Revised Traffic Impact Analysis

VICTORY HEIGHTS

Prepared for:
Blue Fern

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Introduction

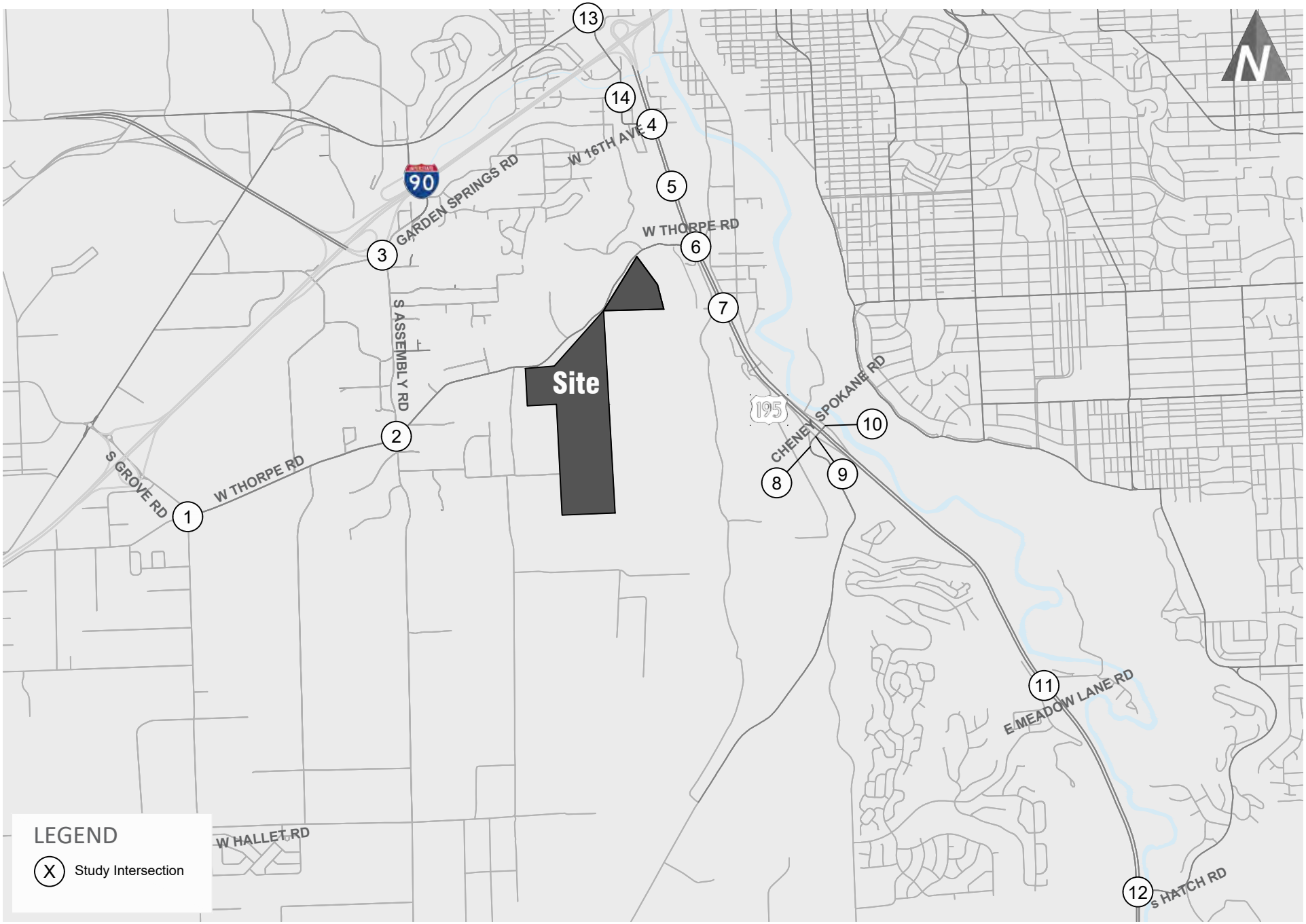
This traffic impact analysis (TIA) identifies potential transportation-related impacts associated with the construction of the proposed residential development located south of W Thorpe Road and east of S Trainor Road in the City of Spokane. Based on jurisdictional standards, the applicant will be paying substantial impact fees that would be available to the City to reduce or offset significant transportation related impacts that the project may have on the surrounding transportation system. The scope of the analysis and the key study assumptions have been coordinated through a scoping process with the City of Spokane and Washington Department of Transportation (WSDOT) staff.

Project Description

The project site is located south of W Thorpe Road and east of S Trainor Road. The site vicinity and study intersections are shown in Figure 1. The project would construct a 1,003 lot residential development, consisting of 220 townhomes and 783 single-family homes. Access to the site is provided via five driveways along W Thorpe Road as well as a connection to W 41st Avenue. The site plan is shown in Figure 2. The project is anticipated to be constructed and occupied over eight phases, with first phase initiated in 2025 (occupancy in 2026) and the final phase completed by 2035. The preliminary phasing is summarized in Table 1. Note the analysis focuses on the project full buildout conditions.

Table 1. Development Phasing Summary

Phase	Development per Phase			Cumulative Development		
	Attached	Detached	Total Lots	Attached	Detached	Total Lots
1	84	32	116	84	32	116
2	-	54	54	84	86	170
3	71	48	119	155	134	289
4	-	195	195	155	329	484
5	-	236	236	155	565	720
6	-	83	83	155	648	803
7	-	103	103	155	751	906
8	65	32	97	220	783	1,003
Total	**220**	**783**	**1,003**	**220**	**783**	**1,003**



Site Vicinity and Study Intersections

Blue Fern Victory Heights

FIGURE 1

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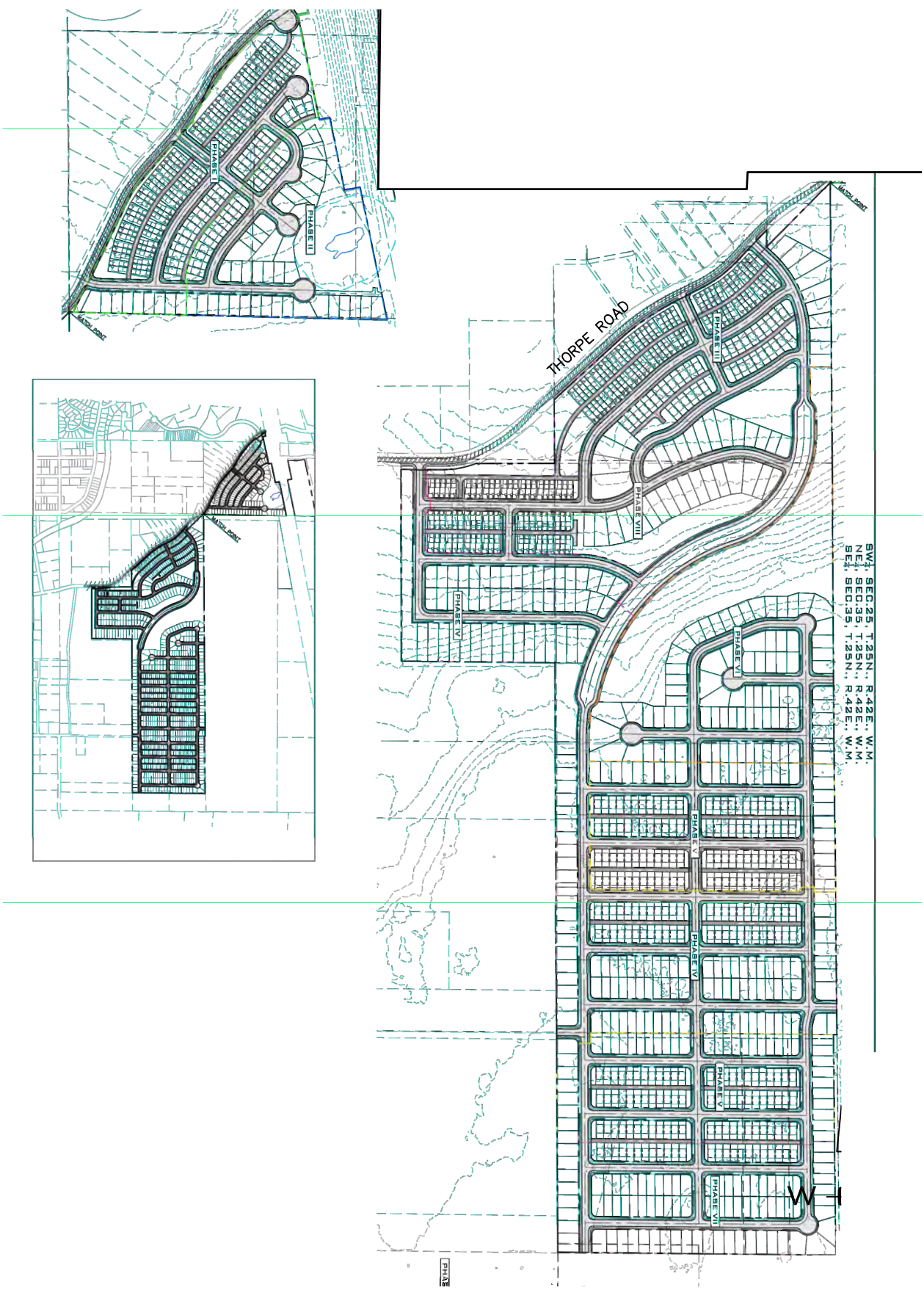

Preliminary Site Plan

Victory Heights

FIGURE 2

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Study Scope

As coordinated with the City of Spokane and WSDOT staff and based on the anticipated trip distribution patterns of the project related traffic, the following intersections were selected for analysis:

1. S Grove Road/W Thorpe Road
2. S Assembly Road/W Thorpe Road
3. S Assembly Road/Garden Springs Road
4. US 195/W 16th Avenue
5. US 195/North J-turn
6. US 195/W Thorpe Road
7. US 195/South J-turn
8. US 195/Cheney Spokane SB Ramp West
9. US 195/Cheney Spokane SB Ramp
10. US 195/Cheney Spokane NB Ramp
11. US 195/E Meadowlane Road
12. US 195/S Hatch Road
13. S Government Way/ W Sunset Boulevard
14. S Lindeke Street/W 14th Avenue

In addition to the study area intersections identified above, the volumes of the US 195/I-90 eastbound (EB) interchange were evaluated along with the site accesses.

The analysis conducted focused on the following areas for existing, future (2035) without-project, and future (2035) with-project full buildout conditions in the vicinity of the project site under weekday AM and PM peak hour conditions:

- Review/documentation of the surrounding street system
- Review of transit service and facilities in the area
- Review of non-motorized facilities
- Documentation of the existing and forecast future without-project weekday peak hour traffic volumes
- Analysis of traffic operations
- Analysis of the Thorpe tunnel capacity using the Vissim, a micro-simulation model
- Review of traffic safety

Future (2035) with-project conditions were estimated by adding site-generated traffic to future without-project volumes. The project's impacts on the surrounding transportation system were identified by comparing the future with-project conditions to the future without-project conditions. Additionally, a review of regional improvements in the area is reviewed under the future (2035) conditions.

This analysis reflects updates to the previous iterations of the *Victory Heights Traffic Impact Analysis* (Transpo Group) dated both July and September 2024 in response to the comments received from City of Spokane and WSDOT staff. The compilation of comments received and the responses are included in Appendix G.

Existing and Future Without-Project Conditions

This section describes both existing and future (2035) without-project conditions within the identified study area. Characteristics are provided for the roadway network, non-motorized facilities, transit service, traffic volumes, traffic operations, and traffic safety.

Roadway Network

The following sections describe the existing roadway network within the vicinity of the proposed project and anticipated changes resulting from planned improvements.

Existing

The primary roadways within the study area and their characteristics near study intersections are described in Table 2.

Table 2. Existing Conditions Summary

Roadway	Street Classification	Speed Limit (mph)	No. of Lanes	Non-Motorized Facilities
US 195	Urban Other Freeways/Expressways	55	4/5	None
W Thorpe Road	Urban Minor Arterial	20-35[1]	2	Sidewalks[2]
S Grove Road	Urban Minor Arterial	45	2	Sidewalks[3]
S Assembly Road	Urban Major Collector	35	2	None
Garden Springs Road	Urban Major Collector	25	2	None
Cheney Spokane Road	Urban Minor Arterial	35	4/5	Sidewalks
S Hatch Road	Urban Minor Arterial	35	2	None
E Meadowlane Road	Urban Major Collector	25-30	2	None
W 14th Avenue	Urban Minor Arterial	25	2	Sidewalks
W 16th Avenue	Urban Minor Arterial	25	2	Sidewalks
S Lindeke Street	Minor Arterial	25	2	Sidewalks
S Government Way	Urban Major Collector / Urban Minor Arterial[4]	30	2	Sidewalks
S Sunset Boulevard	Urban Other Principal Arterial	40	5	Signalized Crossings Bicycle Lanes Sidewalks

City of Spokane, 2023
1. Posted speed limit 20 mph between W Westwood Lane and US 195 and 30 mph east of US 195.
2. Provided on north side between S Grove Road and S Abbott Road
3. Provided south of W Thorpe Road.
4. Urban Major Collector within the study area up to W Sunset Boulevard and Urban Minor Arterial from W Sunset Boulevard.

Planned Improvements

Based on a review of both the City of Spokane's *2023-2028 Citywide Capital Improvement Program,* Spokane County's *2023-2028 Six-Year Transportation Improvement Program, WSDOT's improvement plans,* and consistency with previous traffic studies in the area, the following planned improvements have been assumed in the analysis:

- **US 195 & 16th Avenue Intersection Modification –** Construct improvements to allow only right-in/right-out and left-in access from the west leg at 16th Avenue W & US 195. This project is currently unfunded. However it was incorporated into the analysis as it is expected to be constructed by the development community as a condition of approval for several projects.
- **Grove Road Reconstruction –** This project is planned to reconstruct Grove Road to a 3-lane roadway from W Thorpe Road to I-90 EB ramp. This project is fully funded by Spokane County and will be completed by 2029.

- **Thorpe Road Reconstruction –** Thorpe Road is planned to be reconstructed to an urban section between W Westbow Road and S Grove Road. Improvements are planned for 2030 and partially funded by the County.
- **Grove Road/Thorpe Road Intersection –** Intersection improvements are planned for the S Grove Road/W Thorpe Road intersection converting the intersection into a single lane roundabout with north and south legs having 3 approach legs. This project is anticipated to be completed by 2026 and is partially funded by the County.
- **Meadow Lane Road/US 195 Intersection** – Intersection improvements are planned for anticipated traffic growth and congestion mitigation. Meadow Lane Road will have J-turn which will restrict all left-turns and through movements from the side streets.
- **South Inland Empire Way Extension –** S Inland Empire way will be extended to the south to be connected to the US 195/Cheney-Spokane Road ramps. This will divert downtown trips from taking US 195. Given the assumed inclusion of pipeline development projects (discussed in greater detail below), this planned improvement project was included in the future (2035) without-project conditions.

In addition to the planned improvements identified above, the *US 195/I-90 Transportation Study* (December 2021) was reviewed. As noted in the study, *"[w]hen implemented, the recommendations…will create a more connected network for local trips, improve safety, preserve capacity on US 195 for regional trips, extend the life of the US 195/I-90 interchange, and provide more connections for walking, biking, and using transit to travel within the study area and to key destinations in the Spokane region.*" Key investments in the plan identified within the vicinity of the Victory Heights study area include the Lindeke Street and Inland Empire Way Connections. Both connections parallel US 195 and provide an alternative to the US 195/I-90 interchange. The Inland Empire connection is located to the east of US 195 and is noted above to be assumed under the background condition associated with the implementation of pipeline development projects in close proximity to that roadway.

The Lindeke Street extension would be located west of US 195 and would extend from its existing terminus at 16th Avenue and Thorpe Road. Components that would also be implemented as a result of the Lindeke Street extension would include the following:

- Closure of the west leg of the intersection of 16th Ave
- Thorpe/Lindeke Roundabout
- South Thorpe J-turn closure
- Fish Lake Trail bridge/16th replacement

The timing and funding of the Lindeke Street extension which provides regional benefits and connectivity has not been identified and therefore is not assumed in the future (2035) without or with-project analyses.

The City is also conducting a design feasibility study of a Thorpe Road crossing (either over or under) of US 195. This connection would likely be in place of the Lindeke Street extension and associated projects as identified in the *US 195/I-90 Transportation Study* as the Thorpe Road crossing would be in conflict with the Thorpe/Lindeke Roundabout. However, there are numerous benefits of the crossing which meet the objective of the US 195/I-90 Transportation Study. These benefits include:

- Connecting Thorpe Road to Inland Empire – improving connectivity
- Allowing for northbound access from US 195 to Thorpe Road west of US 195 – eliminating the need for the North J-Turn location, and therefore improving safety by removing a conflict point along US 195
- Not providing access to northbound US 195 – Extend the life of the US 195/I-90 interchange by providing an alternative route
- Connectivity to/from Thorpe Road and southbound US 195 would be maintained

Non-Motorized Facilities

The primary non-motorized facility is the study area is the Fish Lake Trail. This is a shared use path that extends from West Spokane to Queen Lucas Lake and is planned to connect the Centennial Trail to Fish Lake Regional Park in the future. The trail is located east of the site and is elevated above Thorpe Road; however, the trailhead is located to the north of the project at Government Way and Milton Street which due to limited connectivity in the vicinity is approximately 4 miles from the site.

Additionally, Table 2 above shows sidewalks are provided intermittently along W Thorpe Road, S Grove Road, Cheney Spokane Road, and W 16th Avenue. There are no marked crossings at the study intersections or bike lanes provided in the study area. However, the *US 195/I-90 Transportation Study* (December 2021) identifies "*[t]here are a several shared use facilities (roads where a bike route is designated but there are no bike lanes or areas specifically designated for bikes) within the study area including: Thorpe Road, W Westwood Lane, S Lindeke Street, Inland Empire Way north of W 23rd Avenue, Cheney-Spokane Road south of the Yokes Retail Center, Qualchan Drive, W Lincoln Boulevard, Eagle Ridge Boulevard, Hatch Road from US 195 to 57th Avenue."*

Transit Service

Transit service in the vicinity of the project site is provided by Spokane Transit. The nearest stop to the project site is located approximately 3 miles north of the site along W Sunset Boulevard and 3 miles east of site along W 14th Avenue. There are limited pedestrian facilities along walking routes to transit stops in the area. The transit routes servicing the study area are summarized in Table 3 including days of operation, service routes, and headways.

Table 3. Transit Route Summary

Route	Hours of Operation		Weekday Peak Period Headway[1]
	Weekdays	Saturday/Sunday	
42 – South Adams	6:05 a.m. – 10:15 p.m.	Sat: 7:05 a.m. – 10:15 p.m. Sun: 8:05 a.m. – 7:15 p.m.	30
43 – Lincoln/37th Ave	5:30 a.m. – 10:50 p.m.	Sat: 6:25 a.m. – 10:50 p.m. Sun: 7:25 a.m. – 7: 50 p.m.	30
60 – Airport via Brownes Add	6:35 a.m. – 11:10 p.m.	Sat: 5:40 a.m. – 11:10 p.m. Sun: 7:40 a.m. – 7:15 p.m.	30
61 – Hwy 2 via Brownes Add	5:10 a.m. – 10:45 p.m.	Sat: 6:05 a.m. – 10:45 p.m. Sun: 7:05 a.m. – 7:45 p.m.	30

Source: Spokane Transit Authority, 2023
1. Headways in minutes during weekday AM and PM peak periods.

Traffic Volumes

The following section summarizes the existing and future (2035) without-project traffic volume forecasts for both the study intersections as well as the I-90 interchange study locations.

Study Intersections Traffic Volumes

Existing weekday AM (7-9 a.m.) and PM peak period (4-6 p.m.) traffic volumes were collected at the study area intersections in March 2023 as available.[1] The existing weekday AM and PM peak hour traffic volumes are shown on Figure 3. Volumes are rounded to the nearest 5 vehicles to account for the daily fluctuations in traffic volumes.[2] Detailed traffic counts are provided in Appendix A.

Future (2035) without-project traffic volumes are comprised of background traffic growth, and traffic generated from the planned "pipeline" developments. An annual growth rate of 1.0 percent was applied as directed by City and WSDOT staff. In addition to the annual growth rate, traffic from approved, but not yet occupied development projects in the vicinity of the project were identified by City/WSDOT staff and included in the future (2035) without project analysis. The projects include:

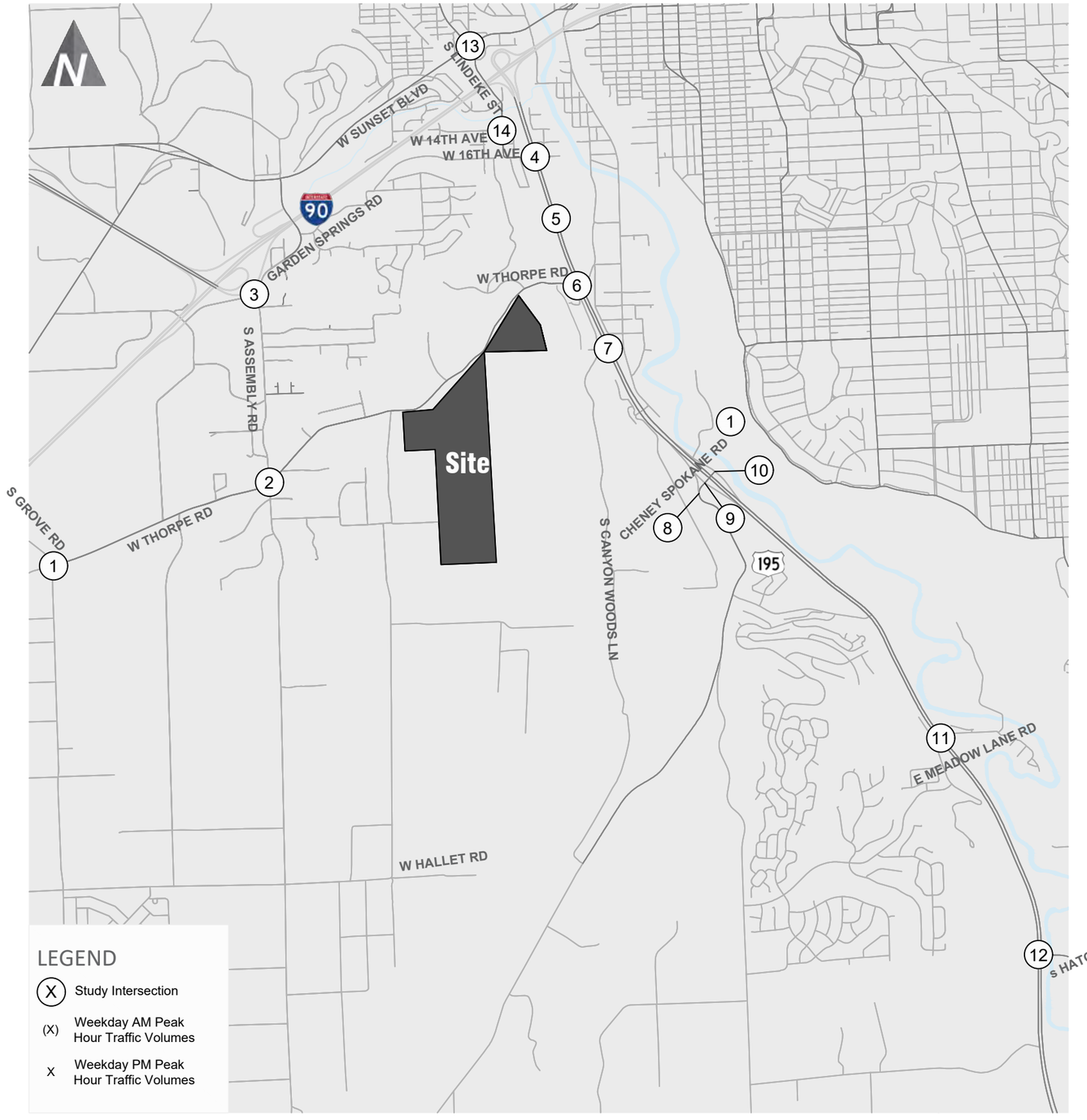
1. Wheatland Estates – 167 single-family residential lots
2. Marshall Creek Estates – 425 single-family residential lots
3. Qualchan View Estates – 160 single-family residential lots
4. Garden Springs Apartments – Six 36-unit apartment buildings
5. Abbott Grove Industrial Park – 2,365,961 square foot industrial park
6. Tangle Ridge Estates – 45 single-family residential lots
7. Latah Glen Residential Community – 157 space manufactured home development
8. The Greens at Meadowlane – 36 single-family residential lots
9. The Greens at Meadowlane 2 – 25 single-family residential lots
10. Aspen Park – 296 single-family residential lots and 160 multifamily apartments
11. Crystal Ridge – 56 single-family residential lots
12. Needham Hill Addition – 306 single-family residential units
13. West Plains Logistics – 568,040 square foot warehouse and industrial development
14. Canyon Bluffs – 64 single-family residential units and 432 multifamily residential units
15. The Summit – 99 single-family residential lots
16. Parthenon Pointe Apartments – three story apartments with up to 96 units or continuing care retirement with 150 units.
17. Prose Spokane - 348 multifamily residential units with 504 parking stalls

Additionally, a background shift was assumed for the addition of the Inland Empire extension as this connection is a condition of the pipeline developments whose trips are assumed in the analysis. The analysis assumed that up to 40 percent of trips utilizing the Cheney Spokane northbound US 195 on-ramp to I-90 eastbound would shift to use the new connection. This percentage was identified through conversations with City of Spokane and WSDOT staff.

The forecast future 2035 without-project weekday peak hour traffic volumes are shown in Figure 4. The locations of the pipeline projects relative site are shown on Appendix B.

[1] Note that the City requested the addition of the study intersection of S Lindeke Street/W 14th Avenue. This location was being impacted by construction at the time of the study update such that previously collected traffic counts from 2022 were assumed for the analysis.

[2] Existing movements of less than 5 vehicles were not rounded.



