal Link Dist (ft)	2600		1170		5156	
Turn Bay Length (ft)	100		100		100	
Base Capacity (vph)	664	680	864	1532	631	684
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.29	0.74	0.16	0.24	0.28

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Background (With Imp) Mit PM Peak Hour
 113: Star Road & Floating Feather Road

01/13/2023



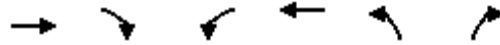
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	120	182	584	222	139	172
Future Volume (vph)	120	182	584	222	139	172
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1800	1500	1676	1800	1710	1530
Flt Permitted	1.00	1.00	0.46	1.00	0.95	1.00
Satd. Flow (perm)	1800	1500	808	1800	1710	1530
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	132	200	642	244	153	189
RTOR Reduction (vph)	0	162	0	0	0	151
Lane Group Flow (vph)	132	38	642	244	153	38
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%
Turn Type	NA	Perm	pm+pt	NA	Prot	Prot
Protected Phases	4		3	8	2	2
Permitted Phases		4	8			
Actuated Green, G (s)	9.6	9.6	31.2	31.2	10.0	10.0
Effective Green, g (s)	9.6	9.6	31.2	31.2	10.0	10.0
Actuated g/C Ratio	0.19	0.19	0.62	0.62	0.20	0.20
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	344	286	797	1118	340	304
v/s Ratio Prot	0.07		c0.27	0.14	c0.09	0.02
v/s Ratio Perm		0.03	c0.23			
v/c Ratio	0.38	0.13	0.81	0.22	0.45	0.12
Uniform Delay, d1	17.7	16.8	6.3	4.2	17.7	16.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.2	6.0	0.1	0.9	0.2
Delay (s)	18.4	17.1	12.2	4.3	18.6	16.7
Level of Service	B	B	B	A	B	B
Approach Delay (s)	17.6			10.0	17.6	
Approach LOS	B			B	B	

Intersection Summary			
HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	50.2	Sum of lost time (s)	13.5
Intersection Capacity Utilization	56.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
113: Star Road & Floating Feather Road

2045 Background (With Imp) Mit PM Peak Hour

01/13/2023

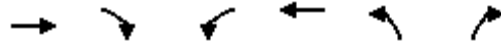


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (veh/h)	120	182	584	222	139	172
Future Volume (veh/h)	120	182	584	222	139	172
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1800	1772	1772	1800	1800	1800
Adj Flow Rate, veh/h	132	200	642	244	153	189
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	2	2	0	0	0
Cap, veh/h	342	286	858	1126	305	271
Arrive On Green	0.19	0.19	0.34	0.63	0.18	0.18
Sat Flow, veh/h	1800	1502	1688	1800	1714	1525
Grp Volume(v), veh/h	132	200	642	244	153	189
Grp Sat Flow(s),veh/h/ln	1800	1502	1688	1800	1714	1525
Q Serve(g_s), s	2.9	5.7	12.1	2.7	3.7	5.3
Cycle Q Clear(g_c), s	2.9	5.7	12.1	2.7	3.7	5.3
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	342	286	858	1126	305	271
V/C Ratio(X)	0.39	0.70	0.75	0.22	0.50	0.70
Avail Cap(c_a), veh/h	708	590	1045	1691	674	600
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.2	17.3	7.5	3.7	17.0	17.7
Incr Delay (d2), s/veh	0.7	3.1	2.4	0.1	1.3	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	2.0	3.2	0.6	1.4	1.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	16.9	20.4	9.9	3.8	18.3	20.9
LnGrp LOS	B	C	A	A	B	C
Approach Vol, veh/h	332			886	342	
Approach Delay, s/veh	19.0			8.2	19.7	
Approach LOS	B			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		12.6	19.9	13.2		33.1
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		18.0	20.5	18.0		43.0
Max Q Clear Time (g_c+I1), s		7.3	14.1	7.7		4.7
Green Ext Time (p_c), s		0.8	1.4	1.0		1.5
Intersection Summary						
HCM 6th Ctrl Delay			13.0			
HCM 6th LOS			B			

Queues
114: Plummer Road & Floating Feather Road

2045 Background (With Imp) Mit PM Peak Hour

01/13/2023



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	184	273	101	431	401	74
v/c Ratio	0.35	0.43	0.22	0.58	0.66	0.13
Control Delay	16.1	4.8	9.0	13.1	19.0	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.1	4.8	9.0	13.1	19.0	4.3
Queue Length 50th (ft)	40	0	14	72	82	0
Queue Length 95th (ft)	88	42	37	149	#192	21
Internal Link Dist (ft)	3891			1279	5173	
Turn Bay Length (ft)		100	100		100	
Base Capacity (vph)	847	864	458	1272	827	778
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.32	0.22	0.34	0.48	0.10

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Background (With Imp) Mit PM Peak Hour
 114: Plummer Road & Floating Feather Road

01/13/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↖	↑	↖	↗
Traffic Volume (vph)	166	246	91	388	361	67
Future Volume (vph)	166	246	91	388	361	67
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1800	1530	1710	1800	1710	1530
Flt Permitted	1.00	1.00	0.47	1.00	0.95	1.00
Satd. Flow (perm)	1800	1530	840	1800	1710	1530
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	184	273	101	431	401	74
RTOR Reduction (vph)	0	196	0	0	0	49
Lane Group Flow (vph)	184	77	101	431	401	25
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	NA	Perm	pm+pt	NA	Prot	Prot
Protected Phases	4		3	8	2	2
Permitted Phases		4	8			
Actuated Green, G (s)	12.0	12.0	19.0	19.0	14.5	14.5
Effective Green, g (s)	12.0	12.0	19.0	19.0	14.5	14.5
Actuated g/C Ratio	0.28	0.28	0.45	0.45	0.34	0.34
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	508	432	426	804	583	522
v/s Ratio Prot	0.10		0.01	c0.24	c0.23	0.02
v/s Ratio Perm		0.05	0.09			
v/c Ratio	0.36	0.18	0.24	0.54	0.69	0.05
Uniform Delay, d1	12.2	11.5	7.2	8.5	12.1	9.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.2	0.3	0.7	3.4	0.0
Delay (s)	12.6	11.7	7.5	9.2	15.4	9.4
Level of Service	B	B	A	A	B	A
Approach Delay (s)	12.1			8.9	14.5	
Approach LOS	B			A	B	

Intersection Summary

HCM 2000 Control Delay	11.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	42.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	50.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
114: Plummer Road & Floating Feather Road

2045 Background (With Imp) Mit PM Peak Hour

01/13/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (veh/h)	166	246	91	388	361	67
Future Volume (veh/h)	166	246	91	388	361	67
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1800	1800	1800
Adj Flow Rate, veh/h	184	273	101	431	401	74
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	459	389	503	832	509	453
Arrive On Green	0.26	0.26	0.09	0.46	0.30	0.30
Sat Flow, veh/h	1800	1525	1714	1800	1714	1525
Grp Volume(v), veh/h	184	273	101	431	401	74
Grp Sat Flow(s),veh/h/ln	1800	1525	1714	1800	1714	1525
Q Serve(g_s), s	3.2	6.1	1.4	6.3	8.0	1.3
Cycle Q Clear(g_c), s	3.2	6.1	1.4	6.3	8.0	1.3
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	459	389	503	832	509	453
V/C Ratio(X)	0.40	0.70	0.20	0.52	0.79	0.16
Avail Cap(c_a), veh/h	867	735	584	1325	849	755
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.5	12.6	7.7	7.1	12.1	9.7
Incr Delay (d2), s/veh	0.6	2.3	0.2	0.5	2.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	1.9	0.4	1.6	2.7	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.1	14.9	7.8	7.6	14.8	9.9
LnGrp LOS	B	B	A	A	B	A
Approach Vol, veh/h	457			532	475	
Approach Delay, s/veh	13.8			7.6	14.1	
Approach LOS	B			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		15.6	7.7	14.0		21.8
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		18.5	5.0	18.0		27.5
Max Q Clear Time (g_c+I1), s		10.0	3.4	8.1		8.3
Green Ext Time (p_c), s		1.1	0.0	1.5		2.6
Intersection Summary						
HCM 6th Ctrl Delay			11.6			
HCM 6th LOS			B			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	61	920	1237	89	191	93
v/c Ratio	0.21	0.47	0.77	0.12	0.50	0.24
Control Delay	6.7	7.1	17.5	3.5	22.6	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.7	7.1	17.5	3.5	22.6	6.4
Queue Length 50th (ft)	6	66	168	0	54	0
Queue Length 95th (ft)	22	128	#334	22	104	28
Internal Link Dist (ft)		3717	2513		4604	
Turn Bay Length (ft)	200			150	100	
Base Capacity (vph)	291	2401	1726	808	654	590
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.38	0.72	0.11	0.29	0.16

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Background (With Imp) Mit PM Peak Hour
 117: SH 44 & Can Ada Road

01/13/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	57	865	1163	84	180	87
Future Volume (vph)	57	865	1163	84	180	87
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1613	3353	3386	1500	1676	1366
Flt Permitted	0.15	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	248	3353	3386	1500	1676	1366
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	61	920	1237	89	191	93
RTOR Reduction (vph)	0	0	0	48	0	73
Lane Group Flow (vph)	61	920	1237	41	191	20
Heavy Vehicles (%)	6%	2%	1%	2%	2%	12%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	30.0	30.0	22.9	22.9	10.9	10.9
Effective Green, g (s)	30.0	30.0	22.9	22.9	10.9	10.9
Actuated g/C Ratio	0.60	0.60	0.46	0.46	0.22	0.22
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	220	2015	1553	688	366	298
v/s Ratio Prot	0.01	c0.27	c0.37		c0.11	
v/s Ratio Perm	0.15			0.03		0.01
v/c Ratio	0.28	0.46	0.80	0.06	0.52	0.07
Uniform Delay, d1	6.8	5.5	11.5	7.5	17.2	15.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.2	2.9	0.0	1.3	0.1
Delay (s)	7.4	5.6	14.4	7.5	18.5	15.6
Level of Service	A	A	B	A	B	B
Approach Delay (s)		5.7	14.0		17.6	
Approach LOS		A	B		B	

Intersection Summary

HCM 2000 Control Delay	11.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	49.9	Sum of lost time (s)	13.5
Intersection Capacity Utilization	59.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
117: SH 44 & Can Ada Road

2045 Background (With Imp) Mit PM Peak Hour

01/13/2023

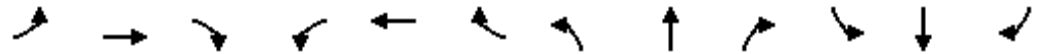


Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	57	865	1163	84	180	87	
Future Volume (veh/h)	57	865	1163	84	180	87	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1716	1772	1786	1772	1772	1632	
Adj Flow Rate, veh/h	61	920	1237	89	191	93	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	
Percent Heavy Veh, %	6	2	1	2	2	12	
Cap, veh/h	326	2119	1588	703	281	230	
Arrive On Green	0.06	0.63	0.47	0.47	0.17	0.17	
Sat Flow, veh/h	1634	3455	3483	1502	1688	1383	
Grp Volume(v), veh/h	61	920	1237	89	191	93	
Grp Sat Flow(s),veh/h/ln	1634	1683	1697	1502	1688	1383	
Q Serve(g_s), s	0.7	6.1	13.5	1.5	4.7	2.7	
Cycle Q Clear(g_c), s	0.7	6.1	13.5	1.5	4.7	2.7	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	326	2119	1588	703	281	230	
V/C Ratio(X)	0.19	0.43	0.78	0.13	0.68	0.40	
Avail Cap(c_a), veh/h	413	2517	1806	799	688	564	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	7.4	4.2	9.8	6.6	17.3	16.4	
Incr Delay (d2), s/veh	0.3	0.1	2.0	0.1	2.9	1.1	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.2	1.1	4.0	0.4	1.8	0.1	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	7.7	4.3	11.8	6.7	20.2	17.6	
LnGrp LOS	A	A	B	A	C	B	
Approach Vol, veh/h		981	1326		284		
Approach Delay, s/veh		4.5	11.5		19.3		
Approach LOS		A	B		B		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				32.3	11.9	7.1	25.2
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				33.0	18.0	5.0	23.5
Max Q Clear Time (g_c+I1), s				8.1	6.7	2.7	15.5
Green Ext Time (p_c), s				7.2	0.7	0.0	5.2
Intersection Summary							
HCM 6th Ctrl Delay			9.7				
HCM 6th LOS			A				

Queues
118: Star Road & SH 44

2045 Background (With Imp) Mit PM Peak Hour

01/13/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	162	641	368	189	923	114	395	307	124	111	239	113
v/c Ratio	0.70	0.51	0.40	0.56	0.76	0.17	0.80	0.66	0.23	0.42	0.79	0.24
Control Delay	43.7	29.7	3.7	40.7	37.0	0.5	58.9	43.4	1.5	29.8	62.9	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.7	29.7	3.7	40.7	37.0	0.5	58.9	43.4	1.5	29.8	62.9	1.2
Queue Length 50th (ft)	81	188	17	100	314	0	140	192	0	51	165	0
Queue Length 95th (ft)	#174	275	53	172	421	0	#222	296	6	94	261	0
Internal Link Dist (ft)		2598			5173			1764			5156	
Turn Bay Length (ft)	200		200	200		200	150		150	100		100
Base Capacity (vph)	252	1263	946	401	1295	703	557	604	640	270	407	541
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.51	0.39	0.47	0.71	0.16	0.71	0.51	0.19	0.41	0.59	0.21

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Background (With Imp) Mit PM Peak Hour
 118: Star Road & SH 44

01/13/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	635	364	187	914	113	391	304	123	110	237	112
Future Volume (vph)	160	635	364	187	914	113	391	304	123	110	237	112
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1693	3386	1515	1676	3386	1530	3317	1800	1530	1660	1748	1515
Flt Permitted	0.13	1.00	1.00	0.41	1.00	1.00	0.95	1.00	1.00	0.54	1.00	1.00
Satd. Flow (perm)	239	3386	1515	721	3386	1530	3317	1800	1530	939	1748	1515
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	162	641	368	189	923	114	395	307	124	111	239	113
RTOR Reduction (vph)	0	0	132	0	0	73	0	0	92	0	0	93
Lane Group Flow (vph)	162	641	236	189	923	41	395	307	32	111	239	20
Heavy Vehicles (%)	1%	1%	1%	2%	1%	0%	0%	0%	0%	3%	3%	1%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6	3	5	2		3	8		7	4	
Permitted Phases	6		6	2		2			8	4		4
Actuated Green, G (s)	40.4	40.4	56.5	38.7	38.7	38.7	16.1	28.0	28.0	25.5	18.7	18.7
Effective Green, g (s)	40.4	40.4	56.5	38.7	38.7	38.7	16.1	28.0	28.0	25.5	18.7	18.7
Actuated g/C Ratio	0.37	0.37	0.52	0.36	0.36	0.36	0.15	0.26	0.26	0.24	0.17	0.17
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	2.0	2.5	2.0	2.0	2.5	2.5	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	231	1265	791	336	1212	547	494	466	396	266	302	262
v/s Ratio Prot	c0.07	0.19	0.04	0.05	c0.27		c0.12	0.17		0.03	c0.14	
v/s Ratio Perm	0.19		0.11	0.15		0.03			0.02	0.07		0.01
v/c Ratio	0.70	0.51	0.30	0.56	0.76	0.07	0.80	0.66	0.08	0.42	0.79	0.07
Uniform Delay, d1	26.8	26.2	14.6	30.2	30.6	22.9	44.4	35.8	30.3	33.8	42.8	37.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.6	1.5	0.1	1.3	2.8	0.0	8.3	2.6	0.0	0.4	12.4	0.0
Delay (s)	34.4	27.6	14.7	31.5	33.4	22.9	52.7	38.3	30.3	34.2	55.2	37.5
Level of Service	C	C	B	C	C	C	D	D	C	C	E	D
Approach Delay (s)		24.5			32.1			44.0			45.9	
Approach LOS		C			C			D			D	

Intersection Summary

HCM 2000 Control Delay	34.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	108.1	Sum of lost time (s)	24.0
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
118: Star Road & SH 44

2045 Background (With Imp) Mit PM Peak Hour

01/13/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	635	364	187	914	113	391	304	123	110	237	112
Future Volume (veh/h)	160	635	364	187	914	113	391	304	123	110	237	112
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1786	1786	1786	1772	1786	1800	1800	1800	1800	1758	1758	1786
Adj Flow Rate, veh/h	162	641	368	189	923	114	395	307	124	111	239	113
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	1	1	1	2	1	0	0	0	0	3	3	1
Cap, veh/h	233	1377	826	291	1253	563	466	413	350	259	282	243
Arrive On Green	0.09	0.41	0.41	0.05	0.37	0.37	0.14	0.23	0.23	0.07	0.16	0.16
Sat Flow, veh/h	1701	3393	1514	1688	3393	1525	3326	1800	1525	1674	1758	1514
Grp Volume(v), veh/h	162	641	368	189	923	114	395	307	124	111	239	113
Grp Sat Flow(s),veh/h/ln	1701	1697	1514	1688	1697	1525	1663	1800	1525	1674	1758	1514
Q Serve(g_s), s	6.6	13.6	7.0	0.0	23.2	5.0	11.4	15.6	5.2	5.4	13.0	6.7
Cycle Q Clear(g_c), s	6.6	13.6	7.0	0.0	23.2	5.0	11.4	15.6	5.2	5.4	13.0	6.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	233	1377	826	291	1253	563	466	413	350	259	282	243
V/C Ratio(X)	0.70	0.47	0.45	0.65	0.74	0.20	0.85	0.74	0.35	0.43	0.85	0.47
Avail Cap(c_a), veh/h	292	1377	826	428	1411	634	607	657	557	259	446	384
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.7	21.5	4.0	36.2	26.9	21.2	41.4	35.3	19.2	31.6	40.2	37.6
Incr Delay (d2), s/veh	3.1	1.1	1.7	0.9	1.7	0.1	7.0	1.0	0.2	0.4	4.9	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	5.5	3.2	4.4	9.4	1.8	5.1	6.9	2.4	2.2	5.9	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.8	22.6	5.7	37.1	28.6	21.3	48.4	36.3	19.4	32.1	45.1	38.1
LnGrp LOS	C	C	A	D	C	C	D	D	B	C	D	D
Approach Vol, veh/h		1171			1226			826			463	
Approach Delay, s/veh		18.2			29.2			39.5			40.2	
Approach LOS		B			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.6	42.4	19.8	21.8	11.0	46.0	13.0	28.6				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	12.0	41.0	18.0	25.0	13.0	40.0	7.0	36.0				
Max Q Clear Time (g_c+I1), s	8.6	25.2	13.4	15.0	2.0	15.6	7.4	17.6				
Green Ext Time (p_c), s	0.1	5.3	0.4	0.8	0.2	4.9	0.0	1.3				

Intersection Summary

HCM 6th Ctrl Delay	29.4
HCM 6th LOS	C

Queues
119: Plummer Road & SH 44

2045 Background (With Imp) Mit PM Peak Hour

01/13/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	71	782	58	108	1282	293	113	116	158	333	82	99
v/c Ratio	0.35	0.53	0.08	0.31	0.83	0.38	0.36	0.49	0.47	0.74	0.20	0.23
Control Delay	13.9	18.4	0.2	11.1	25.1	9.0	24.6	39.9	10.8	46.0	29.6	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.9	18.4	0.2	11.1	25.1	9.0	24.6	39.9	10.8	46.0	29.6	4.7
Queue Length 50th (ft)	15	148	0	23	287	42	42	56	0	86	36	0
Queue Length 95th (ft)	36	221	0	51	#427	106	80	106	51	#160	74	25
Internal Link Dist (ft)		5173			3517			675			5173	
Turn Bay Length (ft)	100		100	100		100	100		100	200		200
Base Capacity (vph)	201	1588	785	352	1673	831	313	441	486	454	550	542
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.49	0.07	0.31	0.77	0.35	0.36	0.26	0.33	0.73	0.15	0.18

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Background (With Imp) Mit PM Peak Hour
119: Plummer Road & SH 44

01/13/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	743	55	103	1218	278	107	110	150	316	78	94
Future Volume (vph)	67	743	55	103	1218	278	107	110	150	316	78	94
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1710	3386	1530	1710	3386	1530	1710	1765	1471	3285	1800	1485
Flt Permitted	0.12	1.00	1.00	0.25	1.00	1.00	0.70	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	211	3386	1530	453	3386	1530	1267	1765	1471	3285	1800	1485
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	71	782	58	108	1282	293	113	116	158	333	82	99
RTOR Reduction (vph)	0	0	33	0	0	83	0	0	135	0	0	77
Lane Group Flow (vph)	71	782	25	108	1282	210	113	116	23	333	82	22
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	2%	4%	1%	0%	3%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2			6
Actuated Green, G (s)	37.9	34.1	34.1	40.7	35.5	35.5	16.4	11.7	11.7	10.6	17.6	17.6
Effective Green, g (s)	37.9	34.1	34.1	40.7	35.5	35.5	16.4	11.7	11.7	10.6	17.6	17.6
Actuated g/C Ratio	0.48	0.43	0.43	0.51	0.45	0.45	0.21	0.15	0.15	0.13	0.22	0.22
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	172	1450	655	313	1510	682	287	259	216	437	397	328
v/s Ratio Prot	0.02	0.23		c0.02	c0.38		0.02	c0.07		c0.10	0.05	
v/s Ratio Perm	0.18		0.02	0.15		0.14	0.06		0.02			0.01
v/c Ratio	0.41	0.54	0.04	0.35	0.85	0.31	0.39	0.45	0.11	0.76	0.21	0.07
Uniform Delay, d1	14.5	16.9	13.2	11.0	19.7	14.2	26.9	31.0	29.4	33.3	25.3	24.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.6	0.4	0.0	0.7	4.7	0.3	0.9	1.2	0.2	7.7	0.3	0.1
Delay (s)	16.1	17.3	13.2	11.6	24.3	14.4	27.8	32.2	29.6	41.0	25.6	24.6
Level of Service	B	B	B	B	C	B	C	C	C	D	C	C
Approach Delay (s)		16.9			21.8			29.9			35.4	
Approach LOS		B			C			C			D	

Intersection Summary		
HCM 2000 Control Delay	23.4	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.73	C
Actuated Cycle Length (s)	79.6	Sum of lost time (s)
Intersection Capacity Utilization	67.1%	18.0
Analysis Period (min)	15	ICU Level of Service
		C
c Critical Lane Group		

HCM 6th Signalized Intersection Summary
119: Plummer Road & SH 44

2045 Background (With Imp) Mit PM Peak Hour

01/13/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗	↘	↑	↗	↘↗	↑	↗
Traffic Volume (veh/h)	67	743	55	103	1218	278	107	110	150	316	78	94
Future Volume (veh/h)	67	743	55	103	1218	278	107	110	150	316	78	94
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1786	1800	1800	1786	1800	1800	1772	1744	1786	1800	1758
Adj Flow Rate, veh/h	71	782	58	108	1282	293	113	116	158	333	82	99
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	1	0	0	1	0	0	2	4	1	0	3
Cap, veh/h	219	1495	672	377	1522	684	392	247	206	416	343	284
Arrive On Green	0.05	0.44	0.44	0.06	0.45	0.45	0.07	0.14	0.14	0.13	0.19	0.19
Sat Flow, veh/h	1714	3393	1525	1714	3393	1525	1714	1772	1478	3300	1800	1490
Grp Volume(v), veh/h	71	782	58	108	1282	293	113	116	158	333	82	99
Grp Sat Flow(s),veh/h/ln	1714	1697	1525	1714	1697	1525	1714	1772	1478	1650	1800	1490
Q Serve(g_s), s	1.7	12.8	1.7	2.6	25.6	10.0	4.2	4.6	7.9	7.5	3.0	4.4
Cycle Q Clear(g_c), s	1.7	12.8	1.7	2.6	25.6	10.0	4.2	4.6	7.9	7.5	3.0	4.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	219	1495	672	377	1522	684	392	247	206	416	343	284
V/C Ratio(X)	0.32	0.52	0.09	0.29	0.84	0.43	0.29	0.47	0.77	0.80	0.24	0.35
Avail Cap(c_a), veh/h	244	1581	711	431	1665	749	406	441	367	453	546	452
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.5	15.5	12.4	11.5	18.7	14.4	25.3	30.3	31.7	32.5	26.2	26.8
Incr Delay (d2), s/veh	0.8	0.3	0.1	0.4	3.8	0.4	0.4	1.4	5.9	9.2	0.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	4.6	0.5	0.9	9.9	3.3	1.7	2.0	3.1	3.4	1.3	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.4	15.8	12.5	11.9	22.5	14.8	25.7	31.7	37.6	41.7	26.6	27.5
LnGrp LOS	B	B	B	B	C	B	C	C	D	D	C	C
Approach Vol, veh/h		911			1683			387			514	
Approach Delay, s/veh		15.7			20.5			32.4			36.6	
Approach LOS		B			C			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.1	15.1	9.0	38.2	10.2	19.1	8.4	38.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	10.5	19.0	6.9	35.6	6.3	23.2	5.0	37.5				
Max Q Clear Time (g_c+I1), s	9.5	9.9	4.6	14.8	6.2	6.4	3.7	27.6				
Green Ext Time (p_c), s	0.1	0.8	0.0	5.8	0.0	0.6	0.0	6.7				
Intersection Summary												
HCM 6th Ctrl Delay				22.9								
HCM 6th LOS				C								

Intersection						
Int Delay, s/veh	3.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑↑	↑↑	↗		↗
Traffic Vol, veh/h	88	1059	1163	130	0	267
Future Vol, veh/h	88	1059	1163	130	0	267
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	94	1127	1237	138	0	284

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1375	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.14	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.22	-	-
Pot Cap-1 Maneuver	495	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	495	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	27.9
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	495	-	-	-	432
HCM Lane V/C Ratio	0.189	-	-	-	0.658
HCM Control Delay (s)	14	-	-	-	27.9
HCM Lane LOS	B	-	-	-	D
HCM 95th %tile Q(veh)	0.7	-	-	-	4.6

Intersection												
Int Delay, s/veh	27											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗			↗			↗
Traffic Vol, veh/h	67	1059	133	103	1325	388	0	0	367	0	0	487
Future Vol, veh/h	67	1059	133	103	1325	388	0	0	367	0	0	487
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	200	200	-	200	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	70	1103	139	107	1380	404	0	0	382	0	0	507

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1784	0	0	1242	0	0	-	-	552	-	-	690
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.14	-	-	4.14	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	344	-	-	556	-	-	0	0	477	0	0	~ 388
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	344	-	-	556	-	-	-	-	477	-	-	~ 388
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1			0.7			36.6			184.7		
HCM LOS							E			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	477	344	-	-	556	-	-	388
HCM Lane V/C Ratio	0.801	0.203	-	-	0.193	-	-	1.307
HCM Control Delay (s)	36.6	18.1	-	-	13	-	-	184.7
HCM Lane LOS	E	C	-	-	B	-	-	F
HCM 95th %tile Q(veh)	7.4	0.7	-	-	0.7	-	-	23.1

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

MOVEMENT SUMMARY

Site: 109 [Beacon Light Road / Pollard Road AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

2045 Background
 Site Category: (None)
 Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV]		Arrival Flows [Total HV]		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue [Veh.]	Dist [ft]	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
			veh/h	%	veh/h	%	v/c	sec							
South: RoadName															
3	L2	All MCs	10	0.0	10	0.0	0.305	8.3	LOS A	1.3	34.2	0.65	0.55	0.65	31.5
8	T1	All MCs	53	0.0	53	0.0	0.305	8.3	LOS A	1.3	34.2	0.65	0.55	0.65	32.1
18	R2	All MCs	156	3.1	156	3.1	0.305	8.8	LOS A	1.3	34.2	0.65	0.55	0.65	31.8
Approach			219	2.2	219	2.2	0.305	8.7	LOS A	1.3	34.2	0.65	0.55	0.65	31.8
East: RoadName															
1	L2	All MCs	44	6.7	44	6.7	0.113	3.7	LOS A	0.4	11.9	0.18	0.07	0.18	32.9
6	T1	All MCs	156	8.0	156	8.0	0.113	3.9	LOS A	0.5	12.0	0.18	0.07	0.18	34.0
16	R2	All MCs	87	0.0	87	0.0	0.113	3.5	LOS A	0.5	12.0	0.18	0.07	0.18	34.3
Approach			287	5.4	287	5.4	0.113	3.7	LOS A	0.5	12.0	0.18	0.07	0.18	33.9
North: RoadName															
7	L2	All MCs	126	0.0	126	0.0	0.180	4.9	LOS A	0.9	21.4	0.40	0.24	0.40	31.8
4	T1	All MCs	43	0.0	43	0.0	0.180	4.9	LOS A	0.9	21.4	0.40	0.24	0.40	32.4
14	R2	All MCs	29	0.0	29	0.0	0.180	4.9	LOS A	0.9	21.4	0.40	0.24	0.40	32.2
Approach			198	0.0	198	0.0	0.180	4.9	LOS A	0.9	21.4	0.40	0.24	0.40	32.0
West: RoadName															
5	L2	All MCs	3	0.0	3	0.0	0.210	4.8	LOS A	0.9	23.6	0.37	0.22	0.37	33.3
2	T1	All MCs	462	3.3	462	3.3	0.210	5.1	LOS A	0.9	23.6	0.37	0.22	0.37	34.0
12	R2	All MCs	6	0.0	6	0.0	0.210	4.8	LOS A	0.9	23.6	0.37	0.22	0.37	33.7
Approach			471	3.2	471	3.2	0.210	5.1	LOS A	0.9	23.6	0.37	0.22	0.37	34.0
All Vehicles			1174	3.0	1174	3.0	0.305	5.4	LOS A	1.3	34.2	0.38	0.25	0.38	33.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 109 [Beacon Light Road / Pollard Road PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

2045 Background
 Site Category: (None)
 Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist]			mph	
South: RoadName															
3	L2	All MCs	344	0.0	344	0.0	0.749	16.5	LOS C	13.5	338.4	0.88	0.87	1.50	27.7
8	T1	All MCs	242	0.0	242	0.0	0.749	16.5	LOS C	13.5	338.4	0.88	0.87	1.50	28.2
18	R2	All MCs	174	0.0	174	0.0	0.749	16.5	LOS C	13.5	338.4	0.88	0.87	1.50	28.0
Approach			761	0.0	761	0.0	0.749	16.5	LOS C	13.5	338.4	0.88	0.87	1.50	27.9
East: RoadName															
1	L2	All MCs	182	0.0	182	0.0	0.602	13.5	LOS B	4.8	121.6	0.77	0.79	1.18	28.9
6	T1	All MCs	663	0.9	663	0.9	0.602	13.7	LOS B	4.8	121.6	0.77	0.79	1.18	29.8
16	R2	All MCs	140	0.0	140	0.0	0.602	13.5	LOS B	4.8	121.5	0.77	0.79	1.18	29.8
Approach			986	0.6	986	0.6	0.602	13.7	LOS B	4.8	121.6	0.77	0.79	1.18	29.6
North: RoadName															
7	L2	All MCs	68	0.0	68	0.0	0.275	13.5	LOS B	1.1	26.7	0.77	0.78	0.82	28.5
4	T1	All MCs	34	0.0	34	0.0	0.275	13.5	LOS B	1.1	26.7	0.77	0.78	0.82	29.0
14	R2	All MCs	10	0.0	10	0.0	0.275	13.5	LOS B	1.1	26.7	0.77	0.78	0.82	28.8
Approach			112	0.0	112	0.0	0.275	13.5	LOS B	1.1	26.7	0.77	0.78	0.82	28.7
West: RoadName															
5	L2	All MCs	6	0.0	6	0.0	0.110	4.2	LOS A	0.4	11.2	0.38	0.25	0.38	33.6
2	T1	All MCs	223	1.4	223	1.4	0.110	4.3	LOS A	0.4	11.2	0.38	0.25	0.38	34.4
12	R2	All MCs	9	0.0	9	0.0	0.110	4.2	LOS A	0.4	11.2	0.38	0.25	0.38	34.1
Approach			238	1.3	238	1.3	0.110	4.3	LOS A	0.4	11.2	0.38	0.25	0.38	34.3
All Vehicles			2097	0.4	2097	0.4	0.749	13.6	LOS B	13.5	338.4	0.76	0.76	1.19	29.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SIDRA INTERSECTION 9.1 | Copyright © 2000-2022 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: KITTELSON AND ASSOCIATES INC | Licence: NETWORK / Enterprise Level 3 | Processed: Friday, January 13, 2023 2:42:07 PM

Project: H:\25\25407 - Willow Brook Community TIS\Traffic Operations\Mitigations\Sidra\2045_BG+.sip9

MOVEMENT SUMMARY

Site: 111 [Beacon Light Road / Palmer Lane AM (Site Folder: General)]

2045 Background
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist ft]				
South: RoadName														
3	L2	27	0.0	30	0.0	0.170	10.4	LOS B	0.6	15.6	0.70	0.70	0.70	31.2
18	R2	38	14.3	42	14.3	0.170	11.5	LOS B	0.6	15.6	0.70	0.70	0.70	30.0
Approach		65	8.4	72	8.4	0.170	11.0	LOS B	0.6	15.6	0.70	0.70	0.70	30.5
East: RoadName														
1	L2	24	0.0	27	0.0	0.198	4.2	LOS A	0.9	23.5	0.12	0.04	0.12	35.5
6	T1	468	0.0	520	0.0	0.198	4.2	LOS A	0.9	23.5	0.12	0.04	0.12	35.6
Approach		492	0.0	547	0.0	0.198	4.2	LOS A	0.9	23.5	0.12	0.04	0.12	35.6
West: RoadName														
2	T1	960	0.8	1067	0.8	0.396	6.3	LOS A	2.4	61.5	0.15	0.05	0.15	34.6
12	R2	19	0.0	21	0.0	0.396	6.3	LOS A	2.4	61.5	0.15	0.05	0.15	33.6
Approach		979	0.8	1088	0.8	0.396	6.3	LOS A	2.4	61.5	0.15	0.05	0.15	34.6
All Vehicles		1536	0.9	1707	0.9	0.396	5.8	LOS A	2.4	61.5	0.16	0.07	0.16	34.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: Same as Sign Control.
 Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
 LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
 Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
 Roundabout Capacity Model: US HCM 6.
 Delay Model: HCM Delay Formula (Geometric Delay is not included).
 Queue Model: HCM Queue Formula.
 Gap-Acceptance Capacity: Traditional M1.
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 111 [Beacon Light Road / Palmer Lane PM (Site Folder: General)]

2045 Background
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist ft]				
South: RoadName														
3	L2	115	4.8	121	4.8	0.170	6.0	LOS A	0.7	18.5	0.53	0.45	0.53	32.4
18	R2	22	0.0	23	0.0	0.170	5.8	LOS A	0.7	18.5	0.53	0.45	0.53	31.6
Approach		137	4.0	144	4.0	0.170	6.0	LOS A	0.7	18.5	0.53	0.45	0.53	32.3
East: RoadName														
1	L2	5	0.0	5	0.0	0.531	8.7	LOS A	3.8	95.1	0.43	0.26	0.43	33.5
6	T1	1263	0.6	1329	0.6	0.531	8.7	LOS A	3.8	95.1	0.43	0.26	0.43	33.4
Approach		1268	0.6	1335	0.6	0.531	8.7	LOS A	3.8	95.1	0.43	0.26	0.43	33.4
West: RoadName														
2	T1	416	0.6	438	0.6	0.163	3.9	LOS A	0.7	18.7	0.04	0.01	0.04	35.9
12	R2	19	0.0	20	0.0	0.163	3.9	LOS A	0.7	18.7	0.04	0.01	0.04	34.8
Approach		435	0.6	458	0.6	0.163	3.9	LOS A	0.7	18.7	0.04	0.01	0.04	35.9
All Vehicles		1840	0.8	1937	0.8	0.531	7.4	LOS A	3.8	95.1	0.34	0.21	0.34	33.8

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: Same as Sign Control.
 Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
 LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
 Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
 Roundabout Capacity Model: US HCM 6.
 Delay Model: HCM Delay Formula (Geometric Delay is not included).
 Queue Model: HCM Queue Formula.
 Gap-Acceptance Capacity: Traditional M1.
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 113 [Floating Feather Road / Star Road AM (Site Folder: General)]

2045 Background
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist ft]				
South: RoadName														
3	L2	101	3.1	112	3.1	0.247	5.7	LOS A	1.2	31.0	0.41	0.28	0.41	33.7
18	R2	140	2.2	156	2.2	0.247	5.6	LOS A	1.2	31.0	0.41	0.28	0.41	32.7
Approach		241	2.6	268	2.6	0.247	5.6	LOS A	1.2	31.0	0.41	0.28	0.41	33.1
East: RoadName														
1	L2	302	4.4	336	4.4	0.354	6.5	LOS A	2.0	52.0	0.34	0.19	0.34	32.3
6	T1	75	0.0	83	0.0	0.354	6.4	LOS A	2.0	52.0	0.34	0.19	0.34	32.4
Approach		377	3.5	419	3.5	0.354	6.5	LOS A	2.0	52.0	0.34	0.19	0.34	32.3
West: RoadName														
2	T1	185	2.9	206	2.9	0.478	9.7	LOS A	3.1	79.7	0.63	0.59	0.71	32.8
12	R2	222	1.2	247	1.2	0.478	9.6	LOS A	3.1	79.7	0.63	0.59	0.71	31.9
Approach		407	2.0	452	2.0	0.478	9.6	LOS A	3.1	79.7	0.63	0.59	0.71	32.3
All Vehicles		1025	2.7	1139	2.7	0.478	7.5	LOS A	3.1	79.7	0.47	0.37	0.50	32.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: Same as Sign Control.
 Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
 LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
 Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
 Roundabout Capacity Model: US HCM 6.
 Delay Model: HCM Delay Formula (Geometric Delay is not included).
 Queue Model: HCM Queue Formula.
 Gap-Acceptance Capacity: Traditional M1.
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 113 [Floating Feather Road / Star Road PM (Site Folder: General)]

2045 Background
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist ft]				
South: RoadName														
3	L2	139	0.0	153	0.0	0.283	5.6	LOS A	1.5	38.7	0.34	0.20	0.34	33.7
18	R2	172	0.0	189	0.0	0.283	5.6	LOS A	1.5	38.7	0.34	0.20	0.34	32.7
Approach		311	0.0	342	0.0	0.283	5.6	LOS A	1.5	38.7	0.34	0.20	0.34	33.1
East: RoadName														
1	L2	584	1.8	642	1.8	0.760	15.9	LOS C	13.5	340.5	0.77	0.63	0.96	28.8
6	T1	222	0.0	244	0.0	0.760	15.9	LOS C	13.5	340.5	0.77	0.63	0.96	28.7
Approach		806	1.3	886	1.3	0.760	15.9	LOS C	13.5	340.5	0.77	0.63	0.96	28.8
West: RoadName														
2	T1	120	0.0	132	0.0	0.472	11.9	LOS B	3.0	74.4	0.73	0.83	1.02	31.7
12	R2	182	1.5	200	1.5	0.472	12.0	LOS B	3.0	74.4	0.73	0.83	1.02	30.9
Approach		302	0.9	332	0.9	0.472	12.0	LOS B	3.0	74.4	0.73	0.83	1.02	31.2
All Vehicles		1419	0.9	1559	0.9	0.760	12.8	LOS B	13.5	340.5	0.67	0.58	0.84	30.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: Same as Sign Control.
 Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
 LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
 Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
 Roundabout Capacity Model: US HCM 6.
 Delay Model: HCM Delay Formula (Geometric Delay is not included).
 Queue Model: HCM Queue Formula.
 Gap-Acceptance Capacity: Traditional M1.
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 114 [Floating Feather Road / Plummer Road AM (Site Folder: General)]

2045 Background
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist ft]				
South: RoadName														
3	L2	91	2.9	98	2.9	0.152	4.7	LOS A	0.7	17.4	0.38	0.25	0.38	33.7
18	R2	62	0.0	67	0.0	0.152	4.6	LOS A	0.7	17.4	0.38	0.25	0.38	32.8
Approach		153	1.7	165	1.7	0.152	4.7	LOS A	0.7	17.4	0.38	0.25	0.38	33.3
East: RoadName														
1	L2	40	6.7	43	6.7	0.120	4.1	LOS A	0.5	13.7	0.25	0.12	0.25	34.7
6	T1	91	5.9	98	5.9	0.120	4.1	LOS A	0.5	13.7	0.25	0.12	0.25	34.8
Approach		131	6.1	141	6.1	0.120	4.1	LOS A	0.5	13.7	0.25	0.12	0.25	34.8
West: RoadName														
2	T1	198	2.7	213	2.7	0.431	7.0	LOS A	3.0	75.5	0.24	0.10	0.24	34.1
12	R2	324	0.0	348	0.0	0.431	7.0	LOS A	3.0	75.5	0.24	0.10	0.24	33.2
Approach		522	1.0	561	1.0	0.431	7.0	LOS A	3.0	75.5	0.24	0.10	0.24	33.5
All Vehicles		806	2.0	867	2.0	0.431	6.1	LOS A	3.0	75.5	0.27	0.13	0.27	33.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: Same as Sign Control.
 Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
 LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
 Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
 Roundabout Capacity Model: US HCM 6.
 Delay Model: HCM Delay Formula (Geometric Delay is not included).
 Queue Model: HCM Queue Formula.
 Gap-Acceptance Capacity: Traditional M1.
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 114 [Floating Feather Road / Plummer Road PM (Site Folder: General)]

2045 Background
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist ft]				
South: RoadName														
3	L2	361	0.0	401	0.0	0.416	7.5	LOS A	2.6	64.8	0.47	0.32	0.47	31.9
18	R2	67	0.0	74	0.0	0.416	7.5	LOS A	2.6	64.8	0.47	0.32	0.47	31.0
Approach		428	0.0	476	0.0	0.416	7.5	LOS A	2.6	64.8	0.47	0.32	0.47	31.7
East: RoadName														
1	L2	91	0.0	101	0.0	0.581	12.1	LOS B	5.6	139.7	0.74	0.83	1.08	31.4
6	T1	388	0.0	431	0.0	0.581	12.1	LOS B	5.6	139.7	0.74	0.83	1.08	31.3
Approach		479	0.0	532	0.0	0.581	12.1	LOS B	5.6	139.7	0.74	0.83	1.08	31.4
West: RoadName														
2	T1	166	0.0	184	0.0	0.368	6.4	LOS A	2.3	56.9	0.33	0.18	0.33	34.5
12	R2	246	0.0	273	0.0	0.368	6.4	LOS A	2.3	56.9	0.33	0.18	0.33	33.5
Approach		412	0.0	458	0.0	0.368	6.4	LOS A	2.3	56.9	0.33	0.18	0.33	33.9
All Vehicles		1319	0.0	1466	0.0	0.581	8.8	LOS A	5.6	139.7	0.52	0.46	0.65	32.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: Same as Sign Control.
 Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
 LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
 Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
 Roundabout Capacity Model: US HCM 6.
 Delay Model: HCM Delay Formula (Geometric Delay is not included).
 Queue Model: HCM Queue Formula.
 Gap-Acceptance Capacity: Traditional M1.
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.



KITTELSON & ASSOCIATES, INC.
 610 SW Alder, Suite 700
 Portland, Oregon 97205
 (503) 228-5230

Project #: 25407
Project Name: Willow Brook Golf Community
Analyst: CHF
Date: 1/13/2023
File: H:\25\25407 - Willow Brook Community
 TIS\analysis\Signal Warrants\[SWA - 104 - 2045
 Background (wimp).xls\Data Input
Intersection: 4 - SH 16 & Deep Canyon Drive
Scenario: 2045 Background Conditions (wIMP)

Analysis Traffic Volumes

Hour	Major Street		Minor Street			
	Begin	End	NB	SB	EB	WB
7:00 AM	8:00 AM		417	1071	45	0
2nd Highest Hour			417	1071	36	0
3rd Highest Hour			377	968	34	0
4th Highest Hour			362	929	30	0
5th Highest Hour			322	826	28	0
6th Highest Hour			311	800	26	0
7th Highest Hour			296	761	25	0
8th Highest Hour			286	736	24	0
9th Highest Hour			271	697	24	0
10th Highest Hour			266	684	23	0
11th Highest Hour			256	658	21	0
12th Highest Hour			251	645	20	0
13th Highest Hour			241	619	16	0
14th Highest Hour			216	555	16	0
15th Highest Hour			171	439	15	0
16th Highest Hour			151	387	14	0
17th Highest Hour			116	297	8	0
18th Highest Hour			95	245	8	0
19th Highest Hour			80	206	3	0
20th Highest Hour			45	116	3	0
21st Highest Hour			30	77	2	0
22nd Highest Hour			25	65	0	0
23rd Highest Hour			15	39	0	0
24th Highest Hour			15	39	0	0

Warrant Summary

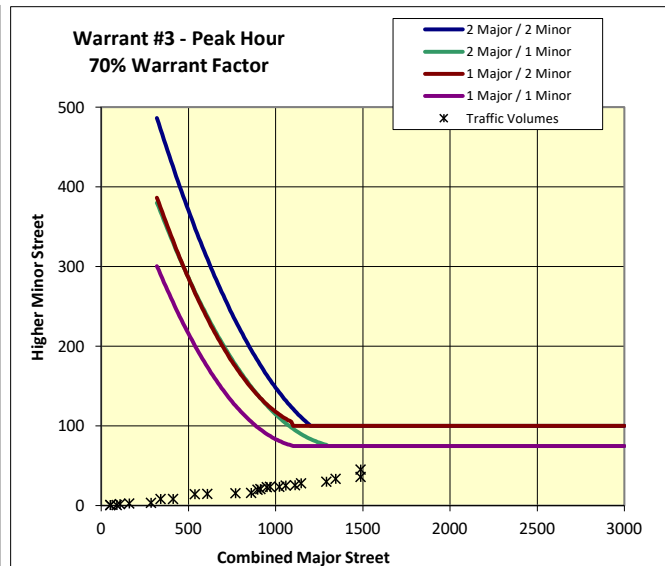
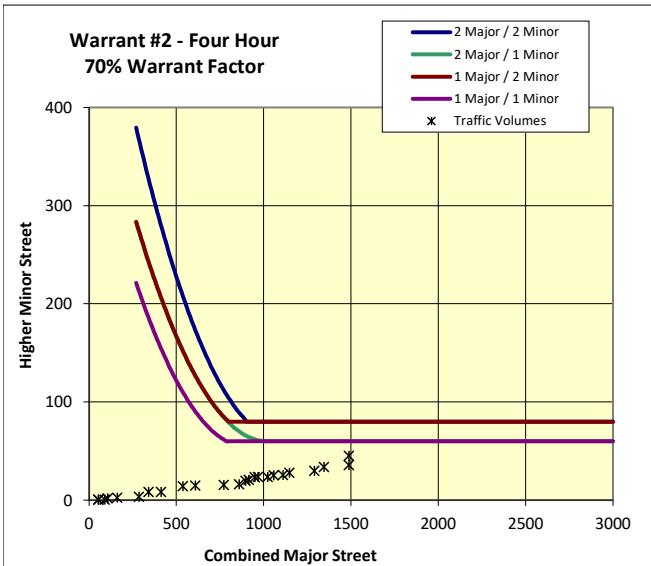
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	No
#2	Four-Hour Vehicular volume	Yes	No
#3	Peak Hour	Yes	No
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Major
East-West Approach =	Minor
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	Yes
Population < 10,000?	No
Warrant Factor	70%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	87%
Major Street: 8th-Highest Hour / Peak Hour	69%
Minor Street: 4th-Highest Hour / Peak Hour	66%
Minor Street: 8th-Highest Hour / Peak Hour	52%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	0	No	No
	B	750	75	0	No	No
80%	A	400	120	0	No	No
	B	600	60	0	No	No
70%	A	350	105	0	No	No
	B	525	53	0	No	No
56%	A	280	84	0	No	No
	B	420	42	1	No	No





KITTELSON & ASSOCIATES, INC.
 610 SW Alder, Suite 700
 Portland, Oregon 97205
 (503) 228-5230

Project #: 25407
Project Name: Willow Brook Golf Community
Analyst: CHF
Date: 10/14/2022
File: H:\25\25407 - Willow Brook Community
 TIS\analysis\Signal Warrants\SWA - 109 - 2045
 Background (wIMP).xls\Data Input
Intersection: 9 - Beacon Light Rd & Pollard Rd
Scenario: 2045 Background (wIMP)

Analysis Traffic Volumes

Hour	Major Street		Minor Street			
	Begin	End	EB	WB	NB	SB
5:00 PM	6:00 PM		245	943	685	100
2nd Highest Hour			242	932	611	89
3rd Highest Hour			220	848	530	77
4th Highest Hour			198	763	523	76
5th Highest Hour			165	636	464	68
6th Highest Hour			162	625	457	67
7th Highest Hour			154	593	442	65
8th Highest Hour			138	530	405	59
9th Highest Hour			135	519	383	56
10th Highest Hour			132	509	368	54
11th Highest Hour			127	487	361	53
12th Highest Hour			124	477	361	53
13th Highest Hour			121	466	354	52
14th Highest Hour			121	466	295	43
15th Highest Hour			99	381	287	42
16th Highest Hour			85	328	206	30
17th Highest Hour			72	275	206	30
18th Highest Hour			55	212	140	20
19th Highest Hour			50	191	88	13
20th Highest Hour			33	127	74	11
21st Highest Hour			17	64	37	5
22nd Highest Hour			14	53	29	4
23rd Highest Hour			8	32	29	4
24th Highest Hour			8	32	22	3

Warrant Summary

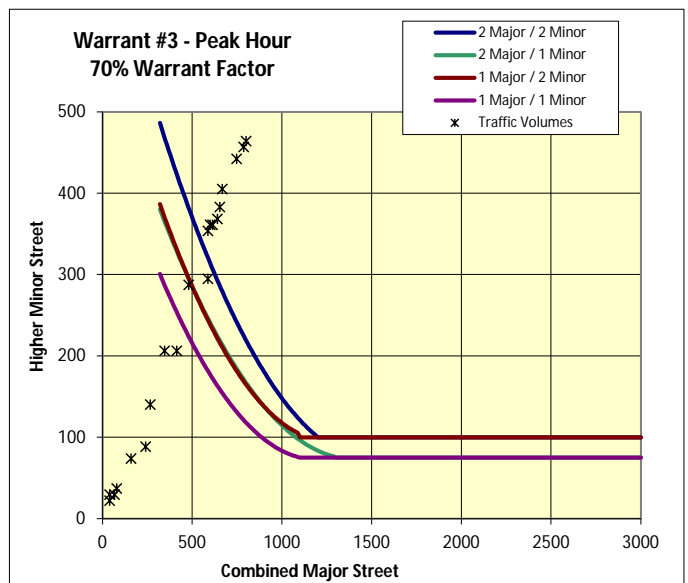
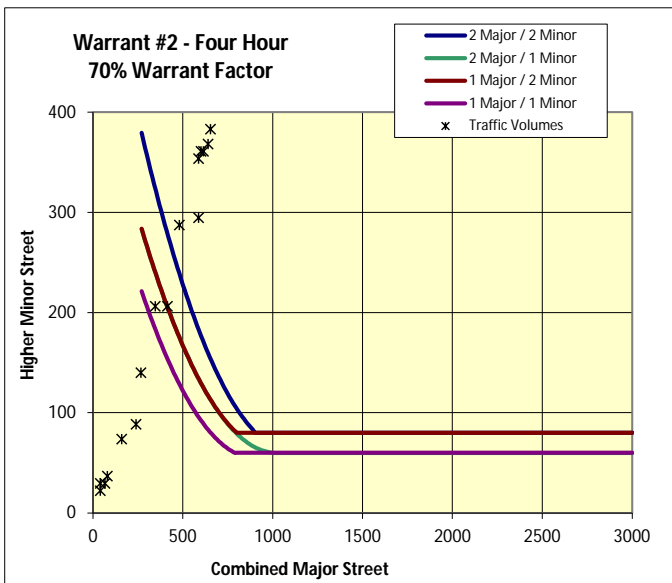
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	Yes
#2	Four-Hour Vehicular volume	Yes	Yes
#3	Peak Hour	Yes	Yes
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Minor
East-West Approach =	Major
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	Yes
Population < 10,000?	No
Warrant Factor	70%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	81%
Major Street: 8th-Highest Hour / Peak Hour	56%
Minor Street: 4th-Highest Hour / Peak Hour	76%
Minor Street: 8th-Highest Hour / Peak Hour	59%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	14	Yes	Yes
	B	750	75	6	No	
80%	A	400	120	16	Yes	Yes
	B	600	60	12	Yes	
70%	A	350	105	16	Yes	Yes
	B	525	53	14	Yes	
56%	A	280	84	17	Yes	Yes
	B	420	42	15	Yes	





KITTELSON & ASSOCIATES, INC.
 610 SW Alder, Suite 700
 Portland, Oregon 97205
 (503) 228-5230

Analysis Traffic Volumes

Hour	Major Street		Minor Street			
	Begin	End	EB	WB	NB	SB
5:00 PM	6:00 PM		434	1268	137	0
2nd Highest Hour			429	1254	122	0
3rd Highest Hour			390	1140	106	0
4th Highest Hour			351	1026	105	0
5th Highest Hour			293	855	93	0
6th Highest Hour			288	841	91	0
7th Highest Hour			273	798	88	0
8th Highest Hour			244	712	81	0
9th Highest Hour			239	698	77	0
10th Highest Hour			234	684	74	0
11th Highest Hour			224	655	72	0
12th Highest Hour			219	641	72	0
13th Highest Hour			215	627	71	0
14th Highest Hour			215	627	59	0
15th Highest Hour			176	513	57	0
16th Highest Hour			151	442	41	0
17th Highest Hour			127	370	41	0
18th Highest Hour			98	285	28	0
19th Highest Hour			88	256	18	0
20th Highest Hour			59	171	15	0
21st Highest Hour			29	85	7	0
22nd Highest Hour			24	71	6	0
23rd Highest Hour			15	43	6	0
24th Highest Hour			15	43	4	0

Project #: 25407
Project Name: Willow Brook Golf Community
Analyst: CHF
Date: 10/14/2022
File: H:\25\25407 - Willow Brook Community
 TIS\analysis\Signal Warrants\SWA - 111 - 2045
 Background (wIMP).xls\Data Input
Intersection: 11 - Beacon Light Rd & Palmer Ln
Scenario: 2045 Background (wIMP)

Warrant Summary

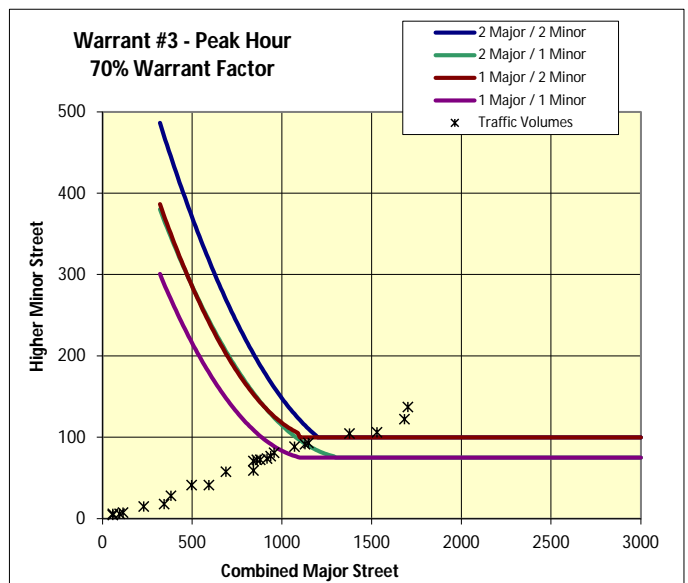
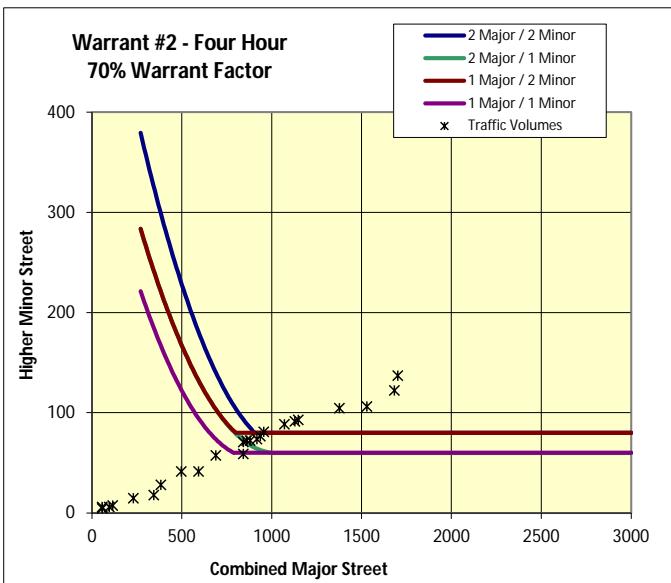
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	Yes
#2	Four-Hour Vehicular volume	Yes	Yes
#3	Peak Hour	Yes	Yes
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Minor
East-West Approach =	Major
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	Yes
Population < 10,000?	No
Warrant Factor	70%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	81%
Major Street: 8th-Highest Hour / Peak Hour	56%
Minor Street: 4th-Highest Hour / Peak Hour	76%
Minor Street: 8th-Highest Hour / Peak Hour	59%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	0	No	Yes
	B	750	75	9	Yes	Yes
80%	A	400	120	2	No	Yes
	B	600	60	13	Yes	Yes
70%	A	350	105	4	No	Yes
	B	525	53	15	Yes	Yes
56%	A	280	84	7	No	Yes
	B	420	42	17	Yes	Yes





KITTELSON & ASSOCIATES, INC.
 610 SW Alder, Suite 700
 Portland, Oregon 97205
 (503) 228-5230

Analysis Traffic Volumes

Hour	Major Street		Minor Street			
	Begin	End	EB	WB	NB	SB
5:00 PM	6:00 PM		302	806	311	0
2nd Highest Hour			299	797	278	0
3rd Highest Hour			271	724	241	0
4th Highest Hour			244	652	237	0
5th Highest Hour			204	543	211	0
6th Highest Hour			200	534	207	0
7th Highest Hour			190	507	201	0
8th Highest Hour			170	453	184	0
9th Highest Hour			166	444	174	0
10th Highest Hour			163	435	167	0
11th Highest Hour			156	417	164	0
12th Highest Hour			153	408	164	0
13th Highest Hour			149	398	161	0
14th Highest Hour			149	398	134	0
15th Highest Hour			122	326	130	0
16th Highest Hour			105	281	94	0
17th Highest Hour			88	235	94	0
18th Highest Hour			68	181	64	0
19th Highest Hour			61	163	40	0
20th Highest Hour			41	109	33	0
21st Highest Hour			20	54	17	0
22nd Highest Hour			17	45	13	0
23rd Highest Hour			10	27	13	0
24th Highest Hour			10	27	10	0

Project #: 25407
Project Name: Willow Brook Golf Community
Analyst: CHF
Date: 10/14/2022
File: H:\25\25407 - Willow Brook Community
 TIS\analysis\Signal Warrants\SWA - 113 - 2045
 Background (wIMP).xls\Data Input
Intersection: 13 - Floating Feather Rd & Star Rd
Scenario: 2045 Background (wIMP)

Warrant Summary

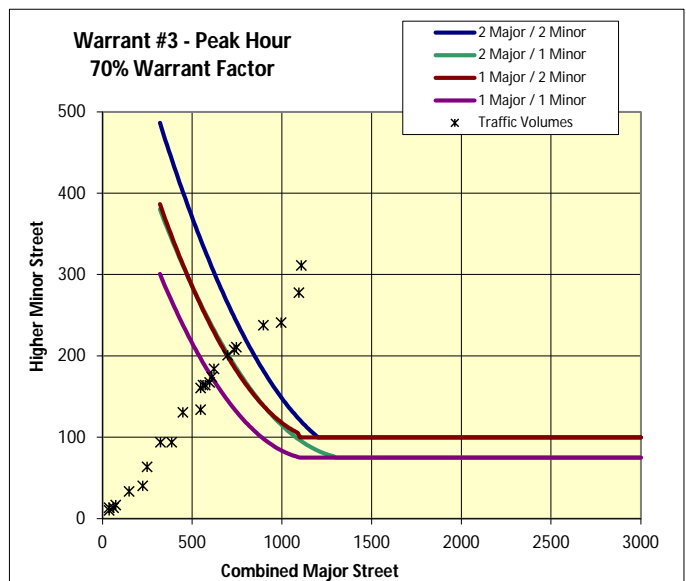
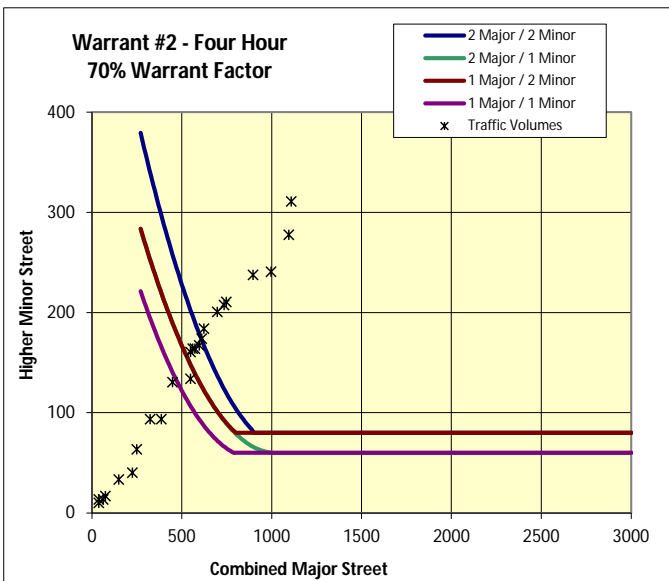
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	Yes
#2	Four-Hour Vehicular volume	Yes	Yes
#3	Peak Hour	Yes	Yes
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Minor
East-West Approach =	Major
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	Yes
Population < 10,000?	No
Warrant Factor	70%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	81%
Major Street: 8th-Highest Hour / Peak Hour	56%
Minor Street: 4th-Highest Hour / Peak Hour	76%
Minor Street: 8th-Highest Hour / Peak Hour	59%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	13	Yes	Yes
	B	750	75	4	No	
80%	A	400	120	15	Yes	Yes
	B	600	60	9	Yes	
70%	A	350	105	15	Yes	Yes
	B	525	53	14	Yes	
56%	A	280	84	17	Yes	Yes
	B	420	42	15	Yes	





KITTELSON & ASSOCIATES, INC.
 610 SW Alder, Suite 700
 Portland, Oregon 97205
 (503) 228-5230

Analysis Traffic Volumes

Hour	Major Street		Minor Street			
	Begin	End	EB	WB	NB	SB
5:00 PM	6:00 PM		412	479	428	0
2nd Highest Hour			407	474	382	0
3rd Highest Hour			370	431	331	0
4th Highest Hour			333	388	327	0
5th Highest Hour			278	323	290	0
6th Highest Hour			273	318	285	0
7th Highest Hour			259	301	276	0
8th Highest Hour			231	269	253	0
9th Highest Hour			227	264	239	0
10th Highest Hour			222	258	230	0
11th Highest Hour			213	248	226	0
12th Highest Hour			208	242	226	0
13th Highest Hour			204	237	221	0
14th Highest Hour			204	237	184	0
15th Highest Hour			167	194	179	0
16th Highest Hour			144	167	129	0
17th Highest Hour			120	140	129	0
18th Highest Hour			93	108	87	0
19th Highest Hour			83	97	55	0
20th Highest Hour			56	65	46	0
21st Highest Hour			28	32	23	0
22nd Highest Hour			23	27	18	0
23rd Highest Hour			14	16	18	0
24th Highest Hour			14	16	14	0

Project #: 25407
Project Name: Willow Brook Golf Community
Analyst: CHF
Date: 10/14/2022
File: H:\25\25407 - Willow Brook Community
 TIS\analysis\Signal Warrants\SWA - 114 - 2045
 Background (wIMP).xls\Data Input
Intersection: 14 - Floating Feather Rd & Plummer Ln
Scenario: 2045 Background (wIMP)

Warrant Summary

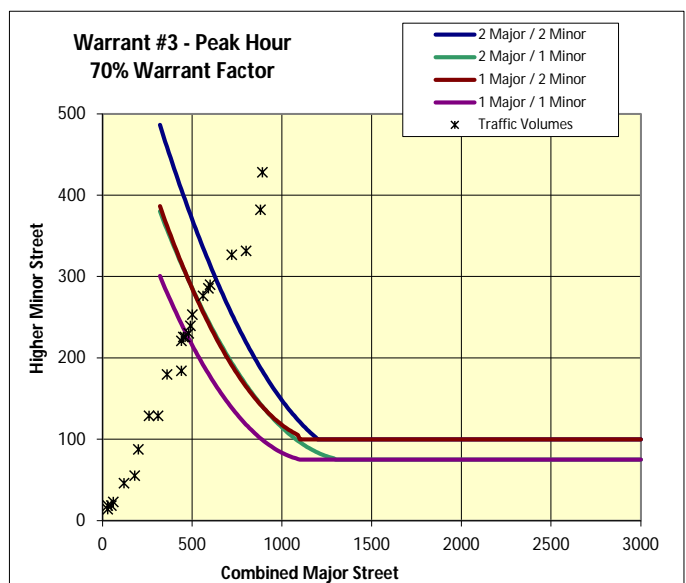
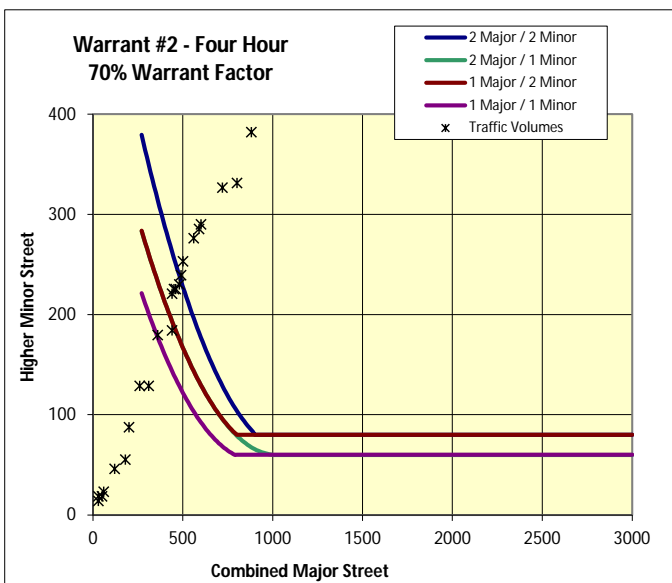
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	Yes
#2	Four-Hour Vehicular volume	Yes	Yes
#3	Peak Hour	Yes	Yes
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Minor
East-West Approach =	Major
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	Yes
Population < 10,000?	No
Warrant Factor	70%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	81%
Major Street: 8th-Highest Hour / Peak Hour	56%
Minor Street: 4th-Highest Hour / Peak Hour	76%
Minor Street: 8th-Highest Hour / Peak Hour	59%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	8	Yes	Yes
	B	750	75	3	No	
80%	A	400	120	14	Yes	Yes
	B	600	60	5	No	
70%	A	350	105	15	Yes	Yes
	B	525	53	7	No	
56%	A	280	84	16	Yes	Yes
	B	420	42	14	Yes	





KITTELSON & ASSOCIATES, INC.
 610 SW Alder, Suite 700
 Portland, Oregon 97205
 (503) 228-5230

Project #: 25407
Project Name: Willow Brook Golf Community
Analyst: CHF
Date: 10/14/2022
File: H:\25\25407 - Willow Brook Community
 TIS\analysis\Signal Warrants\SWA - 117 - 2045
 Background (wImp).xls\Data Input
Intersection: 17 - SH 44 / Can Ada Road
Scenario: 2045 Background Conditions (wIMP)

Analysis Traffic Volumes

Hour	Major Street		Minor Street			
	Begin	End	EB	WB	NB	SB
5:00 PM	6:00 PM		952	1293	0	267
2nd Highest Hour			952	1293	0	264
3rd Highest Hour			860	1168	0	240
4th Highest Hour			826	1122	0	216
5th Highest Hour			734	997	0	180
6th Highest Hour			711	966	0	177
7th Highest Hour			677	919	0	168
8th Highest Hour			654	888	0	150
9th Highest Hour			619	841	0	147
10th Highest Hour			608	826	0	144
11th Highest Hour			585	794	0	138
12th Highest Hour			573	779	0	135
13th Highest Hour			551	748	0	132
14th Highest Hour			493	670	0	132
15th Highest Hour			390	530	0	108
16th Highest Hour			344	467	0	93
17th Highest Hour			264	358	0	78
18th Highest Hour			218	296	0	60
19th Highest Hour			184	249	0	54
20th Highest Hour			103	140	0	36
21st Highest Hour			69	93	0	18
22nd Highest Hour			57	78	0	15
23rd Highest Hour			34	47	0	9
24th Highest Hour			34	47	0	9

Warrant Summary

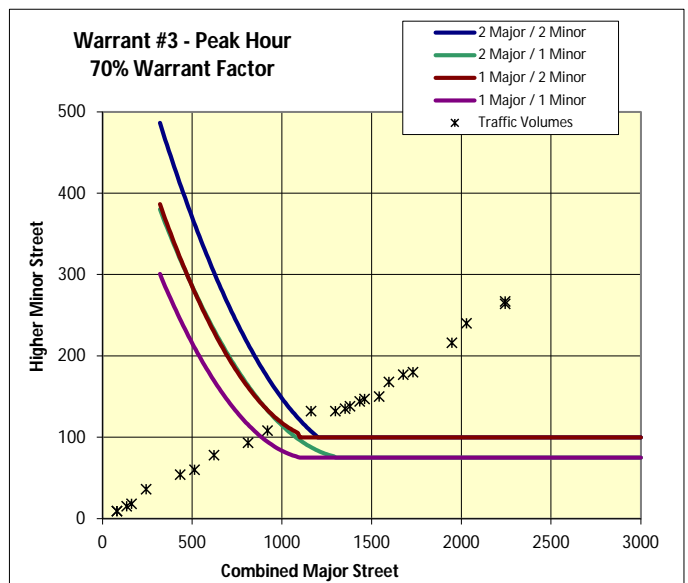
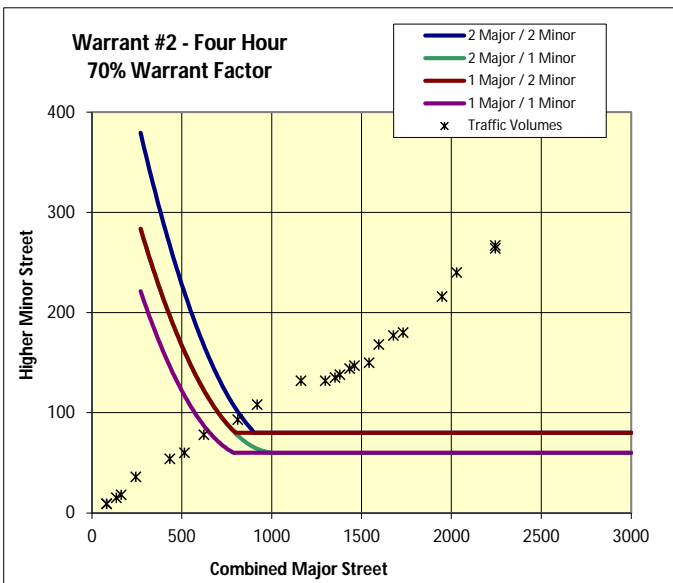
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	Yes
#2	Four-Hour Vehicular volume	Yes	Yes
#3	Peak Hour	Yes	Yes
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Minor
East-West Approach =	Major
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	Yes
Population < 10,000?	No
Warrant Factor	70%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	87%
Major Street: 8th-Highest Hour / Peak Hour	69%
Minor Street: 4th-Highest Hour / Peak Hour	81%
Minor Street: 8th-Highest Hour / Peak Hour	56%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	8	Yes	Yes
	B	750	75	16	Yes	Yes
80%	A	400	120	14	Yes	Yes
	B	600	60	17	Yes	Yes
70%	A	350	105	15	Yes	Yes
	B	525	53	17	Yes	Yes
56%	A	280	84	16	Yes	Yes
	B	420	42	19	Yes	Yes





KITTELSON & ASSOCIATES, INC.
 610 SW Alder, Suite 700
 Portland, Oregon 97205
 (503) 228-5230

Project #: 25407
Project Name: Willow Brook Golf Community
Analyst: CHF
Date: 10/14/2022
File: H:\25\25407 - Willow Brook Community
 TIS\analysis\Signal Warrants\SWA - 119 - 2045
 Background (wIMP).xls\Data Input
Intersection: 19 - SH 44 & Plummer Ln
Scenario: 2045 Background (wIMP)

Analysis Traffic Volumes

Hour	Major Street		Minor Street			
	Begin	End	EB	WB	NB	SB
5:00 PM	6:00 PM		865	1599	367	487
2nd Highest Hour			865	1599	328	435
3rd Highest Hour			782	1445	284	377
4th Highest Hour			750	1387	280	372
5th Highest Hour			667	1233	249	330
6th Highest Hour			646	1194	245	325
7th Highest Hour			615	1137	237	314
8th Highest Hour			594	1098	217	288
9th Highest Hour			563	1040	205	272
10th Highest Hour			552	1021	197	262
11th Highest Hour			532	983	193	257
12th Highest Hour			521	963	193	257
13th Highest Hour			500	925	189	251
14th Highest Hour			448	828	158	209
15th Highest Hour			354	655	154	204
16th Highest Hour			313	578	110	147
17th Highest Hour			240	443	110	147
18th Highest Hour			198	366	75	99
19th Highest Hour			167	308	47	63
20th Highest Hour			94	173	39	52
21st Highest Hour			63	116	20	26
22nd Highest Hour			52	96	16	21
23rd Highest Hour			31	58	16	21
24th Highest Hour			31	58	12	16

Warrant Summary

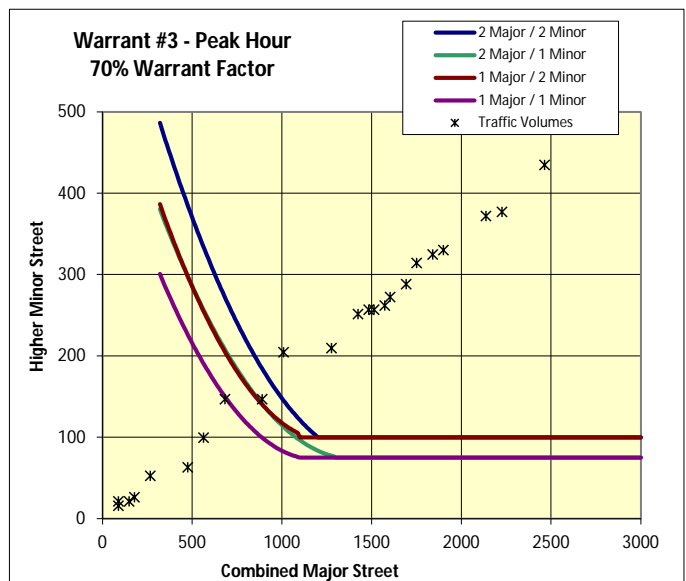
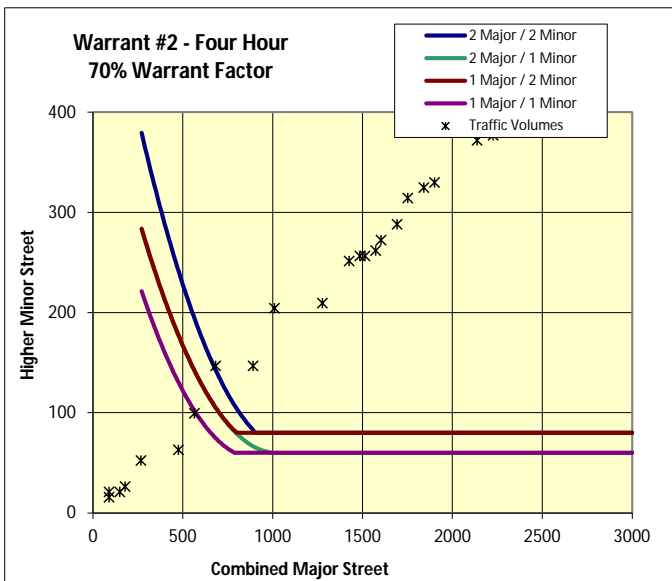
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	Yes
#2	Four-Hour Vehicular volume	Yes	Yes
#3	Peak Hour	Yes	Yes
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Minor
East-West Approach =	Major
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	Yes
Population < 10,000?	No
Warrant Factor	70%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	87%
Major Street: 8th-Highest Hour / Peak Hour	69%
Minor Street: 4th-Highest Hour / Peak Hour	76%
Minor Street: 8th-Highest Hour / Peak Hour	59%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	15	Yes	Yes
	B	750	75	16	Yes	Yes
80%	A	400	120	17	Yes	Yes
	B	600	60	17	Yes	Yes
70%	A	350	105	17	Yes	Yes
	B	525	53	18	Yes	Yes
56%	A	280	84	18	Yes	Yes
	B	420	42	19	Yes	Yes





Appendix P

Internal Trip Capture Worksheets

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Willow Brook Development	Organization:	
Project Location:	Ada County, Idaho	Performed By:	
Scenario Description:	Mixed-Use Calculation	Date:	
Analysis Year:	2045	Checked By:	
Analysis Period:	AM Street Peak Hour	Date:	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips ³		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail				130	80	50
Restaurant				0		
Cinema/Entertainment				0		
Residential				646	167	479
Hotel				0		
All Other Land Uses ²				0		
				776	247	529

Table 2-A: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ. ⁴	% Transit	% Non-Motorized	Veh. Occ. ⁴	% Transit	% Non-Motorized
Office	1.00	0%	0%	1.00	0%	0%
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant	1.00	0%	0%	1.00	0%	0%
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential	1.00	0%	0%	1.00	0%	0%
Hotel	1.00	0%	0%	1.00	0%	0%
All Other Land Uses ²	1.00	0%	0%	1.00	0%	0%

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail	0					
Restaurant	0	0				
Cinema/Entertainment	0	0	0			
Residential	0	5	0			
Hotel	0	0	0			

Table 5-A: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	776	247	529
Internal Capture Percentage	2%	3%	2%
External Vehicle-Trips ⁵	760	239	521
External Transit-Trips ⁶	0	0	0
External Non-Motorized Trips ⁶	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	6%	6%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	2%	1%
Hotel	N/A	N/A

¹Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

³Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

⁴Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

⁵Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

⁶Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Willow Brook Development	Organization:	
Project Location:	Ada County, Idaho	Performed By:	
Scenario Description:	Mixed-Use Calculation	Date:	
Analysis Year:	2045	Checked By:	
Analysis Period:	PM Street Peak Hour	Date:	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips ³		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail				389	190	199
Restaurant				0		
Cinema/Entertainment				0		
Residential				907	571	336
Hotel				0		
All Other Land Uses ²				0		
				1,296	761	535

Table 2-P: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ. ⁴	% Transit	% Non-Motorized	Veh. Occ. ⁴	% Transit	% Non-Motorized
Office	1.00	0%	0%	1.00	0%	0%
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant	1.00	0%	0%	1.00	0%	0%
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential	1.00	0%	0%	1.00	0%	0%
Hotel	1.00	0%	0%	1.00	0%	0%
All Other Land Uses ²	1.00	0%	0%	1.00	0%	0%

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	52	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	19	0	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	1,296	761	535
Internal Capture Percentage	11%	9%	13%
External Vehicle-Trips ⁵	1,154	690	464
External Transit-Trips ⁶	0	0	0
External Non-Motorized Trips ⁶	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	10%	26%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	9%	6%
Hotel	N/A	N/A

¹Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

³Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

⁴Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made.

⁵Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

⁶Person-Trips

*Indicates computation that has been rounded to the nearest whole number.



Appendix Q
Year 2030 Total Traffic
Operation Worksheets

Intersection												
Int Delay, s/veh	8.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	15	113	71	32	1	44	6	33	1	4	1
Future Vol, veh/h	4	15	113	71	32	1	44	6	33	1	4	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	2	0	2	2	2	4	0	2	2	0	0
Mvmt Flow	4	17	126	79	36	1	49	7	37	1	4	1

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	149	149	5	202	131	26	5	0	0	44	0	0
Stage 1	7	7	-	124	124	-	-	-	-	-	-	-
Stage 2	142	142	-	78	7	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.52	6.2	7.12	6.52	6.22	4.14	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.018	3.3	3.518	4.018	3.318	2.236	-	-	2.218	-	-
Pot Cap-1 Maneuver	824	743	1084	756	760	1050	1603	-	-	1564	-	-
Stage 1	1020	890	-	880	793	-	-	-	-	-	-	-
Stage 2	866	779	-	931	890	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	774	719	1084	640	736	1050	1603	-	-	1564	-	-
Mov Cap-2 Maneuver	774	719	-	640	736	-	-	-	-	-	-	-
Stage 1	988	889	-	853	768	-	-	-	-	-	-	-
Stage 2	799	755	-	807	889	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.2		11.5		3.9		1.2	
HCM LOS	A		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1603	-	-	1013	669	1564	-	-
HCM Lane V/C Ratio	0.03	-	-	0.145	0.173	0.001	-	-
HCM Control Delay (s)	7.3	0	-	9.2	11.5	7.3	0	-
HCM Lane LOS	A	A	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5	0.6	0	-	-

Intersection						
Int Delay, s/veh	6.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	28	1	35	12	1	74
Future Vol, veh/h	28	1	35	12	1	74
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	2	2	0	2	2
Mvmt Flow	31	1	39	13	1	82

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	32	0	123 32
Stage 1	-	-	-	-	32 -
Stage 2	-	-	-	-	91 -
Critical Hdwy	-	-	4.12	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	1580	-	872 1042
Stage 1	-	-	-	-	991 -
Stage 2	-	-	-	-	933 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1580	-	850 1042
Mov Cap-2 Maneuver	-	-	-	-	850 -
Stage 1	-	-	-	-	991 -
Stage 2	-	-	-	-	910 -

Approach	EB	WB	NB
HCM Control Delay, s	0	5.5	8.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1039	-	-	1580	-
HCM Lane V/C Ratio	0.08	-	-	0.025	-
HCM Control Delay (s)	8.8	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection						
Int Delay, s/veh	3.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	125	56	338	909	3
Future Vol, veh/h	6	125	56	338	909	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	3	3	100
Mvmt Flow	7	139	62	376	1010	3

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1512	1012	1013	0	-	0
Stage 1	1012	-	-	-	-	-
Stage 2	500	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	134	293	692	-	-	-
Stage 1	354	-	-	-	-	-
Stage 2	613	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	122	293	692	-	-	-
Mov Cap-2 Maneuver	122	-	-	-	-	-
Stage 1	322	-	-	-	-	-
Stage 2	613	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	31.9	1.5	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	692	-	275	-	-
HCM Lane V/C Ratio	0.09	-	0.529	-	-
HCM Control Delay (s)	10.7	-	31.9	-	-
HCM Lane LOS	B	-	D	-	-
HCM 95th %tile Q(veh)	0.3	-	2.9	-	-

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	12	1	87	11	2	186
Future Vol, veh/h	12	1	87	11	2	186
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	1	6	0	0
Mvmt Flow	13	1	97	12	2	207

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	314	103	0	0	109
Stage 1	103	-	-	-	-
Stage 2	211	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	683	957	-	-	1494
Stage 1	926	-	-	-	-
Stage 2	829	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	682	957	-	-	1494
Mov Cap-2 Maneuver	682	-	-	-	-
Stage 1	926	-	-	-	-
Stage 2	827	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.3	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	697	1494
HCM Lane V/C Ratio	-	-	0.021	0.001
HCM Control Delay (s)	-	-	10.3	7.4
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection	
Intersection Delay, s/veh	9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	41	10	41	8	10	4	67	48	85	127	14
Future Vol, veh/h	10	41	10	41	8	10	4	67	48	85	127	14
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	0	4	0	46	20	0	23	0	0	0	0	0
Mvmt Flow	11	43	11	43	8	11	4	71	51	89	134	15
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.2	9.3	8.6	9.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	16%	69%	38%
Vol Thru, %	56%	67%	14%	56%
Vol Right, %	40%	16%	17%	6%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	119	61	59	226
LT Vol	4	10	41	85
Through Vol	67	41	8	127
RT Vol	48	10	10	14
Lane Flow Rate	125	64	62	238
Geometry Grp	1	1	1	1
Degree of Util (X)	0.162	0.085	0.097	0.292
Departure Headway (Hd)	4.648	4.757	5.636	4.414
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	772	752	635	814
Service Time	2.676	2.795	3.675	2.438
HCM Lane V/C Ratio	0.162	0.085	0.098	0.292
HCM Control Delay	8.6	8.2	9.3	9.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	0.3	0.3	1.2

Intersection						
Int Delay, s/veh	26.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	57	940	393	56	113	81
Future Vol, veh/h	57	940	393	56	113	81
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	29	3	4	3	0	13
Mvmt Flow	61	1000	418	60	120	86

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	478	0	-	0	1570 448
Stage 1	-	-	-	-	448 -
Stage 2	-	-	-	-	1122 -
Critical Hdwy	4.39	-	-	-	6.4 6.33
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.461	-	-	-	3.5 3.417
Pot Cap-1 Maneuver	957	-	-	-	123 588
Stage 1	-	-	-	-	648 -
Stage 2	-	-	-	-	314 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	957	-	-	-	~ 105 588
Mov Cap-2 Maneuver	-	-	-	-	~ 105 -
Stage 1	-	-	-	-	555 -
Stage 2	-	-	-	-	314 -

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	224.3
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	957	-	-	-	160
HCM Lane V/C Ratio	0.063	-	-	-	1.29
HCM Control Delay (s)	9	0	-	-	224.3
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.2	-	-	-	12.2

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection												
Int Delay, s/veh	8.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	40	83	55	25	1	146	19	88	1	2	4
Future Vol, veh/h	6	40	83	55	25	1	146	19	88	1	2	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	2	2	2	2	2	1	0	2	2	0	0
Mvmt Flow	7	44	92	61	28	1	162	21	98	1	2	4

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	415	449	4	468	402	70	6	0	0	119	0	0
Stage 1	6	6	-	394	394	-	-	-	-	-	-	-
Stage 2	409	443	-	74	8	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.52	6.22	7.12	6.52	6.22	4.11	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.018	3.318	3.518	4.018	3.318	2.209	-	-	2.218	-	-
Pot Cap-1 Maneuver	551	505	1080	505	537	993	1622	-	-	1469	-	-
Stage 1	1021	891	-	631	605	-	-	-	-	-	-	-
Stage 2	623	576	-	935	889	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	483	450	1080	392	478	993	1622	-	-	1469	-	-
Mov Cap-2 Maneuver	483	450	-	392	478	-	-	-	-	-	-	-
Stage 1	911	890	-	563	540	-	-	-	-	-	-	-
Stage 2	527	514	-	812	888	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	11.2		16		4.3		1.1	
HCM LOS	B		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1622	-	-	724	418	1469	-
HCM Lane V/C Ratio	0.1	-	-	0.198	0.215	0.001	-
HCM Control Delay (s)	7.5	0	-	11.2	16	7.5	0
HCM Lane LOS	A	A	-	B	C	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.7	0.8	0	-

Intersection						
Int Delay, s/veh	5.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	21	1	92	36	1	58
Future Vol, veh/h	21	1	92	36	1	58
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	2	2	0	2	2
Mvmt Flow	23	1	102	40	1	64

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	24	0	268 24
Stage 1	-	-	-	-	24 -
Stage 2	-	-	-	-	244 -
Critical Hdwy	-	-	4.12	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	1591	-	721 1052
Stage 1	-	-	-	-	999 -
Stage 2	-	-	-	-	797 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1591	-	673 1052
Mov Cap-2 Maneuver	-	-	-	-	673 -
Stage 1	-	-	-	-	999 -
Stage 2	-	-	-	-	744 -

Approach	EB	WB	NB
HCM Control Delay, s	0	5.3	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1042	-	-	1591	-
HCM Lane V/C Ratio	0.063	-	-	0.064	-
HCM Control Delay (s)	8.7	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.2	-

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	95	158	1130	517	6
Future Vol, veh/h	4	95	158	1130	517	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	2	2	2	0
Mvmt Flow	4	104	174	1242	568	7

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	2162	572	575	0	0
Stage 1	572	-	-	-	-
Stage 2	1590	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-
Pot Cap-1 Maneuver	53	523	998	-	-
Stage 1	569	-	-	-	-
Stage 2	186	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	44	523	998	-	-
Mov Cap-2 Maneuver	44	-	-	-	-
Stage 1	470	-	-	-	-
Stage 2	186	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	19.1	1.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	998	-	363	-	-
HCM Lane V/C Ratio	0.174	-	0.3	-	-
HCM Control Delay (s)	9.4	-	19.1	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.6	-	1.2	-	-

Intersection						
Int Delay, s/veh	0.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	18	10	258	31	2	133
Future Vol, veh/h	18	10	258	31	2	133
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	1	6	0	0
Mvmt Flow	20	11	287	34	2	148

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	456	304	0	0	321
Stage 1	304	-	-	-	-
Stage 2	152	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	566	740	-	-	1250
Stage 1	753	-	-	-	-
Stage 2	881	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	565	740	-	-	1250
Mov Cap-2 Maneuver	565	-	-	-	-
Stage 1	753	-	-	-	-
Stage 2	879	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.1	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	617	1250
HCM Lane V/C Ratio	-	-	0.05	0.002
HCM Control Delay (s)	-	-	11.1	7.9
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0

Intersection	
Intersection Delay, s/veh	9.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	14	18	3	46	62	79	19	133	31	61	109	17
Future Vol, veh/h	14	18	3	46	62	79	19	133	31	61	109	17
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	0	0	7	3	0	0	0	0	3	0	0
Mvmt Flow	16	20	3	51	69	88	21	148	34	68	121	19
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.6	9.8	9.4	9.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	10%	40%	25%	33%
Vol Thru, %	73%	51%	33%	58%
Vol Right, %	17%	9%	42%	9%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	183	35	187	187
LT Vol	19	14	46	61
Through Vol	133	18	62	109
RT Vol	31	3	79	17
Lane Flow Rate	203	39	208	208
Geometry Grp	1	1	1	1
Degree of Util (X)	0.265	0.056	0.279	0.278
Departure Headway (Hd)	4.683	5.182	4.832	4.814
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	762	685	740	742
Service Time	2.741	3.26	2.891	2.871
HCM Lane V/C Ratio	0.266	0.057	0.281	0.28
HCM Control Delay	9.4	8.6	9.8	9.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1.1	0.2	1.1	1.1

Intersection						
Int Delay, s/veh	85.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	62	745	1002	108	122	56
Future Vol, veh/h	62	745	1002	108	122	56
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	6	2	1	2	2	12
Mvmt Flow	66	793	1066	115	130	60

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1181	0	0 2049 1124
Stage 1	-	-	- 1124 -
Stage 2	-	-	- 925 -
Critical Hdwy	4.16	-	- 6.42 6.32
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.254	-	- 3.518 3.408
Pot Cap-1 Maneuver	577	-	- ~ 61 239
Stage 1	-	-	- 310 -
Stage 2	-	-	- 386 -
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	577	-	- ~ 49 239
Mov Cap-2 Maneuver	-	-	- ~ 49 -
Stage 1	-	-	- 247 -
Stage 2	-	-	- 386 -

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	\$ 998.7
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	577	-	-	-	65
HCM Lane V/C Ratio	0.114	-	-	-	2.913
HCM Control Delay (s)	12	0	-	-	\$ 998.7
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0.4	-	-	-	19.2

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon



Appendix R
Year 2030 Mitigated Total Traffic
Operation Worksheets

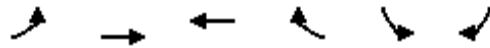


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	61	1000	418	60	120	86
v/c Ratio	0.13	0.85	0.41	0.07	0.42	0.29
Control Delay	4.2	16.9	9.6	2.6	29.2	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.2	16.9	9.6	2.6	29.2	9.3
Queue Length 50th (ft)	6	210	86	0	43	0
Queue Length 95th (ft)	18	#597	166	15	90	34
Internal Link Dist (ft)		3717	2513		4604	
Turn Bay Length (ft)	100			100	100	
Base Capacity (vph)	455	1413	1173	1025	565	505
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.71	0.36	0.06	0.21	0.17

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

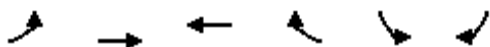
HCM Signalized Intersection Capacity Analysis 2030 Background Mitigations AM Peak Hour
 117: SH 44 & Can Ada Road 01/12/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	57	940	393	56	113	81
Future Volume (vph)	57	940	393	56	113	81
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1326	1748	1731	1485	1710	1354
Flt Permitted	0.41	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	576	1748	1731	1485	1710	1354
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	61	1000	418	60	120	86
RTOR Reduction (vph)	0	0	0	26	0	72
Lane Group Flow (vph)	61	1000	418	34	120	14
Heavy Vehicles (%)	29%	3%	4%	3%	0%	13%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	41.6	41.6	34.4	34.4	9.8	9.8
Effective Green, g (s)	41.6	41.6	34.4	34.4	9.8	9.8
Actuated g/C Ratio	0.69	0.69	0.57	0.57	0.16	0.16
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	430	1203	985	845	277	219
v/s Ratio Prot	0.01	c0.57	0.24		c0.07	
v/s Ratio Perm	0.09			0.02		0.01
v/c Ratio	0.14	0.83	0.42	0.04	0.43	0.06
Uniform Delay, d1	3.6	6.8	7.4	5.7	22.8	21.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	5.0	0.3	0.0	1.1	0.1
Delay (s)	3.8	11.9	7.7	5.7	23.9	21.5
Level of Service	A	B	A	A	C	C
Approach Delay (s)		11.4	7.4		22.9	
Approach LOS		B	A		C	
Intersection Summary						
HCM 2000 Control Delay			11.7		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.83			
Actuated Cycle Length (s)			60.4		Sum of lost time (s)	13.5
Intersection Capacity Utilization			66.3%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

HCM 6th Signalized Intersection Summary
117: SH 44 & Can Ada Road

2030 Background Mitigations AM Peak Hour
01/12/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	57	940	393	56	113	81	
Future Volume (veh/h)	57	940	393	56	113	81	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1393	1758	1744	1758	1800	1617	
Adj Flow Rate, veh/h	61	1000	418	60	120	86	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	
Percent Heavy Veh, %	29	3	4	3	0	13	
Cap, veh/h	504	1194	907	775	208	166	
Arrive On Green	0.06	0.68	0.52	0.52	0.12	0.12	
Sat Flow, veh/h	1327	1758	1744	1490	1714	1371	
Grp Volume(v), veh/h	61	1000	418	60	120	86	
Grp Sat Flow(s),veh/h/ln	1327	1758	1744	1490	1714	1371	
Q Serve(g_s), s	0.8	19.1	6.8	0.9	3.0	2.7	
Cycle Q Clear(g_c), s	0.8	19.1	6.8	0.9	3.0	2.7	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	504	1194	907	775	208	166	
V/C Ratio(X)	0.12	0.84	0.46	0.08	0.58	0.52	
Avail Cap(c_a), veh/h	575	1850	1465	1251	703	562	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	4.3	5.4	6.8	5.4	18.7	18.6	
Incr Delay (d2), s/veh	0.1	2.1	0.4	0.0	2.5	2.5	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.1	3.3	1.8	0.2	1.2	0.1	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	4.4	7.5	7.2	5.4	21.3	21.1	
LnGrp LOS	A	A	A	A	C	C	
Approach Vol, veh/h		1061	478		206		
Approach Delay, s/veh		7.3	7.0		21.2		
Approach LOS		A	A		C		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				35.2	10.0	7.2	28.0
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				47.5	18.5	5.1	37.9
Max Q Clear Time (g_c+I1), s				21.1	5.0	2.8	8.8
Green Ext Time (p_c), s				9.6	0.5	0.0	3.0
Intersection Summary							
HCM 6th Ctrl Delay			8.9				
HCM 6th LOS			A				

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑↑	↑↑	↗		↗
Traffic Vol, veh/h	57	1053	393	56	0	194
Future Vol, veh/h	57	1053	393	56	0	194
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	61	1120	418	60	0	206

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	478	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.14	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.22	-	-
Pot Cap-1 Maneuver	1081	-	0
Stage 1	-	-	0
Stage 2	-	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1081	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	11.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1081	-	-	-	797
HCM Lane V/C Ratio	0.056	-	-	-	0.259
HCM Control Delay (s)	8.5	-	-	-	11.1
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	1

Intersection												
Int Delay, s/veh	6.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗	↗	↘	↗	↗			↗			↗
Traffic Vol, veh/h	25	869	63	49	467	103	0	0	120	0	0	525
Future Vol, veh/h	25	869	63	49	467	103	0	0	120	0	0	525
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	200	200	-	200	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	915	66	52	492	108	0	0	126	0	0	553

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	600	0	0	981	0	0	-	-	458	-	-	246
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.14	-	-	4.14	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	973	-	-	699	-	-	0	0	550	0	0	754
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	973	-	-	699	-	-	-	-	550	-	-	754
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.8			13.5			21.7		
HCM LOS							B			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	550	973	-	-	699	-	-	754
HCM Lane V/C Ratio	0.23	0.027	-	-	0.074	-	-	0.733
HCM Control Delay (s)	13.5	8.8	-	-	10.6	-	-	21.7
HCM Lane LOS	B	A	-	-	B	-	-	C
HCM 95th %tile Q(veh)	0.9	0.1	-	-	0.2	-	-	6.5

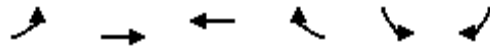


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	66	793	1066	115	130	60
v/c Ratio	0.34	0.61	0.91	0.11	0.53	0.24
Control Delay	7.8	7.7	26.6	4.1	46.0	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.8	7.7	26.6	4.1	46.0	12.3
Queue Length 50th (ft)	8	156	463	11	74	0
Queue Length 95th (ft)	21	310	#911	34	133	34
Internal Link Dist (ft)		3717	2513		4604	
Turn Bay Length (ft)	100			100	100	
Base Capacity (vph)	197	1448	1318	1123	379	356
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.55	0.81	0.10	0.34	0.17

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2030 Background Mitigations PM Peak Hour
 117: SH 44 & Can Ada Road 01/12/2023

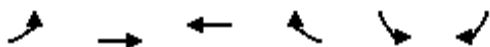


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	62	745	1002	108	122	56
Future Volume (vph)	62	745	1002	108	122	56
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1613	1765	1782	1500	1676	1366
Flt Permitted	0.08	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	140	1765	1782	1500	1676	1366
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	66	793	1066	115	130	60
RTOR Reduction (vph)	0	0	0	18	0	51
Lane Group Flow (vph)	66	793	1066	97	130	9
Heavy Vehicles (%)	6%	2%	1%	2%	2%	12%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	64.3	64.3	56.2	56.2	12.5	12.5
Effective Green, g (s)	64.3	64.3	56.2	56.2	12.5	12.5
Actuated g/C Ratio	0.75	0.75	0.66	0.66	0.15	0.15
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	166	1322	1167	982	244	199
v/s Ratio Prot	0.02	c0.45	c0.60		c0.08	
v/s Ratio Perm	0.28			0.06		0.01
v/c Ratio	0.40	0.60	0.91	0.10	0.53	0.04
Uniform Delay, d1	15.3	4.9	12.7	5.5	33.9	31.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.6	0.7	10.9	0.0	2.2	0.1
Delay (s)	16.9	5.6	23.6	5.5	36.2	31.6
Level of Service	B	A	C	A	D	C
Approach Delay (s)		6.5	21.8		34.7	
Approach LOS		A	C		C	

Intersection Summary			
HCM 2000 Control Delay	17.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	85.8	Sum of lost time (s)	13.5
Intersection Capacity Utilization	70.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
117: SH 44 & Can Ada Road

2030 Background Mitigations PM Peak Hour
01/12/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↕	↗	↖	↗	↘	↘	
Traffic Volume (veh/h)	62	745	1002	108	122	56	
Future Volume (veh/h)	62	745	1002	108	122	56	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1716	1772	1786	1772	1772	1632	
Adj Flow Rate, veh/h	66	793	1066	115	130	60	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	
Percent Heavy Veh, %	6	2	1	2	2	12	
Cap, veh/h	254	1372	1187	998	179	147	
Arrive On Green	0.05	0.77	0.66	0.66	0.11	0.11	
Sat Flow, veh/h	1634	1772	1786	1502	1688	1383	
Grp Volume(v), veh/h	66	793	1066	115	130	60	
Grp Sat Flow(s),veh/h/ln	1634	1772	1786	1502	1688	1383	
Q Serve(g_s), s	0.8	13.8	37.4	2.1	5.6	3.1	
Cycle Q Clear(g_c), s	0.8	13.8	37.4	2.1	5.6	3.1	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	254	1372	1187	998	179	147	
V/C Ratio(X)	0.26	0.58	0.90	0.12	0.73	0.41	
Avail Cap(c_a), veh/h	282	1718	1506	1267	403	331	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	14.6	3.5	10.5	4.6	32.6	31.4	
Incr Delay (d2), s/veh	0.5	0.4	6.3	0.1	5.5	1.8	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.7	2.8	13.0	0.5	2.5	2.4	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	15.2	3.9	16.8	4.6	38.1	33.3	
LnGrp LOS	B	A	B	A	D	C	
Approach Vol, veh/h		859	1181		190		
Approach Delay, s/veh		4.7	15.6		36.6		
Approach LOS		A	B		D		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				62.8	12.5	8.2	54.6
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				73.0	18.0	5.0	63.5
Max Q Clear Time (g_c+I1), s				15.8	7.6	2.8	39.4
Green Ext Time (p_c), s				7.4	0.4	0.0	10.7
Intersection Summary							
HCM 6th Ctrl Delay			13.2				
HCM 6th LOS			B				

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑↑	↑↑	↗		↗
Traffic Vol, veh/h	62	867	1002	108	0	178
Future Vol, veh/h	62	867	1002	108	0	178
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	66	922	1066	115	0	189

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1181	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.14	-	6.94
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.22	-	3.32
Pot Cap-1 Maneuver	587	-	0
Stage 1	-	-	0
Stage 2	-	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	587	-	491
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	16.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	587	-	-	-	491
HCM Lane V/C Ratio	0.112	-	-	-	0.386
HCM Control Delay (s)	11.9	-	-	-	16.9
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.4	-	-	-	1.8

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗			↗			↗
Traffic Vol, veh/h	39	433	61	60	710	203	0	0	137	0	0	182
Future Vol, veh/h	39	433	61	60	710	203	0	0	137	0	0	182
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	200	200	-	200	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	98	98	98	80	80	80	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	45	498	70	61	724	207	0	0	171	0	0	217

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	931	0	0	568	0	0	-	-	249	-	-	362
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.14	-	-	4.14	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	731	-	-	1000	-	-	0	0	751	0	0	635
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	731	-	-	1000	-	-	-	-	751	-	-	635
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.7			0.5			11.2			13.6		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	751	731	-	-	1000	-	-	635
HCM Lane V/C Ratio	0.228	0.061	-	-	0.061	-	-	0.341
HCM Control Delay (s)	11.2	10.2	-	-	8.8	-	-	13.6
HCM Lane LOS	B	B	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.9	0.2	-	-	0.2	-	-	1.5



KITTELSON & ASSOCIATES, INC.
 610 SW Alder, Suite 700
 Portland, Oregon 97205
 (503) 228-5230

Project #: 25407
Project Name: Willow Brook Golf Community
Analyst: CHF
Date: 1/13/2023
File: H:\25\25407 - Willow Brook Community
 TIS\analysis\Signal Warrants\[SWA - 104 - 2030
 Total.xls\Data Input
Intersection: 4 - SH 16 & Deep Canyon Drive
Scenario: 2030 Total Traffic

Analysis Traffic Volumes

Hour	Major Street		Minor Street			
	Begin	End	NB	SB	EB	WB
7:00 AM	8:00 AM		395	912	131	0
2nd Highest Hour			395	912	104	0
3rd Highest Hour			357	824	98	0
4th Highest Hour			343	791	87	0
5th Highest Hour			305	703	81	0
6th Highest Hour			295	681	75	0
7th Highest Hour			281	648	73	0
8th Highest Hour			271	626	69	0
9th Highest Hour			257	593	69	0
10th Highest Hour			252	582	67	0
11th Highest Hour			243	560	60	0
12th Highest Hour			238	549	58	0
13th Highest Hour			228	527	47	0
14th Highest Hour			205	472	45	0
15th Highest Hour			162	374	43	0
16th Highest Hour			143	330	42	0
17th Highest Hour			109	253	24	0
18th Highest Hour			90	209	24	0
19th Highest Hour			76	176	10	0
20th Highest Hour			43	99	7	0
21st Highest Hour			29	66	5	0
22nd Highest Hour			24	55	1	0
23rd Highest Hour			14	33	1	0
24th Highest Hour			14	33	1	0

Warrant Summary

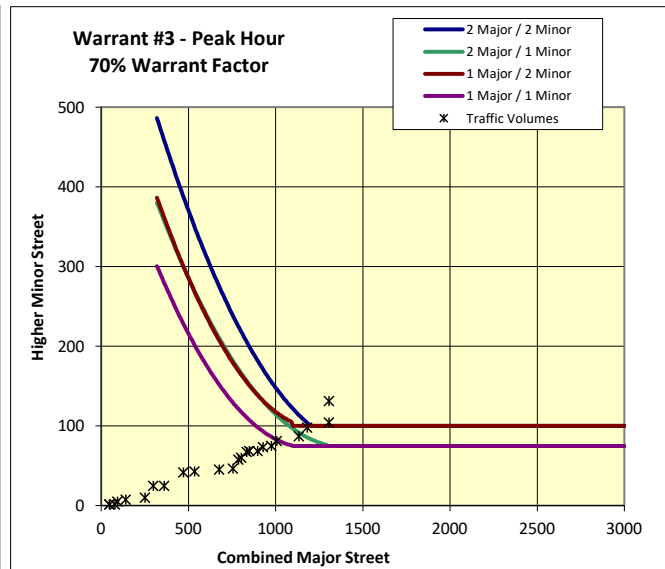
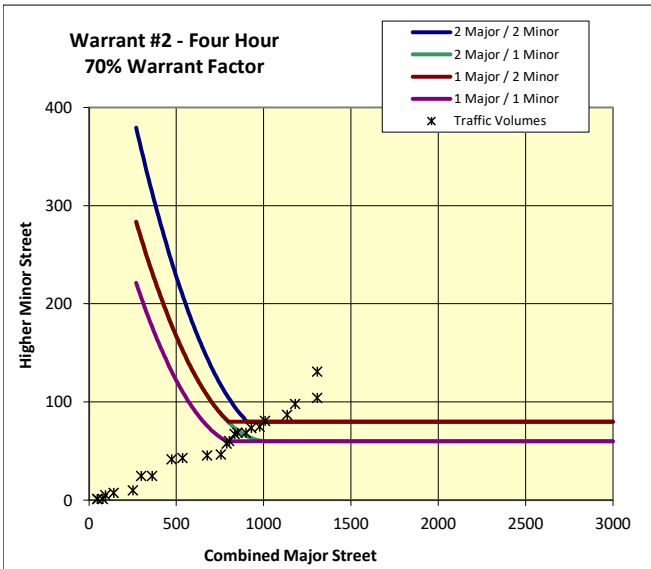
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	Yes
#2	Four-Hour Vehicular volume	Yes	Yes
#3	Peak Hour	Yes	Yes
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Major
East-West Approach =	Minor
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	Yes
Population < 10,000?	No
Warrant Factor	70%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	87%
Major Street: 8th-Highest Hour / Peak Hour	69%
Minor Street: 4th-Highest Hour / Peak Hour	66%
Minor Street: 8th-Highest Hour / Peak Hour	52%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	0	No	No
	B	750	75	6	No	No
80%	A	400	120	1	No	Yes
	B	600	60	11	Yes	Yes
70%	A	350	105	2	No	Yes
	B	525	53	12	Yes	Yes
56%	A	280	84	4	No	Yes
	B	420	42	16	Yes	Yes





Appendix S
Year 2045 Total Traffic
Operation Worksheets

HCM 6th TWSC
 101: Can Ada Road & Purple Sage Road/Aerie Way

2045 Total Traffic Conditions AM Peak Hour

01/24/2023

Intersection												
Int Delay, s/veh	14.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	18	44	214	135	89	1	101	27	67	1	40	22
Future Vol, veh/h	18	44	214	135	89	1	101	27	67	1	40	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	4	0	0	0	0	0
Mvmt Flow	20	49	238	150	99	1	112	30	74	1	44	24

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	399	386	56	493	361	67	68	0	0	104	0	0
Stage 1	58	58	-	291	291	-	-	-	-	-	-	-
Stage 2	341	328	-	202	70	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.14	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.236	-	-	2.2	-	-
Pot Cap-1 Maneuver	565	551	1016	490	569	1002	1521	-	-	1500	-	-
Stage 1	959	851	-	721	675	-	-	-	-	-	-	-
Stage 2	678	651	-	805	841	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	454	507	1016	327	523	1002	1521	-	-	1500	-	-
Mov Cap-2 Maneuver	454	507	-	327	523	-	-	-	-	-	-	-
Stage 1	883	850	-	664	622	-	-	-	-	-	-	-
Stage 2	525	600	-	581	840	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	12		30.1		3.9		0.1	
HCM LOS	B		D					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1521	-	-	819	385	1500	-	-
HCM Lane V/C Ratio	0.074	-	-	0.374	0.649	0.001	-	-
HCM Control Delay (s)	7.6	0	-	12	30.1	7.4	0	-
HCM Lane LOS	A	A	-	B	D	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	1.7	4.4	0	-	-

Intersection						
Int Delay, s/veh	6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	56	1	64	26	1	129
Future Vol, veh/h	56	1	64	26	1	129
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	62	1	71	29	1	143

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	63	0	234
Stage 1	-	-	-	-	63
Stage 2	-	-	-	-	171
Critical Hdwy	-	-	4.1	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.2	-	3.5
Pot Cap-1 Maneuver	-	-	1553	-	759
Stage 1	-	-	-	-	965
Stage 2	-	-	-	-	864
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1553	-	724
Mov Cap-2 Maneuver	-	-	-	-	724
Stage 1	-	-	-	-	965
Stage 2	-	-	-	-	824

Approach	EB	WB	NB
HCM Control Delay, s	0	5.3	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1004	-	-	1553	-
HCM Lane V/C Ratio	0.144	-	-	0.046	-
HCM Control Delay (s)	9.2	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.1	-

Intersection						
Int Delay, s/veh	38.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			L		R
Traffic Vol, veh/h	14	246	118	392	1055	7
Future Vol, veh/h	14	246	118	392	1055	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	3	3	100
Mvmt Flow	16	273	131	436	1172	8

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1874	1176	1180	0	-	0
Stage 1	1176	-	-	-	-	-
Stage 2	698	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	80	~ 235	599	-	-	-
Stage 1	296	-	-	-	-	-
Stage 2	497	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	57	~ 235	599	-	-	-
Mov Cap-2 Maneuver	57	-	-	-	-	-
Stage 1	210	-	-	-	-	-
Stage 2	497	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	267.1	2.9	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	599	-	201	-	-
HCM Lane V/C Ratio	0.219	-	1.437	-	-
HCM Control Delay (s)	12.7	0	267.1	-	-
HCM Lane LOS	B	A	F	-	-
HCM 95th %tile Q(veh)	0.8	-	17.3	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection						
Int Delay, s/veh	1.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	58	23	181	36	13	375
Future Vol, veh/h	58	23	181	36	13	375
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	1	6	0	0
Mvmt Flow	64	26	201	40	14	417

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	666	221	0	0	241
Stage 1	221	-	-	-	-
Stage 2	445	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	428	824	-	-	1337
Stage 1	821	-	-	-	-
Stage 2	650	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	422	824	-	-	1337
Mov Cap-2 Maneuver	422	-	-	-	-
Stage 1	821	-	-	-	-
Stage 2	641	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	490	1337
HCM Lane V/C Ratio	-	-	0.184	0.011
HCM Control Delay (s)	-	-	14	7.7
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.7	0

Intersection	
Intersection Delay, s/veh	15.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	19	56	13	56	11	9	7	168	87	140	316	34
Future Vol, veh/h	19	56	13	56	11	9	7	168	87	140	316	34
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	0	4	0	46	20	0	23	0	0	0	0	0
Mvmt Flow	20	59	14	59	12	9	7	177	92	147	333	36
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.2	11.3	12.1	18.7
HCM LOS	B	B	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	22%	74%	29%
Vol Thru, %	64%	64%	14%	64%
Vol Right, %	33%	15%	12%	7%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	262	88	76	490
LT Vol	7	19	56	140
Through Vol	168	56	11	316
RT Vol	87	13	9	34
Lane Flow Rate	276	93	80	516
Geometry Grp	1	1	1	1
Degree of Util (X)	0.41	0.155	0.155	0.704
Departure Headway (Hd)	5.353	6.033	6.955	4.913
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	673	593	515	743
Service Time	3.388	4.085	5.008	2.913
HCM Lane V/C Ratio	0.41	0.157	0.155	0.694
HCM Control Delay	12.1	10.2	11.3	18.7
HCM Lane LOS	B	B	B	C
HCM 95th-tile Q	2	0.5	0.5	5.9

Intersection						
Int Delay, s/veh	2.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑	↗		↘	
Traffic Vol, veh/h	6	268	107	40	83	13
Future Vol, veh/h	6	268	107	40	83	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	3	8	0	3	0
Mvmt Flow	7	298	119	44	92	14

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	163	0	-	0	453 141
Stage 1	-	-	-	-	141 -
Stage 2	-	-	-	-	312 -
Critical Hdwy	4.1	-	-	-	6.43 6.2
Critical Hdwy Stg 1	-	-	-	-	5.43 -
Critical Hdwy Stg 2	-	-	-	-	5.43 -
Follow-up Hdwy	2.2	-	-	-	3.527 3.3
Pot Cap-1 Maneuver	1428	-	-	-	563 912
Stage 1	-	-	-	-	883 -
Stage 2	-	-	-	-	740 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1428	-	-	-	560 912
Mov Cap-2 Maneuver	-	-	-	-	560 -
Stage 1	-	-	-	-	879 -
Stage 2	-	-	-	-	740 -

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	12.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1428	-	-	-	591
HCM Lane V/C Ratio	0.005	-	-	-	0.18
HCM Control Delay (s)	7.5	-	-	-	12.4
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.7

Intersection												
Int Delay, s/veh	14.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Vol, veh/h	3	402	5	40	134	78	9	48	140	113	39	26
Future Vol, veh/h	3	402	5	40	134	78	9	48	140	113	39	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	3	0	7	8	0	0	0	3	0	0	0
Mvmt Flow	3	447	6	44	149	87	10	53	156	126	43	29

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	236	0	0	453	0	0	773	780	450	798	696	149
Stage 1	-	-	-	-	-	-	456	456	-	237	237	-
Stage 2	-	-	-	-	-	-	317	324	-	561	459	-
Critical Hdwy	4.1	-	-	4.17	-	-	7.1	6.5	6.23	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.263	-	-	3.5	4	3.327	3.5	4	3.3
Pot Cap-1 Maneuver	1343	-	-	1082	-	-	319	329	607	306	368	903
Stage 1	-	-	-	-	-	-	588	572	-	771	713	-
Stage 2	-	-	-	-	-	-	698	653	-	516	570	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1343	-	-	1082	-	-	269	313	607	190	350	903
Mov Cap-2 Maneuver	-	-	-	-	-	-	269	313	-	190	350	-
Stage 1	-	-	-	-	-	-	586	570	-	769	679	-
Stage 2	-	-	-	-	-	-	603	622	-	347	568	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.3	19.1	63.4
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	472	1343	-	-	1082	-	-	242
HCM Lane V/C Ratio	0.464	0.002	-	-	0.041	-	-	0.817
HCM Control Delay (s)	19.1	7.7	0	-	8.5	0	-	63.4
HCM Lane LOS	C	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	2.4	0	-	-	0.1	-	-	6.3

Queues
110: SH 16 & Beacon Light Road

2045 Total Traffic Conditions AM Peak Hour

01/12/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	23	277	257	149	96	124	88	463	200	306	1132	7
v/c Ratio	0.09	0.97	0.59	1.21	0.37	0.27	0.84	0.53	0.24	0.61	1.17	0.01
Control Delay	45.1	108.3	16.5	192.3	59.5	1.4	82.1	30.2	3.1	16.7	118.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.1	108.3	16.5	192.3	59.5	1.4	82.1	30.2	3.1	16.7	118.4	0.0
Queue Length 50th (ft)	18	273	27	~158	86	0	36	307	0	119	~1313	0
Queue Length 95th (ft)	43	#461	119	#313	149	0	#152	445	40	168	#1579	0
Internal Link Dist (ft)		2558			3836			8809			1084	
Turn Bay Length (ft)	100		100	100		100	100		100	100		100
Base Capacity (vph)	257	285	433	123	263	466	105	874	851	545	969	920
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.97	0.59	1.21	0.37	0.27	0.84	0.53	0.24	0.56	1.17	0.01

Intersection Summary

























~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Total Traffic Conditions AM Peak Hour
 110: SH 16 & Beacon Light Road 01/12/2023

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (vph)	21	249	231	134	86	112	79	417	180	275	1019	6		
Future Volume (vph)	21	249	231	134	86	112	79	417	180	275	1019	6		
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800		
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0	9.0	9.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		
Satd. Flow (prot)	1710	1782	1530	1644	1374	1485	1710	1800	1530	1693	1731	1530		
Flt Permitted	0.69	1.00	1.00	0.22	1.00	1.00	0.05	1.00	1.00	0.33	1.00	1.00		
Satd. Flow (perm)	1251	1782	1530	385	1374	1485	99	1800	1530	586	1731	1530		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90		
Adj. Flow (vph)	23	277	257	149	96	124	88	463	200	306	1132	7		
RTOR Reduction (vph)	0	0	186	0	0	101	0	0	105	0	0	3		
Lane Group Flow (vph)	23	277	71	149	96	23	88	463	95	306	1132	4		
Heavy Vehicles (%)	0%	1%	0%	4%	31%	3%	0%	0%	0%	1%	4%	0%		
Turn Type	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Prot		
Protected Phases	1	6	6	5	2	2	3	8	8	7	4	4		
Permitted Phases	6			2			8			4				
Actuated Green, G (s)	29.8	26.8	26.8	33.8	28.8	28.8	77.9	72.9	72.9	98.0	84.0	84.0		
Effective Green, g (s)	29.8	26.8	26.8	33.8	28.8	28.8	77.9	72.9	72.9	98.0	84.0	84.0		
Actuated g/C Ratio	0.20	0.18	0.18	0.22	0.19	0.19	0.51	0.48	0.48	0.64	0.55	0.55		
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0	9.0	9.0		
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	5.0	5.0	2.0	5.0	5.0		
Lane Grp Cap (vph)	252	312	268	126	258	279	103	858	729	492	951	841		
v/s Ratio Prot	0.00	0.16	0.05	c0.04	0.07	0.02	0.03	0.26	0.06	c0.07	c0.65	0.00		
v/s Ratio Perm	0.02			c0.22			0.41			0.33				
v/c Ratio	0.09	0.89	0.27	1.18	0.37	0.08	0.85	0.54	0.13	0.62	1.19	0.00		
Uniform Delay, d1	50.2	61.5	54.5	59.9	54.1	51.1	35.7	28.1	22.3	15.8	34.4	15.5		
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	0.1	24.8	0.5	137.5	0.9	0.1	44.6	1.2	0.2	1.8	96.2	0.0		
Delay (s)	50.2	86.3	55.0	197.3	55.0	51.3	80.2	29.3	22.5	17.6	130.6	15.5		
Level of Service	D	F	E	F	E	D	F	C	C	B	F	B		
Approach Delay (s)		70.4			111.2			33.5			106.1			
Approach LOS		E			F			C			F			
Intersection Summary														
HCM 2000 Control Delay			82.9									HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio			1.22											
Actuated Cycle Length (s)			152.8								32.0			
Intersection Capacity Utilization			109.6%										ICU Level of Service	H
Analysis Period (min)			15											
c Critical Lane Group														

HCM 6th Signalized Intersection Summary
110: SH 16 & Beacon Light Road

2045 Total Traffic Conditions AM Peak Hour
01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Traffic Volume (veh/h)	21	249	231	134	86	112	79	417	180	275	1019	6
Future Volume (veh/h)	21	249	231	134	86	112	79	417	180	275	1019	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1786	1800	1744	1365	1758	1800	1800	1800	1786	1744	1800
Adj Flow Rate, veh/h	23	277	257	149	96	124	88	463	200	306	1132	7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	1	0	4	31	3	0	0	0	1	4	0
Cap, veh/h	213	286	244	108	236	257	105	885	750	467	977	854
Arrive On Green	0.02	0.16	0.16	0.03	0.17	0.17	0.03	0.49	0.49	0.10	0.56	0.56
Sat Flow, veh/h	1714	1786	1525	1661	1365	1490	1714	1800	1525	1701	1744	1525
Grp Volume(v), veh/h	23	277	257	149	96	124	88	463	200	306	1132	7
Grp Sat Flow(s),veh/h/ln	1714	1786	1525	1661	1365	1490	1714	1800	1525	1701	1744	1525
Q Serve(g_s), s	1.7	23.1	24.0	5.0	9.4	11.3	3.9	26.4	11.5	12.9	84.0	0.3
Cycle Q Clear(g_c), s	1.7	23.1	24.0	5.0	9.4	11.3	3.9	26.4	11.5	12.9	84.0	0.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	213	286	244	108	236	257	105	885	750	467	977	854
V/C Ratio(X)	0.11	0.97	1.05	1.38	0.41	0.48	0.84	0.52	0.27	0.66	1.16	0.01
Avail Cap(c_a), veh/h	235	286	244	108	236	257	105	885	750	543	977	854
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.2	62.6	63.0	61.4	55.2	56.0	36.0	26.1	22.3	18.6	33.0	14.6
Incr Delay (d2), s/veh	0.1	44.7	72.2	216.5	1.1	1.4	39.9	1.1	0.4	1.4	83.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	14.1	14.2	8.4	3.3	4.4	2.7	11.7	4.3	5.2	56.8	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.3	107.3	135.2	277.9	56.3	57.4	75.8	27.2	22.7	20.0	116.2	14.6
LnGrp LOS	D	F	F	F	E	E	E	C	C	C	F	B
Approach Vol, veh/h		557			369			751			1445	
Approach Delay, s/veh		117.9			146.2			31.7			95.3	
Approach LOS		F			F			C			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.1	32.9	14.0	93.0	12.0	31.0	24.2	82.8				
Change Period (Y+Rc), s	7.0	7.0	9.0	9.0	7.0	7.0	9.0	9.0				
Max Green Setting (Gmax), s	5.0	24.0	5.0	84.0	5.0	24.0	22.0	67.0				
Max Q Clear Time (g_c+I1), s	3.7	13.3	5.9	86.0	7.0	26.0	14.9	28.4				
Green Ext Time (p_c), s	0.0	0.6	0.0	0.0	0.0	0.0	0.3	8.7				

Intersection Summary

HCM 6th Ctrl Delay	90.1
HCM 6th LOS	F

Intersection						
Int Delay, s/veh	2.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	992	19	24	484	27	38
Future Vol, veh/h	992	19	24	484	27	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	0	0	0	0	14
Mvmt Flow	1102	21	27	538	30	42

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	1123	0	1705 1113
Stage 1	-	-	-	-	1113 -
Stage 2	-	-	-	-	592 -
Critical Hdwy	-	-	4.1	-	6.4 6.34
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	-	-	2.2	-	3.5 3.426
Pot Cap-1 Maneuver	-	-	629	-	102 240
Stage 1	-	-	-	-	317 -
Stage 2	-	-	-	-	557 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	629	-	96 240
Mov Cap-2 Maneuver	-	-	-	-	96 -
Stage 1	-	-	-	-	317 -
Stage 2	-	-	-	-	523 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	50.6
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	148	-	-	629	-
HCM Lane V/C Ratio	0.488	-	-	0.042	-
HCM Control Delay (s)	50.6	-	-	11	0
HCM Lane LOS	F	-	-	B	A
HCM 95th %tile Q(veh)	2.3	-	-	0.1	-

Intersection						
Int Delay, s/veh	10.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↑	↔	↔
Traffic Vol, veh/h	185	222	302	75	101	140
Future Vol, veh/h	185	222	302	75	101	140
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	100	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	1	4	0	3	2
Mvmt Flow	206	247	336	83	112	156

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	453	0	1085 330
Stage 1	-	-	-	-	330 -
Stage 2	-	-	-	-	755 -
Critical Hdwy	-	-	4.14	-	6.43 6.22
Critical Hdwy Stg 1	-	-	-	-	5.43 -
Critical Hdwy Stg 2	-	-	-	-	5.43 -
Follow-up Hdwy	-	-	2.236	-	3.527 3.318
Pot Cap-1 Maneuver	-	-	1097	-	239 712
Stage 1	-	-	-	-	726 -
Stage 2	-	-	-	-	462 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1097	-	166 712
Mov Cap-2 Maneuver	-	-	-	-	166 -
Stage 1	-	-	-	-	726 -
Stage 2	-	-	-	-	321 -

Approach	EB	WB	NB
HCM Control Delay, s	0	7.8	33
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	166	712	-	-	1097	-
HCM Lane V/C Ratio	0.676	0.218	-	-	0.306	-
HCM Control Delay (s)	62.9	11.5	-	-	9.7	-
HCM Lane LOS	F	B	-	-	A	-
HCM 95th %tile Q(veh)	3.9	0.8	-	-	1.3	-

Intersection						
Int Delay, s/veh	3.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	198	324	40	91	91	62
Future Vol, veh/h	198	324	40	91	91	62
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	0	7	6	3	0
Mvmt Flow	213	348	43	98	98	67

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	561	0	571 387
Stage 1	-	-	-	-	387 -
Stage 2	-	-	-	-	184 -
Critical Hdwy	-	-	4.17	-	6.43 6.2
Critical Hdwy Stg 1	-	-	-	-	5.43 -
Critical Hdwy Stg 2	-	-	-	-	5.43 -
Follow-up Hdwy	-	-	2.263	-	3.527 3.3
Pot Cap-1 Maneuver	-	-	986	-	481 665
Stage 1	-	-	-	-	684 -
Stage 2	-	-	-	-	845 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	986	-	459 665
Mov Cap-2 Maneuver	-	-	-	-	459 -
Stage 1	-	-	-	-	684 -
Stage 2	-	-	-	-	806 -

Approach	EB	WB	NB
HCM Control Delay, s	0	2.7	15
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	525	-	-	986	-
HCM Lane V/C Ratio	0.313	-	-	0.044	-
HCM Control Delay (s)	15	-	-	8.8	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.3	-	-	0.1	-

Intersection						
Int Delay, s/veh	4.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	91	75	227	188	109	127
Future Vol, veh/h	91	75	227	188	109	127
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	12	4	0	2	4	0
Mvmt Flow	97	80	241	200	116	135

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	708	341	0	0	441	0
Stage 1	341	-	-	-	-	-
Stage 2	367	-	-	-	-	-
Critical Hdwy	6.52	6.24	-	-	4.14	-
Critical Hdwy Stg 1	5.52	-	-	-	-	-
Critical Hdwy Stg 2	5.52	-	-	-	-	-
Follow-up Hdwy	3.608	3.336	-	-	2.236	-
Pot Cap-1 Maneuver	387	697	-	-	1108	-
Stage 1	698	-	-	-	-	-
Stage 2	679	-	-	-	-	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	343	697	-	-	1108	-
Mov Cap-2 Maneuver	343	-	-	-	-	-
Stage 1	698	-	-	-	-	-
Stage 2	602	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.3	0	4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	445	1108
HCM Lane V/C Ratio	-	-	0.397	0.105
HCM Control Delay (s)	-	-	18.3	8.6
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	1.9	0.3

Intersection						
Int Delay, s/veh	7.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	8	246	399	93	98	5
Future Vol, veh/h	8	246	399	93	98	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	33	8	3	0	6	0
Mvmt Flow	9	273	443	103	109	6

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	1101	112	115	0	0
Stage 1	112	-	-	-	-
Stage 2	989	-	-	-	-
Critical Hdwy	6.73	6.28	4.13	-	-
Critical Hdwy Stg 1	5.73	-	-	-	-
Critical Hdwy Stg 2	5.73	-	-	-	-
Follow-up Hdwy	3.797	3.372	2.227	-	-
Pot Cap-1 Maneuver	205	925	1468	-	-
Stage 1	841	-	-	-	-
Stage 2	316	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	139	925	1468	-	-
Mov Cap-2 Maneuver	139	-	-	-	-
Stage 1	572	-	-	-	-
Stage 2	316	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.1	6.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1468	-	785	-	-
HCM Lane V/C Ratio	0.302	-	0.36	-	-
HCM Control Delay (s)	8.5	0	12.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	1.3	-	1.6	-	-

Intersection						
Int Delay, s/veh	605.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	104	1091	456	151	301	148
Future Vol, veh/h	104	1091	456	151	301	148
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	29	3	4	3	0	13
Mvmt Flow	111	1161	485	161	320	157

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	646	0	-	0	1949 566
Stage 1	-	-	-	-	566 -
Stage 2	-	-	-	-	1383 -
Critical Hdwy	4.39	-	-	-	6.4 6.33
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.461	-	-	-	3.5 3.417
Pot Cap-1 Maneuver	823	-	-	-	~ 72 503
Stage 1	-	-	-	-	572 -
Stage 2	-	-	-	-	~ 235 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	823	-	-	-	~ 45 503
Mov Cap-2 Maneuver	-	-	-	-	~ 45 -
Stage 1	-	-	-	-	355 -
Stage 2	-	-	-	-	~ 235 -

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	\$ 3033.4
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	823	-	-	-	64
HCM Lane V/C Ratio	0.134	-	-	-	7.463
HCM Control Delay (s)	10.1	0	-	-	\$ 3033.4
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0.5	-	-	-	55

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Queues
118: Star Road & SH 44

2045 Total Traffic Conditions AM Peak Hour

01/12/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	81	786	437	181	466	91	307	167	168	193	423
v/c Ratio	0.26	1.10	0.61	1.21	0.62	0.12	1.14	0.36	0.34	0.48	1.12
Control Delay	20.9	105.9	25.3	176.2	35.5	0.3	136.6	47.2	8.1	37.4	133.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.9	105.9	25.3	176.2	35.5	0.3	136.6	47.2	8.1	37.4	133.8
Queue Length 50th (ft)	38	~871	217	~170	342	0	~300	134	2	128	~470
Queue Length 95th (ft)	69	#1125	337	#332	465	0	#497	205	62	194	#690
Internal Link Dist (ft)		2598			5173			1764			5156
Turn Bay Length (ft)	100		100	100		100	100		100	100	
Base Capacity (vph)	314	713	718	149	755	777	270	463	499	406	378
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	1.10	0.61	1.21	0.62	0.12	1.14	0.36	0.34	0.48	1.12

Intersection Summary

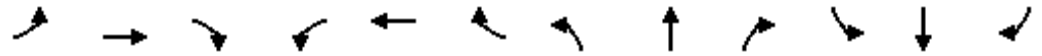
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Total Traffic Conditions AM Peak Hour
 118: Star Road & SH 44 01/12/2023



























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	747	415	172	443	86	292	159	160	183	337	65
Future Volume (vph)	77	747	415	172	443	86	292	159	160	183	337	65
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1644	1698	1500	1583	1667	1530	1676	1714	1404	1710	1700	
Flt Permitted	0.36	1.00	1.00	0.06	1.00	1.00	0.10	1.00	1.00	0.65	1.00	
Satd. Flow (perm)	617	1698	1500	98	1667	1530	181	1714	1404	1173	1700	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	81	786	437	181	466	91	307	167	168	193	355	68
RTOR Reduction (vph)	0	0	89	0	0	50	0	0	120	0	5	0
Lane Group Flow (vph)	81	786	348	181	466	41	307	167	48	193	418	0
Heavy Vehicles (%)	4%	6%	2%	8%	8%	0%	2%	5%	9%	0%	3%	5%
Turn Type	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6	6	5	2	2	3	8		7	4	
Permitted Phases	6			2			8		8	4		
Actuated Green, G (s)	68.0	63.0	63.0	78.0	68.0	68.0	59.0	40.5	40.5	45.5	33.0	
Effective Green, g (s)	68.0	63.0	63.0	78.0	68.0	68.0	59.0	40.5	40.5	45.5	33.0	
Actuated g/C Ratio	0.45	0.42	0.42	0.52	0.45	0.45	0.39	0.27	0.27	0.30	0.22	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	2.0	2.5	2.5	2.0	2.5	2.5	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	313	713	630	149	755	693	270	462	379	400	374	
v/s Ratio Prot	0.01	0.46	0.23	c0.08	0.28	0.03	c0.15	0.10		0.04	0.25	
v/s Ratio Perm	0.11			c0.55			c0.30		0.03	0.11		
v/c Ratio	0.26	1.10	0.55	1.21	0.62	0.06	1.14	0.36	0.13	0.48	1.12	
Uniform Delay, d1	24.7	43.5	32.9	46.4	31.1	23.0	47.0	44.3	41.4	41.0	58.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	65.3	3.5	142.9	1.3	0.0	96.9	0.2	0.1	0.3	82.6	
Delay (s)	24.9	108.8	36.3	189.3	32.4	23.1	143.9	44.5	41.4	41.4	141.1	
Level of Service	C	F	D	F	C	C	F	D	D	D	F	
Approach Delay (s)		79.3			69.7			91.2			109.9	
Approach LOS		E			E			F			F	

Intersection Summary		
HCM 2000 Control Delay	85.2	HCM 2000 Level of Service F
HCM 2000 Volume to Capacity ratio	1.23	
Actuated Cycle Length (s)	150.0	Sum of lost time (s) 24.0
Intersection Capacity Utilization	111.5%	ICU Level of Service H
Analysis Period (min)	15	
c Critical Lane Group		

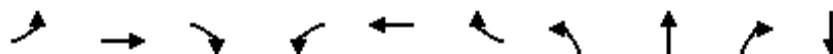
HCM 6th Signalized Intersection Summary
118: Star Road & SH 44

2045 Total Traffic Conditions AM Peak Hour
01/12/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	747	415	172	443	86	292	159	160	183	337	65
Future Volume (veh/h)	77	747	415	172	443	86	292	159	160	183	337	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1744	1716	1772	1688	1688	1800	1772	1730	1674	1800	1758	1730
Adj Flow Rate, veh/h	81	786	437	181	466	91	307	167	168	193	355	68
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	6	2	8	8	0	2	5	9	0	3	5
Cap, veh/h	309	721	631	155	765	692	273	461	378	397	315	60
Arrive On Green	0.03	0.42	0.42	0.07	0.45	0.45	0.13	0.27	0.27	0.09	0.22	0.22
Sat Flow, veh/h	1661	1716	1502	1607	1688	1525	1688	1730	1418	1714	1434	275
Grp Volume(v), veh/h	81	786	437	181	466	91	307	167	168	193	0	423
Grp Sat Flow(s),veh/h/ln	1661	1716	1502	1607	1688	1525	1688	1730	1418	1714	0	1708
Q Serve(g_s), s	4.2	63.0	35.7	10.0	31.3	5.2	20.0	11.8	14.8	13.0	0.0	33.0
Cycle Q Clear(g_c), s	4.2	63.0	35.7	10.0	31.3	5.2	20.0	11.8	14.8	13.0	0.0	33.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	309	721	631	155	765	692	273	461	378	397	0	376
V/C Ratio(X)	0.26	1.09	0.69	1.17	0.61	0.13	1.12	0.36	0.44	0.49	0.00	1.13
Avail Cap(c_a), veh/h	309	721	631	155	765	692	273	461	378	397	0	376
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.1	43.5	35.6	44.9	31.0	23.8	46.5	44.6	45.8	40.8	0.0	58.5
Incr Delay (d2), s/veh	0.2	60.9	6.2	124.1	1.3	0.1	92.2	0.2	0.3	0.3	0.0	85.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	38.6	14.2	8.5	13.1	1.9	14.6	5.1	5.3	5.7	0.0	23.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.3	104.4	41.8	169.0	32.2	23.9	138.8	44.8	46.1	41.1	0.0	143.5
LnGrp LOS	C	F	D	F	C	C	F	D	D	D	A	F
Approach Vol, veh/h		1304			738			642			616	
Approach Delay, s/veh		78.6			64.7			90.1			111.4	
Approach LOS		E			E			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	74.0	26.0	39.0	16.0	69.0	19.0	46.0				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	5.0	68.0	20.0	33.0	10.0	63.0	13.0	40.0				
Max Q Clear Time (g_c+I1), s	6.2	33.3	22.0	35.0	12.0	65.0	15.0	16.8				
Green Ext Time (p_c), s	0.0	2.9	0.0	0.0	0.0	0.0	0.0	0.9				
Intersection Summary												
HCM 6th Ctrl Delay				83.8								
HCM 6th LOS				F								

Queues
119: Plummer Road & SH 44

2045 Total Traffic Conditions AM Peak Hour
01/12/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	31	1108	35	60	632	114	47	13	86	642
v/c Ratio	0.11	1.30	0.05	0.44	0.70	0.14	0.11	0.02	0.14	1.34
Control Delay	14.8	175.6	1.8	28.2	33.1	10.7	33.9	32.2	6.8	203.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.8	175.6	1.8	28.2	33.1	10.7	33.9	32.2	6.8	203.2
Queue Length 50th (ft)	13	~1378	0	25	476	28	31	8	0	~813
Queue Length 95th (ft)	28	#1672	9	59	646	65	64	25	39	#1076
Internal Link Dist (ft)		5173			3517			675		5173
Turn Bay Length (ft)	100		100	100		100	100		100	
Base Capacity (vph)	325	853	741	159	900	801	426	643	602	479
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	1.30	0.05	0.38	0.70	0.14	0.11	0.02	0.14	1.34

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Total Traffic Conditions AM Peak Hour
 119: Plummer Road & SH 44 01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↑	↗		↕	
Traffic Volume (vph)	29	1053	33	57	600	108	45	12	82	490	40	80
Future Volume (vph)	29	1053	33	57	600	108	45	12	82	490	40	80
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0		5.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		0.96	
Satd. Flow (prot)	1710	1748	1457	1660	1748	1500	1710	1800	1530		1686	
Flt Permitted	0.24	1.00	1.00	0.05	1.00	1.00	0.66	1.00	1.00		0.76	
Satd. Flow (perm)	438	1748	1457	93	1748	1500	1192	1800	1530		1332	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	31	1108	35	60	632	114	47	13	86	516	42	84
RTOR Reduction (vph)	0	0	18	0	0	29	0	0	56	0	4	0
Lane Group Flow (vph)	31	1108	17	60	632	85	47	13	30	0	638	0
Heavy Vehicles (%)	0%	3%	5%	3%	3%	2%	0%	0%	0%	1%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6		6	2		2	4		4	8		
Actuated Green, G (s)	76.3	72.3	72.3	81.7	75.0	75.0	52.1	52.1	52.1		52.1	
Effective Green, g (s)	76.3	72.3	72.3	81.7	75.0	75.0	52.1	52.1	52.1		52.1	
Actuated g/C Ratio	0.52	0.49	0.49	0.55	0.51	0.51	0.35	0.35	0.35		0.35	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0		5.0	
Vehicle Extension (s)	2.5	4.0	4.0	2.5	4.0	4.0	2.5	2.5	2.5		2.5	
Lane Grp Cap (vph)	260	853	711	122	885	759	419	633	538		468	
v/s Ratio Prot	0.00	c0.63		c0.02	c0.36			0.01				
v/s Ratio Perm	0.06		0.01	0.25		0.06	0.04		0.02		c0.48	
v/c Ratio	0.12	1.30	0.02	0.49	0.71	0.11	0.11	0.02	0.06		1.36	
Uniform Delay, d1	21.1	37.9	19.6	33.1	28.3	19.1	32.4	31.3	31.7		48.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.1	143.1	0.0	2.3	3.0	0.1	0.1	0.0	0.0		176.9	
Delay (s)	21.2	181.0	19.6	35.3	31.2	19.2	32.5	31.4	31.8		224.9	
Level of Service	C	F	B	D	C	B	C	C	C		F	
Approach Delay (s)		172.0			29.8			32.0			224.9	
Approach LOS		F			C			C			F	

Intersection Summary		
HCM 2000 Control Delay	135.5	HCM 2000 Level of Service F
HCM 2000 Volume to Capacity ratio	1.28	
Actuated Cycle Length (s)	148.1	Sum of lost time (s) 17.0
Intersection Capacity Utilization	113.2%	ICU Level of Service H
Analysis Period (min)	15	
c Critical Lane Group		

HCM 6th Signalized Intersection Summary
119: Plummer Road & SH 44

2045 Total Traffic Conditions AM Peak Hour
01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	1053	33	57	600	108	45	12	82	490	40	80
Future Volume (veh/h)	29	1053	33	57	600	108	45	12	82	490	40	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1758	1730	1758	1758	1772	1800	1800	1800	1786	1800	1800
Adj Flow Rate, veh/h	31	1108	35	60	632	114	47	13	86	516	42	84
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	3	5	3	3	2	0	0	0	1	0	0
Cap, veh/h	249	863	720	103	875	748	570	648	549	434	32	63
Arrive On Green	0.02	0.49	0.49	0.03	0.50	0.50	0.36	0.36	0.36	0.36	0.36	0.36
Sat Flow, veh/h	1714	1758	1466	1674	1758	1502	1285	1800	1525	1083	88	176
Grp Volume(v), veh/h	31	1108	35	60	632	114	47	13	86	642	0	0
Grp Sat Flow(s),veh/h/ln	1714	1758	1466	1674	1758	1502	1285	1800	1525	1347	0	0
Q Serve(g_s), s	1.3	71.0	1.8	2.6	40.7	6.0	0.0	0.7	5.5	51.3	0.0	0.0
Cycle Q Clear(g_c), s	1.3	71.0	1.8	2.6	40.7	6.0	3.1	0.7	5.5	52.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.80		0.13
Lane Grp Cap(c), veh/h	249	863	720	103	875	748	570	648	549	530	0	0
V/C Ratio(X)	0.12	1.28	0.05	0.59	0.72	0.15	0.08	0.02	0.16	1.21	0.00	0.00
Avail Cap(c_a), veh/h	325	863	720	166	875	748	570	648	549	530	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	23.0	36.8	19.2	34.5	28.4	19.7	30.6	29.8	31.4	48.8	0.0	0.0
Incr Delay (d2), s/veh	0.2	136.3	0.0	3.9	3.2	0.1	0.0	0.0	0.1	112.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	62.5	0.6	1.1	17.8	2.2	1.1	0.3	2.1	36.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.1	173.1	19.2	38.4	31.6	19.8	30.7	29.9	31.5	160.8	0.0	0.0
LnGrp LOS	C	F	B	D	C	B	C	C	C	F	A	A
Approach Vol, veh/h		1174			806			146			642	
Approach Delay, s/veh		164.5			30.5			31.1			160.8	
Approach LOS		F			C			C			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.6	78.0		57.0	10.6	77.0		57.0				
Change Period (Y+Rc), s	6.0	6.0		5.0	6.0	6.0		5.0				
Max Green Setting (Gmax), s	10.0	71.0		52.0	10.0	71.0		52.0				
Max Q Clear Time (g_c+I1), s	3.3	42.7		7.5	4.6	73.0		54.0				
Green Ext Time (p_c), s	0.0	7.6		0.4	0.0	0.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay	117.6
HCM 6th LOS	F

HCM 6th TWSC
101: Can Ada Road & Purple Sage Road/Aerie Way

2045 Total Traffic Conditions PM Peak Hour

01/24/2023

Intersection												
Int Delay, s/veh	131.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	38	111	176	112	74	1	281	75	168	1	31	25
Future Vol, veh/h	38	111	176	112	74	1	281	75	168	1	31	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	2	0	0	0	1	0	0	0	0	0
Mvmt Flow	42	123	196	124	82	1	312	83	187	1	34	28

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	892	944	48	1011	865	177	62	0	0	270	0	0
Stage 1	50	50	-	801	801	-	-	-	-	-	-	-
Stage 2	842	894	-	210	64	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.22	7.1	6.5	6.2	4.11	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.318	3.5	4	3.3	2.209	-	-	2.2	-	-
Pot Cap-1 Maneuver	265	264	1021	220	294	871	1547	-	-	1305	-	-
Stage 1	968	857	-	381	400	-	-	-	-	-	-	-
Stage 2	362	362	-	797	846	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	155	200	1021	~ 75	222	871	1547	-	-	1305	-	-
Mov Cap-2 Maneuver	155	200	-	~ 75	222	-	-	-	-	-	-	-
Stage 1	733	856	-	288	303	-	-	-	-	-	-	-
Stage 2	199	274	-	551	845	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	108.7	\$ 568.2	4.2	0.1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1547	-	-	334	102	1305	-
HCM Lane V/C Ratio	0.202	-	-	1.081	2.037	0.001	-
HCM Control Delay (s)	7.9	0	-	108.7	\$ 568.2	7.8	0
HCM Lane LOS	A	A	-	F	F	A	A
HCM 95th %tile Q(veh)	0.8	-	-	13.5	17.6	0	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection						
Int Delay, s/veh	5.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	43	1	161	71	1	108
Future Vol, veh/h	43	1	161	71	1	108
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	48	1	179	79	1	120

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	49	0	486 49
Stage 1	-	-	-	-	49 -
Stage 2	-	-	-	-	437 -
Critical Hdwy	-	-	4.1	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	-	-	2.2	-	3.5 3.3
Pot Cap-1 Maneuver	-	-	1571	-	544 1025
Stage 1	-	-	-	-	979 -
Stage 2	-	-	-	-	655 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1571	-	479 1025
Mov Cap-2 Maneuver	-	-	-	-	479 -
Stage 1	-	-	-	-	979 -
Stage 2	-	-	-	-	577 -

Approach	EB	WB	NB
HCM Control Delay, s	0	5.3	9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1014	-	-	1571	-
HCM Lane V/C Ratio	0.119	-	-	0.114	-
HCM Control Delay (s)	9	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0.4	-

Intersection						
Int Delay, s/veh	3.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	15	198	311	1312	601	15
Future Vol, veh/h	15	198	311	1312	601	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	2	2	2	0
Mvmt Flow	16	218	342	1442	660	16

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	2794	668	676	0	-	0
Stage 1	668	-	-	-	-	-
Stage 2	2126	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-	-
Pot Cap-1 Maneuver	21	462	915	-	-	-
Stage 1	513	-	-	-	-	-
Stage 2	100	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	0	462	915	-	-	-
Mov Cap-2 Maneuver	0	-	-	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	100	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.5	2.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	915	-	462	-	-
HCM Lane V/C Ratio	0.374	-	0.507	-	-
HCM Control Delay (s)	11.3	0	20.5	-	-
HCM Lane LOS	B	A	C	-	-
HCM 95th %tile Q(veh)	1.7	-	2.8	-	-

Intersection						
Int Delay, s/veh	2.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		T			T
Traffic Vol, veh/h	59	31	517	95	29	280
Future Vol, veh/h	59	31	517	95	29	280
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	1	6	0	0
Mvmt Flow	66	34	574	106	32	311

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1002	627	0	0	680
Stage 1	627	-	-	-	-
Stage 2	375	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	271	487	-	-	922
Stage 1	536	-	-	-	-
Stage 2	699	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	260	487	-	-	922
Mov Cap-2 Maneuver	260	-	-	-	-
Stage 1	536	-	-	-	-
Stage 2	670	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22	0	0.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	310	922
HCM Lane V/C Ratio	-	-	0.323	0.035
HCM Control Delay (s)	-	-	22	9
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	1.4	0.1

Intersection	
Intersection Delay, s/veh	24.5
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	33	24	4	62	84	94	33	350	57	100	275	38
Future Vol, veh/h	33	24	4	62	84	94	33	350	57	100	275	38
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	0	0	7	3	0	0	0	0	3	0	0
Mvmt Flow	37	27	4	69	93	104	37	389	63	111	306	42
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	12	16.4	28.7	26.7
HCM LOS	B	C	D	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	7%	54%	26%	24%
Vol Thru, %	80%	39%	35%	67%
Vol Right, %	13%	7%	39%	9%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	440	61	240	413
LT Vol	33	33	62	100
Through Vol	350	24	84	275
RT Vol	57	4	94	38
Lane Flow Rate	489	68	267	459
Geometry Grp	1	1	1	1
Degree of Util (X)	0.802	0.143	0.499	0.771
Departure Headway (Hd)	5.906	7.598	6.735	6.05
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	611	470	533	597
Service Time	3.956	5.681	4.792	4.102
HCM Lane V/C Ratio	0.8	0.145	0.501	0.769
HCM Control Delay	28.7	12	16.4	26.7
HCM Lane LOS	D	B	C	D
HCM 95th-tile Q	7.9	0.5	2.8	7.1

Intersection						
Int Delay, s/veh	2.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	56	139	485	110	62	27
Future Vol, veh/h	56	139	485	110	62	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	2	1	0	0	0
Mvmt Flow	62	154	539	122	69	30

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	661	0	-	0	878 600
Stage 1	-	-	-	-	600 -
Stage 2	-	-	-	-	278 -
Critical Hdwy	4.1	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.2	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	937	-	-	-	321 505
Stage 1	-	-	-	-	552 -
Stage 2	-	-	-	-	774 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	937	-	-	-	300 505
Mov Cap-2 Maneuver	-	-	-	-	300 -
Stage 1	-	-	-	-	516 -
Stage 2	-	-	-	-	774 -

Approach	EB	WB	SB
HCM Control Delay, s	2.6	0	19.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	937	-	-	-	342
HCM Lane V/C Ratio	0.066	-	-	-	0.289
HCM Control Delay (s)	9.1	-	-	-	19.8
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.2	-	-	-	1.2

Intersection												
Int Delay, s/veh	921.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Vol, veh/h	5	190	8	164	579	126	310	218	157	61	31	9
Future Vol, veh/h	5	190	8	164	579	126	310	218	157	61	31	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	1	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	6	211	9	182	643	140	344	242	174	68	34	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	783	0	0	220	0	0	1327	1375	216	1443	1239	643
Stage 1	-	-	-	-	-	-	228	228	-	1007	1007	-
Stage 2	-	-	-	-	-	-	1099	1147	-	436	232	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	844	-	-	1361	-	-	~ 134	~ 147	829	111	177	477
Stage 1	-	-	-	-	-	-	779	719	-	293	321	-
Stage 2	-	-	-	-	-	-	~ 260	276	-	603	716	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	844	-	-	1361	-	-	~ 86	~ 110	829	-	133	477
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 86	~ 110	-	-	133	-
Stage 1	-	-	-	-	-	-	773	713	-	291	243	-
Stage 2	-	-	-	-	-	-	~ 165	~ 209	-	312	710	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	1.5	\$ 2498.7	
HCM LOS			F	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	119	844	-	-	1361	-	-	-
HCM Lane V/C Ratio	6.396	0.007	-	-	0.134	-	-	-
HCM Control Delay (s)	\$ 2498.7	9.3	0	-	8.1	0	-	-
HCM Lane LOS	F	A	A	-	A	A	-	-
HCM 95th %tile Q(veh)	83.7	0	-	-	0.5	-	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Queues
110: SH 16 & Beacon Light Road

2045 Total Traffic Conditions PM Peak Hour

01/12/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	71	132	126	176	503	656	149	1177	96	128	638	44
v/c Ratio	0.68	0.38	0.27	0.49	1.12	1.29	0.62	1.43	0.12	1.22	0.80	0.06
Control Delay	70.3	56.2	1.4	42.7	127.9	179.7	29.9	232.7	0.3	185.4	44.1	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.3	56.2	1.4	42.7	127.9	179.7	29.9	232.7	0.3	185.4	44.1	0.1
Queue Length 50th (ft)	48	114	0	129	~562	~696	68	~1552	0	~104	527	0
Queue Length 95th (ft)	#100	183	0	197	#792	#943	106	#1818	0	#246	702	0
Internal Link Dist (ft)		2558			3836			8809			1084	
Turn Bay Length (ft)	100		100	100		100	100		100	100		100
Base Capacity (vph)	104	350	472	364	451	507	239	823	797	105	800	800
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.38	0.27	0.48	1.12	1.29	0.62	1.43	0.12	1.22	0.80	0.06

Intersection Summary

























~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Total Traffic Conditions PM Peak Hour
 110: SH 16 & Beacon Light Road 01/12/2023

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (vph)	70	129	123	172	493	643	146	1153	94	125	625	43		
Future Volume (vph)	70	129	123	172	493	643	146	1153	94	125	625	43		
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800		
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0	9.0	9.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		
Satd. Flow (prot)	1710	1765	1530	1660	1782	1530	1693	1765	1485	1710	1765	1530		
Flt Permitted	0.13	1.00	1.00	0.50	1.00	1.00	0.19	1.00	1.00	0.06	1.00	1.00		
Satd. Flow (perm)	242	1765	1530	871	1782	1530	344	1765	1485	106	1765	1530		
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98		
Adj. Flow (vph)	71	132	126	176	503	656	149	1177	96	128	638	44		
RTOR Reduction (vph)	0	0	101	0	0	119	0	0	51	0	0	24		
Lane Group Flow (vph)	71	132	25	176	503	537	149	1177	45	128	638	20		
Heavy Vehicles (%)	0%	2%	0%	3%	1%	0%	1%	2%	3%	0%	2%	0%		
Turn Type	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Prot		
Protected Phases	1	6	6	5	2	2	3	8	8	7	4	4		
Permitted Phases	6			2			8			4				
Actuated Green, G (s)	34.8	29.8	29.8	50.0	38.0	38.0	77.0	70.0	70.0	73.0	68.0	68.0		
Effective Green, g (s)	34.8	29.8	29.8	50.0	38.0	38.0	77.0	70.0	70.0	73.0	68.0	68.0		
Actuated g/C Ratio	0.23	0.20	0.20	0.33	0.25	0.25	0.51	0.47	0.47	0.49	0.45	0.45		
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0	9.0	9.0		
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	5.0	5.0	2.0	5.0	5.0		
Lane Grp Cap (vph)	105	350	303	359	451	387	239	823	693	105	800	693		
v/s Ratio Prot	0.02	0.07	0.02	c0.04	0.28	c0.35	0.03	c0.67	0.03	c0.04	0.36	0.01		
v/s Ratio Perm	0.13			0.12			0.29			0.55				
v/c Ratio	0.68	0.38	0.08	0.49	1.12	1.39	0.62	1.43	0.06	1.22	0.80	0.03		
Uniform Delay, d1	48.5	52.1	49.0	37.6	56.0	56.0	25.6	40.0	22.0	35.8	35.1	22.7		
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	12.7	0.7	0.1	0.4	77.7	189.2	3.6	200.6	0.1	158.1	6.4	0.0		
Delay (s)	61.2	52.7	49.1	38.0	133.7	245.2	29.2	240.6	22.1	193.9	41.5	22.7		
Level of Service	E	D	D	D	F	F	C	F	C	F	D	C		
Approach Delay (s)		53.2			175.9			203.7			64.5			
Approach LOS		D			F			F			E			
Intersection Summary														
HCM 2000 Control Delay			152.5									HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio			1.38											
Actuated Cycle Length (s)			150.0								32.0			
Intersection Capacity Utilization			129.6%										ICU Level of Service	H
Analysis Period (min)			15											
c Critical Lane Group														

HCM 6th Signalized Intersection Summary
110: SH 16 & Beacon Light Road

2045 Total Traffic Conditions PM Peak Hour
01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗	↘	↘	↗	↘	↘	↗	↘	↘	↗	↘
Traffic Volume (veh/h)	70	129	123	172	493	643	146	1153	94	125	625	43
Future Volume (veh/h)	70	129	123	172	493	643	146	1153	94	125	625	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1772	1800	1758	1786	1800	1786	1772	1758	1800	1772	1800
Adj Flow Rate, veh/h	71	132	126	176	503	656	149	1177	96	128	638	44
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	2	0	3	1	0	1	2	3	0	2	0
Cap, veh/h	105	343	295	347	452	386	239	827	695	105	803	692
Arrive On Green	0.03	0.19	0.19	0.09	0.25	0.25	0.05	0.47	0.47	0.03	0.45	0.45
Sat Flow, veh/h	1714	1772	1525	1674	1786	1525	1701	1772	1490	1714	1772	1525
Grp Volume(v), veh/h	71	132	126	176	503	656	149	1177	96	128	638	44
Grp Sat Flow(s),veh/h/ln	1714	1772	1525	1674	1786	1525	1701	1772	1490	1714	1772	1525
Q Serve(g_s), s	5.0	9.7	10.9	12.3	38.0	38.0	7.0	70.0	5.5	5.0	46.1	2.4
Cycle Q Clear(g_c), s	5.0	9.7	10.9	12.3	38.0	38.0	7.0	70.0	5.5	5.0	46.1	2.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	105	343	295	347	452	386	239	827	695	105	803	692
V/C Ratio(X)	0.68	0.39	0.43	0.51	1.11	1.70	0.62	1.42	0.14	1.22	0.79	0.06
Avail Cap(c_a), veh/h	105	343	295	347	452	386	239	827	695	105	803	692
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.6	52.7	53.2	41.6	56.0	56.0	30.2	40.0	22.8	36.7	35.0	23.1
Incr Delay (d2), s/veh	13.2	0.7	1.0	0.5	76.4	324.8	3.8	197.6	0.2	157.4	6.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	4.4	4.3	5.2	26.7	49.5	3.2	75.4	2.0	6.7	21.2	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.8	53.4	54.2	42.1	132.4	380.8	33.9	237.6	23.0	194.1	41.3	23.2
LnGrp LOS	E	D	D	D	F	F	C	F	C	F	D	C
Approach Vol, veh/h		329			1335			1422			810	
Approach Delay, s/veh		55.7			242.6			201.8			64.5	
Approach LOS		E			F			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	45.0	16.0	77.0	21.0	36.0	14.0	79.0				
Change Period (Y+Rc), s	7.0	7.0	9.0	9.0	7.0	7.0	9.0	9.0				
Max Green Setting (Gmax), s	5.0	38.0	7.0	68.0	14.0	29.0	5.0	70.0				
Max Q Clear Time (g_c+I1), s	7.0	40.0	9.0	48.1	14.3	12.9	7.0	72.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	8.0	0.0	1.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	174.9
HCM 6th LOS	F

Intersection						
Int Delay, s/veh	28.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	442	19	5	1303	115	22
Future Vol, veh/h	442	19	5	1303	115	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	0	0	1	5	0
Mvmt Flow	465	20	5	1372	121	23

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	485	0	1857 475
Stage 1	-	-	-	-	475 -
Stage 2	-	-	-	-	1382 -
Critical Hdwy	-	-	4.1	-	6.45 6.2
Critical Hdwy Stg 1	-	-	-	-	5.45 -
Critical Hdwy Stg 2	-	-	-	-	5.45 -
Follow-up Hdwy	-	-	2.2	-	3.545 3.3
Pot Cap-1 Maneuver	-	-	1088	-	~ 79 594
Stage 1	-	-	-	-	619 -
Stage 2	-	-	-	-	229 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1088	-	~ 77 594
Mov Cap-2 Maneuver	-	-	-	-	~ 77 -
Stage 1	-	-	-	-	619 -
Stage 2	-	-	-	-	225 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0	\$ 397.8
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	90	-	-	1088	-
HCM Lane V/C Ratio	1.602	-	-	0.005	-
HCM Control Delay (s)	\$ 397.8	-	-	8.3	0
HCM Lane LOS	F	-	-	A	A
HCM 95th %tile Q(veh)	11.5	-	-	0	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection						
Int Delay, s/veh	129.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↑	↔	↔
Traffic Vol, veh/h	120	182	584	222	139	172
Future Vol, veh/h	120	182	584	222	139	172
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	100	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	2	2	0	0	0
Mvmt Flow	132	200	642	244	153	189

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	332	0	1760 232
Stage 1	-	-	-	-	232 -
Stage 2	-	-	-	-	1528 -
Critical Hdwy	-	-	4.12	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	-	-	2.218	-	3.5 3.3
Pot Cap-1 Maneuver	-	-	1227	-	~94 812
Stage 1	-	-	-	-	811 -
Stage 2	-	-	-	-	200 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1227	-	~45 812
Mov Cap-2 Maneuver	-	-	-	-	~45 -
Stage 1	-	-	-	-	811 -
Stage 2	-	-	-	-	~95 -

Approach	EB	WB	NB
HCM Control Delay, s	0	8	\$ 571.8
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	45	812	-	-	1227	-
HCM Lane V/C Ratio	3.394	0.233	-	-	0.523	-
HCM Control Delay (s)	\$ 1265.9	10.8	-	-	11.1	-
HCM Lane LOS	F	B	-	-	B	-
HCM 95th %tile Q(veh)	16.9	0.9	-	-	3.2	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection						
Int Delay, s/veh	114.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	166	246	91	388	361	67
Future Vol, veh/h	166	246	91	388	361	67
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	184	273	101	431	401	74

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	457	0	954
Stage 1	-	-	-	-	321
Stage 2	-	-	-	-	633
Critical Hdwy	-	-	4.1	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.2	-	3.5
Pot Cap-1 Maneuver	-	-	1114	- ~	289
Stage 1	-	-	-	-	740
Stage 2	-	-	-	-	533
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1114	- ~	255
Mov Cap-2 Maneuver	-	-	-	- ~	255
Stage 1	-	-	-	-	740
Stage 2	-	-	-	-	470

Approach	EB	WB	NB
HCM Control Delay, s	0	1.6	\$ 349.9
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	284	-	-	1114	-
HCM Lane V/C Ratio	1.674	-	-	0.091	-
HCM Control Delay (s)	\$ 349.9	-	-	8.6	0
HCM Lane LOS	F	-	-	A	A
HCM 95th %tile Q(veh)	29.9	-	-	0.3	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection						
Int Delay, s/veh	13.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	265	24	218	109	35	319
Future Vol, veh/h	265	24	218	109	35	319
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	4	0	0
Mvmt Flow	294	27	242	121	39	354

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	735	303	0	0	363
Stage 1	303	-	-	-	-
Stage 2	432	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	390	741	-	-	1207
Stage 1	754	-	-	-	-
Stage 2	659	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	374	741	-	-	1207
Mov Cap-2 Maneuver	374	-	-	-	-
Stage 1	754	-	-	-	-
Stage 2	633	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	45.2	0	0.8
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	390	1207
HCM Lane V/C Ratio	-	-	0.823	0.032
HCM Control Delay (s)	-	-	45.2	8.1
HCM Lane LOS	-	-	E	A
HCM 95th %tile Q(veh)	-	-	7.5	0.1

Intersection						
Int Delay, s/veh	6.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	72	470	131	16	5
Future Vol, veh/h	3	72	470	131	16	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	4	0	0
Mvmt Flow	3	78	511	142	17	5

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	1184	20	22	0	0
Stage 1	20	-	-	-	-
Stage 2	1164	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-
Pot Cap-1 Maneuver	211	1064	1607	-	-
Stage 1	1008	-	-	-	-
Stage 2	300	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	138	1064	1607	-	-
Mov Cap-2 Maneuver	138	-	-	-	-
Stage 1	660	-	-	-	-
Stage 2	300	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	6.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1607	-	839	-	-
HCM Lane V/C Ratio	0.318	-	0.097	-	-
HCM Control Delay (s)	8.3	0	9.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	1.4	-	0.3	-	-

Intersection						
Int Delay, s/veh	1988.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	114	865	1163	315	303	104
Future Vol, veh/h	114	865	1163	315	303	104
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	6	2	1	2	2	12
Mvmt Flow	121	920	1237	335	322	111

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	1572	0	-	0	2567 1405
Stage 1	-	-	-	-	1405 -
Stage 2	-	-	-	-	1162 -
Critical Hdwy	4.16	-	-	-	6.42 6.32
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.254	-	-	-	3.518 3.408
Pot Cap-1 Maneuver	408	-	-	-	~ 29 162
Stage 1	-	-	-	-	~ 227 -
Stage 2	-	-	-	-	~ 298 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	408	-	-	-	~ 11 162
Mov Cap-2 Maneuver	-	-	-	-	~ 11 -
Stage 1	-	-	-	-	~ 89 -
Stage 2	-	-	-	-	~ 298 -

Approach	EB	WB	SB
HCM Control Delay, s	2	0	\$ 13990
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	408	-	-	-	14
HCM Lane V/C Ratio	0.297	-	-	-	-30.927
HCM Control Delay (s)	17.5	0	-	-	\$ 13990
HCM Lane LOS	C	A	-	-	F
HCM 95th %tile Q(veh)	1.2	-	-	-	55.3

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Queues
118: Star Road & SH 44

2045 Total Traffic Conditions PM Peak Hour

01/12/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	162	677	420	211	977	114	475	307	158	111	352
v/c Ratio	1.36	0.93	0.57	0.98	1.20	0.15	1.43	0.61	0.29	0.41	1.17
Control Delay	234.6	62.1	19.6	90.2	139.3	1.3	244.0	51.8	7.1	37.5	156.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	234.6	62.1	19.6	90.2	139.3	1.3	244.0	51.8	7.1	37.5	156.3
Queue Length 50th (ft)	~152	607	155	136	~1120	0	~559	254	0	69	~385
Queue Length 95th (ft)	#305	#859	265	#308	#1380	12	#785	361	56	116	#590
Internal Link Dist (ft)		2598			5173			1764			5156
Turn Bay Length (ft)	100		100	100		100	100		100	100	
Base Capacity (vph)	119	725	736	215	811	782	332	501	540	275	300
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.36	0.93	0.57	0.98	1.20	0.15	1.43	0.61	0.29	0.40	1.17

Intersection Summary

























~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

























Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Total Traffic Conditions PM Peak Hour
 118: Star Road & SH 44 01/12/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	670	416	209	967	113	470	304	156	110	237	112
Future Volume (vph)	160	670	416	209	967	113	470	304	156	110	237	112
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95	0.95
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1693	1782	1515	1676	1782	1530	1710	1800	1530	1660	1674	1674
Flt Permitted	0.07	1.00	1.00	0.08	1.00	1.00	0.13	1.00	1.00	0.57	1.00	1.00
Satd. Flow (perm)	121	1782	1515	146	1782	1530	232	1800	1530	998	1674	1674
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	162	677	420	211	977	114	475	307	158	111	239	113
RTOR Reduction (vph)	0	0	120	0	0	62	0	0	114	0	12	0
Lane Group Flow (vph)	162	677	300	211	977	52	475	307	44	111	340	0
Heavy Vehicles (%)	1%	1%	1%	2%	1%	0%	0%	0%	0%	3%	3%	1%
Turn Type	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	NA
Protected Phases	1	6	6	5	2	2	3	8	8	7	4	4
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	65.0	59.0	59.0	78.0	66.0	66.0	55.0	40.4	40.4	33.6	25.0	25.0
Effective Green, g (s)	65.0	59.0	59.0	78.0	66.0	66.0	55.0	40.4	40.4	33.6	25.0	25.0
Actuated g/C Ratio	0.45	0.41	0.41	0.54	0.46	0.46	0.38	0.28	0.28	0.23	0.17	0.17
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	2.0	2.5	2.5	2.0	2.5	2.5	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	119	725	616	215	811	696	332	501	426	270	288	288
v/s Ratio Prot	0.06	0.38	0.20	c0.09	c0.55	0.03	c0.24	0.17	0.03	0.02	0.20	0.20
v/s Ratio Perm	c0.55			0.44			c0.30			0.07		
v/c Ratio	1.36	0.93	0.49	0.98	1.20	0.07	1.43	0.61	0.10	0.41	1.18	1.18
Uniform Delay, d1	35.2	41.1	31.8	41.1	39.5	22.3	44.9	45.5	38.8	45.9	60.0	60.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	207.3	20.7	2.7	55.7	103.7	0.0	210.4	1.6	0.0	0.4	111.7	111.7
Delay (s)	242.5	61.8	34.5	96.8	143.2	22.3	255.3	47.1	38.9	46.2	171.7	171.7
Level of Service	F	E	C	F	F	C	F	D	D	D	F	F
Approach Delay (s)		76.0			125.1			150.9			141.6	
Approach LOS		E			F			F			F	
Intersection Summary												
HCM 2000 Control Delay			117.5									F
HCM 2000 Volume to Capacity ratio			1.40									
Actuated Cycle Length (s)			145.0						24.0			
Intersection Capacity Utilization			130.9%									H
ICU Level of Service												
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
118: Star Road & SH 44