1 Grove Road / W Thorpe Road (180) 215 (75) 70 (45) 40 (95) 130 (75) 85 (5) 15 (15) 15 (0) 5 (10) 5 (5) 5 (5) 10 (245) 150	2 S Assembly Road / W Thorpe Road (35) 80 (20) 20 (5) 10 (5) 15 (5) 15 (10) 30 (20) 25 (5) 5 (40) 40 (25) 15 (25) 30 (30) 30	3 S Assembly Road / Garden Springs Road (45) 55 (10) 20 (5) 10 (35) 155 (5) 5 (80) 75	4 US 195 / W 16th Avenue (400) 1,055 (25) 100 (10) 40 (75) 35 (20) 15 (5) 5 (5) 5 (70) 110 (5) 5 (120) 60 (5) 5 (1,085) 525	5 US 195 / North J-turn (635) 1,360 (50) 70 (1,230) 695
6 US 195 / W Thorpe Road (585) 1,240 (50) 125 (40) 30 (100) 80 (150) 85 (1,235) 730	7 US 195 / South J-turn (585) 1,260 (85) 50 (1,375) 805	8 US 195 SB Ramp West / Cheney Spokane Road (175) 515 (80) 105 (650) 420	9 US 195 SB Ramp East / Cheney Spokane Road 5 (15) 10 (590) 305 (80) 100 (55) 130 (5) 10	10 US 195 NB Ramp / Cheney Spokane Road (595) 285 (90) 115 (5) 5
11 US 195 / E Meadowlane Road (410) 745 (45) 155 (10) 10 (160) 50 (15) 10 (0) 5 (5) 0 (105) 90 (5) 5 (35) 100 (5) 10 (625) 465	12 US 195 / S Hatch Road (245) 410 (275) 415 (320) 315 (45) 115 (85) 50 (325) 260	13 S Government Way / W Sunset Blvd (50) 85 (125) 70 (230) 165 (40) 200 (225) 165 (355) 350 (210) 315 (15) 15 (35) 60 (4) 10 (85) 40 (105) 85	14 S Lindeke St / W 14th Ave (75) 125 (25) 60 (5) 5 (75) 60 (5) 0 (0) 0 (0) 0 (45) 25 (0) 0 (10) 50 (0) 5 (105) 110	

Existing Weekday Peak Hour Traffic Volumes

Blue Fern Victory Heights

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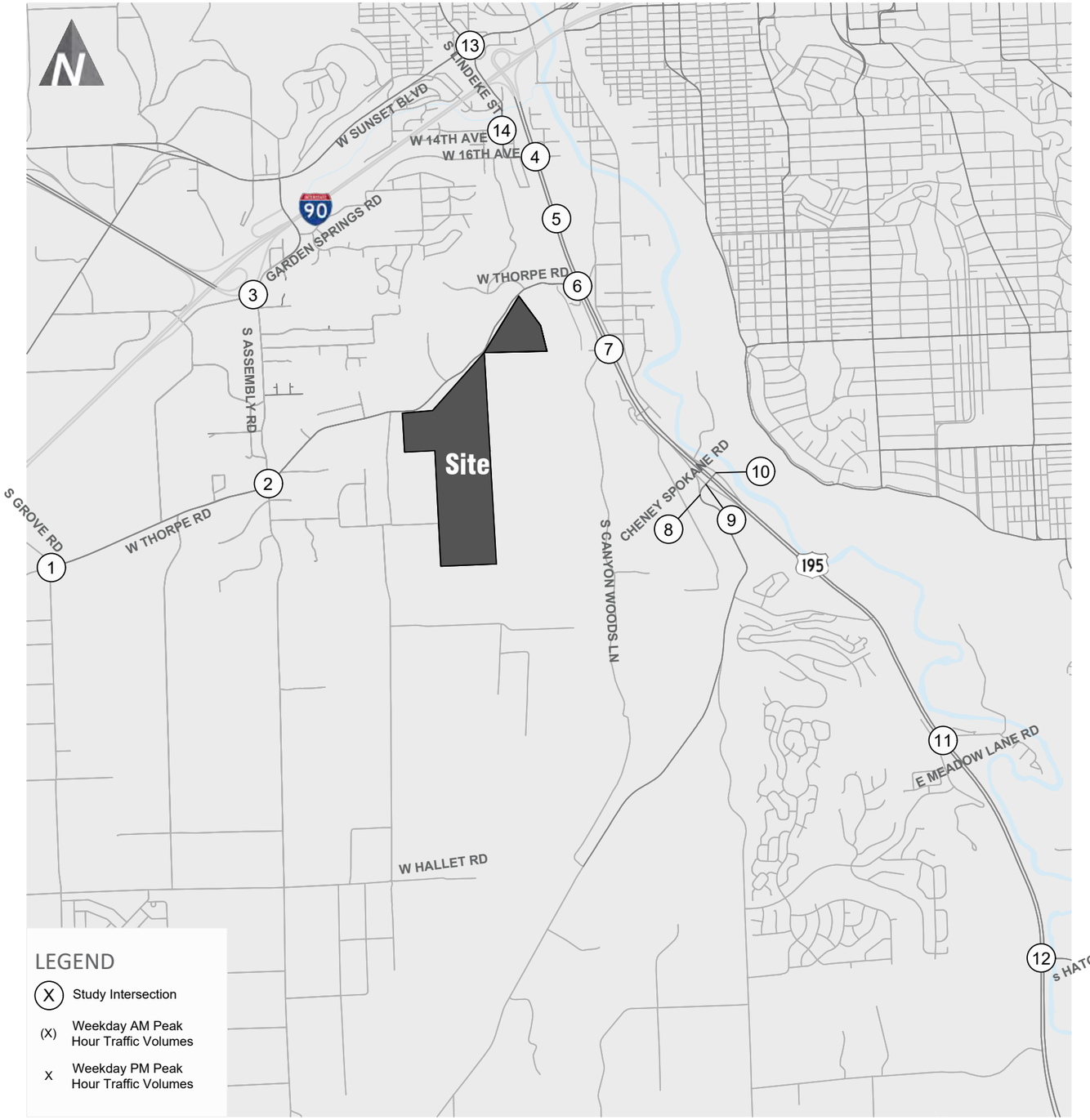
FIGURE
3



1 Grove Road / W Thorpe Road

(205) 255
(135) 240 (145) 115
(260) 240 (160) 235
(5) 15 (15) 15
(0) 5 (20) 45
(5) 2 (45) 20
(295) 180

2 S Assembly Road / W Thorpe Road

(40) 90
(25) 25 (10) 25
(3) 15 (15) 25
(45) 160 (110) 65
(5) 5 (45) 45
(30) 15 (30) 35
(35) 35

3 S Assembly Road / Garden Springs Road

(115) 165 (255) 130
(10) 15 (45) 190
(5) 5 (100) 90

4 US 195 / W 16th Avenue

(540) 1,490
(45) 175 (10) 45
(25) 15
(5) 1
(115) 185 (1) 5
(190) 150 (1) 5
(1,185) 620

5 US 195 / North J-turn

(850) 1,895
(135) 135
(1,410) 890

6 US 195 / W Thorpe Road

(775) 1,715
(150) 240
(55) 70
(240) 265
(215) 130
(1,485) 955

7 US 195 / South J-turn

(825) 1,865
(175) 105
(1,610) 1,020

8 US 195 SB Ramp West / Cheney Spokane Road

(275) 785
(115) 155
(925) 630

9 US 195 SB Ramp East / Cheney Spokane Road

(0) 1
(35) 30
(845) 480 (115) 150
(75) 170 (5) 10

10 US 195 NB Ramp / Cheney Spokane Road

(865) 475
(125) 165 (5) 1

11 US 195 / E Meadowlane Road

(745) 1,535
(10) 10
(25) 15
(1) 10
(970) 940

12 US 195 / S Hatch Road

(390) 635
(345) 490
(430) 545
(2) 0
(115) 70
(515) 415

13 S Government Way / W Sunset Blvd

(60) 105
(140) 85 (260) 185
(50) 225 (255) 185
(480) 515 (295) 390
(20) 25 (50) 100
(20) 20 (135) 70
(130) 100

14 S Lindeke St / W 14th Ave

(100) 195
(30) 70 (1) 3
(85) 70 (5) 0
(50) 30
(10) 55 (0) 1
(180) 165

Future (2035) Without-Project Weekday Peak Hour Traffic Volumes

Blue Fern Victory Heights

FIGURE **4**

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Traffic Operations

The following section summarizes the existing and future (2035) without-project traffic operations for the study intersections.

The operational characteristics of an intersection are determined by calculating the intersection level of service (LOS). At signalized, all-way stop-controlled (AWSC), and roundabout controlled intersections, LOS is measured in average control delay per vehicle and is reported using the intersection delay. At two-way stop-controlled (TWSC) intersections, delay is reported for the worst movement. Traffic operations and average vehicle delay can be described qualitatively with a range of levels of service (LOS A through LOS F), with LOS A indicating free-flowing traffic and LOS F indicating extreme congestion and long vehicle delays. Appendix C contains a detailed explanation of LOS criteria and definitions.

The City of Spokane and WSDOT (for US 195) have adopted a LOS D as the minimum for signalized intersections and LOS E as the minimum for unsignalized intersections.

Weekday AM and PM peak hour traffic operations for existing and future (2035) without-project conditions were evaluated based on the procedures identified in the *Highway Capacity Manual* (HCM 6th Edition) using *Synchro 12*. *Synchro 12* is a software program that uses *HCM* methodology to evaluate intersection LOS and average vehicle delay. The roundabout controlled intersection was evaluated using Sidra and the volume to capacity (v/c) ratios for the roundabout controlled locations are also reported.

Note that there were modifications to the traffic modeling at the south J-Turn and the Cheney Spokane Northbound Ramp intersections along US 195 as coordinated with WSDOT and City staff as the modeling of these locations was not aligned with field conditions. The modifications at these intersections are detailed below:

- US 195/South J-turn – A calibration of the delay experienced for the southbound left J-Turn movement was completed by comparing observed volumes and delay to equivalent calculated delay. The observations were conducted 7-9am on Tuesday, October 22, 2024, and the number of J-turn movements were recorded along with the delay as well as the conflicting northbound vehicles. The observed peak hour volumes and peak hour factor (PHF) were reviewed in both synchro and HCM to compare each software's calculated average delay to the observed delay. Both programs similarly reported a delay that was slightly less than observed. The software’s calculated delay was then calibrated to the observations by increasing the critical headway. This calibrated critical headway was then applied to the Synchro analysis for all AM peak hour analyses. This approach was coordinated and ultimately approved by WSDOT staff. The calibration analysis is included in Appendix K.
- US 195/Cheney Spokane NB Ramp – Due to the non-traditional movements of the intersection, modeling the intersection as it exists in the field resulted in delay not consistent with actual conditions due to limitations of the modeling software. As coordinated with WSDOT, it was determined the intersection should alternatively be evaluated assuming the eastbound left turn movement as a through movement, which resulted in delay aligned with actual field conditions.

Analysis parameters such as lane channelization and signal timing were maintained for future (2035) without-project conditions from existing conditions with the exception of the planned improvements as described above. Peak hour factor (PHF) adjustments were assumed for the future (2035) conditions consistent with NCHRP Report 599 guidelines which specify typical intersection PHF based on the total entering vehicles. This adjustment is appropriate given the future horizon year of +10 years and the associated growth as well as the change in travel patterns in the study area.

Results for the existing and future without-project operations analyses are summarized in Table 4. Detailed LOS worksheets for each intersection analysis are included in Appendix D.

Table 4. Existing and Future (2035) Without-Project AM and PM Peak Hour LOS Summary

Intersection	Traffic Control	Existing			2035 Without-Project[5]		
		LOS[1]	Delay[2]	WM[3]	LOS	Delay	WM/ v/c[4]
AM Peak Hour							
1. S Grove Rd/W Thorpe Road	AWSC/ Future RAB	B	12.5	-	A	7.8	0.43
2. S Assembly Rd/W Thorpe Road	AWSC	A	7.5	-	A	8.3	-
3. S Assembly Rd/Garden Springs Road	TWSC	A	8.9	NB	A	9.6	NB
4. US 195/W 16th Avenue	TWSC	**F**	**163.6**	**EB**	E	46.9	WB
5. US 195/North J-turn	TWSC	A	9.2	NBL	B	11.0	NBL
6. US 195/W Thorpe Road	TWSC	C	15.5	WB	C	19.0	WB
7. US 195/South J-turn	TWSC	C	18.1	SBL	E	36.5	SBL
8. US 195 SB Ramp/Cheney Spokane Rd	TWSC	B	10.3	WB	B	11.9	WB
9. US 195 SB Ramp East/Cheney Spokane Rd	TWSC	C	17.8	SB	C	24.7	SB
10. US 195 NB Ramp/Cheney Spokane Rd	TWSC	C	20.2	NB	D	29.4	NB
11. US 195/E Meadowlane Road	TWSC	**F**	**81.0**	**EB**	B	13.3	WB
12. US 195/S Hatch Road	TWSC	E	44.1	WBL	C	23.6	WB
13. S Government Way/ W Sunset Blvd	Signal	B	17.4	-	C	23.0	-
14. S Lindeke Street/W 14th Avenue	TWSC	B	10.6	EB	B	11.6	EB
PM Peak Hour							
1. S Grove Rd/W Thorpe Road	AWSC/ Future RAB	B	12.4	-	A	7.0	0.35
2. S Assembly Rd/W Thorpe Road	AWSC	A	8.0	-	A	9.4	-
3. S Assembly Rd/Garden Springs Road	TWSC	A	9.2	NB	B	10.3	NB
4. US 195/W 16th Ave	TWSC	**F**	**100.0**	**EB**	**F**	**172.3**	**WB**
5. US 195/North J-turn	TWSC	C	16.0	NBL	D	31.6	NBL
6. US 195/W Thorpe Rd	TWSC	C	17.3	EB	**F**	**95.7**	**EB**
7. US 195/South J-turn	TWSC	B	10.2	SBL	B	12.3	SBL
8. US 195 SB Ramp/Cheney Spokane Road	TWSC	B	14.8	WB	D	28.3	WB
9. US 195 SB Ramp East/Cheney Spokane Rd	TWSC	B	12.4	SB	C	16.5	SB
10. US 195 NB Ramp/Cheney Spokane Road	TWSC	B	12	NB	C	16.2	NB
11. US 195/E Meadowlane Road	TWSC	E	49.7	EB	B	12.2	WB
12. US 195/S Hatch Road	TWSC	**F**	**370.2**	**WBL**	D	25.6	WB
13. S Government Way/ W Sunset Boulevard	Signal	C	20.9	-	C	21.6	-
14. S Lindeke Street/W 14th Avenue	TWSC	B	12.1	EB	B	14.4	EB

Note: TWSC = two-way stop-controlled, AWSC = all-way stop-controlled, RAB = roundabout. **Bold** text indicates intersection operates below standard.
1. Level of Service (A – F) as defined by the *Highway Capacity Manual* (TRB, 6th Edition)
2. Average delay per vehicle in seconds.
3. Worst Movement (WM) shown for two-way stop-controlled intersections. EB = eastbound approach, WB = westbound approach, SB = southbound approach, NBL = northbound left-turn movement, SBL = southbound left-turn movement, WBL = westbound left-turn movement.
4. Volume to capacity is reported for roundabouts.
5. The future operations assume the Inland Empire Way northbound only connection has been built.

As shown in Table 4, the study intersections meet the respective standards under existing conditions with the exception of three locations during the AM and/or PM peak hours. These locations include W 16th Avenue, E Meadowlane Road, and S Hatch Road intersections along US 195.

Under the future (2035) without-project conditions, the study intersections meet the respective standards with the exception of two locations during the AM and/or PM peak hours. These locations include W 16th Avenue and W Thorpe Road along US 195. These 2 locations are discussed below.

US 195/W 16th Avenue - The stop-controlled approaches of the US 195/W 16th Avenue intersection are shown to operate at LOS F under existing conditions during the AM and PM peak hour and future without-project conditions during the weekday PM peak hour. This improvement in operations is related to the future modification at the intersection on the west leg to restrict eastbound left-turn movements. Traffic counts showed 5 or fewer vehicles making westbound through/left turn movements during the weekday AM and PM peak hours.

US 195/W Thorpe Road - The eastbound right-turn movement at the intersection is forecast to degrade to operate at LOS F during the PM peak hour under future (2035) conditions. This LOS F condition degrades from LOS C under existing conditions due to the addition of background traffic (growth and pipeline developments) along Thorpe Road in conflict with the high volumes along US 195. Additionally, the 95th percentile queues of the eastbound right-turn movement are forecast to be approximately 10 vehicles (or approximately 250 feet) under the future (2035) without-project weekday PM peak hour condition. The J turns constructed north and south of this intersection accommodate the left-turns that would normally access this intersection.

Thorpe Tunnel Analysis

In addition to the analysis completed at the intersections and US 195/I-90 interchange as described above, the two existing tunnels located along Thorpe Road located east of the project site and west of US 195 were evaluated. The two tunnels on Thorpe Road include a longer west tunnel under the active BNSF rail line (see Figure 5) and the shorter east tunnel under Fish Lake Trail.

Figure 5. West/BNSF Tunnel along Thorpe Rd

The eastern tunnel is located approximately 480 feet west of US 195. Both tunnels have cross sections that include approximately a 5 foot sidewalk, 18 feet of width for vehicular travel, and a 1 foot curb on the south side for a total width of approximately 24 feet. Each tunnel has a height limitation of 13 feet and 2 aligning on the south side of the tunnel at the 1 foot curb that exists. Current operations are limited to 9-foot travel lanes and signage identifies “One truck at a time in tunnel”, frequently resulting in single lane operations today.

A Vissim analysis of the existing tunnel was conducted to forecast the impacts of increased future vehicle demands to use Thorpe Road between Westwood Lane and US 195, and especially the impacts of those increased demands on delays associated with travel through the narrow tunnels on Thorpe Road and the access to US 195. All Vissim analysis was conducted using PTV Vissim software (version 2022-07).

The analysis of the tunnels is not based on any adopted concurrency LOS, because this is not an intersection-based analysis. The City's request for the analysis is to identify impacts for purposes of SEPA. As there are no adopted standards, per concurrency, this analysis focuses on the interaction of vehicles between the tunnels and the adjacent US 195/Thorpe intersection and identifies when the flow of vehicles is not possible.

Existing Conditions Model Development

The models used for this analysis were developed from a Vissim model that was initially developed for this study by the City of Spokane and provided to Transpo Group. The model extents (see highlighted yellow roadways in Figure 6) include the intersection of Westwood Lane and Thorpe Road in the west, the intersection of Thorpe Road and US 195 Southbound in the east, and the two narrow tunnels on Thorpe Rd between them as described above.

The model was adjusted to match aerial imagery and vehicle demands were added to match the traffic count data at Westwood Lane and the southbound direction of US 195. The model also uses North American fleet vehicle standards and Vissim default values for driver behavior characteristics. Vehicle classes in the model include cars, larger SUVs, trucks, and buses. Vehicle fleet mixes were set to be consistent across the entire Vissim network and were set to 74% cars, 19% SUVs, 6% trucks, and 1% buses.

Background Imagery Source: Bing Maps

Figure 6. Vissim Model Network Extents

The narrow tunnels were modeled in Vissim using a set of priority rules to control yielding behavior at the tunnel entrances based on the vehicle class of the vehicle approaching the tunnel entrance and the classes of vehicles currently traveling in the tunnel in the opposite direction.

- **Cars** will yield at the entrance to a tunnel if *any* SUV, Truck, or Bus is currently in the tunnel traveling in the opposite direction. Cars will still enter the tunnel if cars only are traveling in the tunnel in the opposite direction.
- **SUVs, Trucks, & Buses** will yield at the entrance to a narrow tunnel if *any vehicle* (Car, SUV, Truck, or Bus) is currently in the tunnel traveling in the opposite direction.

Demand Conditions

Demand scenarios were tested for both the existing demands (i.e. counts) and future without-project conditions aligning with each of the eight years of the project development phases (illustrated in Table 1 above). The without-project scenario demands were consistent with the forecasts described above including pipeline developments traffic along with general background traffic growth (1 percent annual growth). Table 5 presents the PM peak hour demands for each scenario split by those trips that will travel through the Thorpe Road tunnels in each direction, as well as the US 195 through trips traveling southbound past Thorpe Road.

Table 5. Vissim Scenarios: Peak Hour Demands by Phase (Existing and Without-Project)

Vissim Scenario #	Phase (Year) & Development Conditions	Total PM Peak Hour Demands (vph)		
		Thorpe Tunnels EB	Thorpe Tunnels WB	US 195 SBT
1	Existing (2023)	80	125	1,240
2	ϕ1 (2026) Baseline	266	281	1,598
3	ϕ2 (2027) Baseline	267	282	1,610
4	ϕ3 (2029) Baseline	269	285	1,636
5	ϕ4 (2030) Baseline	270	286	1,649
6	ϕ5 (2032) Baseline	271	289	1,676
7	ϕ6 (2033) Baseline	272	290	1,690
8	ϕ7 (2034) Baseline	273	291	1,703
9	ϕ8 (2035) Baseline	275	294	1,717

Note: EB = eastbound, WB = Westbound, SBT = southbound through.

The future forecast volumes were also assumed to have a vehicle fleet mix consistent with the existing conditions traffic: 74% cars, 19% SUVs, 6% trucks, and 1% buses.

The analysis evaluates the current tunnel conditions with the scenario volumes as illustrated above. Each simulation scenario was then simulated with 10 random seeds, and the average of those 10 seeds was used to report the selected performance measures. The performance measures tabulated included systemwide network results (average delay per vehicle and unserved vehicles), as well as the average travel times and delays per vehicle for defined sections of the roadway (e.g., traveling through a tunnel, corridor travel time, etc.), and the throughput volumes and 50th and 95th percentile queue lengths for defined sections of the roadway network (e.g., approach to the tunnels, the merge to SB US 195, or approaches to Westwood Lane. The full set of detailed performance metrics is included in Appendix H.

Vissim Scenario Results

The simulation results (see Table 6) showed that under the current tunnel conditions following the completion of the background pipeline projects by 2026, Thorpe Road has queues extending to or through the adjacent tunnels and/or intersections and therefore preventing the flow of vehicles. As noted above, there are no adopted standards per concurrency, this analysis focuses on the interaction of vehicles between the tunnels and the adjacent US 195/Thorpe intersection.

The primary cause for the congestion with the minimal tested increased demands is the queuing that develops at the existing stop sign for traffic to turn from Thorpe Road to southbound US 195. Once this queue extends back into the east tunnel, congestion increases exponentially as the westbound approach to the east tunnel begins to queue from the blocked tunnel, and the system congestion begins to increase exponentially. The current tunnel conditions shows the existing system cannot accommodate the forecasted growth from background pipeline developments, regardless of additional traffic from the Victory Heights development.

Note that the poor operations at the Thorpe Road/US 195 intersection are generally consistent with the findings above in the intersection level of service and queueing analysis.

Table 6. Vissim Results: Current Tunnel Conditions

Development Phases Years: Without (Baseline) and With Project Build		Fail ? (Control Delay > LOS E)	Average Control Delay (s/veh)			50th Percentile Max Queue (ft)			95th Percentile Max Queue (ft)		
			West Tunnel & Westwood Lane	East Tunnel	EB RT Stop Sign to SB195	WB Queue at East Tunnel	EB Queue at Westwood	EB Queue at Right Turn to SB 195	WB Queue at East Tunnel	EB Queue at Westwood	EB Queue at Right Turn to SB 195
Existing (2023)		--	3	1	23	8	0	69	21	1	77
Baseline	ϕ1 (2026)	Fail	36	141	189	606	102	602	662	391	659
	ϕ2 (2027)	Fail	23	144	210	631	176	471	669	835	664
	ϕ3 (2029)	Fail	29	176	193	650	92	599	667	489	683
	ϕ4 (2030)	Fail	46	162	193	642	263	477	665	734	634
	ϕ5 (2032)	Fail	38	157	195	628	275	493	664	691	675
	ϕ6 (2033)	Fail	34	141	201	622	301	532	661	605	684
	ϕ7 (2034)	Fail	36	182	202	646	308	479	665	676	660
	ϕ8 (2035)	Fail	69	188	204	618	352	476	660	635	657

The congestion and queueing in the vissim analysis for the without-project condition was identified to be due primarily to the eastbound right-turn from Thorpe Road to southbound US 195. Given that, it is anticipated that the addition of an acceleration lane along US 195 would resolve this condition. An improvement scenario was evaluated assuming the addition of an acceleration lane to SB US 195 from Thorpe Rd providing a lane without conflicting vehicles to enter US 195 and subsequently change lanes into the mainline SB 195 traffic flows.[3] The results of this added acceleration improvement while maintaining the stop control for the eastbound approach[4] for the baseline condition are illustrated below in Table 7.

Table 7. Vissim Results: Added Acceleration Lane to SB US 195 at Thorpe Road (Without-Project)

Development Phases Years: Without (Baseline) and With Project Build		Fail ? (Control Delay > LOS E)	Average Control Delay (s/veh)			50th Percentile Max Queue (ft)			95th Percentile Max Queue (ft)		
			West Tunnel & Westwood Lane	East Tunnel	EB RT Stop Sign to SB195	WB Queue at East Tunnel	EB Queue at Westwood	EB Queue at Right Turn to SB 195	WB Queue at East Tunnel	EB Queue at Westwood	EB Queue at Right Turn to SB 195
Existing (2023)		--	3	1	7	9	0	46	19	1	54
Baseline	ϕ1 (2026)	--	10	3	14	63	13	152	86	59	202
	ϕ2 (2027)	--	10	3	14	65	16	151	103	45	176
	ϕ3 (2029)	--	10	3	14	68	17	152	77	30	179
	ϕ4 (2030)	--	10	3	14	62	15	151	97	30	172
	ϕ5 (2032)	--	9	3	13	70	11	152	86	40	170
	ϕ6 (2033)	--	10	3	14	70	16	155	94	31	183
	ϕ7 (2034)	--	10	3	14	68	15	149	83	39	191
	ϕ8 (2035)	--	11	3	14	73	23	147	87	46	180

The table shows that a new acceleration lane would allow eastbound Thorpe Road traffic to more efficiently and safely merge onto the southbound US 195 mainline lanes and allowing for acceptable operating conditions under the without-project conditions. While some additional delays and some queueing would be seen at the tunnels as traffic continues to operate under the self-regulated one-way flows for larger vehicles, traffic flows through the tunnel would not create significant queuing levels or result in impacts to US 195 operations.

Note that, although shown to be needed under the future without-project conditions, the addition of the acceleration lane along southbound US 195 from Thorpe Road was not assumed in the LOS analysis for the primary traffic operations analysis completed above, nor is it assumed in the future (2035) with-project LOS analysis.

Traffic Safety

This section summarizes the five-year crash summary at the study intersections as well as the expected and predicted intersection crashes for the state intersections.

[3] The vissim analysis had assumed the removal of the stop sign; however, based on conversations with City staff this would alternatively be designed to provide the acceleration lane while maintaining the stop sign, similar to the configuration of the westbound approach of Thorpe at US 195. This allows for continued use of the south j-turn.

[4] This condition would be similar to conditions for the westbound approach at Thorpe and US 195.

Analysis of Existing Intersection Crashes

The five most recent years of collision records (January 1, 2017 to December 31, 2021)[5] provided by the Washington State Department of Transportation (WSDOT) were reviewed within the study area to identify any existing traffic safety issues at the study intersections. A summary of the total and average annual number of reported collisions at the study intersections are provided in Table 8.

Table 8. Five-Year Collision Summary (2017-2021) at the Study Intersections

Location	Number of Collisions					Total	Annual Average	Collisions per MEV[1]
	2017	2018	2019	2020	2021			
1. S Grove Rd/W Thorpe Road	2	2	1	1	1	7	1.40	0.51
2. S Assembly Rd/W Thorpe Road	0	1	1	1	0	3	0.60	0.52
3. S Assembly Rd/Garden Springs Road	0	0	0	0	0	0	0.00	0.00
4. US 195/W 16th Avenue	9	3	5	4	10	31	6.20	0.87
5. US 195/North J-turn	0	1	0	0	1	2	0.40	0.05
6. US 195/W Thorpe Road	9	8	3	2	2	24	4.80	0.57
7. US 195/South J-turn	0	0	0	1	1	2	0.40	0.05
8. US 195 SB Ramp/Cheney Spokane Road	0	0	0	4	0	4	0.80	0.21
9. US 195 SB Ramp East/Cheney Spokane Road	0	0	0	0	1	1	0.20	0.10
10. US 195 NB Ramp/Cheney Spokane Road	0	1	0	1	1	3	0.60	0.41
11. US 195/E Meadowlane Road	4	3	4	3	4	18	3.60	0.60
12. US 195/S Hatch Road	4	3	2	3	5	17	3.40	0.59
13. S Government Way/ W Sunset Boulevard	2	4	6	2	1	15	3.00	0.53
14. S Lindeke Street/W 14th Avenue	3	2	2	3	0	10	2.00	1.52

Source: WSDOT May 2023

Under 23 U.S. Code § 148 and 23 U.S. Code § 407, safety data, reports, surveys, schedules, lists compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

1. MEV = Million entering vehicles.

As shown in Table 5, the US 195/W 16th Avenue and US 195/W Thorpe Road intersections experienced the most collisions at approximately 6 and 5 collisions per year, respectively. The most common collision type at both intersections were angle and rear end. No fatalities occurred at the study intersections and the majority of the collisions were property damage only. Improvements have been constructed or will be constructed in the near future at both, such that safety conditions should improve as left-turn movements are being restricted at both locations. One pedestrian or bicyclist collisions were reported at the study intersections over the five-year period at the intersection of S Lindeke Street/W 14th Avenue in 2017 where a passenger vehicle and a cyclist got into a collision while the vehicle was going straight in dark. It is to be noted that the cyclist was under the influence of alcohol.

The collisions per million entering vehicles (MEV) represents the number of collisions per one million entering vehicles at each intersection. The US 195/16th Ave intersection had the highest rate of approximately 0.87 collisions per MEV. Intersections with a rate greater than 1.0 collision per MEV are typically considered for further investigation to determine whether adverse conditions exist. As shown in Table 5, no study intersections experienced a rate of collisions per MEV greater than 1.0. With the exception of S Lindeke Street/W 14th Avenue with MEV of 1.52. The MEV at the intersection is significantly higher than of other intersections from lower volume the intersection handles. However, average annual collision rate 2 is low. Overall, no traffic safety issues requiring improvements were identified.

[5] These were the 5 most recent years of collision data available at the time of the onset of the study.

Expected and Predicted Intersection Crashes

Additional safety analysis was completed for WSDOT operated intersections in which improvements are planned using HSM spreadsheets[6] and Crash Modification Factors (CMFs) as coordinated with the City and WSDOT staff. HSM spreadsheets were developed by the TRB Highway Safety Performance Committee and are used to calculate expected and predicted crash rates by severity by inputting intersection parameters such as AADT by approach, number of lanes, lighting availability, and other parameters.

Table 9 below summarizes the findings completed for the future (2035) conditions. Full details including calculations and severity distributions are shown in Appendix E.

Table 9. Injury and Fatal Crash Reduction Summary at WSDOT US-195 Intersections

Location	Injury and Fatal Crash Frequency (crashes per year)[1]		
	Expected Crash Frequency	Predicted Crash Frequency	Annual Crash Reduction
4. US 195/W 16th Avenue	2.0	0.7	-1.2
5. US 195/North J-turn	0.3	1.0	0.0
6. US 195/W Thorpe Road	2.4	2.2	-0.1
7. US 195/South J-turn	0.3	0.8	0.0
8. US 195 SB Ramp West/Cheney Spokane Road	0.4	0.5	0.0
9. US 195 SB Ramp/Cheney Spokane Road	0.1	0.1	0.0
10. US 195 NB Ramp/Cheney Spokane Road	0.1	0.1	0.1
11. US 195/E Meadowlane Road	1.2	0.6	-0.6
12. US 195/S Hatch Road	0.9	0.4	-0.6

1. Based on a combined CMF calculated per the HSM spreadsheet using WSDOT collision data.

Based on the expected and predicted average crash frequency, the US 195/W 16th Avenue intersection has the largest potential for safety improvements with a reduction of 1.2 crashes per year. As previously mentioned, improvements to this intersection are planned to reduce conflicts turning conflicts. It is predicted that the North and South J-turn intersections are not anticipated to result in a decrease in injury and fatal crashes.

[6] http://safetyperformance.org/tools/

Project Impacts

The following sections summarize the proposed project's impacts on the surrounding street system. First, traffic volumes generated by the proposed project are estimated and then distributed and assigned to adjacent roadways within the study area. Next, project trips are added to future without-project traffic volumes and the potential impact to traffic operations are identified.

Trip Generation

Trip generation for the proposed project was based on established trip rates published in the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (11th Edition, 2021). As previously described, the project includes the development of 1,003 residential lots with a mix of 220 townhomes and 783 single-family homes. For the proposed land uses, Single-Family Attached Housing (LU #215) and Single-Family Detached Housing (LU #210) were used. Table 10 summarizes the resulting weekday daily, AM and PM peak hour vehicle trip generation for the proposed uses. Detailed trip generation calculations are provided in Appendix F.

Table 10. Estimated Weekday Vehicle Trip Generation

Land Use[1]	Size	Daily Trips	AM Peak-Hour Trips			PM Peak-Hour Trips		
			In	Out	Total	In	Out	Total
Single-Family Attached Housing (LU 215)	220 du	1,626	34	75	109	73	55	128
Single-Family Detached Housing (LU 210)	783 du	6,702	126	359	485	433	255	688
Total	**1,003 du**	**8,328**	**160**	**434**	**594**	**506**	**310**	**816**

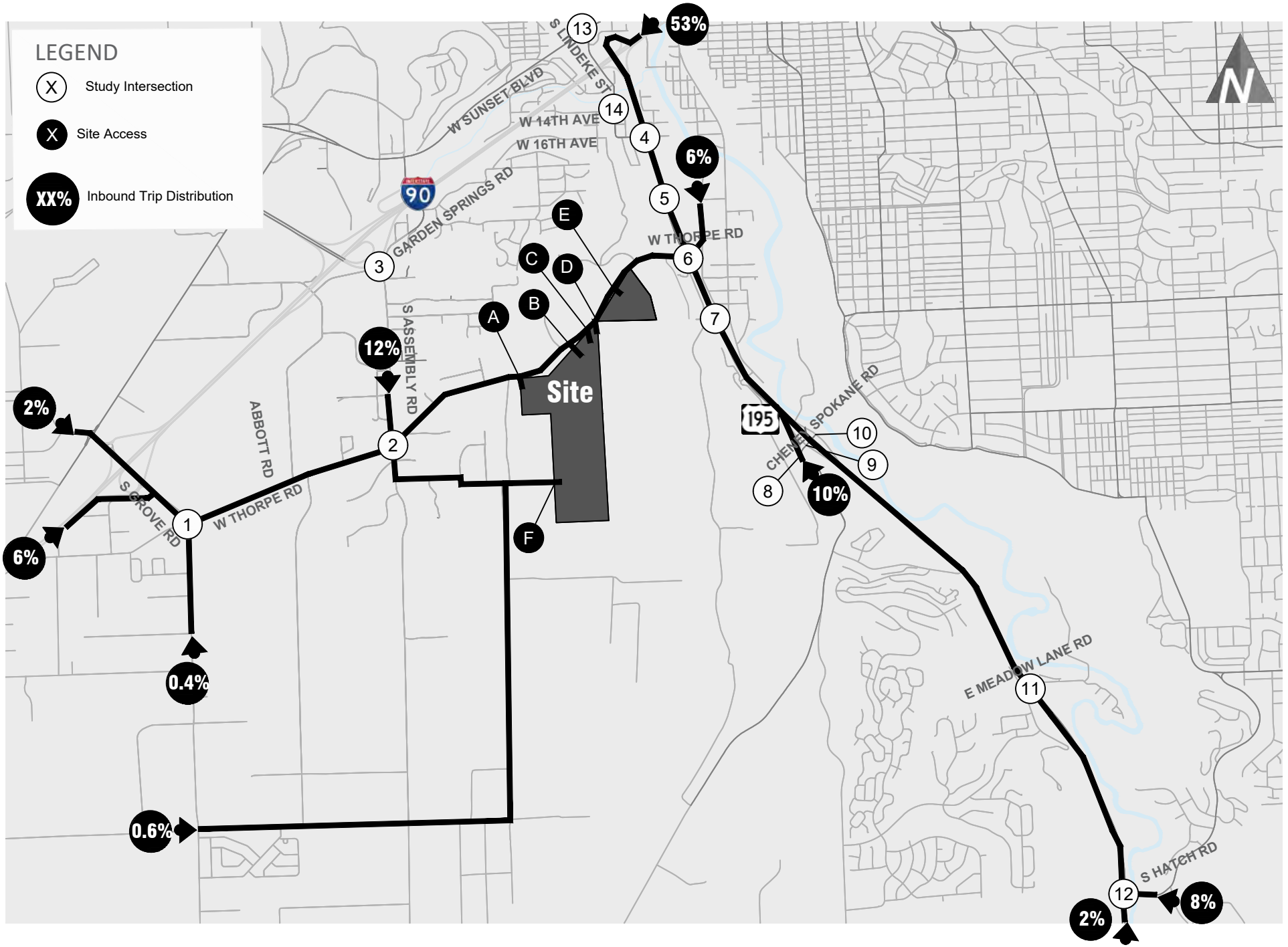
Note: du = dwelling units
1. ITE *Trip Generation Manual*, 11th Edition (2021)

As shown in Table 10, the proposed development is anticipated to generate 8,328 new weekday daily trips with 594 occurring during the AM peak hour and 816 occurring during the PM peak hour.

Trip Distribution & Assignment

Trip distribution patterns for the proposed uses to and from the site were developed based on review of previous studies in the area and coordination with WSDOT and the City of Spokane. The project trips shown in Table 10 were distributed and assigned to the surrounding roadways based on the distribution shown in Figure 7 and Figure 8. The weekday AM and PM peak hour assignment is shown in Figure 9.

As illustrated in the figures, the assumed project trip assignment as identified by City staff assigns all 40 percent of outbound project trips destined for eastbound I-90 to travel eastbound along Thorpe Road to southbound US-195, then requiring the vehicles to turn around via the south J-turn and access the metered eastbound I-90 on-ramp. Although not assumed, drivers may alternatively choose to travel westbound from the site along Thorpe Road and access I-90 via the Grove Road interchange, which is a slightly longer path but less circuitous and less congested based on the operational without-project analysis above.

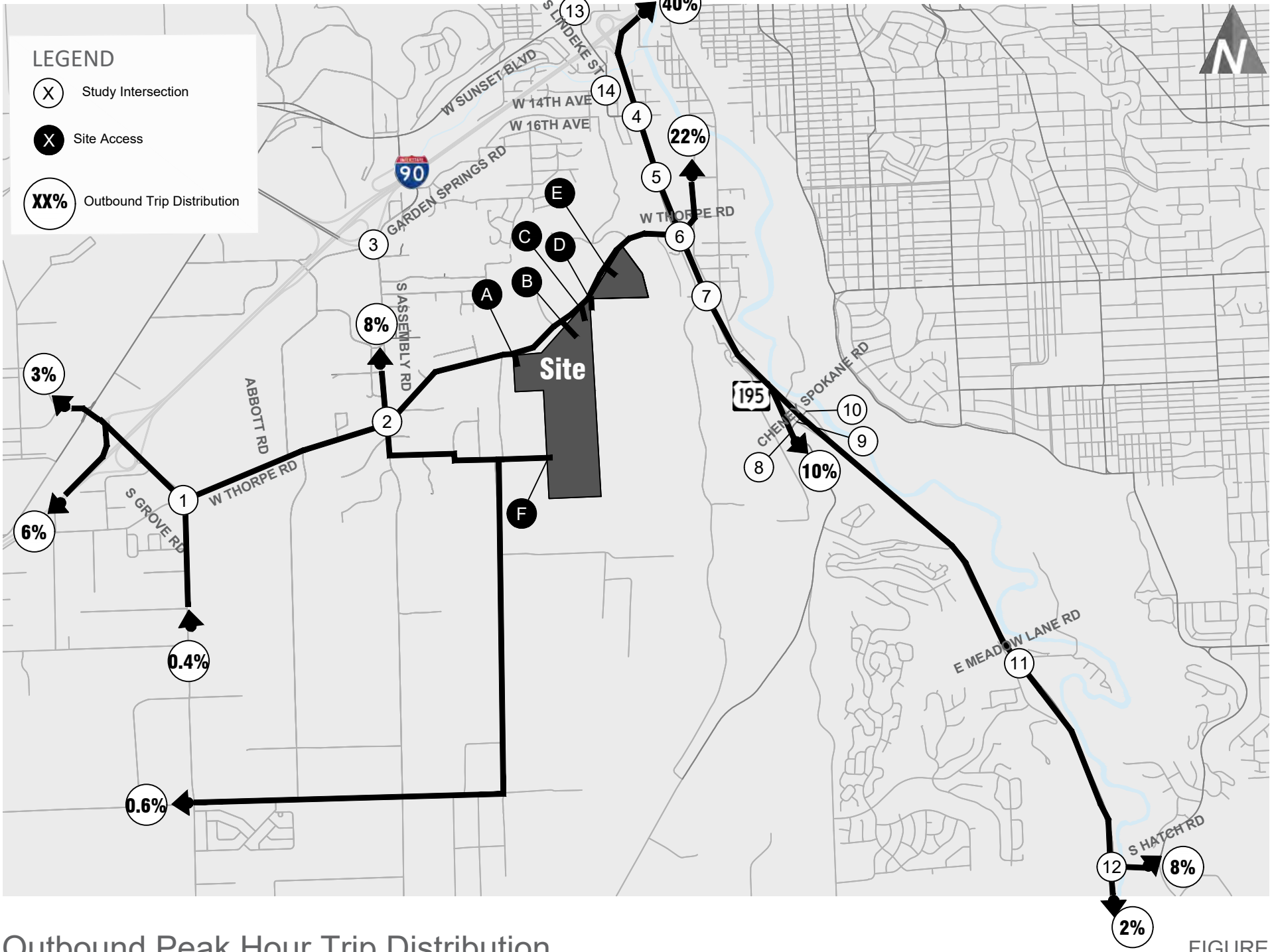


Inbound Peak Hour Trip Distribution

FIGURE 7

Blue Fern Victory Heights

transpogroup

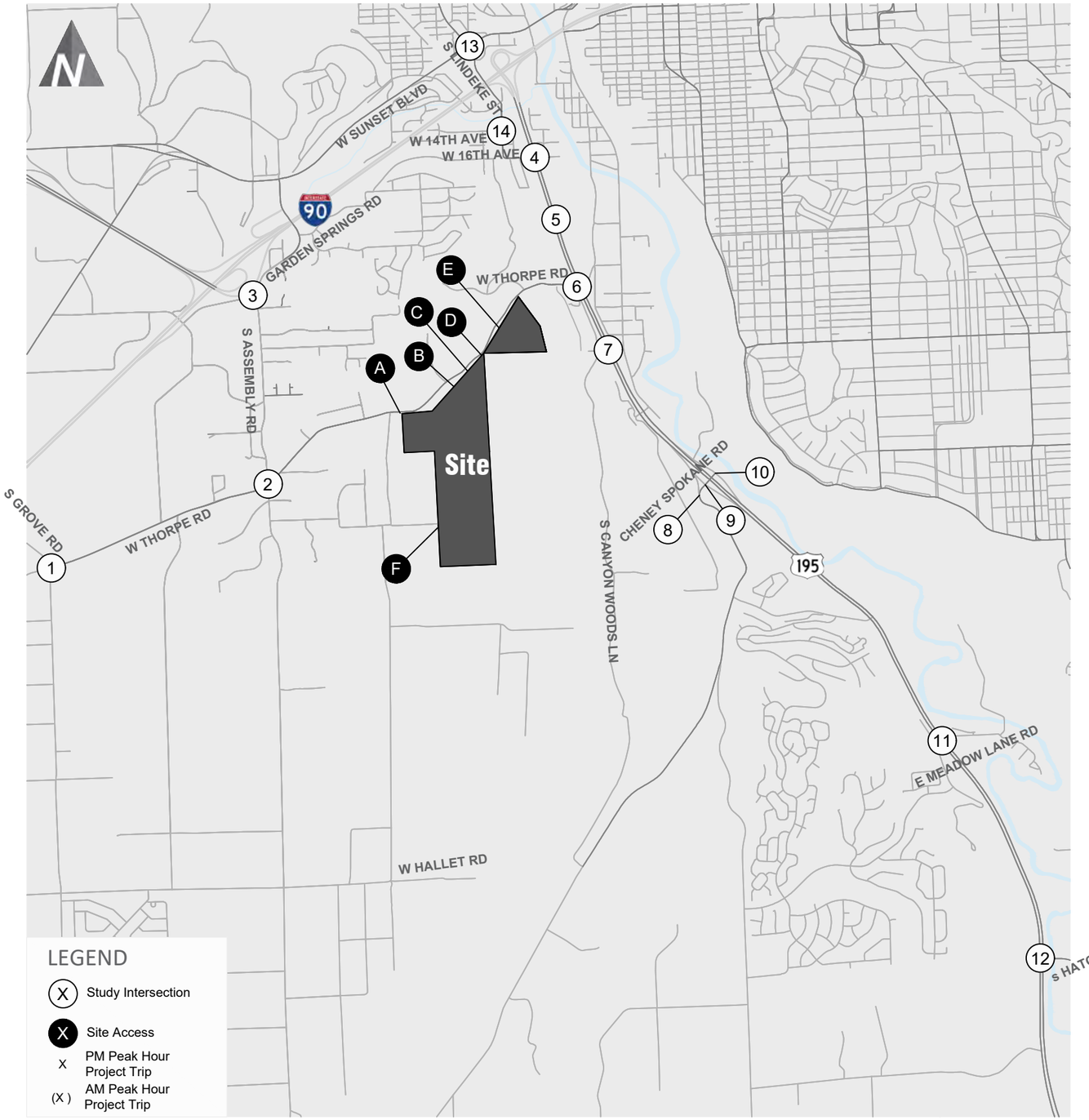


Outbound Peak Hour Trip Distribution

FIGURE 8

Blue Fern Victory Heights

transpogroup



1 Grove Road / W Thorpe Road
(12) 41
(39) 28
(2) 1
(1) 2

2 S Assembly Road / W Thorpe Road
(7) 26
(12) 36
(13) 9
(9) 30
(25) 18
(4) 13
(16) 11
(21) 16

3 S Assembly Road / Garden Springs Road
(19) 62
(34) 25

4 US 195 / W 16th Avenue
(85) 268
(175) 124

5 US 195 / North J-turn
(85) 268
(41) 131
(175) 124

6 US 195 / W Thorpe Road
(124) 399
(10) 30
(357) 254
(96) 69
(206) 225

7 US 195 / South J-turn
(88) 62
(270) 192
(32) 101

8 US 195 SB Ramp West / Cheney Spokane Road
(43) 31
(16) 50

9 US 195 SB Ramp East / Cheney Spokane Road
(16) 50

10 US 195 NB Ramp / Cheney Spokane Road
(16) 51

11 US 195 / E Meadowlane Road
(43) 30
(16) 51

12 US 195 / S Hatch Road
(8) 6
(35) 24
(12) 41
(4) 10

13 S Government Way / W Sunset Blvd
(5) 16
(13) 10
(13) 9
(3) 8

14 S Lindeke St / W 14th Ave

A W Thorpe Road Access 1 (westernmost)
(15) 49
(28) 20
(6) 17
(3) 7
(10) 7
(15) 11

B W Thorpe Road Access 2 (west)
(28) 54
(28) 25
(2) 6
(10) 28
(3) 2
(21) 15

C W Thorpe Road Access 3 (center)
(41) 39
(23) 42
(8) 30
(92) 301
(15) 11
(263) 187

D W Thorpe Road Access 4 (east)
(300) 216
(107) 339
(3) 10
(5) 15
(7) 4
(16) 11

E W Thorpe Road Access 5 (easternmost)
(314) 223
(109) 352
(1) 4
(17) 47
(3) 2
(43) 31

F Trainor Rd / 41st Ave
(12) 41
(39) 29

Project Trip Assignment

Blue Fern Victory Heights

FIGURE 9

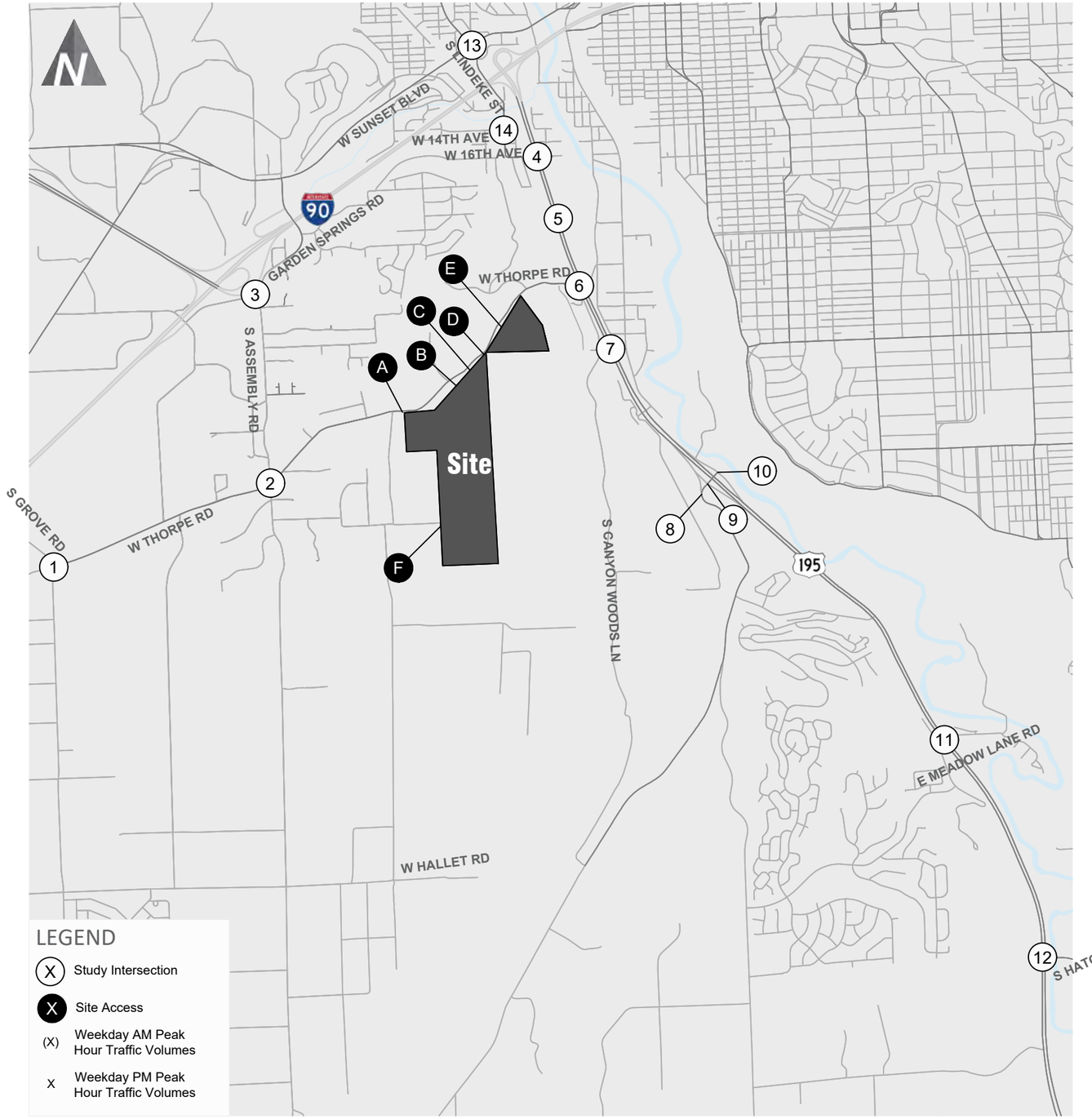
transpogroup

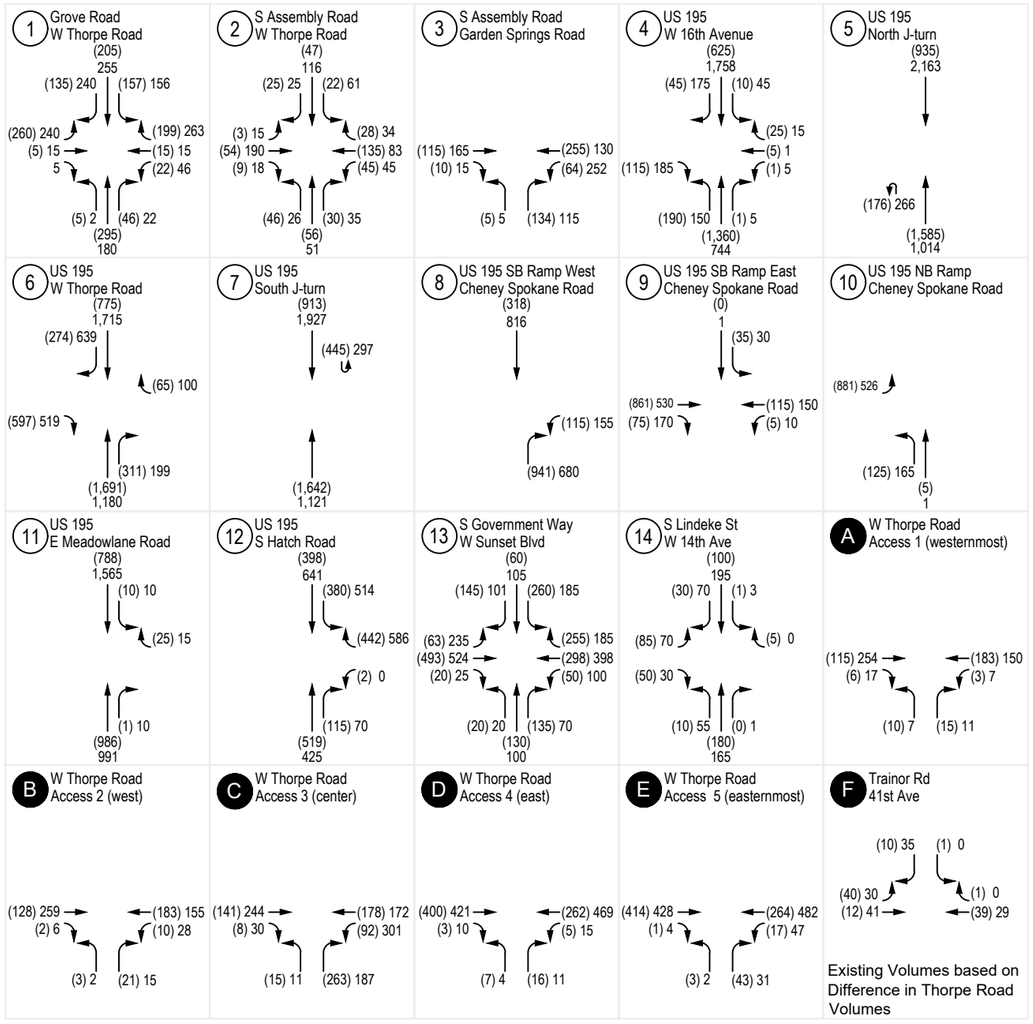
Traffic Volumes Impact

The project traffic was added to future (2035) without-project weekday peak hour traffic volumes to form the basis of the with-project analysis. The resulting future 2035 with-project weekday AM and PM peak hour traffic volumes are shown on Figure 10.

In addition to the with-project traffic volumes at the study intersections, the traffic volumes were also estimated at the US 195 to I-90 eastbound ramp as coordinated with WSDOT. Traffic volumes for the US 195 to I-90 interchange analysis were provided by WSDOT based on Permanent Traffic Recorder (PTR) data from March 2023 and tube count data collected August 2023 at the US 195/I-90 interchange.

The future (2035) without-project ramp volumes were forecast consistent with the methodology described above for the study intersections which included applying an annual growth rate of 1.0 percent to existing volumes, adding traffic generated from the 17 pipeline developments, and the adjustments associated with the extension of Inland Empire. Figure 11 shows the I-90 eastbound on-ramp from US 195 during both the weekday AM and PM peak hours under existing and future (2035) conditions.



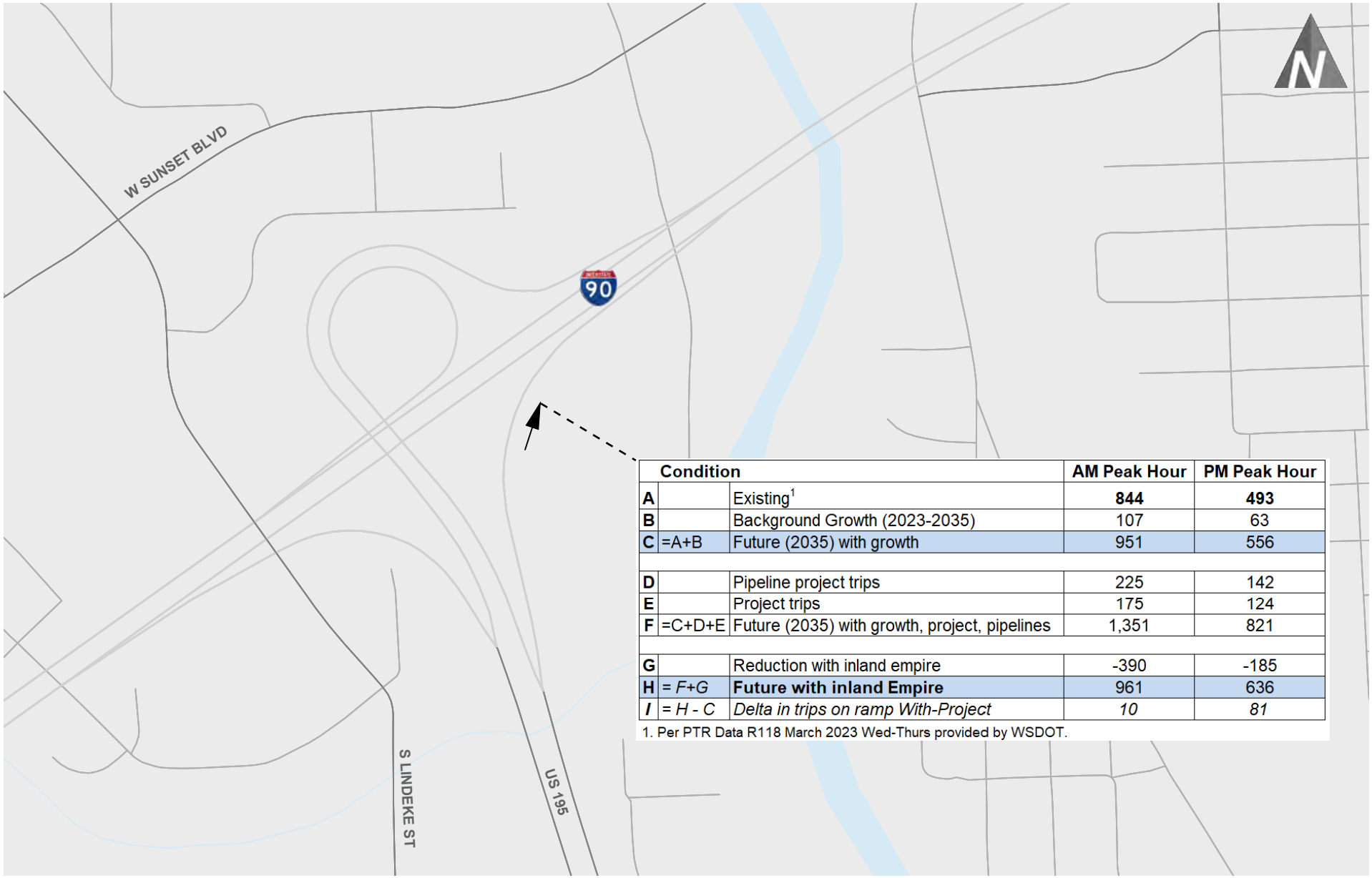


Future (2035) With-Project Weekday Peak Hour Traffic Volumes

Blue Fern Victory Heights

FIGURE **10**

transpogroup



	Condition		AM Peak Hour	PM Peak Hour
A		Existing[1]	**844**	**493**
B		Background Growth (2023-2035)	107	63
C	=A+B	Future (2035) with growth	951	556
D		Pipeline project trips	225	142
E		Project trips	175	124
F	=C+D+E	Future (2035) with growth, project, pipelines	1,351	821
G		Reduction with inland empire	-390	-185
H	= *F+G*	**Future with inland Empire**	961	636
I	= *H - C*	*Delta in trips on ramp With-Project*	*10*	*81*

1. Per PTR Data R118 March 2023 Wed-Thurs provided by WSDOT.

Future Without and With-Project (2035) WSDOT I-90 Interchange Volumes

FIGURE **11**

Victory Heights

transpogroup

Traffic Operations Impact

A future (2035) with-project level of service analysis was conducted for the weekday peak hours at the study intersections to analyze traffic impacts of the proposed project. The same methodologies were applied as described for existing and future without-project conditions. A comparison of future (2035) without-project and with-project weekday peak hour traffic operations is summarized in Table 11. Detailed LOS worksheets are provided in Appendix D.