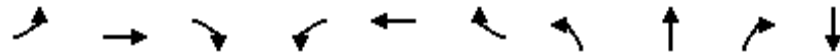
2045 Total Traffic Conditions PM Peak Hour
01/12/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	670	416	209	967	113	470	304	156	110	237	112
Future Volume (veh/h)	160	670	416	209	967	113	470	304	156	110	237	112
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1786	1786	1786	1772	1786	1800	1800	1800	1800	1758	1758	1786
Adj Flow Rate, veh/h	162	677	420	211	977	114	475	307	158	111	239	113
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	1	1	1	2	1	0	0	0	0	3	3	1
Cap, veh/h	120	727	616	224	813	694	333	497	421	270	195	92
Arrive On Green	0.04	0.41	0.41	0.09	0.46	0.46	0.17	0.28	0.28	0.06	0.17	0.17
Sat Flow, veh/h	1701	1786	1514	1688	1786	1525	1714	1800	1525	1674	1128	533
Grp Volume(v), veh/h	162	677	420	211	977	114	475	307	158	111	0	352
Grp Sat Flow(s),veh/h/ln	1701	1786	1514	1688	1786	1525	1714	1800	1525	1674	0	1662
Q Serve(g_s), s	6.0	52.5	33.0	11.7	66.0	6.4	24.0	21.6	12.1	7.9	0.0	25.0
Cycle Q Clear(g_c), s	6.0	52.5	33.0	11.7	66.0	6.4	24.0	21.6	12.1	7.9	0.0	25.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.32
Lane Grp Cap(c), veh/h	120	727	616	224	813	694	333	497	421	270	0	287
V/C Ratio(X)	1.35	0.93	0.68	0.94	1.20	0.16	1.42	0.62	0.38	0.41	0.00	1.23
Avail Cap(c_a), veh/h	120	727	616	224	813	694	333	497	421	270	0	287
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	36.1	41.1	35.3	38.6	39.5	23.3	44.7	45.8	42.4	45.7	0.0	60.0
Incr Delay (d2), s/veh	202.3	20.3	6.0	43.6	102.5	0.1	207.8	1.7	0.2	0.4	0.0	129.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.2	27.0	13.2	6.8	51.6	2.4	29.5	10.0	4.7	3.3	0.0	20.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	238.5	61.4	41.3	82.2	142.0	23.3	252.5	47.6	42.6	46.0	0.0	189.6
LnGrp LOS	F	E	D	F	F	C	F	D	D	D	A	F
Approach Vol, veh/h		1259			1302			940			463	
Approach Delay, s/veh		77.5			121.9			150.3			155.2	
Approach LOS		E			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	72.0	30.0	31.0	19.0	65.0	15.0	46.0				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	6.0	66.0	24.0	25.0	13.0	59.0	9.0	40.0				
Max Q Clear Time (g_c+I1), s	8.0	68.0	26.0	27.0	13.7	54.5	9.9	23.6				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	2.2	0.0	1.3				
Intersection Summary												
HCM 6th Ctrl Delay	118.4											
HCM 6th LOS	F											

Queues
119: Plummer Road & SH 44

2045 Total Traffic Conditions PM Peak Hour

01/12/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	71	862	58	108	1352	293	113	116	158	514
v/c Ratio	0.68	0.89	0.07	0.67	1.39	0.34	0.35	0.21	0.28	1.36
Control Delay	50.6	42.3	3.9	33.8	210.7	16.1	44.2	40.0	6.6	218.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.6	42.3	3.9	33.8	210.7	16.1	44.2	40.0	6.6	218.9
Queue Length 50th (ft)	26	719	0	41	~1754	122	86	85	0	~657
Queue Length 95th (ft)	#97	#1018	22	#79	#2020	187	147	139	54	#890
Internal Link Dist (ft)		5173			3517			675		5173
Turn Bay Length (ft)	100		100	100		100	100		100	
Base Capacity (vph)	105	974	862	162	974	862	323	541	560	377
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.89	0.07	0.67	1.39	0.34	0.35	0.21	0.28	1.36

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Total Traffic Conditions PM Peak Hour
 119: Plummer Road & SH 44 01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	819	55	103	1284	278	107	110	150	316	78	94
Future Volume (vph)	67	819	55	103	1284	278	107	110	150	316	78	94
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0		5.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1710	1782	1530	1710	1782	1530	1710	1765	1471		1678	
Flt Permitted	0.05	1.00	1.00	0.11	1.00	1.00	0.59	1.00	1.00		0.70	
Satd. Flow (perm)	88	1782	1530	192	1782	1530	1055	1765	1471		1214	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	71	862	58	108	1352	293	113	116	158	333	82	99
RTOR Reduction (vph)	0	0	26	0	0	26	0	0	110	0	6	0
Lane Group Flow (vph)	71	862	32	108	1352	267	113	116	48	0	508	0
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	2%	4%	1%	0%	3%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6		6	2		2	4		4	8		
Actuated Green, G (s)	87.0	82.0	82.0	87.0	82.0	82.0	46.0	46.0	46.0		46.0	
Effective Green, g (s)	87.0	82.0	82.0	87.0	82.0	82.0	46.0	46.0	46.0		46.0	
Actuated g/C Ratio	0.58	0.55	0.55	0.58	0.55	0.55	0.31	0.31	0.31		0.31	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0		5.0	
Vehicle Extension (s)	2.5	4.0	4.0	2.5	4.0	4.0	2.5	2.5	2.5		2.5	
Lane Grp Cap (vph)	105	974	836	161	974	836	323	541	451		372	
v/s Ratio Prot	c0.02	0.48		0.02	c0.76			0.07				
v/s Ratio Perm	0.37		0.02	0.36		0.17	0.11		0.03		c0.42	
v/c Ratio	0.68	0.89	0.04	0.67	1.39	0.32	0.35	0.21	0.11		1.37	
Uniform Delay, d1	34.9	29.9	15.7	27.0	34.0	18.7	40.4	38.6	37.3		52.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	
Incremental Delay, d2	14.5	9.9	0.0	9.5	181.0	0.3	0.5	0.1	0.1		181.5	
Delay (s)	49.4	39.8	15.8	36.6	215.0	19.0	40.9	38.7	37.4		233.5	
Level of Service	D	D	B	D	F	B	D	D	D		F	
Approach Delay (s)		39.1			171.3			38.8			233.5	
Approach LOS		D			F			D			F	

Intersection Summary

HCM 2000 Control Delay	130.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.35		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	125.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
119: Plummer Road & SH 44

2045 Total Traffic Conditions PM Peak Hour
01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↑	↗		↕	
Traffic Volume (veh/h)	67	819	55	103	1284	278	107	110	150	316	78	94
Future Volume (veh/h)	67	819	55	103	1284	278	107	110	150	316	78	94
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1786	1800	1800	1786	1800	1800	1772	1744	1786	1800	1758
Adj Flow Rate, veh/h	71	862	58	108	1352	293	113	116	158	333	82	99
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	1	0	0	1	0	0	2	4	1	0	3
Cap, veh/h	102	975	833	181	978	835	406	544	454	251	52	63
Arrive On Green	0.03	0.55	0.55	0.03	0.55	0.55	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1714	1786	1525	1714	1786	1525	1222	1772	1478	689	170	205
Grp Volume(v), veh/h	71	862	58	108	1352	293	113	116	158	514	0	0
Grp Sat Flow(s),veh/h/ln	1714	1786	1525	1714	1786	1525	1222	1772	1478	1063	0	0
Q Serve(g_s), s	2.7	63.4	2.7	4.2	82.0	16.1	0.0	7.3	12.4	38.7	0.0	0.0
Cycle Q Clear(g_c), s	2.7	63.4	2.7	4.2	82.0	16.1	11.1	7.3	12.4	46.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.65		0.19
Lane Grp Cap(c), veh/h	102	975	833	181	978	835	406	544	454	366	0	0
V/C Ratio(X)	0.69	0.88	0.07	0.60	1.38	0.35	0.28	0.21	0.35	1.40	0.00	0.00
Avail Cap(c_a), veh/h	105	978	835	181	978	835	406	544	454	366	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	36.3	29.8	16.1	30.4	33.9	19.0	39.8	38.5	40.2	57.6	0.0	0.0
Incr Delay (d2), s/veh	16.1	9.9	0.0	4.7	178.5	0.4	0.3	0.1	0.3	197.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	29.3	1.0	2.2	82.9	5.9	3.3	3.2	4.6	34.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.4	39.7	16.1	35.1	212.4	19.3	40.1	38.6	40.6	254.9	0.0	0.0
LnGrp LOS	D	D	B	D	F	B	D	D	D	F	A	A
Approach Vol, veh/h		991			1753			387			514	
Approach Delay, s/veh		39.3			169.2			39.8			254.9	
Approach LOS		D			F			D			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.7	88.0		51.0	11.0	87.7		51.0				
Change Period (Y+Rc), s	6.0	6.0		5.0	6.0	6.0		5.0				
Max Green Setting (Gmax), s	5.0	82.0		46.0	5.0	82.0		46.0				
Max Q Clear Time (g_c+I1), s	4.7	84.0		14.4	6.2	65.4		48.0				
Green Ext Time (p_c), s	0.0	0.0		1.2	0.0	8.3		0.0				

Intersection Summary

HCM 6th Ctrl Delay	132.2
HCM 6th LOS	F



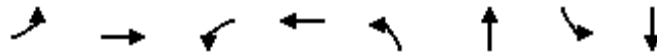
Appendix T
Year 2045 Mitigated Total Traffic
Operation Worksheets

Queues

2045 Total Traffic Mit AM Peak Hour

101: Can Ada Road & Purple Sage Road

01/24/2023
























Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	20	287	150	100	112	104	1	68
v/c Ratio	0.05	0.55	0.36	0.15	0.21	0.13	0.00	0.12
Control Delay	8.3	8.8	11.2	11.5	11.1	7.2	10.0	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.3	8.8	11.2	11.5	11.1	7.2	10.0	13.0
Queue Length 50th (ft)	3	10	22	14	17	4	0	9
Queue Length 95th (ft)	12	60	53	53	49	40	3	38
Internal Link Dist (ft)		1940		7635		2000		3210
Turn Bay Length (ft)	100		100		100		100	
Base Capacity (vph)	443	943	414	967	537	895	527	925
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.30	0.36	0.10	0.21	0.12	0.00	0.07

Intersection Summary

HCM Signalized Intersection Capacity Analysis
101: Can Ada Road & Purple Sage Road

2045 Total Traffic Mit AM Peak Hour
01/24/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	44	214	135	89	1	101	27	67	1	40	22
Future Volume (vph)	18	44	214	135	89	1	101	27	67	1	40	22
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.88		1.00	1.00		1.00	0.89		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1710	1576		1710	1797		1644	1608		1710	1705	
Flt Permitted	0.69	1.00		0.34	1.00		0.59	1.00		0.69	1.00	
Satd. Flow (perm)	1246	1576		621	1797		1028	1608		1242	1705	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	20	49	238	150	99	1	112	30	74	1	44	24
RTOR Reduction (vph)	0	195	0	0	1	0	0	49	0	0	17	0
Lane Group Flow (vph)	20	92	0	150	99	0	112	55	0	1	51	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	4%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	9.3	8.5		15.5	11.6		19.7	16.2		14.3	13.5	
Effective Green, g (s)	9.3	8.5		15.5	11.6		19.7	16.2		14.3	13.5	
Actuated g/C Ratio	0.20	0.18		0.33	0.24		0.42	0.34		0.30	0.28	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	252	282		292	439		472	549		382	485	
v/s Ratio Prot	0.00	0.06		c0.04	0.06		c0.02	0.03		0.00	0.03	
v/s Ratio Perm	0.01			c0.13			c0.08			0.00		
v/c Ratio	0.08	0.33		0.51	0.23		0.24	0.10		0.00	0.10	
Uniform Delay, d1	15.5	17.0		12.2	14.3		8.8	10.6		11.6	12.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.7		1.5	0.3		0.3	0.1		0.0	0.1	
Delay (s)	15.6	17.6		13.7	14.6		9.0	10.7		11.6	12.6	
Level of Service	B	B		B	B		A	B		B	B	
Approach Delay (s)		17.5			14.1			9.8			12.6	
Approach LOS		B			B			A			B	
Intersection Summary												
HCM 2000 Control Delay			14.1				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.42									
Actuated Cycle Length (s)			47.4				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			48.1%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
 101: Can Ada Road & Purple Sage Road

2045 Total Traffic Mit AM Peak Hour
 01/24/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	18	44	214	135	89	1	101	27	67	1	40	22
Future Volume (veh/h)	18	44	214	135	89	1	101	27	67	1	40	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1800	1800	1800	1744	1800	1800	1800	1800	1800
Adj Flow Rate, veh/h	20	49	238	150	99	1	112	30	74	1	44	24
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	4	0	0	0	0	0
Cap, veh/h	542	66	318	433	570	6	437	97	238	343	135	74
Arrive On Green	0.02	0.25	0.25	0.10	0.32	0.32	0.09	0.21	0.21	0.00	0.12	0.12
Sat Flow, veh/h	1714	267	1299	1714	1779	18	1661	460	1135	1714	1095	597
Grp Volume(v), veh/h	20	0	287	150	0	100	112	0	104	1	0	68
Grp Sat Flow(s),veh/h/ln	1714	0	1566	1714	0	1797	1661	0	1596	1714	0	1692
Q Serve(g_s), s	0.4	0.0	6.9	2.5	0.0	1.6	2.2	0.0	2.2	0.0	0.0	1.5
Cycle Q Clear(g_c), s	0.4	0.0	6.9	2.5	0.0	1.6	2.2	0.0	2.2	0.0	0.0	1.5
Prop In Lane	1.00		0.83	1.00		0.01	1.00		0.71	1.00		0.35
Lane Grp Cap(c), veh/h	542	0	384	433	0	576	437	0	335	343	0	208
V/C Ratio(X)	0.04	0.00	0.75	0.35	0.00	0.17	0.26	0.00	0.31	0.00	0.00	0.33
Avail Cap(c_a), veh/h	711	0	694	493	0	818	495	0	727	550	0	771
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.0	0.0	14.2	9.9	0.0	9.9	12.8	0.0	13.6	15.6	0.0	16.3
Incr Delay (d2), s/veh	0.0	0.0	2.9	0.5	0.0	0.1	0.3	0.0	0.5	0.0	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	2.3	0.8	0.0	0.5	0.7	0.0	0.7	0.0	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.0	0.0	17.1	10.4	0.0	10.1	13.1	0.0	14.1	15.6	0.0	17.2
LnGrp LOS	B	A	B	B	A	B	B	A	B	B	A	B
Approach Vol, veh/h		307			250			216			69	
Approach Delay, s/veh		16.7			10.3			13.6			17.2	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.6	13.0	8.6	14.5	8.1	9.5	5.5	17.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.0	18.5	5.5	18.0	5.0	18.5	5.0	18.5				
Max Q Clear Time (g_c+I1), s	2.0	4.2	4.5	8.9	4.2	3.5	2.4	3.6				
Green Ext Time (p_c), s	0.0	0.4	0.0	1.2	0.0	0.2	0.0	0.4				
Intersection Summary												
HCM 6th Ctrl Delay			14.0									
HCM 6th LOS			B									

Queues
104: SH 16 & Deep Canyon Drive

2045 Total Traffic Mit AM Peak Hour
01/13/2023



Lane Group	EBL	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	289	126	436	1172	8
v/c Ratio	0.64	0.41	0.21	0.72	0.02
Control Delay	13.4	8.5	4.6	15.9	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	13.4	8.5	4.6	15.9	7.1
Queue Length 50th (ft)	22	11	21	137	0
Queue Length 95th (ft)	77	37	53	#304	7
Internal Link Dist (ft)	2915		2859	4089	
Turn Bay Length (ft)	100	100			100
Base Capacity (vph)	707	308	2245	1620	376
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.41	0.41	0.19	0.72	0.02

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
 104: SH 16 & Deep Canyon Drive

2045 Total Traffic Mit AM Peak Hour
 01/13/2023



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	14	246	113	392	1055	7
Future Volume (vph)	14	246	113	392	1055	7
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	1.00		1.00	0.95	0.95	1.00
Frt	0.87		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1566		1710	3320	3320	765
Flt Permitted	1.00		0.14	1.00	1.00	1.00
Satd. Flow (perm)	1566		251	3320	3320	765
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	16	273	126	436	1172	8
RTOR Reduction (vph)	170	0	0	0	0	3
Lane Group Flow (vph)	119	0	126	436	1172	5
Heavy Vehicles (%)	0%	0%	0%	3%	3%	100%
Turn Type	Prot		pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases			2			6
Actuated Green, G (s)	9.0		32.5	32.5	24.2	24.2
Effective Green, g (s)	9.0		32.5	32.5	24.2	24.2
Actuated g/C Ratio	0.18		0.64	0.64	0.48	0.48
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	279		271	2136	1590	366
v/s Ratio Prot	c0.08		c0.03	0.13	c0.35	
v/s Ratio Perm			0.26			0.01
v/c Ratio	0.43		0.46	0.20	0.74	0.01
Uniform Delay, d1	18.5		6.0	3.7	10.6	6.9
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0		1.3	0.0	1.8	0.0
Delay (s)	19.5		7.2	3.7	12.4	6.9
Level of Service	B		A	A	B	A
Approach Delay (s)	19.5			4.5	12.4	
Approach LOS	B			A	B	

Intersection Summary			
HCM 2000 Control Delay	11.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	50.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
 104: SH 16 & Deep Canyon Drive

2045 Total Traffic Mit AM Peak Hour
 01/13/2023



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	14	246	113	392	1055	7
Future Volume (veh/h)	14	246	113	392	1055	7
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1758	1758	396
Adj Flow Rate, veh/h	16	273	126	436	1172	8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	3	3	100
Cap, veh/h	19	328	338	1988	1417	142
Arrive On Green	0.23	0.23	0.08	0.60	0.42	0.42
Sat Flow, veh/h	85	1446	1714	3428	3428	336
Grp Volume(v), veh/h	290	0	126	436	1172	8
Grp Sat Flow(s),veh/h/ln	1536	0	1714	1670	1670	336
Q Serve(g_s), s	9.1	0.0	1.8	3.1	15.7	0.7
Cycle Q Clear(g_c), s	9.1	0.0	1.8	3.1	15.7	0.7
Prop In Lane	0.06	0.94	1.00			1.00
Lane Grp Cap(c), veh/h	348	0	338	1988	1417	142
V/C Ratio(X)	0.83	0.00	0.37	0.22	0.83	0.06
Avail Cap(c_a), veh/h	547	0	366	2180	1553	156
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.6	0.0	9.8	4.8	12.9	8.6
Incr Delay (d2), s/veh	6.3	0.0	0.7	0.1	3.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	0.0	0.5	0.7	5.4	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	24.9	0.0	10.5	4.8	16.5	8.8
LnGrp LOS	C	A	B	A	B	A
Approach Vol, veh/h				562	1180	
Approach Delay, s/veh				6.1	16.4	
Approach LOS				A	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		34.6		16.0	8.6	25.9
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		33.0		18.0	5.0	23.5
Max Q Clear Time (g_c+I1), s		5.1		11.1	3.8	17.7
Green Ext Time (p_c), s		3.1		0.6	0.0	3.7
Intersection Summary						
HCM 6th Ctrl Delay			14.8			
HCM 6th LOS			B			

Queues

2045 Total Traffic Mit AM Peak Hour

109: Pollard Road & Beacon Light Road

01/13/2023



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	3	453	44	149	87	10	209	126	72
v/c Ratio	0.01	0.68	0.13	0.22	0.12	0.03	0.51	0.34	0.13
Control Delay	8.3	22.5	9.1	12.2	0.5	11.8	11.9	14.7	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.3	22.5	9.1	12.2	0.5	11.8	11.9	14.7	11.1
Queue Length 50th (ft)	1	85	6	23	0	2	12	20	7
Queue Length 95th (ft)	4	#300	22	81	2	10	64	61	41
Internal Link Dist (ft)		3919		2558			3989		3904
Turn Bay Length (ft)	100		100		100	100		100	
Base Capacity (vph)	556	776	344	797	823	387	777	371	772
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.58	0.13	0.19	0.11	0.03	0.27	0.34	0.09























Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
109: Pollard Road & Beacon Light Road

2045 Total Traffic Mit AM Peak Hour
01/13/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	402	5	40	134	78	9	48	140	113	39	26
Future Volume (vph)	3	402	5	40	134	78	9	48	140	113	39	26
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.89		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1710	1745		1598	1667	1530	1710	1563		1710	1691	
Flt Permitted	0.66	1.00		0.29	1.00	1.00	0.71	1.00		0.45	1.00	
Satd. Flow (perm)	1192	1745		492	1667	1530	1278	1563		809	1691	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	3	447	6	44	149	87	10	53	156	126	43	29
RTOR Reduction (vph)	0	1	0	0	0	56	0	123	0	0	21	0
Lane Group Flow (vph)	3	452	0	44	149	31	10	86	0	126	51	0
Heavy Vehicles (%)	0%	3%	0%	7%	8%	0%	0%	0%	3%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	18.8	18.0		20.4	18.8	18.8	11.7	10.9		17.7	13.9	
Effective Green, g (s)	18.8	18.0		20.4	18.8	18.8	11.7	10.9		17.7	13.9	
Actuated g/C Ratio	0.36	0.34		0.39	0.36	0.36	0.22	0.21		0.34	0.27	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	436	600		225	599	549	292	325		339	449	
v/s Ratio Prot	0.00	c0.26		c0.01	0.09		0.00	0.05		c0.03	0.03	
v/s Ratio Perm	0.00			0.07		0.02	0.01			c0.10		
v/c Ratio	0.01	0.75		0.20	0.25	0.06	0.03	0.26		0.37	0.11	
Uniform Delay, d1	10.7	15.2		10.6	11.8	11.0	15.9	17.3		12.5	14.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	5.3		0.4	0.2	0.0	0.0	0.4		0.7	0.1	
Delay (s)	10.8	20.5		11.1	12.0	11.0	15.9	17.8		13.2	14.6	
Level of Service	B	C		B	B	B	B	B		B	B	
Approach Delay (s)		20.5			11.5			17.7			13.7	
Approach LOS		C			B			B			B	
Intersection Summary												
HCM 2000 Control Delay			16.6		HCM 2000 Level of Service						B	
HCM 2000 Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			52.3		Sum of lost time (s)						18.0	
Intersection Capacity Utilization			60.2%		ICU Level of Service						B	
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
 109: Pollard Road & Beacon Light Road

2045 Total Traffic Mit AM Peak Hour
 01/13/2023



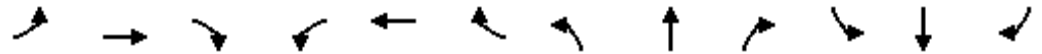
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	402	5	40	134	78	9	48	140	113	39	26
Future Volume (veh/h)	3	402	5	40	134	78	9	48	140	113	39	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1758	1800	1702	1688	1800	1800	1800	1758	1800	1800	1800
Adj Flow Rate, veh/h	3	447	6	44	149	87	10	53	156	126	43	29
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	3	0	7	8	0	0	0	3	0	0	0
Cap, veh/h	492	534	7	287	592	535	420	74	217	367	256	173
Arrive On Green	0.00	0.31	0.31	0.05	0.35	0.35	0.01	0.18	0.18	0.08	0.26	0.26
Sat Flow, veh/h	1714	1730	23	1621	1688	1525	1714	402	1184	1714	1002	676
Grp Volume(v), veh/h	3	0	453	44	149	87	10	0	209	126	0	72
Grp Sat Flow(s),veh/h/ln	1714	0	1754	1621	1688	1525	1714	0	1587	1714	0	1678
Q Serve(g_s), s	0.1	0.0	11.5	0.9	3.0	1.9	0.2	0.0	5.9	2.7	0.0	1.6
Cycle Q Clear(g_c), s	0.1	0.0	11.5	0.9	3.0	1.9	0.2	0.0	5.9	2.7	0.0	1.6
Prop In Lane	1.00		0.01	1.00		1.00	1.00		0.75	1.00		0.40
Lane Grp Cap(c), veh/h	492	0	541	287	592	535	420	0	291	367	0	429
V/C Ratio(X)	0.01	0.00	0.84	0.15	0.25	0.16	0.02	0.00	0.72	0.34	0.00	0.17
Avail Cap(c_a), veh/h	665	0	679	381	653	591	578	0	611	405	0	650
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.3	0.0	15.4	11.7	11.0	10.7	15.5	0.0	18.3	13.6	0.0	13.8
Incr Delay (d2), s/veh	0.0	0.0	7.4	0.2	0.2	0.1	0.0	0.0	3.3	0.6	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	5.0	0.3	1.0	0.5	0.1	0.0	2.2	0.9	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.3	0.0	22.8	11.9	11.3	10.8	15.5	0.0	21.7	14.2	0.0	14.0
LnGrp LOS	B	A	C	B	B	B	B	A	C	B	A	B
Approach Vol, veh/h		456			280			219			198	
Approach Delay, s/veh		22.7			11.2			21.4			14.1	
Approach LOS		C			B			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.6	13.3	6.7	19.2	5.1	16.7	4.7	21.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.1	18.4	5.0	18.5	5.0	18.5	5.0	18.5				
Max Q Clear Time (g_c+I1), s	4.7	7.9	2.9	13.5	2.2	3.6	2.1	5.0				
Green Ext Time (p_c), s	0.0	0.8	0.0	1.2	0.0	0.2	0.0	0.9				
Intersection Summary												
HCM 6th Ctrl Delay			18.2									
HCM 6th LOS			B									

Queues

2045 Total Traffic Mit AM Peak Hour

110: SH 16 & Beacon Light Road

01/13/2023



























Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	23	277	257	149	96	124	88	463	200	306	1132	7
v/c Ratio	0.07	0.78	0.48	0.60	0.25	0.09	0.53	0.46	0.32	0.66	0.83	0.01
Control Delay	27.0	58.9	6.5	40.2	37.3	3.4	28.9	34.3	2.4	23.5	37.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.0	58.9	6.5	40.2	37.3	3.4	28.9	34.3	2.4	23.5	37.1	0.0
Queue Length 50th (ft)	12	198	0	82	60	0	32	146	0	127	404	0
Queue Length 95th (ft)	31	296	50	136	110	18	62	206	17	201	#524	0
Internal Link Dist (ft)		2558			3836			8809			1084	
Turn Bay Length (ft)	100		100	100		100	100		100	100		100
Base Capacity (vph)	328	440	590	249	388	1383	171	1133	683	494	1416	762
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.63	0.44	0.60	0.25	0.09	0.51	0.41	0.29	0.62	0.80	0.01

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
110: SH 16 & Beacon Light Road

2045 Total Traffic Mit AM Peak Hour
01/13/2023

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	21	249	231	134	86	112	79	417	180	275	1019	6	
Future Volume (vph)	21	249	231	134	86	112	79	417	180	275	1019	6	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88	1.00	0.95	1.00	1.00	0.95	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1710	1782	1530	1644	1374	2614	1710	3420	1530	1693	3288	1530	
Flt Permitted	0.69	1.00	1.00	0.31	1.00	1.00	0.15	1.00	1.00	0.34	1.00	1.00	
Satd. Flow (perm)	1251	1782	1530	530	1374	2614	264	3420	1530	614	3288	1530	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	23	277	257	149	96	124	88	463	200	306	1132	7	
RTOR Reduction (vph)	0	0	201	0	0	74	0	0	140	0	0	4	
Lane Group Flow (vph)	23	277	56	149	96	50	88	463	60	306	1132	3	
Heavy Vehicles (%)	0%	1%	0%	4%	31%	3%	0%	0%	0%	1%	4%	0%	
Turn Type	pm+pt	NA	Prot	pm+pt	NA	pm+ov	pm+pt	NA	Prot	pm+pt	NA	Prot	
Protected Phases	1	6	6	5	2	7	3	8	8	7	4	4	
Permitted Phases	6			2		2	8			4			
Actuated Green, G (s)	28.2	25.4	25.4	38.8	30.7	46.4	39.2	34.7	34.7	59.4	45.9	45.9	
Effective Green, g (s)	28.2	25.4	25.4	38.8	30.7	46.4	39.2	34.7	34.7	59.4	45.9	45.9	
Actuated g/C Ratio	0.24	0.22	0.22	0.33	0.26	0.40	0.34	0.30	0.30	0.51	0.40	0.40	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0	2.0	2.0	5.0	5.0	2.0	5.0	5.0	
Lane Grp Cap (vph)	315	390	335	255	363	1046	145	1023	458	460	1302	605	
v/s Ratio Prot	0.00	c0.16	0.04	c0.04	0.07	0.01	0.02	0.14	0.04	c0.09	c0.34	0.00	
v/s Ratio Perm	0.02			0.15		0.01	0.18			0.25			
v/c Ratio	0.07	0.71	0.17	0.58	0.26	0.05	0.61	0.45	0.13	0.67	0.87	0.00	
Uniform Delay, d1	33.6	41.8	36.7	29.3	33.7	21.2	27.9	32.9	29.6	17.9	32.2	21.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	6.0	0.2	2.2	0.4	0.0	4.8	0.7	0.3	2.8	7.0	0.0	
Delay (s)	33.7	47.8	36.9	31.5	34.1	21.2	32.7	33.6	29.9	20.7	39.2	21.2	
Level of Service	C	D	D	C	C	C	C	C	C	C	D	C	
Approach Delay (s)		42.2			28.7			32.5			35.2		
Approach LOS		D			C			C			D		
Intersection Summary													
HCM 2000 Control Delay			35.0									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.84										
Actuated Cycle Length (s)			115.9									Sum of lost time (s)	32.0
Intersection Capacity Utilization			82.7%									ICU Level of Service	E
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary
110: SH 16 & Beacon Light Road

2045 Total Traffic Mit AM Peak Hour
01/13/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	249	231	134	86	112	79	417	180	275	1019	6
Future Volume (veh/h)	21	249	231	134	86	112	79	417	180	275	1019	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1786	1800	1744	1365	1758	1800	1800	1800	1786	1744	1800
Adj Flow Rate, veh/h	23	277	257	149	96	124	88	463	200	306	1132	7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	1	0	4	31	3	0	0	0	1	4	0
Cap, veh/h	323	347	296	223	332	996	192	1063	474	455	1320	608
Arrive On Green	0.02	0.19	0.19	0.07	0.24	0.24	0.05	0.31	0.31	0.14	0.40	0.40
Sat Flow, veh/h	1714	1786	1525	1661	1365	2622	1714	3420	1525	1701	3313	1525
Grp Volume(v), veh/h	23	277	257	149	96	124	88	463	200	306	1132	7
Grp Sat Flow(s),veh/h/ln	1714	1786	1525	1661	1365	1311	1714	1710	1525	1701	1657	1525
Q Serve(g_s), s	1.2	16.5	18.2	8.0	6.4	3.4	3.9	12.0	11.6	13.1	34.9	0.3
Cycle Q Clear(g_c), s	1.2	16.5	18.2	8.0	6.4	3.4	3.9	12.0	11.6	13.1	34.9	0.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	323	347	296	223	332	996	192	1063	474	455	1320	608
V/C Ratio(X)	0.07	0.80	0.87	0.67	0.29	0.12	0.46	0.44	0.42	0.67	0.86	0.01
Avail Cap(c_a), veh/h	360	432	369	223	367	1063	200	1072	478	497	1395	642
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.7	42.9	43.6	34.3	34.4	22.5	27.5	30.7	30.5	20.9	30.7	20.3
Incr Delay (d2), s/veh	0.0	8.2	16.3	6.0	0.5	0.1	0.6	0.6	1.3	2.4	6.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	8.0	8.2	3.6	2.2	1.1	1.6	5.0	4.4	5.4	14.7	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.7	51.1	59.9	40.3	34.9	22.6	28.2	31.3	31.8	23.3	36.7	20.3
LnGrp LOS	C	D	E	D	C	C	C	C	C	C	D	C
Approach Vol, veh/h		557			369			751			1445	
Approach Delay, s/veh		54.5			33.0			31.0			33.8	
Approach LOS		D			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.6	34.2	14.5	53.5	15.0	28.7	24.3	43.7				
Change Period (Y+Rc), s	7.0	7.0	9.0	9.0	7.0	7.0	9.0	9.0				
Max Green Setting (Gmax), s	5.0	30.0	6.0	47.0	8.0	27.0	18.0	35.0				
Max Q Clear Time (g_c+I1), s	3.2	8.4	5.9	36.9	10.0	20.2	15.1	14.0				
Green Ext Time (p_c), s	0.0	1.0	0.0	7.6	0.0	1.5	0.2	7.0				
Intersection Summary												
HCM 6th Ctrl Delay			36.7									
HCM 6th LOS			D									

Queues
111: Palmer Lane & Beacon Light Road

2045 Total Traffic Mit AM Peak Hour
01/13/2023



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1102	21	27	538	30	42
v/c Ratio	0.68	0.03	0.10	0.29	0.15	0.23
Control Delay	15.2	7.7	7.1	7.7	28.3	13.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.2	7.7	7.1	7.7	28.3	13.7
Queue Length 50th (ft)	116	1	4	45	9	0
Queue Length 95th (ft)	273	14	14	81	35	26
Internal Link Dist (ft)	3836			6200	3903	
Turn Bay Length (ft)		100	100		100	100
Base Capacity (vph)	1833	833	259	2428	546	468
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.03	0.10	0.22	0.05	0.09
Intersection Summary						

HCM Signalized Intersection Capacity Analysis
 111: Palmer Lane & Beacon Light Road

2045 Total Traffic Mit AM Peak Hour
 01/13/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Volume (vph)	992	19	24	484	27	38
Future Volume (vph)	992	19	24	484	27	38
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3386	1530	1710	3420	1710	1342
Flt Permitted	1.00	1.00	0.13	1.00	0.95	1.00
Satd. Flow (perm)	3386	1530	242	3420	1710	1342
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1102	21	27	538	30	42
RTOR Reduction (vph)	0	6	0	0	0	38
Lane Group Flow (vph)	1102	15	27	538	30	4
Heavy Vehicles (%)	1%	0%	0%	0%	0%	14%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	1	
Permitted Phases		4	8			2
Actuated Green, G (s)	27.8	27.8	34.0	34.0	6.7	6.3
Effective Green, g (s)	27.8	27.8	34.0	34.0	6.7	6.3
Actuated g/C Ratio	0.46	0.46	0.56	0.56	0.11	0.10
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1555	703	177	1921	189	139
v/s Ratio Prot	c0.33		0.00	c0.16	c0.02	
v/s Ratio Perm		0.01	0.08			c0.00
v/c Ratio	0.71	0.02	0.15	0.28	0.16	0.03
Uniform Delay, d1	13.1	8.9	8.0	6.9	24.3	24.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.5	0.0	0.4	0.1	0.4	0.1
Delay (s)	14.6	8.9	8.4	7.0	24.7	24.5
Level of Service	B	A	A	A	C	C
Approach Delay (s)	14.5			7.0	24.6	
Approach LOS	B			A	C	

Intersection Summary

HCM 2000 Control Delay	12.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	60.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	40.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
 111: Palmer Lane & Beacon Light Road

2045 Total Traffic Mit AM Peak Hour
 01/13/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↖	↑↑	↖	↗
Traffic Volume (veh/h)	992	19	24	484	27	38
Future Volume (veh/h)	992	19	24	484	27	38
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1786	1800	1800	1800	1800	1603
Adj Flow Rate, veh/h	1102	21	27	538	30	42
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	1	0	0	0	0	14
Cap, veh/h	1687	759	369	2203	218	173
Arrive On Green	0.50	0.50	0.03	0.64	0.13	0.13
Sat Flow, veh/h	3483	1525	1714	3510	1714	1359
Grp Volume(v), veh/h	1102	21	27	538	30	42
Grp Sat Flow(s),veh/h/ln	1697	1525	1714	1710	1714	1359
Q Serve(g_s), s	9.5	0.3	0.3	2.6	0.6	1.1
Cycle Q Clear(g_c), s	9.5	0.3	0.3	2.6	0.6	1.1
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1687	759	369	2203	218	173
V/C Ratio(X)	0.65	0.03	0.07	0.24	0.14	0.24
Avail Cap(c_a), veh/h	2631	1183	531	3478	784	622
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.4	5.0	5.3	3.0	15.3	15.5
Incr Delay (d2), s/veh	0.4	0.0	0.1	0.1	0.3	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.1	0.1	0.3	0.2	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	7.8	5.1	5.4	3.0	15.5	16.2
LnGrp LOS	A	A	A	A	B	B
Approach Vol, veh/h	1123			565	72	
Approach Delay, s/veh	7.7			3.1	15.9	
Approach LOS	A			A	B	
Timer - Assigned Phs			3	4	6	8
Phs Duration (G+Y+Rc), s			5.8	24.1	9.5	29.8
Change Period (Y+Rc), s			4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s			5.0	30.5	18.0	40.0
Max Q Clear Time (g_c+I1), s			2.3	11.5	3.1	4.6
Green Ext Time (p_c), s			0.0	8.0	0.1	4.0
Intersection Summary						
HCM 6th Ctrl Delay			6.6			
HCM 6th LOS			A			

Queues
113: Star Road & Floating Feather Road

2045 Total Traffic Mit AM Peak Hour
01/13/2023



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	206	247	336	83	112	156
v/c Ratio	0.47	0.44	0.52	0.08	0.34	0.37
Control Delay	17.7	5.1	8.1	4.3	19.2	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.7	5.1	8.1	4.3	19.2	6.7
Queue Length 50th (ft)	42	0	33	7	23	0
Queue Length 95th (ft)	95	39	81	22	65	37
Internal Link Dist (ft)	2600		1170		5156	
Turn Bay Length (ft)	100		100		100	
Base Capacity (vph)	766	802	672	1441	727	745
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.31	0.50	0.06	0.15	0.21
Intersection Summary						

HCM Signalized Intersection Capacity Analysis
113: Star Road & Floating Feather Road

2045 Total Traffic Mit AM Peak Hour
01/13/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	185	222	302	75	101	140
Future Volume (vph)	185	222	302	75	101	140
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1748	1515	1644	1800	1660	1500
Flt Permitted	1.00	1.00	0.45	1.00	0.95	1.00
Satd. Flow (perm)	1748	1515	770	1800	1660	1500
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	206	247	336	83	112	156
RTOR Reduction (vph)	0	183	0	0	0	125
Lane Group Flow (vph)	206	64	336	83	112	31
Heavy Vehicles (%)	3%	1%	4%	0%	3%	2%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	10.9	10.9	24.7	24.7	8.4	8.4
Effective Green, g (s)	10.9	10.9	24.7	24.7	8.4	8.4
Actuated g/C Ratio	0.26	0.26	0.59	0.59	0.20	0.20
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	452	392	644	1056	331	299
v/s Ratio Prot	0.12		c0.12	0.05	c0.07	
v/s Ratio Perm		0.04	c0.19			0.02
v/c Ratio	0.46	0.16	0.52	0.08	0.34	0.10
Uniform Delay, d1	13.1	12.1	4.9	3.8	14.5	13.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.2	0.8	0.0	0.6	0.2
Delay (s)	13.8	12.3	5.6	3.8	15.1	13.9
Level of Service	B	B	A	A	B	B
Approach Delay (s)	13.0			5.3	14.4	
Approach LOS	B			A	B	

Intersection Summary

HCM 2000 Control Delay	10.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	42.1	Sum of lost time (s)	13.5
Intersection Capacity Utilization	45.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
 113: Star Road & Floating Feather Road

2045 Total Traffic Mit AM Peak Hour
 01/13/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (veh/h)	185	222	302	75	101	140
Future Volume (veh/h)	185	222	302	75	101	140
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1758	1786	1744	1800	1758	1772
Adj Flow Rate, veh/h	206	247	336	83	112	156
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	1	4	0	3	2
Cap, veh/h	436	375	660	1022	289	259
Arrive On Green	0.25	0.25	0.19	0.57	0.17	0.17
Sat Flow, veh/h	1758	1514	1661	1800	1674	1502
Grp Volume(v), veh/h	206	247	336	83	112	156
Grp Sat Flow(s),veh/h/ln	1758	1514	1661	1800	1674	1502
Q Serve(g_s), s	3.5	5.1	4.4	0.7	2.1	3.3
Cycle Q Clear(g_c), s	3.5	5.1	4.4	0.7	2.1	3.3
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	436	375	660	1022	289	259
V/C Ratio(X)	0.47	0.66	0.51	0.08	0.39	0.60
Avail Cap(c_a), veh/h	912	786	847	1713	869	779
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.1	11.7	6.2	3.4	12.7	13.2
Incr Delay (d2), s/veh	0.8	2.0	0.6	0.0	0.8	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	1.5	0.9	0.1	0.7	1.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	11.9	13.7	6.8	3.4	13.6	15.5
LnGrp LOS	B	B	A	A	B	B
Approach Vol, veh/h	453			419	268	
Approach Delay, s/veh	12.9			6.1	14.7	
Approach LOS	B			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		10.5	11.1	13.1		24.2
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		18.0	10.5	18.0		33.0
Max Q Clear Time (g_c+I1), s		5.3	6.4	7.1		2.7
Green Ext Time (p_c), s		0.7	0.4	1.6		0.4
Intersection Summary						
HCM 6th Ctrl Delay			10.8			
HCM 6th LOS			B			

Queues
114: Plummer Road & Floating Feather Road

2045 Total Traffic Mit AM Peak Hour
01/13/2023



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	213	348	43	98	98	67
v/c Ratio	0.36	0.47	0.09	0.14	0.23	0.15
Control Delay	11.0	4.0	4.9	5.2	13.8	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.0	4.0	4.9	5.2	13.8	6.0
Queue Length 50th (ft)	17	0	3	7	9	0
Queue Length 95th (ft)	79	39	13	24	52	23
Internal Link Dist (ft)	3891		1279		5173	
Turn Bay Length (ft)	100		100		100	
Base Capacity (vph)	1115	1101	463	1449	1088	1026
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.32	0.09	0.07	0.09	0.07

Intersection Summary

HCM Signalized Intersection Capacity Analysis
114: Plummer Road & Floating Feather Road

2045 Total Traffic Mit AM Peak Hour
01/13/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↖	↑	↘	↗
Traffic Volume (vph)	198	324	40	91	91	62
Future Volume (vph)	198	324	40	91	91	62
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1748	1530	1598	1698	1660	1530
Flt Permitted	1.00	1.00	0.44	1.00	0.95	1.00
Satd. Flow (perm)	1748	1530	736	1698	1660	1530
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	213	348	43	98	98	67
RTOR Reduction (vph)	0	239	0	0	0	51
Lane Group Flow (vph)	213	109	43	98	98	16
Heavy Vehicles (%)	3%	0%	7%	6%	3%	0%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	10.5	10.5	16.4	16.4	8.1	8.1
Effective Green, g (s)	10.5	10.5	16.4	16.4	8.1	8.1
Actuated g/C Ratio	0.31	0.31	0.49	0.49	0.24	0.24
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	547	479	396	831	401	369
v/s Ratio Prot	c0.12		0.00	c0.06	c0.06	
v/s Ratio Perm		0.07	0.05			0.01
v/c Ratio	0.39	0.23	0.11	0.12	0.24	0.04
Uniform Delay, d1	9.0	8.5	4.8	4.6	10.2	9.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.2	0.1	0.1	0.3	0.0
Delay (s)	9.5	8.7	4.9	4.7	10.6	9.8
Level of Service	A	A	A	A	B	A
Approach Delay (s)	9.0			4.8	10.2	
Approach LOS	A			A	B	

Intersection Summary			
HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	33.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	32.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
 114: Plummer Road & Floating Feather Road

2045 Total Traffic Mit AM Peak Hour
 01/13/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (veh/h)	198	324	40	91	91	62
Future Volume (veh/h)	198	324	40	91	91	62
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1758	1800	1702	1716	1758	1800
Adj Flow Rate, veh/h	213	348	43	98	98	67
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	0	7	6	3	0
Cap, veh/h	576	499	515	908	282	257
Arrive On Green	0.33	0.33	0.05	0.53	0.17	0.17
Sat Flow, veh/h	1758	1525	1621	1716	1674	1525
Grp Volume(v), veh/h	213	348	43	98	98	67
Grp Sat Flow(s),veh/h/ln	1758	1525	1621	1716	1674	1525
Q Serve(g_s), s	2.8	5.9	0.4	0.8	1.5	1.1
Cycle Q Clear(g_c), s	2.8	5.9	0.4	0.8	1.5	1.1
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	576	499	515	908	282	257
V/C Ratio(X)	0.37	0.70	0.08	0.11	0.35	0.26
Avail Cap(c_a), veh/h	1064	924	706	1587	1042	949
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.7	8.7	5.1	3.5	10.9	10.8
Incr Delay (d2), s/veh	0.4	1.8	0.1	0.1	0.7	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.4	0.1	0.1	0.5	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	8.0	10.5	5.2	3.5	11.7	11.3
LnGrp LOS	A	B	A	A	B	B
Approach Vol, veh/h	561			141	165	
Approach Delay, s/veh	9.6			4.0	11.5	
Approach LOS	A			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		9.5	6.0	14.2		20.2
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		18.5	5.0	18.0		27.5
Max Q Clear Time (g_c+I1), s		3.5	2.4	7.9		2.8
Green Ext Time (p_c), s		0.4	0.0	1.9		0.5
Intersection Summary						
HCM 6th Ctrl Delay			9.0			
HCM 6th LOS			A			

Queues
117: SH 44 & Can Ada Road

2045 Total Traffic Mit AM Peak Hour
01/13/2023



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	76	1161	485	131	320	157
v/c Ratio	0.22	0.70	0.38	0.20	0.63	0.31
Control Delay	8.4	11.9	13.2	4.2	21.3	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.4	11.9	13.2	4.2	21.3	4.8
Queue Length 50th (ft)	10	113	56	0	78	0
Queue Length 95th (ft)	30	202	101	29	151	32
Internal Link Dist (ft)		3717	2513		4604	
Turn Bay Length (ft)	200			150	100	
Base Capacity (vph)	353	2068	1380	699	710	654
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.56	0.35	0.19	0.45	0.24

Intersection Summary

HCM Signalized Intersection Capacity Analysis
117: SH 44 & Can Ada Road

2045 Total Traffic Mit AM Peak Hour
01/13/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↙	↑↑	↑↑	↘	↙	↘
Traffic Volume (vph)	71	1091	456	123	301	148
Future Volume (vph)	71	1091	456	123	301	148
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1326	3320	3288	1485	1710	1354
Flt Permitted	0.37	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	519	3320	3288	1485	1710	1354
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	76	1161	485	131	320	157
RTOR Reduction (vph)	0	0	0	81	0	112
Lane Group Flow (vph)	76	1161	485	50	320	45
Heavy Vehicles (%)	29%	3%	4%	3%	0%	13%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	25.3	25.3	18.1	18.1	13.6	13.6
Effective Green, g (s)	25.3	25.3	18.1	18.1	13.6	13.6
Actuated g/C Ratio	0.53	0.53	0.38	0.38	0.28	0.28
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	319	1753	1242	561	485	384
v/s Ratio Prot	0.01	c0.35	0.15		c0.19	
v/s Ratio Perm	0.11			0.03		0.03
v/c Ratio	0.24	0.66	0.39	0.09	0.66	0.12
Uniform Delay, d1	5.9	8.2	10.9	9.6	15.1	12.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	1.0	0.2	0.1	3.2	0.1
Delay (s)	6.3	9.2	11.1	9.7	18.4	12.8
Level of Service	A	A	B	A	B	B
Approach Delay (s)		9.0	10.8		16.5	
Approach LOS		A	B		B	
Intersection Summary						
HCM 2000 Control Delay			11.0		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.75			
Actuated Cycle Length (s)			47.9		Sum of lost time (s)	13.5
Intersection Capacity Utilization			56.9%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

HCM 6th Signalized Intersection Summary
 117: SH 44 & Can Ada Road

2045 Total Traffic Mit AM Peak Hour
 01/13/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	71	1091	456	123	301	148	
Future Volume (veh/h)	71	1091	456	123	301	148	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1393	1758	1744	1758	1800	1617	
Adj Flow Rate, veh/h	76	1161	485	131	320	157	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	
Percent Heavy Veh, %	29	3	4	3	0	13	
Cap, veh/h	414	1707	1065	479	435	348	
Arrive On Green	0.07	0.51	0.32	0.32	0.25	0.25	
Sat Flow, veh/h	1327	3428	3400	1490	1714	1371	
Grp Volume(v), veh/h	76	1161	485	131	320	157	
Grp Sat Flow(s),veh/h/ln	1327	1670	1657	1490	1714	1371	
Q Serve(g_s), s	1.3	10.0	4.5	2.5	6.6	3.7	
Cycle Q Clear(g_c), s	1.3	10.0	4.5	2.5	6.6	3.7	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	414	1707	1065	479	435	348	
V/C Ratio(X)	0.18	0.68	0.46	0.27	0.74	0.45	
Avail Cap(c_a), veh/h	495	2407	1557	700	824	659	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	6.9	7.0	10.3	9.7	13.1	12.0	
Incr Delay (d2), s/veh	0.2	0.5	0.3	0.3	2.4	0.9	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.3	2.2	1.3	0.7	2.3	3.0	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	7.1	7.5	10.6	10.0	15.5	13.0	
LnGrp LOS	A	A	B	A	B	B	
Approach Vol, veh/h		1237	616		477		
Approach Delay, s/veh		7.5	10.5		14.7		
Approach LOS		A	B		B		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				24.1	14.2	7.3	16.8
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				27.6	18.4	5.1	18.0
Max Q Clear Time (g_c+I1), s				12.0	8.6	3.3	6.5
Green Ext Time (p_c), s				7.6	1.2	0.0	2.9
Intersection Summary							
HCM 6th Ctrl Delay			9.7				
HCM 6th LOS			A				

Queues
118: Star Road & SH 44

2045 Total Traffic Mit AM Peak Hour
01/13/2023



























Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	81	786	437	181	466	91	307	167	168	193	355	68
v/c Ratio	0.22	0.76	0.60	0.71	0.39	0.13	0.76	0.38	0.35	0.47	0.89	0.15
Control Delay	17.2	35.9	9.2	33.8	24.9	0.4	54.9	32.2	6.7	25.1	60.5	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.2	35.9	9.2	33.8	24.9	0.4	54.9	32.2	6.7	25.1	60.5	0.7
Queue Length 50th (ft)	28	239	31	68	120	0	98	85	0	78	214	0
Queue Length 95th (ft)	56	313	125	#142	165	1	#157	144	48	130	#358	0
Internal Link Dist (ft)		2598			5173			1764			5156	
Turn Bay Length (ft)	200		200	200		200	150		150	100		100
Base Capacity (vph)	370	1034	731	255	1199	681	420	495	526	410	452	498
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.76	0.60	0.71	0.39	0.13	0.73	0.34	0.32	0.47	0.79	0.14

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
118: Star Road & SH 44

2045 Total Traffic Mit AM Peak Hour
01/13/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	747	415	172	443	86	292	159	160	183	337	65
Future Volume (vph)	77	747	415	172	443	86	292	159	160	183	337	65
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.5	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1644	3226	1500	1583	3167	1530	3252	1714	1404	1710	1748	1457
Flt Permitted	0.48	1.00	1.00	0.18	1.00	1.00	0.95	1.00	1.00	0.65	1.00	1.00
Satd. Flow (perm)	838	3226	1500	302	3167	1530	3252	1714	1404	1173	1748	1457
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	81	786	437	181	466	91	307	167	168	193	355	68
RTOR Reduction (vph)	0	0	247	0	0	57	0	0	125	0	0	53
Lane Group Flow (vph)	81	786	190	181	466	34	307	167	43	193	355	15
Heavy Vehicles (%)	4%	6%	2%	8%	8%	0%	2%	5%	9%	0%	3%	5%
Turn Type	pm+pt	NA	Prot	pm+pt	NA	Prot	Prot	NA	Prot	pm+pt	NA	Perm
Protected Phases	1	6	6	5	2	2	3	8	8	7	4	
Permitted Phases	6			2						4		4
Actuated Green, G (s)	37.1	32.4	32.4	45.7	36.7	36.7	12.0	24.9	24.9	30.2	22.3	22.3
Effective Green, g (s)	37.1	32.4	32.4	45.7	36.7	36.7	12.0	24.9	24.9	30.2	22.3	22.3
Actuated g/C Ratio	0.38	0.33	0.33	0.47	0.37	0.37	0.12	0.25	0.25	0.31	0.23	0.23
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.5	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	2.0	2.5	2.5	2.0	2.5	2.5	3.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	355	1064	494	257	1183	571	397	434	356	403	396	330
v/s Ratio Prot	0.01	0.24	0.13	c0.06	0.15	0.02	c0.09	c0.10	0.03	0.04	c0.20	
v/s Ratio Perm	0.08			c0.26						0.11		0.01
v/c Ratio	0.23	0.74	0.38	0.70	0.39	0.06	0.77	0.38	0.12	0.48	0.90	0.05
Uniform Delay, d1	20.0	29.1	25.2	18.2	22.6	19.7	41.8	30.3	28.2	26.6	36.8	29.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	4.6	2.3	7.0	0.2	0.0	9.1	0.2	0.1	0.3	21.6	0.0
Delay (s)	20.1	33.8	27.5	25.2	22.7	19.7	50.8	30.5	28.3	26.9	58.4	29.7
Level of Service	C	C	C	C	C	B	D	C	C	C	E	C
Approach Delay (s)		30.8			23.0			39.6			45.4	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM 2000 Control Delay			33.5									HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			98.2							24.0		
Intersection Capacity Utilization			78.1%									ICU Level of Service D
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
118: Star Road & SH 44

2045 Total Traffic Mit AM Peak Hour
01/13/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	747	415	172	443	86	292	159	160	183	337	65
Future Volume (veh/h)	77	747	415	172	443	86	292	159	160	183	337	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1744	1716	1772	1688	1688	1800	1772	1730	1674	1800	1758	1730
Adj Flow Rate, veh/h	81	786	437	181	466	91	307	167	168	193	355	68
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	6	2	8	8	0	2	5	9	0	3	5
Cap, veh/h	380	1071	493	276	1202	572	377	413	339	389	395	329
Arrive On Green	0.05	0.33	0.33	0.09	0.37	0.37	0.12	0.24	0.24	0.08	0.22	0.22
Sat Flow, veh/h	1661	3260	1502	1607	3207	1525	3274	1730	1418	1714	1758	1466
Grp Volume(v), veh/h	81	786	437	181	466	91	307	167	168	193	355	68
Grp Sat Flow(s),veh/h/ln	1661	1630	1502	1607	1603	1525	1637	1730	1418	1714	1758	1466
Q Serve(g_s), s	3.0	20.1	26.0	6.9	10.0	3.7	8.6	7.7	9.6	8.0	18.5	3.6
Cycle Q Clear(g_c), s	3.0	20.1	26.0	6.9	10.0	3.7	8.6	7.7	9.6	8.0	18.5	3.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	380	1071	493	276	1202	572	377	413	339	389	395	329
V/C Ratio(X)	0.21	0.73	0.89	0.65	0.39	0.16	0.82	0.40	0.50	0.50	0.90	0.21
Avail Cap(c_a), veh/h	407	1071	493	280	1202	572	434	513	421	389	466	389
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.5	28.0	30.0	21.2	21.6	19.6	40.8	30.2	31.0	25.8	35.5	29.7
Incr Delay (d2), s/veh	0.1	4.5	20.3	4.2	0.2	0.1	10.2	0.2	0.4	0.4	16.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	8.3	11.8	2.8	3.7	1.3	4.0	3.2	3.3	3.3	9.6	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.6	32.5	50.2	25.5	21.7	19.7	50.9	30.5	31.4	26.1	52.3	29.9
LnGrp LOS	B	C	D	C	C	B	D	C	C	C	D	C
Approach Vol, veh/h		1304			738			642			616	
Approach Delay, s/veh		37.6			22.4			40.5			41.6	
Approach LOS		D			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.4	41.4	15.4	27.2	14.8	37.0	14.0	28.5				
Change Period (Y+Rc), s	6.0	6.0	4.5	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	6.0	34.0	12.5	25.0	9.0	31.0	8.0	28.0				
Max Q Clear Time (g_c+I1), s	5.0	12.0	10.6	20.5	8.9	28.0	10.0	11.6				
Green Ext Time (p_c), s	0.0	2.8	0.2	0.7	0.0	1.7	0.0	0.8				
Intersection Summary												
HCM 6th Ctrl Delay			35.5									
HCM 6th LOS			D									

Queues

2045 Total Traffic Mit AM Peak Hour

119: Plummer Road & SH 44

01/13/2023






























Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	31	1108	35	60	632	114	47	13	86	516	42	84
v/c Ratio	0.08	0.77	0.05	0.29	0.42	0.15	0.20	0.08	0.29	0.74	0.08	0.16
Control Delay	9.1	22.5	0.1	12.5	14.7	1.0	20.6	34.0	2.4	35.2	24.1	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.1	22.5	0.1	12.5	14.7	1.0	20.6	34.0	2.4	35.2	24.1	2.8
Queue Length 50th (ft)	6	233	0	13	82	0	15	6	0	121	16	0
Queue Length 95th (ft)	19	323	0	30	158	8	37	22	0	#195	41	16
Internal Link Dist (ft)		5173			3517			675			5173	
Turn Bay Length (ft)	100		100	100		100	100		100	200		200
Base Capacity (vph)	377	1545	775	207	1627	827	239	490	548	729	757	717
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.72	0.05	0.29	0.39	0.14	0.20	0.03	0.16	0.71	0.06	0.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
119: Plummer Road & SH 44

2045 Total Traffic Mit AM Peak Hour
01/13/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 					 		
Traffic Volume (vph)	29	1053	33	57	600	108	45	12	82	490	40	80
Future Volume (vph)	29	1053	33	57	600	108	45	12	82	490	40	80
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1710	3320	1457	1660	3320	1500	1710	1800	1530	3285	1800	1530
Flt Permitted	0.35	1.00	1.00	0.12	1.00	1.00	0.73	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	639	3320	1457	215	3320	1500	1313	1800	1530	3285	1800	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	31	1108	35	60	632	114	47	13	86	516	42	84
RTOR Reduction (vph)	0	0	20	0	0	65	0	0	77	0	0	61
Lane Group Flow (vph)	31	1108	15	60	632	49	47	13	9	516	42	23
Heavy Vehicles (%)	0%	3%	5%	3%	3%	2%	0%	0%	0%	1%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2			6
Actuated Green, G (s)	33.4	31.6	31.6	35.2	32.5	32.5	11.0	8.2	8.2	15.2	20.6	20.6
Effective Green, g (s)	33.4	31.6	31.6	35.2	32.5	32.5	11.0	8.2	8.2	15.2	20.6	20.6
Actuated g/C Ratio	0.44	0.42	0.42	0.46	0.43	0.43	0.15	0.11	0.11	0.20	0.27	0.27
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	307	1385	608	151	1425	643	205	194	165	659	489	416
v/s Ratio Prot	0.00	c0.33		c0.01	0.19		0.01	0.01		c0.16	0.02	
v/s Ratio Perm	0.04		0.01	0.17		0.03	c0.02		0.01			0.01
v/c Ratio	0.10	0.80	0.02	0.40	0.44	0.08	0.23	0.07	0.06	0.78	0.09	0.05
Uniform Delay, d1	12.2	19.3	13.0	13.6	15.2	12.7	28.4	30.3	30.3	28.7	20.5	20.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	3.4	0.0	1.7	0.2	0.1	0.6	0.1	0.1	6.1	0.1	0.1
Delay (s)	12.3	22.7	13.0	15.3	15.4	12.8	29.0	30.5	30.4	34.7	20.6	20.4
Level of Service	B	C	B	B	B	B	C	C	C	C	C	C
Approach Delay (s)		22.1			15.1			30.0			31.9	
Approach LOS		C			B			C			C	
Intersection Summary												
HCM 2000 Control Delay			22.8		HCM 2000 Level of Service					C		
HCM 2000 Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			75.7		Sum of lost time (s)				18.0			
Intersection Capacity Utilization			67.6%		ICU Level of Service					C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
 119: Plummer Road & SH 44

2045 Total Traffic Mit AM Peak Hour
 01/13/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↘	↘	↑↑	↘	↘	↑	↘	↘↘	↑	↘
Traffic Volume (veh/h)	29	1053	33	57	600	108	45	12	82	490	40	80
Future Volume (veh/h)	29	1053	33	57	600	108	45	12	82	490	40	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1758	1730	1758	1758	1772	1800	1800	1800	1786	1800	1800
Adj Flow Rate, veh/h	31	1108	35	60	632	114	47	13	86	516	42	84
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	3	5	3	3	2	0	0	0	1	0	0
Cap, veh/h	373	1361	597	245	1419	638	292	157	133	626	421	356
Arrive On Green	0.03	0.41	0.41	0.05	0.42	0.42	0.04	0.09	0.09	0.19	0.23	0.23
Sat Flow, veh/h	1714	3340	1466	1674	3340	1502	1714	1800	1525	3300	1800	1525
Grp Volume(v), veh/h	31	1108	35	60	632	114	47	13	86	516	42	84
Grp Sat Flow(s),veh/h/ln	1714	1670	1466	1674	1670	1502	1714	1800	1525	1650	1800	1525
Q Serve(g_s), s	0.7	19.9	1.0	1.4	9.1	3.2	1.7	0.5	3.7	10.2	1.2	3.0
Cycle Q Clear(g_c), s	0.7	19.9	1.0	1.4	9.1	3.2	1.7	0.5	3.7	10.2	1.2	3.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	373	1361	597	245	1419	638	292	157	133	626	421	356
V/C Ratio(X)	0.08	0.81	0.06	0.24	0.45	0.18	0.16	0.08	0.65	0.82	0.10	0.24
Avail Cap(c_a), veh/h	444	1601	703	285	1601	720	347	504	427	754	781	661
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.3	17.8	12.2	13.7	13.8	12.1	26.4	28.5	29.9	26.4	20.4	21.1
Incr Delay (d2), s/veh	0.1	2.9	0.0	0.5	0.2	0.1	0.3	0.2	5.2	6.3	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	7.4	0.3	0.5	3.1	1.0	0.7	0.2	1.5	4.3	0.5	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.4	20.7	12.2	14.2	14.0	12.3	26.6	28.7	35.1	32.7	20.5	21.4
LnGrp LOS	B	C	B	B	B	B	C	C	D	C	C	C
Approach Vol, veh/h		1174			806			146			642	
Approach Delay, s/veh		20.2			13.8			31.8			30.4	
Approach LOS		C			B			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.4	10.4	7.9	32.1	7.4	20.3	6.7	33.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	15.5	19.0	5.0	32.5	5.1	29.4	5.0	32.5				
Max Q Clear Time (g_c+I1), s	12.2	5.7	3.4	21.9	3.7	5.0	2.7	11.1				
Green Ext Time (p_c), s	0.7	0.2	0.0	5.7	0.0	0.4	0.0	4.8				
Intersection Summary												
HCM 6th Ctrl Delay				21.3								
HCM 6th LOS				C								

Intersection						
Int Delay, s/veh	3.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑↑	↑↑	↗		↗
Traffic Vol, veh/h	104	1392	456	151	0	449
Future Vol, veh/h	104	1392	456	151	0	449
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	111	1481	485	161	0	478

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	646	0	-	0	243
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	4.14	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	-	3.32
Pot Cap-1 Maneuver	935	-	-	-	758
Stage 1	-	-	-	-	0
Stage 2	-	-	-	-	0
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	935	-	-	-	758
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	17.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	935	-	-	-	758
HCM Lane V/C Ratio	0.118	-	-	-	0.63
HCM Control Delay (s)	9.4	-	-	-	17.5
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.4	-	-	-	4.5

Intersection												
Int Delay, s/veh	11.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗	↗	↘	↗↗	↗			↗			↗
Traffic Vol, veh/h	29	1543	73	57	645	120	0	0	139	0	0	610
Future Vol, veh/h	29	1543	73	57	645	120	0	0	139	0	0	610
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	200	200	-	200	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	31	1624	77	60	679	126	0	0	146	0	0	642

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	805	0	0	1701	0	0	-	-	812	-	-	340
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.14	-	-	4.14	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	815	-	-	370	-	-	0	0	322	0	0	656
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	815	-	-	370	-	-	-	-	322	-	-	656
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			1.2			25.2			55.1		
HCM LOS							D			F		

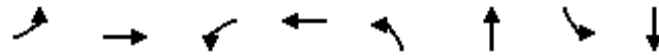
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	322	815	-	-	370	-	-	656
HCM Lane V/C Ratio	0.454	0.037	-	-	0.162	-	-	0.979
HCM Control Delay (s)	25.2	9.6	-	-	16.6	-	-	55.1
HCM Lane LOS	D	A	-	-	C	-	-	F
HCM 95th %tile Q(veh)	2.3	0.1	-	-	0.6	-	-	14.7

Queues

2045 Total Traffic Mit PM Peak Hour

101: Can Ada Road & Purple Sage Road

01/24/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	42	319	124	83	312	270	1	62
v/c Ratio	0.09	0.66	0.36	0.14	0.69	0.38	0.00	0.20
Control Delay	9.1	17.7	12.1	13.7	24.7	8.0	11.0	13.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.1	17.7	12.1	13.7	24.7	8.0	11.0	13.8
Queue Length 50th (ft)	6	45	18	12	63	16	0	8
Queue Length 95th (ft)	23	131	54	51	#190	85	3	35
Internal Link Dist (ft)		1940		7635		2000		3210
Turn Bay Length (ft)	100		100		100		100	
Base Capacity (vph)	460	736	348	762	451	800	375	725
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.43	0.36	0.11	0.69	0.34	0.00	0.09

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
101: Can Ada Road & Purple Sage Road

2045 Total Traffic Mit PM Peak Hour
01/24/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (vph)	38	111	176	112	74	1	281	75	168	1	31	25
Future Volume (vph)	38	111	176	112	74	1	281	75	168	1	31	25
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.91		1.00	1.00		1.00	0.90		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1710	1614		1710	1797		1693	1613		1710	1678	
Flt Permitted	0.70	1.00		0.34	1.00		0.52	1.00		0.59	1.00	
Satd. Flow (perm)	1266	1614		609	1797		925	1613		1068	1678	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	42	123	196	124	82	1	312	83	187	1	34	28
RTOR Reduction (vph)	0	92	0	0	1	0	0	119	0	0	22	0
Lane Group Flow (vph)	42	227	0	124	82	0	312	151	0	1	40	0
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	1%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	14.7	13.0		18.9	15.1		22.1	16.9		12.5	11.8	
Effective Green, g (s)	14.7	13.0		18.9	15.1		22.1	16.9		12.5	11.8	
Actuated g/C Ratio	0.28	0.25		0.36	0.29		0.42	0.32		0.24	0.23	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	369	400		299	517		475	520		263	377	
v/s Ratio Prot	0.00	c0.14		c0.03	0.05		c0.07	0.09		0.00	0.02	
v/s Ratio Perm	0.03			0.12			c0.20			0.00		
v/c Ratio	0.11	0.57		0.41	0.16		0.66	0.29		0.00	0.11	
Uniform Delay, d1	13.9	17.2		11.9	13.9		11.5	13.3		15.2	16.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	1.9		0.9	0.1		3.3	0.3		0.0	0.1	
Delay (s)	14.0	19.1		12.9	14.1		14.8	13.6		15.2	16.2	
Level of Service	B	B		B	B		B	B		B	B	
Approach Delay (s)		18.5			13.4			14.2			16.2	
Approach LOS		B			B			B			B	

Intersection Summary		
HCM 2000 Control Delay	15.5	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.66	B
Actuated Cycle Length (s)	52.4	Sum of lost time (s)
Intersection Capacity Utilization	58.5%	18.0
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		B

HCM 6th Signalized Intersection Summary
 101: Can Ada Road & Purple Sage Road

2045 Total Traffic Mit PM Peak Hour
 01/24/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	111	176	112	74	1	281	75	168	1	31	25
Future Volume (veh/h)	38	111	176	112	74	1	281	75	168	1	31	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1772	1800	1800	1800	1786	1800	1800	1800	1800	1800
Adj Flow Rate, veh/h	42	123	196	124	82	1	312	83	187	1	34	28
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	2	0	0	0	1	0	0	0	0	0
Cap, veh/h	585	159	254	397	530	6	490	118	266	266	105	86
Arrive On Green	0.05	0.26	0.26	0.09	0.30	0.30	0.13	0.24	0.24	0.00	0.12	0.12
Sat Flow, veh/h	1714	625	996	1714	1774	22	1701	492	1108	1714	913	752
Grp Volume(v), veh/h	42	0	319	124	0	83	312	0	270	1	0	62
Grp Sat Flow(s),veh/h/ln	1714	0	1621	1714	0	1796	1701	0	1600	1714	0	1665
Q Serve(g_s), s	0.8	0.0	7.9	2.2	0.0	1.5	5.5	0.0	6.7	0.0	0.0	1.5
Cycle Q Clear(g_c), s	0.8	0.0	7.9	2.2	0.0	1.5	5.5	0.0	6.7	0.0	0.0	1.5
Prop In Lane	1.00		0.61	1.00		0.01	1.00		0.69	1.00		0.45
Lane Grp Cap(c), veh/h	585	0	414	397	0	536	490	0	384	266	0	191
V/C Ratio(X)	0.07	0.00	0.77	0.31	0.00	0.15	0.64	0.00	0.70	0.00	0.00	0.32
Avail Cap(c_a), veh/h	704	0	671	441	0	744	490	0	699	460	0	708
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.9	0.0	15.0	10.9	0.0	11.2	14.4	0.0	15.1	17.0	0.0	17.7
Incr Delay (d2), s/veh	0.1	0.0	3.1	0.4	0.0	0.1	2.7	0.0	2.3	0.0	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	2.8	0.7	0.0	0.5	2.5	0.0	2.3	0.0	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.9	0.0	18.1	11.3	0.0	11.3	17.1	0.0	17.4	17.0	0.0	18.7
LnGrp LOS	B	A	B	B	A	B	B	A	B	B	A	B
Approach Vol, veh/h		361			207			582				63
Approach Delay, s/veh		17.3			11.3			17.3				18.6
Approach LOS		B			B			B				B
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.6	14.9	8.4	15.6	10.0	9.5	6.5	17.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.0	19.0	5.0	18.0	5.5	18.5	5.0	18.0				
Max Q Clear Time (g_c+I1), s	2.0	8.7	4.2	9.9	7.5	3.5	2.8	3.5				
Green Ext Time (p_c), s	0.0	1.2	0.0	1.2	0.0	0.2	0.0	0.3				
Intersection Summary												
HCM 6th Ctrl Delay			16.3									
HCM 6th LOS			B									

Queues
104: SH 16 & Deep Canyon Drive

2045 Total Traffic Mit PM Peak Hour
01/13/2023



Lane Group	EBL	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	229	342	1442	660	16
v/c Ratio	0.53	0.63	0.67	0.60	0.03
Control Delay	9.0	11.4	7.3	15.3	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	9.0	11.4	7.3	15.3	6.2
Queue Length 50th (ft)	3	26	81	68	0
Queue Length 95th (ft)	48	#125	196	129	10
Internal Link Dist (ft)	2915		2859	4089	
Turn Bay Length (ft)	100	100			100
Base Capacity (vph)	761	547	2482	1429	661
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.30	0.63	0.58	0.46	0.02

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
 104: SH 16 & Deep Canyon Drive

2045 Total Traffic Mit PM Peak Hour
 01/13/2023



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	10	198	311	1312	601	15
Future Volume (vph)	10	198	311	1312	601	15
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	1.00		1.00	0.95	0.95	1.00
Frt	0.87		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1565		1676	3353	3353	1530
Flt Permitted	1.00		0.25	1.00	1.00	1.00
Satd. Flow (perm)	1565		446	3353	3353	1530
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	11	218	342	1442	660	16
RTOR Reduction (vph)	184	0	0	0	0	11
Lane Group Flow (vph)	45	0	342	1442	660	5
Heavy Vehicles (%)	0%	0%	2%	2%	2%	0%
Turn Type	Prot		pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases			2			6
Actuated Green, G (s)	7.1		29.0	29.0	15.0	15.0
Effective Green, g (s)	7.1		29.0	29.0	15.0	15.0
Actuated g/C Ratio	0.16		0.64	0.64	0.33	0.33
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	246		545	2156	1115	508
v/s Ratio Prot	c0.03		0.13	c0.43	0.20	
v/s Ratio Perm			0.27			0.00
v/c Ratio	0.18		0.63	0.67	0.59	0.01
Uniform Delay, d1	16.5		4.7	5.0	12.5	10.1
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4		2.3	0.8	0.8	0.0
Delay (s)	16.9		7.0	5.8	13.4	10.1
Level of Service	B		A	A	B	B
Approach Delay (s)	16.9			6.1	13.3	
Approach LOS	B			A	B	

Intersection Summary			
HCM 2000 Control Delay	8.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	45.1	Sum of lost time (s)	13.5
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
 104: SH 16 & Deep Canyon Drive

2045 Total Traffic Mit PM Peak Hour
 01/13/2023



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	198	311	1312	601	15
Future Volume (veh/h)	10	198	311	1312	601	15
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1800	1800	1772	1772	1772	1800
Adj Flow Rate, veh/h	11	218	342	1442	660	16
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	2	2	2	0
Cap, veh/h	14	275	575	2014	1089	493
Arrive On Green	0.19	0.19	0.17	0.60	0.32	0.32
Sat Flow, veh/h	73	1454	1688	3455	3455	1525
Grp Volume(v), veh/h	230	0	342	1442	660	16
Grp Sat Flow(s),veh/h/ln	1535	0	1688	1683	1683	1525
Q Serve(g_s), s	6.0	0.0	5.0	12.7	7.0	0.3
Cycle Q Clear(g_c), s	6.0	0.0	5.0	12.7	7.0	0.3
Prop In Lane	0.05	0.95	1.00			1.00
Lane Grp Cap(c), veh/h	290	0	575	2014	1089	493
V/C Ratio(X)	0.79	0.00	0.59	0.72	0.61	0.03
Avail Cap(c_a), veh/h	653	0	670	2628	1513	686
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.4	0.0	7.4	6.0	12.0	9.8
Incr Delay (d2), s/veh	4.9	0.0	1.1	0.7	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	1.2	2.5	2.2	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	21.2	0.0	8.4	6.6	12.6	9.8
LnGrp LOS	C	A	A	A	B	A
Approach Vol, veh/h	230			1784	676	
Approach Delay, s/veh	21.2			7.0	12.5	
Approach LOS	C			A	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		29.8		12.5	11.6	18.2
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		33.0		18.0	9.5	19.0
Max Q Clear Time (g_c+I1), s		14.7		8.0	7.0	9.0
Green Ext Time (p_c), s		10.6		0.5	0.3	3.2
Intersection Summary						
HCM 6th Ctrl Delay			9.6			
HCM 6th LOS			A			

Queues

2045 Total Traffic Mit PM Peak Hour

109: Pollard Road & Beacon Light Road

01/13/2023
























Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	6	220	182	643	140	344	416	68	44
v/c Ratio	0.03	0.43	0.38	0.82	0.19	0.68	0.76	0.27	0.12
Control Delay	10.8	23.4	14.3	29.2	4.3	27.7	34.5	19.3	22.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.8	23.4	14.3	29.2	4.3	27.7	34.5	19.3	22.0
Queue Length 50th (ft)	2	83	50	248	3	113	163	19	12
Queue Length 95th (ft)	7	138	86	#514	37	#280	#386	54	44
Internal Link Dist (ft)		3919		2558			3989		3904
Turn Bay Length (ft)	100		100		100	100		100	
Base Capacity (vph)	222	922	485	1005	918	503	585	252	487
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.24	0.38	0.64	0.15	0.68	0.71	0.27	0.09

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
109: Pollard Road & Beacon Light Road

2045 Total Traffic Mit PM Peak Hour
01/13/2023

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (vph)	5	190	8	164	579	126	310	218	157	61	31	9		
Future Volume (vph)	5	190	8	164	579	126	310	218	157	61	31	9		
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800		
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5			
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00			
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.94		1.00	0.97			
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00			
Satd. Flow (prot)	1710	1772		1710	1782	1530	1710	1687		1710	1739			
Flt Permitted	0.19	1.00		0.46	1.00	1.00	0.58	1.00		0.33	1.00			
Satd. Flow (perm)	347	1772		837	1782	1530	1037	1687		589	1739			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90		
Adj. Flow (vph)	6	211	9	182	643	140	344	242	174	68	34	10		
RTOR Reduction (vph)	0	2	0	0	0	74	0	28	0	0	8	0		
Lane Group Flow (vph)	6	218	0	182	643	66	344	388	0	68	36	0		
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%		
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA			
Protected Phases	7	4		3	8		5	2		1	6			
Permitted Phases	4			8		8	2			6				
Actuated Green, G (s)	25.4	24.6		37.2	31.9	31.9	30.9	22.6		20.8	17.0			
Effective Green, g (s)	25.4	24.6		37.2	31.9	31.9	30.9	22.6		20.8	17.0			
Actuated g/C Ratio	0.33	0.32		0.48	0.41	0.41	0.40	0.29		0.27	0.22			
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5			
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0			
Lane Grp Cap (vph)	128	565		495	737	633	497	494		214	383			
v/s Ratio Prot	0.00	0.12		c0.04	c0.36		c0.08	c0.23		0.02	0.02			
v/s Ratio Perm	0.01			0.14		0.04	0.19			0.07				
v/c Ratio	0.05	0.39		0.37	0.87	0.10	0.69	0.79		0.32	0.09			
Uniform Delay, d1	18.6	20.4		12.0	20.7	13.8	18.3	25.0		21.7	23.9			
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00			
Incremental Delay, d2	0.2	0.4		0.5	11.1	0.1	4.1	8.1		0.9	0.1			
Delay (s)	18.7	20.8		12.4	31.8	13.9	22.4	33.1		22.5	24.0			
Level of Service	B	C		B	C	B	C	C		C	C			
Approach Delay (s)		20.8			25.6			28.3			23.1			
Approach LOS		C			C			C			C			
Intersection Summary														
HCM 2000 Control Delay			25.9									HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio			0.87											
Actuated Cycle Length (s)			77.1								18.0			
Intersection Capacity Utilization			77.7%										ICU Level of Service	D
Analysis Period (min)			15											
c	Critical Lane Group													

HCM 6th Signalized Intersection Summary
 109: Pollard Road & Beacon Light Road

2045 Total Traffic Mit PM Peak Hour
 01/13/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	190	8	164	579	126	310	218	157	61	31	9
Future Volume (veh/h)	5	190	8	164	579	126	310	218	157	61	31	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1786	1800	1800	1786	1800	1800	1800	1800	1800	1800	1800
Adj Flow Rate, veh/h	6	211	9	182	643	140	344	242	174	68	34	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	1	0	0	1	0	0	0	0	0	0	0
Cap, veh/h	172	561	24	533	739	631	568	271	195	227	277	81
Arrive On Green	0.01	0.33	0.33	0.09	0.41	0.41	0.12	0.28	0.28	0.05	0.21	0.21
Sat Flow, veh/h	1714	1700	73	1714	1786	1525	1714	974	700	1714	1336	393
Grp Volume(v), veh/h	6	0	220	182	643	140	344	0	416	68	0	44
Grp Sat Flow(s),veh/h/ln	1714	0	1773	1714	1786	1525	1714	0	1674	1714	0	1729
Q Serve(g_s), s	0.2	0.0	6.9	4.7	23.9	4.3	8.9	0.0	17.3	2.2	0.0	1.5
Cycle Q Clear(g_c), s	0.2	0.0	6.9	4.7	23.9	4.3	8.9	0.0	17.3	2.2	0.0	1.5
Prop In Lane	1.00		0.04	1.00		1.00	1.00		0.42	1.00		0.23
Lane Grp Cap(c), veh/h	172	0	585	533	739	631	568	0	466	227	0	358
V/C Ratio(X)	0.03	0.00	0.38	0.34	0.87	0.22	0.61	0.00	0.89	0.30	0.00	0.12
Avail Cap(c_a), veh/h	276	0	879	568	962	821	568	0	529	260	0	456
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.2	0.0	18.6	12.9	19.5	13.7	19.6	0.0	25.1	21.8	0.0	23.4
Incr Delay (d2), s/veh	0.1	0.0	0.4	0.4	7.0	0.2	1.8	0.0	16.0	0.7	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	2.7	1.7	10.4	1.4	5.0	0.0	8.5	0.9	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.2	0.0	19.0	13.3	26.5	13.9	21.4	0.0	41.0	22.5	0.0	23.5
LnGrp LOS	B	A	B	B	C	B	C	A	D	C	A	C
Approach Vol, veh/h		226			965			760				112
Approach Delay, s/veh		18.9			22.2			32.2				22.9
Approach LOS		B			C			C				C
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.2	24.7	11.1	28.4	13.4	19.5	5.1	34.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.1	22.9	8.1	35.9	8.9	19.1	5.0	39.0				
Max Q Clear Time (g_c+I1), s	4.2	19.3	6.7	8.9	10.9	3.5	2.2	25.9				
Green Ext Time (p_c), s	0.0	0.9	0.1	1.3	0.0	0.1	0.0	4.1				

Intersection Summary

HCM 6th Ctrl Delay	25.5
HCM 6th LOS	C

Queues
110: SH 16 & Beacon Light Road

2045 Total Traffic Mit PM Peak Hour
01/13/2023



























Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	71	132	126	176	503	656	149	1177	96	128	638	44
v/c Ratio	0.39	0.26	0.24	0.41	0.89	0.52	0.44	0.91	0.15	0.68	0.48	0.07
Control Delay	31.7	37.9	6.6	31.4	63.7	23.2	25.4	51.9	4.6	48.1	34.1	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.7	37.9	6.6	31.4	63.7	23.2	25.4	51.9	4.6	48.1	34.1	0.2
Queue Length 50th (ft)	40	92	0	107	453	199	78	566	0	68	243	0
Queue Length 95th (ft)	73	148	46	163	#635	262	128	#740	31	#171	315	0
Internal Link Dist (ft)		2558			3836			8809			1084	
Turn Bay Length (ft)	100		100	100		100	100		100	100		100
Base Capacity (vph)	194	671	660	429	678	1279	346	1376	673	193	1400	702
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.20	0.19	0.41	0.74	0.51	0.43	0.86	0.14	0.66	0.46	0.06

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
110: SH 16 & Beacon Light Road