Table 11. Future Without-Project and With-Project Peak Hour LOS Summary

Intersection	Traffic Control	2035 Without-Project[5]			2035 With-Project[5]		
		LOS[1]	Delay[2]	WM[3]/ v/c[4]	LOS	Delay	WM/ v/c
AM Peak Hour							
1. S Grove Rd/W Thorpe Rd	RAB	A	7.8	0.43	A	7.9	0.44
2. S Assembly Rd/W Thorpe Rd	AWSC	A	8.3	-	A	8.9	-
3. S Assembly Rd/Garden Springs Rd	TWSC	A	9.6	NB	A	9.8	NB
4. US 195/W 16th Ave	TWSC	E	46.9	WB	**F**	**75.8**	**WB**
5. US 195/North J-turn	TWSC	B	11.0	NBL	B	12.2	NBL
6. US 195/W Thorpe Rd	TWSC	C	19.0	WB	**F**	**86.0**	**EB**
7. US 195/South J-turn	TWSC	E	36.5	SBL	**F**	**349.4**	**SBL**
8. US 195 SB Ramp/Cheney Spokane Rd	TWSC	B	11.9	WB	B	12.5	WB
9. US 195 SB Ramp East/Cheney Spokane Rd	TWSC	C	24.7	SB	D	25.4	SB
10. US 195 NB Ramp/Cheney Spokane Rd	TWSC	D	29.4	NB	D	30.5	NB
11. US 195/E Meadowlane Rd	TWSC	B	13.3	WB	B	13.4	WB
12. US 195/S Hatch Rd	TWSC	C	23.6	WB	D	25.0	WB
13. S Government Way/ W Sunset Blvd	Signal	C	23.0	-	C	20.6	-
14. S Lindeke Street/W 14th Ave	TWSC	B	11.6	EB	B	11.6	EB
PM Peak Hour							
1. S Grove Rd/W Thorpe Rd	RAB	A	7.0	0.35	A	7.2	0.39
2. S Assembly Rd/W Thorpe Rd	AWSC	A	9.4	-	B	11.1	-
3. S Assembly Rd/Garden Springs Rd	TWSC	B	10.3	NB	B	10.7	NB
4. US 195/W 16th Ave	TWSC	**F**	**172.3**	**WB**	**F**	**825.6**	**WB**
5. US 195/North J-turn	TWSC	D	31.6	NBL	**F**	**223.3**	**NBL**
6. US 195/W Thorpe Rd[6]	TWSC	**F**	**95.7**	**EB**	**F**	**479.9**	**EB**
7. US 195/South J-turn	TWSC	B	12.3	SBL	C	20.9	SBL
8. US 195 SB Ramp/Cheney Spokane Rd	TWSC	D	28.3	WB	D	30.7	WB
9. US 195 SB Ramp East/Cheney Spokane Rd	TWSC	C	16.5	SB	C	17.5	SB
10. US 195 NB Ramp/Cheney Spokane Rd	TWSC	C	16.2	NB	C	17.6	NB
11. US 195/E Meadowlane Rd	TWSC	B	12.2	WB	B	12.6	WB
12. US 195/S Hatch Rd	TWSC	D	25.6	WB	D	31.8	WB
13. S Government Way/ W Sunset Blvd	Signal	C	21.6	-	C	21.8	-
14. S Lindeke Street/W 14th Ave	TWSC	B	14.4	EB	B	14.4	EB

Note: TWSC = two-way stop-controlled, AWSC = all-way stop-controlled, RAB = roundabout. **Bold** text indicates intersection operates below standard.

1. Level of Service (A – F) as defined by the *Highway Capacity Manual* (TRB, 6th Edition)
2. Average delay per vehicle in seconds.
3. Worst Movement (WM) shown for two-way stop-controlled intersections. EB = eastbound approach, WB = westbound approach, SB = southbound approach, NBL = northbound left-turn movement, SBL = southbound left-turn movement, WBL = westbound left-turn movement.
4. Volume to capacity is reported for roundabouts.
5. The future operations assume the Inland Empire Way northbound only connection has been built.
6. Does not consider recommended acceleration lane on US 195 to accommodate eastbound right turn vehicles from US 195.

As shown in Table 11, the study intersections are forecast to operate at the respective LOS standards with the exception of 4 study intersections during the AM and/or PM peak hours which are discussed below.

US 195/W 16th Avenue – The intersection is forecast to operate at LOS F during both the weekday AM and PM peak hours with-project, degrading from LOS E and LOS F operations under without-project conditions. As identified above, the poor operations of the westbound approach are associated with low turning movement volumes (5 vehicles or less).

US 195/North J-turn – This northbound J-turn movement is forecast to operate at LOS B during the AM peak hour during both the without and with-project conditions. During the PM peak hour, the northbound J-turn movement is forecast to degrade from operating at LOS E under without-project conditions to LOS F with the project. Queueing is reviewed in the table below.

US 195/W Thorpe Road – The eastbound right-turn movement is forecast to operate at LOS F during both the weekday AM and PM peak hours with-project, degrading from LOS C and LOS F operations during the AM and PM peak hours, respectively, under without-project conditions. Queueing is reviewed in the table below. Note that these operations do not consider the installation of the acceleration lane as described above under the tunnel operations analysis. Further review of this intersection is presented within the vissim analysis below which considers benefits with the installation of the acceleration lane.

US 195/South J-turn – The southbound left-turn movement is forecast to operate at LOS C during the weekday PM peak hours with-project. During the weekday AM peak hour, the southbound left turn movement is forecast to degrade from LOS E to LOS F. Queueing is reviewed in the table below.

Further review of these locations is provided in the Findings, Road Improvements and Mitigation section below.

A queuing analysis was conducted at the North J-Turn, W Thorpe Road, and South J-Turn intersections along US 195 during both AM and PM peak hours. The 95th percentile queues were reviewed in synchro consistent with the methodology for the intersection LOS analysis above.

Table 12. 95th Percentile Queueing Summary along US 195

			95th Percentile Queues (ft)[2]		
Location	Movement	Storage Length (ft)[1]	Existing	2035 Without-Project[3]	2035 With-Project[3]
AM Peak Hour					
5. US 195/North J-turn	NBL	350	<25	20	30
6. US 195/W Thorpe Rd	EBR	480	<25	55	465
7. US 195/South J-turn	SBL	315	<25	*100*	***745***
PM Peak Hour					
5. US 195/North J-turn	NBL	350	<25	70	**390**
6. US 195/W Thorpe Rd	EBR	480	<25	260	**980**
7. US 195/South J-turn	SBL	315	<25	20	100

Notes: EBR = Eastbound right-turn, NBR = Northbound right-turn, SBL = Southbound left-turn, NBL = Northbound left-turn.
Bold text indicates vehicle queue lengths exceeds available storage.
1. Storage length based on the length of the pocket for turning movements and the distance between the next adjacent intersection or driveway for through movements. Storage for EBR along Thorpe Road represents distance from US195 to eastern tunnel.
2. Queue lengths rounded to the nearest 25 feet. Queue lengths at unsignalized intersections assume a queue length of 25 feet per car.
3. The future operations assume the Inland Empire Way northbound only connection has been built.

As shown in Table 12, per the non-simulation analysis, with the addition of the project, the NBL at US 195/North J-Turn and EBR at US 195 EB/W Thorpe Road during the PM peak hour as well as the SBL at the US 195/South J-Turn are forecast to exceed the available storage. Further review of these locations is provided in the Findings, Road Improvements and Mitigation section below. Additionally, simulation at US 195 EB/W Thorpe Road is provided in the Vissim analysis below.

Thorpe Tunnel Impacts

As identified above, the analysis of the tunnels is not based on any adopted concurrency LOS, because this is not an intersection-based analysis. The City's request for the analysis is to identify impacts for purposes of SEPA. As there are no adopted standards, per concurrency, this analysis focuses on the interaction of vehicles between the tunnels and the adjacent US 195/Thorpe intersection and identifies when the flow of vehicles is not possible.

Additionally, as noted above, the tunnels are currently substandard as a matter of engineering design. Each tunnel has a height limitation of 13 feet and 2 aligning on the south side of the tunnel at the 1 foot curb that exists. Current operations are limited to 9-foot travel lanes and signage identifies "One truck at a time in tunnel", frequently resulting in single lane operations today.

The improvements discussed below are concepts which would alleviate the existing conditions regardless of the project as requested by City staff and reflect the City's preferred improvement strategy's. There are additional improvement options that could be considered that are not reflected below following conversations with City staff.

With-project operations for each of the eight years of the project development phases were evaluated by adding the forecasted demands specific to the planned project development phases to the without-project demands. Table 13 presents the PM peak hour demands for each project phase split by those trips that will travel through the Thorpe Road tunnels in each direction, as well as the US 195 through trips traveling southbound past Thorpe Road.

Table 13. Vissim Scenarios: Peak Hour Demands by Phase (With-Project)

Vissim Scenario #	Phase (Year) & Development Conditions	Total PM Peak Hour Demands (vph)		
		Thorpe Tunnels EB	Thorpe Tunnels WB	US 195 SBT
12	ϕ1 (2026) with Project	291	317	1,598
13	ϕ2 (2027) with Project	307	342	1,610
14	ϕ3 (2029) with Project	336	385	1,636
15	ϕ4 (2030) with Project	389	471	1,649
16	ϕ5 (2032) with Project	453	577	1,676
17	ϕ6 (2033) with Project	476	614	1,690
18	ϕ7 (2034) with Project	505	660	1,703
19	ϕ8 (2035) with Project	529	693	1,717

Note: EB = eastbound, WB = westbound, SBT = southbound through.

The future forecast volumes were established using the trip distributions described in Trip Distribution & Assignment section and were also assumed to have a vehicle fleet mix consistent with the existing conditions traffic: 74% cars, 19% SUVs, 6% trucks, and 1% buses.

The methodology for the with-project evaluation is consistent with the without-project conditions as described above. The full set of detailed performance metrics is included in Appendix H.

Numerous improvements options were evaluated at the tunnels and the adjacent US 195 intersection that continue to add improvements to the existing facility over time to alleviate the forecast congestion. After a review of the Vissim simulation results of the tested improvements and development timeline results, a series of staged improvements that could be implemented over time were identified and are summarized below beginning with Stage 1 aligning with the acceleration lane identified above under the without-project evaluation. It should be noted that the analysis results are dependent on the trip generation and distribution assumptions outlined previously in this report. As time progresses and individual initial pipeline developments and project phases are built, conditions should be monitored and compared against the underlying assumptions. For example, should project site traffic choose to enter and/or exit the site using roadways other than US 195 via Thorpe Road such as using the Grove Road interchange to access I-90 eastbound as described above, the timeline between staged improvements should be reevaluated with observed changes in traffic demands for Thorpe Road.

- ***Stage 1 - With the acceleration lane along southbound US 195*** - The with-project conditions were evaluated with the acceleration lane along southbound US 195 as it is recognized without the acceleration lane, the proposed project would only further accelerate the queueing and congestion identified in the existing and without-project vissim analysis (see Table 6). As shown above, the simulation results showed that under the current tunnel conditions following the completion of the background pipeline projects by 2026, Thorpe Road has queues extending to or through the adjacent tunnels and/or intersections and therefore preventing the flow of vehicles. The primary cause for the congestion is the queuing that develops at the existing stop sign for traffic to turn from Thorpe Road to southbound US 195. The analysis further identified that with the addition of an acceleration lane along southbound US 195 at Thorpe Road, the deficiency identified under the future without-project conditions, would be resolved.
- ***Stage 2 - Add signal Controls to both tunnels*** – Acceleration lane as well as add signalized controls for both of the tunnels. Note that as coordinated with City staff, the signal was reviewed as both actuated and fixed time conditions;[7] however, the operations below conservatively show the fixed timing only as findings were generally similar with slight improvements available with actuated timing. Also, with the addition of the traffic signals, the delay experienced at the signals was also reviewed for purposes of assessing operations. As identified above, it was assumed that LOS D or better operations is acceptable for a signalized intersection in the City which equates to a delay threshold of 55 seconds or less.
- ***Stage 3 - Widen East Tunnel*** – Acceleration lane, signalized controls for the western tunnel, and widening of the eastern tunnel to allow for two-way travel (signal at the eastern tunnel no longer needed).
- ***Stage 4 - Widen West Tunnel*** – Acceleration lane and both tunnels widened allowing for two-way travel (signals at the tunnels no longer needed).

The operations for each of the above stages are summarized in Table 14 with detailed operations included within Appendix H. The following was found for each stage which is also summarized in Table 15 below:

- Stage 1 would operate acceptably through the project's projected Phase 3 development. A failing condition was identified with Phase 4 related to the westbound queue extending from the east tunnel extending beyond the available storage and onto US 195 (exceeding 480 feet).
- Stage 2 would operate acceptably through the project's projected Phase 4 development. A failing condition was identified with the signal operated as either fixed time or actuated. It was related to both queueing as well as the delay at the west tunnel exceeding 55 seconds (LOS E) with Phases 5 and/or 6.
- Stage 3 would operate acceptably through the project's projected Phase 4 development. A failing condition was identified with the signal operated as either fixed time or actuated. It was related to both queueing as well as the delay at the west tunnel exceeding 55 seconds (LOS E) with Phase 5.
- Stage 4 would operate acceptably through the project's projected Phase 6 development. Note that the tunnels would operate acceptably; however, with Phase 7 of the development, the eastbound approach of the Thorpe Road/US 195 intersection is forecast to operate below the LOS threshold for a stop-controlled intersection as well as the queue would again extend into the tunnel.

[7] The actuated operations were assumed to include a queue flush as well but the ability for the controllers to have this function is not certain.

Table 14. Tunnel Staging Overview

Stage 1			Average Control Delay (s/veh)			50th Percentile Max Queue (ft)			95th Percentile Max Queue (ft)		
Development Phases Years: Without (Baseline) and With Project Build		Fail ? (Control Delay > LOS E)	West Tunnel & Westwood Lane	East Tunnel	EB RT Stop Sign to SB195	WB Queue at East Tunnel	EB Queue at Westwood	EB Queue at Right Turn to SB 195	WB Queue at East Tunnel	EB Queue at Westwood	EB Queue at Right Turn to SB 195
Project Build	ϕ1 (2026)	--	12	4	15	85	21	171	99	79	225
	ϕ2 (2027)	--	14	5	18	97	74	211	204	151	240
	ϕ3 (2029)	--	18	6	21	187	209	199	348	490	278
	ϕ4 (2030)	Fail	39	36	46	614	802	208	662	1080	328
	ϕ5 (2032)	Fail	51	78	63	657	1044	73	661	1085	240
	ϕ6 (2033)	Fail	37	144	88	657	687	272	663	1001	308
	ϕ7 (2034)	Fail	86	121	87	654	860	205	656	1018	210
	ϕ8 (2035)	Fail	98	45	73	657	1042	69	657	1082	169

Stage 2 (Fixed Time)			Average Control Delay (s/veh)			50th Percentile Max Queue (ft)			95th Percentile Max Queue (ft)		
Development Phases Years: Without (Baseline) and With Project Build		Fail ? (Control Delay > LOS E)	West Tunnel & Westwood Lane	East Tunnel	EB RT Stop Sign to SB195	WB Queue at East Tunnel	EB Queue at Westwood	EB Queue at Right Turn to SB 195	WB Queue at East Tunnel	EB Queue at Westwood	EB Queue at Right Turn to SB 195
Project Build	ϕ1 (2026)	--	26	19	17	226	254	174	268	277	204
	ϕ2 (2027)	--	27	20	18	242	262	191	300	292	208
	ϕ3 (2029)	--	29	22	19	303	282	204	340	321	225
	ϕ4 (2030)	--	37	26	22	409	361	228	465	424	251
	ϕ5 (2032)	Fail	74	40	24	582	847	254	619	960	277
	ϕ6 (2033)	Fail	89	46	26	652	1002	260	673	1033	286
	ϕ7 (2034)	Fail	101	49	25	669	1094	264	679	1108	283
	ϕ8 (2035)	Fail	105	50	25	671	1100	261	676	1111	282

Stage 3 (Fixed Time)			Average Control Delay (s/veh)			50th Percentile Max Queue (ft)			95th Percentile Max Queue (ft)		
Development Phases Years: Without (Baseline) and With Project Build		Fail ? (Control Delay > LOS E)	West Tunnel & Westwood Lane	East Tunnel	EB RT Stop Sign to SB195	WB Queue at East Tunnel	EB Queue at Westwood	EB Queue at Right Turn to SB 195	WB Queue at East Tunnel	EB Queue at Westwood	EB Queue at Right Turn to SB 195
Project Build	ϕ1 (2026)	--	32	1	21	236	254	236	258	272	246
	ϕ2 (2027)	--	33	1	22	252	262	244	307	292	257
	ϕ3 (2029)	--	34	1	24	295	282	256	328	321	275
	ϕ4 (2030)	--	41	2	27	395	361	283	466	421	299
	ϕ5 (2032)	Fail	82	18	30	749	847	300	873	960	316
	ϕ6 (2033)	Fail	99	34	31	1038	1004	305	1092	1029	318
	ϕ7 (2034)	Fail	112	40	31	1123	1095	306	1139	1106	316
	ϕ8 (2035)	Fail	117	43	31	1135	1102	303	1141	1109	315

Stage 4			Average Control Delay (s/veh)			50th Percentile Max Queue (ft)			95th Percentile Max Queue (ft)		
Development Phases Years: Without (Baseline) and With Project Build		Fail ? (Control Delay > LOS E)	West Tunnel & Westwood Lane	East Tunnel	EB RT Stop Sign to SB195	WB Queue at East Tunnel	EB Queue at Westwood	EB Queue at Right Turn to SB 195	WB Queue at East Tunnel	EB Queue at Westwood	EB Queue at Right Turn to SB 195
Project Build	ϕ1 (2026)	--	1	0	11	0	0	121	0	2	145
	ϕ2 (2027)	--	1	0	12	0	0	131	0	7	146
	ϕ3 (2029)	--	1	0	13	0	0	150	0	2	168
	ϕ4 (2030)	--	1	0	17	0	2	180	0	8	225
	ϕ5 (2032)	--	1	0	30	0	1	287	0	10	365
	ϕ6 (2033)	--	1	1	41	0	3	385	0	15	478
	ϕ7 (2034)	Fail	2	9	65	0	5	637	0	19	789
	ϕ8 (2035)	Fail	11	19	77	0	43	1015	0	117	1114

As noted previously, there are numerous alternatives for system improvements to US 195, Thorpe Road and its tunnels. The evaluated staging above and the summary in the table below is only one potential staging approach to such improvements, aligning with the City's preference, identified through conversations with staff.

Table 15. Tunnel Staging Overview

Stage	Improvement	Improvement Triggered by:	Weekday PM Peak Hour Project Trips	
			Total	Assumed Through Tunnel[1]
1	Add Southbound Acceleration Lane on US 195 from Thorpe Road	Background Growth: *future (2027) without-project conditions*	-	-
2	Add Signal Controls to Both Tunnels	Victory Heights Phase 4	207	172
3	Widen the East Tunnel	Victory Heights Phase 5	379	308
4	Widen the West Tunnel	Victory Heights Phase 5	379	308

1. The project trips through the tunnel align with the assumed project trip distribution.

As shown in the table, the analysis suggests there would be recommended improvements in the vicinity of the tunnels aligning with the project's phases 4-5. The total weekday PM peak hour project trips with each of these phases is shown as well as the assumed project trips through the tunnel. The trips through the tunnel are assumed per the project's trip distribution as coordinated with City staff, equating to approximately 80 percent of project trips through the tunnel. If development trips or background assumptions do not materialize as anticipated in the forecasts, these improvement recommendations and timelines would need to be revaluated.

Site Access Analysis

As noted above, the site will be accessed via six proposed driveways, along W Thorpe Road and S Trainor Road. Trips were assigned to the site driveways based on relative development density of the site plan, location of access points, and distribution patterns for the project trips. The operations at the driveways were evaluated consistent with the methodology for the off-site intersections described above. Table 16 summarizes the traffic operations at the site driveways under with-project weekday AM and PM peak hour conditions. Detailed LOS worksheets are provided in Appendix D.

Table 16. Site Access Future (2035) With-Project Weekday Peak Hour LOS Summary

Site Access	AM Peak Hour			PM Peak Hour		
	LOS[1]	Delay[2]	WM[3]	LOS	Delay	WM
A. W Thorpe Road/Westernmost Site Access	A	9.0	NB	B	10.6	NB
B. W Thorpe Road/West Site Access	A	9.7	NB	B	10.2	NB
C. W Thorpe Road/Central Site Access	B	11.6	NB	B	13.7	NB
D. W Thorpe Road/East Site Access	B	12.2	NB	B	13.4	NB
E. W Thorpe Road/Easternmost Site Access	B	11.8	NB	B	12.1	NB
F. S Trainor Road/W 41st Avenue	A	8.4	SB	A	8.6	SB

1. Level of Service (A – F) as defined by the *Highway Capacity Manual, 6th Edition* (TRB, 2017)
2. Average delay per vehicle in seconds.
3. Worst Movement reported for stop-controlled intersections. WB = westbound, NB = northbound.

As shown in Table 16, the site access driveways are forecast to operate at LOS B or better during the weekday AM and PM peak hour with the project.

Non-Motorized Impacts

The nearest stop to the project site is located approximately 3 miles north of the site along W Sunset Boulevard and 3 miles east of site along W 14th Avenue. Sidewalks will be constructed along the project frontages increasing the pedestrian network in the area.

Findings, Road Improvements, and Mitigation

As illustrated above, the proposed project would construct up to 220 townhomes and 783 single-family homes and is anticipated to generate 8,328 new daily trips with 594 occurring during the AM peak hour trips and 816 occurring during the PM peak hour trips.

With the completion of the project, it is anticipated that 5 intersections would operate below standard during the AM and/or PM peak hours including W 16th Avenue, North J-turn, W Thorpe Road, Cheney Spokane Road along US 195. In addition to impacts at the study intersections, impacts to the adjacent Thorpe Tunnels and US 195 to I-90 eastbound ramp were identified.

There are a number of regional improvements that are in varying stages of feasibility and implementation. These projects include the Inland Empire Extension, the Lindeke Street extension project, the Thorpe Road crossing, and updates to the tunnels.

Overview of Improvements

An overview of the improvements in the area and the trigger of when the improvements are needed are provided below in Table 16. A summary map of the improvements is provided in Figure 12. Note that the findings of improvements and timing is based on the volume forecasts assumptions in the analysis above including background growth, pipeline development, distribution of project trips, etc. If these assumptions do not come to fruition, the findings and recommendations would also change.

As shown in the table, there are a number of regional improvements that are being considered, all of which are included in the *US 195/I-90 Transportation Study* (December 2021). The implementation of these regional improvement projects are anticipated to generally resolve the operational challenges identified above. Confirmation of the acceptable operations with the implementation of the regional improvements are reviewed in the section below.

Table 17. Summary of Identified Improvements

Intersection	Improvement and Finding[1]	Timing [2,3,4,5]
4. US 195/W 16th Ave	Delay related to a limited number of trips (1-5 in the AM and PM peak hours). Options to consider allowing for continued LOS F operations for the limited number of vehicles or to restrict the WBL similar to the imposed EBL restriction.	Without-Project
5. US 195/ North J-turn	Close North J-turn due to LOS degrading to below standard. The closure of the North J-turn should be confirmed through the completion of a supplemental traffic evaluation. As needed, alternatives to the North J-Turn would be: a. Utilize existing infrastructure, or b. Further infrastructure to support traffic such as the Thorpe Road Crossing (in feasibility, see regional section below)	Triggered with the development of Victory Heights **Phase 4** (more than 207 PM peak hour project trips or 289 lots which occurs with Phase 3)
6. US 195/ W Thorpe Rd	*Initial* - Add Southbound Acceleration Lane on US 195 from Thorpe Road with stop sign controlled eastbound approach. This intersection would operate acceptably through Phase 6 as shown in Table 14 above. *Additional Improvement* – Remove the stop-controlled approach as the South J-Turn is anticipated to be closed at that time, eliminating delay associated with the eastbound right-turn movement.	*Initial* - Without-Project (*should be in place with the initial phase of Victory Heights*) *Additional Improvement* - Triggered with the development of Victory Heights **Phase 7** (more than 660 PM peak hour project trips or 803 lots which occurs with Phase 6)
7. US 195/ South J-turn	Close South J-turn due to LOS degrading to below standard. The following shows the identified staged improvements. a. Utilize existing infrastructure. The Cheney Spokane overpass was then shown to degrade below standard. b. Reevaluate the need for further infrastructure to support traffic such as the installation of a traffic signal at the Cheney Spokane/Southbound US 195 off-ramp, the Lindeke Street Extension or the Thorpe Road Crossing.	Currently deficient to accommodate two-way traffic for larger width trucks, limited in height for larger vehicles. The review showed the following: a) Triggered with the development of Victory Heights **Phase 3** (more than 95 AM peak hour project trips or 170 lots which occurs with Phase 2) b) Triggered with the development of Victory Heights **Phase 4** (more than 160 AM peak hour project trips or 289 lots which occurs with Phase 3)
Regional Project[6]		
A. Inland Empire connection to US 195 ramp	Extend the current terminus of Inland Empire to the south connecting with US 195 ramp	Without-Project (*should be in place with the initial phase of Victory Heights*)
B. Modify Thorpe Road Tunnels.	The following shows the identified staged improvements. a. Signalizing tunnels b. Widening the East Tunnel c. Widening the West Tunnel *** Modifications at the adjacent US 195/W Thorpe Rd shown to be needed without-project recommending a Southbound Acceleration Lane on US 195 from Thorpe Road to not impact tunnels.*	Currently deficient to accommodate two-way traffic for larger width trucks, limited in height for larger vehicles. The Vissim model showed updates to the tunnels are triggered with Victory Heights as follows: c) **Phase 4** - more than 172 PM peak hour project trips *through the tunnel* which is anticipated to equate to 289 lots with Phase 3. d) **Phase 5** - more than 308 PM peak hour project trips *through the tunnel* which is anticipated to occur with 484 lots with Phase 4. e) **Phase 5** - more than 308 PM peak hour project trips *through the tunnel* which is anticipated to occur with 484 lots with Phase 4. *Items a-c assume the implementation of Southbound Acceleration Lane on US 195 from Thorpe Road already in place.*
C. US 195 to I-90 EB Ramp	The volumes at this location are mitigated by providing alternative connections such as Inland Empire, Lindeke Street Extension, Thorpe Road Crossing, etc.	Without-Project.
D. Lindeke Street Extension	• Extension of Lindeke St • Closure of west leg of US 195/16th Ave • Closure of South J-Turn lane • Roundabout at Thorpe Rd/Lindeke St • Fish Lake Trail Bridge Replacement *** Note the North J-Turn closure is not included as the Lindeke Street Extension does not provide the movement being eliminated.*	A potential solution to the South J-turn along US 195 degrading to below standard and resulting in the need for its closure.
E. Thorpe Road Crossing (alternative to Lindeke Extension)	Feasibility study is currently being conducted.	A potential solution to the J-turns along US 195 degrading to below standard and resulting in the need for their closure.

1. Victory Heights will mitigate its added traffic impacts to the region through payment of its Traffic Impact Fees discussed below.
2. Assuming the traffic volume forecasts per the analysis above including assumptions of background growth, pipeline development, distribution of project trips, etc. The future operations assume the Inland Empire Way northbound only connection has been built.
3. Timing for the J-turn locations along US 195 was determined relative to when the LOS exceeded the standard as required by WSDOT. The operations and volumes at these locations with phased development is included in Appendix J.
4. Note that projects identified as "Without Project" are not currently funded and the other developers are not conditioned to build them with the exception of the Inland Empire northbound connection to US 195 ramp.
5. "Triggers" identified align with Victory Heights phases as coordinated with WSDOT and City staff and correspond also with the trip generation, distribution, assignment, and background forecast assumptions as shown above; however, the addition of trips associated with any development would also result in the identified improvement being needed.
6. These regional projects are all identified within the *US 195/I-90 Transportation Study* (December 2021).

Improvement Map

Victory Heights

FIGURE 12

transpogroup

Regional Improvement Implementation Review

The *US 195/I-90 Transportation Study* (December 2021) has identified a large number of projects that would benefit the region including 5 regional projects shown in Table 16. At this time the Thorpe Road Crossing is undergoing a feasibility study; however, as the study is not complete, the benefits and feasibility of this alternative improvement are unknown and therefore was not evaluated at this time. Instead, the regional improvement implementation review focuses on the implementation of the other improvements including the Inland Empire Extension and Lindeke Street Extension. Note the future (2035) without-project and with-project analysis above already included the Inland Empire connection as the City had previously conditioned the included pipeline developments to include this connection.

Based on coordination with City and WSDOT staff, the Lindeke Street Extension and corresponding improvements, aligning with the *US 195/I-90 Transportation Study* (December 2021) were evaluated to determine future operating conditions with the project. Elements of the US 195 plan reflected in this analysis include:

- Lindeke Street extension from existing terminal to Thorpe Road
- South Thorpe J-turn closure
- Fish Lake Trail bridge/16th replacement
- 16th Avenue West leg closure
- Thorpe Road /Lindeke Street Roundabout

The effects of these identified improvements that would be implemented at the study intersections with the Lindeke Street Extension project are reviewed below. The traffic volumes and traffic operations at the study intersections as a result of the Lindeke Street Extension project and associated elements are reviewed below. The Thorpe Road/Lindeke Street roundabout is included as a study intersection.