2045 Total Traffic Mit PM Peak Hour
01/13/2023

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	70	129	123	172	493	643	146	1153	94	125	625	43	
Future Volume (vph)	70	129	123	172	493	643	146	1153	94	125	625	43	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88	1.00	0.95	1.00	1.00	0.95	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1710	1765	1530	1660	1782	2693	1693	3353	1485	1710	3353	1530	
Flt Permitted	0.15	1.00	1.00	0.61	1.00	1.00	0.32	1.00	1.00	0.07	1.00	1.00	
Satd. Flow (perm)	275	1765	1530	1057	1782	2693	566	3353	1485	132	3353	1530	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Adj. Flow (vph)	71	132	126	176	503	656	149	1177	96	128	638	44	
RTOR Reduction (vph)	0	0	89	0	0	86	0	0	59	0	0	27	
Lane Group Flow (vph)	71	132	37	176	503	570	149	1177	37	128	638	17	
Heavy Vehicles (%)	0%	2%	0%	3%	1%	0%	1%	2%	3%	0%	2%	0%	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	Perm	
Protected Phases	1	6		5	2	7	3	8		7	4		
Permitted Phases	6		6	2		2	8		8	4		4	
Actuated Green, G (s)	47.5	41.0	41.0	52.9	43.7	54.5	62.6	53.1	53.1	65.2	54.4	54.4	
Effective Green, g (s)	47.5	41.0	41.0	52.9	43.7	54.5	62.6	53.1	53.1	65.2	54.4	54.4	
Actuated g/C Ratio	0.34	0.30	0.30	0.38	0.32	0.39	0.45	0.38	0.38	0.47	0.39	0.39	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	162	524	454	445	563	1179	334	1289	570	185	1320	602	
v/s Ratio Prot	0.02	0.07		c0.03	c0.28	0.04	0.03	c0.35		c0.05	0.19		
v/s Ratio Perm	0.13		0.02	0.13		0.17	0.17		0.02	0.27		0.01	
v/c Ratio	0.44	0.25	0.08	0.40	0.89	0.48	0.45	0.91	0.06	0.69	0.48	0.03	
Uniform Delay, d1	34.1	36.9	35.0	29.8	45.0	31.3	23.3	40.3	26.8	28.6	31.3	25.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.9	0.3	0.1	0.6	16.4	0.3	1.0	10.0	0.0	10.6	0.3	0.0	
Delay (s)	36.0	37.1	35.1	30.4	61.4	31.6	24.2	50.3	26.9	39.2	31.6	25.7	
Level of Service	D	D	D	C	E	C	C	D	C	D	C	C	
Approach Delay (s)		36.1			42.7			46.0			32.5		
Approach LOS		D			D			D			C		
Intersection Summary													
HCM 2000 Control Delay			41.2		HCM 2000 Level of Service						D		
HCM 2000 Volume to Capacity ratio			0.86										
Actuated Cycle Length (s)			138.1		Sum of lost time (s)						24.0		
Intersection Capacity Utilization			92.5%		ICU Level of Service						F		
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary
110: SH 16 & Beacon Light Road

2045 Total Traffic Mit PM Peak Hour
01/13/2023

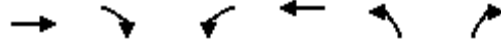


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	129	123	172	493	643	146	1153	94	125	625	43
Future Volume (veh/h)	70	129	123	172	493	643	146	1153	94	125	625	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1772	1800	1758	1786	1800	1786	1772	1758	1800	1772	1800
Adj Flow Rate, veh/h	71	132	126	176	503	656	149	1177	96	128	638	44
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	2	0	3	1	0	1	2	3	0	2	0
Cap, veh/h	154	522	449	436	577	1030	354	1314	582	187	1288	584
Arrive On Green	0.04	0.29	0.29	0.07	0.32	0.32	0.07	0.39	0.39	0.06	0.38	0.38
Sat Flow, veh/h	1714	1772	1525	1674	1786	2685	1701	3367	1490	1714	3367	1525
Grp Volume(v), veh/h	71	132	126	176	503	656	149	1177	96	128	638	44
Grp Sat Flow(s),veh/h/ln	1714	1772	1525	1674	1786	1342	1701	1683	1490	1714	1683	1525
Q Serve(g_s), s	3.7	7.4	8.2	9.0	34.4	25.8	6.8	42.5	5.4	5.8	18.7	2.4
Cycle Q Clear(g_c), s	3.7	7.4	8.2	9.0	34.4	25.8	6.8	42.5	5.4	5.8	18.7	2.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	154	522	449	436	577	1030	354	1314	582	187	1288	584
V/C Ratio(X)	0.46	0.25	0.28	0.40	0.87	0.64	0.42	0.90	0.17	0.69	0.50	0.08
Avail Cap(c_a), veh/h	203	697	600	436	703	1219	369	1429	632	229	1455	659
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.1	34.8	35.2	29.9	41.3	32.6	23.1	37.0	25.7	30.3	30.5	25.4
Incr Delay (d2), s/veh	2.1	0.3	0.3	0.6	10.0	0.8	0.8	7.3	0.1	6.2	0.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	3.2	3.1	4.0	16.7	8.5	2.8	18.6	2.0	2.7	7.7	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.2	35.1	35.5	30.5	51.4	33.4	23.9	44.4	25.9	36.5	30.8	25.5
LnGrp LOS	D	D	D	C	D	C	C	D	C	D	C	C
Approach Vol, veh/h		329			1335			1422			810	
Approach Delay, s/veh		35.5			39.8			41.0			31.4	
Approach LOS		D			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.3	47.9	14.8	55.6	15.0	44.2	13.8	56.6				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	9.0	51.0	10.0	56.0	9.0	51.0	11.0	55.0				
Max Q Clear Time (g_c+I1), s	5.7	36.4	8.8	20.7	11.0	10.2	7.8	44.5				
Green Ext Time (p_c), s	0.0	5.5	0.0	5.1	0.0	1.2	0.1	6.1				

Intersection Summary												
HCM 6th Ctrl Delay				38.1								
HCM 6th LOS				D								

Queues
111: Palmer Lane & Beacon Light Road

2045 Total Traffic Mit PM Peak Hour
01/13/2023



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	465	20	5	1372	121	23
v/c Ratio	0.25	0.02	0.01	0.68	0.38	0.07
Control Delay	6.5	4.1	4.0	8.4	21.0	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.5	4.1	4.0	8.4	21.0	8.8
Queue Length 50th (ft)	23	0	1	101	29	0
Queue Length 95th (ft)	78	9	4	192	70	14
Internal Link Dist (ft)	3836			6200		
Turn Bay Length (ft)		100	100		100	100
Base Capacity (vph)	2007	915	552	2526	692	663
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.02	0.01	0.54	0.17	0.03

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 111: Palmer Lane & Beacon Light Road

2045 Total Traffic Mit PM Peak Hour
 01/13/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↵	↑↑	↵	↵
Traffic Volume (vph)	442	19	5	1303	115	22
Future Volume (vph)	442	19	5	1303	115	22
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3386	1530	1710	3386	1629	1530
Flt Permitted	1.00	1.00	0.41	1.00	0.95	1.00
Satd. Flow (perm)	3386	1530	741	3386	1629	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	465	20	5	1372	121	23
RTOR Reduction (vph)	0	10	0	0	0	19
Lane Group Flow (vph)	465	10	5	1372	121	4
Heavy Vehicles (%)	1%	0%	0%	1%	5%	0%
Turn Type	NA	Perm	pm+pt	NA	Prot	Prot
Protected Phases	4		3	8	1	1
Permitted Phases		4	8			
Actuated Green, G (s)	25.3	25.3	30.6	30.6	8.9	8.9
Effective Green, g (s)	25.3	25.3	30.6	30.6	8.9	8.9
Actuated g/C Ratio	0.52	0.52	0.63	0.63	0.18	0.18
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1766	798	483	2136	298	280
v/s Ratio Prot	0.14		0.00	c0.41	c0.07	0.00
v/s Ratio Perm		0.01	0.01			
v/c Ratio	0.26	0.01	0.01	0.64	0.41	0.02
Uniform Delay, d1	6.4	5.6	3.5	5.6	17.5	16.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.0	0.7	0.9	0.0
Delay (s)	6.5	5.6	3.5	6.2	18.4	16.2
Level of Service	A	A	A	A	B	B
Approach Delay (s)	6.5			6.2	18.0	
Approach LOS	A			A	B	

Intersection Summary			
HCM 2000 Control Delay	7.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	48.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	52.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
 111: Palmer Lane & Beacon Light Road

2045 Total Traffic Mit PM Peak Hour
 01/13/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (veh/h)	442	19	5	1303	115	22
Future Volume (veh/h)	442	19	5	1303	115	22
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1786	1800	1800	1786	1730	1800
Adj Flow Rate, veh/h	465	20	5	1372	121	23
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	0	0	1	5	0
Cap, veh/h	1644	739	582	2087	227	210
Arrive On Green	0.48	0.48	0.01	0.62	0.14	0.14
Sat Flow, veh/h	3483	1525	1714	3483	1647	1525
Grp Volume(v), veh/h	465	20	5	1372	121	23
Grp Sat Flow(s),veh/h/ln	1697	1525	1714	1697	1647	1525
Q Serve(g_s), s	3.0	0.2	0.0	9.5	2.5	0.5
Cycle Q Clear(g_c), s	3.0	0.2	0.0	9.5	2.5	0.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1644	739	582	2087	227	210
V/C Ratio(X)	0.28	0.03	0.01	0.66	0.53	0.11
Avail Cap(c_a), veh/h	2146	965	806	3033	838	776
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	5.6	4.9	4.1	4.5	14.6	13.7
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.4	2.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.1	0.0	1.3	0.9	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	5.7	4.9	4.1	4.9	16.5	14.0
LnGrp LOS	A	A	A	A	B	B
Approach Vol, veh/h	485			1377	144	
Approach Delay, s/veh	5.7			4.9	16.1	
Approach LOS	A			A	B	
Timer - Assigned Phs			3	4	6	8
Phs Duration (G+Y+Rc), s			4.7	22.1	9.5	26.9
Change Period (Y+Rc), s			4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s			5.0	23.0	18.5	32.5
Max Q Clear Time (g_c+I1), s			2.0	5.0	4.5	11.5
Green Ext Time (p_c), s			0.0	3.0	0.3	10.9
Intersection Summary						
HCM 6th Ctrl Delay			5.9			
HCM 6th LOS			A			

Queues
113: Star Road & Floating Feather Road

2045 Total Traffic Mit PM Peak Hour
01/13/2023



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	132	200	642	244	153	189
v/c Ratio	0.40	0.45	0.81	0.22	0.45	0.42
Control Delay	23.5	7.6	16.9	5.1	24.1	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.5	7.6	16.9	5.1	24.1	7.0
Queue Length 50th (ft)	36	0	93	25	41	0
Queue Length 95th (ft)	86	45	#282	63	97	44
Internal Link Dist (ft)	2600			1170	5156	
Turn Bay Length (ft)		100	100		100	
Base Capacity (vph)	664	680	864	1532	631	684
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.29	0.74	0.16	0.24	0.28

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
113: Star Road & Floating Feather Road

2045 Total Traffic Mit PM Peak Hour
01/13/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	120	182	584	222	139	172
Future Volume (vph)	120	182	584	222	139	172
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1800	1500	1676	1800	1710	1530
Flt Permitted	1.00	1.00	0.46	1.00	0.95	1.00
Satd. Flow (perm)	1800	1500	808	1800	1710	1530
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	132	200	642	244	153	189
RTOR Reduction (vph)	0	162	0	0	0	151
Lane Group Flow (vph)	132	38	642	244	153	38
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%
Turn Type	NA	Perm	pm+pt	NA	Prot	Prot
Protected Phases	4		3	8	2	2
Permitted Phases		4	8			
Actuated Green, G (s)	9.6	9.6	31.2	31.2	10.0	10.0
Effective Green, g (s)	9.6	9.6	31.2	31.2	10.0	10.0
Actuated g/C Ratio	0.19	0.19	0.62	0.62	0.20	0.20
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	344	286	797	1118	340	304
v/s Ratio Prot	0.07		c0.27	0.14	c0.09	0.02
v/s Ratio Perm		0.03	c0.23			
v/c Ratio	0.38	0.13	0.81	0.22	0.45	0.12
Uniform Delay, d1	17.7	16.8	6.3	4.2	17.7	16.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.2	6.0	0.1	0.9	0.2
Delay (s)	18.4	17.1	12.2	4.3	18.6	16.7
Level of Service	B	B	B	A	B	B
Approach Delay (s)	17.6			10.0	17.6	
Approach LOS	B			B	B	

Intersection Summary

HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	50.2	Sum of lost time (s)	13.5
Intersection Capacity Utilization	56.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
 113: Star Road & Floating Feather Road

2045 Total Traffic Mit PM Peak Hour
 01/13/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↖	↑	↖	↗
Traffic Volume (veh/h)	120	182	584	222	139	172
Future Volume (veh/h)	120	182	584	222	139	172
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1800	1772	1772	1800	1800	1800
Adj Flow Rate, veh/h	132	200	642	244	153	189
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	2	2	0	0	0
Cap, veh/h	342	286	858	1126	305	271
Arrive On Green	0.19	0.19	0.34	0.63	0.18	0.18
Sat Flow, veh/h	1800	1502	1688	1800	1714	1525
Grp Volume(v), veh/h	132	200	642	244	153	189
Grp Sat Flow(s),veh/h/ln	1800	1502	1688	1800	1714	1525
Q Serve(g_s), s	2.9	5.7	12.1	2.7	3.7	5.3
Cycle Q Clear(g_c), s	2.9	5.7	12.1	2.7	3.7	5.3
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	342	286	858	1126	305	271
V/C Ratio(X)	0.39	0.70	0.75	0.22	0.50	0.70
Avail Cap(c_a), veh/h	708	590	1045	1691	674	600
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.2	17.3	7.5	3.7	17.0	17.7
Incr Delay (d2), s/veh	0.7	3.1	2.4	0.1	1.3	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	2.0	3.2	0.6	1.4	1.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	16.9	20.4	9.9	3.8	18.3	20.9
LnGrp LOS	B	C	A	A	B	C
Approach Vol, veh/h	332			886	342	
Approach Delay, s/veh	19.0			8.2	19.7	
Approach LOS	B			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		12.6	19.9	13.2		33.1
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		18.0	20.5	18.0		43.0
Max Q Clear Time (g_c+I1), s		7.3	14.1	7.7		4.7
Green Ext Time (p_c), s		0.8	1.4	1.0		1.5
Intersection Summary						
HCM 6th Ctrl Delay			13.0			
HCM 6th LOS			B			

Queues
114: Plummer Road & Floating Feather Road

2045 Total Traffic Mit PM Peak Hour
01/13/2023



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	184	273	101	431	401	74
v/c Ratio	0.35	0.43	0.22	0.58	0.66	0.13
Control Delay	16.1	4.8	9.0	13.1	19.0	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.1	4.8	9.0	13.1	19.0	4.3
Queue Length 50th (ft)	40	0	14	72	82	0
Queue Length 95th (ft)	88	42	37	149	#192	21
Internal Link Dist (ft)	3891			1279	5173	
Turn Bay Length (ft)		100	100		100	
Base Capacity (vph)	847	864	458	1272	827	778
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.32	0.22	0.34	0.48	0.10

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
114: Plummer Road & Floating Feather Road

2045 Total Traffic Mit PM Peak Hour
01/13/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	166	246	91	388	361	67
Future Volume (vph)	166	246	91	388	361	67
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1800	1530	1710	1800	1710	1530
Flt Permitted	1.00	1.00	0.47	1.00	0.95	1.00
Satd. Flow (perm)	1800	1530	840	1800	1710	1530
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	184	273	101	431	401	74
RTOR Reduction (vph)	0	196	0	0	0	49
Lane Group Flow (vph)	184	77	101	431	401	25
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	NA	Perm	pm+pt	NA	Prot	Prot
Protected Phases	4		3	8	2	2
Permitted Phases		4	8			
Actuated Green, G (s)	12.0	12.0	19.0	19.0	14.5	14.5
Effective Green, g (s)	12.0	12.0	19.0	19.0	14.5	14.5
Actuated g/C Ratio	0.28	0.28	0.45	0.45	0.34	0.34
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	508	432	426	804	583	522
v/s Ratio Prot	0.10		0.01	c0.24	c0.23	0.02
v/s Ratio Perm		0.05	0.09			
v/c Ratio	0.36	0.18	0.24	0.54	0.69	0.05
Uniform Delay, d1	12.2	11.5	7.2	8.5	12.1	9.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.2	0.3	0.7	3.4	0.0
Delay (s)	12.6	11.7	7.5	9.2	15.4	9.4
Level of Service	B	B	A	A	B	A
Approach Delay (s)	12.1			8.9	14.5	
Approach LOS	B			A	B	

Intersection Summary

HCM 2000 Control Delay	11.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	42.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	50.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
114: Plummer Road & Floating Feather Road

2045 Total Traffic Mit PM Peak Hour
01/13/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (veh/h)	166	246	91	388	361	67
Future Volume (veh/h)	166	246	91	388	361	67
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1800	1800	1800
Adj Flow Rate, veh/h	184	273	101	431	401	74
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	459	389	503	832	509	453
Arrive On Green	0.26	0.26	0.09	0.46	0.30	0.30
Sat Flow, veh/h	1800	1525	1714	1800	1714	1525
Grp Volume(v), veh/h	184	273	101	431	401	74
Grp Sat Flow(s),veh/h/ln	1800	1525	1714	1800	1714	1525
Q Serve(g_s), s	3.2	6.1	1.4	6.3	8.0	1.3
Cycle Q Clear(g_c), s	3.2	6.1	1.4	6.3	8.0	1.3
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	459	389	503	832	509	453
V/C Ratio(X)	0.40	0.70	0.20	0.52	0.79	0.16
Avail Cap(c_a), veh/h	867	735	584	1325	849	755
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.5	12.6	7.7	7.1	12.1	9.7
Incr Delay (d2), s/veh	0.6	2.3	0.2	0.5	2.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	1.9	0.4	1.6	2.7	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.1	14.9	7.8	7.6	14.8	9.9
LnGrp LOS	B	B	A	A	B	A
Approach Vol, veh/h	457			532	475	
Approach Delay, s/veh	13.8			7.6	14.1	
Approach LOS	B			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		15.6	7.7	14.0		21.8
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		18.5	5.0	18.0		27.5
Max Q Clear Time (g_c+I1), s		10.0	3.4	8.1		8.3
Green Ext Time (p_c), s		1.1	0.0	1.5		2.6
Intersection Summary						
HCM 6th Ctrl Delay			11.6			
HCM 6th LOS			B			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	88	920	1237	285	322	111
v/c Ratio	0.33	0.49	0.85	0.35	0.72	0.25
Control Delay	9.6	8.6	23.7	3.4	28.6	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.6	8.6	23.7	3.4	28.6	5.6
Queue Length 50th (ft)	12	88	203	0	100	0
Queue Length 95th (ft)	31	138	#350	39	176	30
Internal Link Dist (ft)		3717	2513		4604	
Turn Bay Length (ft)	200			150	100	
Base Capacity (vph)	266	2096	1507	825	571	539
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.44	0.82	0.35	0.56	0.21

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
117: SH 44 & Can Ada Road

2045 Total Traffic Mit PM Peak Hour
01/13/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗↗	↗↗	↖	↖	↖
Traffic Volume (vph)	83	865	1163	268	303	104
Future Volume (vph)	83	865	1163	268	303	104
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1613	3353	3386	1500	1676	1366
Flt Permitted	0.14	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	243	3353	3386	1500	1676	1366
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	88	920	1237	285	322	111
RTOR Reduction (vph)	0	0	0	164	0	82
Lane Group Flow (vph)	88	920	1237	121	322	29
Heavy Vehicles (%)	6%	2%	1%	2%	2%	12%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	31.6	31.6	23.4	23.4	14.6	14.6
Effective Green, g (s)	31.6	31.6	23.4	23.4	14.6	14.6
Actuated g/C Ratio	0.57	0.57	0.42	0.42	0.26	0.26
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	230	1919	1435	635	443	361
v/s Ratio Prot	0.03	c0.27	c0.37		c0.19	
v/s Ratio Perm	0.19			0.08		0.02
v/c Ratio	0.38	0.48	0.86	0.19	0.73	0.08
Uniform Delay, d1	8.7	7.0	14.4	10.0	18.5	15.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	0.2	5.6	0.1	5.9	0.1
Delay (s)	9.8	7.1	20.0	10.1	24.3	15.4
Level of Service	A	A	C	B	C	B
Approach Delay (s)		7.4	18.2		22.0	
Approach LOS		A	B		C	

Intersection Summary

HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	55.2	Sum of lost time (s)	13.5
Intersection Capacity Utilization	67.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
117: SH 44 & Can Ada Road

2045 Total Traffic Mit PM Peak Hour
01/13/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	83	865	1163	268	303	104	
Future Volume (veh/h)	83	865	1163	268	303	104	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1716	1772	1786	1772	1772	1632	
Adj Flow Rate, veh/h	88	920	1237	285	322	111	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	
Percent Heavy Veh, %	6	2	1	2	2	12	
Cap, veh/h	289	1985	1468	650	397	325	
Arrive On Green	0.07	0.59	0.43	0.43	0.24	0.24	
Sat Flow, veh/h	1634	3455	3483	1502	1688	1383	
Grp Volume(v), veh/h	88	920	1237	285	322	111	
Grp Sat Flow(s),veh/h/ln	1634	1683	1697	1502	1688	1383	
Q Serve(g_s), s	1.3	7.9	16.7	6.8	9.3	3.4	
Cycle Q Clear(g_c), s	1.3	7.9	16.7	6.8	9.3	3.4	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	289	1985	1468	650	397	325	
V/C Ratio(X)	0.30	0.46	0.84	0.44	0.81	0.34	
Avail Cap(c_a), veh/h	334	2159	1550	686	590	484	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	10.3	6.0	13.0	10.2	18.6	16.4	
Incr Delay (d2), s/veh	0.6	0.2	4.2	0.5	5.3	0.6	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.4	1.9	5.9	1.9	3.8	2.9	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	10.9	6.1	17.3	10.7	23.8	17.0	
LnGrp LOS	B	A	B	B	C	B	
Approach Vol, veh/h		1008	1522		433		
Approach Delay, s/veh		6.5	16.0		22.1		
Approach LOS		A	B		C		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				34.8	16.6	8.1	26.8
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				33.0	18.0	5.0	23.5
Max Q Clear Time (g_c+I1), s				9.9	11.3	3.3	18.7
Green Ext Time (p_c), s				7.0	0.8	0.0	3.5
Intersection Summary							
HCM 6th Ctrl Delay			13.7				
HCM 6th LOS			B				

Queues
118: Star Road & SH 44

2045 Total Traffic Mit PM Peak Hour
01/13/2023



























Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	162	677	420	211	977	114	475	307	158	111	239	113
v/c Ratio	0.75	0.60	0.47	0.62	0.83	0.17	0.85	0.61	0.28	0.40	0.79	0.24
Control Delay	53.0	34.8	5.3	43.6	40.7	0.6	60.5	40.2	3.4	28.6	63.5	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.0	34.8	5.3	43.6	40.7	0.6	60.5	40.2	3.4	28.6	63.5	1.2
Queue Length 50th (ft)	90	223	31	114	341	0	175	194	0	52	170	0
Queue Length 95th (ft)	#193	308	77	191	454	0	#272	288	29	91	261	0
Internal Link Dist (ft)		2598			5173			1764			5156	
Turn Bay Length (ft)	200		200	200		200	150		150	100		100
Base Capacity (vph)	221	1130	915	403	1287	700	615	634	663	280	405	539
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.60	0.46	0.52	0.76	0.16	0.77	0.48	0.24	0.40	0.59	0.21

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

























HCM Signalized Intersection Capacity Analysis
118: Star Road & SH 44

2045 Total Traffic Mit PM Peak Hour
01/13/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	670	416	209	967	113	470	304	156	110	237	112
Future Volume (vph)	160	670	416	209	967	113	470	304	156	110	237	112
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1693	3386	1515	1676	3386	1530	3317	1800	1530	1660	1748	1515
Flt Permitted	0.15	1.00	1.00	0.39	1.00	1.00	0.95	1.00	1.00	0.57	1.00	1.00
Satd. Flow (perm)	267	3386	1515	696	3386	1530	3317	1800	1530	1002	1748	1515
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	162	677	420	211	977	114	475	307	158	111	239	113
RTOR Reduction (vph)	0	0	133	0	0	74	0	0	114	0	0	93
Lane Group Flow (vph)	162	677	287	211	977	40	475	307	44	111	239	20
Heavy Vehicles (%)	1%	1%	1%	2%	1%	0%	0%	0%	0%	3%	3%	1%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6	3	5	2		3	8		7	4	
Permitted Phases	6		6	2		2			8	4		4
Actuated Green, G (s)	36.4	36.4	54.8	37.9	37.9	37.9	18.4	30.4	30.4	25.6	18.8	18.8
Effective Green, g (s)	36.4	36.4	54.8	37.9	37.9	37.9	18.4	30.4	30.4	25.6	18.8	18.8
Actuated g/C Ratio	0.33	0.33	0.50	0.35	0.35	0.35	0.17	0.28	0.28	0.24	0.17	0.17
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	2.0	2.5	2.0	2.0	2.5	2.5	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	216	1132	763	343	1179	532	560	502	427	276	302	261
v/s Ratio Prot	0.07	c0.20	0.06	0.06	c0.29		c0.14	0.17		0.03	c0.14	
v/s Ratio Perm	0.18		0.13	0.15		0.03			0.03	0.07		0.01
v/c Ratio	0.75	0.60	0.38	0.62	0.83	0.07	0.85	0.61	0.10	0.40	0.79	0.07
Uniform Delay, d1	29.2	30.1	16.5	32.0	32.5	23.7	43.8	34.1	29.1	34.1	43.1	37.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.2	2.3	0.1	2.3	4.8	0.0	11.0	1.6	0.0	0.4	12.4	0.0
Delay (s)	41.4	32.5	16.7	34.3	37.3	23.8	54.9	35.6	29.1	34.4	55.5	37.8
Level of Service	D	C	B	C	D	C	D	D	C	C	E	D
Approach Delay (s)		28.3			35.6			44.3			46.1	
Approach LOS		C			D			D			D	
Intersection Summary												
HCM 2000 Control Delay			36.6				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.82									
Actuated Cycle Length (s)			108.8				Sum of lost time (s)		24.0			
Intersection Capacity Utilization			84.9%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
118: Star Road & SH 44

2045 Total Traffic Mit PM Peak Hour
01/13/2023

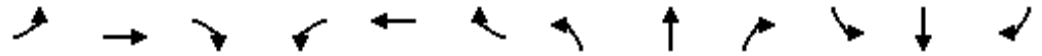
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	670	416	209	967	113	470	304	156	110	237	112
Future Volume (veh/h)	160	670	416	209	967	113	470	304	156	110	237	112
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1786	1786	1786	1772	1786	1800	1800	1800	1800	1758	1758	1786
Adj Flow Rate, veh/h	162	677	420	211	977	114	475	307	158	111	239	113
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	1	1	1	2	1	0	0	0	0	3	3	1
Cap, veh/h	227	1247	805	276	1152	518	547	457	387	285	282	243
Arrive On Green	0.09	0.37	0.37	0.06	0.34	0.34	0.16	0.25	0.25	0.07	0.16	0.16
Sat Flow, veh/h	1701	3393	1514	1688	3393	1525	3326	1800	1525	1674	1758	1514
Grp Volume(v), veh/h	162	677	420	211	977	114	475	307	158	111	239	113
Grp Sat Flow(s),veh/h/ln	1701	1697	1514	1688	1697	1525	1663	1800	1525	1674	1758	1514
Q Serve(g_s), s	6.9	15.4	8.3	1.8	26.2	5.2	13.6	15.0	6.4	5.3	12.9	6.6
Cycle Q Clear(g_c), s	6.9	15.4	8.3	1.8	26.2	5.2	13.6	15.0	6.4	5.3	12.9	6.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	227	1247	805	276	1152	518	547	457	387	285	282	243
V/C Ratio(X)	0.71	0.54	0.52	0.76	0.85	0.22	0.87	0.67	0.41	0.39	0.85	0.46
Avail Cap(c_a), veh/h	247	1247	805	429	1420	638	679	698	592	285	449	386
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.3	24.5	4.4	38.9	30.0	23.1	39.9	32.9	17.2	31.2	39.9	37.3
Incr Delay (d2), s/veh	6.8	1.7	2.4	1.7	3.9	0.2	8.5	0.6	0.3	0.3	4.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	6.3	3.8	4.9	11.0	1.9	6.1	6.5	3.0	2.2	5.9	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.1	26.2	6.8	40.5	33.9	23.3	48.4	33.5	17.5	31.5	44.6	37.8
LnGrp LOS	C	C	A	D	C	C	D	C	B	C	D	D
Approach Vol, veh/h		1259			1302			940			463	
Approach Delay, s/veh		20.7			34.1			38.4			39.8	
Approach LOS		C			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.9	39.3	22.1	21.7	12.1	42.0	13.0	30.9				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	10.0	41.0	20.0	25.0	15.0	36.0	7.0	38.0				
Max Q Clear Time (g_c+I1), s	8.9	28.2	15.6	14.9	3.8	17.4	7.3	17.0				
Green Ext Time (p_c), s	0.0	5.1	0.5	0.8	0.2	5.0	0.0	1.4				
Intersection Summary												
HCM 6th Ctrl Delay			31.5									
HCM 6th LOS			C									

Queues

2045 Total Traffic Mit PM Peak Hour

119: Plummer Road & SH 44

01/13/2023






























Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	71	862	58	108	1352	293	113	116	158	333	82	99
v/c Ratio	0.36	0.57	0.08	0.33	0.86	0.37	0.37	0.49	0.47	0.76	0.21	0.23
Control Delay	14.2	19.3	0.2	11.5	26.8	9.3	24.8	40.1	10.8	47.1	29.7	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.2	19.3	0.2	11.5	26.8	9.3	24.8	40.1	10.8	47.1	29.7	4.7
Queue Length 50th (ft)	15	170	0	23	313	45	42	56	0	86	36	0
Queue Length 95th (ft)	36	251	0	51	#498	110	80	106	51	#160	74	25
Internal Link Dist (ft)		5173			3517			675			5173	
Turn Bay Length (ft)	100		100	100		100	100		100	200		200
Base Capacity (vph)	198	1542	766	331	1636	812	308	432	479	444	538	533
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.56	0.08	0.33	0.83	0.36	0.37	0.27	0.33	0.75	0.15	0.19

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
119: Plummer Road & SH 44

2045 Total Traffic Mit PM Peak Hour
01/13/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 					 		
Traffic Volume (vph)	67	819	55	103	1284	278	107	110	150	316	78	94
Future Volume (vph)	67	819	55	103	1284	278	107	110	150	316	78	94
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1710	3386	1530	1710	3386	1530	1710	1765	1471	3285	1800	1485
Flt Permitted	0.11	1.00	1.00	0.22	1.00	1.00	0.70	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	205	3386	1530	391	3386	1530	1267	1765	1471	3285	1800	1485
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	71	862	58	108	1352	293	113	116	158	333	82	99
RTOR Reduction (vph)	0	0	33	0	0	77	0	0	135	0	0	78
Lane Group Flow (vph)	71	862	25	108	1352	216	113	116	23	333	82	21
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	2%	4%	1%	0%	3%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2			6
Actuated Green, G (s)	38.9	35.1	35.1	42.1	36.7	36.7	16.5	11.7	11.7	10.5	17.4	17.4
Effective Green, g (s)	38.9	35.1	35.1	42.1	36.7	36.7	16.5	11.7	11.7	10.5	17.4	17.4
Actuated g/C Ratio	0.48	0.43	0.43	0.52	0.45	0.45	0.20	0.14	0.14	0.13	0.22	0.22
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	169	1472	665	292	1539	695	285	255	213	427	388	320
v/s Ratio Prot	0.02	0.25		c0.02	c0.40		0.02	c0.07		c0.10	0.05	
v/s Ratio Perm	0.18		0.02	0.17		0.14	0.06		0.02			0.01
v/c Ratio	0.42	0.59	0.04	0.37	0.88	0.31	0.40	0.45	0.11	0.78	0.21	0.07
Uniform Delay, d1	14.9	17.3	13.1	11.0	20.0	14.0	27.3	31.6	30.0	34.0	26.0	25.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.7	0.6	0.0	0.8	6.0	0.3	0.9	1.3	0.2	8.8	0.3	0.1
Delay (s)	16.6	17.9	13.1	11.8	26.0	14.2	28.3	32.9	30.2	42.7	26.3	25.3
Level of Service	B	B	B	B	C	B	C	C	C	D	C	C
Approach Delay (s)		17.5			23.2			30.4			36.7	
Approach LOS		B			C			C			D	
Intersection Summary												
HCM 2000 Control Delay			24.3		HCM 2000 Level of Service			C				
HCM 2000 Volume to Capacity ratio			0.76									
Actuated Cycle Length (s)			80.7		Sum of lost time (s)			18.0				
Intersection Capacity Utilization			69.1%		ICU Level of Service			C				
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
119: Plummer Road & SH 44

2045 Total Traffic Mit PM Peak Hour
01/13/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗	↘	↑	↗	↗↘	↑	↗
Traffic Volume (veh/h)	67	819	55	103	1284	278	107	110	150	316	78	94
Future Volume (veh/h)	67	819	55	103	1284	278	107	110	150	316	78	94
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1786	1800	1800	1786	1800	1800	1772	1744	1786	1800	1758
Adj Flow Rate, veh/h	71	862	58	108	1352	293	113	116	158	333	82	99
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	1	0	0	1	0	0	2	4	1	0	3
Cap, veh/h	208	1520	683	352	1546	695	388	245	204	413	341	282
Arrive On Green	0.05	0.45	0.45	0.06	0.46	0.46	0.07	0.14	0.14	0.13	0.19	0.19
Sat Flow, veh/h	1714	3393	1525	1714	3393	1525	1714	1772	1478	3300	1800	1490
Grp Volume(v), veh/h	71	862	58	108	1352	293	113	116	158	333	82	99
Grp Sat Flow(s),veh/h/ln	1714	1697	1525	1714	1697	1525	1714	1772	1478	1650	1800	1490
Q Serve(g_s), s	1.7	14.7	1.7	2.6	28.2	10.1	4.3	4.7	8.1	7.7	3.0	4.5
Cycle Q Clear(g_c), s	1.7	14.7	1.7	2.6	28.2	10.1	4.3	4.7	8.1	7.7	3.0	4.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	208	1520	683	352	1546	695	388	245	204	413	341	282
V/C Ratio(X)	0.34	0.57	0.08	0.31	0.87	0.42	0.29	0.47	0.77	0.81	0.24	0.35
Avail Cap(c_a), veh/h	231	1534	690	411	1630	733	400	431	360	444	535	443
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.5	15.9	12.4	11.8	19.2	14.3	25.9	31.0	32.5	33.2	26.9	27.5
Incr Delay (d2), s/veh	1.0	0.5	0.1	0.5	5.4	0.4	0.4	1.4	6.1	9.9	0.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	5.3	0.6	0.9	11.2	3.3	1.8	2.1	3.1	3.6	1.3	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.5	16.4	12.4	12.3	24.7	14.7	26.3	32.4	38.6	43.1	27.2	28.2
LnGrp LOS	B	B	B	B	C	B	C	C	D	D	C	C
Approach Vol, veh/h		991			1753			387			514	
Approach Delay, s/veh		16.3			22.2			33.1			37.7	
Approach LOS		B			C			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.3	15.3	9.0	39.5	10.3	19.3	8.4	40.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	10.5	19.0	7.2	35.3	6.3	23.2	5.0	37.5				
Max Q Clear Time (g_c+I1), s	9.7	10.1	4.6	16.7	6.3	6.5	3.7	30.2				
Green Ext Time (p_c), s	0.1	0.7	0.1	6.1	0.0	0.6	0.0	5.4				
Intersection Summary												
HCM 6th Ctrl Delay			24.0									
HCM 6th LOS			C									

Intersection						
Int Delay, s/veh	10.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑↑	↑↑	↗		↗
Traffic Vol, veh/h	114	1168	1163	315	0	407
Future Vol, veh/h	114	1168	1163	315	0	407
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	121	1243	1237	335	0	433

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1572	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.14	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.22	-	-
Pot Cap-1 Maneuver	415	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	415	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	1.5	0	75.2
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	415	-	-	-	432
HCM Lane V/C Ratio	0.292	-	-	-	1.002
HCM Control Delay (s)	17.2	-	-	-	75.2
HCM Lane LOS	C	-	-	-	F
HCM 95th %tile Q(veh)	1.2	-	-	-	12.8

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection												
Int Delay, s/veh	30.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗			↗			↗
Traffic Vol, veh/h	67	1135	133	103	1391	388	0	0	367	0	0	487
Future Vol, veh/h	67	1135	133	103	1391	388	0	0	367	0	0	487
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	200	200	-	200	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	70	1182	139	107	1449	404	0	0	382	0	0	507

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1853	0	0	1321	0	0	-	-	591	-	-	725
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.14	-	-	4.14	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	323	-	-	519	-	-	0	0	450	0	0	~ 368
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	323	-	-	519	-	-	-	-	450	-	-	~ 368
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1			0.8			44			215.4		
HCM LOS							E			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	450	323	-	-	519	-	-	368
HCM Lane V/C Ratio	0.85	0.216	-	-	0.207	-	-	1.379
HCM Control Delay (s)	44	19.2	-	-	13.7	-	-	215.4
HCM Lane LOS	E	C	-	-	B	-	-	F
HCM 95th %tile Q(veh)	8.5	0.8	-	-	0.8	-	-	25

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

MOVEMENT SUMMARY

Site: 101 [Purple Sage Road / Can Ada Road AM (Site Folder: General)]

2045 Background
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist ft]				
South: RoadName														
3	L2	101	4.0	112	4.0	0.172	4.4	LOS A	0.8	21.1	0.21	0.09	0.21	34.1
8	T1	27	0.0	30	0.0	0.172	4.2	LOS A	0.8	21.1	0.21	0.09	0.21	34.1
18	R2	67	0.0	74	0.0	0.172	4.2	LOS A	0.8	21.1	0.21	0.09	0.21	33.2
Approach		195	2.1	217	2.1	0.172	4.3	LOS A	0.8	21.1	0.21	0.09	0.21	33.8
East: RoadName														
1	L2	135	0.0	150	0.0	0.210	5.0	LOS A	1.0	26.1	0.35	0.22	0.35	33.6
6	T1	84	0.0	93	0.0	0.210	5.0	LOS A	1.0	26.1	0.35	0.22	0.35	33.5
16	R2	1	0.0	1	0.0	0.210	5.0	LOS A	1.0	26.1	0.35	0.22	0.35	32.6
Approach		220	0.0	244	0.0	0.210	5.0	LOS A	1.0	26.1	0.35	0.22	0.35	33.6
North: RoadName														
7	L2	1	0.0	1	0.0	0.072	4.4	LOS A	0.3	7.5	0.45	0.33	0.45	35.7
4	T1	40	0.0	44	0.0	0.072	4.4	LOS A	0.3	7.5	0.45	0.33	0.45	35.5
14	R2	21	0.0	23	0.0	0.072	4.4	LOS A	0.3	7.5	0.45	0.33	0.45	34.5
Approach		62	0.0	69	0.0	0.072	4.4	LOS A	0.3	7.5	0.45	0.33	0.45	35.2
West: RoadName														
5	L2	17	0.0	19	0.0	0.268	5.7	LOS A	1.4	35.0	0.41	0.27	0.41	34.8
2	T1	42	0.0	47	0.0	0.268	5.7	LOS A	1.4	35.0	0.41	0.27	0.41	34.6
12	R2	214	0.0	238	0.0	0.268	5.7	LOS A	1.4	35.0	0.41	0.27	0.41	33.6
Approach		273	0.0	303	0.0	0.268	5.7	LOS A	1.4	35.0	0.41	0.27	0.41	33.9
All Vehicles		750	0.5	833	0.5	0.268	5.0	LOS A	1.4	35.0	0.34	0.21	0.34	33.9

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Geometric Delay is not included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Purple Sage Road / Can Ada Road PM (Site Folder: General)]

2045 Background
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] ft				
South: RoadName														
3	L2	281	1.3	312	1.3	0.499	8.6	LOS A	3.5	88.3	0.49	0.32	0.49	32.0
8	T1	75	0.0	83	0.0	0.499	8.6	LOS A	3.5	88.3	0.49	0.32	0.49	32.0
18	R2	168	0.0	187	0.0	0.499	8.6	LOS A	3.5	88.3	0.49	0.32	0.49	31.2
Approach		524	0.7	582	0.7	0.499	8.6	LOS A	3.5	88.3	0.49	0.32	0.49	31.7
East: RoadName														
1	L2	112	0.0	124	0.0	0.231	6.5	LOS A	1.1	26.5	0.55	0.49	0.55	32.9
6	T1	70	0.0	78	0.0	0.231	6.5	LOS A	1.1	26.5	0.55	0.49	0.55	32.8
16	R2	1	0.0	1	0.0	0.231	6.5	LOS A	1.1	26.5	0.55	0.49	0.55	31.9
Approach		183	0.0	203	0.0	0.231	6.5	LOS A	1.1	26.5	0.55	0.49	0.55	32.9
North: RoadName														
7	L2	1	0.0	1	0.0	0.077	5.2	LOS A	0.3	7.8	0.53	0.45	0.53	35.2
4	T1	31	0.0	34	0.0	0.077	5.2	LOS A	0.3	7.8	0.53	0.45	0.53	35.1
14	R2	24	0.0	27	0.0	0.077	5.2	LOS A	0.3	7.8	0.53	0.45	0.53	34.1
Approach		56	0.0	62	0.0	0.077	5.2	LOS A	0.3	7.8	0.53	0.45	0.53	34.7
West: RoadName														
5	L2	36	0.0	40	0.0	0.304	5.9	LOS A	1.7	41.7	0.38	0.24	0.38	34.5
2	T1	105	0.0	117	0.0	0.304	5.9	LOS A	1.7	41.7	0.38	0.24	0.38	34.4
12	R2	176	2.2	196	2.2	0.304	6.0	LOS A	1.7	41.7	0.38	0.24	0.38	33.3
Approach		317	1.2	352	1.2	0.304	6.0	LOS A	1.7	41.7	0.38	0.24	0.38	33.8
All Vehicles		1080	0.7	1200	0.7	0.499	7.3	LOS A	3.5	88.3	0.47	0.33	0.47	32.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Geometric Delay is not included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 111 [Beacon Light Road / Palmer Lane AM (Site Folder: General)]

2045 Background
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] ft				
South: RoadName														
3	L2	27	0.0	30	0.0	0.176	10.9	LOS B	0.6	16.1	0.72	0.72	0.72	31.0
18	R2	38	14.3	42	14.3	0.176	12.0	LOS B	0.6	16.1	0.72	0.72	0.72	29.8
Approach		65	8.4	72	8.4	0.176	11.5	LOS B	0.6	16.1	0.72	0.72	0.72	30.3
East: RoadName														
1	L2	24	0.0	27	0.0	0.204	4.3	LOS A	1.0	24.5	0.12	0.04	0.12	35.5
6	T1	484	0.0	538	0.0	0.204	4.3	LOS A	1.0	24.5	0.12	0.04	0.12	35.6
Approach		508	0.0	564	0.0	0.204	4.3	LOS A	1.0	24.5	0.12	0.04	0.12	35.6
West: RoadName														
2	T1	992	0.8	1102	0.8	0.408	6.5	LOS A	2.6	64.8	0.15	0.05	0.15	34.5
12	R2	19	0.0	21	0.0	0.408	6.4	LOS A	2.6	64.8	0.15	0.05	0.15	33.5
Approach		1011	0.8	1123	0.8	0.408	6.5	LOS A	2.6	64.8	0.15	0.05	0.15	34.5
All Vehicles		1584	0.8	1760	0.8	0.408	6.0	LOS A	2.6	64.8	0.17	0.07	0.17	34.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: Same as Sign Control.
 Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
 LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
 Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
 Roundabout Capacity Model: US HCM 6.
 Delay Model: HCM Delay Formula (Geometric Delay is not included).
 Queue Model: HCM Queue Formula.
 Gap-Acceptance Capacity: Traditional M1.
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 111 [Beacon Light Road / Palmer Lane PM (Site Folder: General)]

2045 Background
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist ft]				
South: RoadName														
3	L2	115	4.8	121	4.8	0.175	6.2	LOS A	0.7	19.0	0.54	0.48	0.54	32.3
18	R2	22	0.0	23	0.0	0.175	6.0	LOS A	0.7	19.0	0.54	0.48	0.54	31.5
Approach		137	4.0	144	4.0	0.175	6.2	LOS A	0.7	19.0	0.54	0.48	0.54	32.2
East: RoadName														
1	L2	5	0.0	5	0.0	0.547	9.0	LOS A	4.0	100.9	0.44	0.27	0.44	33.3
6	T1	1303	0.6	1372	0.6	0.547	9.0	LOS A	4.0	100.9	0.44	0.27	0.44	33.2
Approach		1308	0.6	1377	0.6	0.547	9.0	LOS A	4.0	100.9	0.44	0.27	0.44	33.2
West: RoadName														
2	T1	442	0.6	465	0.6	0.173	4.0	LOS A	0.8	20.0	0.04	0.01	0.04	35.9
12	R2	19	0.0	20	0.0	0.173	3.9	LOS A	0.8	20.0	0.04	0.01	0.04	34.7
Approach		461	0.6	485	0.6	0.173	4.0	LOS A	0.8	20.0	0.04	0.01	0.04	35.8
All Vehicles		1906	0.8	2006	0.8	0.547	7.6	LOS A	4.0	100.9	0.35	0.22	0.35	33.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: Same as Sign Control.
 Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
 LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
 Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
 Roundabout Capacity Model: US HCM 6.
 Delay Model: HCM Delay Formula (Geometric Delay is not included).
 Queue Model: HCM Queue Formula.
 Gap-Acceptance Capacity: Traditional M1.
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.



KITTELSON & ASSOCIATES, INC.
 610 SW Alder, Suite 700
 Portland, Oregon 97205
 (503) 228-5230

Analysis Traffic Volumes

Hour	Major Street		Minor Street			
	Begin	End	NB	SB	EB	WB
5:00 PM	6:00 PM		525	56	318	183
2nd Highest Hour			469	50	253	145
3rd Highest Hour			406	43	238	137
4th Highest Hour			401	43	211	121
5th Highest Hour			356	38	196	113
6th Highest Hour			350	37	181	104
7th Highest Hour			339	36	178	103
8th Highest Hour			310	33	166	96
9th Highest Hour			294	31	166	96
10th Highest Hour			282	30	163	94
11th Highest Hour			277	30	146	84
12th Highest Hour			277	30	140	80
13th Highest Hour			271	29	113	65
14th Highest Hour			226	24	110	63
15th Highest Hour			220	23	104	60
16th Highest Hour			158	17	101	58
17th Highest Hour			158	17	59	34
18th Highest Hour			107	11	59	34
19th Highest Hour			68	7	24	14
20th Highest Hour			56	6	18	10
21st Highest Hour			28	3	12	7
22nd Highest Hour			23	2	3	2
23rd Highest Hour			23	2	3	2
24th Highest Hour			17	2	3	2

Project #: 25407
Project Name: Willow Brook Golf Community
Analyst: CHF
Date: 10/14/2022
File: H:\25\25407 - Willow Brook Community
 TIS\analysis\Signal Warrants\SWA - 101 - 2045
 Total.xls\Data Input
Intersection: 1 - Can Ada Rd & Purple Sage Rd
Scenario: 2045 Total

Warrant Summary

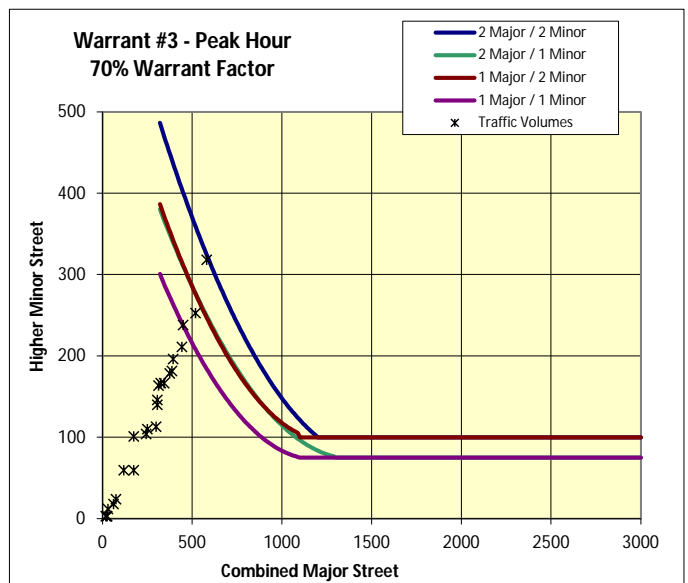
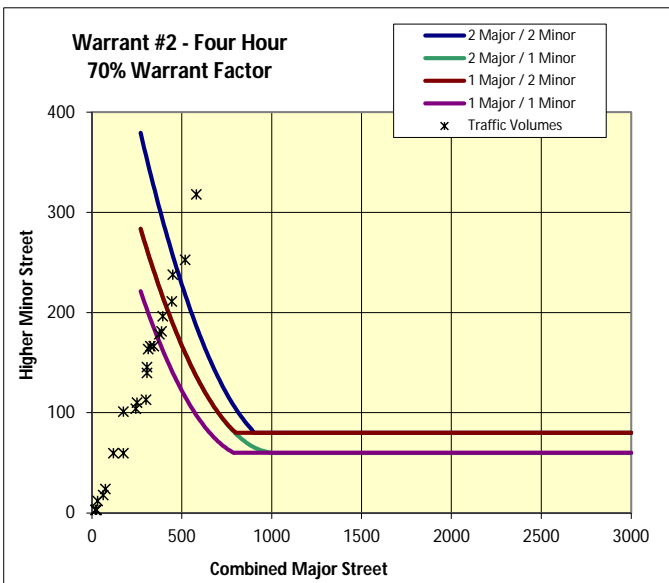
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	No
#2	Four-Hour Vehicular volume	Yes	Yes
#3	Peak Hour	Yes	Yes
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Major
East-West Approach =	Minor
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	Yes
Population < 10,000?	No
Warrant Factor	70%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	76%
Major Street: 8th-Highest Hour / Peak Hour	59%
Minor Street: 4th-Highest Hour / Peak Hour	66%
Minor Street: 8th-Highest Hour / Peak Hour	52%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	2	No	No
	B	750	75	0	No	No
80%	A	400	120	4	No	No
	B	600	60	0	No	No
70%	A	350	105	7	No	No
	B	525	53	1	No	No
56%	A	280	84	13	Yes	Yes
	B	420	42	4	No	No





KITTELSON & ASSOCIATES, INC.
 610 SW Alder, Suite 700
 Portland, Oregon 97205
 (503) 228-5230

Project #: 25407
Project Name: Willow Brook Golf Community
Analyst: CHF
Date: 1/13/2023
File: H:\25\25407 - Willow Brook Community
 TIS\analysis\Signal Warrants\[SWA - 104 - 2045
 Total.xls\Data Input
Intersection: 4 - Deep Canyon Drive / SH 16
Scenario: 2045 Total Traffic Conditions

Analysis Traffic Volumes

Hour	Major Street		Minor Street			
	Begin	End	NB	SB	EB	WB
7:00 AM	8:00 AM		510	1062	260	0
2nd Highest Hour			510	1062	207	0
3rd Highest Hour			461	960	194	0
4th Highest Hour			442	921	173	0
5th Highest Hour			393	819	160	0
6th Highest Hour			381	793	148	0
7th Highest Hour			363	755	146	0
8th Highest Hour			350	729	136	0
9th Highest Hour			332	691	136	0
10th Highest Hour			326	678	134	0
11th Highest Hour			313	653	119	0
12th Highest Hour			307	640	114	0
13th Highest Hour			295	614	92	0
14th Highest Hour			264	550	90	0
15th Highest Hour			209	435	85	0
16th Highest Hour			184	384	83	0
17th Highest Hour			141	294	49	0
18th Highest Hour			117	243	49	0
19th Highest Hour			98	205	19	0
20th Highest Hour			55	115	15	0
21st Highest Hour			37	77	10	0
22nd Highest Hour			31	64	2	0
23rd Highest Hour			18	38	2	0
24th Highest Hour			18	38	2	0

Warrant Summary

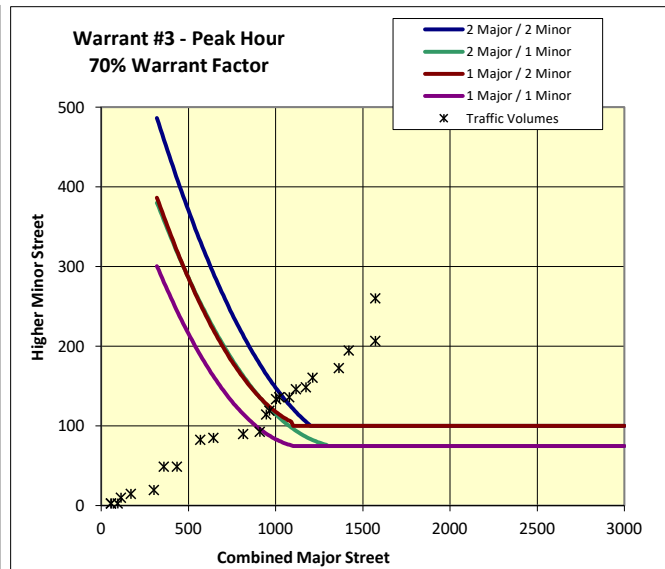
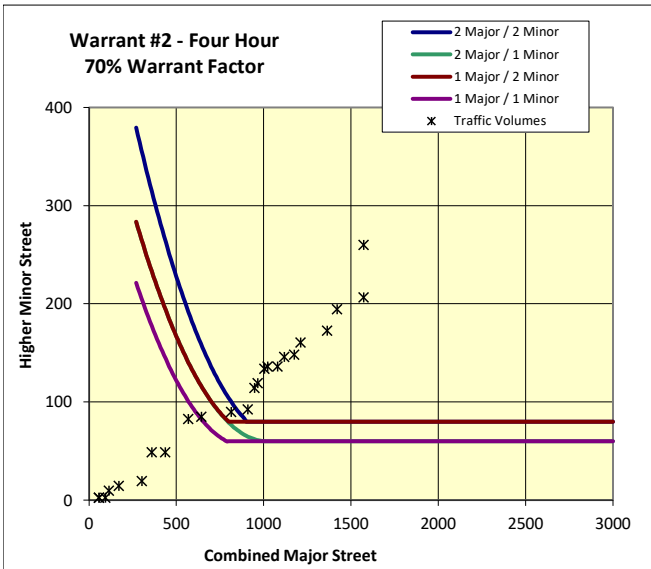
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	Yes
#2	Four-Hour Vehicular volume	Yes	Yes
#3	Peak Hour	Yes	Yes
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Major
East-West Approach =	Minor
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	Yes
Population < 10,000?	No
Warrant Factor	70%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	87%
Major Street: 8th-Highest Hour / Peak Hour	69%
Minor Street: 4th-Highest Hour / Peak Hour	66%
Minor Street: 8th-Highest Hour / Peak Hour	52%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	5	No	Yes
	B	750	75	14	Yes	Yes
80%	A	400	120	11	Yes	Yes
	B	600	60	15	Yes	Yes
70%	A	350	105	12	Yes	Yes
	B	525	53	16	Yes	Yes
56%	A	280	84	15	Yes	Yes
	B	420	42	17	Yes	Yes





KITTELSON & ASSOCIATES, INC.
 610 SW Alder, Suite 700
 Portland, Oregon 97205
 (503) 228-5230

Project #: 25407
Project Name: Willow Brook Golf Community
Analyst: CHF
Date: 10/14/2022
File: H:\25\25407 - Willow Brook Community
 TIS\analysis\Signal Warrants\SWA - 105 - 2045
 Total.xls\Data Input
Intersection: 5 - Can Ada Rd & Lanktree Gulch Rd
Scenario: 2045 Total

Analysis Traffic Volumes

Hour	Major Street		Minor Street			
	Begin	End	NB	SB	EB	WB
5:00 PM	6:00 PM		684	314	0	155
2nd Highest Hour			610	280	0	123
3rd Highest Hour			530	243	0	116
4th Highest Hour			522	240	0	103
5th Highest Hour			463	213	0	96
6th Highest Hour			456	209	0	88
7th Highest Hour			441	203	0	87
8th Highest Hour			405	186	0	81
9th Highest Hour			382	176	0	81
10th Highest Hour			368	169	0	80
11th Highest Hour			360	165	0	71
12th Highest Hour			360	165	0	68
13th Highest Hour			353	162	0	55
14th Highest Hour			294	135	0	54
15th Highest Hour			287	132	0	51
16th Highest Hour			206	95	0	49
17th Highest Hour			206	95	0	29
18th Highest Hour			140	64	0	29
19th Highest Hour			88	41	0	12
20th Highest Hour			74	34	0	9
21st Highest Hour			37	17	0	6
22nd Highest Hour			29	14	0	1
23rd Highest Hour			29	14	0	1
24th Highest Hour			22	10	0	1

Warrant Summary

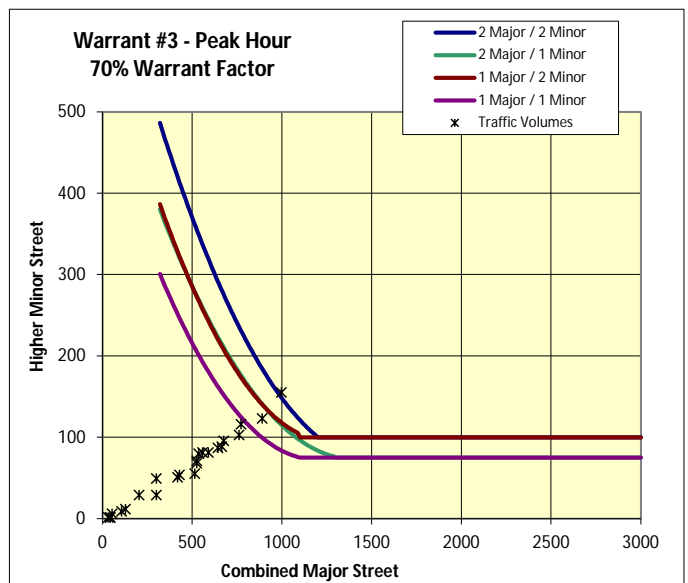
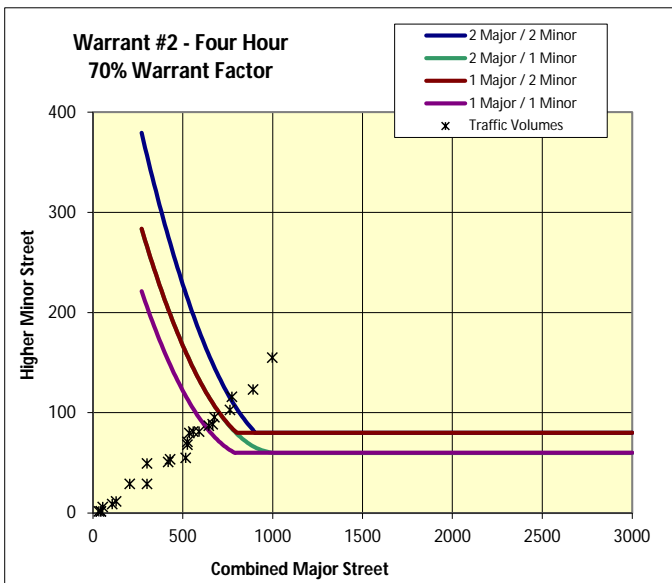
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	Yes
#2	Four-Hour Vehicular volume	Yes	Yes
#3	Peak Hour	Yes	Yes
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Major
East-West Approach =	Minor
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	Yes
Population < 10,000?	No
Warrant Factor	70%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	76%
Major Street: 8th-Highest Hour / Peak Hour	59%
Minor Street: 4th-Highest Hour / Peak Hour	66%
Minor Street: 8th-Highest Hour / Peak Hour	52%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	1	No	No
	B	750	75	4	No	No
80%	A	400	120	2	No	No
	B	600	60	7	No	No
70%	A	350	105	3	No	Yes
	B	525	53	12	Yes	Yes
56%	A	280	84	7	No	Yes
	B	420	42	14	Yes	Yes





KITTELSON & ASSOCIATES, INC.
 610 SW Alder, Suite 700
 Portland, Oregon 97205
 (503) 228-5230

Project #: 25407
Project Name: Willow Brook Golf Community
Analyst: CHF
Date: 10/14/2022
File: H:\25\25407 - Willow Brook Community
 TIS\analysis\Signal Warrants\SWA - 107 - 2045
 Total.xls\Data Input
Intersection: 7 - Can Ada Rd & New Hope Rd
Scenario: 2045 Total

Analysis Traffic Volumes

Hour	Major Street		Minor Street			
	Begin	End	NB	SB	EB	WB
5:00 PM	6:00 PM		440	412	61	240
2nd Highest Hour			435	407	60	237
3rd Highest Hour			396	370	55	216
4th Highest Hour			356	333	49	194
5th Highest Hour			297	278	41	162
6th Highest Hour			292	273	40	159
7th Highest Hour			277	259	38	151
8th Highest Hour			247	231	34	135
9th Highest Hour			242	227	34	132
10th Highest Hour			237	222	33	129
11th Highest Hour			227	213	32	124
12th Highest Hour			222	208	31	121
13th Highest Hour			218	204	30	119
14th Highest Hour			218	204	30	119
15th Highest Hour			178	167	25	97
16th Highest Hour			153	144	21	84
17th Highest Hour			129	120	18	70
18th Highest Hour			99	93	14	54
19th Highest Hour			89	83	12	49
20th Highest Hour			59	56	8	32
21st Highest Hour			30	28	4	16
22nd Highest Hour			25	23	3	13
23rd Highest Hour			15	14	2	8
24th Highest Hour			15	14	2	8

Warrant Summary

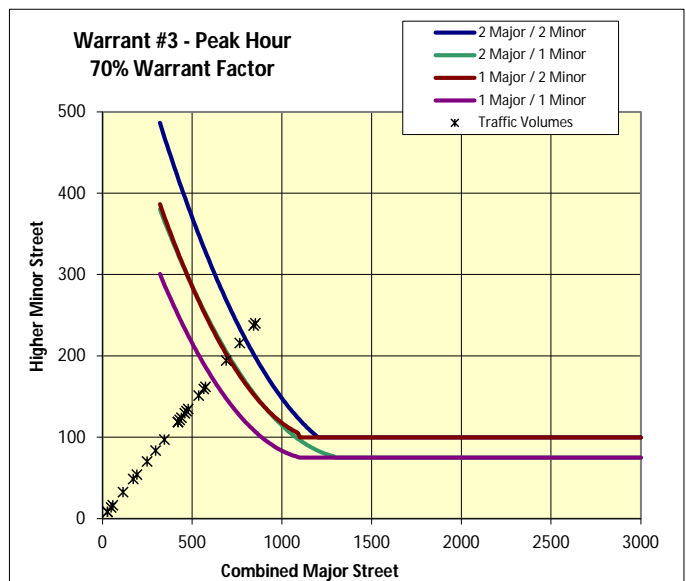
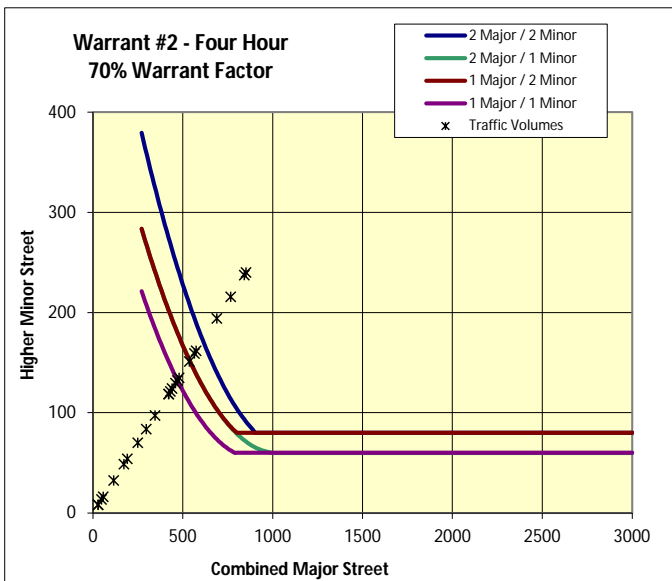
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	Yes
#2	Four-Hour Vehicular volume	Yes	Yes
#3	Peak Hour	Yes	Yes
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Major
East-West Approach =	Minor
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	Yes
Population < 10,000?	No
Warrant Factor	70%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	81%
Major Street: 8th-Highest Hour / Peak Hour	56%
Minor Street: 4th-Highest Hour / Peak Hour	81%
Minor Street: 8th-Highest Hour / Peak Hour	56%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	7	No	No
	B	750	75	3	No	No
80%	A	400	120	12	Yes	Yes
	B	600	60	4	No	No
70%	A	350	105	14	Yes	Yes
	B	525	53	7	No	No
56%	A	280	84	16	Yes	Yes
	B	420	42	14	Yes	Yes





KITTELSON & ASSOCIATES, INC.
 610 SW Alder, Suite 700
 Portland, Oregon 97205
 (503) 228-5230

Project #: 25407
Project Name: Willow Brook Golf Community
Analyst: CHF
Date: 10/14/2022
File: H:\25\25407 - Willow Brook Community
 TIS\analysis\Signal Warrants\SWA - 115 - 2045
 Total.xls\Warrant Summary(70%)
Intersection: 15 - Floating Feather Rd & Pollard Rd
Scenario: 2045 Total

Analysis Traffic Volumes

Hour	Begin	End	Major Street		Minor Street	
			EB	WB	NB	SB
5:00 PM	6:00 PM		0	289	327	353
2nd Highest Hour			0	286	292	315
3rd Highest Hour			0	260	253	273
4th Highest Hour			0	234	250	269
5th Highest Hour			0	195	222	239
6th Highest Hour			0	192	218	235
7th Highest Hour			0	182	211	228
8th Highest Hour			0	162	193	209
9th Highest Hour			0	159	183	197
10th Highest Hour			0	156	176	190
11th Highest Hour			0	149	172	186
12th Highest Hour			0	146	172	186
13th Highest Hour			0	143	169	182
14th Highest Hour			0	143	141	152
15th Highest Hour			0	117	137	148
16th Highest Hour			0	101	98	106
17th Highest Hour			0	84	98	106
18th Highest Hour			0	65	67	72
19th Highest Hour			0	58	42	46
20th Highest Hour			0	39	35	38
21st Highest Hour			0	19	18	19
22nd Highest Hour			0	16	14	15
23rd Highest Hour			0	10	14	15
24th Highest Hour			0	10	11	11

Warrant Summary

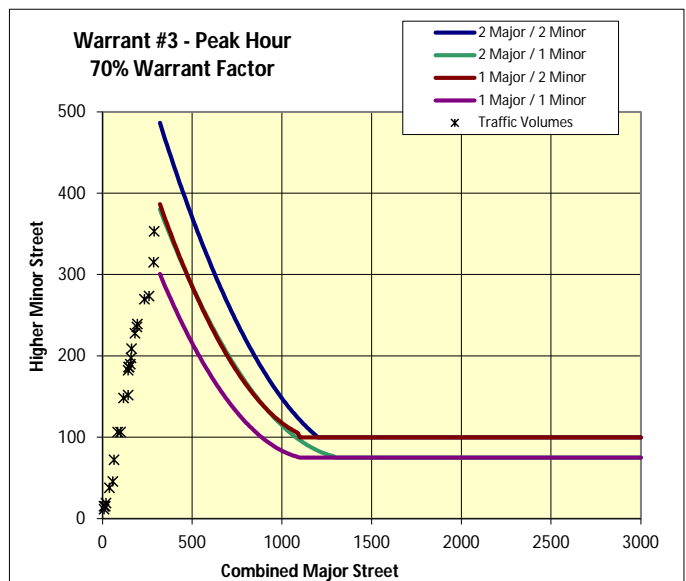
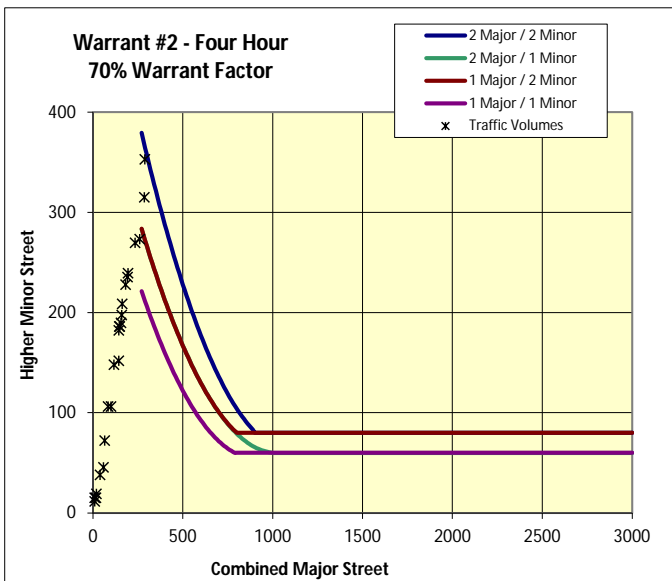
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	No
#2	Four-Hour Vehicular volume	Yes	Yes
#3	Peak Hour	Yes	Yes
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Minor
East-West Approach =	Major
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	Yes
Population < 10,000?	No
Warrant Factor	70%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	81%
Major Street: 8th-Highest Hour / Peak Hour	56%
Minor Street: 4th-Highest Hour / Peak Hour	76%
Minor Street: 8th-Highest Hour / Peak Hour	59%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	0	No	No
	B	750	75	0	No	No
80%	A	400	120	0	No	No
	B	600	60	0	No	No
70%	A	350	105	0	No	No
	B	525	53	0	No	No
56%	A	280	84	2	No	No
	B	420	42	0	No	No





Appendix U
Year 2045 Total Traffic (with
Select Roadway
Improvements) Operation
Worksheets

Intersection												
Int Delay, s/veh	12.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	18	44	214	105	89	1	101	23	52	1	33	22
Future Vol, veh/h	18	44	214	105	89	1	101	23	52	1	33	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	4	0	0	0	0	0
Mvmt Flow	20	49	238	117	99	1	112	26	58	1	37	24

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	380	359	49	474	342	55	61	0	0	84	0	0
Stage 1	51	51	-	279	279	-	-	-	-	-	-	-
Stage 2	329	308	-	195	63	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.14	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.236	-	-	2.2	-	-
Pot Cap-1 Maneuver	581	571	1025	504	583	1018	1530	-	-	1526	-	-
Stage 1	967	856	-	732	683	-	-	-	-	-	-	-
Stage 2	688	664	-	811	846	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	469	526	1025	339	538	1018	1530	-	-	1526	-	-
Mov Cap-2 Maneuver	469	526	-	339	538	-	-	-	-	-	-	-
Stage 1	893	855	-	676	630	-	-	-	-	-	-	-
Stage 2	535	613	-	587	845	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	11.8		23.2		4.3		0.1	
HCM LOS	B		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1530	-	-	834	410	1526	-
HCM Lane V/C Ratio	0.073	-	-	0.368	0.528	0.001	-
HCM Control Delay (s)	7.5	0	-	11.8	23.2	7.4	0
HCM Lane LOS	A	A	-	B	C	A	A
HCM 95th %tile Q(veh)	0.2	-	-	1.7	3	0	-

Intersection												
Int Delay, s/veh	7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	18	34	1	39	15	1	1	28	77	1	14	8
Future Vol, veh/h	18	34	1	39	15	1	1	28	77	1	14	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	20	38	1	43	17	1	1	31	86	1	16	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	18	0	0	39	0	0	195	183	39	241	183	18
Stage 1	-	-	-	-	-	-	79	79	-	104	104	-
Stage 2	-	-	-	-	-	-	116	104	-	137	79	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1612	-	-	1584	-	-	769	715	1038	717	715	1066
Stage 1	-	-	-	-	-	-	935	833	-	907	813	-
Stage 2	-	-	-	-	-	-	894	813	-	871	833	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1612	-	-	1584	-	-	727	686	1038	616	686	1066
Mov Cap-2 Maneuver	-	-	-	-	-	-	727	686	-	616	686	-
Stage 1	-	-	-	-	-	-	923	822	-	895	791	-
Stage 2	-	-	-	-	-	-	846	791	-	759	822	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.5	5.2	9.5	9.8
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	911	1612	-	-	1584	-	-	779
HCM Lane V/C Ratio	0.129	0.012	-	-	0.027	-	-	0.033
HCM Control Delay (s)	9.5	7.3	0	-	7.3	0	-	9.8
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.4	0	-	-	0.1	-	-	0.1

MOVEMENT SUMMARY

Site: 1031 [Aerie Way / SH 16 (W) TT AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

2045 Total Traffic (With Select Roadway Improvements)

Site Category: (None)

Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV]		Arrival Flows [Total HV]		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue [Veh. Dist]		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			veh/h	%	veh/h	%	v/c	sec			ft				mph
South: RoadName															
3	L2	All MCs	2	4.0	2	4.0	0.074	3.2	LOS A	0.3	7.2	0.06	0.01	0.06	34.1
8	T1	All MCs	1	0.0	1	0.0	0.074	3.0	LOS A	0.3	7.2	0.06	0.01	0.06	35.0
18	R2	All MCs	101	0.0	101	0.0	0.074	3.0	LOS A	0.3	7.2	0.06	0.01	0.06	34.7
Approach			104	0.1	104	0.1	0.074	3.0	LOS A	0.3	7.2	0.06	0.01	0.06	34.7
East: RoadName															
1	L2	All MCs	553	0.0	553	0.0	0.209	3.8	LOS A	1.0	24.4	0.04	0.01	0.04	31.5
6	T1	All MCs	22	0.0	22	0.0	0.209	3.7	LOS A	0.9	23.7	0.04	0.00	0.04	32.2
16	R2	All MCs	1	0.0	1	0.0	0.209	3.7	LOS A	0.9	23.7	0.04	0.00	0.04	31.9
Approach			577	0.0	577	0.0	0.209	3.8	LOS A	1.0	24.4	0.04	0.01	0.04	31.5
North: RoadName															
7	L2	All MCs	1	0.0	1	0.0	0.004	4.2	LOS A	0.0	0.3	0.47	0.30	0.47	32.9
4	T1	All MCs	1	0.0	1	0.0	0.004	4.2	LOS A	0.0	0.3	0.47	0.30	0.47	33.5
14	R2	All MCs	1	0.0	1	0.0	0.004	4.2	LOS A	0.0	0.3	0.47	0.30	0.47	33.2
Approach			3	0.0	3	0.0	0.004	4.2	LOS A	0.0	0.3	0.47	0.30	0.47	33.2
West: RoadName															
5	L2	All MCs	1	0.0	1	0.0	0.063	4.6	LOS A	0.2	5.6	0.48	0.39	0.48	33.4
2	T1	All MCs	9	0.0	9	0.0	0.063	4.6	LOS A	0.2	5.6	0.48	0.39	0.48	34.1
12	R2	All MCs	46	0.0	46	0.0	0.063	4.6	LOS A	0.2	5.6	0.48	0.39	0.48	33.8
Approach			56	0.0	56	0.0	0.063	4.6	LOS A	0.2	5.6	0.48	0.39	0.48	33.9
All Vehicles			740	0.0	740	0.0	0.209	3.7	LOS A	1.0	24.4	0.08	0.04	0.08	32.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SIDRA INTERSECTION 9.1 | Copyright © 2000-2022 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: KITTELSON AND ASSOCIATES INC | Licence: NETWORK / Enterprise Level 3 | Processed: Thursday, January 12, 2023 11:15:20 AM

Project: H:\25\25407 - Willow Brook Community TIS\Traffic Operations\Mitigations\Sidra\103.sip9

MOVEMENT SUMMARY

Site: 1032 [Aerie Way / SH 16 (E) TT AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

2045 Total Traffic (With Select Roadway Improvements)

Site Category: (None)

Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.]	[Dist]				mph
South: RoadName															
3	L2	All MCs	21	4.0	21	4.0	0.017	3.0	LOSA	0.1	1.6	0.21	0.08	0.21	31.6
18	R2	All MCs	657	0.0	657	0.0	0.392	0.1	LOSA	0.0	0.0	0.00	0.00	0.00	36.6
Approach			678	0.1	678	0.1	0.392	0.2	LOSA	0.1	1.6	0.01	0.00	0.01	36.4
East: RoadName															
1	L2	All MCs	62	0.0	62	0.0	0.222	4.1	LOSA	1.1	27.2	0.10	0.03	0.10	33.3
6	T1	All MCs	554	0.0	554	0.0	0.222	4.1	LOSA	1.1	27.2	0.10	0.03	0.10	34.3
Approach			617	0.0	617	0.0	0.222	4.1	LOSA	1.1	27.2	0.10	0.03	0.10	34.2
West: RoadName															
2	T1	All MCs	104	0.0	104	0.0	0.085	3.4	LOSA	0.4	9.6	0.18	0.07	0.18	34.9
12	R2	All MCs	6	0.0	6	0.0	0.085	3.4	LOSA	0.4	9.6	0.18	0.07	0.18	34.6
Approach			110	0.0	110	0.0	0.085	3.4	LOSA	0.4	9.6	0.18	0.07	0.18	34.9
All Vehicles			1404	0.1	1404	0.1	0.392	2.2	LOSA	1.1	27.2	0.06	0.02	0.06	35.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stoptline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SIDRA INTERSECTION 9.1 | Copyright © 2000-2022 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: KITTELSON AND ASSOCIATES INC | Licence: NETWORK / Enterprise Level 3 | Processed: Thursday, January 12, 2023

11:15:23 AM

Project: H:\25\25407 - Willow Brook Community TIS\Traffic Operations\Mitigations\Sidra\103.sip9

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗		↕
Traffic Vol, veh/h	0	61	500	610	0	1607
Future Vol, veh/h	0	61	500	610	0	1607
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	-	0	-	505	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	68	556	678	0	1786

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	278	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-
Pot Cap-1 Maneuver	0	719	-	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %					
Mov Cap-1 Maneuver	-	719	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	719
HCM Lane V/C Ratio	-	-	0.094
HCM Control Delay (s)	-	-	10.5
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.3

Intersection						
Int Delay, s/veh	7.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	7	149	71	412	1096	4
Future Vol, veh/h	7	149	71	412	1096	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	3	3	100
Mvmt Flow	8	166	79	458	1218	4

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1836	1220	1222	0	-	0
Stage 1	1220	-	-	-	-	-
Stage 2	616	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	84	222	578	-	-	-
Stage 1	282	-	-	-	-	-
Stage 2	543	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	69	222	578	-	-	-
Mov Cap-2 Maneuver	69	-	-	-	-	-
Stage 1	230	-	-	-	-	-
Stage 2	543	-	-	-	-	-




Approach	EB	NB	SB
HCM Control Delay, s	79.8	1.8	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	578	-	202	-	-
HCM Lane V/C Ratio	0.136	-	0.858	-	-
HCM Control Delay (s)	12.2	0	79.8	-	-
HCM Lane LOS	B	A	F	-	-
HCM 95th %tile Q(veh)	0.5	-	6.5	-	-

Intersection

Int Delay, s/veh 1.6

Movement WBL WBR NBT NBR SBL SBT

Lane Configurations						
Traffic Vol, veh/h	45	23	162	27	12	338
Future Vol, veh/h	45	23	162	27	12	338
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	1	6	0	0
Mvmt Flow	50	26	180	30	13	376

Major/Minor Minor1 Major1 Major2

Conflicting Flow All	597	195	0	0	210	0
Stage 1	195	-	-	-	-	-
Stage 2	402	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	469	851	-	-	1373	-
Stage 1	843	-	-	-	-	-
Stage 2	680	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	463	851	-	-	1373	-
Mov Cap-2 Maneuver	463	-	-	-	-	-
Stage 1	843	-	-	-	-	-
Stage 2	672	-	-	-	-	-

Approach WB NB SB

HCM Control Delay, s	12.6	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt NBT NBRWBLn1 SBL SBT

Capacity (veh/h)	-	-	547	1373	-
HCM Lane V/C Ratio	-	-	0.138	0.01	-
HCM Control Delay (s)	-	-	12.6	7.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0	-

Intersection						
Int Delay, s/veh	3.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	28	77	38	29	39	23
Future Vol, veh/h	28	77	38	29	39	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	31	86	42	32	43	26

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	117	0
Stage 1	-	-	-	74
Stage 2	-	-	-	116
Critical Hdwy	-	-	4.1	-
Critical Hdwy Stg 1	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	5.4
Follow-up Hdwy	-	-	2.2	-
Pot Cap-1 Maneuver	-	-	1484	-
Stage 1	-	-	-	954
Stage 2	-	-	-	914
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1484	-
Mov Cap-2 Maneuver	-	-	-	781
Stage 1	-	-	-	954
Stage 2	-	-	-	887

Approach	EB	WB	NB
HCM Control Delay, s	0	4.3	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	848	-	-	1484	-
HCM Lane V/C Ratio	0.081	-	-	0.028	-
HCM Control Delay (s)	9.6	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

HCM 6th AWSC
107: Can Ada Road & New Hope Road

2045 Total Traffic Conditions (With Improvements) AM Peak Hour

01/13/2023

Intersection	
Intersection Delay, s/veh	12.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	16	58	13	56	16	6	7	144	54	105	298	29
Future Vol, veh/h	16	58	13	56	16	6	7	144	54	105	298	29
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	0	4	0	46	20	0	23	0	0	0	0	0
Mvmt Flow	17	61	14	59	17	6	7	152	57	111	314	31
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.7	10.8	10.7	14.5
HCM LOS	A	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	18%	72%	24%
Vol Thru, %	70%	67%	21%	69%
Vol Right, %	26%	15%	8%	7%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	205	87	78	432
LT Vol	7	16	56	105
Through Vol	144	58	16	298
RT Vol	54	13	6	29
Lane Flow Rate	216	92	82	455
Geometry Grp	1	1	1	1
Degree of Util (X)	0.317	0.145	0.151	0.593
Departure Headway (Hd)	5.29	5.699	6.638	4.694
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	684	632	543	759
Service Time	3.29	3.713	4.653	2.785
HCM Lane V/C Ratio	0.316	0.146	0.151	0.599
HCM Control Delay	10.7	9.7	10.8	14.5
HCM Lane LOS	B	A	B	B
HCM 95th-tile Q	1.4	0.5	0.5	4

Intersection						
Int Delay, s/veh	5.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	52	268	107	56	118	95
Future Vol, veh/h	52	268	107	56	118	95
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	3	8	0	3	0
Mvmt Flow	58	298	119	62	131	106

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	181	0	-	0	564
Stage 1	-	-	-	-	150
Stage 2	-	-	-	-	414
Critical Hdwy	4.1	-	-	-	6.43
Critical Hdwy Stg 1	-	-	-	-	5.43
Critical Hdwy Stg 2	-	-	-	-	5.43
Follow-up Hdwy	2.2	-	-	-	3.527
Pot Cap-1 Maneuver	1407	-	-	-	485
Stage 1	-	-	-	-	875
Stage 2	-	-	-	-	665
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1407	-	-	-	465
Mov Cap-2 Maneuver	-	-	-	-	465
Stage 1	-	-	-	-	839
Stage 2	-	-	-	-	665

Approach	EB	WB	SB
HCM Control Delay, s	1.2	0	15
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1407	-	-	-	593
HCM Lane V/C Ratio	0.041	-	-	-	0.399
HCM Control Delay (s)	7.7	-	-	-	15
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	1.9