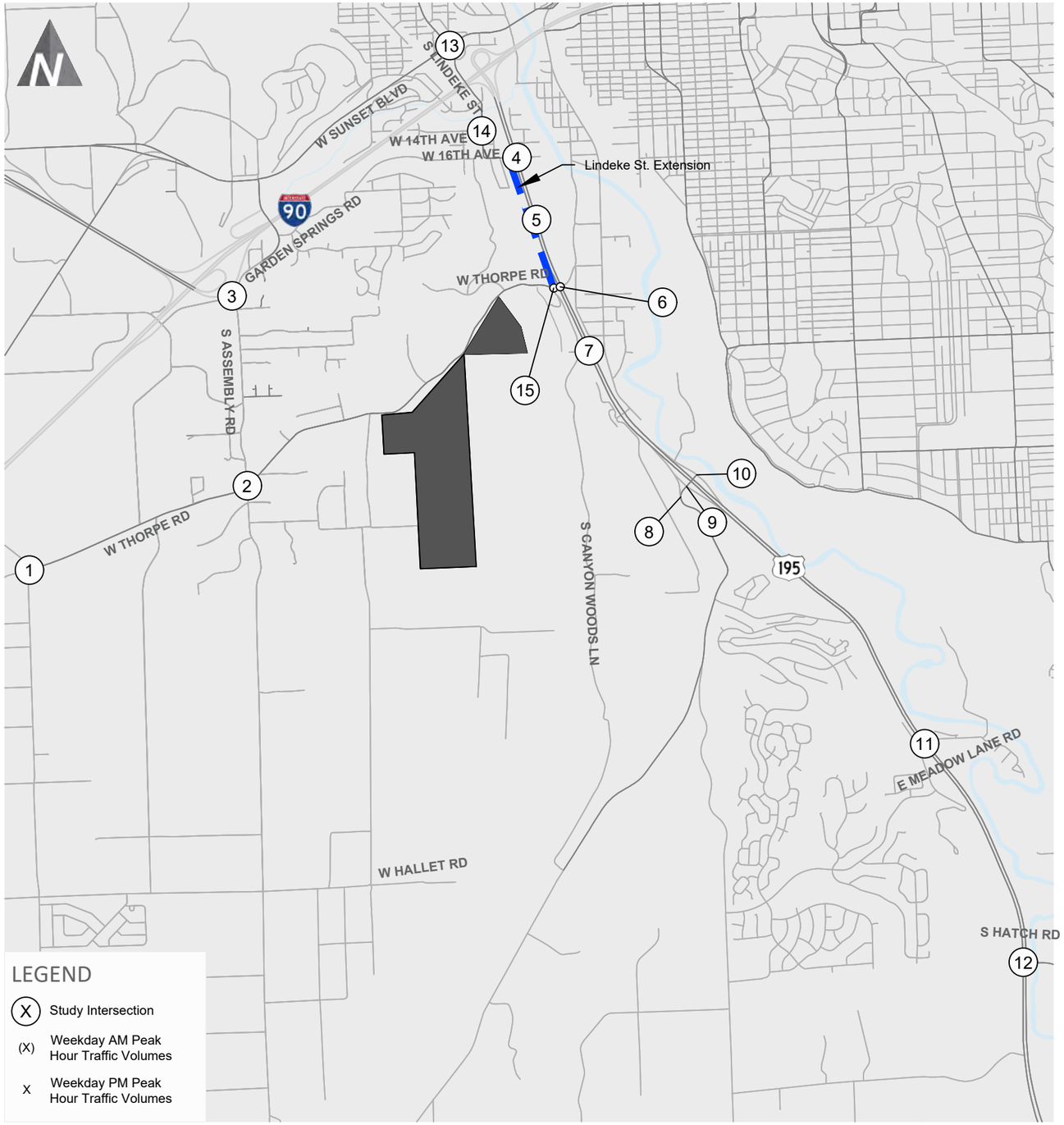
Traffic Volume Forecasts

Traffic volumes with the Lindeke Street extension regional improvement was reviewed under future (2035) conditions both with and without the project. As outlined above, the Lindeke Street Extension includes numerous elements that result in shifts in vehicles in the area. The key shifts assumed in the analysis include:

- The addition of the Lindeke Street providing an alternative path to downtown and general draw of local traffic from drivers who use alternative routes today
- The closure of the west leg of the US 195/16th Avenue intersection resulting in shifts of:
    - Northbound left-turn vehicles to use the north J-turn to Thorpe Road or the I-90 westbound ramp
    - Eastbound right turn vehicles to use Lindeke Street to Thorpe Road
- The closure of the South J-Turn resulting in shifts of vehicles to alternative routes such as Cheney Spokane Overpass to US 195 or Inland Empire, Lindeke Road, or routing further to the west to the Grove Street on-ramp

The detailed traffic volume shifts are included are detailed in Appendix I. The resulting future (2035) peak hour traffic volumes with the regional improvement both without and with the project are illustrated in Figure 13 and Figure 14, respectively.

An additional consideration as part of the Lindeke Street extension was to review volumes to the US-195 ramp to eastbound I-90, consistent with the traffic volumes forecasts above. The resulting volumes are summarized in Figure 15.



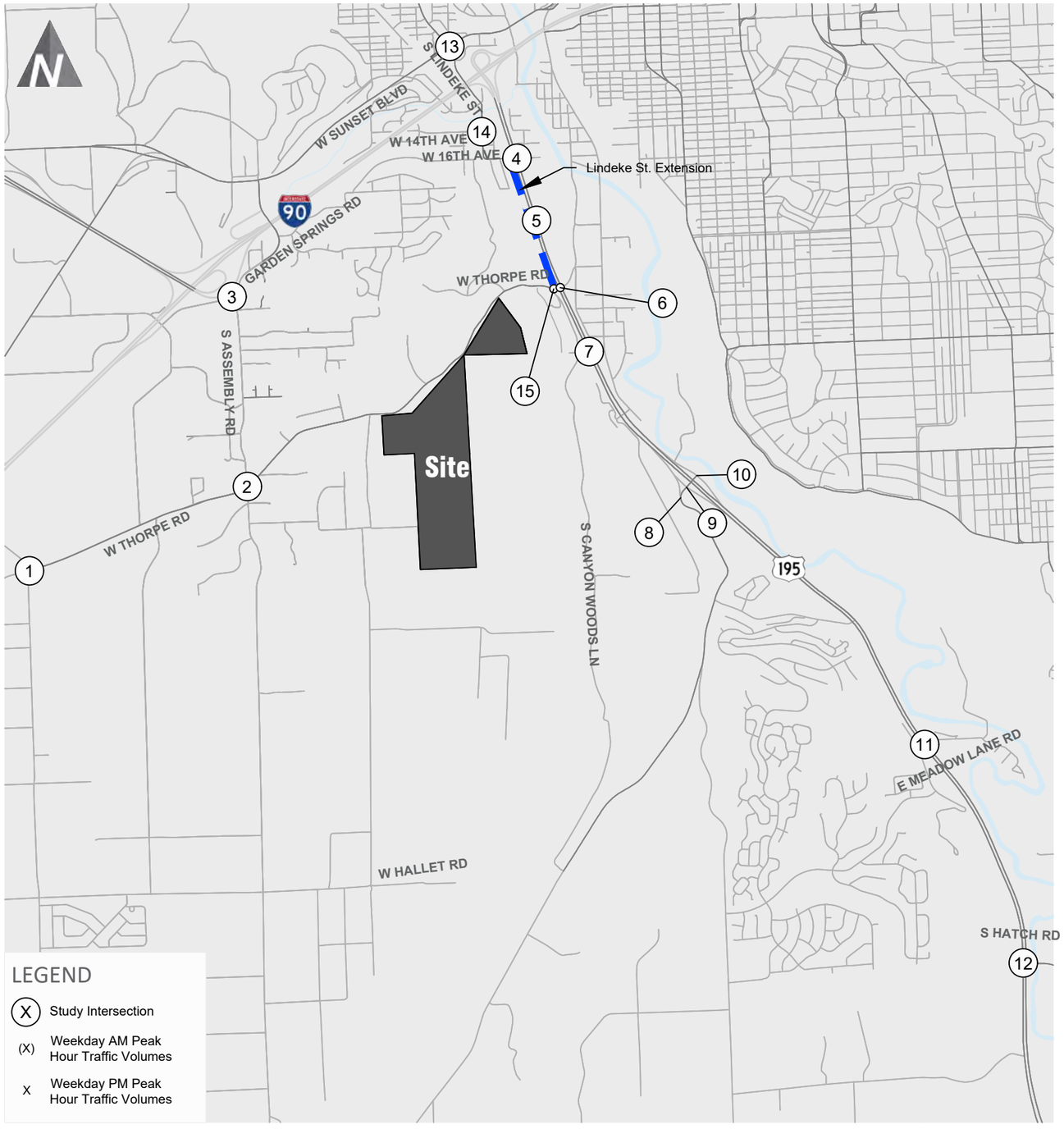
1 Grove Road / W Thorpe Road (205) 255 (135) 240 (145) 115 (260) 240 (231) 284 (5) 15 (15) 15 (0) 5 (20) 45 (5) 2 (45) 20 (295) 180	2 S Assembly Road / W Thorpe Road (40) 90 (25) 25 (7) 19 (3) 15 (11) 19 (45) 160 (181) 114 (5) 5 (45) 45 (30) 15 (30) 35 (35) 35	3 S Assembly Road / Garden Springs Road (115) 165 (255) 130 (10) 15 (42) 184 (5) 5 (96) 84	4 US 195 / W 16th Avenue (585) 1,665 (10) 45 (30) 15 (1) 5 (1) 5 (1,120) 549	5 US 195 / North J-turn (780) 1,885 (203) 200 (1,155) 669
6 US 195 / W Thorpe Road (660) 1,530 (263) 480 (28) 35 (204) 340 (210) 157 (1,325) 834	7 US 195 / South J-turn (849) 1,860 (1,620) 1,031	8 US 195 SB Ramp West / Cheney Spokane Road (275) 785 (115) 155 (925) 630	9 US 195 SB Ramp East / Cheney Spokane Road (0) 1 (59) 25 (845) 480 (115) 150 (75) 170 (5) 10	10 US 195 NB Ramp / Cheney Spokane Road (889) 470 (125) 165 (5) 1
11 US 195 / E Meadowlane Road (745) 1,535 (10) 10 (25) 15 (1) 10 (970) 940	12 US 195 / S Hatch Road (390) 635 (345) 490 (430) 545 (2) 0 (115) 70 (515) 415	13 S Government Way / W Sunset Boulevard (68) 117 (139) 82 (260) 185 (48) 222 (255) 185 (478) 512 (293) 387 (20) 25 (73) 129 (20) 20 (217) 134 (132) 103	14 S Lindeke St / W 14th Ave (131) 236 (30) 70 (1) 3 (85) 70 (5) 0 0 (0) 0 (0) 0 (50) 30 (0) 0 (10) 55 (0) 1 (264) 232	15 Marshall/Lindeke / W Thorpe Road (0) 0 (31) 41 (115) 185 (84) 67 (140) 275 (89) 140 (118) 200 (1) 15 (5) 5 (15) 5 (2) 15 (0) 0

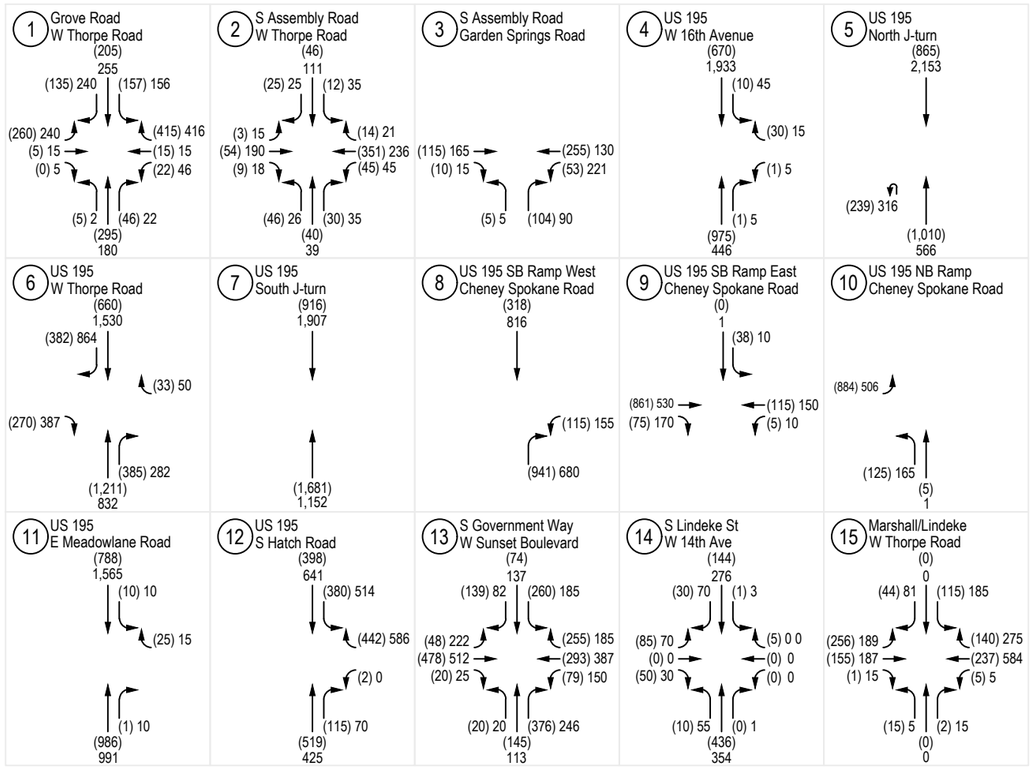
Regional Improvement Review - Future (2035) Without-Project Peak Hour Traffic Volumes at Study Intersections

Victory Heights

FIGURE **13**

transpogroup



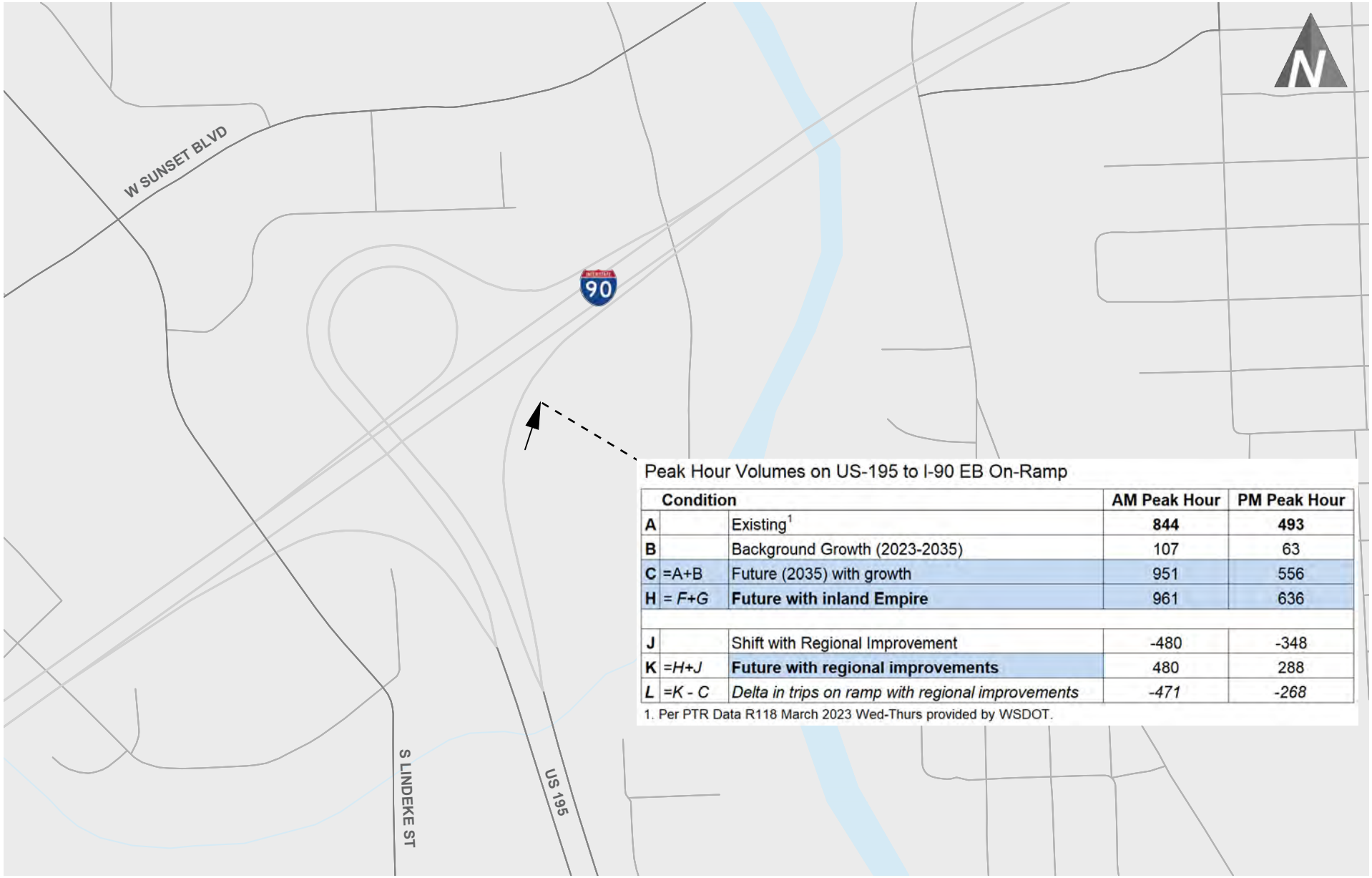


Regional Improvement Review - Future (2035) With-Project Peak Hour Traffic Volumes at Study Intersections

Victory Heights

FIGURE **14**

transpogroup



Peak Hour Volumes on US-195 to I-90 EB On-Ramp

	Condition		AM Peak Hour	PM Peak Hour
A		Existing[1]	**844**	**493**
B		Background Growth (2023-2035)	107	63
C	=A+B	Future (2035) with growth	951	556
H	= *F+G*	**Future with inland Empire**	961	636
J		Shift with Regional Improvement	-480	-348
K	=*H+J*	**Future with regional improvements**	480	288
L	=*K - C*	*Delta in trips on ramp with regional improvements*	*-471*	*-268*

1. Per PTR Data R118 March 2023 Wed-Thurs provided by WSDOT.

Regional Improvement Review - Future (2035) Peak Hour Traffic Volumes US 195 to I-90 Eastbound On-Ramp

FIGURE 15

Victory Heights

transpogroup

As identified above, the intent of the regional projects as noted in the *US 195/I-90 Transportation Study* (December 2021), is to *"create a more connected network for local trips, improve safety, preserve capacity on US 195 for regional trips, extend the life of the US 195/I-90 interchange".* Figure 15 demonstrates the implementation of the regional improvement project, the Lindeke Street extension, provides for a reduction in vehicles at the US 195 to I-90 Eastbound ramp, meeting the goals identified the *US 195/I-90 Transportation Study*.

Traffic Operations

The traffic operations with the implementation of the Lindeke Street Extension project were evaluated under future (2035) with-project weekday AM and PM conditions and compared to the future (2035) without- and with-project conditions. The operations are summarized in Table 18 below. The operational methodology assumed is consistent with the analysis completed for the project above. Detailed LOS worksheets are provided in Appendix I.

As shown in the table, with the implementation of the Lindeke Street extension project identified in the US 195/I-90 Transportation Study (December 2021) and corresponding elements, the intersections are shown to improve to meet standards with the exceptions as noted below.

US 195/North J-Turn – As identified above, this location degrades to operating below the identified LOS standard with Phase 4 of the project (see Table 17). WSDOT has currently identified that the J-Turn would need to be closed when operating below standard. This closure was not evaluated as part of the Lindeke Street Extension review given Lindeke Street does not provide an alternative route to the north J-Turn. Rather the use of existing infrastructure (e.g. US 195 to westbound I-90) or the alternative regional project of the Thorpe Crossing would be the alternative route with the closure of the north J-Turn.

US 195/Thorpe Road – The poor LOS reflects the Synchro review which is not inclusive of the identified acceleration lane. See additional discussion of this location with inclusion of the acceleration lane above with discussion regarding phasing in Table 17 above.

The alternative Thorpe Road Crossing improvement project currently being studied is anticipated to provide congestion relief for both the North J-Turn and Cheney Spokane overpass intersections that is not provided from the Lindeke Street extension.

Table 18. Regional Improvement Review - AM and PM Peak Hour LOS Summary

Intersection	2035 Without-Project *With Lindeke St. Extension Project*[5]			2035 With-Project *With Lindeke St. Extension Project*[5]		
	LOS[1]	Delay[2]	WM[3] or v/c[4]	LOS	Delay	WM or v/c
AM Peak Hour						
1. S Grove Rd/W Thorpe Rd	A	7.9	0.43	A	9.1	0.68
2. S Assembly Rd/W Thorpe Rd	A	8.9	-	B	11.7	-
3. S Assembly Rd/Garden Springs Rd	A	9.6	NB	A	9.7	NB
4. US 195/W 16th Ave	C	15.0	WB	B	13.7	WB
5. US 195/North J-turn	B	11.3	NBL	B	12.6	NBL
6. US 195/W Thorpe Rd	C	15.9	WB	C	15.0	WB
7. US 195/South J-turn	-	-	-	-	-	-
8. US 195 SB Ramp/Cheney Spokane Rd	B	11.9	WB	B	12.5	WB
9. US 195 SB Ramp E/Cheney Spokane Rd	D	27.9	SB	D	25.7	SB
10. US 195 NB Ramp/Cheney Spokane Rd	D	31.1	NB	D	30.7	NB
11. US 195/E Meadowlane Rd	B	13.3	WB	B	13.4	WB
12. US 195/S Hatch Rd	C	23.6	WB	C	25.0	WB
13. S Government Way/ W Sunset Blvd	C	23.8	-	C	33.5	-
14. S Lindeke St/W 14th Ave	B	13.1	EB	C	16.4	EB
15. W Thorpe Rd/S Lindeke St	A	6.6	0.23	A	7.5	0.38
PM Peak Hour						
1. S Grove Rd/W Thorpe Rd	A	7.0	0.41	A	7.5	0.57
2. S Assembly Rd/W Thorpe Rd	A	9.7	-	B	12.8	-
3. S Assembly Rd/Garden Springs Rd	B	10.3	NB	B	10.5	NB
4. US 195/W 16th Ave	C	21.4	WB	C	21.8	WB
5. US 195/North J-turn	**F**	**50.3**	**NBL**	**F**	**318.8**	**NBL**
6. US 195/W Thorpe Rd[6]	**F**	**120.2**	**EB**	**F**	**175.7**	**EB**
7. US 195/South J-turn	-	-	-	-	-	-
8. US 195 SB Ramp/Cheney Spokane Rd	D	28.3	WB	D	30.7	WB
9. US 195 SB Ramp E/Cheney Spokane Rd	C	16.3	SB	C	16.6	SB
10. US 195 NB Ramp/Cheney Spokane Rd	C	16.0	NB	C	17.0	NB
11. US 195/E Meadowlane Rd	B	12.2	WB	B	12.6	WB
12. US 195/S Hatch Rd	D	25.6	WB	D	31.8	WB
13. S Government Way/ W Sunset Blvd	C	22.4	-	C	24.1	-
14. S Lindeke St/W 14th Ave	C	16.7	EB	C	21.6	EB
15. W Thorpe Rd/S Lindeke St	A	6.1	0.38	A	7.6	0.75

Note: TWSC = two-way stop-controlled, AWSC = all-way stop-controlled, RAB = roundabout. **Bold** text indicates intersection operates below standard.

1. Level of Service (A – F) as defined by the *Highway Capacity Manual* (TRB, 6th Edition)
2. Average delay per vehicle in seconds.
3. Worst Movement (WM) shown for two-way stop-controlled intersections. EB = eastbound approach, WB = westbound approach, SB = southbound approach, NBL = northbound left-turn movement, SBL = southbound left-turn movement, WBL = westbound left-turn movement.
4. Volume to capacity is reported for roundabouts.
5. The future operations assume the Inland Empire Way northbound only connection has been built.
6. Does not consider recommended acceleration lane on US 195 to accommodate eastbound right turn vehicles from US 195.

Traffic Impact Fees

The project's transportation impact fees were estimated per the City of Spokane's *Transportation Impact Fee Schedule* effective June 12, 2024 for the Latah District. Per the current fee schedule, the estimated fee for the project is $6,684,133.81 (see details in Table 19). The final fee will be calculated by City of Spokane at time of permit issuance.

Table 19. Estimated Transportation Impact Fee

Land Use	Size	Fee per unit[1]	Estimated Transportation Impact Fee
Single-Family Attached Housing (LU 215)	220 du	$4,422.88	$973,033.60
Single-Family Detached Housing (LU 210)	783 du	$7,293.87	$5,711,100.21
Total	**1,003 du**	**-**	**$6,684,133.81**

Note: du = dwelling units
1. City of Spokane's *Transportation Impact Fee Schedule* effective June 12, 2024 for the Latah District.

The project is shown to result in a significant amount of impact fees paid to the jurisdiction. Those fees are appropriate to address the project's impacts proportionate share of the improvements identified in Table 17 above.

Appendix A: Traffic Counts

Phone: (509) 951-1851
email: beng@trfcnts.com

INTERSECTION

PROJECT: WCE Victory Heights — Thorpe Road
JOB NO. 23-81 — &
DATE OF COUNT: 3/22/2023 — SR 195
Counter: Miovision — Analyst: BNG
AM PEAK HOURS
15 Minute Period Beginning @

APPROACH	Movement	6:30 AM			6:45 AM			7:00 AM			7:15 AM			7:30 AM			7:45 AM			8:00 AM			8:15 AM			8:30 AM			8:45 AM			9:00 AM			9:15 AM		
Type		BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV
Eastbound	U-Turn	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
	Left	0	30	2	0	14	2	0	17	1	0	18	1	0	31	2	0	23	1	0	20	4	0	19	6	0	24	2	0	23	0	0	9	1	0	12	3
	Through	0	1	1	0	2	0	0	1	0	0	2	1	0	1	0	0	0	0	0	1	0	0	0	0	0	2	0	0	1	0	0	2	0	0	2	0
	Right	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	2	0	0	0	0	0	0	0
	App. Total	0	31	3	0	17	2	0	18	1	0	20	2	0	32	2	0	23	1	0	22	4	0	19	7	0	26	2	0	26	0	0	11	1	0	14	3
	Pct HV		9%			11%			5%			9%			6%			4%			15%			27%			7%			0%			8%			18%	
Westbound	U-Turn	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
	Left	0	2	0	0	0	0	0	2	0	0	6	0	0	0	0	0	1	1	0	2	0	0	0	2	0	1	2	0	2	0	0	5	0	0	2	1
	Through	0	3	1	0	5	0	0	3	0	0	3	0	0	3	0	0	5	0	0	2	0	0	4	1	0	3	0	0	1	1	0	4	0	0	2	0
	Right	0	16	4	0	17	1	0	13	3	0	16	1	0	23	3	0	16	2	0	11	2	0	18	0	0	10	4	0	18	3	0	10	1	0	7	1
	App. Total	0	21	5	0	22	1	0	18	3	0	25	1	0	26	3	0	22	3	0	15	2	0	22	3	0	14	6	0	21	4	0	19	1	0	11	2
	Pct HV		19%			4%			14%			4%			10%			12%			12%			12%			30%			16%			5%			15%	
Northbound	U-Turn	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
	Left	0	1	0	0	1	0	0	2	1	0	0	0	0	0	0	0	1	0	0	2	0	0	1	0	0	0	0	0	2	1	0	0	0	0	0	0
	Through	0	61	2	0	34	1	0	46	0	0	55	5	0	81	5	0	47	6	0	37	4	0	41	4	0	65	4	0	61	2	0	38	6	0	38	3
	Right	0	1	0	0	2	0	0	0	0	0	1	0	0	3	0	0	1	0	0	0	0	0	1	0	0	0	0	0	2	1	0	2	0	0	1	0
	App. Total	0	63	2	0	37	1	0	48	1	0	56	5	0	84	5	0	49	6	0	39	4	0	43	4	0	65	4	0	65	4	0	40	6	0	39	3
	Pct HV		3%			3%			2%			8%			6%			11%			9%			9%			6%			6%			13%			7%	
Southbound	U-Turn	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
	Left	0	6	0	0	8	2	0	8	4	0	7	5	0	4	2	0	10	4	0	20	1	0	6	3	0	6	1	0	11	2	0	9	2	0	1	4
	Through	0	13	1	0	19	3	0	39	1	0	54	4	0	42	5	0	30	3	0	34	4	0	38	6	0	18	2	0	24	4	0	22	3	0	26	4
	Right	0	11	1	0	18	2	0	22	0	0	11	2	0	18	2	0	17	2	0	6	2	0	8	3	0	10	4	0	13	3	0	12	2	0	11	1
	App. Total	0	30	2	0	45	7	0	69	5	0	72	11	0	64	9	0	57	9	0	60	7	0	52	12	0	34	7	0	48	9	0	43	7	0	38	9
	Pct HV		6%			13%			7%			13%			12%			14%			10%			19%			17%			16%			14%			19%	
Total Class Volume		0	145	12	0	121	11	0	153	10	0	173	19	0	206	19	0	151	19	0	136	17	0	136	26	0	139	19	0	160	17	0	113	15	0	102	17
Total Interval Volume			157			132			163			192			225			170			153			162			158			177			128			119	
Intersection Pct HV			8%			8%			6%			10%			8%			11%			11%			16%			12%			10%			12%			14%	

Pedestrian Volumes — 15 Minute Period Beginning @

APPROACH	Movement	6:30	6:45	7:00	7:15	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15
Eastbound	Crosswalk	0	1	0	0	0	0	0	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	Crosswalk	0	1	0	0	0	0	0	0	0	0	0	0
Total		0	2	0	0	0	0	0	0	0	0	0	0

Miovision Vehicle Classification

Bike (BK) | Passenger Car (PC) | Heavy Vehicle (HV)

Intersection Total One Hour Volumes		Pct HV
6:30 AM	644	8.1%
6:45 AM	712	8.3%
7:00 AM	**750**	**8.9%**
7:15 AM	740	10.0%
7:30 AM	710	11.4%
7:45 AM	643	12.6%
8:00 AM	650	12.2%
8:15 AM	625	12.3%
8:30 AM	582	11.7%

App.= Approach
Pct= Percent

Phone: (509) 951-1851
email: beng@trfcnts.com

INTERSECTION

PROJECT: WCE Victory Heights Thorpe Road & SR 195
JOB NO. 23-81
DATE OF COUNT: 3/22/2023

Counter: Analyst
Miovision: BNG

AM PEAK HOURS

APPROACH	MOVEMENT	7:00 AM BK	7:00 AM PC	7:00 AM HV	7:15 AM BK	7:15 AM PC	7:15 AM HV	7:30 AM BK	7:30 AM PC	7:30 AM HV	7:45 AM BK	7:45 AM PC	7:45 AM HV
Eastbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	17	1	0	18	1	0	31	2	0	23	1
	Through	0	1	0	0	2	1	0	1	0	0	0	0
	Right	0	0	0	0	0	0	0	0	0	0	0	0
	App. Total	0	18	1	0	20	2	0	32	2	0	23	1
	Pct HV		5%			9%			6%			4%	
Westbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	2	0	0	6	0	0	0	0	0	1	1
	Through	0	3	0	0	3	0	0	3	0	0	5	0
	Right	0	13	3	0	16	1	0	23	3	0	16	2
	App. Total	0	18	3	0	25	1	0	26	3	0	22	3
	Pct HV		14%			4%			10%			12%	
Northbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	2	1	0	0	0	0	0	0	0	1	0
	Through	0	46	0	0	55	5	0	81	5	0	47	6
	Right	0	0	0	0	1	0	0	3	0	0	1	0
	App. Total	0	48	1	0	56	5	0	84	5	0	49	6
	Pct HV		2%			8%			6%			11%	
Southbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	8	4	0	7	5	0	4	2	0	10	4
	Through	0	39	1	0	54	4	0	42	5	0	30	3
	Right	0	22	0	0	11	2	0	18	2	0	17	2
	App. Total	0	69	5	0	72	11	0	64	9	0	57	9
	Pct HV		7%			13%			12%			14%	
Total Class Volume		0	153	10	0	173	19	0	206	19	0	151	19
Total Interval Volume			163			192			225			170	
Intersection Pct Trucks			6%			10%			8%			11%	

Approach

Receiving

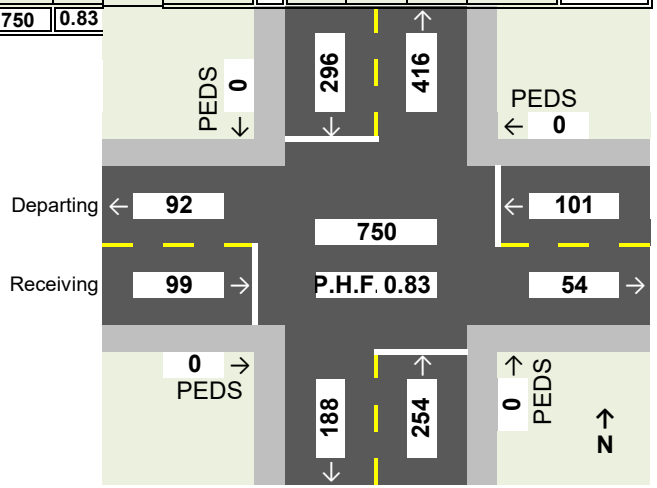
Mvmt	TOTAL HV	TOTAL Veh	PHF	Percentage of: HV	Percentage of: Approach
EBU	0	0			0.00%
EBL	5	94		5%	94.95%
EBT	1	5		20%	5.05%
EBR	0	0			0.00%
Total	6	99	0.73	6%	100.00%
WBU	0	0			0.00%
WBL	1	10		10%	9.90%
WBT	0	14		0%	13.86%
WBR	9	77		12%	76.24%
Total	10	101	0.87	10%	100.00%
NBU	0	0			0.00%
NBL	1	4		25%	1.57%
NBT	16	245		7%	96.46%
NBR	0	5		0%	1.97%
Total	17	254	0.71	7%	100.00%
SBU	0	0			0.00%
SBL	15	44		34%	14.86%
SBT	13	178		7%	60.14%
SBR	6	74		8%	25.00%
Total	34	296	0.89	11%	100.00%
Total	**67**	**750**	**0.83**		

Departing

Mvmt	Total	Percentage of: HV	Percentage of: Approach	App.
EBU	0		0.00%	Eastbound
NBL	4	25%	4.35%	
WBT	14	0%	15.22%	
SBR	74	8%	80.43%	
Total	92	8%	100.00%	
WBU	0		0.00%	Westbound
SBL	44	34%	81.48%	
EBT	5	20%	9.26%	
NBR	5	0%	9.26%	
Total	54	30%	100.00%	
NBU	0		0.00%	Northbound
WBL	10	10%	5.32%	
SBT	178	7%	94.68%	
EBR	0		0.00%	
Total	188	7%	100.00%	
SBU	0		0.00%	Southbound
EBL	94	5%	22.60%	
NBT	245	7%	58.89%	
WBR	77	12%	18.51%	
Total	416	7%	100.00%	

Pedestrian Volumes

APPROACH	MOVEMENT	7:00	7:15	7:30	7:45	Confli. Ped TOTAL
Eastbound	Crosswalk	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0
	Total	0	0	0	0	



Movement = Mvmt
Pedestrian = Ped
P.H.F.= Peak Hour Factor
App.= Approach
Pct= Percent

Phone: (509) 951-1851
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INTERSECTION

PROJECT: WCE Victory Heights — Thorpe Road
JOB NO. 23-81 — &
DATE OF COUNT: 3/22/2023 — SR 195
Counter: Miovision — Analyst: BNG
PM PEAK HOURS
15 Minute Period Beginning @

APPROACH	Movement	3:30 PM			3:45 PM			4:00 PM			4:15 PM			4:30 PM			4:45 PM			5:00 PM			5:15 PM			5:30 PM			5:45 PM			6:00 PM			6:15 PM		
Type		BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV
Eastbound	U-Turn	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
	Left	0	18	3	0	31	0	0	27	0	0	32	0	0	40	1	0	26	3	0	20	0	0	18	1	0	18	0	0	14	1	0	13	1	0	14	1
	Through	0	1	0	0	4	1	0	0	1	0	2	0	0	10	0	0	2	0	0	4	0	0	1	0	0	3	0	0	2	0	0	1	0	0	4	0
	Right	0	0	0	0	2	0	0	0	0	0	3	0	0	2	0	0	1	0	0	2	1	0	1	1	0	1	0	0	2	0	0	0	0	0	1	0
	App. Total	0	19	3	0	37	1	0	27	1	0	37	0	0	52	1	0	29	3	0	26	1	0	20	2	0	22	0	0	18	1	0	14	1	0	19	1
	Pct HV	14%			3%			4%			0%			2%			9%			4%			9%			0%			5%			7%			5%		
Westbound	U-Turn	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
	Left	0	1	0	0	2	0	0	1	0	0	2	0	0	1	0	0	2	0	0	4	0	0	5	0	0	5	0	0	0	0	0	3	1	0	0	0
	Through	0	3	1	0	3	1	0	3	1	0	3	0	0	3	0	0	6	0	0	2	0	0	4	1	0	5	0	0	3	0	0	3	0	0	4	0
	Right	0	14	1	0	6	0	0	13	0	0	10	2	0	43	1	0	18	0	0	21	0	0	18	0	0	15	1	0	10	1	0	13	0	0	7	0
	App. Total	0	18	2	0	11	1	0	17	1	0	15	2	0	47	1	0	26	0	0	27	0	0	27	1	0	25	1	0	13	1	0	19	1	0	11	0
	Pct HV	10%			8%			6%			12%			2%			0%			0%			4%			4%			7%			5%			0%		
Northbound	U-Turn	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
	Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	3	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0
	Through	0	39	1	0	32	1	0	39	3	0	33	0	0	42	0	0	31	0	0	29	1	0	36	0	0	34	2	0	29	1	0	27	2	0	38	1
	Right	0	2	0	0	2	2	0	3	2	0	1	0	0	4	0	0	1	0	0	1	0	0	3	0	0	2	0	0	2	0	0	2	0	0	3	0
	App. Total	0	41	1	0	34	3	0	42	5	0	34	0	0	46	0	0	34	0	0	33	2	0	40	0	0	36	2	0	32	1	0	29	2	0	41	1
	Pct HV	2%			8%			11%			0%			0%			0%			6%			0%			5%			3%			6%			2%		
Southbound	U-Turn	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
	Left	0	6	7	0	11	2	0	9	0	0	6	1	0	7	3	0	14	0	0	4	0	0	6	0	0	10	1	0	6	0	0	5	0	0	7	0
	Through	0	30	2	0	48	3	0	43	2	0	50	2	0	51	4	0	61	1	0	44	0	0	58	0	0	48	1	0	56	2	0	52	0	0	60	0
	Right	0	15	4	0	19	4	0	14	3	0	22	2	0	11	1	0	15	4	0	10	1	0	21	1	0	10	2	0	13	1	0	10	1	0	10	1
	App. Total	0	51	13	0	78	9	0	66	5	0	78	5	0	69	8	0	90	5	0	58	1	0	85	1	0	68	4	0	75	3	0	67	1	0	77	1
	Pct HV	20%			10%			7%			6%			10%			5%			2%			1%			6%			4%			1%			1%		
Total Class Volume		0	129	19	0	160	14	0	152	12	0	164	7	0	214	10	0	179	8	0	144	4	0	172	4	0	151	7	0	138	6	0	129	5	0	148	3
Total Interval Volume		148			174			164			171			224			187			148			176			158			144			134			151		
Intersection Pct HV		13%			8%			7%			4%			4%			4%			3%			2%			4%			4%			4%			2%		

Pedestrian Volumes — 15 Minute Period Beginning @

APPROACH	Movement	3:30	3:45	4:00	4:15	4:30	4:45	5:00	5:15	5:30	5:45	6:00	6:15
Eastbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	0	0	0	0	0	0

Miovision Vehicle Classification

Bike (BK) | Passenger Car (PC) | Heavy Vehicle (HV)

Intersection Total One Hour Volumes		Pct HV
3:30 PM	657	7.9%
3:45 PM	733	5.9%
4:00 PM	**746**	**5.0%**
4:15 PM	730	4.0%
4:30 PM	735	3.5%
4:45 PM	669	3.4%
5:00 PM	626	3.4%
5:15 PM	612	3.6%
5:30 PM	587	3.6%

App.= Approach
Pct= Percent

Phone: (509) 951-1851
email: beng@trfcnts.com

INTERSECTION

PROJECT: WCE Victory Heights Thorpe Road & SR 195
JOB NO. 23-81
DATE OF COUNT: 3/22/2023

Counter: Analyst
Miovision: BNG

PM PEAK HOURS

APPROACH	MOVEMENT	4:00 PM BK	4:00 PM PC	4:00 PM HV	4:15 PM BK	4:15 PM PC	4:15 PM HV	4:30 PM BK	4:30 PM PC	4:30 PM HV	4:45 PM BK	4:45 PM PC	4:45 PM HV
Eastbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	27	0	0	32	0	0	40	1	0	26	3
	Through	0	0	1	0	2	0	0	10	0	0	2	0
	Right	0	0	0	0	3	0	0	2	0	0	1	0
	App. Total	0	27	1	0	37	0	0	52	1	0	29	3
	Pct HV		4%			0%			2%			9%	
Westbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	1	0	0	2	0	0	1	0	0	2	0
	Through	0	3	1	0	3	0	0	3	0	0	6	0
	Right	0	13	0	0	10	2	0	43	1	0	18	0
	App. Total	0	17	1	0	15	2	0	47	1	0	26	0
	Pct HV		6%			12%			2%			0%	
Northbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	0	0	0	0	0	0	0	0	0	2	0
	Through	0	39	3	0	33	0	0	42	0	0	31	0
	Right	0	3	2	0	1	0	0	4	0	0	1	0
	App. Total	0	42	5	0	34	0	0	46	0	0	34	0
	Pct HV		11%			0%			0%			0%	
Southbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	9	0	0	6	1	0	7	3	0	14	0
	Through	0	43	2	0	50	2	0	51	4	0	61	1
	Right	0	14	3	0	22	2	0	11	1	0	15	4
	App. Total	0	66	5	0	78	5	0	69	8	0	90	5
	Pct HV		7%			6%			10%			5%	
Total Class Volume		0	152	12	0	164	7	0	214	10	0	179	8
Total Interval Volume			164			171			224			187	
Intersection Pct Trucks			7%			4%			4%			4%	

Approach

Receiving

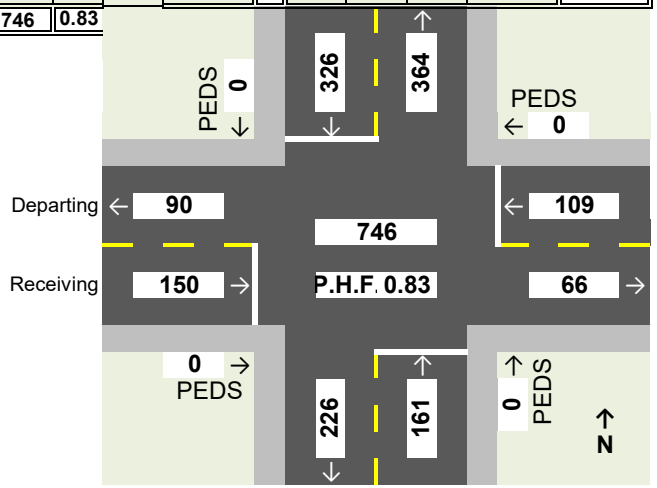
Mvmt	TOTAL HV	TOTAL Veh	PHF	Percentage of: HV	Percentage of: Approach
EBU	0	0			0.00%
EBL	4	129		3%	86.00%
EBT	1	15		7%	10.00%
EBR	0	6		0%	4.00%
Total	5	150	0.71	3%	100.00%
WBU	0	0			0.00%
WBL	0	6		0%	5.50%
WBT	1	16		6%	14.68%
WBR	3	87		3%	79.82%
Total	4	109	0.57	4%	100.00%
NBU	0	0			0.00%
NBL	0	2		0%	1.24%
NBT	3	148		2%	91.93%
NBR	2	11		18%	6.83%
Total	5	161	0.86	3%	100.00%
SBU	0	0			0.00%
SBL	4	40		10%	12.27%
SBT	9	214		4%	65.64%
SBR	10	72		14%	22.09%
Total	23	326	0.86	7%	100.00%
Total	**37**	**746**	**0.83**		

Departing

Mvmt	Total	Percentage of: HV	Percentage of: Approach	App.
EBU	0		0.00%	Eastbound
NBL	2	0%	2.22%	
WBT	16	6%	17.78%	
SBR	72	14%	80.00%	
Total	90	12%	100.00%	
WBU	0		0.00%	Westbound
SBL	40	10%	60.61%	
EBT	15	7%	22.73%	
NBR	11	18%	16.67%	
Total	66	11%	100.00%	
NBU	0		0.00%	Northbound
WBL	6	0%	2.65%	
SBT	214	4%	94.69%	
EBR	6	0%	2.65%	
Total	226	4%	100.00%	
SBU	0		0.00%	Southbound
EBL	129	3%	35.44%	
NBT	148	2%	40.66%	
WBR	87	3%	23.90%	
Total	364	3%	100.00%	

Pedestrian Volumes

APPROACH	MOVEMENT	4:00	4:15	4:30	4:45	Confli. Ped TOTAL
Eastbound	Crosswalk	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0
	Total	0	0	0	0	



Movement = Mvmt
Pedestrian = Ped
P.H.F.= Peak Hour Factor
App.= Approach
Pct= Percent

Phone: (509) 951-1851
email: beng@trfcnts.com

INTERSECTION

PROJECT: WCE Victory Heights — Thorpe Road
JOB NO. 23-81 — &
DATE OF COUNT: 3/22/2023 — Assembly Road
Counter: Miovision — Analyst: BNG
AM PEAK HOURS
15 Minute Period Beginning @

APPROACH	Movement	6:30 AM			6:45 AM			7:00 AM			7:15 AM			7:30 AM			7:45 AM			8:00 AM			8:15 AM			8:30 AM			8:45 AM			9:00 AM			9:15 AM		
Type		BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV
Eastbound	U-Turn	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
	Left	0	1	0	0	2	0	0	1	0	0	0	0	0	2	1	0	2	0	0	1	0	0	0	0	0	0	0	0	3	0	0	2	0	0	1	0
	Through	0	2	0	0	0	1	0	1	0	0	2	2	0	4	0	0	3	0	0	1	0	0	5	0	0	0	0	0	5	1	0	2	0	0	3	0
	Right	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0
	App. Total	0	3	0	0	2	2	0	2	0	0	2	2	0	6	1	0	7	0	0	3	0	0	6	0	0	1	0	0	9	1	0	4	0	0	4	0
	Pct HV	0%			50%			0%			50%			14%			0%			0%			0%			0%			10%			0%			0%		
Westbound	U-Turn	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
	Left	0	3	0	0	5	0	0	4	0	0	8	0	0	4	0	0	9	0	0	7	0	0	12	0	0	12	0	0	2	0	0	4	0	0	5	0
	Through	0	5	0	0	7	1	0	4	0	0	6	0	0	2	2	0	5	0	0	4	0	0	7	0	0	4	0	0	5	0	0	8	0	0	2	0
	Right	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	4	0
	App. Total	0	8	0	0	12	1	0	8	0	0	14	0	0	8	2	0	14	0	0	14	0	0	20	0	0	16	0	0	7	0	0	12	0	0	11	0
	Pct HV	0%			8%			0%			0%			20%			0%			0%			0%			0%			0%			0%			0%		
Northbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	5	0	0	5	1	0	4	0	0	6	0	0	5	0	0	7	0	0	6	1	0	3	0	0	6	1	0	2	0	0	4	0	0	5	1
	Through	0	2	0	0	3	0	0	4	0	0	11	0	0	16	0	0	11	0	0	2	0	0	7	0	0	11	0	0	9	0	0	3	1	0	9	0
	Right	0	4	0	0	3	0	0	2	0	0	2	0	0	3	0	0	6	0	0	5	0	0	8	0	0	7	0	0	6	0	0	5	0	0	5	0
	App. Total	0	11	0	0	11	1	0	10	0	0	19	0	0	24	0	0	24	0	0	14	1	0	18	0	0	24	1	0	17	0	0	12	1	0	19	1
	Pct HV	0%			8%			0%			0%			0%			0%			7%			0%			4%			0%			8%			5%		
Southbound	U-Turn	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
	Left	0	1	1	0	3	0	0	2	0	0	0	0	0	2	0	0	1	0	0	2	0	0	1	0	0	1	0	0	1	0	0	1	0	0	1	0
	Through	0	2	0	0	2	2	0	6	0	0	6	1	0	2	0	0	9	1	0	7	0	0	6	0	0	10	1	0	3	0	0	5	0	0	4	0
	Right	0	4	1	0	7	0	0	5	0	0	9	1	0	10	0	0	2	1	0	2	0	0	6	2	0	5	1	0	5	0	0	3	0	0	1	0
	App. Total	0	7	2	0	12	2	0	13	0	0	15	2	0	14	0	0	12	2	0	11	0	0	13	2	0	16	2	0	9	0	0	9	0	0	6	0
	Pct HV	22%			14%			0%			12%			0%			14%			0%			13%			11%			0%			0%			0%		
Total Class Volume		0	29	2	0	37	6	0	33	0	0	50	4	0	52	3	0	57	2	0	42	1	0	57	2	0	57	3	0	42	1	0	37	1	0	40	1
Total Interval Volume		31			43			33			54			55			59			43			59			60			43			38			41		
Intersection Pct HV		6%			14%			0%			7%			5%			3%			2%			3%			5%			2%			3%			2%		

Pedestrian Volumes — 15 Minute Period Beginning @

APPROACH	Movement	6:30	6:45	7:00	7:15	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15
Eastbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	0	0	0	0	0	0

Miovision Vehicle Classification

Bike (BK) | Passenger Car (PC) | Heavy Vehicle (HV)

Intersection Total One Hour Volumes		Pct HV
6:30 AM	161	7.5%
6:45 AM	185	7.0%
7:00 AM	201	4.5%
7:15 AM	211	4.7%
7:30 AM	216	3.7%
7:45 AM	**221**	**3.6%**
8:00 AM	205	3.4%
8:15 AM	200	3.5%
8:30 AM	182	3.3%

App.= Approach
Pct= Percent

Phone: (509) 951-1851
email: beng@trfcnts.com

INTERSECTION

PROJECT: WCE Victory Heights Thorpe Road & Assembly Road
JOB NO. 23-81
DATE OF COUNT: 3/22/2023

Counter Analyst
Miovision BNG

AM PEAK HOURS

APPROACH	MOVEMENT	7:45 AM BK	7:45 AM PC	7:45 AM HV	8:00 AM BK	8:00 AM PC	8:00 AM HV	8:15 AM BK	8:15 AM PC	8:15 AM HV	8:30 AM BK	8:30 AM PC	8:30 AM HV
Eastbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	2	0	0	1	0	0	0	0	0	0	0
	Through	0	3	0	0	1	0	0	5	0	0	0	0
	Right	0	2	0	0	1	0	0	1	0	0	1	0
	App. Total	0	7	0	0	3	0	0	6	0	0	1	0
	Pct HV		0%			0%			0%			0%	
Westbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	9	0	0	7	0	0	12	0	0	12	0
	Through	0	5	0	0	4	0	0	7	0	0	4	0
	Right	0	0	0	0	3	0	0	1	0	0	0	0
	App. Total	0	14	0	0	14	0	0	20	0	0	16	0
	Pct HV		0%			0%			0%			0%	
Northbound	U-Turn	0	0	0	0	1	0	0	0	0	0	0	0
	Left	0	7	0	0	6	1	0	3	0	0	6	1
	Through	0	11	0	0	2	0	0	7	0	0	11	0
	Right	0	6	0	0	5	0	0	8	0	0	7	0
	App. Total	0	24	0	0	14	1	0	18	0	0	24	1
	Pct HV		0%			7%			0%			4%	
Southbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	1	0	0	2	0	0	1	0	0	1	0
	Through	0	9	1	0	7	0	0	6	0	0	10	1
	Right	0	2	1	0	2	0	0	6	2	0	5	1
	App. Total	0	12	2	0	11	0	0	13	2	0	16	2
	Pct HV		14%			0%			13%			11%	
Total Class Volume		0	57	2	0	42	1	0	57	2	0	57	3
Total Interval Volume			59			43			59			60	
Intersection Pct Trucks			3%			2%			3%			5%	

Approach

Receiving

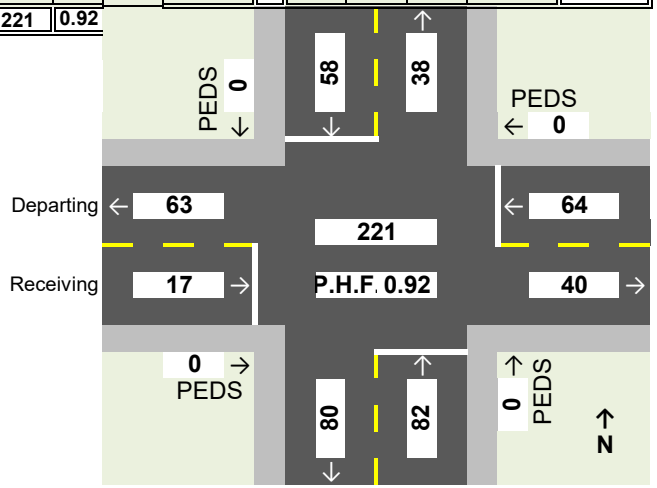
Mvmt	TOTAL HV	TOTAL Veh	PHF	Percentage of: HV	Percentage of: Approach
EBU	0	0			0.00%
EBL	0	3		0%	17.65%
EBT	0	9		0%	52.94%
EBR	0	5		0%	29.41%
Total	0	17	0.61	0%	100.00%
WBU	0	0			0.00%
WBL	0	40		0%	62.50%
WBT	0	20		0%	31.25%
WBR	0	4		0%	6.25%
Total	0	64	0.80	0%	100.00%
NBU	0	1		0%	1.22%
NBL	2	24		8%	29.27%
NBT	0	31		0%	37.80%
NBR	0	26		0%	31.71%
Total	2	82	0.82	2%	100.00%
SBU	0	0			0.00%
SBL	0	5		0%	8.62%
SBT	2	34		6%	58.62%
SBR	4	19		21%	32.76%
Total	6	58	0.81	10%	100.00%
Total	**8**	**221**	**0.92**		

Departing

Mvmt	Total	Percentage of: HV	Percentage of: Approach	App.
EBU	0		0.00%	Eastbound
NBL	24	8%	38.10%	
WBT	20	0%	31.75%	
SBR	19	21%	30.16%	
Total	63	10%	100.00%	
WBU	0		0.00%	Westbound
SBL	5	0%	12.50%	
EBT	9	0%	22.50%	
NBR	26	0%	65.00%	
Total	40	0%	100.00%	
NBU	1	0%	1.25%	Northbound
WBL	40	0%	50.00%	
SBT	34	6%	42.50%	
EBR	5	0%	6.25%	
Total	80	3%	100.00%	
SBU	0		0.00%	Southbound
EBL	3	0%	7.89%	
NBT	31	0%	81.58%	
WBR	4	0%	10.53%	
Total	38	0%	100.00%	

Pedestrian Volumes

APPROACH	MOVEMENT	7:45	8:00	8:15	8:30	Confli. Ped TOTAL
Eastbound	Crosswalk	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0
	Total	0	0	0	0	



Movement = Mvmt
Pedestrian = Ped
P.H.F.= Peak Hour Factor
App.= Approach
Pct= Percent

Phone: (509) 951-1851
email: beng@trfcnts.com

INTERSECTION

PROJECT: WCE Victory Heights — Thorpe Road
JOB NO. 23-81 — &
DATE OF COUNT: 3/22/2023 — Assembly Road
Counter: Miovision — Analyst: BNG
PM PEAK HOURS
15 Minute Period Beginning @

APPROACH	Movement	3:30 PM			3:45 PM			4:00 PM			4:15 PM			4:30 PM			4:45 PM			5:00 PM			5:15 PM			5:30 PM			5:45 PM			6:00 PM			6:15 PM		
Type		BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV
Eastbound	U-Turn	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
	Left	0	4	1	0	7	2	0	0	2	0	3	0	0	9	0	0	5	0	0	4	0	0	4	0	0	2	0	0	4	0	0	4	0	0	3	0
	Through	0	6	0	0	7	1	0	5	1	0	3	0	0	11	0	0	8	0	0	10	0	0	5	0	0	8	0	0	3	0	0	3	0	0	8	0
	Right	0	2	0	0	6	0	0	2	0	0	3	0	0	4	0	0	2	0	0	1	0	0	0	0	0	2	0	0	5	0	0	2	0	0	4	0
	App. Total	0	12	1	0	20	3	0	7	3	0	9	0	0	24	0	0	15	0	0	15	0	0	9	0	0	12	0	0	12	0	0	9	0	0	15	0
	Pct HV	8%			13%			30%			0%			0%			0%			0%			0%			0%			0%			0%			0%		
Westbound	U-Turn	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
	Left	0	7	0	0	7	0	0	6	0	0	3	0	0	7	0	0	9	0	0	11	0	0	4	0	0	17	0	0	12	0	0	11	0	0	9	0
	Through	0	3	0	0	5	0	0	2	0	0	1	0	0	4	0	0	8	0	0	3	0	0	8	0	0	6	0	0	3	0	0	8	0	0	1	0
	Right	0	0	0	0	3	0	0	3	0	0	1	0	0	2	0	0	4	0	0	2	0	0	4	0	0	4	0	0	2	0	0	2	0	0	1	0
	App. Total	0	10	0	0	15	0	0	11	0	0	5	0	0	13	0	0	21	0	0	16	0	0	16	0	0	27	0	0	17	0	0	21	0	0	11	0
	Pct HV	0%			0%			0%			0%			0%			0%			0%			0%			0%			0%			0%			0%		
Northbound	U-Turn	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
	Left	0	4	0	0	2	0	0	3	0	0	2	0	0	2	0	0	3	0	0	3	0	0	5	0	0	6	0	0	2	0	0	3	0	0	2	0
	Through	0	6	1	0	12	0	0	8	0	0	7	1	0	5	0	0	10	0	0	5	0	0	4	0	0	9	0	0	6	0	0	2	0	0	4	0
	Right	0	14	0	0	5	0	0	7	0	0	6	0	0	2	0	0	6	0	0	6	0	0	7	0	0	10	0	0	2	0	0	1	0	0	7	0
	App. Total	0	24	1	0	19	0	0	18	0	0	15	1	0	9	0	0	19	0	0	14	0	0	16	0	0	25	0	0	10	0	0	6	0	0	13	0
	Pct HV	4%			0%			0%			6%			0%			0%			0%			0%			0%			0%			0%			0%		
Southbound	U-Turn	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
	Left	0	5	0	0	3	0	0	1	0	0	2	0	0	3	0	0	4	0	0	1	0	0	2	0	0	3	1	0	1	0	0	1	0	0	1	0
	Through	0	6	0	0	17	1	0	12	1	0	19	0	0	9	0	0	18	0	0	24	0	0	15	0	0	23	1	0	20	0	0	19	0	0	22	0
	Right	0	2	1	0	2	0	0	3	0	0	5	0	0	8	0	0	4	0	0	5	0	0	6	0	0	5	0	0	1	0	0	5	1	0	5	0
	App. Total	0	13	1	0	22	1	0	16	1	0	26	0	0	20	0	0	26	0	0	30	0	0	23	0	0	31	2	0	22	0	0	25	1	0	28	0
	Pct HV	7%			4%			6%			0%			0%			0%			0%			0%			6%			0%			4%			0%		
Total Class Volume		0	59	3	0	76	4	0	52	4	0	55	1	0	66	0	0	81	0	0	75	0	0	64	0	0	95	2	0	61	0	0	61	1	0	67	0
Total Interval Volume		62			80			56			56			66			81			75			64			97			61			62			67		
Intersection Pct HV		5%			5%			7%			2%			0%			0%			0%			0%			2%			0%			2%			0%		

Pedestrian Volumes

APPROACH	Movement	15 Minute Period Beginning @ 3:30	3:45	4:00	4:15	4:30	4:45	5:00	5:15	5:30	5:45	6:00	6:15
Eastbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	0	0	0	0	0	0