Intersection												
Int Delay, s/veh	17.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Vol, veh/h	3	432	11	40	148	78	11	48	140	113	39	26
Future Vol, veh/h	3	432	11	40	148	78	11	48	140	113	39	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	3	0	7	8	0	0	0	3	0	0	0
Mvmt Flow	3	480	12	44	164	87	12	53	156	126	43	29

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	251	0	0	492	0	0	824	831	486	849	750	164
Stage 1	-	-	-	-	-	-	492	492	-	252	252	-
Stage 2	-	-	-	-	-	-	332	339	-	597	498	-
Critical Hdwy	4.1	-	-	4.17	-	-	7.1	6.5	6.23	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.263	-	-	3.5	4	3.327	3.5	4	3.3
Pot Cap-1 Maneuver	1326	-	-	1046	-	-	294	307	579	283	342	886
Stage 1	-	-	-	-	-	-	562	551	-	757	702	-
Stage 2	-	-	-	-	-	-	686	643	-	493	548	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1326	-	-	1046	-	-	245	291	579	171	324	886
Mov Cap-2 Maneuver	-	-	-	-	-	-	245	291	-	171	324	-
Stage 1	-	-	-	-	-	-	560	549	-	755	668	-
Stage 2	-	-	-	-	-	-	590	611	-	325	546	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			1.3			21.1			83.1		
HCM LOS							C			F		

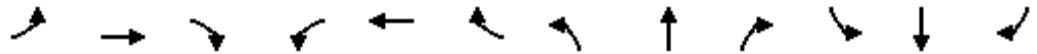
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	441	1326	-	-	1046	-	-	220
HCM Lane V/C Ratio	0.501	0.003	-	-	0.042	-	-	0.899
HCM Control Delay (s)	21.1	7.7	0	-	8.6	0	-	83.1
HCM Lane LOS	C	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	2.7	0	-	-	0.1	-	-	7.3

Queues

2045 Total Traffic Conditions (With Improvements) AM Peak Hour

110: SH 16 & Beacon Light Road

01/13/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	23	289	277	149	101	119	98	439	200	293	1082	7
v/c Ratio	0.09	1.01	0.64	1.10	0.36	0.25	0.93	0.51	0.24	0.59	1.14	0.01
Control Delay	43.7	117.9	20.2	152.8	57.5	1.2	103.3	30.4	3.1	16.9	109.8	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.7	117.9	20.2	152.8	57.5	1.2	103.3	30.4	3.1	16.9	109.8	0.0
Queue Length 50th (ft)	17	~292	45	~139	89	0	46	294	0	118	~1235	0
Queue Length 95th (ft)	43	#488	147	#259	153	0	#174	415	40	168	#1499	0
Internal Link Dist (ft)		2558			3836			5106			1084	
Turn Bay Length (ft)	100		100	100		100	100		100	100		100
Base Capacity (vph)	256	285	433	135	282	483	105	857	839	527	946	902
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	1.01	0.64	1.10	0.36	0.25	0.93	0.51	0.24	0.56	1.14	0.01

Intersection Summary

























~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis Traffic Conditions (With Improvements) AM Peak Hour
 110: SH 16 & Beacon Light Road 01/13/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	260	249	134	91	107	88	395	180	264	974	6
Future Volume (vph)	21	260	249	134	91	107	88	395	180	264	974	6
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0	9.0	9.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1710	1782	1530	1644	1374	1485	1710	1800	1530	1693	1731	1530
Flt Permitted	0.69	1.00	1.00	0.18	1.00	1.00	0.06	1.00	1.00	0.34	1.00	1.00
Satd. Flow (perm)	1245	1782	1530	318	1374	1485	101	1800	1530	610	1731	1530
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	23	289	277	149	101	119	98	439	200	293	1082	7
RTOR Reduction (vph)	0	0	186	0	0	95	0	0	106	0	0	3
Lane Group Flow (vph)	23	289	91	149	101	24	98	439	94	293	1082	4
Heavy Vehicles (%)	0%	1%	0%	4%	31%	3%	0%	0%	0%	1%	4%	0%
Turn Type	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Prot
Protected Phases	1	6	6	5	2	2	3	8	8	7	4	4
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	29.8	26.8	26.8	37.8	30.8	30.8	76.5	71.5	71.5	96.0	82.0	82.0
Effective Green, g (s)	29.8	26.8	26.8	37.8	30.8	30.8	76.5	71.5	71.5	96.0	82.0	82.0
Actuated g/C Ratio	0.20	0.18	0.18	0.25	0.20	0.20	0.50	0.47	0.47	0.63	0.54	0.54
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0	9.0	9.0
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	5.0	5.0	2.0	5.0	5.0
Lane Grp Cap (vph)	251	312	268	139	276	299	103	842	715	493	928	821
v/s Ratio Prot	0.00	0.16	0.06	c0.05	0.07	0.02	0.03	0.24	0.06	c0.06	c0.63	0.00
v/s Ratio Perm	0.02			c0.22			0.45			0.31		
v/c Ratio	0.09	0.93	0.34	1.07	0.37	0.08	0.95	0.52	0.13	0.59	1.17	0.00
Uniform Delay, d1	50.2	62.0	55.3	55.6	52.6	49.5	36.0	28.6	23.0	16.1	35.4	16.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	32.1	0.8	96.9	0.8	0.1	72.3	1.1	0.2	1.3	86.4	0.0
Delay (s)	50.2	94.1	56.0	152.4	53.4	49.6	108.3	29.7	23.2	17.4	121.8	16.4
Level of Service	D	F	E	F	D	D	F	C	C	B	F	B
Approach Delay (s)		74.5			92.2			38.4			99.2	
Approach LOS		E			F			D			F	
Intersection Summary												
HCM 2000 Control Delay			79.1									HCM 2000 Level of Service E
HCM 2000 Volume to Capacity ratio			1.18									
Actuated Cycle Length (s)			152.8						32.0			
Intersection Capacity Utilization			108.2%									ICU Level of Service G
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Total Traffic Conditions (With Improvements) AM Peak Hour
 110: SH 16 & Beacon Light Road 01/13/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	260	249	134	91	107	88	395	180	264	974	6
Future Volume (veh/h)	21	260	249	134	91	107	88	395	180	264	974	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1786	1800	1744	1365	1758	1800	1800	1800	1786	1744	1800
Adj Flow Rate, veh/h	23	289	277	149	101	119	98	439	200	293	1082	7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	1	0	4	31	3	0	0	0	1	4	0
Cap, veh/h	226	286	244	126	254	277	105	865	733	466	953	834
Arrive On Green	0.02	0.16	0.16	0.05	0.19	0.19	0.03	0.48	0.48	0.10	0.55	0.55
Sat Flow, veh/h	1714	1786	1525	1661	1365	1490	1714	1800	1525	1701	1744	1525
Grp Volume(v), veh/h	23	289	277	149	101	119	98	439	200	293	1082	7
Grp Sat Flow(s),veh/h/ln	1714	1786	1525	1661	1365	1490	1714	1800	1525	1701	1744	1525
Q Serve(g_s), s	1.7	24.0	24.0	7.0	9.8	10.6	4.4	25.1	11.8	12.7	82.0	0.3
Cycle Q Clear(g_c), s	1.7	24.0	24.0	7.0	9.8	10.6	4.4	25.1	11.8	12.7	82.0	0.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	226	286	244	126	254	277	105	865	733	466	953	834
V/C Ratio(X)	0.10	1.01	1.13	1.19	0.40	0.43	0.93	0.51	0.27	0.63	1.14	0.01
Avail Cap(c_a), veh/h	248	286	244	126	254	277	105	865	733	513	953	834
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.2	63.0	63.0	58.0	53.7	54.0	36.1	26.7	23.3	18.9	34.0	15.5
Incr Delay (d2), s/veh	0.1	56.2	98.8	139.3	1.0	1.1	65.4	1.0	0.4	1.4	73.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	15.4	16.0	6.5	3.5	4.1	3.7	11.1	4.4	5.1	53.2	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.2	119.2	161.8	197.3	54.7	55.0	101.6	27.8	23.7	20.2	107.8	15.5
LnGrp LOS	D	F	F	F	D	E	F	C	C	C	F	B
Approach Vol, veh/h		589			369			737			1382	
Approach Delay, s/veh		136.6			112.4			36.5			88.8	
Approach LOS		F			F			D			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.1	34.9	14.0	91.0	14.0	31.0	23.9	81.1				
Change Period (Y+Rc), s	7.0	7.0	9.0	9.0	7.0	7.0	9.0	9.0				
Max Green Setting (Gmax), s	5.0	26.0	5.0	82.0	7.0	24.0	19.0	68.0				
Max Q Clear Time (g_c+I1), s	3.7	12.6	6.4	84.0	9.0	26.0	14.7	27.1				
Green Ext Time (p_c), s	0.0	0.7	0.0	0.0	0.0	0.0	0.2	8.3				
Intersection Summary												
HCM 6th Ctrl Delay				88.2								
HCM 6th LOS				F								

Intersection						
Int Delay, s/veh	2.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	992	19	24	484	27	38
Future Vol, veh/h	992	19	24	484	27	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	0	0	0	0	14
Mvmt Flow	1102	21	27	538	30	42

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	1123	0	1705 1113
Stage 1	-	-	-	-	1113 -
Stage 2	-	-	-	-	592 -
Critical Hdwy	-	-	4.1	-	6.4 6.34
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	-	-	2.2	-	3.5 3.426
Pot Cap-1 Maneuver	-	-	629	-	102 240
Stage 1	-	-	-	-	317 -
Stage 2	-	-	-	-	557 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	629	-	96 240
Mov Cap-2 Maneuver	-	-	-	-	96 -
Stage 1	-	-	-	-	317 -
Stage 2	-	-	-	-	523 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	50.6
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	148	-	-	629	-
HCM Lane V/C Ratio	0.488	-	-	0.042	-
HCM Control Delay (s)	50.6	-	-	11	0
HCM Lane LOS	F	-	-	B	A
HCM 95th %tile Q(veh)	2.3	-	-	0.1	-

Intersection						
Int Delay, s/veh	0.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	18	2	206	41	35	415
Future Vol, veh/h	18	2	206	41	35	415
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	20	2	229	46	39	461

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	791	252	0	0	275
Stage 1	252	-	-	-	-
Stage 2	539	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	361	792	-	-	1300
Stage 1	795	-	-	-	-
Stage 2	589	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	347	792	-	-	1300
Mov Cap-2 Maneuver	347	-	-	-	-
Stage 1	795	-	-	-	-
Stage 2	565	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.4	0	0.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	368	1300
HCM Lane V/C Ratio	-	-	0.06	0.03
HCM Control Delay (s)	-	-	15.4	7.9
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1

Intersection						
Int Delay, s/veh	14.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↑	↔	↔
Traffic Vol, veh/h	185	222	350	75	101	164
Future Vol, veh/h	185	222	350	75	101	164
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	100	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	1	4	0	3	2
Mvmt Flow	206	247	389	83	112	182

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	453	0	1191 330
Stage 1	-	-	-	-	330 -
Stage 2	-	-	-	-	861 -
Critical Hdwy	-	-	4.14	-	6.43 6.22
Critical Hdwy Stg 1	-	-	-	-	5.43 -
Critical Hdwy Stg 2	-	-	-	-	5.43 -
Follow-up Hdwy	-	-	2.236	-	3.527 3.318
Pot Cap-1 Maneuver	-	-	1097	-	206 712
Stage 1	-	-	-	-	726 -
Stage 2	-	-	-	-	412 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1097	-	133 712
Mov Cap-2 Maneuver	-	-	-	-	133 -
Stage 1	-	-	-	-	726 -
Stage 2	-	-	-	-	266 -

Approach	EB	WB	NB
HCM Control Delay, s	0	8.3	47
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	133	712	-	-	1097	-
HCM Lane V/C Ratio	0.844	0.256	-	-	0.355	-
HCM Control Delay (s)	104.2	11.8	-	-	10.1	-
HCM Lane LOS	F	B	-	-	B	-
HCM 95th %tile Q(veh)	5.3	1	-	-	1.6	-

HCM 6th TWSC
114: Plummer Road & Floating Feather Road

2045 Total Traffic Conditions (With Improvements) AM Peak Hour

01/13/2023

Intersection						
Int Delay, s/veh	3.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	198	334	40	91	96	62
Future Vol, veh/h	198	334	40	91	96	62
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	0	7	6	3	0
Mvmt Flow	213	359	43	98	103	67

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	572	0	577
Stage 1	-	-	-	-	393
Stage 2	-	-	-	-	184
Critical Hdwy	-	-	4.17	-	6.43
Critical Hdwy Stg 1	-	-	-	-	5.43
Critical Hdwy Stg 2	-	-	-	-	5.43
Follow-up Hdwy	-	-	2.263	-	3.527
Pot Cap-1 Maneuver	-	-	976	-	477
Stage 1	-	-	-	-	680
Stage 2	-	-	-	-	845
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	976	-	455
Mov Cap-2 Maneuver	-	-	-	-	455
Stage 1	-	-	-	-	680
Stage 2	-	-	-	-	805

Approach	EB	WB	NB
HCM Control Delay, s	0	2.7	15.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	518	-	-	976	-
HCM Lane V/C Ratio	0.328	-	-	0.044	-
HCM Control Delay (s)	15.3	-	-	8.9	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.4	-	-	0.1	-

Intersection

Int Delay, s/veh 9.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	227	188	91	78	114	127
Future Vol, veh/h	227	188	91	78	114	127
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	4	4	0
Mvmt Flow	241	200	97	83	121	135

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	180	0	-	0	821 139
Stage 1	-	-	-	-	139 -
Stage 2	-	-	-	-	682 -
Critical Hdwy	4.1	-	-	-	6.44 6.2
Critical Hdwy Stg 1	-	-	-	-	5.44 -
Critical Hdwy Stg 2	-	-	-	-	5.44 -
Follow-up Hdwy	2.2	-	-	-	3.536 3.3
Pot Cap-1 Maneuver	1408	-	-	-	341 915
Stage 1	-	-	-	-	883 -
Stage 2	-	-	-	-	498 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1408	-	-	-	275 915
Mov Cap-2 Maneuver	-	-	-	-	275 -
Stage 1	-	-	-	-	713 -
Stage 2	-	-	-	-	498 -

Approach	EB	WB	SB
HCM Control Delay, s	4.4	0	24.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1408	-	-	-	436
HCM Lane V/C Ratio	0.172	-	-	-	0.588
HCM Control Delay (s)	8.1	0	-	-	24.4
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.6	-	-	-	3.7

HCM 6th TWSC
116: Palmer Lane & Floating Feather Road

2045 Total Traffic Conditions (With Improvements) AM Peak Hour

01/13/2023

Intersection						
Int Delay, s/veh	8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	8	278	415	93	98	5
Future Vol, veh/h	8	278	415	93	98	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	33	8	3	0	6	0
Mvmt Flow	9	309	461	103	109	6

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	1137	112	115	0	0
Stage 1	112	-	-	-	-
Stage 2	1025	-	-	-	-
Critical Hdwy	6.73	6.28	4.13	-	-
Critical Hdwy Stg 1	5.73	-	-	-	-
Critical Hdwy Stg 2	5.73	-	-	-	-
Follow-up Hdwy	3.797	3.372	2.227	-	-
Pot Cap-1 Maneuver	194	925	1468	-	-
Stage 1	841	-	-	-	-
Stage 2	303	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	129	925	1468	-	-
Mov Cap-2 Maneuver	129	-	-	-	-
Stage 1	561	-	-	-	-
Stage 2	303	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.6	7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1468	-	789	-	-
HCM Lane V/C Ratio	0.314	-	0.403	-	-
HCM Control Delay (s)	8.6	0	12.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	1.4	-	2	-	-

Intersection						
Int Delay, s/veh	493.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	104	1091	456	135	269	148
Future Vol, veh/h	104	1091	456	135	269	148
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	29	3	4	3	0	13
Mvmt Flow	111	1161	485	144	286	157

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	629	0	-	0	1940 557
Stage 1	-	-	-	-	557 -
Stage 2	-	-	-	-	1383 -
Critical Hdwy	4.39	-	-	-	6.4 6.33
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.461	-	-	-	3.5 3.417
Pot Cap-1 Maneuver	836	-	-	-	~ 73 509
Stage 1	-	-	-	-	578 -
Stage 2	-	-	-	-	~ 235 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	836	-	-	-	~ 46 509
Mov Cap-2 Maneuver	-	-	-	-	~ 46 -
Stage 1	-	-	-	-	362 -
Stage 2	-	-	-	-	~ 235 -

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	\$ 2604.7
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	836	-	-	-	68
HCM Lane V/C Ratio	0.132	-	-	-	6.524
HCM Control Delay (s)	10	0	-	-	\$ 2604.7
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.5	-	-	-	50.3

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Queues
118: Star Road & SH 44

2045 Total Traffic Conditions (With Improvements) AM Peak Hour

01/13/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	81	776	425	171	461	91	301	179	163	193	446
v/c Ratio	0.25	1.05	0.59	1.25	0.61	0.12	1.19	0.42	0.35	0.49	1.21
Control Delay	18.1	85.4	24.3	187.4	33.6	2.0	152.3	48.3	9.5	36.5	162.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.1	85.4	24.3	187.4	33.6	2.0	152.3	48.3	9.5	36.5	162.1
Queue Length 50th (ft)	35	~767	205	~148	314	0	~282	139	6	122	~491
Queue Length 95th (ft)	63	#1015	317	#303	434	19	#474	215	65	187	#710
Internal Link Dist (ft)		2598			5173			1764			5156
Turn Bay Length (ft)	100		100	100		100	100		100	100	
Base Capacity (vph)	332	739	724	137	752	753	254	423	463	398	369
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	1.05	0.59	1.25	0.61	0.12	1.19	0.42	0.35	0.48	1.21

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis Traffic Conditions (With Improvements) AM Peak Hour
 118: Star Road & SH 44 01/13/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	77	737	404	162	438	86	286	170	155	183	359	65	
Future Volume (vph)	77	737	404	162	438	86	286	170	155	183	359	65	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1644	1698	1500	1583	1667	1530	1676	1714	1404	1710	1703		
Flt Permitted	0.35	1.00	1.00	0.06	1.00	1.00	0.12	1.00	1.00	0.62	1.00		
Satd. Flow (perm)	602	1698	1500	106	1667	1530	204	1714	1404	1120	1703		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	81	776	425	171	461	91	301	179	163	193	378	68	
RTOR Reduction (vph)	0	0	71	0	0	50	0	0	117	0	5	0	
Lane Group Flow (vph)	81	776	354	171	461	41	301	179	46	193	441	0	
Heavy Vehicles (%)	4%	6%	2%	8%	8%	0%	2%	5%	9%	0%	3%	5%	
Turn Type	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Perm	pm+pt	NA		
Protected Phases	1	6	6	5	2	2	3	8		7	4		
Permitted Phases	6			2			8		8	4			
Actuated Green, G (s)	66.9	61.0	61.0	71.1	63.1	63.1	51.6	34.6	34.6	42.4	30.0		
Effective Green, g (s)	66.9	61.0	61.0	71.1	63.1	63.1	51.6	34.6	34.6	42.4	30.0		
Actuated g/C Ratio	0.48	0.44	0.44	0.51	0.45	0.45	0.37	0.25	0.25	0.30	0.21		
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		
Vehicle Extension (s)	2.0	2.5	2.5	2.0	2.5	2.5	2.0	2.0	2.0	2.0	2.0		
Lane Grp Cap (vph)	331	739	653	138	751	689	253	423	346	391	364		
v/s Ratio Prot	0.01	0.46	0.24	c0.07	0.28	0.03	c0.14	0.10		0.04	0.26		
v/s Ratio Perm	0.11			c0.56			c0.29		0.03	0.11			
v/c Ratio	0.24	1.05	0.54	1.24	0.61	0.06	1.19	0.42	0.13	0.49	1.21		
Uniform Delay, d1	21.4	39.5	29.2	39.6	29.2	21.7	41.8	44.3	41.0	38.4	55.0		
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	0.1	47.0	3.2	154.6	1.3	0.0	117.7	0.2	0.1	0.4	118.3		
Delay (s)	21.5	86.5	32.4	194.3	30.5	21.7	159.5	44.6	41.1	38.7	173.3		
Level of Service	C	F	C	F	C	C	F	D	D	D	F		
Approach Delay (s)		64.5			68.1			97.5			132.7		
Approach LOS		E			E			F			F		
Intersection Summary													
HCM 2000 Control Delay			85.0									HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio			1.27										
Actuated Cycle Length (s)			140.0									Sum of lost time (s)	24.0
Intersection Capacity Utilization			111.3%									ICU Level of Service	H
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Total Traffic Conditions (With Improvements) AM Peak Hour
 118: Star Road & SH 44 01/13/2023

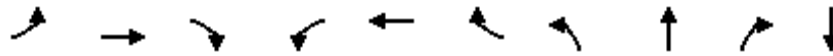
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	737	404	162	438	86	286	170	155	183	359	65
Future Volume (veh/h)	77	737	404	162	438	86	286	170	155	183	359	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1744	1716	1772	1688	1688	1800	1772	1730	1674	1800	1758	1730
Adj Flow Rate, veh/h	81	776	425	171	461	91	301	179	163	193	378	68
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	6	2	8	8	0	2	5	9	0	3	5
Cap, veh/h	326	748	654	143	765	692	256	420	344	375	311	56
Arrive On Green	0.04	0.44	0.44	0.06	0.45	0.45	0.12	0.24	0.24	0.09	0.21	0.21
Sat Flow, veh/h	1661	1716	1502	1607	1688	1525	1688	1730	1418	1714	1450	261
Grp Volume(v), veh/h	81	776	425	171	461	91	301	179	163	193	0	446
Grp Sat Flow(s),veh/h/ln	1661	1716	1502	1607	1688	1525	1688	1730	1418	1714	0	1711
Q Serve(g_s), s	3.8	61.0	31.2	8.0	28.8	4.9	17.0	12.2	13.8	12.3	0.0	30.0
Cycle Q Clear(g_c), s	3.8	61.0	31.2	8.0	28.8	4.9	17.0	12.2	13.8	12.3	0.0	30.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	326	748	654	143	765	692	256	420	344	375	0	367
V/C Ratio(X)	0.25	1.04	0.65	1.19	0.60	0.13	1.17	0.43	0.47	0.52	0.00	1.22
Avail Cap(c_a), veh/h	332	748	654	143	765	692	256	420	344	375	0	367
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.0	39.5	31.1	39.1	28.8	22.2	41.1	44.8	45.3	38.2	0.0	55.0
Incr Delay (d2), s/veh	0.1	43.2	4.9	136.5	1.2	0.1	111.6	0.3	0.4	0.6	0.0	119.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	34.2	12.2	8.1	11.9	1.8	15.0	5.3	4.9	5.3	0.0	25.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.1	82.7	36.0	175.6	29.9	22.3	152.8	45.0	45.7	38.7	0.0	174.8
LnGrp LOS	C	F	D	F	C	C	F	D	D	D	A	F
Approach Vol, veh/h		1282			723			643				639
Approach Delay, s/veh		63.4			63.4			95.6				133.7
Approach LOS		E			E			F				F
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.5	69.5	23.0	36.0	14.0	67.0	19.0	40.0				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	6.0	63.0	17.0	30.0	8.0	61.0	13.0	34.0				
Max Q Clear Time (g_c+I1), s	5.8	30.8	19.0	32.0	10.0	63.0	14.3	15.8				
Green Ext Time (p_c), s	0.0	2.8	0.0	0.0	0.0	0.0	0.0	0.9				
Intersection Summary												
HCM 6th Ctrl Delay				83.4								
HCM 6th LOS				F								

Queues

2045 Total Traffic Conditions (With Improvements) AM Peak Hour

119: Plummer Road & SH 44

01/13/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	31	1086	35	60	604	119	47	13	86	652
v/c Ratio	0.10	1.27	0.05	0.44	0.67	0.15	0.11	0.02	0.14	1.36
Control Delay	14.6	165.1	1.8	28.1	31.8	11.0	33.9	32.2	6.8	212.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.6	165.1	1.8	28.1	31.8	11.0	33.9	32.2	6.8	212.4
Queue Length 50th (ft)	13	~1335	0	25	443	31	31	8	0	~836
Queue Length 95th (ft)	28	#1630	9	59	602	69	64	25	39	#1099
Internal Link Dist (ft)		5173			3517			675		5173
Turn Bay Length (ft)	100		100	100		100	100		100	
Base Capacity (vph)	345	853	740	159	900	801	428	643	602	479
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	1.27	0.05	0.38	0.67	0.15	0.11	0.02	0.14	1.36

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis Traffic Conditions (With Improvements) AM Peak Hour
 119: Plummer Road & SH 44 01/13/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (vph)	29	1032	33	57	574	113	45	12	82	500	40	80		
Future Volume (vph)	29	1032	33	57	574	113	45	12	82	500	40	80		
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800		
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0		5.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00			
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		0.98			
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		0.96			
Satd. Flow (prot)	1710	1748	1457	1660	1748	1500	1710	1800	1530		1687			
Flt Permitted	0.27	1.00	1.00	0.05	1.00	1.00	0.67	1.00	1.00		0.76			
Satd. Flow (perm)	480	1748	1457	93	1748	1500	1199	1800	1530		1331			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95		
Adj. Flow (vph)	31	1086	35	60	604	119	47	13	86	526	42	84		
RTOR Reduction (vph)	0	0	18	0	0	29	0	0	56	0	3	0		
Lane Group Flow (vph)	31	1086	17	60	604	90	47	13	30	0	649	0		
Heavy Vehicles (%)	0%	3%	5%	3%	3%	2%	0%	0%	0%	1%	0%	0%		
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA			
Protected Phases	1	6		5	2			4			8			
Permitted Phases	6		6	2		2	4		4	8				
Actuated Green, G (s)	76.3	72.3	72.3	81.9	75.1	75.1	52.1	52.1	52.1		52.1			
Effective Green, g (s)	76.3	72.3	72.3	81.9	75.1	75.1	52.1	52.1	52.1		52.1			
Actuated g/C Ratio	0.51	0.49	0.49	0.55	0.51	0.51	0.35	0.35	0.35		0.35			
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0		5.0			
Vehicle Extension (s)	2.5	4.0	4.0	2.5	4.0	4.0	2.5	2.5	2.5		2.5			
Lane Grp Cap (vph)	280	852	710	123	885	760	421	632	537		467			
v/s Ratio Prot	0.00	c0.62		c0.02	c0.35			0.01						
v/s Ratio Perm	0.05		0.01	0.25		0.06	0.04		0.02		c0.49			
v/c Ratio	0.11	1.27	0.02	0.49	0.68	0.12	0.11	0.02	0.06		1.39			
Uniform Delay, d1	20.5	37.9	19.7	33.0	27.6	19.2	32.4	31.4	31.8		48.0			
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00			
Incremental Delay, d2	0.1	132.7	0.0	2.2	2.4	0.1	0.1	0.0	0.0		188.0			
Delay (s)	20.7	170.7	19.7	35.3	29.9	19.3	32.5	31.4	31.8		236.0			
Level of Service	C	F	B	D	C	B	C	C	C		F			
Approach Delay (s)		162.0			28.7			32.0			236.0			
Approach LOS		F			C			C			F			
Intersection Summary														
HCM 2000 Control Delay			134.5									HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio			1.28											
Actuated Cycle Length (s)			148.2								17.0		Sum of lost time (s)	
Intersection Capacity Utilization			112.6%										ICU Level of Service	H
Analysis Period (min)			15											
c Critical Lane Group														

HCM 6th Signalized Intersection Total Traffic Conditions (With Improvements) AM Peak Hour
 119: Plummer Road & SH 44 01/13/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	1032	33	57	574	113	45	12	82	500	40	80
Future Volume (veh/h)	29	1032	33	57	574	113	45	12	82	500	40	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1758	1730	1758	1758	1772	1800	1800	1800	1786	1800	1800
Adj Flow Rate, veh/h	31	1086	35	60	604	119	47	13	86	526	42	84
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	3	5	3	3	2	0	0	0	1	0	0
Cap, veh/h	267	863	720	103	875	748	572	648	549	436	31	62
Arrive On Green	0.02	0.49	0.49	0.03	0.50	0.50	0.36	0.36	0.36	0.36	0.36	0.36
Sat Flow, veh/h	1714	1758	1466	1674	1758	1502	1285	1800	1525	1086	87	173
Grp Volume(v), veh/h	31	1086	35	60	604	119	47	13	86	652	0	0
Grp Sat Flow(s),veh/h/ln	1714	1758	1466	1674	1758	1502	1285	1800	1525	1347	0	0
Q Serve(g_s), s	1.3	71.0	1.8	2.6	38.0	6.2	0.0	0.7	5.5	51.3	0.0	0.0
Cycle Q Clear(g_c), s	1.3	71.0	1.8	2.6	38.0	6.2	3.1	0.7	5.5	52.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.81		0.13
Lane Grp Cap(c), veh/h	267	863	720	103	875	748	572	648	549	529	0	0
V/C Ratio(X)	0.12	1.26	0.05	0.59	0.69	0.16	0.08	0.02	0.16	1.23	0.00	0.00
Avail Cap(c_a), veh/h	343	863	720	166	875	748	572	648	549	529	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	22.2	36.8	19.2	34.5	27.7	19.8	30.6	29.8	31.4	48.8	0.0	0.0
Incr Delay (d2), s/veh	0.1	125.4	0.0	3.9	2.6	0.1	0.0	0.0	0.1	119.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	59.9	0.6	1.1	16.5	2.3	1.1	0.3	2.1	37.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.3	162.2	19.2	38.4	30.3	19.9	30.7	29.9	31.5	168.7	0.0	0.0
LnGrp LOS	C	F	B	D	C	B	C	C	C	F	A	A
Approach Vol, veh/h		1152			783			146				652
Approach Delay, s/veh		154.1			29.3			31.1				168.7
Approach LOS		F			C			C				F
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.6	78.0		57.0	10.6	77.0		57.0				
Change Period (Y+Rc), s	6.0	6.0		5.0	6.0	6.0		5.0				
Max Green Setting (Gmax), s	10.0	71.0		52.0	10.0	71.0		52.0				
Max Q Clear Time (g_c+I1), s	3.3	40.0		7.5	4.6	73.0		54.0				
Green Ext Time (p_c), s	0.0	7.4		0.4	0.0	0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay	115.3											
HCM 6th LOS	F											

Intersection												
Int Delay, s/veh	78.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	38	111	176	87	74	1	281	66	131	1	25	25
Future Vol, veh/h	38	111	176	87	74	1	281	66	131	1	25	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	2	0	0	0	1	0	0	0	0	0
Mvmt Flow	42	123	196	97	82	1	312	73	146	1	28	28

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	856	887	42	974	828	146	56	0	0	219	0	0
Stage 1	44	44	-	770	770	-	-	-	-	-	-	-
Stage 2	812	843	-	204	58	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.22	7.1	6.5	6.2	4.11	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.318	3.5	4	3.3	2.209	-	-	2.2	-	-
Pot Cap-1 Maneuver	280	285	1029	233	309	906	1555	-	-	1362	-	-
Stage 1	975	862	-	396	413	-	-	-	-	-	-	-
Stage 2	376	382	-	803	851	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	170	218	1029	~ 87	237	906	1555	-	-	1362	-	-
Mov Cap-2 Maneuver	170	218	-	~ 87	237	-	-	-	-	-	-	-
Stage 1	748	861	-	304	317	-	-	-	-	-	-	-
Stage 2	213	293	-	557	850	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	82.9		\$ 312.2		4.6		0.1	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1555	-	-	360	123	1362	-
HCM Lane V/C Ratio	0.201	-	-	1.003	1.463	0.001	-
HCM Control Delay (s)	7.9	0	-	82.9	\$ 312.2	7.6	0
HCM Lane LOS	A	A	-	F	F	A	A
HCM 95th %tile Q(veh)	0.8	-	-	11.7	12.5	0	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection												
Int Delay, s/veh	7.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	14	26	1	97	43	1	1	24	65	1	36	23
Future Vol, veh/h	14	26	1	97	43	1	1	24	65	1	36	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	16	29	1	108	48	1	1	27	72	1	40	26

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	49	0	0	30	0	0	360	327	30	376	327	49
Stage 1	-	-	-	-	-	-	62	62	-	265	265	-
Stage 2	-	-	-	-	-	-	298	265	-	111	62	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1571	-	-	1596	-	-	599	595	1050	585	595	1025
Stage 1	-	-	-	-	-	-	954	847	-	745	693	-
Stage 2	-	-	-	-	-	-	715	693	-	899	847	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1571	-	-	1596	-	-	518	548	1050	493	548	1025
Mov Cap-2 Maneuver	-	-	-	-	-	-	518	548	-	493	548	-
Stage 1	-	-	-	-	-	-	944	839	-	738	644	-
Stage 2	-	-	-	-	-	-	608	644	-	802	839	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.5			5.1			9.9			11		
HCM LOS							A			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	836	1571	-	-	1596	-	-	665
HCM Lane V/C Ratio	0.12	0.01	-	-	0.068	-	-	0.1
HCM Control Delay (s)	9.9	7.3	0	-	7.4	0	-	11
HCM Lane LOS	A	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.4	0	-	-	0.2	-	-	0.3

MOVEMENT SUMMARY

Site: 1031 [Aerie Way / SH 16 (W) TT PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

2045 Total Traffic (With Select Roadway Improvements)

Site Category: (None)

Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.]	[Dist]				mph
South: RoadName															
3	L2	All MCs	4	4.0	4	4.0	0.120	3.5	LOS A	0.5	12.2	0.05	0.01	0.05	33.9
8	T1	All MCs	1	0.0	1	0.0	0.120	3.2	LOS A	0.5	12.2	0.05	0.01	0.05	34.8
18	R2	All MCs	163	0.0	163	0.0	0.120	3.2	LOS A	0.5	12.2	0.05	0.01	0.05	34.5
Approach			169	0.1	169	0.1	0.120	3.2	LOS A	0.5	12.2	0.05	0.01	0.05	34.5
East: RoadName															
1	L2	All MCs	163	0.0	163	0.0	0.097	3.2	LOS A	0.4	9.9	0.04	0.01	0.04	32.0
6	T1	All MCs	102	0.0	102	0.0	0.097	3.1	LOS A	0.4	9.6	0.04	0.01	0.04	34.4
16	R2	All MCs	1	0.0	1	0.0	0.097	3.1	LOS A	0.4	9.6	0.04	0.01	0.04	34.0
Approach			267	0.0	267	0.0	0.097	3.2	LOS A	0.4	9.9	0.04	0.01	0.04	32.9
North: RoadName															
7	L2	All MCs	1	0.0	1	0.0	0.003	3.2	LOS A	0.0	0.3	0.32	0.15	0.32	33.3
4	T1	All MCs	1	0.0	1	0.0	0.003	3.2	LOS A	0.0	0.3	0.32	0.15	0.32	34.0
14	R2	All MCs	1	0.0	1	0.0	0.003	3.2	LOS A	0.0	0.3	0.32	0.15	0.32	33.7
Approach			3	0.0	3	0.0	0.003	3.2	LOS A	0.0	0.3	0.32	0.15	0.32	33.7
West: RoadName															
5	L2	All MCs	1	0.0	1	0.0	0.054	3.3	LOS A	0.2	5.0	0.26	0.14	0.26	34.1
2	T1	All MCs	6	0.0	6	0.0	0.054	3.3	LOS A	0.2	5.0	0.26	0.14	0.26	34.8
12	R2	All MCs	60	0.0	60	0.0	0.054	3.3	LOS A	0.2	5.0	0.26	0.14	0.26	34.5
Approach			67	0.0	67	0.0	0.054	3.3	LOS A	0.2	5.0	0.26	0.14	0.26	34.5
All Vehicles			506	0.0	506	0.0	0.120	3.2	LOS A	0.5	12.2	0.08	0.03	0.08	33.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SIDRA INTERSECTION 9.1 | Copyright © 2000-2022 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: KITTELSON AND ASSOCIATES INC | Licence: NETWORK / Enterprise Level 3 | Processed: Thursday, January 12, 2023 11:15:27 AM

Project: H:\25\25407 - Willow Brook Community TIS\Traffic Operations\Mitigations\Sidra\103.sip9

MOVEMENT SUMMARY

Site: 1032 [Aerie Way / SH 16 (E) TT PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

2045 Total Traffic (With Select Roadway Improvements)

Site Category: (None)

Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.]	[Dist]				mph
South: RoadName															
3	L2	All MCs	99	4.0	99	4.0	0.085	3.8	LOSA	0.3	8.5	0.28	0.15	0.28	31.3
18	R2	All MCs	1017	0.0	1017	0.0	0.607	0.3	LOSA	0.0	0.0	0.00	0.00	0.00	36.4
Approach			1116	0.4	1116	0.4	0.607	0.6	LOSA	0.3	8.5	0.03	0.01	0.03	35.8
East: RoadName															
1	L2	All MCs	252	0.0	252	0.0	0.195	4.4	LOSA	0.9	22.6	0.25	0.11	0.25	31.2
6	T1	All MCs	167	0.0	167	0.0	0.129	3.8	LOSA	0.6	13.9	0.23	0.10	0.23	34.7
Approach			419	0.0	419	0.0	0.195	4.1	LOSA	0.9	22.6	0.24	0.11	0.24	32.5
West: RoadName															
2	T1	All MCs	166	0.0	166	0.0	0.158	4.8	LOSA	0.7	18.2	0.41	0.26	0.41	34.2
12	R2	All MCs	3	0.0	3	0.0	0.158	4.8	LOSA	0.7	18.2	0.41	0.26	0.41	33.9
Approach			169	0.0	169	0.0	0.158	4.8	LOSA	0.7	18.2	0.41	0.26	0.41	34.2
All Vehicles			1703	0.2	1703	0.2	0.607	1.9	LOSA	0.9	22.6	0.12	0.06	0.12	34.8

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SIDRA INTERSECTION 9.1 | Copyright © 2000-2022 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: KITTELSON AND ASSOCIATES INC | Licence: NETWORK / Enterprise Level 3 | Processed: Thursday, January 12, 2023

11:15:35 AM

Project: H:\25\25407 - Willow Brook Community TIS\Traffic Operations\Mitigations\Sidra\103.sip9

Intersection						
Int Delay, s/veh	1.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗		↕
Traffic Vol, veh/h	0	230	1250	1004	0	1426
Future Vol, veh/h	0	230	1250	1004	0	1426
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	-	0	-	505	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	256	1389	1116	0	1584

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	695	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-
Pot Cap-1 Maneuver	0	385	-	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	-	385	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	31	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	385
HCM Lane V/C Ratio	-	-	0.664
HCM Control Delay (s)	-	-	31
HCM Lane LOS	-	-	D
HCM 95th %tile Q(veh)	-	-	4.6

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	5	120	188	1364	634	8
Future Vol, veh/h	5	120	188	1364	634	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	2	2	2	0
Mvmt Flow	5	132	207	1499	697	9

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	2615	702	706	0	0
Stage 1	702	-	-	-	-
Stage 2	1913	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-
Pot Cap-1 Maneuver	27	442	892	-	-
Stage 1	495	-	-	-	-
Stage 2	129	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	0	442	892	-	-
Mov Cap-2 Maneuver	0	-	-	-	-
Stage 1	0	-	-	-	-
Stage 2	129	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.8	1.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	892	-	442	-	-
HCM Lane V/C Ratio	0.232	-	0.311	-	-
HCM Control Delay (s)	10.2	0	16.8	-	-
HCM Lane LOS	B	A	C	-	-
HCM 95th %tile Q(veh)	0.9	-	1.3	-	-

HCM 6th TWSC
105: Can Ada Road & Lanktree Gulch Road

2045 Total Traffic Conditions (With Improvements) PM Peak Hour

01/24/2023

Intersection						
Int Delay, s/veh	1.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	45	28	479	73	28	249
Future Vol, veh/h	45	28	479	73	28	249
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	1	6	0	0
Mvmt Flow	50	31	532	81	31	277

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	912	573	0	0	613	0
Stage 1	573	-	-	-	-	-
Stage 2	339	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	307	523	-	-	976	-
Stage 1	568	-	-	-	-	-
Stage 2	726	-	-	-	-	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	295	523	-	-	976	-
Mov Cap-2 Maneuver	295	-	-	-	-	-
Stage 1	568	-	-	-	-	-
Stage 2	698	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.2	0	0.9
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	354	976
HCM Lane V/C Ratio	-	-	0.229	0.032
HCM Control Delay (s)	-	-	18.2	8.8
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.9	0.1

Intersection						
Int Delay, s/veh	5.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	73	67	44	61	96	61
Future Vol, veh/h	73	67	44	61	96	61
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	81	74	49	68	107	68

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	155	0	284
Stage 1	-	-	-	-	118
Stage 2	-	-	-	-	166
Critical Hdwy	-	-	4.1	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.2	-	3.5
Pot Cap-1 Maneuver	-	-	1438	-	710
Stage 1	-	-	-	-	912
Stage 2	-	-	-	-	868
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1438	-	685
Mov Cap-2 Maneuver	-	-	-	-	685
Stage 1	-	-	-	-	912
Stage 2	-	-	-	-	838

Approach	EB	WB	NB
HCM Control Delay, s	0	3.2	11.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	765	-	-	1438	-
HCM Lane V/C Ratio	0.228	-	-	0.034	-
HCM Control Delay (s)	11.1	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.9	-	-	0.1	-

HCM 6th AWSC
107: Can Ada Road & New Hope Road

2045 Total Traffic Conditions (With Improvements) PM Peak Hour

01/13/2023

Intersection	
Intersection Delay, s/veh	16.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	26	30	4	56	88	71	33	307	48	75	248	33
Future Vol, veh/h	26	30	4	56	88	71	33	307	48	75	248	33
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	0	0	7	3	0	0	0	0	3	0	0
Mvmt Flow	29	33	4	62	98	79	37	341	53	83	276	37
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.9	13.7	18.5	17.4
HCM LOS	B	B	C	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	9%	43%	26%	21%
Vol Thru, %	79%	50%	41%	70%
Vol Right, %	12%	7%	33%	9%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	388	60	215	356
LT Vol	33	26	56	75
Through Vol	307	30	88	248
RT Vol	48	4	71	33
Lane Flow Rate	431	67	239	396
Geometry Grp	1	1	1	1
Degree of Util (X)	0.656	0.128	0.413	0.617
Departure Headway (Hd)	5.474	6.897	6.22	5.611
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	655	523	573	637
Service Time	3.556	4.897	4.315	3.696
HCM Lane V/C Ratio	0.658	0.128	0.417	0.622
HCM Control Delay	18.5	10.9	13.7	17.4
HCM Lane LOS	C	B	B	C
HCM 95th-tile Q	4.9	0.4	2	4.2

Intersection						
Int Delay, s/veh	11.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	172	139	485	155	89	109
Future Vol, veh/h	172	139	485	155	89	109
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	2	1	0	0	0
Mvmt Flow	191	154	539	172	99	121

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	711	0	-	0	1161 625
Stage 1	-	-	-	-	625 -
Stage 2	-	-	-	-	536 -
Critical Hdwy	4.1	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.2	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	898	-	-	-	218 488
Stage 1	-	-	-	-	537 -
Stage 2	-	-	-	-	591 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	898	-	-	-	172 488
Mov Cap-2 Maneuver	-	-	-	-	172 -
Stage 1	-	-	-	-	423 -
Stage 2	-	-	-	-	591 -

Approach	EB	WB	SB
HCM Control Delay, s	5.6	0	59.9
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	898	-	-	-	267
HCM Lane V/C Ratio	0.213	-	-	-	0.824
HCM Control Delay (s)	10.1	-	-	-	59.9
HCM Lane LOS	B	-	-	-	F
HCM 95th %tile Q(veh)	0.8	-	-	-	6.6

HCM 6th TWSC
109: Pollard Road & Beacon Light Road

2045 Total Traffic Conditions (With Improvements) PM Peak Hour

01/13/2023

Intersection

Int Delay, s/veh 1093.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Vol, veh/h	5	214	12	164	617	126	316	218	157	61	31	9
Future Vol, veh/h	5	214	12	164	617	126	316	218	157	61	31	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	1	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	6	238	13	182	686	140	351	242	174	68	34	10

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	826	0	0	251
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.1	-	-	4.1
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.2	-	-	2.2
Pot Cap-1 Maneuver	813	-	-	1326
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	813	-	-	1326
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	1.5	\$ 3051.9	
HCM LOS			F	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	101	813	-	-	1326	-	-	-
HCM Lane V/C Ratio	7.602	0.007	-	-	0.137	-	-	-
HCM Control Delay (s)	\$ 3051.9	9.5	0	-	8.1	0	-	-
HCM Lane LOS	F	A	A	-	A	A	-	-
HCM 95th %tile Q(veh)	86.7	0	-	-	0.5	-	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Queues

2045 Total Traffic Conditions (With Improvements) PM Peak Hour

110: SH 16 & Beacon Light Road

01/13/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	71	141	141	176	517	643	174	1117	96	118	601	44
v/c Ratio	0.68	0.39	0.29	0.51	1.15	1.27	0.66	1.36	0.12	1.12	0.75	0.06
Control Delay	69.6	55.8	1.9	43.2	138.0	169.4	31.6	202.0	0.3	153.0	41.2	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.6	55.8	1.9	43.2	138.0	169.4	31.6	202.0	0.3	153.0	41.2	0.1
Queue Length 50th (ft)	48	121	0	129	~591	~669	81	~1430	0	~83	481	0
Queue Length 95th (ft)	#99	192	2	197	#820	#914	123	#1694	0	#221	640	0
Internal Link Dist (ft)		2558			3836			5106			1084	
Turn Bay Length (ft)	100		100	100		100	100		100	100		100
Base Capacity (vph)	105	359	479	353	451	507	265	823	797	105	800	800
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.39	0.29	0.50	1.15	1.27	0.66	1.36	0.12	1.12	0.75	0.06

Intersection Summary

























~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis Traffic Conditions (With Improvements) PM Peak Hour
 110: SH 16 & Beacon Light Road 01/13/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	138	138	172	507	630	171	1095	94	116	589	43
Future Volume (vph)	70	138	138	172	507	630	171	1095	94	116	589	43
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0	9.0	9.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1710	1765	1530	1660	1782	1530	1693	1765	1485	1710	1765	1530
Flt Permitted	0.13	1.00	1.00	0.49	1.00	1.00	0.22	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	236	1765	1530	850	1782	1530	400	1765	1485	106	1765	1530
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	71	141	141	176	517	643	174	1117	96	118	601	44
RTOR Reduction (vph)	0	0	112	0	0	119	0	0	51	0	0	24
Lane Group Flow (vph)	71	141	29	176	517	524	174	1117	45	118	601	20
Heavy Vehicles (%)	0%	2%	0%	3%	1%	0%	1%	2%	3%	0%	2%	0%
Turn Type	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Prot
Protected Phases	1	6	6	5	2	2	3	8	8	7	4	4
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	35.5	30.5	30.5	50.0	38.0	38.0	77.0	70.0	70.0	73.0	68.0	68.0
Effective Green, g (s)	35.5	30.5	30.5	50.0	38.0	38.0	77.0	70.0	70.0	73.0	68.0	68.0
Actuated g/C Ratio	0.24	0.20	0.20	0.33	0.25	0.25	0.51	0.47	0.47	0.49	0.45	0.45
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0	9.0	9.0
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	5.0	5.0	2.0	5.0	5.0
Lane Grp Cap (vph)	104	358	311	350	451	387	265	823	693	105	800	693
v/s Ratio Prot	0.02	0.08	0.02	c0.04	0.29	c0.34	0.03	c0.63	0.03	c0.04	0.34	0.01
v/s Ratio Perm	0.14			0.13			0.31			0.51		
v/c Ratio	0.68	0.39	0.09	0.50	1.15	1.35	0.66	1.36	0.06	1.12	0.75	0.03
Uniform Delay, d1	48.0	51.7	48.5	37.7	56.0	56.0	28.3	40.0	22.0	35.8	34.0	22.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	13.7	0.7	0.1	0.4	89.0	174.9	4.4	168.7	0.1	125.0	4.8	0.0
Delay (s)	61.8	52.5	48.6	38.1	145.0	230.9	32.8	208.7	22.1	160.9	38.7	22.7
Level of Service	E	D	D	D	F	F	C	F	C	F	D	C
Approach Delay (s)		52.8			172.3			173.7			56.7	
Approach LOS		D			F			F			E	
Intersection Summary												
HCM 2000 Control Delay			138.8									F
HCM 2000 Volume to Capacity ratio			1.33									
Actuated Cycle Length (s)			150.0						32.0			
Intersection Capacity Utilization			126.6%									H
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Total Traffic Conditions (With Improvements) PM Peak Hour
 110: SH 16 & Beacon Light Road 01/13/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	138	138	172	507	630	171	1095	94	116	589	43
Future Volume (veh/h)	70	138	138	172	507	630	171	1095	94	116	589	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1772	1800	1758	1786	1800	1786	1772	1758	1800	1772	1800
Adj Flow Rate, veh/h	71	141	141	176	517	643	174	1117	96	118	601	44
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	2	0	3	1	0	1	2	3	0	2	0
Cap, veh/h	105	354	305	336	452	386	264	827	695	105	803	692
Arrive On Green	0.03	0.20	0.20	0.09	0.25	0.25	0.05	0.47	0.47	0.03	0.45	0.45
Sat Flow, veh/h	1714	1772	1525	1674	1786	1525	1701	1772	1490	1714	1772	1525
Grp Volume(v), veh/h	71	141	141	176	517	643	174	1117	96	118	601	44
Grp Sat Flow(s),veh/h/ln	1714	1772	1525	1674	1786	1525	1701	1772	1490	1714	1772	1525
Q Serve(g_s), s	5.0	10.4	12.2	12.3	38.0	38.0	7.0	70.0	5.5	5.0	42.1	2.4
Cycle Q Clear(g_c), s	5.0	10.4	12.2	12.3	38.0	38.0	7.0	70.0	5.5	5.0	42.1	2.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	105	354	305	336	452	386	264	827	695	105	803	692
V/C Ratio(X)	0.68	0.40	0.46	0.52	1.14	1.66	0.66	1.35	0.14	1.12	0.75	0.06
Avail Cap(c_a), veh/h	105	354	305	336	452	386	264	827	695	105	803	692
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.0	52.1	52.9	41.7	56.0	56.0	33.4	40.0	22.8	36.7	33.9	23.1
Incr Delay (d2), s/veh	13.2	0.7	1.1	0.7	87.6	310.0	4.8	165.9	0.2	124.5	4.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	4.7	4.8	5.2	28.1	47.9	3.2	68.1	2.0	5.7	19.1	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.1	52.9	54.0	42.4	143.6	366.0	38.2	205.9	23.0	161.2	38.6	23.2
LnGrp LOS	E	D	D	D	F	F	D	F	C	F	D	C
Approach Vol, veh/h		353			1336			1387			763	
Approach Delay, s/veh		55.2			237.3			172.2			56.7	
Approach LOS		E			F			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	45.0	16.0	77.0	20.0	37.0	14.0	79.0				
Change Period (Y+Rc), s	7.0	7.0	9.0	9.0	7.0	7.0	9.0	9.0				
Max Green Setting (Gmax), s	5.0	38.0	7.0	68.0	13.0	30.0	5.0	70.0				
Max Q Clear Time (g_c+I1), s	7.0	40.0	9.0	44.1	14.3	14.2	7.0	72.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	8.2	0.0	1.1	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			161.1									
HCM 6th LOS			F									

HCM 6th TWSC
111: Palmer Lane & Beacon Light Road

2045 Total Traffic Conditions (With Improvements) PM Peak Hour

01/13/2023

Intersection						
Int Delay, s/veh	28.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	442	19	5	1303	115	22
Future Vol, veh/h	442	19	5	1303	115	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	0	0	1	5	0
Mvmt Flow	465	20	5	1372	121	23

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	485	0	1857
Stage 1	-	-	-	-	475
Stage 2	-	-	-	-	1382
Critical Hdwy	-	-	4.1	-	6.45
Critical Hdwy Stg 1	-	-	-	-	5.45
Critical Hdwy Stg 2	-	-	-	-	5.45
Follow-up Hdwy	-	-	2.2	-	3.545
Pot Cap-1 Maneuver	-	-	1088	-	~ 79
Stage 1	-	-	-	-	619
Stage 2	-	-	-	-	229
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1088	-	~ 77
Mov Cap-2 Maneuver	-	-	-	-	~ 77
Stage 1	-	-	-	-	619
Stage 2	-	-	-	-	225

Approach	EB	WB	NB
HCM Control Delay, s	0	0	\$ 397.8
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	90	-	-	1088	-
HCM Lane V/C Ratio	1.602	-	-	0.005	-
HCM Control Delay (s)	\$ 397.8	-	-	8.3	0
HCM Lane LOS	F	-	-	A	A
HCM 95th %tile Q(veh)	11.5	-	-	0	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th TWSC
112: Can Ada Road & Floating Feather Road

2045 Total Traffic Conditions (With Improvements) PM Peak Hour

01/13/2023

Intersection						
Int Delay, s/veh	1.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	36	24	379	30	25	358
Future Vol, veh/h	36	24	379	30	25	358
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	40	27	421	33	28	398

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	892	438	0	0	454
Stage 1	438	-	-	-	-
Stage 2	454	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	315	623	-	-	1117
Stage 1	655	-	-	-	-
Stage 2	644	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	305	623	-	-	1117
Mov Cap-2 Maneuver	305	-	-	-	-
Stage 1	655	-	-	-	-
Stage 2	623	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.4	0	0.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	383	1117
HCM Lane V/C Ratio	-	-	0.174	0.025
HCM Control Delay (s)	-	-	16.4	8.3
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.6	0.1

HCM 6th TWSC
113: Star Road & Floating Feather Road

2045 Total Traffic Conditions (With Improvements) PM Peak Hour

01/13/2023

Intersection

Int Delay, s/veh 155.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↑	↔	↔
Traffic Vol, veh/h	120	182	623	222	139	231
Future Vol, veh/h	120	182	623	222	139	231
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	100	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	2	2	0	0	0
Mvmt Flow	132	200	685	244	153	254

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	332	0	1846 232
Stage 1	-	-	-	-	232 -
Stage 2	-	-	-	-	1614 -
Critical Hdwy	-	-	4.12	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	-	-	2.218	-	3.5 3.3
Pot Cap-1 Maneuver	-	-	1227	-	~ 83 812
Stage 1	-	-	-	-	811 -
Stage 2	-	-	-	-	181 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1227	-	~ 37 812
Mov Cap-2 Maneuver	-	-	-	-	~ 37 -
Stage 1	-	-	-	-	811 -
Stage 2	-	-	-	-	~ 80 -

Approach	EB	WB	NB
HCM Control Delay, s	0	8.5	\$ 618.9
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	37	812	-	-	1227	-
HCM Lane V/C Ratio	4.128	0.313	-	-	0.558	-
HCM Control Delay (s)	\$ 1628.5	11.4	-	-	11.6	-
HCM Lane LOS	F	B	-	-	B	-
HCM 95th %tile Q(veh)	17.7	1.3	-	-	3.6	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th TWSC
114: Plummer Road & Floating Feather Road

2045 Total Traffic Conditions (With Improvements) PM Peak Hour

01/13/2023

Intersection

Int Delay, s/veh 125.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	166	255	91	388	374	67
Future Vol, veh/h	166	255	91	388	374	67
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	184	283	101	431	416	74

Major/Minor

	Major1	Major2	Minor1		
Conflicting Flow All	0	0	467	0	959
Stage 1	-	-	-	-	326
Stage 2	-	-	-	-	633
Critical Hdwy	-	-	4.1	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.2	-	3.5
Pot Cap-1 Maneuver	-	-	1105	- ~	288
Stage 1	-	-	-	-	736
Stage 2	-	-	-	-	533
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1105	- ~	253
Mov Cap-2 Maneuver	-	-	-	- ~	253
Stage 1	-	-	-	-	736
Stage 2	-	-	-	-	469

Approach

	EB	WB	NB
HCM Control Delay, s	0	1.6	\$ 380.2
HCM LOS			F

Minor Lane/Major Mvmt

	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	281	-	-	1105	-
HCM Lane V/C Ratio	1.744	-	-	0.092	-
HCM Control Delay (s)	\$ 380.2	-	-	8.6	0
HCM Lane LOS	F	-	-	A	A
HCM 95th %tile Q(veh)	31.9	-	-	0.3	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection						
Int Delay, s/veh	9.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	218	109	265	31	39	319
Future Vol, veh/h	218	109	265	31	39	319
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	242	121	294	34	43	354

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	328	0	-	0	916
Stage 1	-	-	-	-	311
Stage 2	-	-	-	-	605
Critical Hdwy	4.1	-	-	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	2.2	-	-	-	3.5
Pot Cap-1 Maneuver	1243	-	-	-	305
Stage 1	-	-	-	-	748
Stage 2	-	-	-	-	549
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1243	-	-	-	241
Mov Cap-2 Maneuver	-	-	-	-	241
Stage 1	-	-	-	-	592
Stage 2	-	-	-	-	549

Approach	EB	WB	SB
HCM Control Delay, s	5.7	0	22
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1243	-	-	-	600
HCM Lane V/C Ratio	0.195	-	-	-	0.663
HCM Control Delay (s)	8.6	0	-	-	22
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.7	-	-	-	4.9

Intersection						
Int Delay, s/veh	6.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	98	500	131	16	5
Future Vol, veh/h	3	98	500	131	16	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	4	0	0
Mvmt Flow	3	107	543	142	17	5

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	1248	20	22	0	0
Stage 1	20	-	-	-	-
Stage 2	1228	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-
Pot Cap-1 Maneuver	193	1064	1607	-	-
Stage 1	1008	-	-	-	-
Stage 2	279	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	122	1064	1607	-	-
Mov Cap-2 Maneuver	122	-	-	-	-
Stage 1	638	-	-	-	-
Stage 2	279	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	6.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1607	-	866	-	-
HCM Lane V/C Ratio	0.338	-	0.127	-	-
HCM Control Delay (s)	8.4	0	9.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	1.5	-	0.4	-	-

Intersection

Int Delay, s/veh 1554.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	114	865	1163	275	277	104
Future Vol, veh/h	114	865	1163	275	277	104
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	6	2	1	2	2	12
Mvmt Flow	121	920	1237	293	295	111

Major/Minor

	Major1	Major2	Minor2
Conflicting Flow All	1530	0	0 2546 1384
Stage 1	-	-	- 1384 -
Stage 2	-	-	- 1162 -
Critical Hdwy	4.16	-	- 6.42 6.32
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.254	-	- 3.518 3.408
Pot Cap-1 Maneuver	424	-	- ~ 30 167
Stage 1	-	-	- ~ 232 -
Stage 2	-	-	- 298 -
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	424	-	- ~ 12 167
Mov Cap-2 Maneuver	-	-	- ~ 12 -
Stage 1	-	-	- ~ 97 -
Stage 2	-	-	- 298 -

Approach

	EB	WB	SB
HCM Control Delay, s	2	0	\$ 11409
HCM LOS			F

Minor Lane/Major Mvmt

	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	424	-	-	-	16
HCM Lane V/C Ratio	0.286	-	-	-	-25.332
HCM Control Delay (s)	16.9	0	-	-	\$ 11409
HCM Lane LOS	C	A	-	-	F
HCM 95th %tile Q(veh)	1.2	-	-	-	51.6

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Queues
118: Star Road & SH 44

2045 Total Traffic Conditions (With Improvements) PM Peak Hour

01/13/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	162	668	412	202	964	114	462	334	144	111	370
v/c Ratio	1.36	0.89	0.57	0.94	1.19	0.15	1.44	0.67	0.28	0.44	1.19
Control Delay	234.2	54.6	22.3	73.6	133.0	1.3	249.8	54.1	12.7	38.5	160.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	234.2	54.6	22.3	73.6	133.0	1.3	249.8	54.1	12.7	38.5	160.9
Queue Length 50th (ft)	~151	579	180	104	~1094	0	~545	282	22	69	~411
Queue Length 95th (ft)	#304	#817	289	#264	#1353	12	#767	396	79	116	#619
Internal Link Dist (ft)		2598			5173			1764			5156
Turn Bay Length (ft)	100		100	100		100	100		100	100	
Base Capacity (vph)	119	749	728	214	811	782	320	501	507	255	311
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.36	0.89	0.57	0.94	1.19	0.15	1.44	0.67	0.28	0.44	1.19

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis Traffic Conditions (With Improvements) PM Peak Hour
 118: Star Road & SH 44 01/13/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (vph)	160	661	408	200	954	113	457	331	143	110	254	112		
Future Volume (vph)	160	661	408	200	954	113	457	331	143	110	254	112		
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800		
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95	0.95		
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		
Satd. Flow (prot)	1693	1782	1515	1676	1782	1530	1710	1800	1530	1660	1677	1677		
Flt Permitted	0.07	1.00	1.00	0.11	1.00	1.00	0.12	1.00	1.00	0.49	1.00	1.00		
Satd. Flow (perm)	117	1782	1515	192	1782	1530	225	1800	1530	849	1677	1677		
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99		
Adj. Flow (vph)	162	668	412	202	964	114	462	334	144	111	257	113		
RTOR Reduction (vph)	0	0	92	0	0	62	0	0	82	0	11	0		
Lane Group Flow (vph)	162	668	320	202	964	52	462	334	62	111	359	0		
Heavy Vehicles (%)	1%	1%	1%	2%	1%	0%	0%	0%	0%	3%	3%	1%		
Turn Type	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	NA		
Protected Phases	1	6	6	5	2	2	3	8	8	7	4	4		
Permitted Phases	6			2			8			4				
Actuated Green, G (s)	67.0	61.0	61.0	77.0	66.0	66.0	55.0	40.4	40.4	34.6	26.0	26.0		
Effective Green, g (s)	67.0	61.0	61.0	77.0	66.0	66.0	55.0	40.4	40.4	34.6	26.0	26.0		
Actuated g/C Ratio	0.46	0.42	0.42	0.53	0.46	0.46	0.38	0.28	0.28	0.24	0.18	0.18		
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		
Vehicle Extension (s)	2.0	2.5	2.5	2.0	2.5	2.5	2.0	2.0	2.0	2.0	2.0	2.0		
Lane Grp Cap (vph)	119	749	637	214	811	696	320	501	426	250	300	300		
v/s Ratio Prot	0.06	0.37	0.21	c0.07	c0.54	0.03	c0.23	0.19	0.04	0.03	0.21	0.21		
v/s Ratio Perm	c0.57			0.43			c0.32			0.08				
v/c Ratio	1.36	0.89	0.50	0.94	1.19	0.07	1.44	0.67	0.15	0.44	1.20	1.20		
Uniform Delay, d1	35.2	38.9	30.9	31.2	39.5	22.3	44.9	46.3	39.3	45.1	59.5	59.5		
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	207.3	15.1	2.8	45.2	97.1	0.0	216.6	2.6	0.1	0.5	116.7	116.7		
Delay (s)	242.5	54.1	33.7	76.4	136.6	22.3	261.5	48.9	39.4	45.5	176.2	176.2		
Level of Service	F	D	C	E	F	C	F	D	D	D	F	F		
Approach Delay (s)		71.9			116.9			151.9			146.1			
Approach LOS		E			F			F			F			
Intersection Summary														
HCM 2000 Control Delay			114.6									HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio			1.40											
Actuated Cycle Length (s)			145.0								24.0			
Intersection Capacity Utilization			130.4%										ICU Level of Service	H
Analysis Period (min)			15											
c Critical Lane Group														

HCM 6th Signalized Intersection Total Traffic Conditions (With Improvements) PM Peak Hour
 118: Star Road & SH 44 01/13/2023

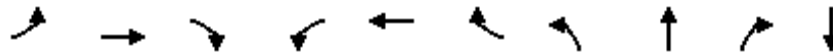
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	661	408	200	954	113	457	331	143	110	254	112
Future Volume (veh/h)	160	661	408	200	954	113	457	331	143	110	254	112
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1786	1786	1786	1772	1786	1800	1800	1800	1800	1758	1758	1786
Adj Flow Rate, veh/h	162	668	412	202	964	114	462	334	144	111	257	113
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	1	1	1	2	1	0	0	0	0	3	3	1
Cap, veh/h	120	751	637	217	813	694	322	497	421	254	208	91
Arrive On Green	0.04	0.42	0.42	0.08	0.46	0.46	0.16	0.28	0.28	0.06	0.18	0.18
Sat Flow, veh/h	1701	1786	1514	1688	1786	1525	1714	1800	1525	1674	1157	509
Grp Volume(v), veh/h	162	668	412	202	964	114	462	334	144	111	0	370
Grp Sat Flow(s),veh/h/ln	1701	1786	1514	1688	1786	1525	1714	1800	1525	1674	0	1666
Q Serve(g_s), s	6.0	50.2	31.4	9.8	66.0	6.4	23.0	23.9	10.9	7.8	0.0	26.0
Cycle Q Clear(g_c), s	6.0	50.2	31.4	9.8	66.0	6.4	23.0	23.9	10.9	7.8	0.0	26.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.31
Lane Grp Cap(c), veh/h	120	751	637	217	813	694	322	497	421	254	0	299
V/C Ratio(X)	1.35	0.89	0.65	0.93	1.19	0.16	1.44	0.67	0.34	0.44	0.00	1.24
Avail Cap(c_a), veh/h	120	751	637	217	813	694	322	497	421	254	0	299
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	36.0	38.9	33.4	32.5	39.5	23.3	44.7	46.7	42.0	45.1	0.0	59.5
Incr Delay (d2), s/veh	202.3	14.8	5.0	42.1	95.9	0.1	213.5	2.9	0.2	0.4	0.0	132.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.2	24.9	12.5	6.4	50.1	2.4	28.9	11.2	4.2	3.3	0.0	22.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	238.3	53.7	38.5	74.7	135.4	23.3	258.2	49.6	42.2	45.5	0.0	192.1
LnGrp LOS	F	D	D	E	F	C	F	D	D	D	A	F
Approach Vol, veh/h		1242			1280			940			481	
Approach Delay, s/veh		72.7			115.9			151.0			158.3	
Approach LOS		E			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	72.0	29.0	32.0	17.0	67.0	15.0	46.0				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	6.0	66.0	23.0	26.0	11.0	61.0	9.0	40.0				
Max Q Clear Time (g_c+I1), s	8.0	68.0	25.0	28.0	11.8	52.2	9.8	25.9				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	3.4	0.0	1.3				
Intersection Summary												
HCM 6th Ctrl Delay	115.8											
HCM 6th LOS	F											

Queues

2045 Total Traffic Conditions (With Improvements) PM Peak Hour

119: Plummer Road & SH 44

01/13/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	71	825	58	108	1319	306	113	116	158	522
v/c Ratio	0.68	0.86	0.07	0.61	1.37	0.36	0.34	0.21	0.28	1.36
Control Delay	51.8	40.2	4.0	28.2	203.8	16.8	43.3	39.2	6.4	215.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.8	40.2	4.0	28.2	203.8	16.8	43.3	39.2	6.4	215.3
Queue Length 50th (ft)	27	672	0	42	~1700	131	85	84	0	~666
Queue Length 95th (ft)	#99	890	22	70	#1967	199	145	138	53	#898
Internal Link Dist (ft)		5173			3517			675		5173
Turn Bay Length (ft)	100		100	100		100	100		100	
Base Capacity (vph)	104	962	852	178	962	854	330	553	569	385
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.86	0.07	0.61	1.37	0.36	0.34	0.21	0.28	1.36

Intersection Summary

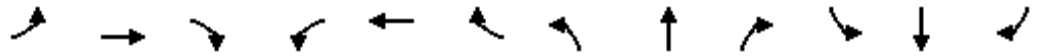
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis Traffic Conditions (With Improvements) PM Peak Hour
 119: Plummer Road & SH 44 01/13/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	784	55	103	1253	291	107	110	150	324	78	94
Future Volume (vph)	67	784	55	103	1253	291	107	110	150	324	78	94
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0		5.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1710	1782	1530	1710	1782	1530	1710	1765	1471		1678	
Flt Permitted	0.05	1.00	1.00	0.13	1.00	1.00	0.59	1.00	1.00		0.70	
Satd. Flow (perm)	89	1782	1530	226	1782	1530	1055	1765	1471		1215	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	71	825	58	108	1319	306	113	116	158	341	82	99
RTOR Reduction (vph)	0	0	27	0	0	28	0	0	108	0	5	0
Lane Group Flow (vph)	71	825	31	108	1319	278	113	116	50	0	517	0
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	2%	4%	1%	0%	3%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6		6	2		2	4		4	8		
Actuated Green, G (s)	86.0	81.0	81.0	86.0	81.0	81.0	47.0	47.0	47.0		47.0	
Effective Green, g (s)	86.0	81.0	81.0	86.0	81.0	81.0	47.0	47.0	47.0		47.0	
Actuated g/C Ratio	0.57	0.54	0.54	0.57	0.54	0.54	0.31	0.31	0.31		0.31	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0		5.0	
Vehicle Extension (s)	2.5	4.0	4.0	2.5	4.0	4.0	2.5	2.5	2.5		2.5	
Lane Grp Cap (vph)	105	962	826	179	962	826	330	553	460		380	
v/s Ratio Prot	c0.02	0.46		0.02	c0.74			0.07				
v/s Ratio Perm	0.37		0.02	0.33		0.18	0.11		0.03		c0.43	
v/c Ratio	0.68	0.86	0.04	0.60	1.37	0.34	0.34	0.21	0.11		1.36	
Uniform Delay, d1	34.8	29.6	16.2	25.6	34.5	19.4	39.6	37.9	36.6		51.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	
Incremental Delay, d2	14.5	7.9	0.0	4.8	173.6	0.3	0.5	0.1	0.1		177.9	
Delay (s)	49.3	37.5	16.2	30.3	208.1	19.7	40.1	38.0	36.7		229.4	
Level of Service	D	D	B	C	F	B	D	D	D		F	
Approach Delay (s)		37.1			163.8			38.1			229.4	
Approach LOS		D			F			D			F	

Intersection Summary		
HCM 2000 Control Delay	126.2	HCM 2000 Level of Service F
HCM 2000 Volume to Capacity ratio	1.34	
Actuated Cycle Length (s)	150.0	Sum of lost time (s) 17.0
Intersection Capacity Utilization	123.9%	ICU Level of Service H
Analysis Period (min)	15	
c Critical Lane Group		

HCM 6th Signalized Intersection Total Traffic Conditions (With Improvements) PM Peak Hour
 119: Plummer Road & SH 44 01/13/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	784	55	103	1253	291	107	110	150	324	78	94
Future Volume (veh/h)	67	784	55	103	1253	291	107	110	150	324	78	94
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1786	1800	1800	1786	1800	1800	1772	1744	1786	1800	1758
Adj Flow Rate, veh/h	71	825	58	108	1319	306	113	116	158	341	82	99
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	1	0	0	1	0	0	2	4	1	0	3
Cap, veh/h	102	963	823	197	966	825	417	556	464	259	53	64
Arrive On Green	0.03	0.54	0.54	0.03	0.54	0.54	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1714	1786	1525	1714	1786	1525	1222	1772	1478	697	168	202
Grp Volume(v), veh/h	71	825	58	108	1319	306	113	116	158	522	0	0
Grp Sat Flow(s),veh/h/ln	1714	1786	1525	1714	1786	1525	1222	1772	1478	1067	0	0
Q Serve(g_s), s	2.8	59.2	2.7	4.3	81.0	17.2	0.0	7.2	12.3	39.8	0.0	0.0
Cycle Q Clear(g_c), s	2.8	59.2	2.7	4.3	81.0	17.2	10.9	7.2	12.3	47.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.65		0.19
Lane Grp Cap(c), veh/h	102	963	823	197	966	825	417	556	464	375	0	0
V/C Ratio(X)	0.69	0.86	0.07	0.55	1.37	0.37	0.27	0.21	0.34	1.39	0.00	0.00
Avail Cap(c_a), veh/h	105	966	825	197	966	825	417	556	464	375	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	36.2	29.5	16.5	28.7	34.4	19.7	39.0	37.7	39.5	57.1	0.0	0.0
Incr Delay (d2), s/veh	16.1	7.9	0.1	2.6	171.1	0.4	0.3	0.1	0.3	192.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	27.1	1.0	1.9	80.0	6.3	3.2	3.2	4.6	34.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.3	37.5	16.6	31.3	205.4	20.1	39.2	37.9	39.8	249.5	0.0	0.0
LnGrp LOS	D	D	B	C	F	C	D	D	D	F	A	A
Approach Vol, veh/h		954			1733			387			522	
Approach Delay, s/veh		37.3			161.9			39.0			249.5	
Approach LOS		D			F			D			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.7	87.0		52.0	11.0	86.7		52.0				
Change Period (Y+Rc), s	6.0	6.0		5.0	6.0	6.0		5.0				
Max Green Setting (Gmax), s	5.0	81.0		47.0	5.0	81.0		47.0				
Max Q Clear Time (g_c+I1), s	4.8	83.0		14.3	6.3	61.2		49.0				
Green Ext Time (p_c), s	0.0	0.0		1.2	0.0	8.7		0.0				
Intersection Summary												
HCM 6th Ctrl Delay	128.3											
HCM 6th LOS	F											



Appendix V
Year 2045 Mitigated Total
Traffic (with Select Roadway
Improvements)
Operation Worksheets

Queues
101: Can Ada Road & Purple Sage Road

2045 Total Traffic (With Imp) Mit AM Peak Hour

01/24/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	20	287	117	100	112	84	1	61
v/c Ratio	0.04	0.56	0.29	0.15	0.26	0.16	0.00	0.16
Control Delay	8.2	8.9	9.9	11.1	11.7	7.8	10.0	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.2	8.9	9.9	11.1	11.7	7.8	10.0	13.0
Queue Length 50th (ft)	3	10	17	14	16	4	0	8
Queue Length 95th (ft)	12	59	42	53	48	35	3	34
Internal Link Dist (ft)		1940		7299		2000		3210
Turn Bay Length (ft)	100		100		100		100	
Base Capacity (vph)	450	921	402	921	429	895	422	918
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.31	0.29	0.11	0.26	0.09	0.00	0.07

Intersection Summary

HCM Signalized Intersection Capacity Analysis 2045 Total Traffic (With Imp) Mit AM Peak Hour
 101: Can Ada Road & Purple Sage Road

01/24/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	44	214	105	89	1	101	23	52	1	33	22
Future Volume (vph)	18	44	214	105	89	1	101	23	52	1	33	22
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.88		1.00	1.00		1.00	0.90		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1710	1576		1710	1797		1644	1614		1710	1694	
Flt Permitted	0.69	1.00		0.37	1.00		0.61	1.00		0.70	1.00	
Satd. Flow (perm)	1246	1576		668	1797		1049	1614		1264	1694	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	20	49	238	117	99	1	112	26	58	1	37	24
RTOR Reduction (vph)	0	181	0	0	1	0	0	43	0	0	19	0
Lane Group Flow (vph)	20	106	0	117	99	0	112	41	0	1	42	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	4%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	11.5	10.7		17.5	13.7		14.2	11.6		10.6	9.8	
Effective Green, g (s)	11.5	10.7		17.5	13.7		14.2	11.6		10.6	9.8	
Actuated g/C Ratio	0.26	0.24		0.39	0.31		0.32	0.26		0.24	0.22	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	327	375		348	548		366	416		306	369	
v/s Ratio Prot	0.00	0.07		c0.03	0.06		c0.02	0.03		0.00	0.02	
v/s Ratio Perm	0.01			c0.10			c0.08			0.00		
v/c Ratio	0.06	0.28		0.34	0.18		0.31	0.10		0.00	0.11	
Uniform Delay, d1	12.6	14.0		9.3	11.5		11.3	12.7		13.1	14.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.4		0.6	0.2		0.5	0.1		0.0	0.1	
Delay (s)	12.6	14.4		9.9	11.6		11.8	12.8		13.1	14.2	
Level of Service	B	B		A	B		B	B		B	B	
Approach Delay (s)		14.3			10.7			12.2			14.2	
Approach LOS		B			B			B			B	

Intersection Summary		
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.38	B
Actuated Cycle Length (s)	44.9	Sum of lost time (s)
Intersection Capacity Utilization	46.3%	18.0
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		A

HCM 6th Signalized Intersection Summary
101: Can Ada Road & Purple Sage Road

2045 Total Traffic (With Imp) Mit AM Peak Hour

01/24/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	18	44	214	105	89	1	101	23	52	1	33	22
Future Volume (veh/h)	18	44	214	105	89	1	101	23	52	1	33	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1800	1800	1800	1744	1800	1800	1800	1800	1800
Adj Flow Rate, veh/h	20	49	238	117	99	1	112	26	58	1	37	24
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	4	0	0	0	0	0
Cap, veh/h	546	66	320	421	555	6	449	105	235	351	127	83
Arrive On Green	0.02	0.25	0.25	0.09	0.31	0.31	0.09	0.21	0.21	0.00	0.12	0.12
Sat Flow, veh/h	1714	267	1299	1714	1779	18	1661	496	1105	1714	1020	661
Grp Volume(v), veh/h	20	0	287	117	0	100	112	0	84	1	0	61
Grp Sat Flow(s),veh/h/ln	1714	0	1566	1714	0	1797	1661	0	1601	1714	0	1681
Q Serve(g_s), s	0.3	0.0	6.8	1.9	0.0	1.6	2.2	0.0	1.7	0.0	0.0	1.3
Cycle Q Clear(g_c), s	0.3	0.0	6.8	1.9	0.0	1.6	2.2	0.0	1.7	0.0	0.0	1.3
Prop In Lane	1.00		0.83	1.00		0.01	1.00		0.69	1.00		0.39
Lane Grp Cap(c), veh/h	546	0	385	421	0	561	449	0	340	351	0	210
V/C Ratio(X)	0.04	0.00	0.74	0.28	0.00	0.18	0.25	0.00	0.25	0.00	0.00	0.29
Avail Cap(c_a), veh/h	717	0	704	479	0	807	512	0	759	560	0	793
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.8	0.0	13.9	10.0	0.0	10.0	12.5	0.0	13.1	15.3	0.0	15.9
Incr Delay (d2), s/veh	0.0	0.0	2.9	0.4	0.0	0.2	0.3	0.0	0.4	0.0	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	2.2	0.6	0.0	0.5	0.7	0.0	0.6	0.0	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.8	0.0	16.8	10.4	0.0	10.2	12.8	0.0	13.5	15.3	0.0	16.7
LnGrp LOS	B	A	B	B	A	B	B	A	B	B	A	B
Approach Vol, veh/h		307			217			196				62
Approach Delay, s/veh		16.4			10.3			13.1				16.7
Approach LOS		B			B			B				B
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.6	13.0	8.1	14.4	8.1	9.5	5.5	17.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.0	19.0	5.0	18.0	5.1	18.9	5.0	18.0				
Max Q Clear Time (g_c+I1), s	2.0	3.7	3.9	8.8	4.2	3.3	2.3	3.6				
Green Ext Time (p_c), s	0.0	0.3	0.0	1.2	0.0	0.2	0.0	0.3				
Intersection Summary												
HCM 6th Ctrl Delay				13.9								
HCM 6th LOS				B								

Queues
109: Pollard Road & Beacon Light Road

2045 Total Traffic (With Imp) Mit AM Peak Hour

01/13/2023

























Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	3	492	44	164	87	12	209	126	72
v/c Ratio	0.01	0.70	0.13	0.23	0.11	0.03	0.52	0.36	0.14
Control Delay	7.7	21.5	8.7	11.6	0.7	13.5	12.7	16.8	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.7	21.5	8.7	11.6	0.7	13.5	12.7	16.8	12.3
Queue Length 50th (ft)	1	96	6	25	0	2	13	24	8
Queue Length 95th (ft)	4	#321	22	87	5	13	68	67	43
Internal Link Dist (ft)		3919		2558			3989		3904
Turn Bay Length (ft)	100		100		100	100		100	
Base Capacity (vph)	575	913	338	926	922	373	791	353	784
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.54	0.13	0.18	0.09	0.03	0.26	0.36	0.09

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Total Traffic (With Imp) Mit AM Peak Hour
 109: Pollard Road & Beacon Light Road 01/13/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	432	11	40	148	78	11	48	140	113	39	26
Future Volume (vph)	3	432	11	40	148	78	11	48	140	113	39	26
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.89		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1710	1742		1598	1667	1530	1710	1563		1710	1691	
Flt Permitted	0.65	1.00		0.27	1.00	1.00	0.71	1.00		0.44	1.00	
Satd. Flow (perm)	1176	1742		455	1667	1530	1278	1563		784	1691	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	3	480	12	44	164	87	12	53	156	126	43	29
RTOR Reduction (vph)	0	1	0	0	0	54	0	124	0	0	21	0
Lane Group Flow (vph)	3	491	0	44	164	33	12	85	0	126	51	0
Heavy Vehicles (%)	0%	3%	0%	7%	8%	0%	0%	0%	3%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	20.8	20.1		22.4	20.9	20.9	11.7	11.0		17.9	14.1	
Effective Green, g (s)	20.8	20.1		22.4	20.9	20.9	11.7	11.0		17.9	14.1	
Actuated g/C Ratio	0.38	0.37		0.41	0.38	0.38	0.22	0.20		0.33	0.26	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	456	643		218	640	587	280	316		322	438	
v/s Ratio Prot	0.00	c0.28		c0.01	0.10		0.00	0.05		c0.03	0.03	
v/s Ratio Perm	0.00			0.08		0.02	0.01			c0.10		
v/c Ratio	0.01	0.76		0.20	0.26	0.06	0.04	0.27		0.39	0.12	
Uniform Delay, d1	10.4	15.1		10.5	11.4	10.5	16.9	18.3		13.4	15.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	5.4		0.5	0.2	0.0	0.1	0.5		0.8	0.1	
Delay (s)	10.4	20.4		11.0	11.7	10.6	16.9	18.8		14.2	15.5	
Level of Service	B	C		B	B	B	B	B		B	B	
Approach Delay (s)		20.4			11.2			18.7			14.7	
Approach LOS		C			B			B			B	
Intersection Summary												
HCM 2000 Control Delay			16.9	HCM 2000 Level of Service				B				
HCM 2000 Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			54.4	Sum of lost time (s)				18.0				
Intersection Capacity Utilization			62.2%	ICU Level of Service				B				
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
 109: Pollard Road & Beacon Light Road