Miovision Vehicle Classification

Bike (BK) | Passenger Car (PC) | Heavy Vehicle (HV)

Intersection Total One Hour Volumes		Pct HV
3:30 PM	254	4.7%
3:45 PM	258	3.5%
4:00 PM	259	1.9%
4:15 PM	278	0.4%
4:30 PM	286	0.0%
4:45 PM	**317**	**0.6%**
5:00 PM	297	0.7%
5:15 PM	284	1.1%
5:30 PM	287	1.0%

App.= Approach
Pct= Percent

Phone: (509) 951-1851
email: beng@trfcnts.com

INTERSECTION

PROJECT: WCE Victory Heights Thorpe Road & Assembly Road
JOB NO. 23-81
DATE OF COUNT: 3/22/2023

Counter Analyst
Miovision BNG

APPROACH	MOVEMENT	PM PEAK HOURS 4:45 PM BK	4:45 PM PC	4:45 PM HV	5:00 PM BK	5:00 PM PC	5:00 PM HV	5:15 PM BK	5:15 PM PC	5:15 PM HV	5:30 PM BK	5:30 PM PC	5:30 PM HV
Eastbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	5	0	0	4	0	0	4	0	0	2	0
	Through	0	8	0	0	10	0	0	5	0	0	8	0
	Right	0	2	0	0	1	0	0	0	0	0	2	0
	App. Total	0	15	0	0	15	0	0	9	0	0	12	0
	Pct HV		0%			0%			0%			0%	
Westbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	9	0	0	11	0	0	4	0	0	17	0
	Through	0	8	0	0	3	0	0	8	0	0	6	0
	Right	0	4	0	0	2	0	0	4	0	0	4	0
	App. Total	0	21	0	0	16	0	0	16	0	0	27	0
	Pct HV		0%			0%			0%			0%	
Northbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	3	0	0	3	0	0	5	0	0	6	0
	Through	0	10	0	0	5	0	0	4	0	0	9	0
	Right	0	6	0	0	6	0	0	7	0	0	10	0
	App. Total	0	19	0	0	14	0	0	16	0	0	25	0
	Pct HV		0%			0%			0%			0%	
Southbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	4	0	0	1	0	0	2	0	0	3	1
	Through	0	18	0	0	24	0	0	15	0	0	23	1
	Right	0	4	0	0	5	0	0	6	0	0	5	0
	App. Total	0	26	0	0	30	0	0	23	0	0	31	2
	Pct HV		0%			0%			0%			6%	
Total Class Volume		0	81	0	0	75	0	0	64	0	0	95	2
Total Interval Volume			81			75			64			97	
Intersection Pct Trucks			0%			0%			0%			2%	

Approach

Receiving

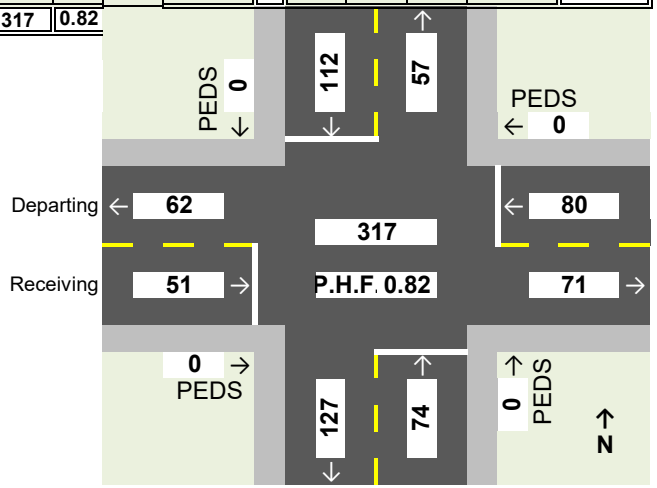
Mvmt	TOTAL HV	TOTAL Veh	PHF	Percentage of: HV	Percentage of: Approach
EBU	0	0			0.00%
EBL	0	15		0%	29.41%
EBT	0	31		0%	60.78%
EBR	0	5		0%	9.80%
Total	0	51	0.85	0%	100.00%
WBU	0	0			0.00%
WBL	0	41		0%	51.25%
WBT	0	25		0%	31.25%
WBR	0	14		0%	17.50%
Total	0	80	0.74	0%	100.00%
NBU	0	0			0.00%
NBL	0	17		0%	22.97%
NBT	0	28		0%	37.84%
NBR	0	29		0%	39.19%
Total	0	74	0.74	0%	100.00%
SBU	0	0			0.00%
SBL	1	11		9%	9.82%
SBT	1	81		1%	72.32%
SBR	0	20		0%	17.86%
Total	2	112	0.85	2%	100.00%
Total	**2**	**317**	**0.82**		

Departing

Mvmt	Total	Percentage of: HV	Percentage of: Approach	App.
EBU	0		0.00%	Eastbound
NBL	17	0%	27.42%	
WBT	25	0%	40.32%	
SBR	20	0%	32.26%	
Total	62	0%	100.00%	
WBU	0		0.00%	Westbound
SBL	11	9%	15.49%	
EBT	31	0%	43.66%	
NBR	29	0%	40.85%	
Total	71	1%	100.00%	
NBU	0		0.00%	Northbound
WBL	41	0%	32.28%	
SBT	81	1%	63.78%	
EBR	5	0%	3.94%	
Total	127	1%	100.00%	
SBU	0		0.00%	Southbound
EBL	15	0%	26.32%	
NBT	28	0%	49.12%	
WBR	14	0%	24.56%	
Total	57	0%	100.00%	
Total	**317**			
Intersection Pct Trucks	**1%**			

Pedestrian Volumes

APPROACH	MOVEMENT	4:45	5:00	5:15	5:30	Confli. Ped TOTAL
Eastbound	Crosswalk	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0
	Total	0	0	0	0	



Movement = Mvmt
Pedestrian = Ped
P.H.F.= Peak Hour Factor
App.= Approach
Pct= Percent

INTERSECTION

Phone: (509) 951-1851
email: beng@trfcnts.com

PROJECT: WCE Victory Heights
JOB NO. 23-81
DATE OF COUNT: 3/22/2023
Counter: BNG
Analyst: BNG

Garden Springs Road
&
Assembly Road

AM PEAK HOURS

15 Minute Period Beginning @

APPROACH	Movement	6:30 AM			6:45 AM			7:00 AM			7:15 AM			7:30 AM			7:45 AM			8:00 AM			8:15 AM			8:30 AM			8:45 AM			9:00 AM			9:15 AM		
Type		BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV
Eastbound	U-Turn	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
	Through	0	5	1	0	2	1	0	5	0	0	5	0	0	14	0	0	13	0	0	14	1	0	3	0	0	12	0	0	14	0	0	12	0	0	5	0
	Right	0	0	1	0	0	0	0	1	0	0	1	1	0	1	0	0	1	1	0	0	1	0	3	1	0	2	0	0	2	0	0	0	0	0	0	0
	App. Total	0	5	2	0	2	1	0	6	0	0	6	1	0	15	0	0	14	1	0	14	2	0	6	1	0	14	0	0	16	0	0	12	0	0	5	0
	Pct HV	29%			33%			0%			14%			0%			7%			13%			14%			0%			0%			0%			0%		
Westbound	U-Turn	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
	Left	0	5	2	0	7	2	0	6	0	0	6	0	0	7	0	0	10	1	0	11	0	0	10	1	0	7	0	0	10	0	0	7	0	0	9	0
	Through	0	3	0	0	11	0	0	1	1	0	3	0	0	3	0	0	4	0	0	2	0	0	2	0	0	8	0	0	15	0	0	5	0	0	1	2
	App. Total	0	8	2	0	18	2	0	7	1	0	9	0	0	10	0	0	14	1	0	13	0	0	12	1	0	15	0	0	25	0	0	12	0	0	10	2
	Pct HV	20%			10%			13%			0%			0%			7%			0%			8%			0%			0%			0%			17%		
Northbound	U-Turn	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
	Left	0	0	0	0	1	0	0	1	0	0	2	0	0	0	0	0	1	0	0	1	0	0	2	0	0	2	0	0	1	0	0	1	0	0	0	0
	Right	0	9	0	0	16	0	0	19	0	0	27	0	0	23	1	0	18	0	0	12	0	0	8	0	0	17	0	0	9	0	0	8	1	0	16	0
	App. Total	0	9	0	0	17	0	0	20	0	0	29	0	0	23	1	0	19	0	0	13	0	0	10	0	0	19	0	0	10	0	0	9	1	0	16	0
	Pct HV	0%			0%			0%			0%			4%			0%			0%			0%			0%			0%			10%			0%		
Total Class Volume		0	22	4	0	37	3	0	33	1	0	44	1	0	48	1	0	47	2	0	40	2	0	28	2	0	48	0	0	51	0	0	33	1	0	31	2
Total Interval Volume		26			40			34			45			49			49			42			30			48			51			34			33		
Intersection Pct HV		15%			8%			3%			2%			2%			4%			5%			7%			0%			0%			3%			6%		

Pedestrian Volumes

APPROACH	Movement	15 Minute Period Beginning @											
		6:30	6:45	7:00	7:15	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15
Eastbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	0	0	0	0	0	0

Miovision Vehicle Classification

Bike (BK) | Passenger Car (PC) | Heavy Vehicle (HV)

Intersection Total One Hour Volumes		Pct HV
6:30 AM	145	0.0%
6:45 AM	168	0.6%
7:00 AM	177	0.6%
7:15 AM	**185**	**0.5%**
7:30 AM	170	0.6%
7:45 AM	169	0.0%
8:00 AM	171	0.0%
8:15 AM	163	0.6%
8:30 AM	166	0.6%

App.= Approach
Pct= Percent

INTERSECTION

Phone: (509) 951-1851
email: beng@trfcnts.com

PROJECT: WCE Victory Heights Garden Springs Road & Assembly Road
JOB NO. 23-81
DATE OF COUNT: 3/22/2023
Counter Analyst
Miovision BNG

AM PEAK HOURS

APPROACH	MOVEMENT	7:15 AM BK	7:15 AM PC	7:15 AM HV	7:30 AM BK	7:30 AM PC	7:30 AM HV	7:45 AM BK	7:45 AM PC	7:45 AM HV	8:00 AM BK	8:00 AM PC	8:00 AM HV
Eastbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Through	0	5	0	0	14	0	0	13	0	0	14	1
	Right	0	1	1	0	1	0	0	1	1	0	0	1
	App. Total	0	6	1	0	15	0	0	14	1	0	14	2
	Pct HV		14%			0%			7%			13%	
Westbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	6	0	0	7	0	0	10	1	0	11	0
	Through	0	3	0	0	3	0	0	4	0	0	2	0
	App. Total	0	9	0	0	10	0	0	14	1	0	13	0
	Pct HV		0%			0%			7%			0%	
Northbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	2	0	0	0	0	0	1	0	0	1	0
	Right	0	27	0	0	23	1	0	18	0	0	12	0
	App. Total	0	29	0	0	23	1	0	19	0	0	13	0
	Pct HV		0%			4%			0%			0%	
Total Class Volume		0	44	1	0	48	1	0	47	2	0	40	2
Total Interval Volume			45			49			49			42	
Intersection Pct Trucks			2%			2%			4%			5%	

Approach

Receiving Mvmt	TOTAL HV	TOTAL Veh	PHF	Percentage of: HV	Percentage of: Approach
EBU	0	0			0.00%
EBT	1	47		2%	88.68%
EBR	3	6		50%	11.32%
Total	4	53	0.83	8%	100.00%
WBU	0	0			0.00%
WBL	1	35		3%	74.47%
WBT	0	12		0%	25.53%
Total	1	47	0.78	2%	100.00%
NBU	0	0			0.00%
NBL	0	4		0%	4.71%
NBR	1	81		1%	95.29%
Total	1	85	0.73	1%	100.00%
Total	**4**	**185**	**0.94**		

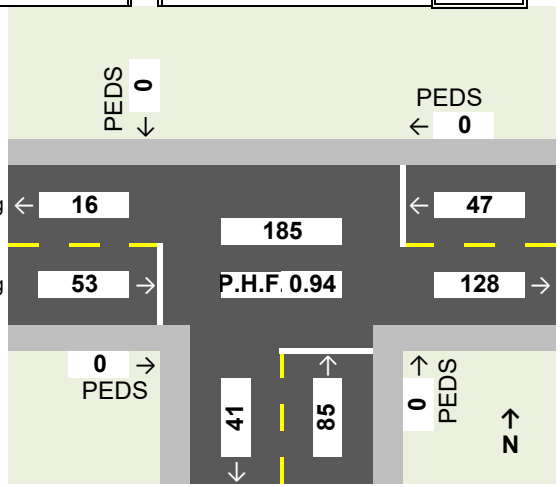
Departing

Mvmt	Total	Percentage of: HV	Percentage of: Approach	App.
EBU	0		0.00%	Eastbound
WBT	12	0%	75.00%	
NBL	4	0%	25.00%	
Total	16	0%	100.00%	
WBU	0		0.00%	Westbound
NBR	81	1%	63.28%	
EBT	47	2%	36.72%	
Total	128	2%	100.00%	
NBU	0		0.00%	Northbound
WBL	35	3%	85.37%	
EBR	6	50%	14.63%	
Total	41	10%	100.00%	

Pedestrian Volumes

APPROACH	MOVEMENT	7:15	7:30	7:45	8:00	Confli. Ped TOTAL
Eastbound	Crosswalk	0	0	0	0	**0**
Westbound	Crosswalk	0	0	0	0	**0**
Northbound	Crosswalk	0	0	0	0	**0**
Southbound	Crosswalk	0	0	0	0	**0**
	Total	0	0	0	0	

Movement = Mvmt
Pedestrian = Ped
P.H.F.= Peak Hour Factor
App.= Approach
Pct= Percent



Phone: (509) 951-1851
email: beng@trfcnts.com

INTERSECTION

PROJECT: WCE Victory Heights
JOB NO. 23-81
DATE OF COUNT: 3/22/2023
Counter: BNG
Analyst: BNG

Garden Springs Road
&
Assembly Road

PM PEAK HOURS
15 Minute Period Beginning @

APPROACH	Movement	3:30 PM			3:45 PM			4:00 PM			4:15 PM			4:30 PM			4:45 PM			5:00 PM			5:15 PM			5:30 PM			5:45 PM			6:00 PM			6:15 PM		
Type		BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV
Eastbound	U-Turn	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
	Through	0	18	1	0	10	0	0	7	0	0	7	0	0	21	0	0	11	0	0	5	0	0	16	1	0	10	0	0	10	0	0	6	0	0	7	0
	Right	0	2	0	0	2	1	0	2	0	0	1	0	0	1	0	0	1	0	0	4	0	0	3	0	0	1	0	0	3	0	0	1	0	0	2	0
	App. Total	0	20	1	0	12	1	0	9	0	0	8	0	0	22	0	0	12	0	0	9	0	0	19	1	0	11	0	0	13	0	0	7	0	0	9	0
	Pct HV	5%			8%			0%			0%			0%			0%			0%			5%			0%			0%			0%			0%		
Westbound	U-Turn	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
	Left	0	22	1	0	31	0	0	27	0	0	35	0	0	32	1	0	37	0	0	38	0	0	47	0	0	36	0	0	33	0	0	28	1	0	30	0
	Through	0	4	0	0	4	0	0	9	0	0	9	0	0	4	0	0	5	0	0	5	0	0	5	0	0	10	0	0	7	0	0	8	0	0	6	0
	App. Total	0	26	1	0	35	0	0	36	0	0	44	0	0	36	1	0	42	0	0	43	0	0	52	0	0	46	0	0	40	0	0	36	1	0	36	0
	Pct HV	4%			0%			0%			0%			3%			0%			0%			0%			0%			0%			3%			0%		
Northbound	U-Turn	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
	Left	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	2	0	0	1	0	0	1	0	0	1	0	0	0	0	0	1	0	0	1	0
	Right	0	16	1	0	19	0	0	18	0	0	16	3	0	25	0	0	17	0	0	17	0	0	15	0	0	16	0	0	18	0	0	7	0	0	17	0
	App. Total	0	16	1	0	21	0	0	20	0	0	16	3	0	25	0	0	19	0	0	18	0	0	16	0	0	17	0	0	18	0	0	8	0	0	18	0
	Pct HV	6%			0%			0%			16%			0%			0%			0%			0%			0%			0%			0%			0%		
Total Class Volume		0	62	3	0	68	1	0	65	0	0	68	3	0	83	1	0	73	0	0	70	0	0	87	1	0	74	0	0	71	0	0	51	1	0	63	0
Total Interval Volume		65			69			65			71			84			73			70			88			74			71			52			63		
Intersection Pct HV		5%			1%			0%			4%			1%			0%			0%			1%			0%			0%			2%			0%		

Pedestrian Volumes

APPROACH	Movement	15 Minute Period Beginning @ 3:30	3:45	4:00	4:15	4:30	4:45	5:00	5:15	5:30	5:45	6:00	6:15
Eastbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	0	0	0	0	0	0

Miovision Vehicle Classification

Bike (BK) | Passenger Car (PC) | Heavy Vehicle (HV)

Intersection Total One Hour Volumes		Pct HV
3:30 PM	270	2.6%
3:45 PM	289	1.7%
4:00 PM	293	1.4%
4:15 PM	298	1.3%
4:30 PM	**315**	**0.6%**
4:45 PM	305	0.3%
5:00 PM	303	0.3%
5:15 PM	285	0.7%
5:30 PM	260	0.4%

App.= Approach
Pct= Percent

Phone: (509) 951-1851
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INTERSECTION

PROJECT: WCE Victory Heights — Garden Springs Road & Assembly Road
JOB NO. 23-81
DATE OF COUNT: 3/22/2023
Counter Analyst
Miovision BNG

APPROACH	MOVEMENT	PM PEAK HOURS 4:30 PM BK	PC	HV	4:45 PM BK	PC	HV	5:00 PM BK	PC	HV	5:15 PM BK	PC	HV
Eastbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Through	0	21	0	0	11	0	0	5	0	0	16	1
	Right	0	1	0	0	1	0	0	4	0	0	3	0
	App. Total	0	22	0	0	12	0	0	9	0	0	19	1
	Pct HV		0%			0%			0%			5%	
Westbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	32	1	0	37	0	0	38	0	0	47	0
	Through	0	4	0	0	5	0	0	5	0	0	5	0
	App. Total	0	36	1	0	42	0	0	43	0	0	52	0
	Pct HV		3%			0%			0%			0%	
Northbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	0	0	0	2	0	0	1	0	0	1	0
	Right	0	25	0	0	17	0	0	17	0	0	15	0
	App. Total	0	25	0	0	19	0	0	18	0	0	16	0
	Pct HV		0%			0%			0%			0%	
Total Class Volume		0	83	1	0	73	0	0	70	0	0	87	1
Total Interval Volume			84			73			70			88	
Intersection Pct Trucks			1%			0%			0%			1%	

Approach

Receiving

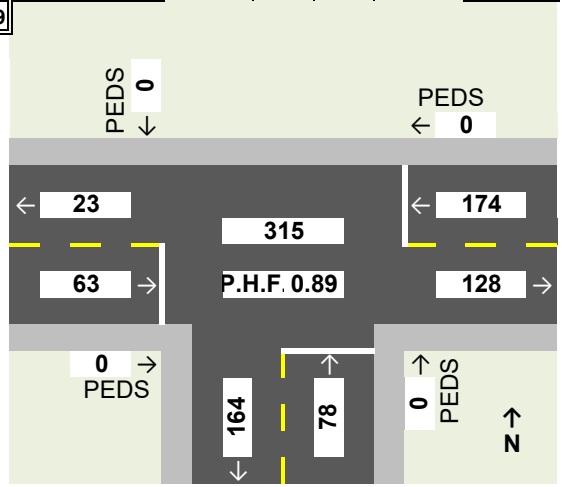
Mvmt	TOTAL HV	Veh	PHF	Percentage of: HV	Approach
EBU	0	0			0.00%
EBT	1	54		2%	85.71%
EBR	0	9		0%	14.29%
Total	1	63	0.72	2%	100.00%
WBU	0	0			0.00%
WBL	1	155		1%	89.08%
WBT	0	19		0%	10.92%
Total	1	174	0.84	1%	100.00%
NBU	0	0			0.00%
NBL	0	4		0%	5.13%
NBR	0	74		0%	94.87%
Total	0	78	0.78	0%	100.00%
Total	**1**	**315**	**0.89**		

Departing

Mvmt	Total	Percentage of: HV	Approach	App.
EBU	0		0.00%	Eastbound
WBT	19	0%	82.61%	
NBL	4	0%	17.39%	
Total	23	0%	100.00%	
WBU	0		0.00%	Westbound
NBR	74	0%	57.81%	
EBT	54	2%	42.19%	
Total	128	1%	100.00%	
NBU	0		0.00%	Northbound
WBL	155	1%	94.51%	
EBR	9	0%	5.49%	
Total	164	1%	100.00%	

Pedestrian Volumes APPROACH	MOVEMENT	4:30	4:45	5:00	5:15	Confli. Ped TOTAL
Eastbound	Crosswalk	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0
	Total	0	0	0	0	

Traffic Counts & Surveys Inc.



Movement = Mvmt
Pedestrian = Ped
P.H.F.= Peak Hour Factor
App.= Approach
Pct= Percent

WEE COUNT LLC.
E. 1110 EXCELSIOR RD.
SPOKANE, WA., 99224
(509) 979-3331

Turn Count Summary

Location: US 195 Hwy at W. 16th Ave., Spokane Wa.
GPS Coordinates: Lat=47.541046, Lon=-117.393286
Date: 2023-01-24
Day of week: Tuesday
Weather: Overcast
Analyst: Mike McCluskey

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	15	255	16	0	2	1	16	120	3	7	1	27	463
16:15	7	248	22	2	0	2	17	143	1	11	2	31	486
16:30	10	257	32	0	0	5	13	136	3	5	0	26	487
16:45	7	268	26	1	0	4	12	120	0	12	1	31	482
17:00	15	284	20	1	1	3	16	133	3	6	0	20	502
17:15	11	274	27	0	0	8	17	115	0	3	0	28	483
17:30	21	241	14	0	0	6	16	127	2	7	0	24	458
17:45	11	193	11	2	2	8	16	85	2	8	1	29	368

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	15	253	16	0	2	1	16	111	3	7	1	27	452
16:15	7	244	22	2	0	2	17	136	1	11	2	31	475
16:30	10	257	32	0	0	5	13	131	3	5	0	26	482
16:45	7	267	26	1	0	4	12	117	0	12	1	31	478
17:00	15	283	20	1	1	3	16	131	3	6	0	20	499
17:15	11	273	27	0	0	8	17	114	0	3	0	28	481
17:30	21	239	14	0	0	6	16	123	2	7	0	24	452
17:45	11	191	11	2	2	8	16	83	2	8	1	29	364

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	0	2	0	0	0	0	0	6	0	0	0	0	8
16:15	0	4	0	0	0	0	0	4	0	0	0	0	8
16:30	0	0	0	0	0	0	0	3	0	0	0	0	3
16:45	0	1	0	0	0	0	0	2	0	0	0	0	3
17:00	0	1	0	0	0	0	0	2	0	0	0	0	3
17:15	0	1	0	0	0	0	0	1	0	0	0	0	2
17:30	0	2	0	0	0	0	0	4	0	0	0	0	6
17:45	0	1	0	0	0	0	0	2	0	0	0	0	3

Bicycles traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	0	0	0	0	0	0	0	3	0	0	0	0	3
16:15	0	0	0	0	0	0	0	3	0	0	0	0	3
16:30	0	0	0	0	0	0	0	2	0	0	0	0	2
16:45	0	0	0	0	0	0	0	1	0	0	0	0	1
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	1	0	0	0	0	0	0	0	0	0	0	1

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Peak Hour

16:15 - 17:15

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	39	1057	100	4	1	14	58	532	7	34	3	108	1957
Factor	0.65	0.93	0.78	0.50	0.25	0.70	0.85	0.93	0.58	0.71	0.38	0.87	0.97
Approach Factor	0.94			0.95			0.93			0.82			

Peak Hour Vehicle Summary

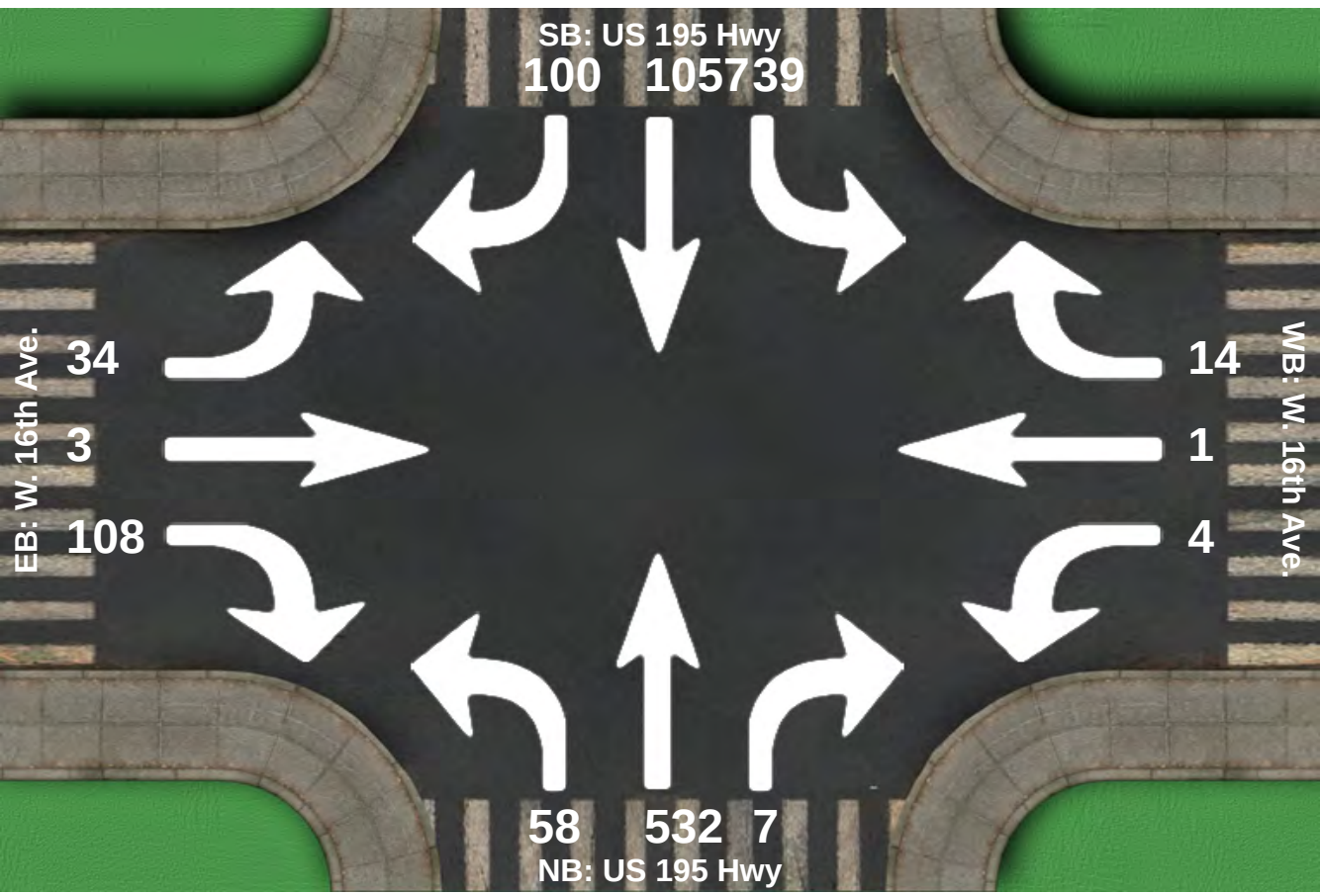
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	39	1051	100	4	1	14	58	515	7	34	3	108	1934
Truck	0	6	0	0	0	0	0	11	0	0	0	0	17
Bicycles	0	0	0	0	0	0	0	6	0	0	0	0	6

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Peak Hour

Location: US 195 Hwy at W. 16th Ave., Spokane Wa.
GPS Coordinates: Lat=47.541046, Lon=-117.393286
Date: 2023-01-24
Day of week: Tuesday
Weather: Overcast
Analyst: Mike McCluskey



Intersection Peak Hour

16:15 - 17:15

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	39	1057	100	4	1	14	58	532	7	34	3	108	1957
Factor	0.65	0.93	0.78	0.50	0.25	0.70	0.85	0.93	0.58	0.71	0.38	0.87	0.97
Approach Factor	0.94			0.95			0.93			0.82			

WEE COUNT LLC.
E. 1110 EXCELSIOR RD.
SPOKANE, WA., 99224
(509) 979-3331

Turn Count Summary

Location: US 195 Hwy at 16th Ave, Spokane Wa
GPS Coordinates: Lat=47.541032, Lon=-117.393297
Date: 2023-01-31
Day of week: Tuesday
Weather: Clear
Analyst: Mike McCluskey

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00	1	106	12	0	0	4	12	201	0	11	1	13	361
07:15	2	77	2	1	0	7	23	275	2	17	0	17	423
07:30	2	103	2	0	1	7	26	334	0	21	0	16	512
07:45	5	110	13	0	1	3	32	257	0	17	1	16	455
08:00	2	117	12	0	2	5	37	222	1	18	0	24	440
08:15	0	119	13	0	1	5	33	183	0	19	0	20	393
08:30	5	106	14	0	0	7	13	170	1	8	0	20	344
08:45	5	102	9	0	1	5	14	159	0	15	0	9	319