2045 Total Traffic (With Imp) Mit AM Peak Hour
 01/13/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↖	↖	↗		↖	↗	
Traffic Volume (veh/h)	3	432	11	40	148	78	11	48	140	113	39	26
Future Volume (veh/h)	3	432	11	40	148	78	11	48	140	113	39	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1758	1800	1702	1688	1800	1800	1800	1758	1800	1800	1800
Adj Flow Rate, veh/h	3	480	12	44	164	87	12	53	156	126	43	29
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	3	0	7	8	0	0	0	3	0	0	0
Cap, veh/h	505	573	14	282	636	575	413	73	214	351	248	167
Arrive On Green	0.00	0.34	0.34	0.05	0.38	0.38	0.02	0.18	0.18	0.08	0.25	0.25
Sat Flow, veh/h	1714	1708	43	1621	1688	1525	1714	402	1184	1714	1002	676
Grp Volume(v), veh/h	3	0	492	44	164	87	12	0	209	126	0	72
Grp Sat Flow(s),veh/h/ln	1714	0	1750	1621	1688	1525	1714	0	1587	1714	0	1678
Q Serve(g_s), s	0.1	0.0	13.1	0.9	3.4	1.9	0.3	0.0	6.3	2.9	0.0	1.7
Cycle Q Clear(g_c), s	0.1	0.0	13.1	0.9	3.4	1.9	0.3	0.0	6.3	2.9	0.0	1.7
Prop In Lane	1.00		0.02	1.00		1.00	1.00		0.75	1.00		0.40
Lane Grp Cap(c), veh/h	505	0	587	282	636	575	413	0	287	351	0	416
V/C Ratio(X)	0.01	0.00	0.84	0.16	0.26	0.15	0.03	0.00	0.73	0.36	0.00	0.17
Avail Cap(c_a), veh/h	667	0	778	368	750	678	556	0	608	383	0	647
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.1	0.0	15.5	11.8	10.9	10.4	16.5	0.0	19.5	14.7	0.0	15.0
Incr Delay (d2), s/veh	0.0	0.0	6.2	0.3	0.2	0.1	0.0	0.0	3.5	0.6	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	5.4	0.3	1.1	0.6	0.1	0.0	2.4	1.0	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.1	0.0	21.7	12.0	11.1	10.5	16.5	0.0	23.0	15.3	0.0	15.2
LnGrp LOS	B	A	C	B	B	B	B	A	C	B	A	B
Approach Vol, veh/h		495			295			221			198	
Approach Delay, s/veh		21.6			11.1			22.7			15.3	
Approach LOS		C			B			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.6	13.7	6.8	21.5	5.3	17.0	4.7	23.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.1	19.4	5.0	22.5	5.0	19.5	5.0	22.5				
Max Q Clear Time (g_c+I1), s	4.9	8.3	2.9	15.1	2.3	3.7	2.1	5.4				
Green Ext Time (p_c), s	0.0	0.9	0.0	1.8	0.0	0.2	0.0	1.1				
Intersection Summary												
HCM 6th Ctrl Delay			18.2									
HCM 6th LOS			B									

Queues
110: SH 16 & Beacon Light Road

2045 Total Traffic (With Imp) Mit AM Peak Hour

01/13/2023



























Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	23	289	277	149	101	119	98	439	200	293	1082	7
v/c Ratio	0.06	0.72	0.53	0.51	0.22	0.08	0.57	0.50	0.36	0.64	0.84	0.01
Control Delay	19.4	43.2	11.0	27.6	26.7	2.7	30.3	31.1	4.6	21.7	33.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.4	43.2	11.0	27.6	26.7	2.7	30.3	31.1	4.6	21.7	33.3	0.0
Queue Length 50th (ft)	9	161	23	61	41	0	29	112	0	99	301	0
Queue Length 95th (ft)	25	248	93	106	94	14	#73	174	38	176	#461	0
Internal Link Dist (ft)		2558			3836			5106			1084	
Turn Bay Length (ft)	100		100	100		100	100		100	100		100
Base Capacity (vph)	381	555	634	293	477	1583	173	1035	623	488	1403	747
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.52	0.44	0.51	0.21	0.08	0.57	0.42	0.32	0.60	0.77	0.01

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Total Traffic (With Imp) Mit AM Peak Hour
 110: SH 16 & Beacon Light Road

01/13/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	260	249	134	91	107	88	395	180	264	974	6
Future Volume (vph)	21	260	249	134	91	107	88	395	180	264	974	6
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1710	1782	1530	1644	1374	2614	1710	3420	1530	1693	3288	1530
Flt Permitted	0.69	1.00	1.00	0.33	1.00	1.00	0.16	1.00	1.00	0.33	1.00	1.00
Satd. Flow (perm)	1245	1782	1530	574	1374	2614	295	3420	1530	587	3288	1530
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	23	289	277	149	101	119	98	439	200	293	1082	7
RTOR Reduction (vph)	0	0	170	0	0	64	0	0	148	0	0	4
Lane Group Flow (vph)	23	289	107	149	101	55	98	439	52	293	1082	3
Heavy Vehicles (%)	0%	1%	0%	4%	31%	3%	0%	0%	0%	1%	4%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2	7	3	8		7	4	
Permitted Phases	6		6	2		2	8		8	4		4
Actuated Green, G (s)	26.0	24.2	24.2	36.8	29.6	43.8	28.2	24.4	24.4	44.6	34.8	34.8
Effective Green, g (s)	26.0	24.2	24.2	36.8	29.6	43.8	28.2	24.4	24.4	44.6	34.8	34.8
Actuated g/C Ratio	0.28	0.26	0.26	0.39	0.31	0.47	0.30	0.26	0.26	0.47	0.37	0.37
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	353	458	393	306	432	1384	145	887	397	445	1217	566
v/s Ratio Prot	0.00	c0.16		c0.04	0.07	0.01	0.03	0.13		c0.10	c0.33	
v/s Ratio Perm	0.02		0.07	0.15		0.02	0.17		0.03	0.21		0.00
v/c Ratio	0.07	0.63	0.27	0.49	0.23	0.04	0.68	0.49	0.13	0.66	0.89	0.00
Uniform Delay, d1	24.9	30.9	27.9	20.2	23.8	13.7	25.7	29.6	26.7	16.5	27.8	18.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	2.8	0.4	1.2	0.3	0.0	11.8	0.4	0.2	3.5	8.2	0.0
Delay (s)	25.0	33.8	28.2	21.4	24.1	13.7	37.5	30.0	26.8	20.0	36.0	18.7
Level of Service	C	C	C	C	C	B	D	C	C	C	D	B
Approach Delay (s)		30.8			19.6			30.1			32.5	
Approach LOS		C			B			C			C	
Intersection Summary												
HCM 2000 Control Delay			30.1		HCM 2000 Level of Service					C		
HCM 2000 Volume to Capacity ratio			0.79									
Actuated Cycle Length (s)			94.0		Sum of lost time (s)					24.0		
Intersection Capacity Utilization			75.8%		ICU Level of Service					D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
110: SH 16 & Beacon Light Road

2045 Total Traffic (With Imp) Mit AM Peak Hour

01/13/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑	↗	↘	↑	↗↗	↘	↑↑	↗	↘	↑↑	↗
Traffic Volume (veh/h)	21	260	249	134	91	107	88	395	180	264	974	6
Future Volume (veh/h)	21	260	249	134	91	107	88	395	180	264	974	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1786	1800	1744	1365	1758	1800	1800	1800	1786	1744	1800
Adj Flow Rate, veh/h	23	289	277	149	101	119	98	439	200	293	1082	7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	1	0	4	31	3	0	0	0	1	4	0
Cap, veh/h	376	389	333	268	372	1080	217	1003	447	469	1247	574
Arrive On Green	0.02	0.22	0.22	0.08	0.27	0.27	0.06	0.29	0.29	0.14	0.38	0.38
Sat Flow, veh/h	1714	1786	1525	1661	1365	2622	1714	3420	1525	1701	3313	1525
Grp Volume(v), veh/h	23	289	277	149	101	119	98	439	200	293	1082	7
Grp Sat Flow(s),veh/h/ln	1714	1786	1525	1661	1365	1311	1714	1710	1525	1701	1657	1525
Q Serve(g_s), s	0.9	13.4	15.4	6.1	5.2	2.5	3.5	9.2	9.5	10.1	26.8	0.3
Cycle Q Clear(g_c), s	0.9	13.4	15.4	6.1	5.2	2.5	3.5	9.2	9.5	10.1	26.8	0.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	376	389	333	268	372	1080	217	1003	447	469	1247	574
V/C Ratio(X)	0.06	0.74	0.83	0.56	0.27	0.11	0.45	0.44	0.45	0.62	0.87	0.01
Avail Cap(c_a), veh/h	430	543	464	268	446	1223	217	1003	447	538	1381	636
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.8	32.4	33.2	24.9	25.4	16.1	22.5	25.4	25.5	17.0	25.6	17.3
Incr Delay (d2), s/veh	0.1	3.4	8.9	2.5	0.4	0.0	1.5	0.3	0.7	1.8	5.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	6.0	6.4	2.5	1.7	0.7	1.4	3.7	3.4	3.9	11.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.9	35.8	42.1	27.4	25.8	16.1	24.0	25.7	26.2	18.8	31.3	17.3
LnGrp LOS	C	D	D	C	C	B	C	C	C	B	C	B
Approach Vol, veh/h		589			369			737			1382	
Approach Delay, s/veh		38.4			23.3			25.6			28.6	
Approach LOS		D			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.2	30.2	11.0	39.4	13.0	25.3	18.4	32.0				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	5.0	29.0	5.0	37.0	7.0	27.0	16.0	26.0				
Max Q Clear Time (g_c+I1), s	2.9	7.2	5.5	28.8	8.1	17.4	12.1	11.5				
Green Ext Time (p_c), s	0.0	1.0	0.0	4.6	0.0	1.9	0.3	3.1				
Intersection Summary												
HCM 6th Ctrl Delay			29.1									
HCM 6th LOS			C									

Queues
111: Palmer Lane & Beacon Light Road

2045 Total Traffic (With Imp) Mit AM Peak Hour
01/13/2023



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1102	21	27	538	30	42
v/c Ratio	0.61	0.03	0.07	0.28	0.10	0.16
Control Delay	8.4	3.5	3.5	4.2	16.7	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.4	3.5	3.5	4.2	16.7	8.6
Queue Length 50th (ft)	54	0	2	21	5	0
Queue Length 95th (ft)	179	9	7	40	26	21
Internal Link Dist (ft)	3836			6200		
Turn Bay Length (ft)		100	100		100	100
Base Capacity (vph)	2249	1022	369	3026	870	703
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.02	0.07	0.18	0.03	0.06
Intersection Summary						

HCM Signalized Intersection Capacity Analysis 2045 Total Traffic (With Imp) Mit AM Peak Hour
 111: Palmer Lane & Beacon Light Road 01/13/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↵	↑↑	↵	↑
Traffic Volume (vph)	992	19	24	484	27	38
Future Volume (vph)	992	19	24	484	27	38
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3386	1530	1710	3420	1710	1342
Flt Permitted	1.00	1.00	0.17	1.00	0.95	1.00
Satd. Flow (perm)	3386	1530	299	3420	1710	1342
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1102	21	27	538	30	42
RTOR Reduction (vph)	0	9	0	0	0	35
Lane Group Flow (vph)	1102	12	27	538	30	7
Heavy Vehicles (%)	1%	0%	0%	0%	0%	14%
Turn Type	NA	Perm	pm+pt	NA	Prot	Prot
Protected Phases	4		3	8	1	1
Permitted Phases		4	8			
Actuated Green, G (s)	19.6	19.6	24.8	24.8	6.5	6.5
Effective Green, g (s)	19.6	19.6	24.8	24.8	6.5	6.5
Actuated g/C Ratio	0.49	0.49	0.62	0.62	0.16	0.16
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1646	744	208	2104	275	216
v/s Ratio Prot	c0.33		0.00	c0.16	c0.02	0.01
v/s Ratio Perm		0.01	0.08			
v/c Ratio	0.67	0.02	0.13	0.26	0.11	0.03
Uniform Delay, d1	7.9	5.4	4.3	3.5	14.4	14.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.0	0.3	0.1	0.2	0.1
Delay (s)	8.9	5.4	4.6	3.6	14.6	14.3
Level of Service	A	A	A	A	B	B
Approach Delay (s)	8.9			3.6	14.4	
Approach LOS	A			A	B	

Intersection Summary			
HCM 2000 Control Delay	7.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	40.3	Sum of lost time (s)	13.5
Intersection Capacity Utilization	40.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
 111: Palmer Lane & Beacon Light Road

2045 Total Traffic (With Imp) Mit AM Peak Hour
 01/13/2023

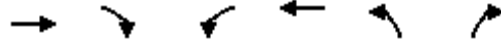


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Volume (veh/h)	992	19	24	484	27	38
Future Volume (veh/h)	992	19	24	484	27	38
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1786	1800	1800	1800	1800	1603
Adj Flow Rate, veh/h	1102	21	27	538	30	42
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	1	0	0	0	0	14
Cap, veh/h	1602	720	360	2138	230	182
Arrive On Green	0.47	0.47	0.03	0.63	0.13	0.13
Sat Flow, veh/h	3483	1525	1714	3510	1714	1359
Grp Volume(v), veh/h	1102	21	27	538	30	42
Grp Sat Flow(s),veh/h/ln	1697	1525	1714	1710	1714	1359
Q Serve(g_s), s	9.5	0.3	0.3	2.6	0.6	1.0
Cycle Q Clear(g_c), s	9.5	0.3	0.3	2.6	0.6	1.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1602	720	360	2138	230	182
V/C Ratio(X)	0.69	0.03	0.08	0.25	0.13	0.23
Avail Cap(c_a), veh/h	2135	960	533	3022	826	655
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.7	5.3	5.6	3.1	14.3	14.5
Incr Delay (d2), s/veh	0.6	0.0	0.1	0.1	0.3	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.1	0.1	0.3	0.2	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	8.3	5.3	5.7	3.2	14.5	15.1
LnGrp LOS	A	A	A	A	B	B
Approach Vol, veh/h	1123			565	72	
Approach Delay, s/veh	8.3			3.3	14.9	
Approach LOS	A			A	B	
Timer - Assigned Phs			3	4	6	8
Phs Duration (G+Y+Rc), s			5.7	22.1	9.5	27.8
Change Period (Y+Rc), s			4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s			5.0	23.5	18.0	33.0
Max Q Clear Time (g_c+I1), s			2.3	11.5	3.0	4.6
Green Ext Time (p_c), s			0.0	6.1	0.1	3.9
Intersection Summary						
HCM 6th Ctrl Delay			6.9			
HCM 6th LOS			A			

Queues
113: Star Road & Floating Feather Road

2045 Total Traffic (With Imp) Mit AM Peak Hour

01/13/2023



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	206	247	389	83	112	182
v/c Ratio	0.47	0.44	0.60	0.08	0.34	0.41
Control Delay	17.8	5.2	9.3	4.3	19.3	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.8	5.2	9.3	4.3	19.3	6.8
Queue Length 50th (ft)	43	0	40	7	24	0
Queue Length 95th (ft)	95	39	97	22	65	40
Internal Link Dist (ft)	2600			1170	5156	
Turn Bay Length (ft)		100	100		100	
Base Capacity (vph)	757	796	672	1429	719	752
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.31	0.58	0.06	0.16	0.24

Intersection Summary

HCM Signalized Intersection Capacity Analysis 2045 Total Traffic (With Imp) Mit AM Peak Hour
 113: Star Road & Floating Feather Road

01/13/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	185	222	350	75	101	164
Future Volume (vph)	185	222	350	75	101	164
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1748	1515	1644	1800	1660	1500
Flt Permitted	1.00	1.00	0.45	1.00	0.95	1.00
Satd. Flow (perm)	1748	1515	770	1800	1660	1500
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	206	247	389	83	112	182
RTOR Reduction (vph)	0	184	0	0	0	146
Lane Group Flow (vph)	206	63	389	83	112	36
Heavy Vehicles (%)	3%	1%	4%	0%	3%	2%
Turn Type	NA	Perm	pm+pt	NA	Prot	Prot
Protected Phases	4		3	8	2	2
Permitted Phases		4	8			
Actuated Green, G (s)	10.9	10.9	25.1	25.1	8.4	8.4
Effective Green, g (s)	10.9	10.9	25.1	25.1	8.4	8.4
Actuated g/C Ratio	0.26	0.26	0.59	0.59	0.20	0.20
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	448	388	654	1063	328	296
v/s Ratio Prot	0.12		c0.14	0.05	c0.07	0.02
v/s Ratio Perm		0.04	c0.22			
v/c Ratio	0.46	0.16	0.59	0.08	0.34	0.12
Uniform Delay, d1	13.3	12.3	5.0	3.7	14.7	14.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.2	1.5	0.0	0.6	0.2
Delay (s)	14.1	12.5	6.5	3.8	15.3	14.2
Level of Service	B	B	A	A	B	B
Approach Delay (s)	13.2			6.0	14.6	
Approach LOS	B			A	B	

Intersection Summary

HCM 2000 Control Delay	10.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	42.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	47.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
113: Star Road & Floating Feather Road

2045 Total Traffic (With Imp) Mit AM Peak Hour

01/13/2023

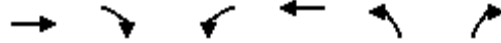


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (veh/h)	185	222	350	75	101	164
Future Volume (veh/h)	185	222	350	75	101	164
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1758	1786	1744	1800	1758	1772
Adj Flow Rate, veh/h	206	247	389	83	112	182
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	1	4	0	3	2
Cap, veh/h	425	366	674	1032	310	278
Arrive On Green	0.24	0.24	0.21	0.57	0.19	0.19
Sat Flow, veh/h	1758	1514	1661	1800	1674	1502
Grp Volume(v), veh/h	206	247	389	83	112	182
Grp Sat Flow(s),veh/h/ln	1758	1514	1661	1800	1674	1502
Q Serve(g_s), s	3.8	5.5	5.6	0.8	2.2	4.2
Cycle Q Clear(g_c), s	3.8	5.5	5.6	0.8	2.2	4.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	425	366	674	1032	310	278
V/C Ratio(X)	0.48	0.68	0.58	0.08	0.36	0.65
Avail Cap(c_a), veh/h	848	730	790	1592	808	724
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.2	12.8	6.7	3.6	13.3	14.1
Incr Delay (d2), s/veh	0.9	2.2	0.8	0.0	0.7	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	1.7	1.3	0.1	0.7	1.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.0	15.0	7.5	3.6	14.0	16.7
LnGrp LOS	B	B	A	A	B	B
Approach Vol, veh/h	453			472	294	
Approach Delay, s/veh	14.1			6.8	15.7	
Approach LOS	B			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		11.4	12.4	13.5		25.9
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		18.0	10.5	18.0		33.0
Max Q Clear Time (g_c+I1), s		6.2	7.6	7.5		2.8
Green Ext Time (p_c), s		0.7	0.4	1.5		0.4
Intersection Summary						
HCM 6th Ctrl Delay			11.6			
HCM 6th LOS			B			

Queues
114: Plummer Road & Floating Feather Road

2045 Total Traffic (With Imp) Mit AM Peak Hour

01/13/2023



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	213	359	43	98	103	67
v/c Ratio	0.36	0.48	0.09	0.14	0.24	0.15
Control Delay	11.0	4.0	5.0	5.2	13.9	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.0	4.0	5.0	5.2	13.9	6.0
Queue Length 50th (ft)	17	0	3	7	9	0
Queue Length 95th (ft)	79	40	13	24	54	22
Internal Link Dist (ft)	3891		1279		5173	
Turn Bay Length (ft)	100		100		100	
Base Capacity (vph)	1116	1107	463	1446	1090	1028
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.32	0.09	0.07	0.09	0.07

Intersection Summary

HCM Signalized Intersection Capacity Analysis 2045 Total Traffic (With Imp) Mit AM Peak Hour
 114: Plummer Road & Floating Feather Road

01/13/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	198	334	40	91	96	62
Future Volume (vph)	198	334	40	91	96	62
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1748	1530	1598	1698	1660	1530
Flt Permitted	1.00	1.00	0.44	1.00	0.95	1.00
Satd. Flow (perm)	1748	1530	736	1698	1660	1530
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	213	359	43	98	103	67
RTOR Reduction (vph)	0	246	0	0	0	51
Lane Group Flow (vph)	213	113	43	98	103	16
Heavy Vehicles (%)	3%	0%	7%	6%	3%	0%
Turn Type	NA	Perm	pm+pt	NA	Prot	Prot
Protected Phases	4		3	8	2	2
Permitted Phases		4	8			
Actuated Green, G (s)	10.5	10.5	16.4	16.4	8.1	8.1
Effective Green, g (s)	10.5	10.5	16.4	16.4	8.1	8.1
Actuated g/C Ratio	0.31	0.31	0.49	0.49	0.24	0.24
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	547	479	396	831	401	369
v/s Ratio Prot	c0.12		0.00	c0.06	c0.06	0.01
v/s Ratio Perm		0.07	0.05			
v/c Ratio	0.39	0.23	0.11	0.12	0.26	0.04
Uniform Delay, d1	9.0	8.5	4.8	4.6	10.3	9.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.3	0.1	0.1	0.3	0.0
Delay (s)	9.5	8.8	4.9	4.7	10.6	9.8
Level of Service	A	A	A	A	B	A
Approach Delay (s)	9.0			4.8	10.3	
Approach LOS	A			A	B	

Intersection Summary			
HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	33.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	33.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
 114: Plummer Road & Floating Feather Road

2045 Total Traffic (With Imp) Mit AM Peak Hour

01/13/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (veh/h)	198	334	40	91	96	62
Future Volume (veh/h)	198	334	40	91	96	62
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1758	1800	1702	1716	1758	1800
Adj Flow Rate, veh/h	213	359	43	98	103	67
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	0	7	6	3	0
Cap, veh/h	586	508	516	915	279	254
Arrive On Green	0.33	0.33	0.05	0.53	0.17	0.17
Sat Flow, veh/h	1758	1525	1621	1716	1674	1525
Grp Volume(v), veh/h	213	359	43	98	103	67
Grp Sat Flow(s),veh/h/ln	1758	1525	1621	1716	1674	1525
Q Serve(g_s), s	2.8	6.2	0.4	0.8	1.6	1.1
Cycle Q Clear(g_c), s	2.8	6.2	0.4	0.8	1.6	1.1
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	586	508	516	915	279	254
V/C Ratio(X)	0.36	0.71	0.08	0.11	0.37	0.26
Avail Cap(c_a), veh/h	1055	915	705	1573	1032	941
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.6	8.7	5.1	3.5	11.1	10.9
Incr Delay (d2), s/veh	0.4	1.8	0.1	0.1	0.8	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.5	0.1	0.1	0.5	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	8.0	10.5	5.1	3.5	11.9	11.4
LnGrp LOS	A	B	A	A	B	B
Approach Vol, veh/h	572			141	170	
Approach Delay, s/veh	9.6			4.0	11.7	
Approach LOS	A			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		9.5	6.0	14.5		20.5
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		18.5	5.0	18.0		27.5
Max Q Clear Time (g_c+I1), s		3.6	2.4	8.2		2.8
Green Ext Time (p_c), s		0.4	0.0	1.9		0.5
Intersection Summary						
HCM 6th Ctrl Delay			9.1			
HCM 6th LOS			A			

Queues
117: SH 44 & Can Ada Road

2045 Total Traffic (With Imp) Mit AM Peak Hour
01/13/2023



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	76	1161	485	114	286	157
v/c Ratio	0.21	0.69	0.37	0.17	0.59	0.32
Control Delay	8.0	11.4	12.8	4.2	20.3	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.0	11.4	12.8	4.2	20.3	5.0
Queue Length 50th (ft)	9	106	54	0	66	0
Queue Length 95th (ft)	29	201	100	27	134	32
Internal Link Dist (ft)		3717	2513		4604	
Turn Bay Length (ft)	200			150	100	
Base Capacity (vph)	359	2123	1412	702	722	663
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.55	0.34	0.16	0.40	0.24

Intersection Summary

HCM Signalized Intersection Capacity Analysis 2045 Total Traffic (With Imp) Mit AM Peak Hour
 117: SH 44 & Can Ada Road

01/13/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	71	1091	456	107	269	148
Future Volume (vph)	71	1091	456	107	269	148
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1326	3320	3288	1485	1710	1354
Flt Permitted	0.37	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	522	3320	3288	1485	1710	1354
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	76	1161	485	114	286	157
RTOR Reduction (vph)	0	0	0	70	0	114
Lane Group Flow (vph)	76	1161	485	44	286	43
Heavy Vehicles (%)	29%	3%	4%	3%	0%	13%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	25.1	25.1	17.9	17.9	12.8	12.8
Effective Green, g (s)	25.1	25.1	17.9	17.9	12.8	12.8
Actuated g/C Ratio	0.54	0.54	0.38	0.38	0.27	0.27
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	325	1776	1254	566	466	369
v/s Ratio Prot	0.01	c0.35	0.15		c0.17	
v/s Ratio Perm	0.11			0.03		0.03
v/c Ratio	0.23	0.65	0.39	0.08	0.61	0.12
Uniform Delay, d1	5.7	7.8	10.5	9.2	14.9	12.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.9	0.2	0.1	2.4	0.1
Delay (s)	6.0	8.7	10.7	9.3	17.3	12.9
Level of Service	A	A	B	A	B	B
Approach Delay (s)		8.5	10.4		15.7	
Approach LOS		A	B		B	

Intersection Summary

HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	46.9	Sum of lost time (s)	13.5
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
 117: SH 44 & Can Ada Road

2045 Total Traffic (With Imp) Mit AM Peak Hour
 01/13/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	71	1091	456	107	269	148	
Future Volume (veh/h)	71	1091	456	107	269	148	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1393	1758	1744	1758	1800	1617	
Adj Flow Rate, veh/h	76	1161	485	114	286	157	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	
Percent Heavy Veh, %	29	3	4	3	0	13	
Cap, veh/h	427	1737	1077	484	406	325	
Arrive On Green	0.07	0.52	0.33	0.33	0.24	0.24	
Sat Flow, veh/h	1327	3428	3400	1490	1714	1371	
Grp Volume(v), veh/h	76	1161	485	114	286	157	
Grp Sat Flow(s),veh/h/ln	1327	1670	1657	1490	1714	1371	
Q Serve(g_s), s	1.2	9.5	4.3	2.1	5.7	3.7	
Cycle Q Clear(g_c), s	1.2	9.5	4.3	2.1	5.7	3.7	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	427	1737	1077	484	406	325	
V/C Ratio(X)	0.18	0.67	0.45	0.24	0.70	0.48	
Avail Cap(c_a), veh/h	512	2500	1621	729	848	678	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	6.5	6.5	9.9	9.1	12.9	12.2	
Incr Delay (d2), s/veh	0.2	0.5	0.3	0.2	2.2	1.1	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.2	1.9	1.2	0.5	2.0	0.1	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	6.7	7.0	10.2	9.4	15.2	13.3	
LnGrp LOS	A	A	B	A	B	B	
Approach Vol, veh/h		1237	599		443		
Approach Delay, s/veh		7.0	10.0		14.5		
Approach LOS		A	B		B		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				23.7	13.3	7.2	16.5
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				27.7	18.3	5.1	18.1
Max Q Clear Time (g_c+I1), s				11.5	7.7	3.2	6.3
Green Ext Time (p_c), s				7.8	1.1	0.0	2.8
Intersection Summary							
HCM 6th Ctrl Delay			9.2				
HCM 6th LOS			A				

Queues
118: Star Road & SH 44

2045 Total Traffic (With Imp) Mit AM Peak Hour

01/13/2023



























Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	81	776	425	171	461	91	301	179	163	193	378	68
v/c Ratio	0.32	0.70	0.53	0.60	0.38	0.14	0.77	0.37	0.31	0.46	0.89	0.14
Control Delay	31.8	37.5	8.8	46.2	28.1	1.7	63.0	34.1	4.0	27.0	65.4	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.8	37.5	8.8	46.2	28.1	1.7	63.0	34.1	4.0	27.0	65.4	0.6
Queue Length 50th (ft)	43	269	63	92	136	0	112	104	0	91	272	0
Queue Length 95th (ft)	85	360	134	158	193	12	#169	167	32	143	#415	0
Internal Link Dist (ft)		2598			5173			1764			5156	
Turn Bay Length (ft)	200		200	200		200	150		150	100		100
Base Capacity (vph)	260	1103	822	299	1230	677	439	601	616	419	519	567
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.70	0.52	0.57	0.37	0.13	0.69	0.30	0.26	0.46	0.73	0.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Total Traffic (With Imp) Mit AM Peak Hour
 118: Star Road & SH 44

























01/13/2023

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (vph)	77	737	404	162	438	86	286	170	155	183	359	65		
Future Volume (vph)	77	737	404	162	438	86	286	170	155	183	359	65		
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800		
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00		
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		
Satd. Flow (prot)	1644	3226	1500	1583	3167	1530	3252	1714	1404	1710	1748	1457		
Flt Permitted	0.33	1.00	1.00	0.31	1.00	1.00	0.95	1.00	1.00	0.64	1.00	1.00		
Satd. Flow (perm)	564	3226	1500	514	3167	1530	3252	1714	1404	1160	1748	1457		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95		
Adj. Flow (vph)	81	776	425	171	461	91	301	179	163	193	378	68		
RTOR Reduction (vph)	0	0	111	0	0	56	0	0	117	0	0	52		
Lane Group Flow (vph)	81	776	314	171	461	35	301	179	46	193	378	16		
Heavy Vehicles (%)	4%	6%	2%	8%	8%	0%	2%	5%	9%	0%	3%	5%		
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm		
Protected Phases	1	6	3	5	2		3	8		7	4			
Permitted Phases	6		6	2		2			8	4		4		
Actuated Green, G (s)	38.3	38.3	51.7	43.2	43.2	43.2	13.4	31.6	31.6	36.0	27.1	27.1		
Effective Green, g (s)	38.3	38.3	51.7	43.2	43.2	43.2	13.4	31.6	31.6	36.0	27.1	27.1		
Actuated g/C Ratio	0.34	0.34	0.46	0.38	0.38	0.38	0.12	0.28	0.28	0.32	0.24	0.24		
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		
Vehicle Extension (s)	2.0	2.5	2.0	2.0	2.5	2.5	2.0	2.0	2.0	2.0	2.0	2.0		
Lane Grp Cap (vph)	242	1092	685	293	1209	584	385	478	392	412	418	349		
v/s Ratio Prot	0.02	c0.24	0.05	c0.05	0.15		c0.09	c0.10		0.04	c0.22			
v/s Ratio Perm	0.10		0.15	0.17		0.02			0.03	0.11		0.01		
v/c Ratio	0.33	0.71	0.46	0.58	0.38	0.06	0.78	0.37	0.12	0.47	0.90	0.05		
Uniform Delay, d1	26.6	32.6	21.1	34.0	25.3	22.1	48.4	32.8	30.3	29.6	41.7	33.1		
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	0.3	3.9	0.2	1.9	0.1	0.0	9.2	0.2	0.0	0.3	22.1	0.0		
Delay (s)	26.9	36.5	21.3	35.9	25.4	22.1	57.6	33.0	30.4	29.9	63.8	33.1		
Level of Service	C	D	C	D	C	C	E	C	C	C	E	C		
Approach Delay (s)		30.8			27.5			43.9			50.3			
Approach LOS		C			C			D			D			
Intersection Summary														
HCM 2000 Control Delay			36.4									HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio			0.77											
Actuated Cycle Length (s)			113.1								24.0			
Intersection Capacity Utilization			79.5%										ICU Level of Service	D
Analysis Period (min)			15											
c	Critical Lane Group													

HCM 6th Signalized Intersection Summary
118: Star Road & SH 44

2045 Total Traffic (With Imp) Mit AM Peak Hour

01/13/2023













												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	737	404	162	438	86	286	170	155	183	359	65
Future Volume (veh/h)	77	737	404	162	438	86	286	170	155	183	359	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1744	1716	1772	1688	1688	1800	1772	1730	1674	1800	1758	1730
Adj Flow Rate, veh/h	81	776	425	171	461	91	301	179	163	193	378	68
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	6	2	8	8	0	2	5	9	0	3	5
Cap, veh/h	282	1201	721	214	1180	561	365	456	374	408	420	351
Arrive On Green	0.05	0.37	0.37	0.05	0.37	0.37	0.11	0.26	0.26	0.09	0.24	0.24
Sat Flow, veh/h	1661	3260	1502	1607	3207	1525	3274	1730	1418	1714	1758	1466
Grp Volume(v), veh/h	81	776	425	171	461	91	301	179	163	193	378	68
Grp Sat Flow(s),veh/h/ln	1661	1630	1502	1607	1603	1525	1637	1730	1418	1714	1758	1466
Q Serve(g_s), s	3.5	20.3	12.1	1.8	10.9	4.1	9.3	8.8	7.7	8.8	21.5	3.8
Cycle Q Clear(g_c), s	3.5	20.3	12.1	1.8	10.9	4.1	9.3	8.8	7.7	8.8	21.5	3.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	282	1201	721	214	1180	561	365	456	374	408	420	351
V/C Ratio(X)	0.29	0.65	0.59	0.80	0.39	0.16	0.82	0.39	0.44	0.47	0.90	0.19
Avail Cap(c_a), veh/h	314	1201	721	293	1275	606	476	654	536	408	562	469
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.3	27.0	7.2	43.8	24.1	21.9	44.8	31.2	19.1	26.6	38.0	31.3
Incr Delay (d2), s/veh	0.2	2.7	3.5	7.2	0.2	0.1	6.9	0.2	0.3	0.3	12.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	8.2	4.0	4.6	4.1	1.5	4.1	3.7	2.5	3.6	10.5	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.5	29.7	10.7	50.9	24.2	22.0	51.7	31.4	19.4	26.9	50.0	31.4
LnGrp LOS	C	C	B	D	C	C	D	C	B	C	D	C
Approach Vol, veh/h		1282			723			643			639	
Approach Delay, s/veh		23.1			30.3			37.9			41.0	
Approach LOS		C			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	44.0	17.5	30.7	11.0	44.0	15.0	33.2				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	7.0	41.0	15.0	33.0	10.0	38.0	9.0	39.0				
Max Q Clear Time (g_c+I1), s	5.5	12.9	11.3	23.5	3.8	22.3	10.8	10.8				
Green Ext Time (p_c), s	0.0	2.9	0.2	1.2	0.1	5.3	0.0	0.9				
Intersection Summary												
HCM 6th Ctrl Delay				31.1								
HCM 6th LOS				C								

Queues

2045 Total Traffic (With Imp) Mit AM Peak Hour





























119: Plummer Road & SH 44

01/13/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	31	1086	35	60	604	119	47	13	86	526	42	84
v/c Ratio	0.08	0.77	0.05	0.30	0.40	0.16	0.21	0.09	0.31	0.71	0.08	0.16
Control Delay	10.0	24.2	0.1	13.6	16.3	1.6	23.0	38.7	3.0	35.6	25.3	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.0	24.2	0.1	13.6	16.3	1.6	23.0	38.7	3.0	35.6	25.3	3.4
Queue Length 50th (ft)	7	249	0	14	114	0	17	7	0	135	18	0
Queue Length 95th (ft)	20	340	0	33	163	15	40	24	1	193	43	21
Internal Link Dist (ft)		5173			3517			675			5173	
Turn Bay Length (ft)	100		100	100		100	100		100	200		200
Base Capacity (vph)	382	1649	806	199	1688	843	222	474	524	853	820	760
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.66	0.04	0.30	0.36	0.14	0.21	0.03	0.16	0.62	0.05	0.11
Intersection Summary												

HCM Signalized Intersection Capacity Analysis 2045 Total Traffic (With Imp) Mit AM Peak Hour
 119: Plummer Road & SH 44

01/13/2023

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations		 			 					 	 			
Traffic Volume (vph)	29	1032	33	57	574	113	45	12	82	500	40	80		
Future Volume (vph)	29	1032	33	57	574	113	45	12	82	500	40	80		
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800		
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00		
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		
Satd. Flow (prot)	1710	3320	1457	1660	3320	1500	1710	1800	1530	3285	1800	1530		
Flt Permitted	0.37	1.00	1.00	0.12	1.00	1.00	0.73	1.00	1.00	0.95	1.00	1.00		
Satd. Flow (perm)	661	3320	1457	214	3320	1500	1313	1800	1530	3285	1800	1530		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95		
Adj. Flow (vph)	31	1086	35	60	604	119	47	13	86	526	42	84		
RTOR Reduction (vph)	0	0	20	0	0	68	0	0	77	0	0	60		
Lane Group Flow (vph)	31	1086	15	60	604	51	47	13	9	526	42	24		
Heavy Vehicles (%)	0%	3%	5%	3%	3%	2%	0%	0%	0%	1%	0%	0%		
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm		
Protected Phases	7	4		3	8		5	2		1	6			
Permitted Phases	4		4	8		8	2		2			6		
Actuated Green, G (s)	36.9	34.2	34.2	38.9	35.2	35.2	11.5	8.7	8.7	17.5	23.4	23.4		
Effective Green, g (s)	36.9	34.2	34.2	38.9	35.2	35.2	11.5	8.7	8.7	17.5	23.4	23.4		
Actuated g/C Ratio	0.45	0.42	0.42	0.47	0.43	0.43	0.14	0.11	0.11	0.21	0.29	0.29		
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)	331	1382	606	166	1423	643	197	190	162	700	513	436		
v/s Ratio Prot	0.00	c0.33		c0.02	0.18		0.01	0.01		c0.16	0.02			
v/s Ratio Perm	0.04		0.01	0.15		0.03	c0.03		0.01			0.02		
v/c Ratio	0.09	0.79	0.02	0.36	0.42	0.08	0.24	0.07	0.06	0.75	0.08	0.05		
Uniform Delay, d1	12.8	20.8	14.1	14.3	16.4	13.9	31.2	33.1	33.0	30.3	21.5	21.3		
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	0.1	3.0	0.0	1.3	0.2	0.1	0.6	0.2	0.1	4.6	0.1	0.1		
Delay (s)	12.9	23.8	14.1	15.6	16.6	13.9	31.8	33.2	33.2	34.8	21.6	21.4		
Level of Service	B	C	B	B	B	B	C	C	C	C	C	C		
Approach Delay (s)		23.2			16.1			32.7			32.2			
Approach LOS		C			B			C			C			
Intersection Summary														
HCM 2000 Control Delay			23.8									HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio			0.68											
Actuated Cycle Length (s)			82.1								18.0			
Intersection Capacity Utilization			67.3%										ICU Level of Service	C
Analysis Period (min)			15											
c Critical Lane Group														

HCM 6th Signalized Intersection Summary
 119: Plummer Road & SH 44

2045 Total Traffic (With Imp) Mit AM Peak Hour

01/13/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗	↘	↑	↗	↘↗	↑	↗
Traffic Volume (veh/h)	29	1032	33	57	574	113	45	12	82	500	40	80
Future Volume (veh/h)	29	1032	33	57	574	113	45	12	82	500	40	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1758	1730	1758	1758	1772	1800	1800	1800	1786	1800	1800
Adj Flow Rate, veh/h	31	1086	35	60	604	119	47	13	86	526	42	84
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	3	5	3	3	2	0	0	0	1	0	0
Cap, veh/h	382	1378	605	249	1434	645	286	155	131	651	433	367
Arrive On Green	0.03	0.41	0.41	0.05	0.43	0.43	0.04	0.09	0.09	0.20	0.24	0.24
Sat Flow, veh/h	1714	3340	1466	1674	3340	1502	1714	1800	1525	3300	1800	1525
Grp Volume(v), veh/h	31	1086	35	60	604	119	47	13	86	526	42	84
Grp Sat Flow(s),veh/h/ln	1714	1670	1466	1674	1670	1502	1714	1800	1525	1650	1800	1525
Q Serve(g_s), s	0.7	20.0	1.0	1.4	8.9	3.5	1.7	0.5	3.9	10.7	1.3	3.1
Cycle Q Clear(g_c), s	0.7	20.0	1.0	1.4	8.9	3.5	1.7	0.5	3.9	10.7	1.3	3.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	382	1378	605	249	1434	645	286	155	131	651	433	367
V/C Ratio(X)	0.08	0.79	0.06	0.24	0.42	0.18	0.16	0.08	0.66	0.81	0.10	0.23
Avail Cap(c_a), veh/h	448	1774	779	285	1774	798	336	507	430	916	877	743
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.5	18.0	12.5	13.8	14.0	12.5	27.6	29.7	31.2	27.1	20.8	21.5
Incr Delay (d2), s/veh	0.1	1.9	0.0	0.5	0.2	0.1	0.3	0.2	5.4	3.7	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	7.3	0.3	0.5	3.1	1.1	0.7	0.2	1.6	4.4	0.5	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.6	19.9	12.5	14.3	14.2	12.6	27.8	29.9	36.7	30.7	20.9	21.8
LnGrp LOS	B	B	B	B	B	B	C	C	D	C	C	C
Approach Vol, veh/h		1152			783			146			652	
Approach Delay, s/veh		19.5			14.0			33.2			29.0	
Approach LOS		B			B			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.4	10.6	8.0	33.6	7.5	21.5	6.8	34.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	19.6	19.9	5.0	37.5	5.1	34.4	5.0	37.5				
Max Q Clear Time (g_c+I1), s	12.7	5.9	3.4	22.0	3.7	5.1	2.7	10.9				
Green Ext Time (p_c), s	1.2	0.2	0.0	7.2	0.0	0.5	0.0	4.9				
Intersection Summary												
HCM 6th Ctrl Delay			20.9									
HCM 6th LOS			C									

Intersection						
Int Delay, s/veh	3.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑↑	↑↑	↗		↗
Traffic Vol, veh/h	104	1360	456	135	0	417
Future Vol, veh/h	104	1360	456	135	0	417
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	111	1447	485	144	0	444

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	629	0	-	0	243
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	4.14	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	-	3.32
Pot Cap-1 Maneuver	949	-	-	-	758
Stage 1	-	-	-	-	0
Stage 2	-	-	-	-	0
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	949	-	-	-	758
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	16.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	949	-	-	-	758
HCM Lane V/C Ratio	0.117	-	-	-	0.585
HCM Control Delay (s)	9.3	-	-	-	16.2
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.4	-	-	-	3.9

Intersection												
Int Delay, s/veh	11.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗			↗			↗
Traffic Vol, veh/h	29	1532	73	57	619	125	0	0	139	0	0	621
Future Vol, veh/h	29	1532	73	57	619	125	0	0	139	0	0	621
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	200	200	-	200	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	31	1613	77	60	652	132	0	0	146	0	0	654

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	784	0	0	1690	0	0	-	-	807	-	-	326
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.14	-	-	4.14	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	830	-	-	374	-	-	0	0	324	0	0	670
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	830	-	-	374	-	-	-	-	324	-	-	670
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			1.2			24.9			53.8		
HCM LOS							C			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	324	830	-	-	374	-	-	670
HCM Lane V/C Ratio	0.452	0.037	-	-	0.16	-	-	0.976
HCM Control Delay (s)	24.9	9.5	-	-	16.5	-	-	53.8
HCM Lane LOS	C	A	-	-	C	-	-	F
HCM 95th %tile Q(veh)	2.2	0.1	-	-	0.6	-	-	14.7

Queues
101: Can Ada Road & Purple Sage Road

2045 Total Traffic (With Imp) Mit PM Peak Hour

01/24/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	42	319	97	83	312	219	1	56
v/c Ratio	0.09	0.63	0.28	0.16	0.66	0.31	0.00	0.18
Control Delay	8.8	16.1	10.8	13.5	23.4	7.7	11.0	13.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.8	16.1	10.8	13.5	23.4	7.7	11.0	13.6
Queue Length 50th (ft)	6	45	14	11	63	13	0	7
Queue Length 95th (ft)	22	125	41	49	#200	72	3	33
Internal Link Dist (ft)		1940		7299		2000		3210
Turn Bay Length (ft)	100		100		100		100	
Base Capacity (vph)	452	776	347	807	471	827	397	765
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.41	0.28	0.10	0.66	0.26	0.00	0.07

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Total Traffic (With Imp) Mit PM Peak Hour
 101: Can Ada Road & Purple Sage Road 01/24/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	111	176	87	74	1	281	66	131	1	25	25
Future Volume (vph)	38	111	176	87	74	1	281	66	131	1	25	25
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.91		1.00	1.00		1.00	0.90		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1710	1614		1710	1797		1693	1620		1710	1665	
Flt Permitted	0.70	1.00		0.36	1.00		0.52	1.00		0.62	1.00	
Satd. Flow (perm)	1266	1614		653	1797		923	1620		1118	1665	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	42	123	196	97	82	1	312	73	146	1	28	28
RTOR Reduction (vph)	0	93	0	0	1	0	0	97	0	0	22	0
Lane Group Flow (vph)	42	226	0	97	82	0	312	122	0	1	34	0
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	1%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	13.6	12.0		15.6	13.0		21.9	16.7		12.2	11.5	
Effective Green, g (s)	13.6	12.0		15.6	13.0		21.9	16.7		12.2	11.5	
Actuated g/C Ratio	0.27	0.24		0.31	0.26		0.44	0.33		0.24	0.23	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	358	387		258	467		495	541		281	382	
v/s Ratio Prot	0.00	c0.14		c0.02	0.05		c0.07	0.08		0.00	0.02	
v/s Ratio Perm	0.03			0.10			c0.20			0.00		
v/c Ratio	0.12	0.58		0.38	0.18		0.63	0.23		0.00	0.09	
Uniform Delay, d1	13.6	16.8		12.8	14.3		10.2	12.0		14.3	15.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	2.3		0.9	0.2		2.6	0.2		0.0	0.1	
Delay (s)	13.7	19.0		13.7	14.5		12.8	12.2		14.3	15.2	
Level of Service	B	B		B	B		B	B		B	B	
Approach Delay (s)		18.4			14.1			12.6			15.2	
Approach LOS		B			B			B			B	
Intersection Summary												
HCM 2000 Control Delay			14.8	HCM 2000 Level of Service				B				
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			50.0	Sum of lost time (s)				18.0				
Intersection Capacity Utilization			57.0%	ICU Level of Service				B				
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
101: Can Ada Road & Purple Sage Road

2045 Total Traffic (With Imp) Mit PM Peak Hour

01/24/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	38	111	176	87	74	1	281	66	131	1	25	25
Future Volume (veh/h)	38	111	176	87	74	1	281	66	131	1	25	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1772	1800	1800	1800	1786	1800	1800	1800	1800	1800
Adj Flow Rate, veh/h	42	123	196	97	82	1	312	73	146	1	28	28
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	2	0	0	0	1	0	0	0	0	0
Cap, veh/h	588	160	255	384	515	6	502	130	261	309	96	96
Arrive On Green	0.05	0.26	0.26	0.08	0.29	0.29	0.13	0.24	0.24	0.00	0.12	0.12
Sat Flow, veh/h	1714	625	996	1714	1774	22	1701	536	1071	1714	826	826
Grp Volume(v), veh/h	42	0	319	97	0	83	312	0	219	1	0	56
Grp Sat Flow(s),veh/h/ln	1714	0	1621	1714	0	1796	1701	0	1607	1714	0	1651
Q Serve(g_s), s	0.8	0.0	7.8	1.7	0.0	1.5	5.5	0.0	5.1	0.0	0.0	1.3
Cycle Q Clear(g_c), s	0.8	0.0	7.8	1.7	0.0	1.5	5.5	0.0	5.1	0.0	0.0	1.3
Prop In Lane	1.00		0.61	1.00		0.01	1.00		0.67	1.00		0.50
Lane Grp Cap(c), veh/h	588	0	415	384	0	521	502	0	391	309	0	192
V/C Ratio(X)	0.07	0.00	0.77	0.25	0.00	0.16	0.62	0.00	0.56	0.00	0.00	0.29
Avail Cap(c_a), veh/h	709	0	680	447	0	753	502	0	712	505	0	712
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.7	0.0	14.8	10.8	0.0	11.3	14.0	0.0	14.2	16.7	0.0	17.3
Incr Delay (d2), s/veh	0.1	0.0	3.0	0.3	0.0	0.1	2.4	0.0	1.3	0.0	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	2.7	0.5	0.0	0.5	2.4	0.0	1.7	0.0	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.8	0.0	17.8	11.2	0.0	11.5	16.4	0.0	15.5	16.7	0.0	18.2
LnGrp LOS	B	A	B	B	A	B	B	A	B	B	A	B
Approach Vol, veh/h		361			180			531				57
Approach Delay, s/veh		17.0			11.3			16.0				18.1
Approach LOS		B			B			B				B
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.6	14.9	7.9	15.5	10.0	9.5	6.5	16.9				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.0	19.0	5.0	18.0	5.5	18.5	5.0	18.0				
Max Q Clear Time (g_c+I1), s	2.0	7.1	3.7	9.8	7.5	3.3	2.8	3.5				
Green Ext Time (p_c), s	0.0	1.0	0.0	1.2	0.0	0.2	0.0	0.3				
Intersection Summary												
HCM 6th Ctrl Delay				15.7								
HCM 6th LOS				B								

Queues
109: Pollard Road & Beacon Light Road

2045 Total Traffic (With Imp) Mit PM Peak Hour

01/13/2023
























Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	6	285	182	683	140	351	416	68	44
v/c Ratio	0.03	0.55	0.41	0.85	0.18	0.71	0.76	0.28	0.11
Control Delay	11.6	27.1	15.1	32.2	4.5	28.8	34.6	19.2	21.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.6	27.1	15.1	32.2	4.5	28.8	34.6	19.2	21.4
Queue Length 50th (ft)	2	119	52	285	3	124	172	20	13
Queue Length 95th (ft)	7	190	90	#584	38	#271	#369	53	43
Internal Link Dist (ft)		3919		2558			3989		3904
Turn Bay Length (ft)	100		100		100	100		100	
Base Capacity (vph)	204	821	460	932	860	495	599	244	509
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.35	0.40	0.73	0.16	0.71	0.69	0.28	0.09

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Total Traffic (With Imp) Mit PM Peak Hour
 109: Pollard Road & Beacon Light Road 01/13/2023

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	5	245	12	164	615	126	316	218	157	61	31	9	
Future Volume (vph)	5	245	12	164	615	126	316	218	157	61	31	9	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5		
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00		
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.94		1.00	0.97		
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00		
Satd. Flow (prot)	1710	1771		1710	1782	1530	1710	1687		1710	1739		
Flt Permitted	0.16	1.00		0.39	1.00	1.00	0.58	1.00		0.31	1.00		
Satd. Flow (perm)	291	1771		701	1782	1530	1045	1687		563	1739		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	6	272	13	182	683	140	351	242	174	68	34	10	
RTOR Reduction (vph)	0	2	0	0	0	73	0	28	0	0	8	0	
Lane Group Flow (vph)	6	283	0	182	683	67	351	388	0	68	36	0	
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases	4			8		8	2			6			
Actuated Green, G (s)	26.5	25.7		39.0	33.7	33.7	31.4	23.1		21.5	17.7		
Effective Green, g (s)	26.5	25.7		39.0	33.7	33.7	31.4	23.1		21.5	17.7		
Actuated g/C Ratio	0.33	0.32		0.49	0.42	0.42	0.40	0.29		0.27	0.22		
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	111	573		456	756	649	490	490		207	387		
v/s Ratio Prot	0.00	0.16		c0.04	c0.38		c0.08	c0.23		0.02	0.02		
v/s Ratio Perm	0.02			0.15		0.04	0.20			0.07			
v/c Ratio	0.05	0.49		0.40	0.90	0.10	0.72	0.79		0.33	0.09		
Uniform Delay, d1	19.2	21.6		12.3	21.3	13.8	19.5	25.9		22.3	24.5		
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00		
Incremental Delay, d2	0.2	0.7		0.6	14.1	0.1	4.9	8.6		0.9	0.1		
Delay (s)	19.4	22.3		12.9	35.5	13.8	24.4	34.5		23.3	24.6		
Level of Service	B	C		B	D	B	C	C		C	C		
Approach Delay (s)		22.2			28.3			29.9			23.8		
Approach LOS		C			C			C			C		
Intersection Summary													
HCM 2000 Control Delay			27.8									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.90										
Actuated Cycle Length (s)			79.4									Sum of lost time (s)	18.0
Intersection Capacity Utilization			79.7%									ICU Level of Service	D
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary
109: Pollard Road & Beacon Light Road

2045 Total Traffic (With Imp) Mit PM Peak Hour
01/13/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	245	12	164	615	126	316	218	157	61	31	9
Future Volume (veh/h)	5	245	12	164	615	126	316	218	157	61	31	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1786	1800	1800	1786	1800	1800	1800	1800	1800	1800	1800
Adj Flow Rate, veh/h	6	272	13	182	683	140	351	242	174	68	34	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	1	0	0	1	0	0	0	0	0	0	0
Cap, veh/h	156	581	28	492	761	650	560	271	195	220	284	84
Arrive On Green	0.01	0.34	0.34	0.09	0.43	0.43	0.12	0.28	0.28	0.05	0.21	0.21
Sat Flow, veh/h	1714	1691	81	1714	1786	1525	1714	974	700	1714	1336	393
Grp Volume(v), veh/h	6	0	285	182	683	140	351	0	416	68	0	44
Grp Sat Flow(s),veh/h/ln	1714	0	1771	1714	1786	1525	1714	0	1674	1714	0	1729
Q Serve(g_s), s	0.2	0.0	9.5	4.9	27.0	4.4	8.8	0.0	18.1	2.3	0.0	1.6
Cycle Q Clear(g_c), s	0.2	0.0	9.5	4.9	27.0	4.4	8.8	0.0	18.1	2.3	0.0	1.6
Prop In Lane	1.00		0.05	1.00		1.00	1.00		0.42	1.00		0.23
Lane Grp Cap(c), veh/h	156	0	609	492	761	650	560	0	466	220	0	368
V/C Ratio(X)	0.04	0.00	0.47	0.37	0.90	0.22	0.63	0.00	0.89	0.31	0.00	0.12
Avail Cap(c_a), veh/h	256	0	775	548	883	754	560	0	539	250	0	472
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.8	0.0	19.5	13.4	20.2	13.8	21.0	0.0	26.3	22.7	0.0	24.1
Incr Delay (d2), s/veh	0.1	0.0	0.6	0.5	10.8	0.2	2.2	0.0	15.5	0.8	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	3.8	1.8	12.5	1.4	1.4	0.0	8.8	0.9	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.9	0.0	20.0	13.9	31.0	13.9	23.2	0.0	41.8	23.5	0.0	24.3
LnGrp LOS	B	A	C	B	C	B	C	A	D	C	A	C
Approach Vol, veh/h		291			1005			767				112
Approach Delay, s/veh		20.0			25.6			33.3				23.8
Approach LOS		B			C			C				C
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.3	25.6	11.3	30.6	13.3	20.6	5.1	36.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.1	24.4	9.3	33.2	8.8	20.7	5.0	37.5				
Max Q Clear Time (g_c+I1), s	4.3	20.1	6.9	11.5	10.8	3.6	2.2	29.0				
Green Ext Time (p_c), s	0.0	1.0	0.1	1.6	0.0	0.1	0.0	3.4				
Intersection Summary												
HCM 6th Ctrl Delay			27.4									
HCM 6th LOS			C									

Queues
110: SH 16 & Beacon Light Road

2045 Total Traffic (With Imp) Mit PM Peak Hour

01/13/2023



























Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	71	141	141	176	517	643	174	1117	96	118	601	44
v/c Ratio	0.47	0.28	0.26	0.42	0.87	0.61	0.52	0.89	0.15	0.82	0.52	0.07
Control Delay	38.2	40.3	4.6	32.3	61.2	27.7	28.6	52.8	1.3	67.0	41.1	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.2	40.3	4.6	32.3	61.2	27.7	28.6	52.8	1.3	67.0	41.1	0.2
Queue Length 50th (ft)	41	102	0	109	466	190	100	551	0	65	256	0
Queue Length 95th (ft)	75	162	37	167	#651	263	152	#686	8	#182	321	0
Internal Link Dist (ft)		2558			3836			5106			1084	
Turn Bay Length (ft)	100		100	100		100	100		100	100		100
Base Capacity (vph)	151	599	625	422	656	1135	356	1282	657	144	1154	622
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.24	0.23	0.42	0.79	0.57	0.49	0.87	0.15	0.82	0.52	0.07

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Total Traffic (With Imp) Mit PM Peak Hour
 110: SH 16 & Beacon Light Road

01/13/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	138	138	172	507	630	171	1095	94	116	589	43
Future Volume (vph)	70	138	138	172	507	630	171	1095	94	116	589	43
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0	9.0	9.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1710	1765	1530	1660	1782	2693	1693	3353	1485	1710	3353	1530
Flt Permitted	0.18	1.00	1.00	0.57	1.00	1.00	0.30	1.00	1.00	0.10	1.00	1.00
Satd. Flow (perm)	318	1765	1530	996	1782	2693	537	3353	1485	173	3353	1530
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	71	141	141	176	517	643	174	1117	96	118	601	44
RTOR Reduction (vph)	0	0	100	0	0	153	0	0	60	0	0	29
Lane Group Flow (vph)	71	141	41	176	517	490	174	1117	36	118	601	15
Heavy Vehicles (%)	0%	2%	0%	3%	1%	0%	1%	2%	3%	0%	2%	0%
Turn Type	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Prot
Protected Phases	1	6	6	5	2	2	3	8	8	7	4	4
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	46.1	42.3	42.3	56.7	47.6	47.6	64.8	53.4	53.4	56.2	49.1	49.1
Effective Green, g (s)	46.1	42.3	42.3	56.7	47.6	47.6	64.8	53.4	53.4	56.2	49.1	49.1
Actuated g/C Ratio	0.32	0.29	0.29	0.39	0.33	0.33	0.45	0.37	0.37	0.39	0.34	0.34
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0	9.0	9.0
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	5.0	5.0	2.0	5.0	5.0
Lane Grp Cap (vph)	138	518	449	434	589	890	333	1244	551	143	1144	522
v/s Ratio Prot	0.01	0.08	0.03	c0.03	c0.29	0.18	c0.04	c0.33	0.02	0.04	0.18	0.01
v/s Ratio Perm	0.15			0.13			0.19			0.28		
v/c Ratio	0.51	0.27	0.09	0.41	0.88	0.55	0.52	0.90	0.06	0.83	0.53	0.03
Uniform Delay, d1	39.4	39.0	36.9	30.4	45.4	39.4	25.3	42.7	29.2	33.1	38.0	31.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.3	0.3	0.1	0.2	13.9	0.7	0.7	9.4	0.1	29.3	0.8	0.0
Delay (s)	40.7	39.3	37.0	30.6	59.3	40.1	26.0	52.1	29.3	62.4	38.9	31.6
Level of Service	D	D	D	C	E	D	C	D	C	E	D	C
Approach Delay (s)		38.6			46.3			47.2			42.1	
Approach LOS		D			D			D			D	
Intersection Summary												
HCM 2000 Control Delay			45.1		HCM 2000 Level of Service						D	
HCM 2000 Volume to Capacity ratio			0.88									
Actuated Cycle Length (s)			143.9		Sum of lost time (s)						32.0	
Intersection Capacity Utilization			97.7%		ICU Level of Service						F	
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
110: SH 16 & Beacon Light Road

2045 Total Traffic (With Imp) Mit PM Peak Hour

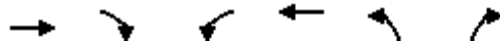
01/13/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	138	138	172	507	630	171	1095	94	116	589	43
Future Volume (veh/h)	70	138	138	172	507	630	171	1095	94	116	589	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1772	1800	1758	1786	1800	1786	1772	1758	1800	1772	1800
Adj Flow Rate, veh/h	71	141	141	176	517	643	174	1117	96	118	601	44
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	2	0	3	1	0	1	2	3	0	2	0
Cap, veh/h	134	522	449	410	576	866	340	1241	549	161	1135	514
Arrive On Green	0.04	0.29	0.29	0.06	0.32	0.32	0.08	0.37	0.37	0.05	0.34	0.34
Sat Flow, veh/h	1714	1772	1525	1674	1786	2685	1701	3367	1490	1714	3367	1525
Grp Volume(v), veh/h	71	141	141	176	517	643	174	1117	96	118	601	44
Grp Sat Flow(s),veh/h/ln	1714	1772	1525	1674	1786	1342	1701	1683	1490	1714	1683	1525
Q Serve(g_s), s	4.1	8.7	10.2	9.0	39.3	30.4	9.5	44.7	6.2	6.5	20.5	2.8
Cycle Q Clear(g_c), s	4.1	8.7	10.2	9.0	39.3	30.4	9.5	44.7	6.2	6.5	20.5	2.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	134	522	449	410	576	866	340	1241	549	161	1135	514
V/C Ratio(X)	0.53	0.27	0.31	0.43	0.90	0.74	0.51	0.90	0.17	0.74	0.53	0.09
Avail Cap(c_a), veh/h	134	597	514	410	652	980	359	1276	565	161	1135	514
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.5	38.5	39.1	34.3	46.0	43.0	28.8	42.5	30.4	36.1	38.1	32.2
Incr Delay (d2), s/veh	2.1	0.3	0.4	0.3	14.1	2.7	0.4	9.4	0.3	14.3	0.9	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	3.9	3.9	0.8	19.7	10.4	3.9	20.1	2.3	3.3	8.7	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.6	38.8	39.5	34.6	60.1	45.7	29.2	51.9	30.7	50.3	39.0	32.4
LnGrp LOS	D	D	D	C	E	D	C	D	C	D	D	C
Approach Vol, veh/h		353			1336			1387			763	
Approach Delay, s/veh		39.4			49.8			47.6			40.4	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	53.0	20.5	57.0	16.0	49.0	16.0	61.5				
Change Period (Y+Rc), s	7.0	7.0	9.0	9.0	7.0	7.0	9.0	9.0				
Max Green Setting (Gmax), s	5.0	52.0	13.0	48.0	9.0	48.0	7.0	54.0				
Max Q Clear Time (g_c+I1), s	6.1	41.3	11.5	22.5	11.0	12.2	8.5	46.7				
Green Ext Time (p_c), s	0.0	4.6	0.0	8.2	0.0	1.3	0.0	5.8				
Intersection Summary												
HCM 6th Ctrl Delay			46.2									
HCM 6th LOS			D									

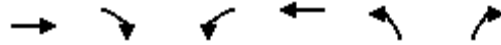
Queues
111: Palmer Lane & Beacon Light Road

2045 Total Traffic (With Imp) Mit PM Peak Hour
01/13/2023



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	465	20	5	1372	121	23
v/c Ratio	0.25	0.02	0.01	0.68	0.38	0.07
Control Delay	6.5	4.1	4.0	8.4	21.0	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.5	4.1	4.0	8.4	21.0	8.8
Queue Length 50th (ft)	23	0	1	101	29	0
Queue Length 95th (ft)	78	9	4	192	70	14
Internal Link Dist (ft)	3836			6200		
Turn Bay Length (ft)		100	100		100	100
Base Capacity (vph)	2007	915	552	2526	692	663
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.02	0.01	0.54	0.17	0.03
Intersection Summary						

HCM Signalized Intersection Capacity Analysis 2045 Total Traffic (With Imp) Mit PM Peak Hour
 111: Palmer Lane & Beacon Light Road 01/13/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	442	19	5	1303	115	22
Future Volume (vph)	442	19	5	1303	115	22
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3386	1530	1710	3386	1629	1530
Flt Permitted	1.00	1.00	0.41	1.00	0.95	1.00
Satd. Flow (perm)	3386	1530	741	3386	1629	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	465	20	5	1372	121	23
RTOR Reduction (vph)	0	10	0	0	0	19
Lane Group Flow (vph)	465	10	5	1372	121	4
Heavy Vehicles (%)	1%	0%	0%	1%	5%	0%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	25.3	25.3	30.6	30.6	8.9	8.9
Effective Green, g (s)	25.3	25.3	30.6	30.6	8.9	8.9
Actuated g/C Ratio	0.52	0.52	0.63	0.63	0.18	0.18
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1766	798	483	2136	298	280
v/s Ratio Prot	0.14		0.00	c0.41	c0.07	
v/s Ratio Perm		0.01	0.01			0.00
v/c Ratio	0.26	0.01	0.01	0.64	0.41	0.02
Uniform Delay, d1	6.4	5.6	3.5	5.6	17.5	16.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.0	0.7	0.9	0.0
Delay (s)	6.5	5.6	3.5	6.2	18.4	16.2
Level of Service	A	A	A	A	B	B
Approach Delay (s)	6.5			6.2	18.0	
Approach LOS	A			A	B	

Intersection Summary			
HCM 2000 Control Delay	7.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	48.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	52.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
 111: Palmer Lane & Beacon Light Road

2045 Total Traffic (With Imp) Mit PM Peak Hour
 01/13/2023

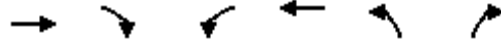


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (veh/h)	442	19	5	1303	115	22
Future Volume (veh/h)	442	19	5	1303	115	22
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1786	1800	1800	1786	1730	1800
Adj Flow Rate, veh/h	465	20	5	1372	121	23
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	0	0	1	5	0
Cap, veh/h	1644	739	582	2087	227	210
Arrive On Green	0.48	0.48	0.01	0.62	0.14	0.14
Sat Flow, veh/h	3483	1525	1714	3483	1647	1525
Grp Volume(v), veh/h	465	20	5	1372	121	23
Grp Sat Flow(s),veh/h/ln	1697	1525	1714	1697	1647	1525
Q Serve(g_s), s	3.0	0.2	0.0	9.5	2.5	0.5
Cycle Q Clear(g_c), s	3.0	0.2	0.0	9.5	2.5	0.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1644	739	582	2087	227	210
V/C Ratio(X)	0.28	0.03	0.01	0.66	0.53	0.11
Avail Cap(c_a), veh/h	2146	965	806	3033	838	776
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	5.6	4.9	4.1	4.5	14.6	13.7
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.4	2.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.1	0.0	1.3	0.9	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	5.7	4.9	4.1	4.9	16.5	14.0
LnGrp LOS	A	A	A	A	B	B
Approach Vol, veh/h	485			1377	144	
Approach Delay, s/veh	5.7			4.9	16.1	
Approach LOS	A			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		9.5	4.7	22.1		26.9
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		18.5	5.0	23.0		32.5
Max Q Clear Time (g_c+I1), s		4.5	2.0	5.0		11.5
Green Ext Time (p_c), s		0.3	0.0	3.0		10.9
Intersection Summary						
HCM 6th Ctrl Delay			5.9			
HCM 6th LOS			A			

Queues
113: Star Road & Floating Feather Road

2045 Total Traffic (With Imp) Mit PM Peak Hour

01/13/2023



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	132	200	685	244	153	254
v/c Ratio	0.40	0.46	0.84	0.22	0.46	0.51
Control Delay	24.1	7.7	19.0	5.1	24.7	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.1	7.7	19.0	5.1	24.7	7.3
Queue Length 50th (ft)	38	0	105	26	43	0
Queue Length 95th (ft)	86	45	#324	63	97	50
Internal Link Dist (ft)	2600			1170	5156	
Turn Bay Length (ft)		100	100		100	
Base Capacity (vph)	643	665	860	1500	611	710
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.30	0.80	0.16	0.25	0.36

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Total Traffic (With Imp) Mit PM Peak Hour
 113: Star Road & Floating Feather Road

01/13/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	120	182	623	222	139	231
Future Volume (vph)	120	182	623	222	139	231
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1800	1500	1676	1800	1710	1530
Flt Permitted	1.00	1.00	0.46	1.00	0.95	1.00
Satd. Flow (perm)	1800	1500	808	1800	1710	1530
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	132	200	685	244	153	254
RTOR Reduction (vph)	0	163	0	0	0	205
Lane Group Flow (vph)	132	37	685	244	153	49
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	9.6	9.6	32.5	32.5	10.0	10.0
Effective Green, g (s)	9.6	9.6	32.5	32.5	10.0	10.0
Actuated g/C Ratio	0.19	0.19	0.63	0.63	0.19	0.19
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	335	279	820	1135	332	297
v/s Ratio Prot	0.07		c0.30	0.14	c0.09	
v/s Ratio Perm		0.02	c0.23			0.03
v/c Ratio	0.39	0.13	0.84	0.21	0.46	0.17
Uniform Delay, d1	18.4	17.5	6.4	4.1	18.4	17.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.2	7.4	0.1	1.0	0.3
Delay (s)	19.2	17.7	13.8	4.2	19.4	17.5
Level of Service	B	B	B	A	B	B
Approach Delay (s)	18.3			11.2	18.2	
Approach LOS	B			B	B	

Intersection Summary

HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	51.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
113: Star Road & Floating Feather Road

2045 Total Traffic (With Imp) Mit PM Peak Hour
01/13/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (veh/h)	120	182	623	222	139	231
Future Volume (veh/h)	120	182	623	222	139	231
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1800	1772	1772	1800	1800	1800
Adj Flow Rate, veh/h	132	200	685	244	153	254
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	2	2	0	0	0
Cap, veh/h	328	273	849	1110	363	323
Arrive On Green	0.18	0.18	0.35	0.62	0.21	0.21
Sat Flow, veh/h	1800	1502	1688	1800	1714	1525
Grp Volume(v), veh/h	132	200	685	244	153	254
Grp Sat Flow(s),veh/h/ln	1800	1502	1688	1800	1714	1525
Q Serve(g_s), s	3.4	6.6	15.5	3.2	4.1	8.3
Cycle Q Clear(g_c), s	3.4	6.6	15.5	3.2	4.1	8.3
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	328	273	849	1110	363	323
V/C Ratio(X)	0.40	0.73	0.81	0.22	0.42	0.79
Avail Cap(c_a), veh/h	617	515	919	1474	588	523
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.0	20.3	8.9	4.5	17.9	19.6
Incr Delay (d2), s/veh	0.8	3.8	5.0	0.1	0.8	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	2.4	5.0	0.8	1.5	3.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	19.8	24.0	14.0	4.6	18.7	23.8
LnGrp LOS	B	C	B	A	B	C
Approach Vol, veh/h	332			929	407	
Approach Delay, s/veh	22.3			11.5	21.9	
Approach LOS	C			B	C	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		15.6	22.8	14.1		36.9
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		18.0	20.5	18.0		43.0
Max Q Clear Time (g_c+I1), s		10.3	17.5	8.6		5.2
Green Ext Time (p_c), s		0.9	0.9	1.0		1.5
Intersection Summary						
HCM 6th Ctrl Delay			16.2			
HCM 6th LOS			B			

Queues
114: Plummer Road & Floating Feather Road

2045 Total Traffic (With Imp) Mit PM Peak Hour

01/13/2023



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	184	283	101	431	416	74
v/c Ratio	0.35	0.44	0.22	0.58	0.68	0.12
Control Delay	16.0	4.8	9.0	13.2	20.1	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.0	4.8	9.0	13.2	20.1	4.4
Queue Length 50th (ft)	40	0	14	74	86	0
Queue Length 95th (ft)	87	43	36	148	#229	21
Internal Link Dist (ft)	3891			1279	5173	
Turn Bay Length (ft)		100	100		100	
Base Capacity (vph)	834	861	457	1258	814	767
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.33	0.22	0.34	0.51	0.10

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Total Traffic (With Imp) Mit PM Peak Hour
 114: Plummer Road & Floating Feather Road

01/13/2023



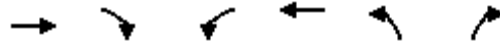
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	166	255	91	388	374	67
Future Volume (vph)	166	255	91	388	374	67
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1800	1530	1710	1800	1710	1530
Flt Permitted	1.00	1.00	0.47	1.00	0.95	1.00
Satd. Flow (perm)	1800	1530	844	1800	1710	1530
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	184	283	101	431	416	74
RTOR Reduction (vph)	0	203	0	0	0	48
Lane Group Flow (vph)	184	80	101	431	416	26
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	12.2	12.2	19.2	19.2	14.9	14.9
Effective Green, g (s)	12.2	12.2	19.2	19.2	14.9	14.9
Actuated g/C Ratio	0.28	0.28	0.45	0.45	0.35	0.35
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	509	433	426	801	591	528
v/s Ratio Prot	0.10		0.01	c0.24	c0.24	
v/s Ratio Perm		0.05	0.09			0.02
v/c Ratio	0.36	0.19	0.24	0.54	0.70	0.05
Uniform Delay, d1	12.3	11.7	7.3	8.7	12.2	9.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.2	0.3	0.7	3.8	0.0
Delay (s)	12.8	11.9	7.6	9.4	16.0	9.4
Level of Service	B	B	A	A	B	A
Approach Delay (s)	12.2			9.1	15.0	
Approach LOS	B			A	B	

Intersection Summary			
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	43.1	Sum of lost time (s)	13.5
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
114: Plummer Road & Floating Feather Road

2045 Total Traffic (With Imp) Mit PM Peak Hour

01/13/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↖	↑	↖	↗
Traffic Volume (veh/h)	166	255	91	388	374	67
Future Volume (veh/h)	166	255	91	388	374	67
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1800	1800	1800
Adj Flow Rate, veh/h	184	283	101	431	416	74
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	466	395	499	832	520	463
Arrive On Green	0.26	0.26	0.09	0.46	0.30	0.30
Sat Flow, veh/h	1800	1525	1714	1800	1714	1525
Grp Volume(v), veh/h	184	283	101	431	416	74
Grp Sat Flow(s),veh/h/ln	1800	1525	1714	1800	1714	1525
Q Serve(g_s), s	3.2	6.5	1.4	6.5	8.6	1.4
Cycle Q Clear(g_c), s	3.2	6.5	1.4	6.5	8.6	1.4
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	466	395	499	832	520	463
V/C Ratio(X)	0.39	0.72	0.20	0.52	0.80	0.16
Avail Cap(c_a), veh/h	844	716	575	1290	827	736
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.7	12.9	7.8	7.3	12.3	9.8
Incr Delay (d2), s/veh	0.5	2.4	0.2	0.5	3.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	2.0	0.4	1.7	2.9	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.3	15.4	8.0	7.8	15.3	9.9
LnGrp LOS	B	B	A	A	B	A
Approach Vol, veh/h	467			532	490	
Approach Delay, s/veh	14.1			7.8	14.5	
Approach LOS	B			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		16.1	7.8	14.4		22.2
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s		18.5	5.0	18.0		27.5
Max Q Clear Time (g_c+I1), s		10.6	3.4	8.5		8.5
Green Ext Time (p_c), s		1.1	0.0	1.5		2.6
Intersection Summary						
HCM 6th Ctrl Delay			12.0			
HCM 6th LOS			B			

Queues
117: SH 44 & Can Ada Road

2045 Total Traffic (With Imp) Mit PM Peak Hour
01/13/2023



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	88	920	1237	244	295	111
v/c Ratio	0.33	0.49	0.85	0.31	0.67	0.25
Control Delay	9.3	8.4	23.3	3.3	26.8	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.3	8.4	23.3	3.3	26.8	5.6
Queue Length 50th (ft)	12	83	195	0	89	0
Queue Length 95th (ft)	31	138	#350	37	160	30
Internal Link Dist (ft)		3717	2513		4604	
Turn Bay Length (ft)	200			150	100	
Base Capacity (vph)	270	2138	1537	814	583	547
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.43	0.80	0.30	0.51	0.20

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Total Traffic (With Imp) Mit PM Peak Hour
 117: SH 44 & Can Ada Road

01/13/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	83	865	1163	229	277	104
Future Volume (vph)	83	865	1163	229	277	104
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1613	3353	3386	1500	1676	1366
Flt Permitted	0.14	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	246	3353	3386	1500	1676	1366
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	88	920	1237	244	295	111
RTOR Reduction (vph)	0	0	0	140	0	82
Lane Group Flow (vph)	88	920	1237	104	295	29
Heavy Vehicles (%)	6%	2%	1%	2%	2%	12%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	31.3	31.3	23.1	23.1	14.1	14.1
Effective Green, g (s)	31.3	31.3	23.1	23.1	14.1	14.1
Actuated g/C Ratio	0.58	0.58	0.42	0.42	0.26	0.26
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	234	1929	1437	636	434	354
v/s Ratio Prot	0.03	c0.27	c0.37		c0.18	
v/s Ratio Perm	0.19			0.07		0.02
v/c Ratio	0.38	0.48	0.86	0.16	0.68	0.08
Uniform Delay, d1	8.5	6.8	14.2	9.7	18.1	15.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.2	5.5	0.1	4.2	0.1
Delay (s)	9.5	6.9	19.7	9.8	22.3	15.3
Level of Service	A	A	B	A	C	B
Approach Delay (s)		7.2	18.1		20.4	
Approach LOS		A	B		C	

Intersection Summary			
HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	54.4	Sum of lost time (s)	13.5
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
117: SH 44 & Can Ada Road

2045 Total Traffic (With Imp) Mit PM Peak Hour

01/13/2023

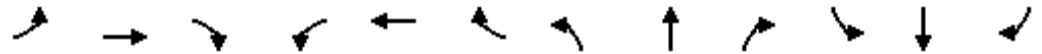


Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	83	865	1163	229	277	104	
Future Volume (veh/h)	83	865	1163	229	277	104	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1716	1772	1786	1772	1772	1632	
Adj Flow Rate, veh/h	88	920	1237	244	295	111	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	
Percent Heavy Veh, %	6	2	1	2	2	12	
Cap, veh/h	299	2017	1489	659	374	306	
Arrive On Green	0.07	0.60	0.44	0.44	0.22	0.22	
Sat Flow, veh/h	1634	3455	3483	1502	1688	1383	
Grp Volume(v), veh/h	88	920	1237	244	295	111	
Grp Sat Flow(s),veh/h/ln	1634	1683	1697	1502	1688	1383	
Q Serve(g_s), s	1.3	7.6	16.1	5.5	8.3	3.4	
Cycle Q Clear(g_c), s	1.3	7.6	16.1	5.5	8.3	3.4	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	299	2017	1489	659	374	306	
V/C Ratio(X)	0.29	0.46	0.83	0.37	0.79	0.36	
Avail Cap(c_a), veh/h	347	2215	1590	704	606	496	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	9.8	5.5	12.4	9.4	18.4	16.5	
Incr Delay (d2), s/veh	0.5	0.2	3.7	0.3	3.7	0.7	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.4	1.8	5.6	1.5	3.2	2.8	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	10.3	5.7	16.1	9.8	22.2	17.2	
LnGrp LOS	B	A	B	A	C	B	
Approach Vol, veh/h		1008	1481		406		
Approach Delay, s/veh		6.1	15.1		20.8		
Approach LOS		A	B		C		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				34.5	15.6	8.0	26.5
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				33.0	18.0	5.0	23.5
Max Q Clear Time (g_c+I1), s				9.6	10.3	3.3	18.1
Green Ext Time (p_c), s				7.1	0.8	0.0	3.9
Intersection Summary							
HCM 6th Ctrl Delay			12.8				
HCM 6th LOS			B				

Queues
118: Star Road & SH 44

2045 Total Traffic (With Imp) Mit PM Peak Hour

01/13/2023































Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	162	668	412	202	964	114	462	334	144	111	257	113
v/c Ratio	0.75	0.65	0.55	0.62	0.86	0.18	0.87	0.64	0.26	0.40	0.78	0.25
Control Delay	44.8	35.8	6.2	26.3	42.4	0.6	61.2	37.9	5.4	26.2	56.5	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.8	35.8	6.2	26.3	42.4	0.6	61.2	37.9	5.4	26.2	56.5	1.3
Queue Length 50th (ft)	62	208	0	79	317	0	158	194	0	46	165	0
Queue Length 95th (ft)	#178	288	77	138	#458	0	#259	288	41	83	255	0
Internal Link Dist (ft)		2598			5173			1764			5156	
Turn Bay Length (ft)	200		200	200		200	150		150	100		100
Base Capacity (vph)	216	1031	747	347	1149	656	546	628	630	280	423	524
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.65	0.55	0.58	0.84	0.17	0.85	0.53	0.23	0.40	0.61	0.22

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

























HCM Signalized Intersection Capacity Analysis 2045 Total Traffic (With Imp) Mit PM Peak Hour
 118: Star Road & SH 44 01/13/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 		 				 	
Traffic Volume (vph)	160	661	408	200	954	113	457	331	143	110	254	112
Future Volume (vph)	160	661	408	200	954	113	457	331	143	110	254	112
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1693	3386	1515	1676	3386	1530	3317	1800	1530	1660	1748	1515
Flt Permitted	0.13	1.00	1.00	0.23	1.00	1.00	0.95	1.00	1.00	0.56	1.00	1.00
Satd. Flow (perm)	226	3386	1515	411	3386	1530	3317	1800	1530	973	1748	1515
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	162	668	412	202	964	114	462	334	144	111	257	113
RTOR Reduction (vph)	0	0	286	0	0	76	0	0	102	0	0	92
Lane Group Flow (vph)	162	668	126	202	964	38	462	334	42	111	257	21
Heavy Vehicles (%)	1%	1%	1%	2%	1%	0%	0%	0%	0%	3%	3%	1%
Turn Type	pm+pt	NA	Prot	pm+pt	NA	Prot	Prot	NA	Prot	pm+pt	NA	Perm
Protected Phases	1	6	6	5	2	2	3	8	8	7	4	
Permitted Phases	6			2						4		4
Actuated Green, G (s)	40.5	31.6	31.6	46.1	34.4	34.4	16.6	30.2	30.2	25.6	19.6	19.6
Effective Green, g (s)	40.5	31.6	31.6	46.1	34.4	34.4	16.6	30.2	30.2	25.6	19.6	19.6
Actuated g/C Ratio	0.39	0.31	0.31	0.45	0.33	0.33	0.16	0.29	0.29	0.25	0.19	0.19
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	214	1033	462	326	1125	508	532	525	446	280	331	286
v/s Ratio Prot	0.06	0.20	0.08	c0.07	c0.28	0.02	c0.14	0.19	0.03	0.02	c0.15	
v/s Ratio Perm	0.23			0.21						0.07		0.01
v/c Ratio	0.76	0.65	0.27	0.62	0.86	0.07	0.87	0.64	0.09	0.40	0.78	0.07
Uniform Delay, d1	23.5	31.1	27.2	19.5	32.3	23.7	42.4	31.9	26.7	31.4	39.9	34.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	14.2	3.1	1.5	3.5	6.6	0.1	14.0	2.5	0.1	0.9	10.9	0.1
Delay (s)	37.7	34.2	28.7	23.0	38.9	23.7	56.4	34.4	26.8	32.3	50.7	34.6
Level of Service	D	C	C	C	D	C	E	C	C	C	D	C
Approach Delay (s)		32.8			35.0			44.0			42.7	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM 2000 Control Delay			37.4				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.83									
Actuated Cycle Length (s)			103.5				Sum of lost time (s)		24.0			
Intersection Capacity Utilization			85.1%				ICU Level of Service		E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
118: Star Road & SH 44

2045 Total Traffic (With Imp) Mit PM Peak Hour

01/13/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	661	408	200	954	113	457	331	143	110	254	112
Future Volume (veh/h)	160	661	408	200	954	113	457	331	143	110	254	112
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1786	1786	1786	1772	1786	1800	1800	1800	1800	1758	1758	1786
Adj Flow Rate, veh/h	162	668	412	202	964	114	462	334	144	111	257	113
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	1	1	1	2	1	0	0	0	0	3	3	1
Cap, veh/h	253	1080	482	323	1141	513	531	491	416	275	307	265
Arrive On Green	0.08	0.32	0.32	0.10	0.34	0.34	0.16	0.27	0.27	0.06	0.17	0.17
Sat Flow, veh/h	1701	3393	1514	1688	3393	1525	3326	1800	1525	1674	1758	1514
Grp Volume(v), veh/h	162	668	412	202	964	114	462	334	144	111	257	113
Grp Sat Flow(s),veh/h/ln	1701	1697	1514	1688	1697	1525	1663	1800	1525	1674	1758	1514
Q Serve(g_s), s	6.1	16.3	24.8	7.7	25.7	5.2	13.2	16.1	7.4	5.3	13.8	6.5
Cycle Q Clear(g_c), s	6.1	16.3	24.8	7.7	25.7	5.2	13.2	16.1	7.4	5.3	13.8	6.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	253	1080	482	323	1141	513	531	491	416	275	307	265
V/C Ratio(X)	0.64	0.62	0.86	0.63	0.85	0.22	0.87	0.68	0.35	0.40	0.84	0.43
Avail Cap(c_a), veh/h	269	1080	482	378	1219	548	580	665	564	275	451	388
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.4	28.2	31.1	20.9	30.0	23.2	39.9	31.6	28.4	30.7	38.8	35.8
Incr Delay (d2), s/veh	4.6	2.7	17.4	2.5	5.4	0.2	12.6	1.7	0.5	1.0	8.7	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	6.9	11.1	3.2	11.0	1.9	6.3	7.1	2.7	2.2	6.6	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.0	30.9	48.5	23.4	35.3	23.4	52.6	33.3	28.9	31.6	47.6	36.9
LnGrp LOS	C	C	D	C	D	C	D	C	C	C	D	D
Approach Vol, veh/h		1242			1280			940			481	
Approach Delay, s/veh		36.3			32.4			42.1			41.4	
Approach LOS		D			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.1	38.8	21.6	23.0	15.8	37.0	12.0	32.6				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	9.0	35.0	17.0	25.0	13.0	31.0	6.0	36.0				
Max Q Clear Time (g_c+I1), s	8.1	27.7	15.2	15.8	9.7	26.8	7.3	18.1				
Green Ext Time (p_c), s	0.0	4.0	0.4	1.3	0.2	2.3	0.0	2.3				
Intersection Summary												
HCM 6th Ctrl Delay				37.1								
HCM 6th LOS				D								

Queues
119: Plummer Road & SH 44

2045 Total Traffic (With Imp) Mit PM Peak Hour

01/13/2023






























Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	71	825	58	108	1319	306	113	116	158	341	82	99
v/c Ratio	0.66	0.46	0.07	0.41	0.74	0.34	0.58	0.42	0.48	0.70	0.13	0.18
Control Delay	48.5	13.6	2.8	18.6	18.6	6.4	48.1	39.9	16.3	45.5	20.9	14.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.5	13.6	2.8	18.6	18.6	6.4	48.1	39.9	16.3	45.5	20.9	14.6
Queue Length 50th (ft)	26	137	0	33	273	36	62	62	18	98	32	23
Queue Length 95th (ft)	#112	209	16	86	403	92	120	117	77	#171	66	60
Internal Link Dist (ft)		5173			3517			675			5173	
Turn Bay Length (ft)	100		100	100		100	100		100	200		200
Base Capacity (vph)	137	2273	1048	338	2273	1083	302	421	444	543	827	703
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.36	0.06	0.32	0.58	0.28	0.37	0.28	0.36	0.63	0.10	0.14

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Total Traffic (With Imp) Mit PM Peak Hour
 119: Plummer Road & SH 44

01/13/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 					 		
Traffic Volume (vph)	67	784	55	103	1253	291	107	110	150	324	78	94
Future Volume (vph)	67	784	55	103	1253	291	107	110	150	324	78	94
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1710	3386	1530	1710	3386	1530	1710	1765	1471	3285	1800	1485
Flt Permitted	0.11	1.00	1.00	0.28	1.00	1.00	0.70	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	205	3386	1530	503	3386	1530	1267	1765	1471	3285	1800	1485
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	71	825	58	108	1319	306	113	116	158	341	82	99
RTOR Reduction (vph)	0	0	27	0	0	80	0	0	103	0	0	25
Lane Group Flow (vph)	71	825	31	108	1319	226	113	116	55	341	82	74
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	2%	4%	1%	0%	3%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8		8	2		2			6
Actuated Green, G (s)	45.0	45.0	45.0	45.0	45.0	45.0	13.4	13.4	13.4	12.7	30.6	30.6
Effective Green, g (s)	45.0	45.0	45.0	45.0	45.0	45.0	13.4	13.4	13.4	12.7	30.6	30.6
Actuated g/C Ratio	0.53	0.53	0.53	0.53	0.53	0.53	0.16	0.16	0.16	0.15	0.36	0.36
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	109	1801	813	267	1801	813	200	279	232	493	651	537
v/s Ratio Prot		0.24			c0.39			0.07		c0.10	0.05	
v/s Ratio Perm	0.35		0.02	0.21		0.15	c0.09		0.04			0.05
v/c Ratio	0.65	0.46	0.04	0.40	0.73	0.28	0.56	0.42	0.24	0.69	0.13	0.14
Uniform Delay, d1	14.2	12.3	9.5	11.8	15.2	10.9	32.9	32.1	31.1	34.1	18.1	18.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	13.1	0.2	0.0	1.0	1.6	0.2	3.6	1.0	0.5	4.2	0.1	0.1
Delay (s)	27.3	12.4	9.5	12.8	16.8	11.1	36.5	33.1	31.7	38.3	18.1	18.3
Level of Service	C	B	A	B	B	B	D	C	C	D	B	B
Approach Delay (s)		13.4			15.5			33.5			31.3	
Approach LOS		B			B			C			C	
Intersection Summary												
HCM 2000 Control Delay			19.2				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			84.6				Sum of lost time (s)			13.5		
Intersection Capacity Utilization			68.4%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
119: Plummer Road & SH 44

2045 Total Traffic (With Imp) Mit PM Peak Hour

01/13/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Traffic Volume (veh/h)	67	784	55	103	1253	291	107	110	150	324	78	94
Future Volume (veh/h)	67	784	55	103	1253	291	107	110	150	324	78	94
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1786	1800	1800	1786	1800	1800	1772	1744	1786	1800	1758
Adj Flow Rate, veh/h	71	825	58	108	1319	306	113	116	158	341	82	99
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	1	0	0	1	0	0	2	4	1	0	3
Cap, veh/h	179	1932	868	362	1932	868	257	248	207	426	581	481
Arrive On Green	0.57	0.57	0.57	0.57	0.57	0.57	0.14	0.14	0.14	0.13	0.32	0.32
Sat Flow, veh/h	315	3393	1525	639	3393	1525	1222	1772	1478	3300	1800	1490
Grp Volume(v), veh/h	71	825	58	108	1319	306	113	116	158	341	82	99
Grp Sat Flow(s),veh/h/ln	315	1697	1525	639	1697	1525	1222	1772	1478	1650	1800	1490
Q Serve(g_s), s	17.1	11.5	1.4	9.7	22.8	9.0	7.3	5.0	8.6	8.4	2.7	4.0
Cycle Q Clear(g_c), s	39.9	11.5	1.4	21.2	22.8	9.0	7.3	5.0	8.6	8.4	2.7	4.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	179	1932	868	362	1932	868	257	248	207	426	581	481
V/C Ratio(X)	0.40	0.43	0.07	0.30	0.68	0.35	0.44	0.47	0.76	0.80	0.14	0.21
Avail Cap(c_a), veh/h	202	2177	979	408	2177	979	372	414	346	534	809	670
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.7	10.2	8.0	16.2	12.7	9.7	34.0	33.0	34.5	35.3	20.0	20.5
Incr Delay (d2), s/veh	1.4	0.1	0.0	0.5	0.8	0.2	1.2	1.4	5.8	6.9	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	3.9	0.4	1.4	7.9	2.8	2.2	2.2	3.3	3.7	1.1	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.1	10.4	8.1	16.7	13.4	9.9	35.2	34.4	40.3	42.1	20.1	20.7
LnGrp LOS	C	B	A	B	B	A	D	C	D	D	C	C
Approach Vol, veh/h		954			1733			387			522	
Approach Delay, s/veh		11.6			13.0			37.0			34.6	
Approach LOS		B			B			D			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	15.3	16.2		52.0		31.4		52.0				
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s	13.5	19.5		53.5		37.5		53.5				
Max Q Clear Time (g_c+I1), s	10.4	10.6		41.9		6.0		24.8				
Green Ext Time (p_c), s	0.4	1.1		5.6		0.8		15.0				

Intersection Summary

HCM 6th Ctrl Delay	18.3
HCM 6th LOS	B

Intersection						
Int Delay, s/veh	8.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑↑	↑↑	↗		↗
Traffic Vol, veh/h	114	1142	1163	275	0	381
Future Vol, veh/h	114	1142	1163	275	0	381
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	121	1215	1237	293	0	405

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	1530	0	-	0	619
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	4.14	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	-	3.32
Pot Cap-1 Maneuver	431	-	-	-	432
Stage 1	-	-	-	-	0
Stage 2	-	-	-	-	0
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	431	-	-	-	432
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	1.5	0	60.4
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	431	-	-	-	432
HCM Lane V/C Ratio	0.281	-	-	-	0.938
HCM Control Delay (s)	16.6	-	-	-	60.4
HCM Lane LOS	C	-	-	-	F
HCM 95th %tile Q(veh)	1.1	-	-	-	10.8

Intersection												
Int Delay, s/veh	30.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗			↗			↗
Traffic Vol, veh/h	67	1108	133	103	1360	398	0	0	367	0	0	496
Future Vol, veh/h	67	1108	133	103	1360	398	0	0	367	0	0	496
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	200	200	-	200	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	70	1154	139	107	1417	415	0	0	382	0	0	517

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1832	0	0	1293	0	0	-	-	577	-	-	709
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.14	-	-	4.14	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	329	-	-	532	-	-	0	0	460	0	0	~ 377
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	329	-	-	532	-	-	-	-	460	-	-	~ 377
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1			0.7			40.9			211.2		
HCM LOS							E			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	460	329	-	-	532	-	-	377
HCM Lane V/C Ratio	0.831	0.212	-	-	0.202	-	-	1.37
HCM Control Delay (s)	40.9	18.9	-	-	13.5	-	-	211.2
HCM Lane LOS	E	C	-	-	B	-	-	F
HCM 95th %tile Q(veh)	8.1	0.8	-	-	0.7	-	-	25.2

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

MOVEMENT SUMMARY

Site: 101 [Purple Sage Road / Can Ada Road AM (Site Folder: General)]

2045 Total Traffic
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist ft]				
South: RoadName														
3	L2	101	4.0	112	4.0	0.155	4.2	LOS A	0.7	18.7	0.20	0.09	0.20	34.0
8	T1	23	0.0	26	0.0	0.155	4.1	LOS A	0.7	18.7	0.20	0.09	0.20	34.0
18	R2	52	0.0	58	0.0	0.155	4.1	LOS A	0.7	18.7	0.20	0.09	0.20	33.1
Approach		176	2.3	196	2.3	0.155	4.2	LOS A	0.7	18.7	0.20	0.09	0.20	33.7
East: RoadName														
1	L2	105	0.0	117	0.0	0.180	4.7	LOS A	0.9	21.8	0.34	0.20	0.34	34.0
6	T1	84	0.0	93	0.0	0.180	4.7	LOS A	0.9	21.8	0.34	0.20	0.34	33.9
16	R2	1	0.0	1	0.0	0.180	4.7	LOS A	0.9	21.8	0.34	0.20	0.34	32.9
Approach		190	0.0	211	0.0	0.180	4.7	LOS A	0.9	21.8	0.34	0.20	0.34	33.9
North: RoadName														
7	L2	1	0.0	1	0.0	0.062	4.2	LOS A	0.3	6.5	0.43	0.30	0.43	35.8
4	T1	33	0.0	37	0.0	0.062	4.2	LOS A	0.3	6.5	0.43	0.30	0.43	35.7
14	R2	21	0.0	23	0.0	0.062	4.2	LOS A	0.3	6.5	0.43	0.30	0.43	34.6
Approach		55	0.0	61	0.0	0.062	4.2	LOS A	0.3	6.5	0.43	0.30	0.43	35.3
West: RoadName														
5	L2	17	0.0	19	0.0	0.257	5.4	LOS A	1.4	33.8	0.36	0.22	0.36	34.9
2	T1	42	0.0	47	0.0	0.257	5.4	LOS A	1.4	33.8	0.36	0.22	0.36	34.8
12	R2	214	0.0	238	0.0	0.257	5.4	LOS A	1.4	33.8	0.36	0.22	0.36	33.8
Approach		273	0.0	303	0.0	0.257	5.4	LOS A	1.4	33.8	0.36	0.22	0.36	34.0
All Vehicles		694	0.6	771	0.6	0.257	4.8	LOS A	1.4	33.8	0.32	0.19	0.32	34.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Geometric Delay is not included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Purple Sage Road / Can Ada Road PM (Site Folder: General)]

2045 Total Traffic
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] ft				
South: RoadName														
3	L2	281	3.1	312	3.1	0.467	8.3	LOS A	3.0	77.3	0.47	0.31	0.47	32.0
8	T1	66	3.0	73	3.0	0.467	8.3	LOS A	3.0	77.3	0.47	0.31	0.47	32.0
18	R2	131	2.2	146	2.2	0.467	8.2	LOS A	3.0	77.3	0.47	0.31	0.47	31.1
Approach		478	2.8	531	2.8	0.467	8.2	LOS A	3.0	77.3	0.47	0.31	0.47	31.8
East: RoadName														
1	L2	87	4.4	97	4.4	0.204	6.3	LOS A	0.9	22.8	0.54	0.47	0.54	33.1
6	T1	70	0.0	78	0.0	0.204	6.2	LOS A	0.9	22.8	0.54	0.47	0.54	33.1
16	R2	1	3.0	1	3.0	0.204	6.3	LOS A	0.9	22.8	0.54	0.47	0.54	32.1
Approach		158	2.4	176	2.4	0.204	6.3	LOS A	0.9	22.8	0.54	0.47	0.54	33.1
North: RoadName														
7	L2	1	3.0	1	3.0	0.069	5.2	LOS A	0.3	6.9	0.52	0.43	0.52	35.1
4	T1	25	3.0	28	3.0	0.069	5.2	LOS A	0.3	6.9	0.52	0.43	0.52	35.1
14	R2	24	3.0	27	3.0	0.069	5.2	LOS A	0.3	6.9	0.52	0.43	0.52	34.0
Approach		50	3.0	56	3.0	0.069	5.2	LOS A	0.3	6.9	0.52	0.43	0.52	34.5
West: RoadName														
5	L2	36	3.0	40	3.0	0.297	5.8	LOS A	1.6	40.9	0.34	0.20	0.34	34.5
2	T1	105	2.9	117	2.9	0.297	5.8	LOS A	1.6	40.9	0.34	0.20	0.34	34.4
12	R2	176	1.2	196	1.2	0.297	5.8	LOS A	1.6	40.9	0.34	0.20	0.34	33.4
Approach		317	2.0	352	2.0	0.297	5.8	LOS A	1.6	40.9	0.34	0.20	0.34	33.9
All Vehicles		1003	2.5	1114	2.5	0.467	7.0	LOS A	3.0	77.3	0.44	0.31	0.44	32.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Geometric Delay is not included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 109 [Beacon Light Road / Pollard Road AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

2045 Background
 Site Category: (None)
 Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV]		Arrival Flows [Total HV]		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue [Veh.]	Dist [ft]	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
			veh/h	%	veh/h	%	v/c	sec							
South: RoadName															
3	L2	All MCs	12	0.0	12	0.0	0.314	8.5	LOS A	1.4	35.2	0.66	0.56	0.66	31.3
8	T1	All MCs	53	0.0	53	0.0	0.314	8.5	LOS A	1.4	35.2	0.66	0.56	0.66	31.9
18	R2	All MCs	156	3.1	156	3.1	0.314	9.1	LOS A	1.4	35.2	0.66	0.56	0.66	31.6
Approach			221	2.2	221	2.2	0.314	8.9	LOS A	1.4	35.2	0.66	0.56	0.66	31.7
East: RoadName															
1	L2	All MCs	44	6.7	44	6.7	0.117	3.8	LOS A	0.5	12.4	0.18	0.07	0.18	32.9
6	T1	All MCs	164	8.0	164	8.0	0.117	3.9	LOS A	0.5	12.5	0.18	0.07	0.18	34.0
16	R2	All MCs	87	0.0	87	0.0	0.117	3.5	LOS A	0.5	12.5	0.18	0.07	0.18	34.3
Approach			296	5.5	296	5.5	0.117	3.8	LOS A	0.5	12.5	0.18	0.07	0.18	33.9
North: RoadName															
7	L2	All MCs	126	0.0	126	0.0	0.183	4.9	LOS A	0.9	21.6	0.41	0.25	0.41	31.8
4	T1	All MCs	43	0.0	43	0.0	0.183	4.9	LOS A	0.9	21.6	0.41	0.25	0.41	32.4
14	R2	All MCs	29	0.0	29	0.0	0.183	4.9	LOS A	0.9	21.6	0.41	0.25	0.41	32.1
Approach			198	0.0	198	0.0	0.183	4.9	LOS A	0.9	21.6	0.41	0.25	0.41	32.0
West: RoadName															
5	L2	All MCs	3	0.0	3	0.0	0.221	4.9	LOS A	1.0	25.0	0.37	0.22	0.37	33.3
2	T1	All MCs	480	3.3	480	3.3	0.221	5.2	LOS A	1.0	25.1	0.37	0.22	0.37	33.9
12	R2	All MCs	12	0.0	12	0.0	0.221	4.9	LOS A	1.0	25.1	0.37	0.22	0.37	33.6
Approach			496	3.2	496	3.2	0.221	5.2	LOS A	1.0	25.1	0.37	0.22	0.37	33.9
All Vehicles			1210	3.0	1210	3.0	0.314	5.5	LOS A	1.4	35.2	0.38	0.25	0.38	33.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 Site: 109 [Beacon Light Road / Pollard Road PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

2045 Background
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue	Dist	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	ft				mph
South: RoadName															
3	L2	All MCs	351	0.0	351	0.0	0.767	17.6	LOS C	14.5	362.6	0.91	0.93	1.62	27.3
8	T1	All MCs	242	0.0	242	0.0	0.767	17.6	LOS C	14.5	362.6	0.91	0.93	1.62	27.8
18	R2	All MCs	174	0.0	174	0.0	0.767	17.6	LOS C	14.5	362.6	0.91	0.93	1.62	27.6
Approach			768	0.0	768	0.0	0.767	17.6	LOS C	14.5	362.6	0.91	0.93	1.62	27.5
East: RoadName															
1	L2	All MCs	182	0.0	182	0.0	0.619	14.1	LOS B	5.1	129.0	0.78	0.81	1.23	28.7
6	T1	All MCs	686	0.9	686	0.9	0.619	14.3	LOS B	5.1	129.0	0.78	0.81	1.23	29.5
16	R2	All MCs	140	0.0	140	0.0	0.619	14.1	LOS B	5.1	128.9	0.78	0.81	1.23	29.6
Approach			1008	0.6	1008	0.6	0.619	14.3	LOS B	5.1	129.0	0.78	0.81	1.23	29.4
North: RoadName															
7	L2	All MCs	68	0.0	68	0.0	0.284	14.0	LOS B	1.1	27.6	0.78	0.80	0.85	28.3
4	T1	All MCs	34	0.0	34	0.0	0.284	14.0	LOS B	1.1	27.6	0.78	0.80	0.85	28.8
14	R2	All MCs	10	0.0	10	0.0	0.284	14.0	LOS B	1.1	27.6	0.78	0.80	0.85	28.6
Approach			112	0.0	112	0.0	0.284	14.0	LOS B	1.1	27.6	0.78	0.80	0.85	28.5
West: RoadName															
5	L2	All MCs	6	0.0	6	0.0	0.119	4.2	LOS A	0.5	12.2	0.39	0.25	0.39	33.6
2	T1	All MCs	238	1.4	238	1.4	0.119	4.4	LOS A	0.5	12.2	0.39	0.25	0.39	34.3
12	R2	All MCs	13	0.0	13	0.0	0.119	4.2	LOS A	0.5	12.2	0.39	0.25	0.39	34.0
Approach			257	1.3	257	1.3	0.119	4.4	LOS A	0.5	12.2	0.39	0.25	0.39	34.3
All Vehicles			2144	0.4	2144	0.4	0.767	14.3	LOS B	14.5	362.6	0.78	0.79	1.25	29.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SIDRA INTERSECTION 9.1 | Copyright © 2000-2022 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: KITTELSON AND ASSOCIATES INC | Licence: NETWORK / Enterprise Level 3 | Processed: Friday, January 13, 2023 2:43:47 PM

Project: H:\25\25407 - Willow Brook Community TIS\Traffic Operations\Mitigations\Sidra\2045_TT+.sip9

MOVEMENT SUMMARY

Site: 111 [Beacon Light Road / Palmer Lane AM (Site Folder: General)]

2045 Background
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist ft]				
South: RoadName														
3	L2	27	0.0	30	0.0	0.176	10.9	LOS B	0.6	16.1	0.72	0.72	0.72	31.0
18	R2	38	14.3	42	14.3	0.176	12.0	LOS B	0.6	16.1	0.72	0.72	0.72	29.8
Approach		65	8.4	72	8.4	0.176	11.5	LOS B	0.6	16.1	0.72	0.72	0.72	30.3
East: RoadName														
1	L2	24	0.0	27	0.0	0.204	4.3	LOS A	1.0	24.5	0.12	0.04	0.12	35.5
6	T1	484	0.0	538	0.0	0.204	4.3	LOS A	1.0	24.5	0.12	0.04	0.12	35.6
Approach		508	0.0	564	0.0	0.204	4.3	LOS A	1.0	24.5	0.12	0.04	0.12	35.6
West: RoadName														
2	T1	992	0.8	1102	0.8	0.408	6.5	LOS A	2.6	64.8	0.15	0.05	0.15	34.5
12	R2	19	0.0	21	0.0	0.408	6.4	LOS A	2.6	64.8	0.15	0.05	0.15	33.5
Approach		1011	0.8	1123	0.8	0.408	6.5	LOS A	2.6	64.8	0.15	0.05	0.15	34.5
All Vehicles		1584	0.8	1760	0.8	0.408	6.0	LOS A	2.6	64.8	0.17	0.07	0.17	34.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: Same as Sign Control.
 Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
 LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
 Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
 Roundabout Capacity Model: US HCM 6.
 Delay Model: HCM Delay Formula (Geometric Delay is not included).
 Queue Model: HCM Queue Formula.
 Gap-Acceptance Capacity: Traditional M1.
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 111 [Beacon Light Road / Palmer Lane PM (Site Folder: General)]

2045 Background
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist ft]				
South: RoadName														
3	L2	115	4.8	121	4.8	0.175	6.2	LOS A	0.7	19.0	0.54	0.48	0.54	32.3
18	R2	22	0.0	23	0.0	0.175	6.0	LOS A	0.7	19.0	0.54	0.48	0.54	31.5
Approach		137	4.0	144	4.0	0.175	6.2	LOS A	0.7	19.0	0.54	0.48	0.54	32.2
East: RoadName														
1	L2	5	0.0	5	0.0	0.547	9.0	LOS A	4.0	100.9	0.44	0.27	0.44	33.3
6	T1	1303	0.6	1372	0.6	0.547	9.0	LOS A	4.0	100.9	0.44	0.27	0.44	33.2
Approach		1308	0.6	1377	0.6	0.547	9.0	LOS A	4.0	100.9	0.44	0.27	0.44	33.2
West: RoadName														
2	T1	442	0.6	465	0.6	0.173	4.0	LOS A	0.8	20.0	0.04	0.01	0.04	35.9
12	R2	19	0.0	20	0.0	0.173	3.9	LOS A	0.8	20.0	0.04	0.01	0.04	34.7
Approach		461	0.6	485	0.6	0.173	4.0	LOS A	0.8	20.0	0.04	0.01	0.04	35.8
All Vehicles		1906	0.8	2006	0.8	0.547	7.6	LOS A	4.0	100.9	0.35	0.22	0.35	33.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: Same as Sign Control.
 Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
 LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
 Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
 Roundabout Capacity Model: US HCM 6.
 Delay Model: HCM Delay Formula (Geometric Delay is not included).
 Queue Model: HCM Queue Formula.
 Gap-Acceptance Capacity: Traditional M1.
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 113 [Floating Feather Road / Star Road AM (Site Folder: General)]

2045 Background
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] ft				
South: RoadName														
3	L2	101	3.1	112	3.1	0.271	5.9	LOS A	1.4	34.9	0.42	0.29	0.42	33.6
18	R2	164	2.2	182	2.2	0.271	5.9	LOS A	1.4	34.9	0.42	0.29	0.42	32.6
Approach		265	2.5	294	2.5	0.271	5.9	LOS A	1.4	34.9	0.42	0.29	0.42	33.0
East: RoadName														
1	L2	350	4.4	389	4.4	0.399	7.1	LOS A	2.4	62.1	0.36	0.21	0.36	32.0
6	T1	75	0.0	83	0.0	0.399	6.9	LOS A	2.4	62.1	0.36	0.21	0.36	32.0
Approach		425	3.6	472	3.6	0.399	7.0	LOS A	2.4	62.1	0.36	0.21	0.36	32.0
West: RoadName														
2	T1	185	2.9	206	2.9	0.506	10.6	LOS B	3.8	95.3	0.68	0.71	0.87	32.4
12	R2	222	1.2	247	1.2	0.506	10.6	LOS B	3.8	95.3	0.68	0.71	0.87	31.5
Approach		407	2.0	452	2.0	0.506	10.6	LOS B	3.8	95.3	0.68	0.71	0.87	31.9
All Vehicles		1097	2.8	1219	2.8	0.506	8.1	LOS A	3.8	95.3	0.49	0.41	0.57	32.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: Same as Sign Control.
 Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
 LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
 Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
 Roundabout Capacity Model: US HCM 6.
 Delay Model: HCM Delay Formula (Geometric Delay is not included).
 Queue Model: HCM Queue Formula.
 Gap-Acceptance Capacity: Traditional M1.
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 113 [Floating Feather Road / Star Road PM (Site Folder: General)]

2045 Background
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist ft]				
South: RoadName														
3	L2	139	0.0	153	0.0	0.337	6.2	LOS A	2.0	49.2	0.36	0.21	0.36	33.6
18	R2	231	0.0	254	0.0	0.337	6.2	LOS A	2.0	49.2	0.36	0.21	0.36	32.6
Approach		370	0.0	407	0.0	0.337	6.2	LOS A	2.0	49.2	0.36	0.21	0.36	33.0
East: RoadName														
1	L2	623	1.8	685	1.8	0.797	17.9	LOS C	18.7	471.3	0.85	0.75	1.17	28.1
6	T1	222	0.0	244	0.0	0.797	17.9	LOS C	18.7	471.3	0.85	0.75	1.17	28.0
Approach		845	1.3	929	1.3	0.797	17.9	LOS C	18.7	471.3	0.85	0.75	1.17	28.0
West: RoadName														
2	T1	120	0.0	132	0.0	0.494	12.9	LOS B	3.1	79.3	0.75	0.86	1.09	31.3
12	R2	182	1.5	200	1.5	0.494	13.0	LOS B	3.1	79.3	0.75	0.86	1.09	30.5
Approach		302	0.9	332	0.9	0.494	12.9	LOS B	3.1	79.3	0.75	0.86	1.09	30.8
All Vehicles		1517	0.9	1667	0.9	0.797	14.1	LOS B	18.7	471.3	0.71	0.64	0.96	29.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: Same as Sign Control.
 Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
 LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
 Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
 Roundabout Capacity Model: US HCM 6.
 Delay Model: HCM Delay Formula (Geometric Delay is not included).
 Queue Model: HCM Queue Formula.
 Gap-Acceptance Capacity: Traditional M1.
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 114 [Floating Feather Road / Plummer Road AM (Site Folder: General)]

2045 Background
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist ft]				
South: RoadName														
3	L2	96	2.9	103	2.9	0.157	4.8	LOS A	0.7	18.1	0.38	0.25	0.38	33.6
18	R2	62	0.0	67	0.0	0.157	4.7	LOS A	0.7	18.1	0.38	0.25	0.38	32.7
Approach		158	1.8	170	1.8	0.157	4.7	LOS A	0.7	18.1	0.38	0.25	0.38	33.3
East: RoadName														
1	L2	40	6.7	43	6.7	0.121	4.1	LOS A	0.5	13.7	0.25	0.12	0.25	34.7
6	T1	91	5.9	98	5.9	0.121	4.1	LOS A	0.5	13.7	0.25	0.12	0.25	34.8
Approach		131	6.1	141	6.1	0.121	4.1	LOS A	0.5	13.7	0.25	0.12	0.25	34.7
West: RoadName														
2	T1	198	2.7	213	2.7	0.439	7.1	LOS A	3.1	78.0	0.24	0.10	0.24	34.1
12	R2	334	0.0	359	0.0	0.439	7.1	LOS A	3.1	78.0	0.24	0.10	0.24	33.1
Approach		532	1.0	572	1.0	0.439	7.1	LOS A	3.1	78.0	0.24	0.10	0.24	33.5
All Vehicles		821	2.0	883	2.0	0.439	6.2	LOS A	3.1	78.0	0.27	0.13	0.27	33.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: Same as Sign Control.
 Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
 LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
 Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
 Roundabout Capacity Model: US HCM 6.
 Delay Model: HCM Delay Formula (Geometric Delay is not included).
 Queue Model: HCM Queue Formula.
 Gap-Acceptance Capacity: Traditional M1.
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 114 [Floating Feather Road / Plummer Road PM (Site Folder: General)]

2045 Background
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] ft				
South: RoadName														
3	L2	374	0.0	416	0.0	0.429	7.6	LOS A	2.7	67.8	0.48	0.33	0.48	31.8
18	R2	67	0.0	74	0.0	0.429	7.6	LOS A	2.7	67.8	0.48	0.33	0.48	30.9
Approach		441	0.0	490	0.0	0.429	7.6	LOS A	2.7	67.8	0.48	0.33	0.48	31.6
East: RoadName														
1	L2	91	0.0	101	0.0	0.589	12.5	LOS B	5.8	144.0	0.75	0.86	1.12	31.3
6	T1	388	0.0	431	0.0	0.589	12.5	LOS B	5.8	144.0	0.75	0.86	1.12	31.2
Approach		479	0.0	532	0.0	0.589	12.5	LOS B	5.8	144.0	0.75	0.86	1.12	31.2
West: RoadName														
2	T1	166	0.0	184	0.0	0.376	6.5	LOS A	2.4	58.8	0.33	0.18	0.33	34.4
12	R2	255	0.0	283	0.0	0.376	6.5	LOS A	2.4	58.8	0.33	0.18	0.33	33.4
Approach		421	0.0	468	0.0	0.376	6.5	LOS A	2.4	58.8	0.33	0.18	0.33	33.8
All Vehicles		1341	0.0	1490	0.0	0.589	9.0	LOS A	5.8	144.0	0.53	0.47	0.66	32.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: Same as Sign Control.
 Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
 LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
 Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
 Roundabout Capacity Model: US HCM 6.
 Delay Model: HCM Delay Formula (Geometric Delay is not included).
 Queue Model: HCM Queue Formula.
 Gap-Acceptance Capacity: Traditional M1.
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Intersection												
Int Delay, s/veh	8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	43	9	1	25	4	25	1	56	50	12	28	20
Future Vol, veh/h	43	9	1	25	4	25	1	56	50	12	28	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	48	10	1	28	4	28	1	62	56	13	31	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	32	0	0	11	0	0	208	195	11	240	181	18
Stage 1	-	-	-	-	-	-	107	107	-	74	74	-
Stage 2	-	-	-	-	-	-	101	88	-	166	107	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1593	-	-	1621	-	-	754	704	1076	718	717	1066
Stage 1	-	-	-	-	-	-	903	811	-	940	837	-
Stage 2	-	-	-	-	-	-	910	826	-	841	811	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1593	-	-	1621	-	-	687	671	1076	610	683	1066
Mov Cap-2 Maneuver	-	-	-	-	-	-	687	671	-	610	683	-
Stage 1	-	-	-	-	-	-	876	787	-	912	822	-
Stage 2	-	-	-	-	-	-	842	811	-	712	787	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	5.9	3.4	10.2	10.2
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	814	1593	-	-	1621	-	-	755
HCM Lane V/C Ratio	0.146	0.03	-	-	0.017	-	-	0.088
HCM Control Delay (s)	10.2	7.3	0	-	7.3	0	-	10.2
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0.1	-	-	0.3

Intersection						
Int Delay, s/veh	4.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	28	113	78	29	57	41
Future Vol, veh/h	28	113	78	29	57	41
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	31	126	87	32	63	46

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	157	0	300 94
Stage 1	-	-	-	-	94 -
Stage 2	-	-	-	-	206 -
Critical Hdwy	-	-	4.1	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	-	-	2.2	-	3.5 3.3
Pot Cap-1 Maneuver	-	-	1435	-	696 968
Stage 1	-	-	-	-	935 -
Stage 2	-	-	-	-	833 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1435	-	653 968
Mov Cap-2 Maneuver	-	-	-	-	653 -
Stage 1	-	-	-	-	935 -
Stage 2	-	-	-	-	781 -

Approach	EB	WB	NB
HCM Control Delay, s	0	5.6	10.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	756	-	-	1435	-
HCM Lane V/C Ratio	0.144	-	-	0.06	-
HCM Control Delay (s)	10.6	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.2	-

Intersection						
Int Delay, s/veh	5.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗	↘	↘	↘
Traffic Vol, veh/h	52	268	107	92	193	96
Future Vol, veh/h	52	268	107	92	193	96
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	200	200	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	2	1	0	0	0
Mvmt Flow	58	298	119	102	214	107

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	221	0	-	0	533
Stage 1	-	-	-	-	119
Stage 2	-	-	-	-	414
Critical Hdwy	4.1	-	-	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	2.2	-	-	-	3.5
Pot Cap-1 Maneuver	1360	-	-	-	511
Stage 1	-	-	-	-	911
Stage 2	-	-	-	-	671
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1360	-	-	-	489
Mov Cap-2 Maneuver	-	-	-	-	489
Stage 1	-	-	-	-	872
Stage 2	-	-	-	-	671

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	15.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1360	-	-	-	489	938
HCM Lane V/C Ratio	0.042	-	-	-	0.439	0.114
HCM Control Delay (s)	7.8	-	-	-	18	9.3
HCM Lane LOS	A	-	-	-	C	A
HCM 95th %tile Q(veh)	0.1	-	-	-	2.2	0.4

Queues
109: Beacon Light Road

2045 Total Traffic 104 Disconnect AM Peak

01/13/2023



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	3	575	44	204	87	12	209	126	72
v/c Ratio	0.01	0.46	0.15	0.16	0.14	0.03	0.36	0.38	0.14
Control Delay	6.3	8.4	8.1	6.8	2.9	8.4	5.3	12.6	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.3	8.4	8.1	6.8	2.9	8.4	5.3	12.6	6.5
Queue Length 50th (ft)	0	28	4	8	0	1	5	14	4
Queue Length 95th (ft)	3	72	19	27	16	9	39	50	24
Internal Link Dist (ft)		1982		1289			1853		1312
Turn Bay Length (ft)	200		200		200	200		200	
Base Capacity (vph)	704	2139	491	2144	990	801	1058	707	1071
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.27	0.09	0.10	0.09	0.01	0.20	0.18	0.07

Intersection Summary

HCM Signalized Intersection Capacity Analysis
109: Beacon Light Road

2045 Total Traffic 104 Disconnect AM Peak

01/13/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↗		↖	↗↗	↖	↖	↗		↖	↗	
Traffic Volume (vph)	3	507	11	40	184	78	11	48	140	113	39	26
Future Volume (vph)	3	507	11	40	184	78	11	48	140	113	39	26
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.89		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1676	3342		1676	3353	1500	1676	1567		1676	1658	
Flt Permitted	0.62	1.00		0.44	1.00	1.00	0.71	1.00		0.63	1.00	
Satd. Flow (perm)	1101	3342		769	3353	1500	1253	1567		1107	1658	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	3	563	12	44	204	87	12	53	156	126	43	29
RTOR Reduction (vph)	0	3	0	0	0	54	0	108	0	0	20	0
Lane Group Flow (vph)	3	572	0	44	204	33	12	101	0	126	52	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	11.1	11.1		11.1	11.1	11.1	9.0	9.0		9.0	9.0	
Effective Green, g (s)	11.1	11.1		11.1	11.1	11.1	9.0	9.0		9.0	9.0	
Actuated g/C Ratio	0.38	0.38		0.38	0.38	0.38	0.31	0.31		0.31	0.31	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	419	1274		293	1278	572	387	484		342	512	
v/s Ratio Prot		c0.17			0.06			0.06			0.03	
v/s Ratio Perm	0.00			0.06		0.02	0.01			c0.11		
v/c Ratio	0.01	0.45		0.15	0.16	0.06	0.03	0.21		0.37	0.10	
Uniform Delay, d1	5.6	6.7		5.9	5.9	5.7	7.0	7.4		7.8	7.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	0.3		0.2	0.1	0.0	0.0	0.2		0.7	0.1	
Delay (s)	5.6	7.0		6.1	6.0	5.7	7.0	7.6		8.5	7.3	
Level of Service	A	A		A	A	A	A	A		A	A	
Approach Delay (s)		7.0			5.9			7.6			8.1	
Approach LOS		A			A			A			A	

Intersection Summary

HCM 2000 Control Delay	7.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	29.1	Sum of lost time (s)	9.0
Intersection Capacity Utilization	52.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
109: Beacon Light Road

2045 Total Traffic 104 Disconnect AM Peak
01/13/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↗	↖	↗		↖	↗	
Traffic Volume (veh/h)	3	507	11	40	184	78	11	48	140	113	39	26
Future Volume (veh/h)	3	507	11	40	184	78	11	48	140	113	39	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1772	1772	1772	1772	1772	1772	1772	1772	1772	1772	1772	1772
Adj Flow Rate, veh/h	3	563	12	44	204	87	12	53	156	126	43	29
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	602	1110	24	454	1109	494	657	122	359	526	303	205
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1088	3371	72	838	3367	1502	1328	396	1166	1173	987	665
Grp Volume(v), veh/h	3	281	294	44	204	87	12	0	209	126	0	72
Grp Sat Flow(s),veh/h/ln	1088	1683	1759	838	1683	1502	1328	0	1562	1173	0	1652
Q Serve(g_s), s	0.0	3.3	3.3	1.1	1.1	1.0	0.2	0.0	2.7	2.4	0.0	0.8
Cycle Q Clear(g_c), s	1.1	3.3	3.3	4.4	1.1	1.0	0.9	0.0	2.7	5.0	0.0	0.8
Prop In Lane	1.00		0.04	1.00		1.00	1.00		0.75	1.00		0.40
Lane Grp Cap(c), veh/h	602	554	579	454	1109	494	657	0	480	526	0	508
V/C Ratio(X)	0.00	0.51	0.51	0.10	0.18	0.18	0.02	0.00	0.44	0.24	0.00	0.14
Avail Cap(c_a), veh/h	1034	1223	1278	786	2446	1091	1213	0	1135	1017	0	1200
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.3	6.7	6.7	8.5	5.9	5.9	6.6	0.0	6.9	8.9	0.0	6.2
Incr Delay (d2), s/veh	0.0	0.7	0.7	0.1	0.1	0.2	0.0	0.0	0.6	0.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.7	0.7	0.1	0.2	0.2	0.0	0.0	0.5	0.4	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.3	7.4	7.4	8.6	6.0	6.1	6.6	0.0	7.5	9.1	0.0	6.3
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		578			335			221			198	
Approach Delay, s/veh		7.4			6.4			7.4			8.1	
Approach LOS		A			A			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		12.1		12.7		12.1		12.7				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.0		18.0		18.0		18.0				
Max Q Clear Time (g_c+I1), s		4.7		5.3		7.0		6.4				
Green Ext Time (p_c), s		1.0		2.8		0.6		1.4				
Intersection Summary												
HCM 6th Ctrl Delay				7.2								
HCM 6th LOS				A								

Queues
110: SH 16 & Beacon Light Road

2045 Total Traffic 104 Disconnect AM Peak
01/13/2023



























Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	23	289	360	149	101	119	137	399	200	293	999	7
v/c Ratio	0.07	0.80	0.60	0.61	0.20	0.14	0.56	0.36	0.33	0.58	0.81	0.01
Control Delay	29.8	64.0	27.4	43.3	38.1	2.2	26.7	33.8	8.5	22.5	42.9	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.8	64.0	27.4	43.3	38.1	2.2	26.7	33.8	8.5	22.5	42.9	0.0
Queue Length 50th (ft)	13	224	175	88	66	0	53	127	14	126	372	0
Queue Length 95th (ft)	35	345	270	153	123	10	105	198	77	221	#595	0
Internal Link Dist (ft)		1229			2042			2073			1304	
Turn Bay Length (ft)	100		100	100		100	100		100	100		100
Base Capacity (vph)	326	547	753	245	611	1028	416	1423	731	547	1286	676
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.53	0.48	0.61	0.17	0.12	0.33	0.28	0.27	0.54	0.78	0.01

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
110: SH 16 & Beacon Light Road

2045 Total Traffic 104 Disconnect AM Peak
01/13/2023

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	21	260	324	134	91	107	123	359	180	264	899	6	
Future Volume (vph)	21	260	324	134	91	107	123	359	180	264	899	6	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Total Lost time (s)	7.0	7.0	9.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0	9.0	9.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88	1.00	0.95	1.00	1.00	0.95	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1710	1765	1530	1660	1782	2693	1693	3353	1485	1710	3353	1530	
Flt Permitted	0.69	1.00	1.00	0.28	1.00	1.00	0.15	1.00	1.00	0.44	1.00	1.00	
Satd. Flow (perm)	1245	1765	1530	493	1782	2693	263	3353	1485	789	3353	1530	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	23	289	360	149	101	119	137	399	200	293	999	7	
RTOR Reduction (vph)	0	0	65	0	0	86	0	0	118	0	0	4	
Lane Group Flow (vph)	23	289	295	149	101	33	137	399	82	293	999	3	
Heavy Vehicles (%)	0%	2%	0%	3%	1%	0%	1%	2%	3%	0%	2%	0%	
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Prot	
Protected Phases	1	6	3	5	2	2	3	8	8	7	4	4	
Permitted Phases	6		6	2			8			4			
Actuated Green, G (s)	31.5	28.7	40.1	44.1	35.0	35.0	52.4	41.0	41.0	61.6	45.6	45.6	
Effective Green, g (s)	31.5	28.7	40.1	44.1	35.0	35.0	52.4	41.0	41.0	61.6	45.6	45.6	
Actuated g/C Ratio	0.25	0.23	0.32	0.35	0.28	0.28	0.41	0.32	0.32	0.49	0.36	0.36	
Clearance Time (s)	7.0	7.0	9.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0	9.0	9.0	
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	3.0	2.0	5.0	5.0	2.0	5.0	5.0	
Lane Grp Cap (vph)	319	399	483	255	491	743	237	1084	480	499	1205	550	
v/s Ratio Prot	0.00	c0.16	0.05	c0.04	0.06	0.01	0.05	0.12	0.05	c0.07	c0.30	0.00	
v/s Ratio Perm	0.02		0.14	0.16			0.19			0.21			
v/c Ratio	0.07	0.72	0.61	0.58	0.21	0.04	0.58	0.37	0.17	0.59	0.83	0.00	
Uniform Delay, d1	36.3	45.4	36.7	31.1	35.2	33.6	25.9	33.0	30.7	20.5	37.0	26.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	6.4	1.6	2.2	0.2	0.0	2.1	0.4	0.4	1.1	5.4	0.0	
Delay (s)	36.3	51.8	38.3	33.3	35.4	33.7	28.0	33.4	31.1	21.6	42.5	26.0	
Level of Service	D	D	D	C	D	C	C	C	C	C	D	C	
Approach Delay (s)		44.1			34.0			31.8			37.7		
Approach LOS		D			C			C			D		
Intersection Summary													
HCM 2000 Control Delay			37.2									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.78										
Actuated Cycle Length (s)			126.8									Sum of lost time (s)	32.0
Intersection Capacity Utilization			82.4%									ICU Level of Service	E
Analysis Period (min)			15										
c	Critical Lane Group												

HCM 6th Signalized Intersection Summary
110: SH 16 & Beacon Light Road

2045 Total Traffic 104 Disconnect AM Peak
01/13/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	260	324	134	91	107	123	359	180	264	899	6
Future Volume (veh/h)	21	260	324	134	91	107	123	359	180	264	899	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1772	1800	1758	1786	1800	1786	1772	1758	1800	1772	1800
Adj Flow Rate, veh/h	23	289	360	149	101	119	137	399	200	293	999	7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	2	0	3	1	0	1	2	3	0	2	0
Cap, veh/h	385	434	485	256	528	794	225	972	430	450	1181	535
Arrive On Green	0.02	0.25	0.25	0.07	0.30	0.30	0.07	0.29	0.29	0.13	0.35	0.35
Sat Flow, veh/h	1714	1772	1525	1674	1786	2685	1701	3367	1490	1714	3367	1525
Grp Volume(v), veh/h	23	289	360	149	101	119	137	399	200	293	999	7
Grp Sat Flow(s),veh/h/ln	1714	1772	1525	1674	1786	1342	1701	1683	1490	1714	1683	1525
Q Serve(g_s), s	1.2	18.2	26.1	8.1	5.2	4.0	6.9	11.8	13.6	14.6	33.9	0.4
Cycle Q Clear(g_c), s	1.2	18.2	26.1	8.1	5.2	4.0	6.9	11.8	13.6	14.6	33.9	0.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	385	434	485	256	528	794	225	972	430	450	1181	535
V/C Ratio(X)	0.06	0.67	0.74	0.58	0.19	0.15	0.61	0.41	0.47	0.65	0.85	0.01
Avail Cap(c_a), veh/h	417	544	579	256	606	911	432	1415	626	482	1279	579
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.7	42.1	37.7	32.6	32.5	32.1	31.1	35.5	36.2	25.3	37.1	26.2
Incr Delay (d2), s/veh	0.0	2.2	4.2	2.2	0.2	0.1	1.0	0.6	1.7	2.1	5.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	8.2	10.2	3.5	2.3	1.3	2.9	5.0	5.2	6.1	14.8	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.7	44.3	41.9	34.8	32.7	32.2	32.1	36.1	37.8	27.3	43.0	26.2
LnGrp LOS	C	D	D	C	C	C	C	D	D	C	D	C
Approach Vol, veh/h		672			369			736			1299	
Approach Delay, s/veh		42.6			33.4			35.8			39.3	
Approach LOS		D			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.7	43.6	18.0	52.4	16.0	37.3	25.7	44.7				
Change Period (Y+Rc), s	7.0	7.0	9.0	9.0	7.0	7.0	9.0	9.0				
Max Green Setting (Gmax), s	5.0	42.0	24.0	47.0	9.0	38.0	19.0	52.0				
Max Q Clear Time (g_c+I1), s	3.2	7.2	8.9	35.9	10.1	28.1	16.6	15.6				
Green Ext Time (p_c), s	0.0	1.1	0.1	7.5	0.0	2.3	0.1	7.5				
Intersection Summary												
HCM 6th Ctrl Delay			38.5									
HCM 6th LOS			D									

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗		↕
Traffic Vol, veh/h	0	68	493	646	0	1678
Future Vol, veh/h	0	68	493	646	0	1678
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	-	0	-	505	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	76	548	718	0	1864

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	274	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-
Pot Cap-1 Maneuver	0	724	-	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %					
Mov Cap-1 Maneuver	-	724	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	724
HCM Lane V/C Ratio	-	-	0.104
HCM Control Delay (s)	-	-	10.6
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.3

Intersection												
Int Delay, s/veh	9.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	33	6	1	62	11	20	1	47	41	32	70	54
Future Vol, veh/h	33	6	1	62	11	20	1	47	41	32	70	54
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	37	7	1	69	12	22	1	52	46	36	78	60

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	34	0	0	8	0	0	312	254	8	292	243	23
Stage 1	-	-	-	-	-	-	82	82	-	161	161	-
Stage 2	-	-	-	-	-	-	230	172	-	131	82	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1591	-	-	1625	-	-	644	653	1080	664	662	1060
Stage 1	-	-	-	-	-	-	931	831	-	846	769	-
Stage 2	-	-	-	-	-	-	777	760	-	877	831	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1591	-	-	1625	-	-	522	611	1080	565	619	1060
Mov Cap-2 Maneuver	-	-	-	-	-	-	522	611	-	565	619	-
Stage 1	-	-	-	-	-	-	910	812	-	827	736	-
Stage 2	-	-	-	-	-	-	627	727	-	768	812	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	6			4.9			10.4			11.7		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	762	1591	-	-	1625	-	-	707
HCM Lane V/C Ratio	0.13	0.023	-	-	0.042	-	-	0.245
HCM Control Delay (s)	10.4	7.3	0	-	7.3	0	-	11.7
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0.1	-	-	1

Intersection						
Int Delay, s/veh	7.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	73	96	74	61	145	110
Future Vol, veh/h	73	96	74	61	145	110
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	81	107	82	68	161	122

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	188	0	367
Stage 1	-	-	-	-	135
Stage 2	-	-	-	-	232
Critical Hdwy	-	-	4.1	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.2	-	3.5
Pot Cap-1 Maneuver	-	-	1398	-	637
Stage 1	-	-	-	-	896
Stage 2	-	-	-	-	811
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1398	-	598
Mov Cap-2 Maneuver	-	-	-	-	598
Stage 1	-	-	-	-	896
Stage 2	-	-	-	-	762

Approach	EB	WB	NB
HCM Control Delay, s	0	4.2	13.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	704	-	-	1398	-
HCM Lane V/C Ratio	0.402	-	-	0.059	-
HCM Control Delay (s)	13.5	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.9	-	-	0.2	-

Intersection						
Int Delay, s/veh	12.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗	↘	↘	↘
Traffic Vol, veh/h	172	139	485	248	149	109
Future Vol, veh/h	172	139	485	248	149	109
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	200	200	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	2	1	0	0	0
Mvmt Flow	191	154	539	276	166	121

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	815	0	-	0	1075 539
Stage 1	-	-	-	-	539 -
Stage 2	-	-	-	-	536 -
Critical Hdwy	4.1	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.2	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	821	-	-	-	245 546
Stage 1	-	-	-	-	589 -
Stage 2	-	-	-	-	591 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	821	-	-	-	188 546
Mov Cap-2 Maneuver	-	-	-	-	188 -
Stage 1	-	-	-	-	452 -
Stage 2	-	-	-	-	591 -

Approach	EB	WB	SB
HCM Control Delay, s	5.9	0	56.8
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	821	-	-	-	188	546
HCM Lane V/C Ratio	0.233	-	-	-	0.881	0.222
HCM Control Delay (s)	10.7	-	-	-	88.4	13.5
HCM Lane LOS	B	-	-	-	F	B
HCM 95th %tile Q(veh)	0.9	-	-	-	6.6	0.8

Queues
109: Beacon Light Road

2045 Total Traffic 104 Disconnect PM Peak

01/13/2023



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	6	317	182	790	140	351	416	68	44
v/c Ratio	0.03	0.24	0.47	0.60	0.21	0.73	0.61	0.24	0.07
Control Delay	8.8	8.9	14.8	12.4	3.2	22.2	12.4	11.7	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.8	8.9	14.8	12.4	3.2	22.2	12.4	11.7	7.3
Queue Length 50th (ft)	1	25	33	79	0	71	58	11	5
Queue Length 95th (ft)	6	46	76	123	23	#175	124	32	19
Internal Link Dist (ft)		1982		1289			1853		1312
Turn Bay Length (ft)	200		200		200	200		200	
Base Capacity (vph)	239	1559	460	1563	774	599	822	344	800
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.20	0.40	0.51	0.18	0.59	0.51	0.20	0.06

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
109: Beacon Light Road

2045 Total Traffic 104 Disconnect PM Peak
01/13/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑		↘	↑↑	↗	↘	↗		↘	↗	
Traffic Volume (vph)	5	274	12	164	711	126	316	218	157	61	31	9
Future Volume (vph)	5	274	12	164	711	126	316	218	157	61	31	9
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.94		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1676	3332		1676	3353	1500	1676	1654		1676	1705	
Flt Permitted	0.29	1.00		0.56	1.00	1.00	0.73	1.00		0.42	1.00	
Satd. Flow (perm)	513	3332		987	3353	1500	1285	1654		740	1705	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	6	304	13	182	790	140	351	242	174	68	34	10
RTOR Reduction (vph)	0	7	0	0	0	85	0	59	0	0	6	0
Lane Group Flow (vph)	6	310	0	182	790	55	351	357	0	68	38	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	15.6	15.6		15.6	15.6	15.6	15.1	15.1		15.1	15.1	
Effective Green, g (s)	15.6	15.6		15.6	15.6	15.6	15.1	15.1		15.1	15.1	
Actuated g/C Ratio	0.39	0.39		0.39	0.39	0.39	0.38	0.38		0.38	0.38	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	201	1309		387	1317	589	488	629		281	648	
v/s Ratio Prot		0.09			c0.24			0.22			0.02	
v/s Ratio Perm	0.01			0.18		0.04	c0.27			0.09		
v/c Ratio	0.03	0.24		0.47	0.60	0.09	0.72	0.57		0.24	0.06	
Uniform Delay, d1	7.4	8.1		9.0	9.6	7.6	10.5	9.7		8.4	7.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.1		0.9	0.7	0.1	5.0	1.2		0.4	0.0	
Delay (s)	7.5	8.2		9.9	10.3	7.7	15.5	10.9		8.8	7.8	
Level of Service	A	A		A	B	A	B	B		A	A	
Approach Delay (s)		8.1			9.9			13.0			8.4	
Approach LOS		A			A			B			A	

Intersection Summary		
HCM 2000 Control Delay	10.6	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.66	B
Actuated Cycle Length (s)	39.7	Sum of lost time (s)
Intersection Capacity Utilization	66.3%	9.0
Analysis Period (min)	15	ICU Level of Service
		C

c Critical Lane Group

HCM 6th Signalized Intersection Summary
109: Beacon Light Road

2045 Total Traffic 104 Disconnect PM Peak
01/13/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↑↑		↖	↑↑	↗	↖	↑		↗	↖	
Traffic Volume (veh/h)	5	274	12	164	711	126	316	218	157	61	31	9
Future Volume (veh/h)	5	274	12	164	711	126	316	218	157	61	31	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1772	1772	1772	1772	1772	1772	1772	1772	1772	1772	1772	1772
Adj Flow Rate, veh/h	6	304	13	182	790	140	351	242	174	68	34	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	318	1257	54	541	1286	574	677	350	252	349	481	141
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	602	3290	140	1063	3367	1502	1362	959	689	970	1315	387
Grp Volume(v), veh/h	6	155	162	182	790	140	351	0	416	68	0	44
Grp Sat Flow(s),veh/h/ln	602	1683	1747	1063	1683	1502	1362	0	1648	970	0	1702
Q Serve(g_s), s	0.3	2.2	2.3	5.0	6.8	2.3	8.1	0.0	7.6	2.3	0.0	0.6
Cycle Q Clear(g_c), s	7.0	2.2	2.3	7.3	6.8	2.3	8.7	0.0	7.6	9.9	0.0	0.6
Prop In Lane	1.00		0.08	1.00		1.00	1.00		0.42	1.00		0.23
Lane Grp Cap(c), veh/h	318	643	667	541	1286	574	677	0	602	349	0	622
V/C Ratio(X)	0.02	0.24	0.24	0.34	0.61	0.24	0.52	0.00	0.69	0.20	0.00	0.07
Avail Cap(c_a), veh/h	392	850	882	672	1700	758	867	0	832	484	0	860
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.7	7.5	7.5	10.0	8.9	7.5	10.2	0.0	9.6	13.8	0.0	7.4
Incr Delay (d2), s/veh	0.0	0.2	0.2	0.4	0.5	0.2	0.6	0.0	1.4	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.6	0.6	0.9	1.8	0.5	1.8	0.0	2.1	0.4	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.8	7.7	7.7	10.3	9.4	7.7	10.8	0.0	11.0	14.1	0.0	7.4
LnGrp LOS	B	A	A	B	A	A	B	A	B	B	A	A
Approach Vol, veh/h		323			1112			767				112
Approach Delay, s/veh		7.8			9.3			10.9				11.5
Approach LOS		A			A			B				B
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		17.5		18.1		17.5		18.1				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.0		18.0		18.0		18.0				
Max Q Clear Time (g_c+I1), s		10.7		9.0		11.9		9.3				
Green Ext Time (p_c), s		2.4		1.2		0.2		4.3				
Intersection Summary												
HCM 6th Ctrl Delay				9.7								
HCM 6th LOS				A								

Queues
110: SH 16 & Beacon Light Road

2045 Total Traffic 104 Disconnect PM Peak
01/13/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	71	141	202	176	517	643	269	1021	96	118	539	44
v/c Ratio	0.46	0.26	0.33	0.39	0.87	0.61	0.69	0.86	0.16	0.69	0.59	0.08
Control Delay	38.4	40.2	5.2	32.3	62.6	29.1	35.2	53.6	2.0	50.5	52.7	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.4	40.2	5.2	32.3	62.6	29.1	35.2	53.6	2.0	50.5	52.7	0.3
Queue Length 50th (ft)	43	107	0	115	486	203	170	507	0	67	250	0
Queue Length 95th (ft)	77	166	52	173	642	276	251	621	13	#174	356	0
Internal Link Dist (ft)		1229			2042			2073			1304	
Turn Bay Length (ft)	100		100	100		100	100		100	100		100
Base Capacity (vph)	155	644	692	446	699	1189	539	1270	647	176	920	563
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.22	0.29	0.39	0.74	0.54	0.50	0.80	0.15	0.67	0.59	0.08

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 2045 Total Traffic 104 Disconnect PM Peak
 110: SH 16 & Beacon Light Road 01/13/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	138	198	172	507	630	264	1001	94	116	528	43
Future Volume (vph)	70	138	198	172	507	630	264	1001	94	116	528	43
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0	9.0	9.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1710	1765	1530	1660	1782	2693	1693	3353	1485	1710	3353	1530
Flt Permitted	0.18	1.00	1.00	0.59	1.00	1.00	0.27	1.00	1.00	0.15	1.00	1.00
Satd. Flow (perm)	317	1765	1530	1032	1782	2693	479	3353	1485	262	3353	1530
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	71	141	202	176	517	643	269	1021	96	118	539	44
RTOR Reduction (vph)	0	0	140	0	0	145	0	0	62	0	0	32
Lane Group Flow (vph)	71	141	62	176	517	498	269	1021	34	118	539	12
Heavy Vehicles (%)	0%	2%	0%	3%	1%	0%	1%	2%	3%	0%	2%	0%
Turn Type	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Prot
Protected Phases	1	6	6	5	2	2	3	8	8	7	4	4
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	51.2	46.1	46.1	59.2	50.1	50.1	71.0	53.2	53.2	49.9	41.1	41.1
Effective Green, g (s)	51.2	46.1	46.1	59.2	50.1	50.1	71.0	53.2	53.2	49.9	41.1	41.1
Actuated g/C Ratio	0.34	0.31	0.31	0.40	0.34	0.34	0.48	0.36	0.36	0.33	0.28	0.28
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0	9.0	9.0
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	5.0	5.0	2.0	5.0	5.0
Lane Grp Cap (vph)	156	545	472	447	598	904	398	1195	529	173	923	421
v/s Ratio Prot	0.02	0.08	0.04	c0.02	c0.29	0.18	c0.09	c0.30	0.02	0.04	0.16	0.01
v/s Ratio Perm	0.14			0.13			0.23			0.19		
v/c Ratio	0.46	0.26	0.13	0.39	0.86	0.55	0.68	0.85	0.06	0.68	0.58	0.03
Uniform Delay, d1	36.6	38.7	37.1	31.1	46.4	40.4	26.4	44.4	31.6	37.2	46.7	39.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.3	0.1	0.2	12.4	0.7	3.6	6.7	0.1	8.5	1.5	0.1
Delay (s)	37.4	39.0	37.3	31.3	58.8	41.1	30.0	51.1	31.7	45.7	48.1	39.5
Level of Service	D	D	D	C	E	D	C	D	C	D	D	D
Approach Delay (s)		37.9			46.7			45.7			47.2	
Approach LOS		D			D			D			D	

Intersection Summary		
HCM 2000 Control Delay	45.5	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.88	D
Actuated Cycle Length (s)	149.2	Sum of lost time (s)
Intersection Capacity Utilization	95.0%	32.0
Analysis Period (min)	15	ICU Level of Service
		F
c Critical Lane Group		

HCM 6th Signalized Intersection Summary
110: SH 16 & Beacon Light Road

2045 Total Traffic 104 Disconnect PM Peak
01/13/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	138	198	172	507	630	264	1001	94	116	528	43
Future Volume (veh/h)	70	138	198	172	507	630	264	1001	94	116	528	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1772	1800	1758	1786	1800	1786	1772	1758	1800	1772	1800
Adj Flow Rate, veh/h	71	141	202	176	517	643	269	1021	96	118	539	44
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	2	0	3	1	0	1	2	3	0	2	0
Cap, veh/h	135	532	458	400	585	879	393	1202	532	193	992	450
Arrive On Green	0.03	0.30	0.30	0.06	0.33	0.33	0.12	0.36	0.36	0.06	0.29	0.29
Sat Flow, veh/h	1714	1772	1525	1674	1786	2685	1701	3367	1490	1714	3367	1525
Grp Volume(v), veh/h	71	141	202	176	517	643	269	1021	96	118	539	44
Grp Sat Flow(s),veh/h/ln	1714	1772	1525	1674	1786	1342	1701	1683	1490	1714	1683	1525
Q Serve(g_s), s	4.2	8.8	15.5	9.0	39.8	30.8	15.5	40.7	6.4	6.9	19.5	3.0
Cycle Q Clear(g_c), s	4.2	8.8	15.5	9.0	39.8	30.8	15.5	40.7	6.4	6.9	19.5	3.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	135	532	458	400	585	879	393	1202	532	193	992	450
V/C Ratio(X)	0.53	0.27	0.44	0.44	0.88	0.73	0.68	0.85	0.18	0.61	0.54	0.10
Avail Cap(c_a), veh/h	135	658	567	400	713	1072	629	1297	574	195	992	450
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.7	38.7	41.0	34.6	46.2	43.2	30.2	43.1	32.1	36.9	43.0	37.2
Incr Delay (d2), s/veh	1.9	0.3	0.7	0.3	11.0	2.0	0.8	6.0	0.3	3.9	1.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	3.9	6.0	0.9	19.5	10.5	6.5	17.9	2.4	3.1	8.4	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.6	38.9	41.7	34.9	57.2	45.2	31.0	49.1	32.5	40.8	44.1	37.4
LnGrp LOS	D	D	D	C	E	D	C	D	C	D	D	D
Approach Vol, veh/h		414			1336			1386			701	
Approach Delay, s/veh		40.6			48.5			44.5			43.1	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	54.6	26.9	51.8	16.0	50.6	17.8	60.9				
Change Period (Y+Rc), s	7.0	7.0	9.0	9.0	7.0	7.0	9.0	9.0				
Max Green Setting (Gmax), s	5.0	58.0	38.0	27.0	9.0	54.0	9.0	56.0				
Max Q Clear Time (g_c+I1), s	6.2	41.8	17.5	21.5	11.0	17.5	8.9	42.7				
Green Ext Time (p_c), s	0.0	5.8	0.4	2.6	0.0	1.5	0.0	9.2				
Intersection Summary												
HCM 6th Ctrl Delay			45.2									
HCM 6th LOS			D									

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗		↕
Traffic Vol, veh/h	0	235	1245	1061	0	1457
Future Vol, veh/h	0	235	1245	1061	0	1457
Conflicting Peds, #/hr	0	0	0	1061	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	-	0	-	505	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	261	1383	1179	0	1619

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	1753	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-
Pot Cap-1 Maneuver	0	~ 75	-	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %					
Mov Cap-1 Maneuver	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		0	0
HCM LOS	-		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	-	-	-
HCM Lane LOS	-	-	-
HCM 95th %tile Q(veh)	-	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

MOVEMENT SUMMARY

 Site: 109 [Beacon Light Rd / Pollard Rd TT PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

2045 Total Traffic (With Select Roadway Improvements)

Site Category: (None)

Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.]	[Dist]				mph
South: RoadName															
3	L2	All MCs	354	3.0	354	3.0	0.333	7.2	LOS A	1.5	39.4	0.53	0.38	0.53	30.2
8	T1	All MCs	242	3.0	242	3.0	0.333	7.2	LOS A	1.5	39.4	0.53	0.38	0.53	32.7
18	R2	All MCs	43	3.0	43	3.0	0.333	7.2	LOS A	1.5	39.4	0.53	0.38	0.53	32.4
Approach			640	3.0	640	3.0	0.333	7.2	LOS A	1.5	39.4	0.53	0.38	0.53	31.2
East: RoadName															
1	L2	All MCs	182	3.0	182	3.0	0.706	19.1	LOS C	7.0	176.1	0.84	0.97	1.56	27.1
6	T1	All MCs	790	0.0	790	0.0	0.706	17.7	LOS C	7.2	181.8	0.83	0.96	1.55	28.2
16	R2	All MCs	140	3.0	140	3.0	0.706	17.9	LOS C	7.2	181.8	0.83	0.95	1.54	28.3
Approach			1112	0.9	1112	0.9	0.706	18.0	LOS C	7.2	181.8	0.83	0.96	1.55	28.0
North: RoadName															
7	L2	All MCs	68	3.0	68	3.0	0.346	18.5	LOS C	1.3	32.7	0.82	0.87	0.99	26.8
4	T1	All MCs	34	3.0	34	3.0	0.346	18.5	LOS C	1.3	32.7	0.82	0.87	0.99	27.2
14	R2	All MCs	10	3.0	10	3.0	0.346	18.5	LOS C	1.3	32.7	0.82	0.87	0.99	27.0
Approach			112	3.0	112	3.0	0.346	18.5	LOS C	1.3	32.7	0.82	0.87	0.99	26.9
West: RoadName															
5	L2	All MCs	6	3.0	6	3.0	0.152	5.1	LOS A	0.6	15.4	0.40	0.27	0.40	33.4
2	T1	All MCs	304	0.0	304	0.0	0.152	4.7	LOS A	0.6	15.4	0.39	0.26	0.39	34.3
12	R2	All MCs	13	3.0	13	3.0	0.152	4.9	LOS A	0.6	15.1	0.38	0.25	0.38	33.9
Approach			323	0.2	323	0.2	0.152	4.7	LOS A	0.6	15.4	0.39	0.26	0.39	34.2
All Vehicles			2188	1.5	2188	1.5	0.706	12.9	LOS B	7.2	181.8	0.68	0.68	1.05	29.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SIDRA INTERSECTION 9.1 | Copyright © 2000-2022 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: KITTELSON AND ASSOCIATES INC | Licence: NETWORK / Enterprise Level 3 | Processed: Friday, January 13, 2023 12:40:48 PM

Project: H:\25\25407 - Willow Brook Community TIS\Traffic Operations\Mitigations\Sidra\104 Disconnect.sip9

MOVEMENT SUMMARY

Site: 1031 [Aerie Way / SH 16 (W) TT AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

2045 Total Traffic (With Select Roadway Improvements)

Site Category: (None)

Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.]	[Dist]				mph
			veh/h		veh/h					veh	ft				
South: RoadName															
3	L2	All MCs	7	4.0	7	4.0	0.079	3.3	LOSA	0.3	7.6	0.09	0.02	0.09	33.9
8	T1	All MCs	1	0.0	1	0.0	0.079	3.1	LOSA	0.3	7.6	0.09	0.02	0.09	34.8
18	R2	All MCs	101	0.0	101	0.0	0.079	3.1	LOSA	0.3	7.6	0.09	0.02	0.09	34.5
Approach			109	0.2	109	0.2	0.079	3.1	LOSA	0.3	7.6	0.09	0.02	0.09	34.5
East: RoadName															
1	L2	All MCs	553	0.0	553	0.0	0.225	4.0	LOSA	1.1	26.8	0.06	0.01	0.06	31.5
6	T1	All MCs	64	0.0	64	0.0	0.225	3.9	LOSA	1.0	26.1	0.06	0.01	0.06	32.5
16	R2	All MCs	1	0.0	1	0.0	0.225	3.9	LOSA	1.0	26.1	0.06	0.01	0.06	32.2
Approach			619	0.0	619	0.0	0.225	4.0	LOSA	1.1	26.8	0.06	0.01	0.06	31.6
North: RoadName															
7	L2	All MCs	1	0.0	1	0.0	0.004	4.3	LOSA	0.0	0.3	0.48	0.32	0.48	32.8
4	T1	All MCs	1	0.0	1	0.0	0.004	4.3	LOSA	0.0	0.3	0.48	0.32	0.48	33.4
14	R2	All MCs	1	0.0	1	0.0	0.004	4.3	LOSA	0.0	0.3	0.48	0.32	0.48	33.2
Approach			3	0.0	3	0.0	0.004	4.3	LOSA	0.0	0.3	0.48	0.32	0.48	33.1
West: RoadName															
5	L2	All MCs	1	0.0	1	0.0	0.173	5.8	LOSA	0.7	16.6	0.51	0.42	0.51	32.9
2	T1	All MCs	23	0.0	23	0.0	0.173	5.8	LOSA	0.7	16.6	0.51	0.42	0.51	33.6
12	R2	All MCs	129	0.0	129	0.0	0.173	5.8	LOSA	0.7	16.6	0.51	0.42	0.51	33.3
Approach			153	0.0	153	0.0	0.173	5.8	LOSA	0.7	16.6	0.51	0.42	0.51	33.3
All Vehicles			884	0.0	884	0.0	0.225	4.2	LOSA	1.1	26.8	0.14	0.08	0.14	32.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SIDRA INTERSECTION 9.1 | Copyright © 2000-2022 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: KITTELSON AND ASSOCIATES INC | Licence: NETWORK / Enterprise Level 3 | Processed: Friday, January 13, 2023 12:40:24 PM

Project: H:\25\25407 - Willow Brook Community TIS\Traffic Operations\Mitigations\Sidra\104 Disconnect.sip9

MOVEMENT SUMMARY

Site: 1031 [Aerie Way / SH 16 (W) TT PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

2045 Total Traffic (With Select Roadway Improvements)

Site Category: (None)

Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue	Dist	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	ft				mph
South: RoadName															
3	L2	All MCs	13	4.0	13	4.0	0.127	3.6	LOS A	0.5	13.1	0.08	0.02	0.08	33.7
8	T1	All MCs	1	0.0	1	0.0	0.127	3.4	LOS A	0.5	13.1	0.08	0.02	0.08	34.6
18	R2	All MCs	163	0.0	163	0.0	0.127	3.4	LOS A	0.5	13.1	0.08	0.02	0.08	34.3
Approach			178	0.3	178	0.3	0.127	3.4	LOS A	0.5	13.1	0.08	0.02	0.08	34.3
East: RoadName															
1	L2	All MCs	163	0.0	163	0.0	0.123	3.5	LOS A	0.5	12.9	0.08	0.02	0.08	31.5
6	T1	All MCs	172	0.0	172	0.0	0.124	3.4	LOS A	0.5	12.7	0.07	0.02	0.07	35.0
16	R2	All MCs	1	0.0	1	0.0	0.124	3.4	LOS A	0.5	12.7	0.07	0.02	0.07	34.6
Approach			337	0.0	337	0.0	0.124	3.4	LOS A	0.5	12.9	0.07	0.02	0.07	33.2
North: RoadName															
7	L2	All MCs	1	0.0	1	0.0	0.003	3.4	LOS A	0.0	0.3	0.37	0.19	0.37	33.2
4	T1	All MCs	1	0.0	1	0.0	0.003	3.4	LOS A	0.0	0.3	0.37	0.19	0.37	33.9
14	R2	All MCs	1	0.0	1	0.0	0.003	3.4	LOS A	0.0	0.3	0.37	0.19	0.37	33.6
Approach			3	0.0	3	0.0	0.003	3.4	LOS A	0.0	0.3	0.37	0.19	0.37	33.6
West: RoadName															
5	L2	All MCs	1	0.0	1	0.0	0.097	3.7	LOS A	0.4	9.4	0.27	0.14	0.27	33.9
2	T1	All MCs	16	0.0	16	0.0	0.097	3.7	LOS A	0.4	9.4	0.27	0.14	0.27	34.6
12	R2	All MCs	103	0.0	103	0.0	0.097	3.7	LOS A	0.4	9.4	0.27	0.14	0.27	34.3
Approach			120	0.0	120	0.0	0.097	3.7	LOS A	0.4	9.4	0.27	0.14	0.27	34.4
All Vehicles			638	0.1	638	0.1	0.127	3.5	LOS A	0.5	13.1	0.11	0.04	0.11	33.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SIDRA INTERSECTION 9.1 | Copyright © 2000-2022 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: KITTELSON AND ASSOCIATES INC | Licence: NETWORK / Enterprise Level 3 | Processed: Friday, January 13, 2023 12:40:30 PM

Project: H:\25\25407 - Willow Brook Community TIS\Traffic Operations\Mitigations\Sidra\104 Disconnect.sip9

MOVEMENT SUMMARY

Site: 1032 [Aerie Way / SH 16 (E) TT AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

2045 Total Traffic (With Select Roadway Improvements)

Site Category: (None)

Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist]			mph	
South: RoadName															
3	L2	All MCs	61	4.0	61	4.0	0.050	3.3	LOSA	0.2	4.9	0.22	0.10	0.22	31.5
18	R2	All MCs	657	0.0	657	0.0	0.392	0.1	LOSA	0.0	0.0	0.00	0.00	0.00	36.6
Approach			718	0.3	718	0.3	0.392	0.4	LOSA	0.2	4.9	0.02	0.01	0.02	36.1
East: RoadName															
1	L2	All MCs	62	0.0	62	0.0	0.231	4.5	LOSA	1.1	28.3	0.20	0.07	0.20	33.1
6	T1	All MCs	557	0.0	557	0.0	0.231	4.5	LOSA	1.1	28.3	0.20	0.07	0.20	34.1
Approach			619	0.0	619	0.0	0.231	4.5	LOSA	1.1	28.3	0.20	0.07	0.20	34.0
West: RoadName															
2	T1	All MCs	111	0.0	111	0.0	0.096	3.5	LOSA	0.4	11.0	0.18	0.07	0.18	34.9
12	R2	All MCs	13	0.0	13	0.0	0.096	3.5	LOSA	0.4	11.0	0.18	0.07	0.18	34.6
Approach			124	0.0	124	0.0	0.096	3.5	LOSA	0.4	11.0	0.18	0.07	0.18	34.8
All Vehicles			1461	0.2	1461	0.2	0.392	2.4	LOSA	1.1	28.3	0.11	0.04	0.11	35.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stoptime Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SIDRA INTERSECTION 9.1 | Copyright © 2000-2022 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: KITTELSON AND ASSOCIATES INC | Licence: NETWORK / Enterprise Level 3 | Processed: Friday, January 13, 2023 12:40:37 PM

Project: H:\25\25407 - Willow Brook Community TIS\Traffic Operations\Mitigations\Sidra\104 Disconnect.sip9

MOVEMENT SUMMARY

Site: 1032 [Aerie Way / SH 16 (E) TT PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

2045 Total Traffic (With Select Roadway Improvements)

Site Category: (None)

Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.]	[Dist]			mph	
South: RoadName															
3	L2	All MCs	162	4.0	162	4.0	0.140	4.3	LOS A	0.6	14.8	0.30	0.16	0.30	31.1
18	R2	All MCs	1017	0.0	1017	0.0	0.607	0.3	LOS A	0.0	0.0	0.00	0.00	0.00	36.4
Approach			1179	0.6	1179	0.6	0.607	0.9	LOS A	0.6	14.8	0.04	0.02	0.04	35.5
East: RoadName															
1	L2	All MCs	252	0.0	252	0.0	0.207	4.7	LOS A	1.0	23.8	0.32	0.17	0.32	31.0
6	T1	All MCs	173	0.0	173	0.0	0.142	4.1	LOS A	0.6	15.3	0.30	0.16	0.30	34.5
Approach			426	0.0	426	0.0	0.207	4.5	LOS A	1.0	23.8	0.32	0.17	0.32	32.4
West: RoadName															
2	T1	All MCs	170	0.0	170	0.0	0.168	4.9	LOS A	0.8	19.5	0.42	0.26	0.42	34.2
12	R2	All MCs	9	0.0	9	0.0	0.168	4.9	LOS A	0.8	19.5	0.42	0.26	0.42	33.9
Approach			179	0.0	179	0.0	0.168	4.9	LOS A	0.8	19.5	0.42	0.26	0.42	34.1
All Vehicles			1783	0.4	1783	0.4	0.607	2.1	LOS A	1.0	23.8	0.14	0.08	0.14	34.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SIDRA INTERSECTION 9.1 | Copyright © 2000-2022 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: KITTELSON AND ASSOCIATES INC | Licence: NETWORK / Enterprise Level 3 | Processed: Friday, January 13, 2023 12:40:40 PM

Project: H:\25\25407 - Willow Brook Community TIS\Traffic Operations\Mitigations\Sidra\104 Disconnect.sip9

MOVEMENT SUMMARY

 Site: 109 [Beacon Light Rd / Pollard Rd TT AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

2045 Total Traffic (With Select Roadway Improvements)

Site Category: (None)

Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue	Dist	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.]	ft				mph
South: RoadName															
3	L2	All MCs	12	3.0	12	3.0	0.017	5.2	LOS A	0.1	1.5	0.54	0.42	0.54	30.8
8	T1	All MCs	53	3.0	53	3.0	0.294	8.6	LOS A	1.2	29.9	0.63	0.56	0.63	32.2
18	R2	All MCs	156	3.0	156	3.0	0.294	8.6	LOS A	1.2	29.9	0.63	0.56	0.63	31.9
Approach			221	3.0	221	3.0	0.294	8.4	LOS A	1.2	29.9	0.62	0.55	0.62	31.9
East: RoadName															
1	L2	All MCs	44	3.0	44	3.0	0.131	4.0	LOS A	0.5	13.7	0.18	0.07	0.18	33.0
6	T1	All MCs	204	0.0	204	0.0	0.131	3.8	LOS A	0.5	13.7	0.18	0.07	0.18	34.1
16	R2	All MCs	87	3.0	87	3.0	0.131	3.8	LOS A	0.5	13.3	0.17	0.07	0.17	34.1
Approach			336	1.2	336	1.2	0.131	3.8	LOS A	0.5	13.7	0.18	0.07	0.18	33.9
North: RoadName															
7	L2	All MCs	126	3.0	126	3.0	0.193	5.3	LOS A	0.9	22.6	0.43	0.28	0.43	31.5
4	T1	All MCs	43	3.0	43	3.0	0.193	5.3	LOS A	0.9	22.6	0.43	0.28	0.43	32.1
14	R2	All MCs	28	3.0	28	3.0	0.193	5.3	LOS A	0.9	22.6	0.43	0.28	0.43	31.8
Approach			197	3.0	197	3.0	0.193	5.3	LOS A	0.9	22.6	0.43	0.28	0.43	31.7
West: RoadName															
5	L2	All MCs	3	3.0	3	3.0	0.254	5.9	LOS A	1.2	29.1	0.38	0.23	0.38	33.1
2	T1	All MCs	563	0.0	563	0.0	0.254	5.5	LOS A	1.2	29.1	0.37	0.22	0.37	33.9
12	R2	All MCs	12	3.0	12	3.0	0.254	5.6	LOS A	1.1	28.5	0.37	0.22	0.37	33.6
Approach			579	0.1	579	0.1	0.254	5.5	LOS A	1.2	29.1	0.37	0.22	0.37	33.9
All Vehicles			1333	1.3	1333	1.3	0.294	5.5	LOS A	1.2	29.9	0.38	0.25	0.38	33.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SIDRA INTERSECTION 9.1 | Copyright © 2000-2022 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: KITTELSON AND ASSOCIATES INC | Licence: NETWORK / Enterprise Level 3 | Processed: Friday, January 13, 2023 12:40:44 PM

Project: H:\25\25407 - Willow Brook Community TIS\Traffic Operations\Mitigations\Sidra\104 Disconnect.sip9



KITTELSON & ASSOCIATES, INC.
 610 SW Alder, Suite 700
 Portland, Oregon 97205
 (503) 228-5230

Project #: 25407
Project Name: Willow Brook Golf Community
Analyst: CHF
Date: 10/14/2022
File: H:\25\25407 - Willow Brook Community
 TIS\analysis\Signal Warrants\SWA - 101 - 2045 Total
 (wIMP).xls\Data Input
Intersection: 1 - Can Ada Rd & Purple Sage Rd
Scenario: 2045 Total (wIMP)

Analysis Traffic Volumes

Hour	Major Street		Minor Street			
	Begin	End	NB	SB	EB	WB
5:00 PM	6:00 PM		477	49	318	157
2nd Highest Hour			426	44	253	125
3rd Highest Hour			369	38	238	117
4th Highest Hour			364	37	211	104
5th Highest Hour			323	33	196	97
6th Highest Hour			318	33	181	90
7th Highest Hour			308	32	178	88
8th Highest Hour			282	29	166	82
9th Highest Hour			267	27	166	82
10th Highest Hour			256	26	163	81
11th Highest Hour			251	26	146	72
12th Highest Hour			251	26	140	69
13th Highest Hour			246	25	113	56
14th Highest Hour			205	21	110	54
15th Highest Hour			200	21	104	51
16th Highest Hour			144	15	101	50
17th Highest Hour			144	15	59	29
18th Highest Hour			97	10	59	29
19th Highest Hour			62	6	24	12
20th Highest Hour			51	5	18	9
21st Highest Hour			26	3	12	6
22nd Highest Hour			21	2	3	1
23rd Highest Hour			21	2	3	1
24th Highest Hour			15	2	3	1

Warrant Summary

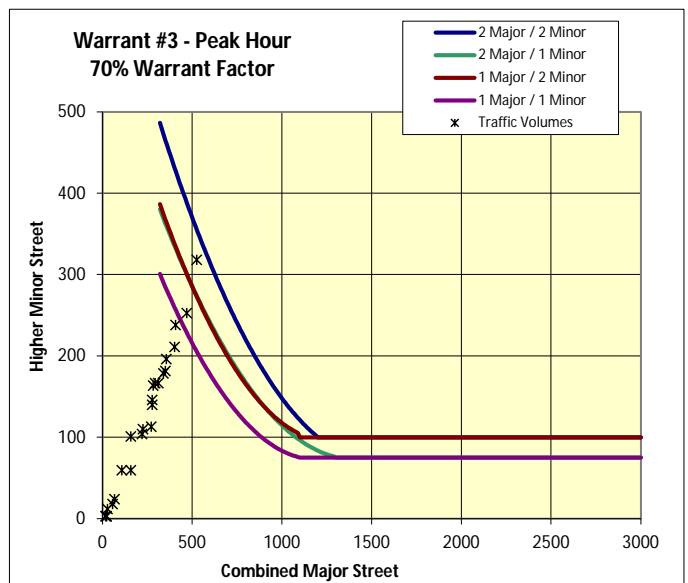
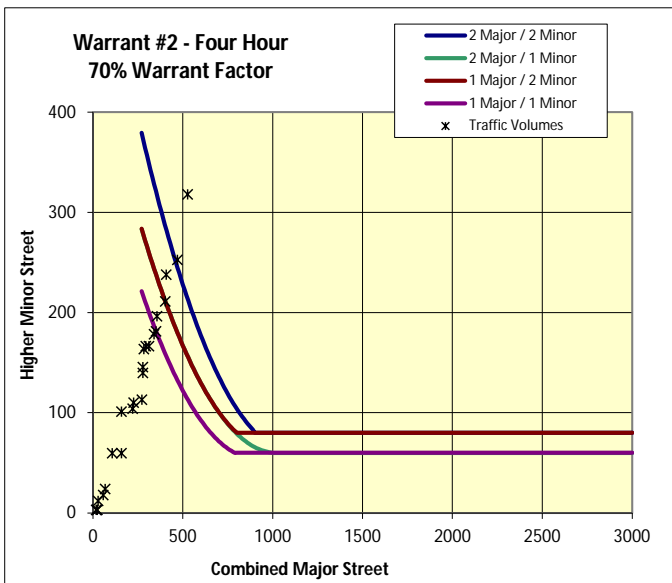
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	No
#2	Four-Hour Vehicular volume	Yes	Yes
#3	Peak Hour	Yes	Yes
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Major
East-West Approach =	Minor
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	Yes
Population < 10,000?	No
Warrant Factor	70%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	76%
Major Street: 8th-Highest Hour / Peak Hour	59%
Minor Street: 4th-Highest Hour / Peak Hour	66%
Minor Street: 8th-Highest Hour / Peak Hour	52%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	1	No	No
	B	750	75	0	No	No
80%	A	400	120	4	No	No
	B	600	60	0	No	No
70%	A	350	105	6	No	No
	B	525	53	1	No	No
56%	A	280	84	10	Yes	Yes
	B	420	42	2	No	No





KITTELSON & ASSOCIATES, INC.
 610 SW Alder, Suite 700
 Portland, Oregon 97205
 (503) 228-5230

Project #: 25407
Project Name: Willow Brook Golf Community
Analyst: CHF
Date: 1/13/2023
File: H:\25\25407 - Willow Brook Community
 TIS\analysis\Signal Warrants\[SWA - 104 - 2045 Total
 (wImp).xls\Data Input
Intersection: 4 - SH 16 & Deep Canyon Drive
Scenario: 2045 Total Traffic Conditions (wIMP)

Analysis Traffic Volumes

Hour	Major Street		Minor Street			
	Begin	End	NB	SB	EB	WB
7:00 AM	8:00 AM		483	1100	156	0
2nd Highest Hour			483	1100	124	0
3rd Highest Hour			436	994	117	0
4th Highest Hour			419	954	104	0
5th Highest Hour			372	848	96	0
6th Highest Hour			361	822	89	0
7th Highest Hour			343	782	87	0
8th Highest Hour			332	755	82	0
9th Highest Hour			314	716	82	0
10th Highest Hour			308	702	80	0
11th Highest Hour			297	676	71	0
12th Highest Hour			291	663	69	0
13th Highest Hour			279	636	55	0
14th Highest Hour			250	570	54	0
15th Highest Hour			198	451	51	0
16th Highest Hour			175	398	50	0
17th Highest Hour			134	305	29	0
18th Highest Hour			111	252	29	0
19th Highest Hour			93	212	12	0
20th Highest Hour			52	119	9	0
21st Highest Hour			35	80	6	0
22nd Highest Hour			29	66	1	0
23rd Highest Hour			17	40	1	0
24th Highest Hour			17	40	1	0

Warrant Summary

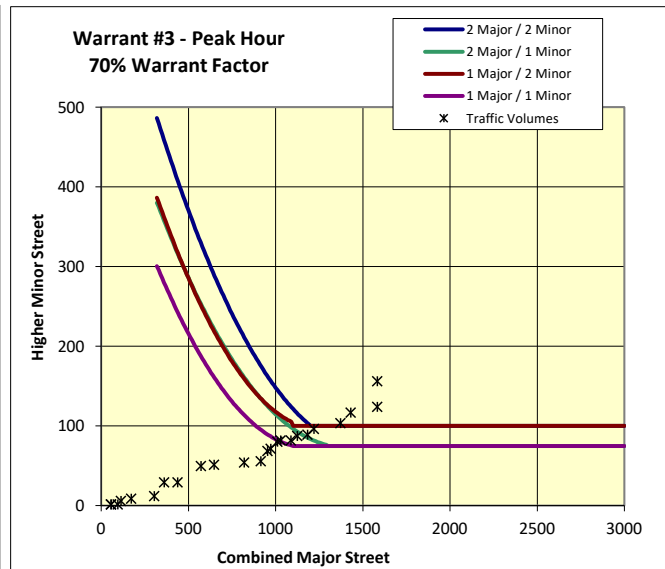
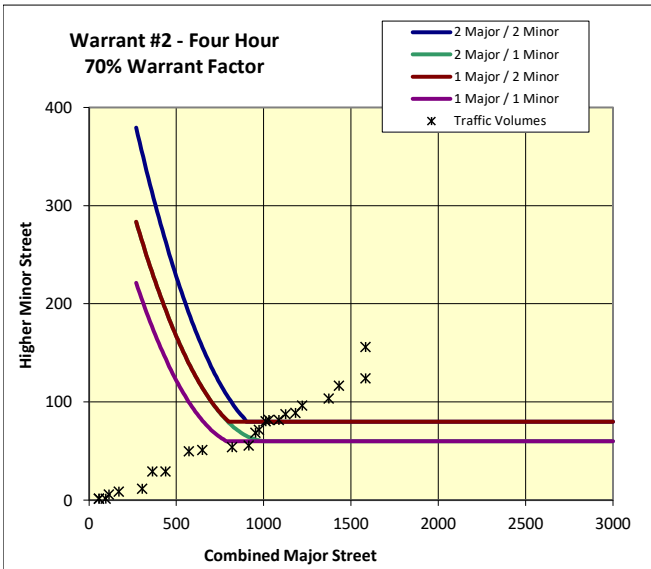
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	Yes
#2	Four-Hour Vehicular volume	Yes	Yes
#3	Peak Hour	Yes	Yes
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Major
East-West Approach =	Minor
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	Yes
Population < 10,000?	No
Warrant Factor	70%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	87%
Major Street: 8th-Highest Hour / Peak Hour	69%
Minor Street: 4th-Highest Hour / Peak Hour	66%
Minor Street: 8th-Highest Hour / Peak Hour	52%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	1	No	Yes
	B	750	75	10	Yes	Yes
80%	A	400	120	2	No	Yes
	B	600	60	12	Yes	Yes
70%	A	350	105	3	No	Yes
	B	525	53	14	Yes	Yes
56%	A	280	84	7	No	Yes
	B	420	42	16	Yes	Yes





KITTELSON & ASSOCIATES, INC.
 610 SW Alder, Suite 700
 Portland, Oregon 97205
 (503) 228-5230

Project #: 25407
Project Name: Willow Brook Golf Community
Analyst: CHF
Date: 1/13/2023
File: H:\25\25407 - Willow Brook Community
 TIS\analysis\Signal Warrants\[SWA - 108 - 2045 Total
 (wimp).xls\Data Input
Intersection: 8 - Beacon Light Road & Wing Road
Scenario: 2045 Total Traffic Conditions (wIMP)

Analysis Traffic Volumes

Hour	Major Street		Minor Street			
	Begin	End	EB	WB	NB	SB
7:00 AM	8:00 AM		312	640	0	199
2nd Highest Hour			308	633	0	158
3rd Highest Hour			280	575	0	149
4th Highest Hour			252	518	0	132
5th Highest Hour			210	431	0	123
6th Highest Hour			207	424	0	113
7th Highest Hour			196	403	0	112
8th Highest Hour			175	360	0	104
9th Highest Hour			172	352	0	104
10th Highest Hour			168	345	0	102
11th Highest Hour			161	331	0	91
12th Highest Hour			158	324	0	87
13th Highest Hour			154	316	0	71
14th Highest Hour			154	316	0	69
15th Highest Hour			126	259	0	65
16th Highest Hour			109	223	0	63
17th Highest Hour			91	187	0	37
18th Highest Hour			70	144	0	37
19th Highest Hour			63	129	0	15
20th Highest Hour			42	86	0	11
21st Highest Hour			21	43	0	7
22nd Highest Hour			18	36	0	2
23rd Highest Hour			11	22	0	2
24th Highest Hour			11	22	0	2

Warrant Summary

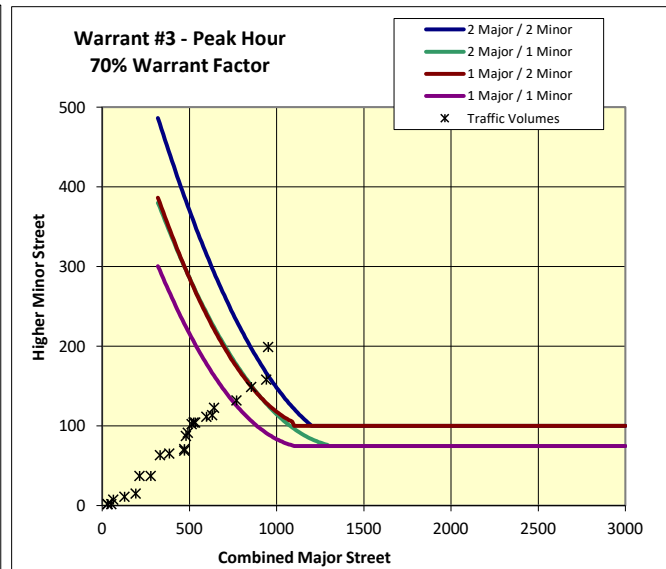
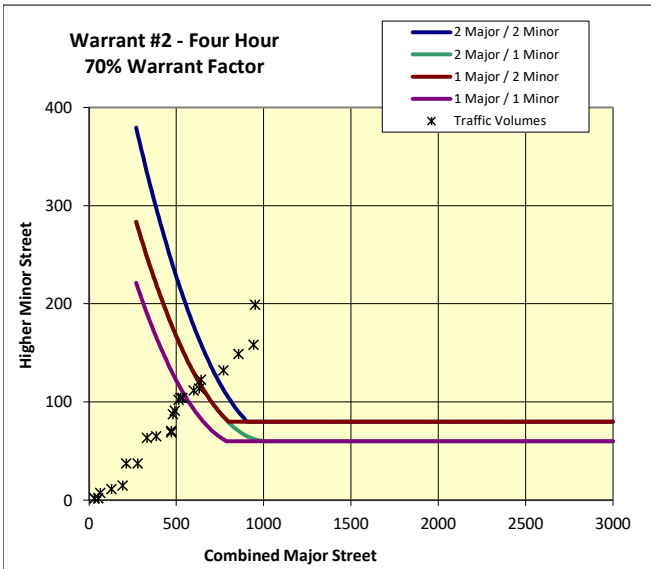
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	Yes
#2	Four-Hour Vehicular volume	Yes	Yes
#3	Peak Hour	Yes	Yes
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Minor
East-West Approach =	Major
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	Yes
Population < 10,000?	No
Warrant Factor	70%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	81%
Major Street: 8th-Highest Hour / Peak Hour	56%
Minor Street: 4th-Highest Hour / Peak Hour	66%
Minor Street: 8th-Highest Hour / Peak Hour	52%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	2	No	No
	B	750	75	4	No	
80%	A	400	120	5	No	No
	B	600	60	7	No	
70%	A	350	105	9	Yes	Yes
	B	525	53	9	Yes	
56%	A	280	84	12	Yes	Yes
	B	420	42	14	Yes	





Appendix W
Mitigation Timing and Threshold
Evaluation Worksheets

HCM 6th TWSC
101: Can Ada Road & Purple Sage Road/Aerie

10/13/2022

Intersection												
Int Delay, s/veh	34.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	33	96	163	80	64	1	260	61	119	1	23	22
Future Vol, veh/h	33	96	163	80	64	1	260	61	119	1	23	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	2	0	0	0	1	0	0	0	0	0
Mvmt Flow	37	107	181	89	71	1	289	68	132	1	26	24

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	788	818	38	896	764	134	50	0	0	200	0	0
Stage 1	40	40	-	712	712	-	-	-	-	-	-	-
Stage 2	748	778	-	184	52	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.22	7.1	6.5	6.2	4.11	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.318	3.5	4	3.3	2.209	-	-	2.2	-	-
Pot Cap-1 Maneuver	311	313	1034	263	336	920	1563	-	-	1384	-	-
Stage 1	980	866	-	427	439	-	-	-	-	-	-	-
Stage 2	408	410	-	822	856	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	207	246	1034	122	264	920	1563	-	-	1384	-	-
Mov Cap-2 Maneuver	207	246	-	122	264	-	-	-	-	-	-	-
Stage 1	772	865	-	336	346	-	-	-	-	-	-	-
Stage 2	255	323	-	594	855	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	39		127.9		4.6		0.2	
HCM LOS	E		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1563	-	-	413	161	1384	-
HCM Lane V/C Ratio	0.185	-	-	0.786	1.001	0.001	-
HCM Control Delay (s)	7.8	0	-	39	127.9	7.6	0
HCM Lane LOS	A	A	-	E	F	A	A
HCM 95th %tile Q(veh)	0.7	-	-	6.8	7.8	0	-

Intersection						
Int Delay, s/veh	13.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	11	193	92	370	994	6
Future Vol, veh/h	11	193	92	370	994	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	3	3	100
Mvmt Flow	12	214	102	411	1104	7

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	1723	1108	1111	0	0
Stage 1	1108	-	-	-	-
Stage 2	615	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-
Pot Cap-1 Maneuver	99	258	636	-	-
Stage 1	319	-	-	-	-
Stage 2	543	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	78	258	636	-	-
Mov Cap-2 Maneuver	78	-	-	-	-
Stage 1	253	-	-	-	-
Stage 2	543	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	102.1	2.3	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	636	-	229	-	-
HCM Lane V/C Ratio	0.161	-	0.99	-	-
HCM Control Delay (s)	11.7	0	102.1	-	-
HCM Lane LOS	B	A	F	-	-
HCM 95th %tile Q(veh)	0.6	-	9.1	-	-

Intersection						
Int Delay, s/veh	20.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	161	112	390	223	143	104
Future Vol, veh/h	161	112	390	223	143	104
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	2	1	0	0	0
Mvmt Flow	179	124	433	248	159	116

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	681	0	-	0	1039 557
Stage 1	-	-	-	-	557 -
Stage 2	-	-	-	-	482 -
Critical Hdwy	4.1	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.2	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	921	-	-	-	258 534
Stage 1	-	-	-	-	578 -
Stage 2	-	-	-	-	625 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	921	-	-	-	208 534
Mov Cap-2 Maneuver	-	-	-	-	208 -
Stage 1	-	-	-	-	466 -
Stage 2	-	-	-	-	625 -

Approach	EB	WB	SB
HCM Control Delay, s	5.8	0	88.8
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	921	-	-	-	280
HCM Lane V/C Ratio	0.194	-	-	-	0.98
HCM Control Delay (s)	9.8	-	-	-	88.8
HCM Lane LOS	A	-	-	-	F
HCM 95th %tile Q(veh)	0.7	-	-	-	9.8

HCM 6th TWSC
109: Pollard Road & Beacon Light Road

10/13/2022

Intersection												
Int Delay, s/veh	16.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Vol, veh/h	3	135	4	79	356	61	118	82	59	23	12	3
Future Vol, veh/h	3	135	4	79	356	61	118	82	59	23	12	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	1	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	3	150	4	88	396	68	131	91	66	26	13	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	464	0	0	154	0	0	772	798	152	809	732	396
Stage 1	-	-	-	-	-	-	158	158	-	572	572	-
Stage 2	-	-	-	-	-	-	614	640	-	237	160	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1108	-	-	1439	-	-	319	321	900	301	351	658
Stage 1	-	-	-	-	-	-	849	771	-	509	508	-
Stage 2	-	-	-	-	-	-	483	473	-	771	769	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1108	-	-	1439	-	-	287	293	900	199	321	658
Mov Cap-2 Maneuver	-	-	-	-	-	-	287	293	-	199	321	-
Stage 1	-	-	-	-	-	-	846	769	-	507	466	-
Stage 2	-	-	-	-	-	-	428	434	-	628	767	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			1.2			52.4			23.1		
HCM LOS							F			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	342	1108	-	-	1439	-	-	241
HCM Lane V/C Ratio	0.841	0.003	-	-	0.061	-	-	0.175
HCM Control Delay (s)	52.4	8.3	0	-	7.7	0	-	23.1
HCM Lane LOS	F	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	7.5	0	-	-	0.2	-	-	0.6

HCM 6th Signalized Intersection Summary
 110: SH 16 & Beacon Light Road

10/13/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	69	107	90	262	322	183	666	69	76	347	32
Future Volume (veh/h)	37	69	107	90	262	322	183	666	69	76	347	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1772	1800	1758	1786	1800	1786	1772	1758	1800	1772	1800
Adj Flow Rate, veh/h	38	70	109	92	267	329	187	680	70	78	354	33
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	2	0	3	1	0	1	2	3	0	2	0
Cap, veh/h	193	374	322	364	426	364	445	784	659	193	715	615
Arrive On Green	0.03	0.21	0.21	0.06	0.24	0.24	0.08	0.44	0.44	0.04	0.40	0.40
Sat Flow, veh/h	1714	1772	1525	1674	1786	1525	1701	1772	1490	1714	1772	1525
Grp Volume(v), veh/h	38	70	109	92	267	329	187	680	70	78	354	33
Grp Sat Flow(s),veh/h/ln	1714	1772	1525	1674	1786	1525	1701	1772	1490	1714	1772	1525
Q Serve(g_s), s	2.2	4.1	7.7	5.4	17.1	26.7	8.2	44.3	3.5	3.4	19.0	1.7
Cycle Q Clear(g_c), s	2.2	4.1	7.7	5.4	17.1	26.7	8.2	44.3	3.5	3.4	19.0	1.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	193	374	322	364	426	364	445	784	659	193	715	615
V/C Ratio(X)	0.20	0.19	0.34	0.25	0.63	0.90	0.42	0.87	0.11	0.40	0.50	0.05
Avail Cap(c_a), veh/h	211	444	383	388	504	430	445	1000	841	193	931	801
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.4	41.3	42.7	36.3	43.5	47.2	21.0	32.2	20.8	27.5	28.4	23.2
Incr Delay (d2), s/veh	0.2	0.2	0.6	0.1	1.8	20.1	0.2	8.6	0.1	0.5	1.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.9	3.0	2.3	7.8	12.1	3.3	20.5	1.3	1.4	8.3	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.6	41.5	43.3	36.4	45.3	67.3	21.2	40.8	21.0	28.1	29.5	23.3
LnGrp LOS	D	D	D	D	D	E	C	D	C	C	C	C
Approach Vol, veh/h		217			688			937			465	
Approach Delay, s/veh		41.9			54.6			35.4			28.8	
Approach LOS		D			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.7	37.4	19.0	60.5	14.2	34.0	14.0	65.5				
Change Period (Y+Rc), s	7.0	7.0	9.0	9.0	7.0	7.0	9.0	9.0				
Max Green Setting (Gmax), s	5.0	36.0	10.0	67.0	9.0	32.0	5.0	72.0				
Max Q Clear Time (g_c+I1), s	4.2	28.7	10.2	21.0	7.4	9.7	5.4	46.3				
Green Ext Time (p_c), s	0.0	1.7	0.0	5.2	0.0	0.7	0.0	10.2				
Intersection Summary												
HCM 6th Ctrl Delay			40.4									
HCM 6th LOS			D									

HCM 6th TWSC
 111: Palmer Lane & Beacon Light Road

10/13/2022

Intersection						
Int Delay, s/veh	8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	380	16	5	1127	93	18
Future Vol, veh/h	380	16	5	1127	93	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	0	0	1	5	0
Mvmt Flow	400	17	5	1186	98	19

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	417	0	1605
Stage 1	-	-	-	-	409
Stage 2	-	-	-	-	1196
Critical Hdwy	-	-	4.1	-	6.45
Critical Hdwy Stg 1	-	-	-	-	5.45
Critical Hdwy Stg 2	-	-	-	-	5.45
Follow-up Hdwy	-	-	2.2	-	3.545
Pot Cap-1 Maneuver	-	-	1153	-	114
Stage 1	-	-	-	-	664
Stage 2	-	-	-	-	283
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1153	-	113
Mov Cap-2 Maneuver	-	-	-	-	113
Stage 1	-	-	-	-	664
Stage 2	-	-	-	-	279

Approach	EB	WB	NB
HCM Control Delay, s	0	0	118.2
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	130	-	-	1153	-
HCM Lane V/C Ratio	0.899	-	-	0.005	-
HCM Control Delay (s)	118.2	-	-	8.1	0
HCM Lane LOS	F	-	-	A	A
HCM 95th %tile Q(veh)	5.8	-	-	0	-

Intersection						
Int Delay, s/veh	17.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↑	↔	↔
Traffic Vol, veh/h	82	124	415	151	107	159
Future Vol, veh/h	82	124	415	151	107	159
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	100	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	2	2	0	0	0
Mvmt Flow	90	136	456	166	118	175

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	226	0	1236 158
Stage 1	-	-	-	-	158 -
Stage 2	-	-	-	-	1078 -
Critical Hdwy	-	-	4.12	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	-	-	2.218	-	3.5 3.3
Pot Cap-1 Maneuver	-	-	1342	-	196 893
Stage 1	-	-	-	-	875 -
Stage 2	-	-	-	-	330 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1342	-	129 893
Mov Cap-2 Maneuver	-	-	-	-	129 -
Stage 1	-	-	-	-	875 -
Stage 2	-	-	-	-	218 -

Approach	EB	WB	NB
HCM Control Delay, s	0	6.6	55
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	129	893	-	-	1342	-
HCM Lane V/C Ratio	0.911	0.196	-	-	0.34	-
HCM Control Delay (s)	121.8	10	-	-	9.1	-
HCM Lane LOS	F	B	-	-	A	-
HCM 95th %tile Q(veh)	6	0.7	-	-	1.5	-

HCM 6th TWSC
 114: Plummer Road & Floating Feather Road

10/13/2022

Intersection						
Int Delay, s/veh	25.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔		↔
Traffic Vol, veh/h	113	172	62	264	323	59
Future Vol, veh/h	113	172	62	264	323	59
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	87
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	126	191	69	293	359	68

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	317	0	653	222
Stage 1	-	-	-	-	222	-
Stage 2	-	-	-	-	431	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1255	-	435	823
Stage 1	-	-	-	-	820	-
Stage 2	-	-	-	-	660	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1255	-	406	823
Mov Cap-2 Maneuver	-	-	-	-	406	-
Stage 1	-	-	-	-	820	-
Stage 2	-	-	-	-	616	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.5	65.4
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	442	-	-	1255	-
HCM Lane V/C Ratio	0.965	-	-	0.055	-
HCM Control Delay (s)	65.4	-	-	8	0
HCM Lane LOS	F	-	-	A	A
HCM 95th %tile Q(veh)	11.7	-	-	0.2	-

Intersection						
Int Delay, s/veh	8.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	42	583	785	76	81	35
Future Vol, veh/h	42	583	785	76	81	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	6	2	1	2	2	12
Mvmt Flow	45	620	835	81	86	37

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	916	0	-	0	1586 876
Stage 1	-	-	-	-	876 -
Stage 2	-	-	-	-	710 -
Critical Hdwy	4.16	-	-	-	6.42 6.32
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.254	-	-	-	3.518 3.408
Pot Cap-1 Maneuver	728	-	-	-	119 334
Stage 1	-	-	-	-	407 -
Stage 2	-	-	-	-	487 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	728	-	-	-	108 334
Mov Cap-2 Maneuver	-	-	-	-	108 -
Stage 1	-	-	-	-	369 -
Stage 2	-	-	-	-	487 -

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	116.7
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	728	-	-	-	136
HCM Lane V/C Ratio	0.061	-	-	-	0.907
HCM Control Delay (s)	10.3	0	-	-	116.7
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0.2	-	-	-	6.1

HCM Signalized Intersection Capacity Analysis

118: Star Road & SH 44

10/13/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	496	284	146	714	88	279	217	88	79	169	80
Future Volume (vph)	125	496	284	146	714	88	279	217	88	79	169	80
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95	0.95
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1693	1782	1515	1676	1782	1530	1710	1800	1530	1660	1674	1674
Flt Permitted	0.15	1.00	1.00	0.29	1.00	1.00	0.20	1.00	1.00	0.62	1.00	1.00
Satd. Flow (perm)	259	1782	1515	515	1782	1530	362	1800	1530	1086	1674	1674
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	126	501	287	147	721	89	282	219	89	80	171	81
RTOR Reduction (vph)	0	0	86	0	0	47	0	0	66	0	12	0
Lane Group Flow (vph)	126	501	201	147	721	42	282	219	23	80	240	0
Heavy Vehicles (%)	1%	1%	1%	2%	1%	0%	0%	0%	0%	3%	3%	1%
Turn Type	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	Prot	pm+pt	NA	NA
Protected Phases	1	6	6	5	2	2	3	8	8	7	4	4
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	72.1	65.1	65.1	77.7	67.9	67.9	49.4	37.4	37.4	29.1	23.1	23.1
Effective Green, g (s)	72.1	65.1	65.1	77.7	67.9	67.9	49.4	37.4	37.4	29.1	23.1	23.1
Actuated g/C Ratio	0.51	0.46	0.46	0.55	0.48	0.48	0.35	0.26	0.26	0.20	0.16	0.16
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	201	815	693	361	850	730	317	473	402	246	271	271
v/s Ratio Prot	c0.03	0.28	0.13	0.03	c0.40	0.03	c0.13	0.12	0.02	0.01	0.14	0.14
v/s Ratio Perm	0.29			0.19			c0.18			0.05		
v/c Ratio	0.63	0.61	0.29	0.41	0.85	0.06	0.89	0.46	0.06	0.33	0.89	0.89
Uniform Delay, d1	25.9	29.1	24.2	19.1	32.7	20.0	38.1	44.0	39.3	47.3	58.3	58.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.0	3.5	1.1	0.8	7.9	0.0	24.7	0.7	0.1	0.8	27.3	27.3
Delay (s)	31.9	32.6	25.2	19.8	40.6	20.0	62.8	44.7	39.3	48.1	85.6	85.6
Level of Service	C	C	C	B	D	C	E	D	D	D	F	F
Approach Delay (s)		30.2			35.5			52.6			76.6	76.6
Approach LOS		C			D			D			E	E

Intersection Summary

HCM 2000 Control Delay	42.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	142.3	Sum of lost time (s)	24.0
Intersection Capacity Utilization	97.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary

118: Star Road & SH 44

10/13/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	496	284	146	714	88	279	217	88	79	169	80
Future Volume (veh/h)	125	496	284	146	714	88	279	217	88	79	169	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1786	1786	1786	1772	1786	1800	1800	1800	1800	1758	1758	1786
Adj Flow Rate, veh/h	126	501	287	147	721	89	282	219	89	80	171	81
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	1	1	1	2	1	0	0	0	0	3	3	1
Cap, veh/h	209	819	694	322	838	716	321	486	411	297	186	88
Arrive On Green	0.05	0.46	0.46	0.06	0.47	0.47	0.15	0.27	0.27	0.04	0.17	0.17
Sat Flow, veh/h	1701	1786	1514	1688	1786	1525	1714	1800	1525	1674	1128	534
Grp Volume(v), veh/h	126	501	287	147	721	89	282	219	89	80	0	252
Grp Sat Flow(s),veh/h/ln	1701	1786	1514	1688	1786	1525	1714	1800	1525	1674	0	1662
Q Serve(g_s), s	5.6	29.9	18.0	6.5	50.9	4.7	18.8	14.3	6.4	5.6	0.0	21.2
Cycle Q Clear(g_c), s	5.6	29.9	18.0	6.5	50.9	4.7	18.8	14.3	6.4	5.6	0.0	21.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.32
Lane Grp Cap(c), veh/h	209	819	694	322	838	716	321	486	411	297	0	274
V/C Ratio(X)	0.60	0.61	0.41	0.46	0.86	0.12	0.88	0.45	0.22	0.27	0.00	0.92
Avail Cap(c_a), veh/h	209	819	694	340	857	732	323	508	430	297	0	293
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.1	28.9	25.7	22.0	33.5	21.2	40.7	43.0	40.1	46.8	0.0	58.2
Incr Delay (d2), s/veh	4.7	3.4	1.8	1.0	8.7	0.1	23.0	0.7	0.3	0.5	0.0	31.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	13.6	6.9	2.7	23.8	1.7	10.0	6.5	2.5	2.4	0.0	11.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.9	32.3	27.5	23.0	42.2	21.3	63.7	43.7	40.4	47.2	0.0	89.4
LnGrp LOS	C	C	C	C	D	C	E	D	D	D	A	F
Approach Vol, veh/h		914			957			590				332
Approach Delay, s/veh		31.0			37.3			52.8				79.2
Approach LOS		C			D			D				E
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.0	72.5	26.8	29.4	14.5	71.0	12.0	44.2				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	7.0	68.0	21.0	25.0	10.0	65.0	6.0	40.0				
Max Q Clear Time (g_c+I1), s	7.6	52.9	20.8	23.2	8.5	31.9	7.6	16.3				
Green Ext Time (p_c), s	0.0	4.8	0.0	0.3	0.1	4.7	0.0	1.5				

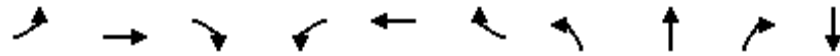
Intersection Summary

HCM 6th Ctrl Delay	43.5
HCM 6th LOS	D

Queues
119: Plummer Road & SH 44

Mitigation Threshold Timing PM Peak Hour 2024

01/16/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	48	530	39	73	870	199	54	57	77	249
v/c Ratio	0.22	0.57	0.05	0.17	0.88	0.22	0.21	0.14	0.18	0.80
Control Delay	8.8	17.1	0.1	7.3	30.5	6.8	29.3	27.4	3.7	48.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.8	17.1	0.1	7.3	30.5	6.8	29.3	27.4	3.7	48.8
Queue Length 50th (ft)	9	195	0	14	440	28	24	25	0	124
Queue Length 95th (ft)	22	300	0	30	#721	66	56	56	19	#239
Internal Link Dist (ft)		5173			3517			675		5173
Turn Bay Length (ft)	100		100	100		100	100		100	
Base Capacity (vph)	218	1069	957	438	1069	957	324	506	499	391
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.50	0.04	0.17	0.81	0.21	0.17	0.11	0.15	0.64

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis Mitigation Threshold Timing PM Peak Hour 2024
 119: Plummer Road & SH 44 01/16/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	43	477	35	66	783	179	49	51	69	145	36	43	
Future Volume (vph)	43	477	35	66	783	179	49	51	69	145	36	43	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0		5.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00		
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		0.97		
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		0.97		
Satd. Flow (prot)	1710	1782	1530	1710	1782	1530	1710	1765	1471		1678		
Flt Permitted	0.12	1.00	1.00	0.35	1.00	1.00	0.63	1.00	1.00		0.77		
Satd. Flow (perm)	210	1782	1530	625	1782	1530	1132	1765	1471		1334		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	48	530	39	73	870	199	54	57	77	161	40	48	
RTOR Reduction (vph)	0	0	19	0	0	45	0	0	60	0	10	0	
Lane Group Flow (vph)	48	530	20	73	870	154	54	57	17	0	239	0	
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	2%	4%	1%	0%	3%	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA		
Protected Phases	1	6		5	2			4			8		
Permitted Phases	6		6	2		2	4		4	8			
Actuated Green, G (s)	45.7	43.0	43.0	47.9	44.1	44.1	18.1	18.1	18.1		18.1		
Effective Green, g (s)	45.7	43.0	43.0	47.9	44.1	44.1	18.1	18.1	18.1		18.1		
Actuated g/C Ratio	0.56	0.53	0.53	0.58	0.54	0.54	0.22	0.22	0.22		0.22		
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0		5.0		
Vehicle Extension (s)	2.5	4.0	4.0	2.5	4.0	4.0	2.5	2.5	2.5		2.5		
Lane Grp Cap (vph)	166	935	803	415	959	823	250	390	325		294		
v/s Ratio Prot	c0.01	0.30		0.01	c0.49			0.03					
v/s Ratio Perm	0.15		0.01	0.09		0.10	0.05		0.01		c0.18		
v/c Ratio	0.29	0.57	0.03	0.18	0.91	0.19	0.22	0.15	0.05		0.81		
Uniform Delay, d1	13.5	13.2	9.4	8.2	17.1	9.7	26.1	25.7	25.1		30.3		
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00		
Incremental Delay, d2	0.7	1.0	0.0	0.1	12.2	0.2	0.3	0.1	0.0		15.2		
Delay (s)	14.2	14.1	9.4	8.4	29.3	9.9	26.4	25.8	25.2		45.5		
Level of Service	B	B	A	A	C	A	C	C	C		D		
Approach Delay (s)		13.8			24.5			25.7			45.5		
Approach LOS		B			C			C			D		
Intersection Summary													
HCM 2000 Control Delay			24.0		HCM 2000 Level of Service				C				
HCM 2000 Volume to Capacity ratio			0.85										
Actuated Cycle Length (s)			81.9		Sum of lost time (s)				17.0				
Intersection Capacity Utilization			81.7%		ICU Level of Service				D				
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary
119: Plummer Road & SH 44

Mitigation Threshold Timing PM Peak Hour 2024

01/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘		↕	
Traffic Volume (veh/h)	43	477	35	66	783	179	49	51	69	145	36	43
Future Volume (veh/h)	43	477	35	66	783	179	49	51	69	145	36	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1786	1800	1800	1786	1800	1800	1772	1744	1786	1800	1758
Adj Flow Rate, veh/h	48	530	39	73	870	199	54	57	77	161	40	48
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	1	0	0	1	0	0	2	4	1	0	3
Cap, veh/h	203	932	796	446	948	809	353	392	327	247	54	55
Arrive On Green	0.04	0.52	0.52	0.05	0.53	0.53	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1714	1786	1525	1714	1786	1525	1330	1772	1478	790	242	247
Grp Volume(v), veh/h	48	530	39	73	870	199	54	57	77	249	0	0
Grp Sat Flow(s),veh/h/ln	1714	1786	1525	1714	1786	1525	1330	1772	1478	1279	0	0
Q Serve(g_s), s	1.0	16.5	1.0	1.6	36.5	5.8	0.0	2.1	3.5	13.6	0.0	0.0
Cycle Q Clear(g_c), s	1.0	16.5	1.0	1.6	36.5	5.8	3.1	2.1	3.5	15.7	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.65		0.19
Lane Grp Cap(c), veh/h	203	932	796	446	948	809	353	392	327	356	0	0
V/C Ratio(X)	0.24	0.57	0.05	0.16	0.92	0.25	0.15	0.15	0.24	0.70	0.00	0.00
Avail Cap(c_a), veh/h	238	1002	856	466	1002	856	415	476	397	421	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.7	13.3	9.6	9.7	17.6	10.4	26.0	25.7	26.2	31.5	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.9	0.0	0.1	12.9	0.2	0.1	0.1	0.3	3.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	6.3	0.3	0.5	16.6	1.8	0.9	0.9	1.2	5.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.1	14.2	9.7	9.8	30.5	10.6	26.2	25.8	26.5	35.2	0.0	0.0
LnGrp LOS	B	B	A	A	C	B	C	C	C	D	A	A
Approach Vol, veh/h		617			1142			188			249	
Approach Delay, s/veh		14.2			25.7			26.2			35.2	
Approach LOS		B			C			C			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.3	49.5		23.2	10.1	48.8		23.2				
Change Period (Y+Rc), s	6.0	6.0		5.0	6.0	6.0		5.0				
Max Green Setting (Gmax), s	5.0	46.0		22.0	5.0	46.0		22.0				
Max Q Clear Time (g_c+I1), s	3.0	38.5		5.5	3.6	18.5		17.7				
Green Ext Time (p_c), s	0.0	4.9		0.5	0.0	5.6		0.5				

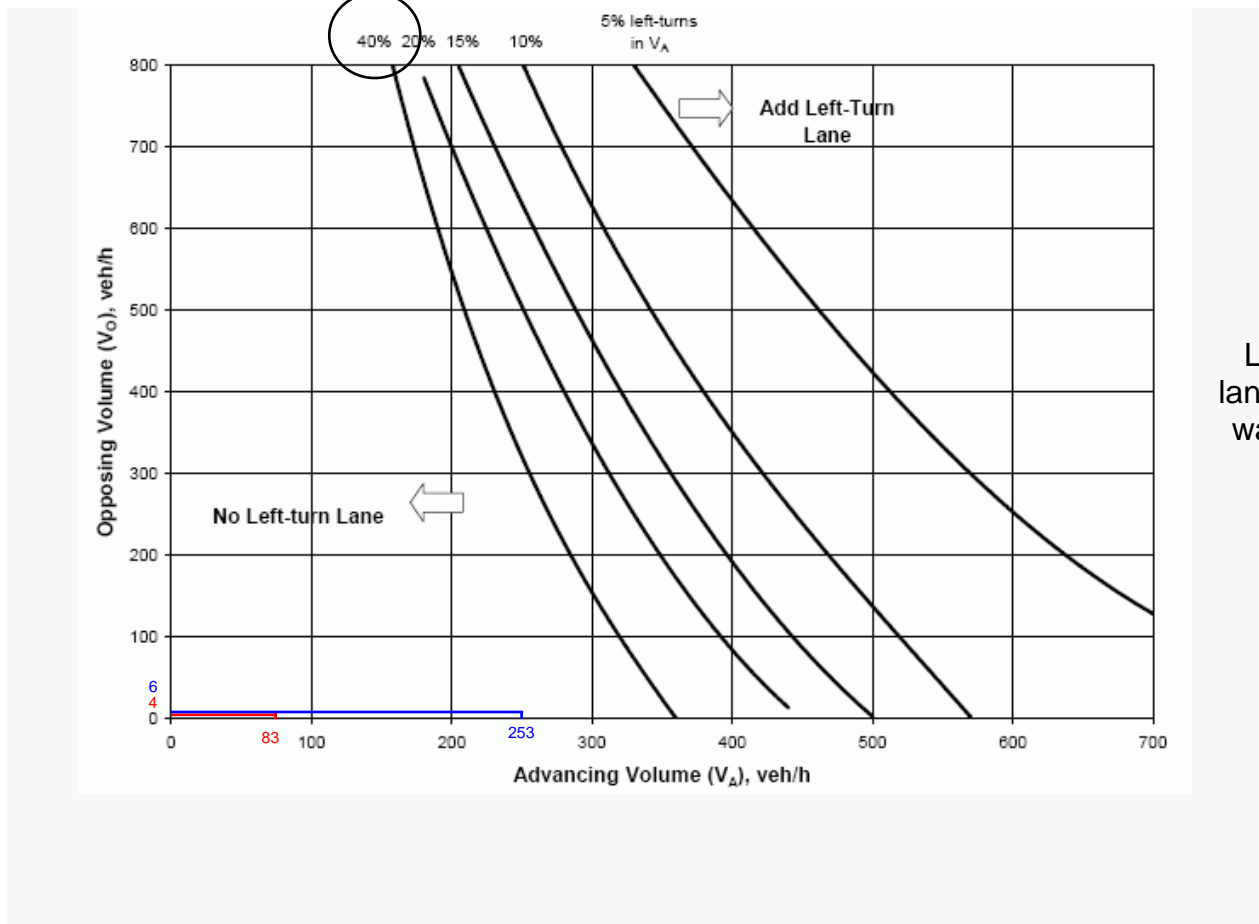
Intersection Summary

HCM 6th Ctrl Delay	23.6
HCM 6th LOS	C



Appendix X Turn Lane Warrants

Figure 1 – Left-Turn Lane Guidelines for Two-Lane Roads less than or equal to 40 mph



The following data are required:

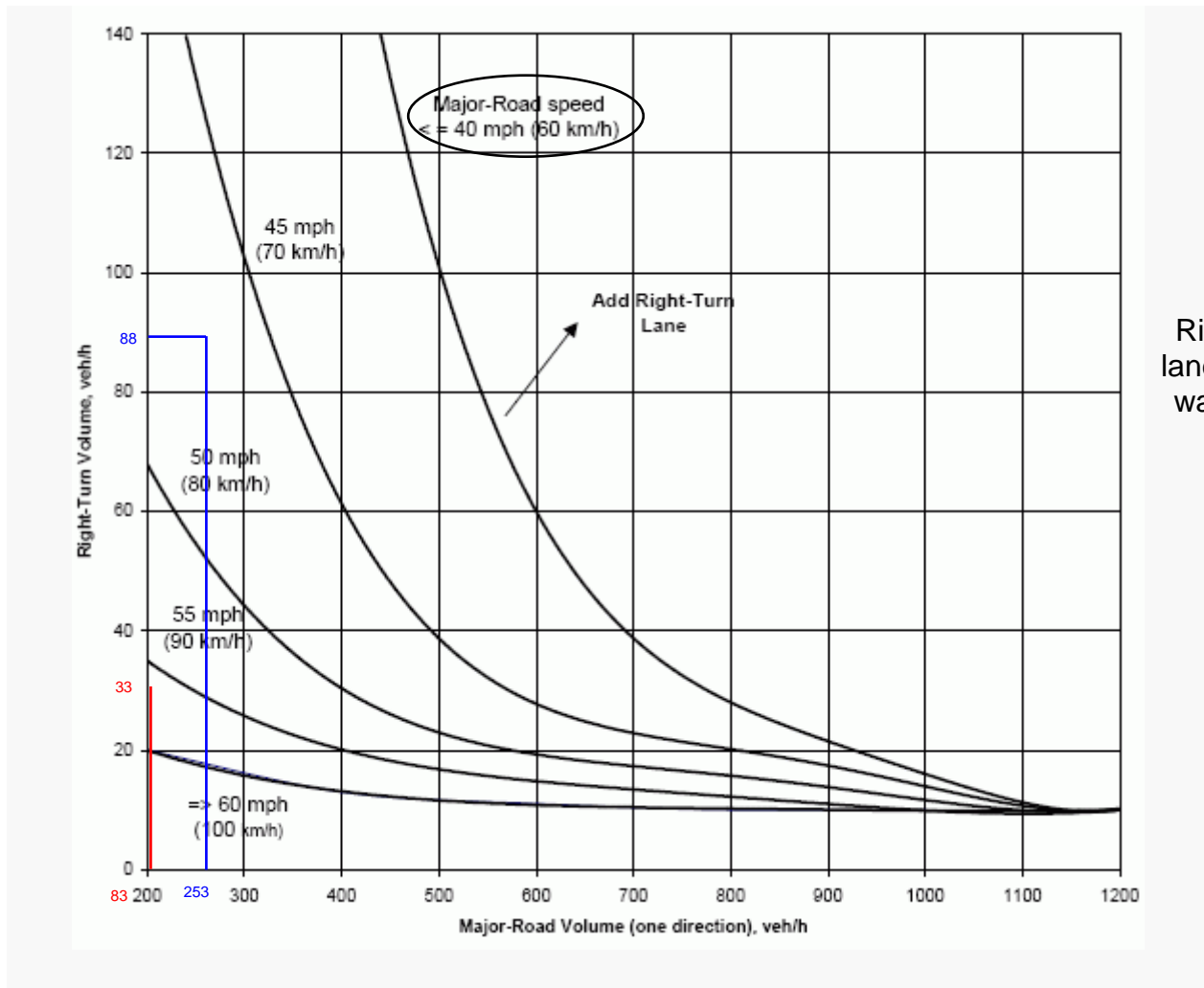
1. Opposing Volume (veh/hr) - VO - The opposing volume is to include only the right-turn and through movements in the opposite direction of the left turning vehicle.
2. Advancing Volume (veh/hr) - VA - The advancing volume is to include the right-turn, left-turn and through movements in the same direction as the left turning vehicle.
3. Operating Speed (mph) - The greatest of anticipated operating speed, measured 85th percentile speed or posted speed.
4. Percentage of left turns in VA

Left- turn lane is not needed for left turn volume less than 10 vph. However, criteria other than volume, such as crash experience, may be used to justify a left-turn lane.

The appropriate trend line is identified on the basis of the percentage of left-turns in the advancing volume, rounded up to the nearest percentage trend line. If the advancing and opposing volume combination intersects above or to the right of this trend line, a left-turn lane is appropriate.

Source: NCHRP Report 279 and 457

Figure 6 – Right-Turn Lane Guidelines for Two-Lane Roadways



The following data are required:

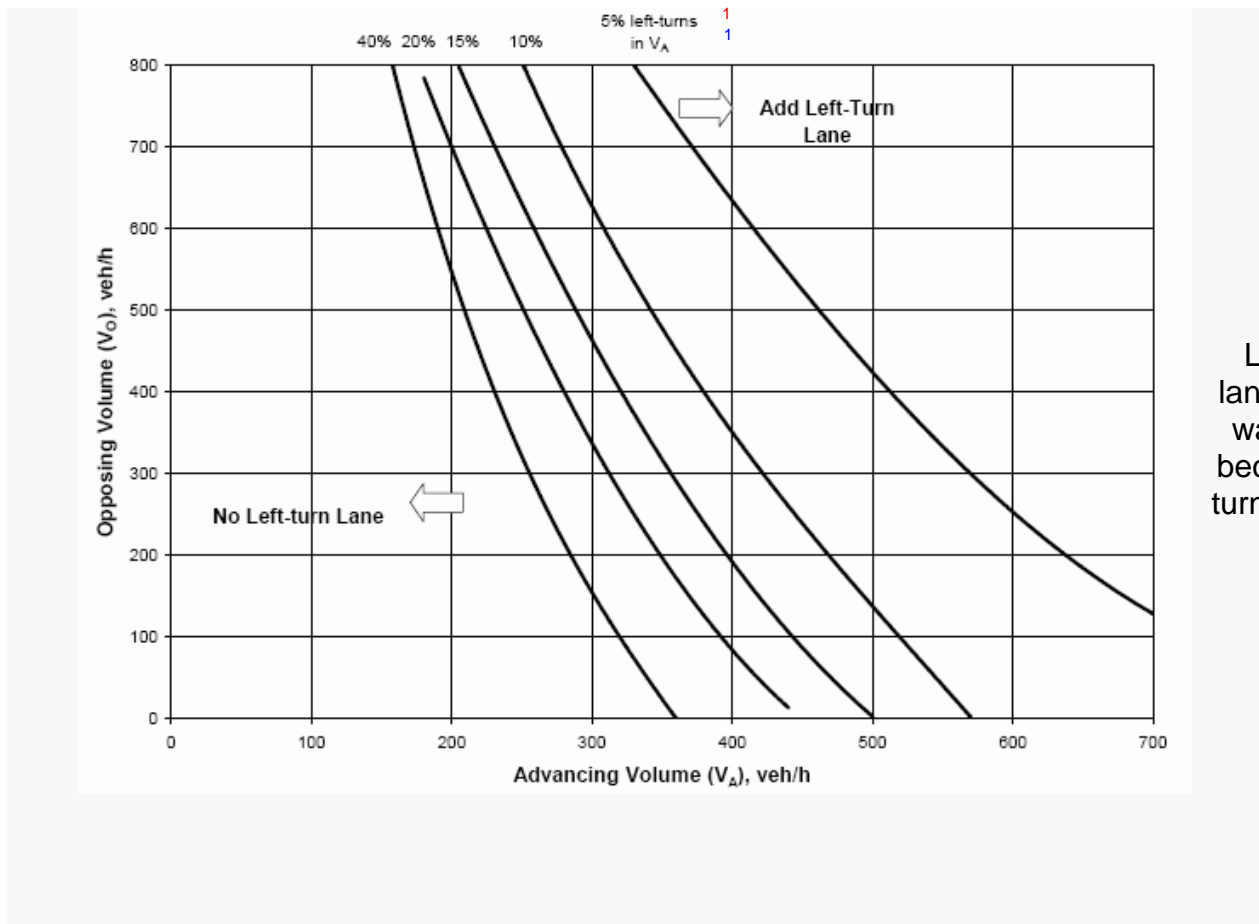
1. Advancing Volume (veh/hr) - The advancing volume is to include the right-turn, left-turn and through movements in the same direction as the right-turning vehicle.
2. Right-Turning Volume (veh/hr) - The right-turning volume is the number of advancing vehicles turning right.
3. Operating Speed (mph) - The greatest of anticipated operating speed, measured 85th percentile speed or posted speed.

Note: Right-turn lane is not needed for right-turn volume less than 10 vph. However, criteria other than volume, e.g. crash experience, may be used to justify a right-turn lane.

If the combination of major road approach volume and right-turn volume intersects above or to the right of the speed trend line corresponding to the major road operating speed, then a right-turn lane is appropriate.

Source: NCHRP Report 279 and 457

Figure 1 – Left-Turn Lane Guidelines for Two-Lane Roads less than or equal to 40 mph



The following data are required:

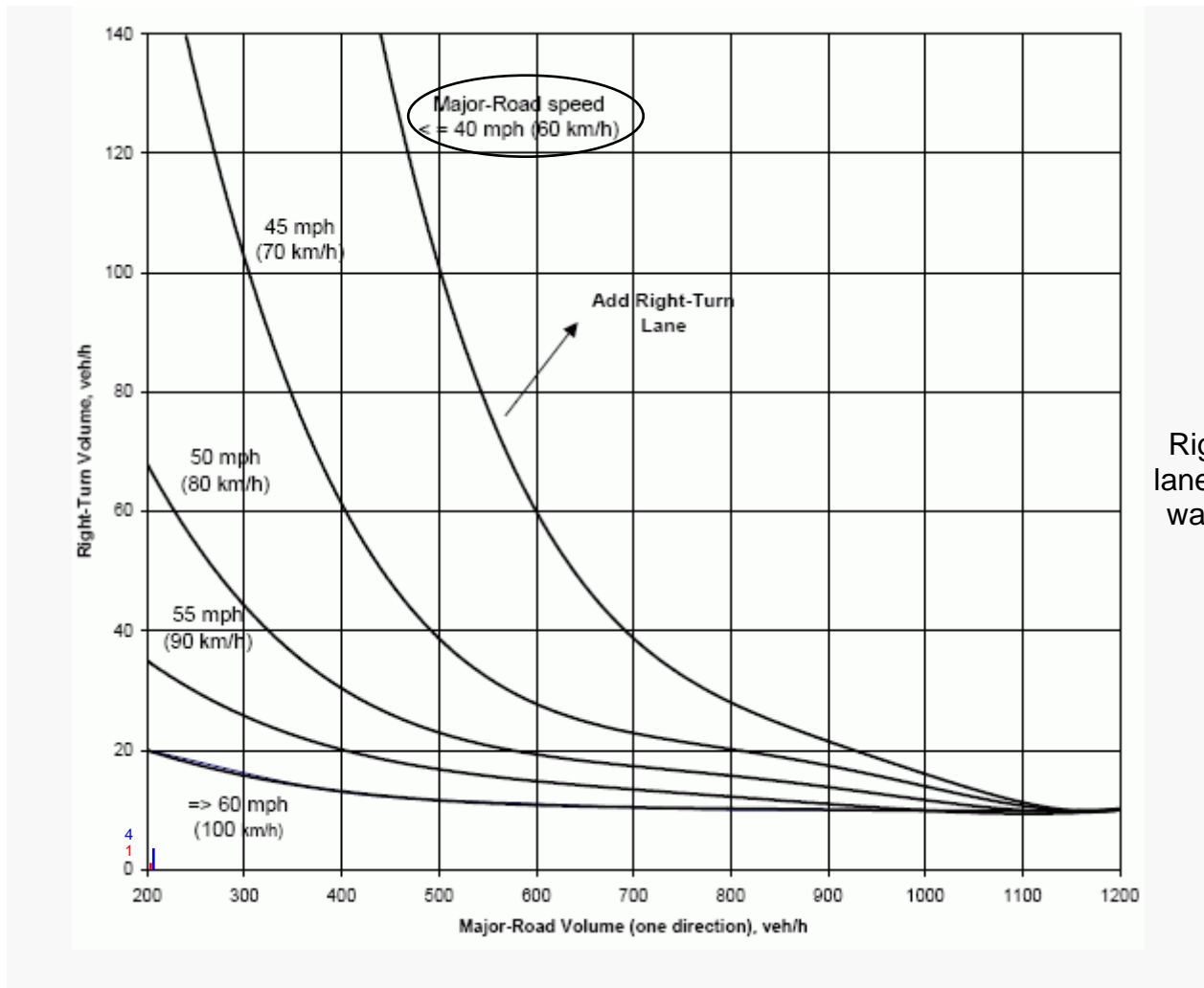
1. Opposing Volume (veh/hr) - VO - The opposing volume is to include only the right-turn and through movements in the opposite direction of the left turning vehicle.
2. Advancing Volume (veh/hr) - VA - The advancing volume is to include the right-turn, left-turn and through movements in the same direction as the left turning vehicle.
3. Operating Speed (mph) - The greatest of anticipated operating speed, measured 85th percentile speed or posted speed.
4. Percentage of left turns in VA

Left- turn lane is not needed for left turn volume less than 10 vph. However, criteria other than volume, such as crash experience, may be used to justify a left-turn lane.

The appropriate trend line is identified on the basis of the percentage of left-turns in the advancing volume, rounded up to the nearest percentage trend line. If the advancing and opposing volume combination intersects above or to the right of this trend line, a left-turn lane is appropriate.

Source: NCHRP Report 279 and 457

Figure 6 – Right-Turn Lane Guidelines for Two-Lane Roadways



The following data are required:

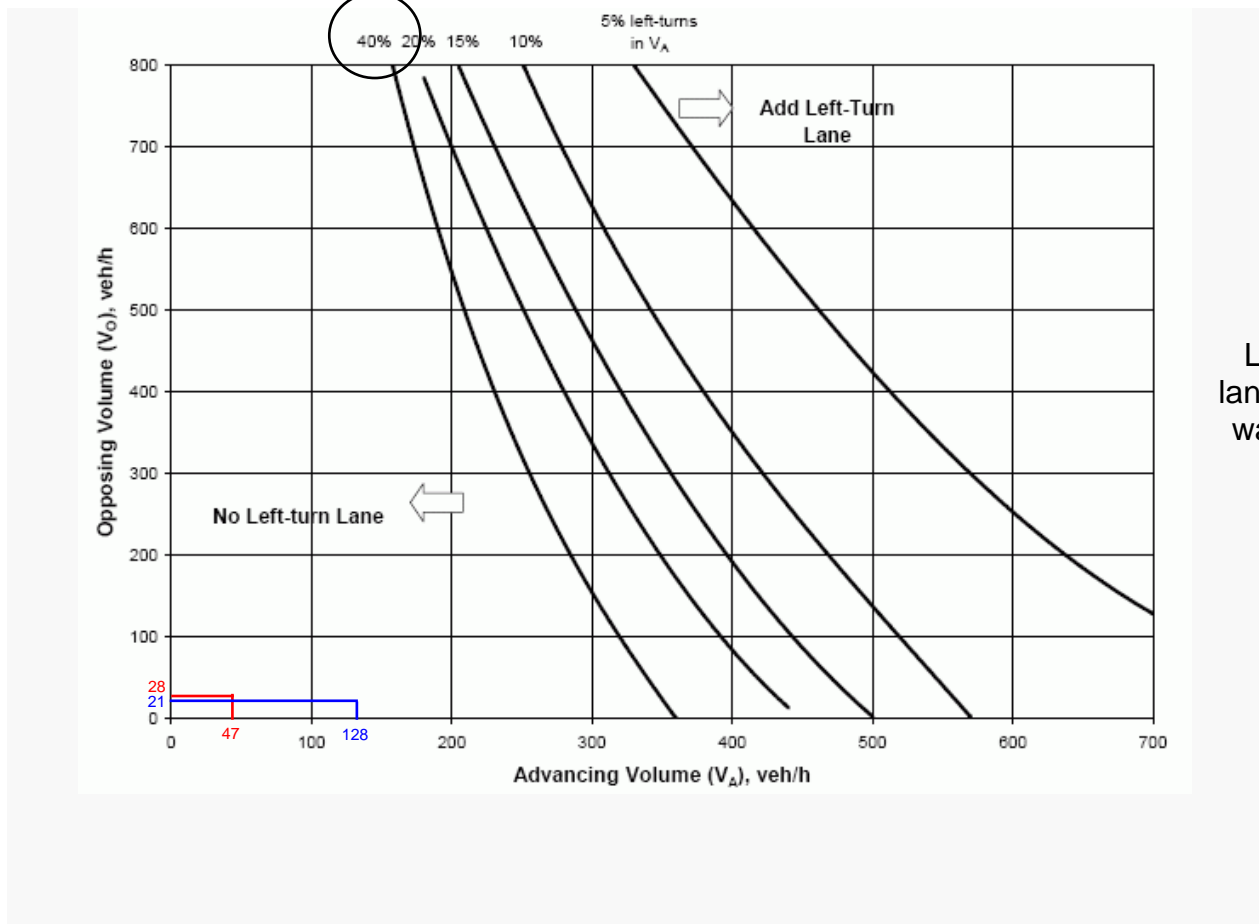
1. Advancing Volume (veh/hr) - The advancing volume is to include the right-turn, left-turn and through movements in the same direction as the right-turning vehicle.
2. Right-Turning Volume (veh/hr) - The right-turning volume is the number of advancing vehicles turning right.
3. Operating Speed (mph) - The greatest of anticipated operating speed, measured 85th percentile speed or posted speed.

Note: Right-turn lane is not needed for right-turn volume less than 10 vph. However, criteria other than volume, e.g. crash experience, may be used to justify a right-turn lane.

If the combination of major road approach volume and right-turn volume intersects above or to the right of the speed trend line corresponding to the major road operating speed, then a right-turn lane is appropriate.

Source: NCHRP Report 279 and 457

Figure 1 – Left-Turn Lane Guidelines for Two-Lane Roads less than or equal to 40 mph



Left turn lane is NOT warranted

The following data are required:

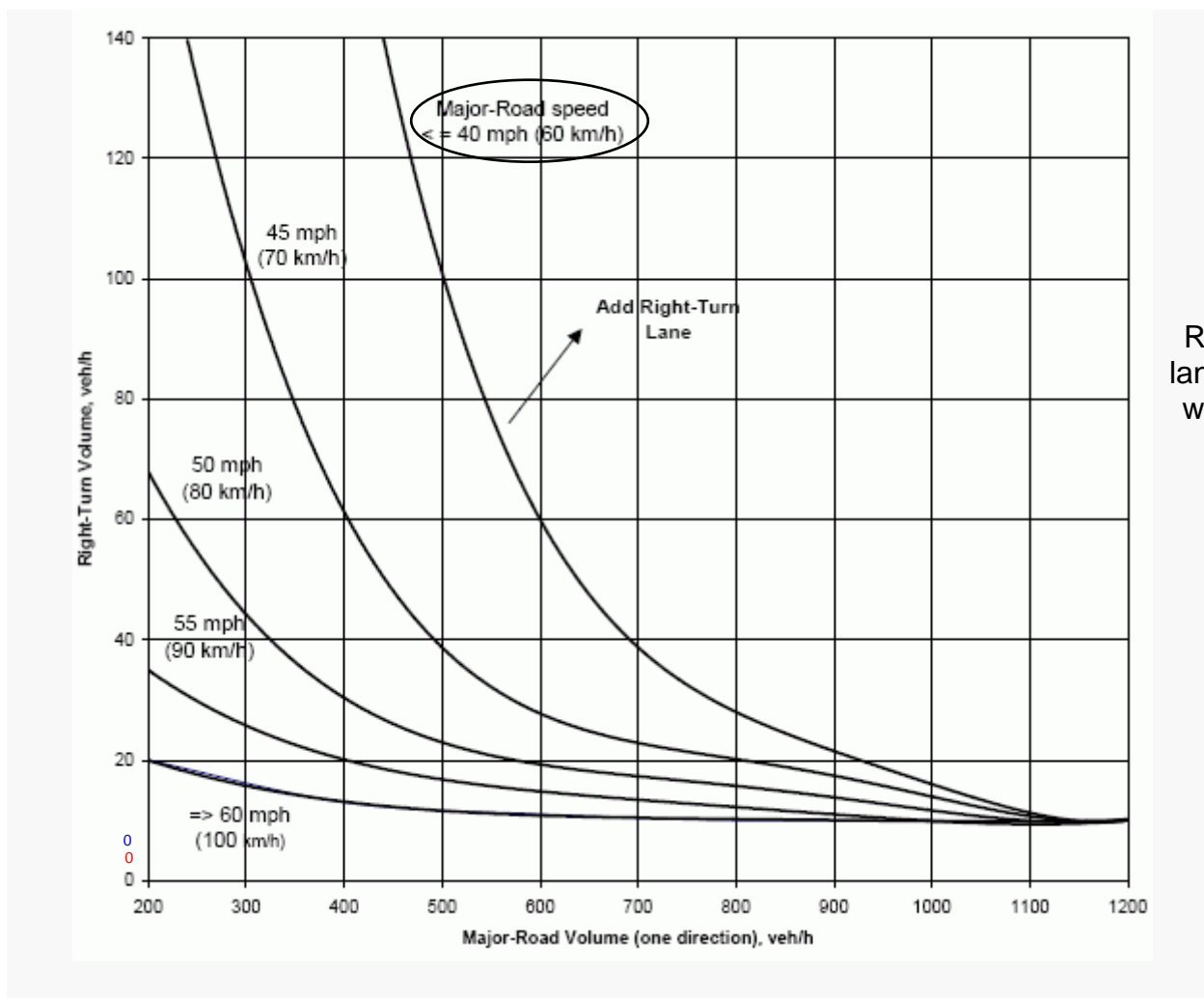
1. Opposing Volume (veh/hr) - V_O - The opposing volume is to include only the right-turn and through movements in the opposite direction of the left turning vehicle.
2. Advancing Volume (veh/hr) - V_A - The advancing volume is to include the right-turn, left-turn and through movements in the same direction as the left turning vehicle.
3. Operating Speed (mph) - The greatest of anticipated operating speed, measured 85th percentile speed or posted speed.
4. Percentage of left turns in V_A

Left- turn lane is not needed for left turn volume less than 10 vph. However, criteria other than volume, such as crash experience, may be used to justify a left-turn lane.

The appropriate trend line is identified on the basis of the percentage of left-turns in the advancing volume, rounded up to the nearest percentage trend line. If the advancing and opposing volume combination intersects above or to the right of this trend line, a left-turn lane is appropriate.

Source: NCHRP Report 279 and 457

Figure 6 – Right-Turn Lane Guidelines for Two-Lane Roadways



The following data are required:

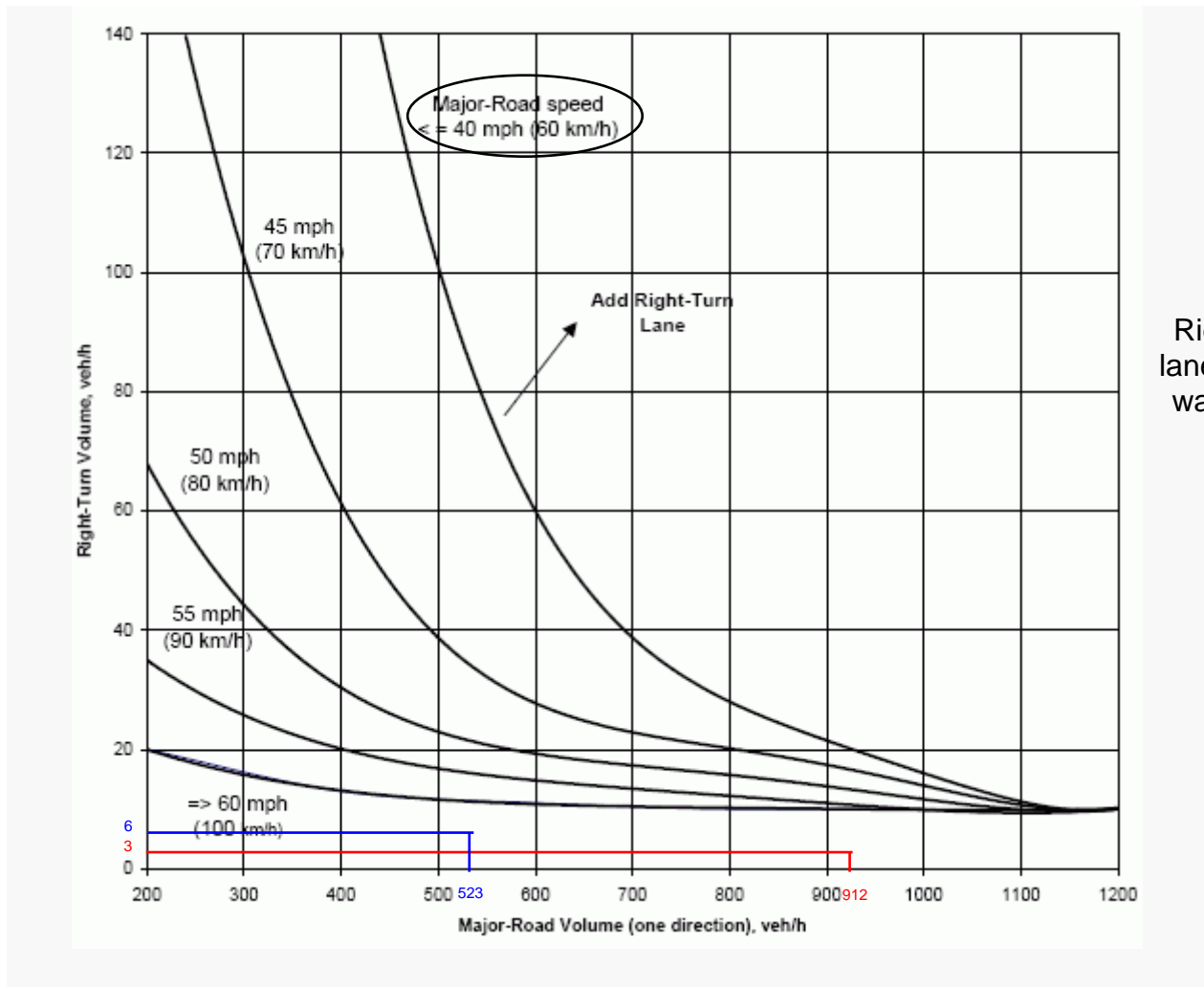
1. Advancing Volume (veh/hr) - The advancing volume is to include the right-turn, left-turn and through movements in the same direction as the right-turning vehicle.
2. Right-Turning Volume (veh/hr) - The right-turning volume is the number of advancing vehicles turning right.
3. Operating Speed (mph) - The greatest of anticipated operating speed, measured 85th percentile speed or posted speed.

Note: Right-turn lane is not needed for right-turn volume less than 10 vph. However, criteria other than volume, e.g. crash experience, may be used to justify a right-turn lane.

If the combination of major road approach volume and right-turn volume intersects above or to the right of the speed trend line corresponding to the major road operating speed, then a right-turn lane is appropriate.

Source: NCHRP Report 279 and 457

Figure 6 – Right-Turn Lane Guidelines for Two-Lane Roadways



The following data are required:

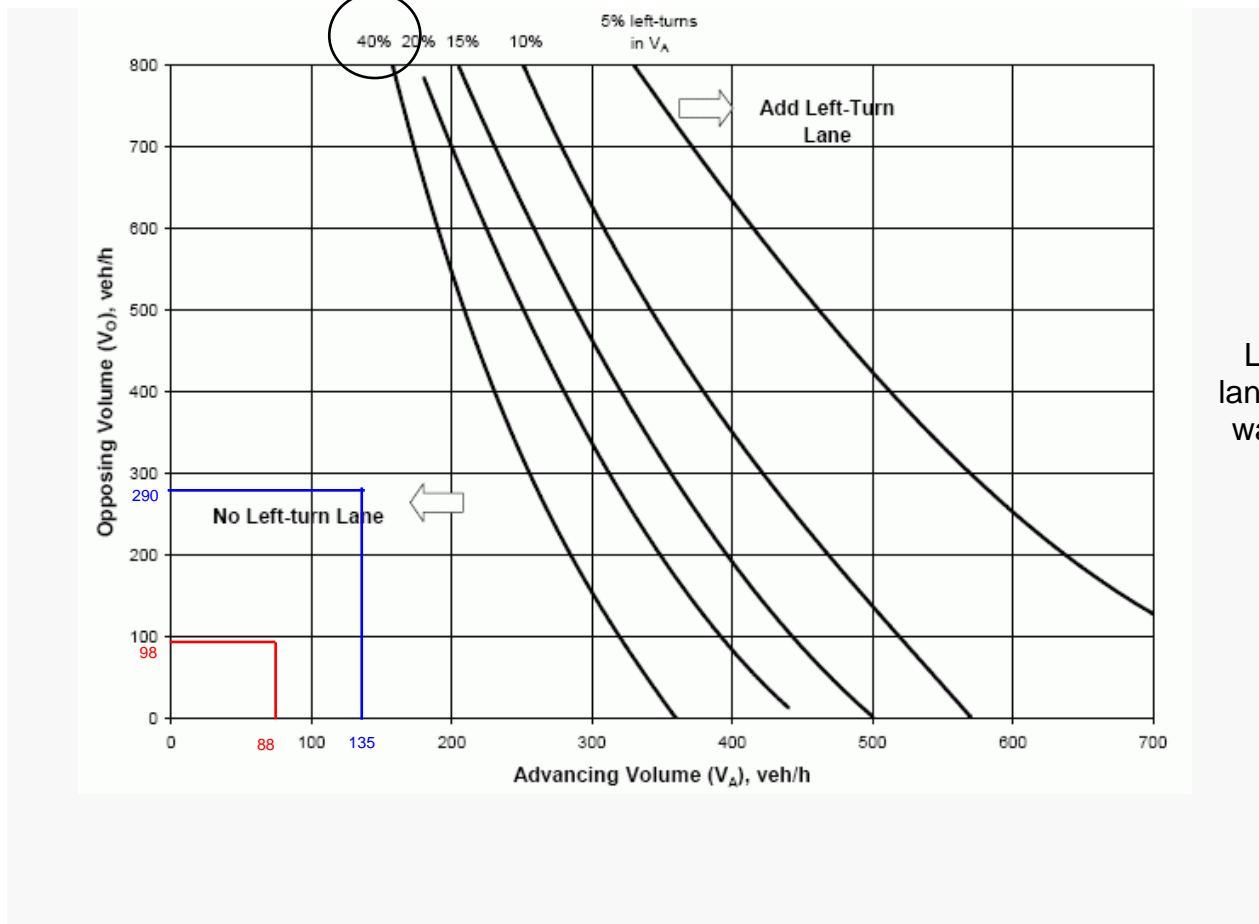
1. Advancing Volume (veh/hr) - The advancing volume is to include the right-turn, left-turn and through movements in the same direction as the right-turning vehicle.
2. Right-Turning Volume (veh/hr) - The right-turning volume is the number of advancing vehicles turning right.
3. Operating Speed (mph) - The greatest of anticipated operating speed, measured 85th percentile speed or posted speed.

Note: Right-turn lane is not needed for right-turn volume less than 10 vph. However, criteria other than volume, e.g. crash experience, may be used to justify a right-turn lane.

If the combination of major road approach volume and right-turn volume intersects above or to the right of the speed trend line corresponding to the major road operating speed, then a right-turn lane is appropriate.

Source: NCHRP Report 279 and 457

Figure 1 – Left-Turn Lane Guidelines for Two-Lane Roads less than or equal to 40 mph



The following data are required:

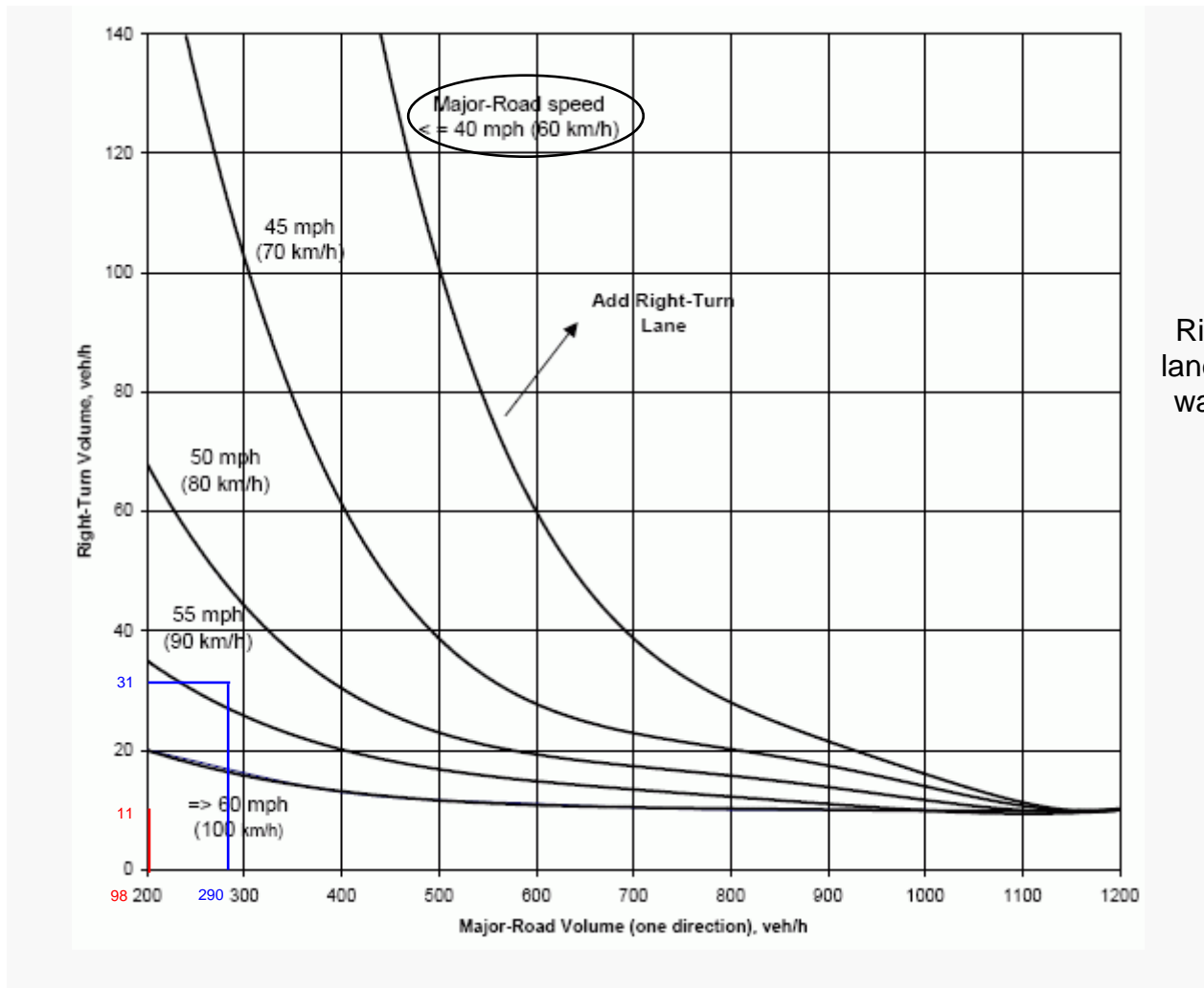
1. Opposing Volume (veh/hr) - VO - The opposing volume is to include only the right-turn and through movements in the opposite direction of the left turning vehicle.
2. Advancing Volume (veh/hr) - VA - The advancing volume is to include the right-turn, left-turn and through movements in the same direction as the left turning vehicle.
3. Operating Speed (mph) - The greatest of anticipated operating speed, measured 85th percentile speed or posted speed.
4. Percentage of left turns in VA

Left- turn lane is not needed for left turn volume less than 10 vph. However, criteria other than volume, such as crash experience, may be used to justify a left-turn lane.

The appropriate trend line is identified on the basis of the percentage of left-turns in the advancing volume, rounded up to the nearest percentage trend line. If the advancing and opposing volume combination intersects above or to the right of this trend line, a left-turn lane is appropriate.

Source: NCHRP Report 279 and 457

Figure 6 – Right-Turn Lane Guidelines for Two-Lane Roadways



The following data are required:

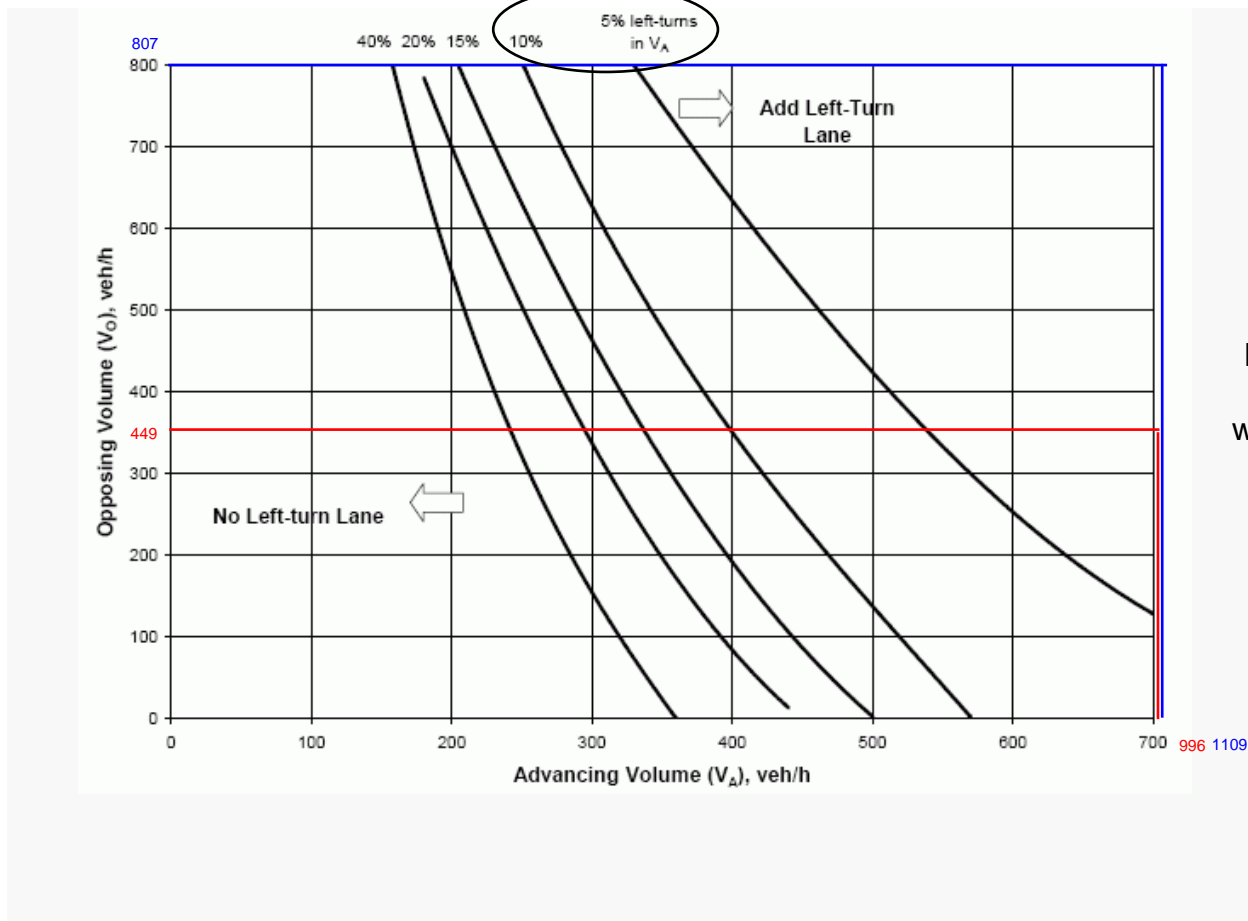
1. Advancing Volume (veh/hr) - The advancing volume is to include the right-turn, left-turn and through movements in the same direction as the right-turning vehicle.
2. Right-Turning Volume (veh/hr) - The right-turning volume is the number of advancing vehicles turning right.
3. Operating Speed (mph) - The greatest of anticipated operating speed, measured 85th percentile speed or posted speed.

Note: Right-turn lane is not needed for right-turn volume less than 10 vph. However, criteria other than volume, e.g. crash experience, may be used to justify a right-turn lane.

If the combination of major road approach volume and right-turn volume intersects above or to the right of the speed trend line corresponding to the major road operating speed, then a right-turn lane is appropriate.

Source: NCHRP Report 279 and 457

Figure 1 – Left-Turn Lane Guidelines for Two-Lane Roads less than or equal to 40 mph



The following data are required:

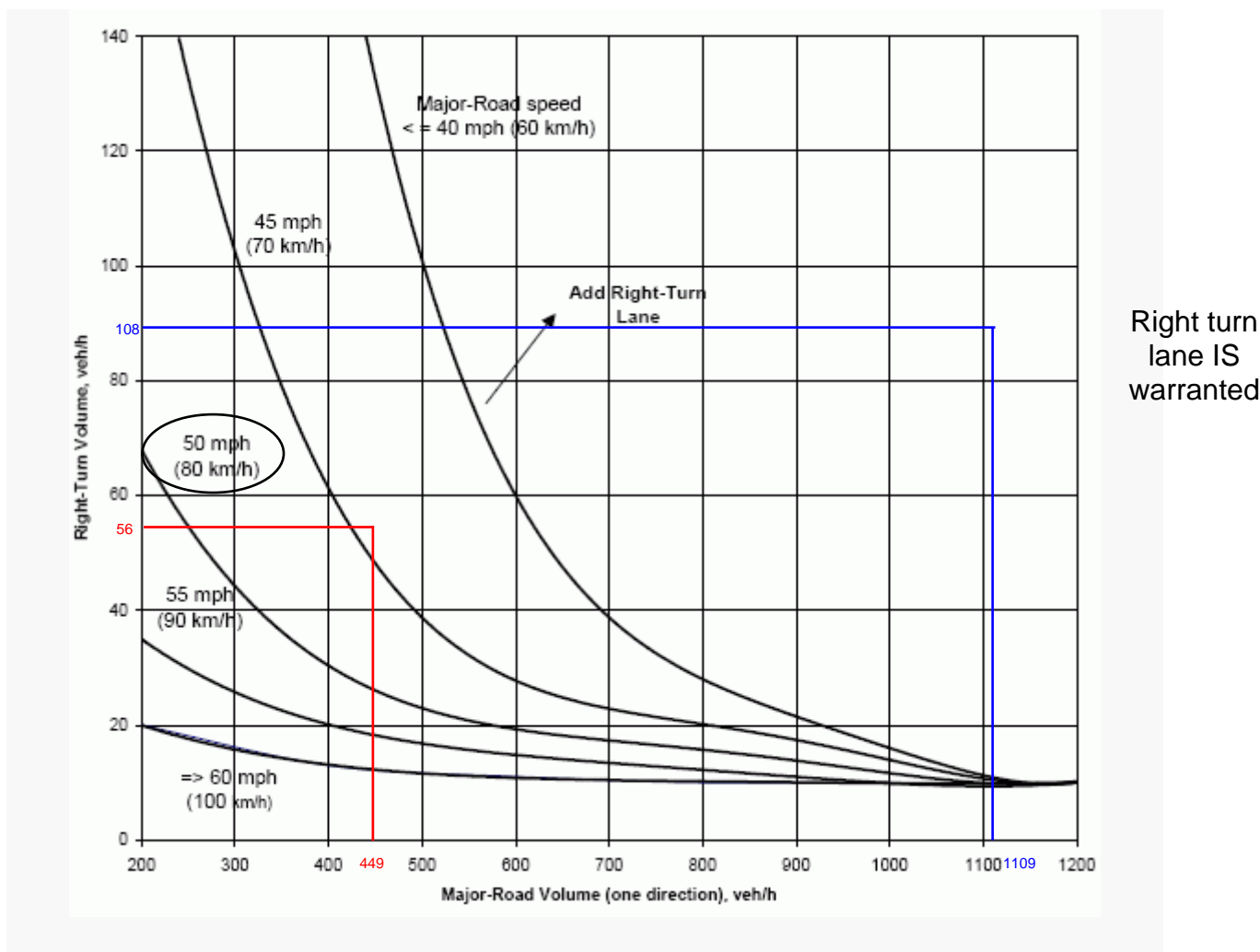
1. Opposing Volume (veh/hr) - VO - The opposing volume is to include only the right-turn and through movements in the opposite direction of the left turning vehicle.
2. Advancing Volume (veh/hr) - VA - The advancing volume is to include the right-turn, left-turn and through movements in the same direction as the left turning vehicle.
3. Operating Speed (mph) - The greatest of anticipated operating speed, measured 85th percentile speed or posted speed.
4. Percentage of left turns in VA

Left- turn lane is not needed for left turn volume less than 10 vph. However, criteria other than volume, such as crash experience, may be used to justify a left-turn lane.

The appropriate trend line is identified on the basis of the percentage of left-turns in the advancing volume, rounded up to the nearest percentage trend line. If the advancing and opposing volume combination intersects above or to the right of this trend line, a left-turn lane is appropriate.

Source: NCHRP Report 279 and 457

Figure 6 – Right-Turn Lane Guidelines for Two-Lane Roadways



The following data are required:

1. Advancing Volume (veh/hr) - The advancing volume is to include the right-turn, left-turn and through movements in the same direction as the right-turning vehicle.
2. Right-Turning Volume (veh/hr) - The right-turning volume is the number of advancing vehicles turning right.
3. Operating Speed (mph) - The greatest of anticipated operating speed, measured 85th percentile speed or posted speed.

Note: Right-turn lane is not needed for right-turn volume less than 10 vph. However, criteria other than volume, e.g. crash experience, may be used to justify a right-turn lane.

If the combination of major road approach volume and right-turn volume intersects above or to the right of the speed trend line corresponding to the major road operating speed, then a right-turn lane is appropriate.

Source: NCHRP Report 279 and 457