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00	1	100	11	0	0	4	12	198	0	11	1	13	351
07:15	2	72	2	1	0	7	23	271	1	17	0	17	413
07:30	2	98	2	0	1	6	26	332	0	21	0	16	504
07:45	5	101	11	0	1	3	32	255	0	17	1	16	442
08:00	2	108	12	0	2	4	37	220	0	18	0	23	426
08:15	0	112	13	0	1	5	33	179	0	19	0	19	381
08:30	4	97	14	0	0	6	13	168	0	8	0	20	330
08:45	5	93	9	0	1	5	14	153	0	15	0	9	304

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00	0	4	0	0	0	0	0	3	0	0	0	0	7
07:15	0	2	0	0	0	0	0	2	0	0	0	0	4
07:30	0	3	0	0	0	0	0	2	0	0	0	0	5
07:45	0	8	0	0	0	0	0	2	0	0	0	0	10
08:00	0	9	0	0	0	0	0	2	0	0	0	0	11
08:15	0	7	0	0	0	0	0	2	0	0	0	0	9
08:30	1	9	0	0	0	0	0	2	0	0	0	0	12
08:45	0	7	0	0	0	0	0	6	0	0	0	0	13

Bicycles traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00	0	2	1	0	0	0	0	0	0	0	0	0	3
07:15	0	3	0	0	0	0	0	2	1	0	0	0	6
07:30	0	2	0	0	0	1	0	0	0	0	0	0	3
07:45	0	1	2	0	0	0	0	0	0	0	0	0	3
08:00	0	0	0	0	0	1	0	0	1	0	0	1	3
08:15	0	0	0	0	0	0	0	2	0	0	0	1	3
08:30	0	0	0	0	0	1	0	0	1	0	0	0	2
08:45	0	2	0	0	0	0	0	0	0	0	0	0	2

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Peak Hour

07:15 - 08:15

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	11	407	29	1	4	22	118	1088	3	73	1	73	1830
Factor	0.55	0.87	0.56	0.25	0.50	0.79	0.80	0.81	0.38	0.87	0.25	0.76	0.89
Approach Factor	0.85			0.84			0.84			0.88			

Peak Hour Vehicle Summary

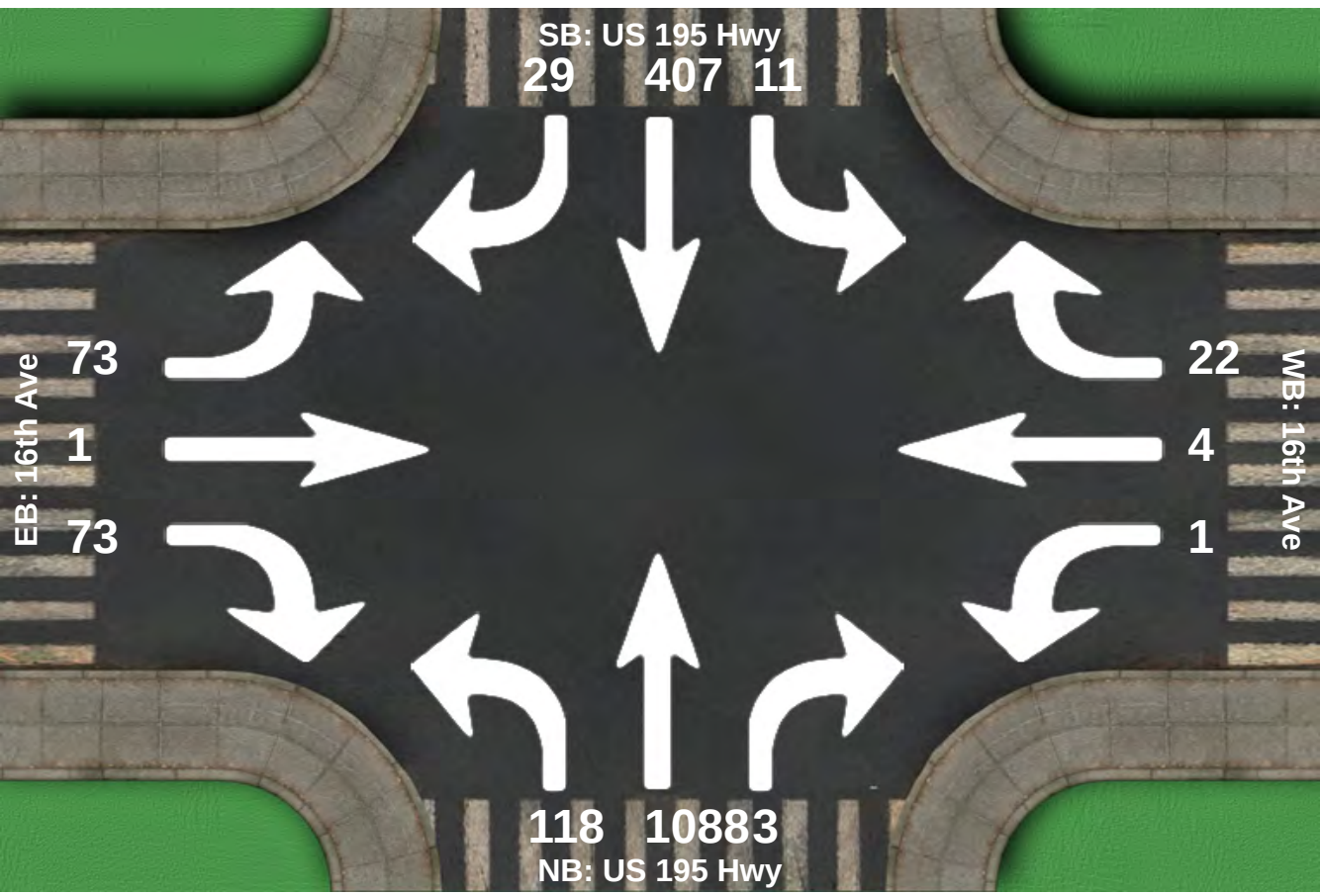
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	11	379	27	1	4	20	118	1078	1	73	1	72	1785
Truck	0	22	0	0	0	0	0	8	0	0	0	0	30
Bicycles	0	6	2	0	0	2	0	2	2	0	0	1	15

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Peak Hour

Location: US 195 Hwy at 16th Ave, Spokane Wa
GPS Coordinates: Lat=47.541032, Lon=-117.393297
Date: 2023-01-31
Day of week: Tuesday
Weather: Clear
Analyst: Mike McCluskey



Intersection Peak Hour

07:15 - 08:15

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	11	407	29	1	4	22	118	1088	3	73	1	73	1830
Factor	0.55	0.87	0.56	0.25	0.50	0.79	0.80	0.81	0.38	0.87	0.25	0.76	0.89
Approach Factor	0.85			0.84			0.84			0.88			

INTERSECTION

Phone: (509) 951-1851
email: beng@trfcnts.com

PROJECT: WCE Victory Heights — North J-turn (Thorpe Road)
JOB NO. 23-81 — &
DATE OF COUNT: 3/22/2023 — SR 195
Counter: Miovision — Analyst: BNG
AM PEAK HOURS
15 Minute Period Beginning @

APPROACH	Movement	6:30 AM			6:45 AM			7:00 AM			7:15 AM			7:30 AM			7:45 AM			8:00 AM			8:15 AM			8:30 AM			8:45 AM			9:00 AM			9:15 AM		
Type		BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV
Eastbound	U-Turn	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
	Left	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
	Right	0	9	1	0	1	0	0	8	0	0	11	1	0	17	0	0	10	0	0	10	0	0	13	0	0	15	0	0	5	0	0	7	0	0	5	0
	App. Total	0	9	1	0	1	0	0	8	0	0	11	1	0	17	0	0	10	0	0	10	0	0	13	0	0	15	0	0	5	0	0	7	0	0	5	0
	Pct HV		10%			0%			0%			8%			0%			0%			0%			0%			0%			0%			0%			0%	
Northbound	U-Turn	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
	Left	0	9	1	0	1	0	0	8	0	0	11	1	0	17	0	0	10	0	0	10	0	0	13	0	0	15	0	0	5	0	0	7	0	0	5	0
	Through	0	194	3	0	225	4	0	232	1	0	293	4	0	336	5	0	330	6	0	248	6	0	260	6	0	217	4	0	211	5	0	174	5	0	190	8
	App. Total	0	203	4	0	226	4	0	240	1	0	304	5	0	353	5	0	340	6	0	258	6	0	273	6	0	232	4	0	216	5	0	181	5	0	195	8
	Pct HV		2%			2%			0%			2%			1%			2%			2%			2%			2%			2%			3%			4%	
Southbound	U-Turn	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
	Through	0	70	17	0	73	17	0	95	8	0	149	12	0	143	9	0	142	16	0	154	11	0	166	11	0	133	13	0	130	16	0	121	13	0	113	5
	Right	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
	App. Total	0	70	17	0	73	17	0	95	8	0	149	12	0	143	9	0	142	16	0	154	11	0	166	11	0	133	13	0	130	16	0	121	13	0	113	5
	Pct HV		20%			19%			8%			7%			6%			10%			7%			6%			9%			11%			10%			4%	
Total Class Volume		0	282	22	0	300	21	0	343	9	0	464	18	0	513	14	0	492	22	0	422	17	0	452	17	0	380	17	0	351	21	0	309	18	0	313	13
Total Interval Volume			304			321			352			482			527			514			439			469			397			372			327			326	
Intersection Pct HV			7%			7%			3%			4%			3%			4%			4%			4%			4%			6%			6%			4%	

Pedestrian Volumes — 15 Minute Period Beginning @

APPROACH	Movement	6:30	6:45	7:00	7:15	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15
Eastbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	0	0	0	0	0	0

Miovision Vehicle Classification

Bike (BK) | Passenger Car (PC) | Heavy Vehicle (HV)

Intersection Total One Hour Volumes		Pct HV
6:30 AM	1,459	4.8%
6:45 AM	1,682	3.7%
7:00 AM	1,875	3.4%
7:15 AM	**1,962**	**3.6%**
7:30 AM	1,949	3.6%
7:45 AM	1,819	4.0%
8:00 AM	1,677	4.3%
8:15 AM	1,565	4.7%
8:30 AM	1,422	4.9%

App.= Approach
Pct= Percent

INTERSECTION

Phone: (509) 951-1851
email: beng@trfcnts.com

PROJECT: WCE Victory Heights North J-turn (Thorpe Road) & SR 195
JOB NO. 23-81
DATE OF COUNT: 3/22/2023
Counter Analyst
Miovision BNG

APPROACH	MOVEMENT	AM PEAK HOURS 7:15 AM BK	PC	HV	7:30 AM BK	PC	HV	7:45 AM BK	PC	HV	8:00 AM BK	PC	HV
Eastbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	0	0	0	0	0	0	0	0	0	0	0
	Right	0	11	1	0	17	0	0	10	0	0	10	0
	App. Total	0	11	1	0	17	0	0	10	0	0	10	0
	Pct HV		8%			0%			0%			0%	
Northbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	11	1	0	17	0	0	10	0	0	10	0
	Through	0	293	4	0	336	5	0	330	6	0	248	6
	App. Total	0	304	5	0	353	5	0	340	6	0	258	6
	Pct HV		2%			1%			2%			2%	
Southbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Through	0	149	12	0	143	9	0	142	16	0	154	11
	Right	0	0	0	0	0	0	0	0	0	0	0	0
	App. Total	0	149	12	0	143	9	0	142	16	0	154	11
	Pct HV		7%			6%			10%			7%	
Total Class Volume		0	464	18	0	513	14	0	492	22	0	422	17
Total Interval Volume			482			527			514			439	
Intersection Pct Trucks			4%			3%			4%			4%	

Approach — Receiving

Mvmt	TOTAL HV	TOTAL Veh	PHF	Percentage of: HV	Percentage of: Approach
EBU	0	0			0.00%
EBL	0	0			0.00%
EBR	1	49		2%	100.00%
Total	1	49	0.72	2%	100.00%
NBU	0	0			0.00%
NBL	1	49		2%	3.84%
NBT	21	1228		2%	96.16%
Total	22	1277	0.89	2%	100.00%
SBU	0	0			0.00%
SBT	48	636		8%	100.00%
SBR	0	0			0.00%
Total	48	636	0.96	8%	100.00%
Total	**71**	**1,962**	**0.93**		
1,962					
4%					

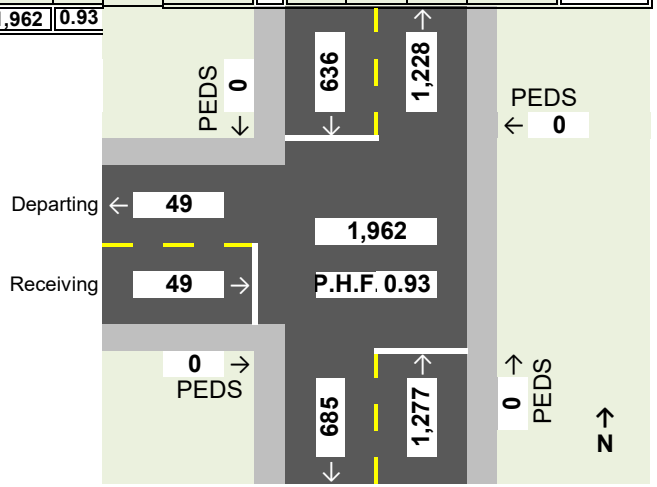
Approach — Departing

Mvmt	Total	Percentage of: HV	Percentage of: Approach	App.
EBU	0	0%	0.00%	Eastbound
NBL	49	100%	100.00%	
SBR	0	0%	0.00%	
Total	49	2%	100.00%	
NBU	0	0%	0.00%	Northbound
EBR	49	100%	7.15%	
SBT	636	####	92.85%	
Total	685	7%	100.00%	
SBU	0	0%	0.00%	Southbound
NBT	1228	####	100.00%	
EBL	0	0%	0.00%	
Total	1228	2%	100.00%	

Pedestrian Volumes

APPROACH	MOVEMENT	7:15	7:30	7:45	8:00	Confli. Ped TOTAL
Eastbound	Crosswalk	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0
	Total	0	0	0	0	

Movement = Mvmt
Pedestrian = Ped
P.H.F.= Peak Hour Factor
App.= Approach
Pct= Percent



INTERSECTION

Phone: (509) 951-1851
email: beng@trfcnts.com

PROJECT: WCE Victory Heights — North J-turn (Thorpe Road)
JOB NO. 23-81 — &
DATE OF COUNT: 3/22/2023 — SR 195
Counter: Miovision — Analyst: BNG
PM PEAK HOURS
15 Minute Period Beginning @

APPROACH	Movement	3:30 PM			3:45 PM			4:00 PM			4:15 PM			4:30 PM			4:45 PM			5:00 PM			5:15 PM			5:30 PM			5:45 PM			6:00 PM			6:15 PM		
Type		BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV
Eastbound	U-Turn	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
	Left	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
	Right	0	10	0	0	18	0	0	13	0	0	12	0	0	18	0	0	14	0	0	15	0	0	19	0	0	21	0	0	18	0	0	14	1	0	12	0
	App. Total	0	10	0	0	18	0	0	13	0	0	12	0	0	18	0	0	14	0	0	15	0	0	19	0	0	21	0	0	18	0	0	14	1	0	12	0
	Pct HV		0%			0%			0%			0%			0%			0%			0%			0%			0%			0%			7%			0%	
Northbound	U-Turn	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
	Left	0	10	0	0	18	0	0	13	0	0	12	0	0	18	0	0	14	0	0	15	0	0	19	0	0	21	0	0	18	0	0	14	1	0	12	0
	Through	0	162	6	0	198	14	0	169	17	0	169	16	0	157	6	0	153	6	0	136	5	0	214	6	0	168	6	0	185	6	0	140	4	0	150	1
	App. Total	0	172	6	0	216	14	0	182	17	0	181	16	0	175	6	0	167	6	0	151	5	0	233	6	0	189	6	0	203	6	0	154	5	0	162	1
	Pct HV		3%			6%			9%			8%			3%			3%			3%			3%			3%			3%			3%			1%	
Southbound	U-Turn	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
	Through	0	287	5	0	296	5	0	299	3	0	327	5	0	322	4	0	323	3	0	331	4	0	376	0	0	321	3	0	269	2	0	205	4	0	194	0
	Right	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
	App. Total	0	287	5	0	296	5	0	299	3	0	327	5	0	322	4	0	323	3	0	331	4	0	376	0	0	321	3	0	269	2	0	205	4	0	194	0
	Pct HV		2%			2%			1%			2%			1%			1%			1%			0%			1%			1%			2%			0%	
Total Class Volume		0	469	11	0	530	19	0	494	20	0	520	21	0	515	10	0	504	9	0	497	9	0	628	6	0	531	9	0	490	8	0	373	10	0	368	1
Total Interval Volume			480			549			514			541			525			513			506			634			540			498			383			369	
Intersection Pct HV			2%			3%			4%			4%			2%			2%			2%			1%			2%			2%			3%			0%	

Pedestrian Volumes

APPROACH	Movement	15 Minute Period Beginning @ 3:30	3:45	4:00	4:15	4:30	4:45	5:00	5:15	5:30	5:45	6:00	6:15
Eastbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	0	0	0	0	0	0

Miovision Vehicle Classification

Bike (BK) | Passenger Car (PC) | Heavy Vehicle (HV)

Intersection Total One Hour Volumes		Pct HV
3:30 AM	2,084	3.4%
3:45 AM	2,129	3.3%
4:00 AM	2,093	2.9%
4:15 AM	2,085	2.4%
4:30 AM	2,178	1.6%
4:45 AM	**2,193**	**1.5%**
5:00 AM	2,178	1.5%
5:15 AM	2,055	1.6%
5:30 AM	1,790	1.6%

App.= Approach
Pct= Percent

INTERSECTION

Phone: (509) 951-1851
email: beng@trfcnts.com

PROJECT: WCE Victory Heights North J-turn (Thorpe Road) & SR 195
JOB NO. 23-81
DATE OF COUNT: 3/22/2023
Counter Analyst
Miovision BNG

PM PEAK HOURS

APPROACH	MOVEMENT	4:45 PM BK	4:45 PM PC	4:45 PM HV	5:00 PM BK	5:00 PM PC	5:00 PM HV	5:15 PM BK	5:15 PM PC	5:15 PM HV	5:30 PM BK	5:30 PM PC	5:30 PM HV
Eastbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	0	0	0	0	0	0	0	0	0	0	0
	Right	0	14	0	0	15	0	0	19	0	0	21	0
	App. Total	0	14	0	0	15	0	0	19	0	0	21	0
	Pct HV		0%			0%			0%			0%	
Northbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	14	0	0	15	0	0	19	0	0	21	0
	Through	0	153	6	0	136	5	0	214	6	0	168	6
	App. Total	0	167	6	0	151	5	0	233	6	0	189	6
	Pct HV		3%			3%			3%			3%	
Southbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Through	0	323	3	0	331	4	0	376	0	0	321	3
	Right	0	0	0	0	0	0	0	0	0	0	0	0
	App. Total	0	323	3	0	331	4	0	376	0	0	321	3
	Pct HV		1%			1%			0%			1%	
Total Class Volume		0	504	9	0	497	9	0	628	6	0	531	9
Total Interval Volume			513			506			634			540	
Intersection Pct Trucks			2%			2%			1%			2%	

Approach

Receiving

Mvmt	TOTAL HV	TOTAL Veh	PHF	Percentage of: HV	Percentage of: Approach
EBU	0	0			0.00%
EBL	0	0			0.00%
EBR	0	69		0%	100.00%
Total	0	69	0.82	0%	100.00%
NBU	0	0			0.00%
NBL	0	69		0%	9.04%
NBT	23	694		3%	90.96%
Total	23	763	0.80	3%	100.00%
SBU	0	0			0.00%
SBT	10	1361		1%	100.00%
SBR	0	0			0.00%
Total	10	1361	0.90	1%	100.00%
Total	**33**	**2,193**	**0.86**		

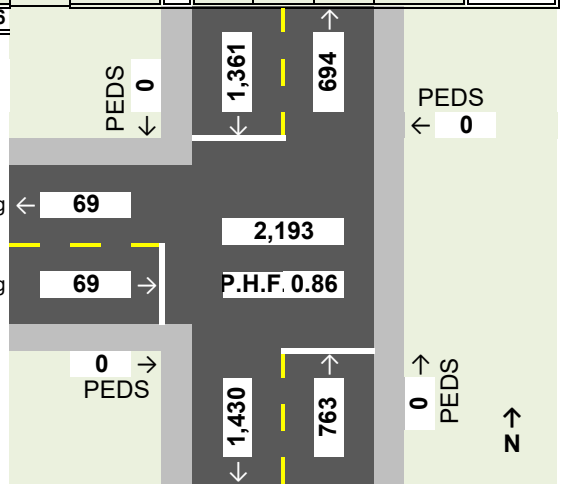
Departing

Mvmt	Total	Percentage of: HV	Percentage of: Approach	App.
EBU	0	0%	0.00%	Eastbound
NBL	69	0%	100.00%	
SBR	0	0%	0.00%	
Total	69	0%	100.00%	
NBU	0	0%	0.00%	Northbound
EBR	69	0%	4.83%	
SBT	1361	####	95.17%	
Total	1430	1%	100.00%	
SBU	0	0%	0.00%	Southbound
NBT	694	####	100.00%	
EBL	0	0%	0.00%	
Total	694	3%	100.00%	

Pedestrian Volumes

APPROACH	MOVEMENT	4:45	5:00	5:15	5:30	Confli. Ped TOTAL
Eastbound	Crosswalk	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0
	Total	0	0	0	0	

Movement = Mvmt
Pedestrian = Ped
P.H.F.= Peak Hour Factor
App.= Approach
Pct= Percent



Phone: (509) 951-1851
email: beng@trfcnts.com

INTERSECTION

PROJECT: WCE Victory Heights — Thorpe Road
JOB NO. 23-81 — &
DATE OF COUNT: 3/16/2023 — SR 195
Counter: Miovision — Analyst: BNG
AM PEAK HOURS
15 Minute Period Beginning @

APPROACH	Movement	6:30 AM			6:45 AM			7:00 AM			7:15 AM			7:30 AM			7:45 AM			8:00 AM			8:15 AM			8:30 AM			8:45 AM			9:00 AM			9:15 AM		
Type		BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV
Eastbound	U-Turn	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
	Left	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
	Through	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
	Right	0	19	0	0	21	1	0	13	0	0	30	1	0	22	0	0	27	0	0	21	1	0	22	2	0	25	0	0	24	0	0	16	1	0	21	0
	App. Total	0	19	0	0	21	1	0	13	0	0	30	1	0	22	0	0	27	0	0	21	1	0	22	2	0	25	0	0	24	0	0	16	1	0	21	0
	Pct HV	0%			5%			0%			3%			0%			0%			5%			8%			0%			0%			6%			0%		
Westbound	U-Turn	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
	Left	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
	Through	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
	Right	0	10	0	0	3	0	0	7	0	0	8	1	0	10	1	0	9	0	0	9	2	0	5	1	0	1	1	0	10	0	0	4	0	0	11	0
	App. Total	0	10	0	0	3	0	0	7	0	0	8	1	0	10	1	0	9	0	0	9	2	0	5	1	0	1	1	0	10	0	0	4	0	0	11	0
	Pct HV	0%			0%			0%			11%			9%			0%			18%			17%			50%			0%			0%			0%		
Northbound	U-Turn	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
	Left	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
	Through	0	193	4	0	223	4	0	233	1	0	296	4	0	343	4	0	331	6	0	249	4	0	268	5	0	231	3	0	206	5	0	177	5	0	184	8
	Right	0	11	0	0	19	0	0	17	1	0	20	1	0	44	0	0	53	0	0	29	1	0	32	1	0	23	1	0	16	0	0	12	1	0	16	0
	App. Total	0	204	4	0	242	4	0	250	2	0	316	5	0	387	4	0	384	6	0	278	5	0	300	6	0	254	4	0	222	5	0	189	6	0	200	8
	Pct HV	2%			2%			1%			2%			1%			2%			2%			2%			2%			2%			3%			4%		
Southbound	U-Turn	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
	Left	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
	Through	0	56	17	0	71	17	0	85	7	0	137	11	0	129	9	0	130	14	0	145	11	0	149	10	0	111	13	0	124	16	0	109	13	0	104	5
	Right	0	14	0	0	2	0	0	10	1	0	12	1	0	14	0	0	12	2	0	9	0	0	17	1	0	22	0	0	6	0	0	12	0	0	9	0
	App. Total	0	70	17	0	73	17	0	95	8	0	149	12	0	143	9	0	142	16	0	154	11	0	166	11	0	133	13	0	130	16	0	121	13	0	113	5
	Pct HV	20%			19%			8%			7%			6%			10%			7%			6%			9%			11%			10%			4%		
Total Class Volume		0	303	21	0	339	22	0	365	10	0	503	19	0	562	14	0	562	22	0	462	19	0	493	20	0	413	18	0	386	21	0	330	20	0	345	13
Total Interval Volume		324			361			375			522			576			584			481			513			431			407			350			358		
Intersection Pct HV		6%			6%			3%			4%			2%			4%			4%			4%			4%			5%			6%			4%		

Pedestrian Volumes — 15 Minute Period Beginning @

APPROACH	Movement	6:30	6:45	7:00	7:15	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15
Eastbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Westbound	Crosswalk	0	2	0	0	0	0	0	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Total		0	2	0	0	0	0	0	0	0	0	0	0

Miovision Vehicle Classification

Bike (BK) | Passenger Car (PC) | Heavy Vehicle (HV)

Intersection Total One Hour Volumes		Pct HV
6:30 AM	1,582	4.6%
6:45 AM	1,834	3.5%
7:00 AM	2,057	3.2%
7:15 AM	**2,163**	**3.4%**
7:30 AM	2,154	3.5%
7:45 AM	2,009	3.9%
8:00 AM	1,832	4.3%
8:15 AM	1,701	4.6%
8:30 AM	1,546	4.7%

App.= Approach
Pct= Percent

Phone: (509) 951-1851
email: beng@trfcnts.com

INTERSECTION

PROJECT: WCE Victory Heights Thorpe Road & SR 195
JOB NO. 23-81
DATE OF COUNT: 3/16/2023
Counter Analyst
Miovision BNG

AM PEAK HOURS

APPROACH	MOVEMENT	7:15 AM BK	7:15 AM PC	7:15 AM HV	7:30 AM BK	7:30 AM PC	7:30 AM HV	7:45 AM BK	7:45 AM PC	7:45 AM HV	8:00 AM BK	8:00 AM PC	8:00 AM HV
Eastbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	0	0	0	0	0	0	0	0	0	0	0
	Through	0	0	0	0	0	0	0	0	0	0	0	0
	Right	0	30	1	0	22	0	0	27	0	0	21	1
	App. Total	0	30	1	0	22	0	0	27	0	0	21	1
	Pct HV		3%			0%			0%			5%	
Westbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	0	0	0	0	0	0	0	0	0	0	0
	Through	0	0	0	0	0	0	0	0	0	0	0	0
	Right	0	8	1	0	10	1	0	9	0	0	9	2
	App. Total	0	8	1	0	10	1	0	9	0	0	9	2
	Pct HV		11%			9%			0%			18%	
Northbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	0	0	0	0	0	0	0	0	0	0	0
	Through	0	296	4	0	343	4	0	331	6	0	249	4
	Right	0	20	1	0	44	0	0	53	0	0	29	1
	App. Total	0	316	5	0	387	4	0	384	6	0	278	5
	Pct HV		2%			1%			2%			2%	
Southbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	0	0	0	0	0	0	0	0	0	0	0
	Through	0	137	11	0	129	9	0	130	14	0	145	11
	Right	0	12	1	0	14	0	0	12	2	0	9	0
	App. Total	0	149	12	0	143	9	0	142	16	0	154	11
	Pct HV		7%			6%			10%			7%	
Total Class Volume		0	503	19	0	562	14	0	562	22	0	462	19
Total Interval Volume			522			576			584			481	
Intersection Pct Trucks			4%			2%			4%			4%	

Approach

Receiving

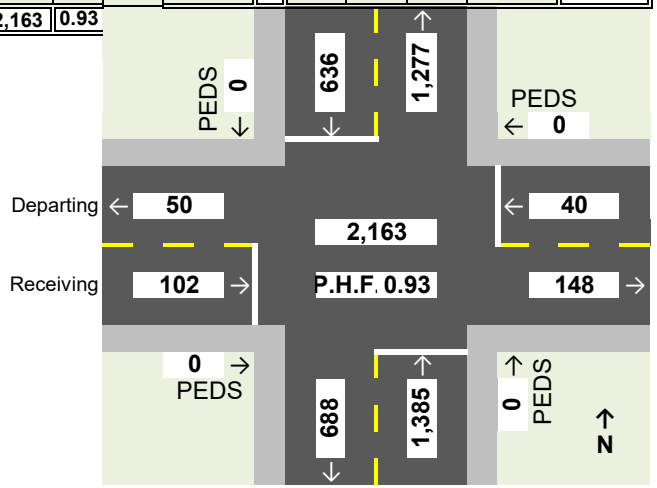
Mvmt	TOTAL HV	TOTAL Veh	PHF	Percentage of: HV	Percentage of: Approach
EBU	0	0			0.00%
EBL	0	0			0.00%
EBT	0	0			0.00%
EBR	2	102		2%	100.00%
Total	2	102	0.82	2%	100.00%
WBU	0	0			0.00%
WBL	0	0			0.00%
WBT	0	0			0.00%
WBR	4	40		10%	100.00%
Total	4	40	0.91	10%	100.00%
NBU	0	0			0.00%
NBL	0	0			0.00%
NBT	18	1237		1%	89.31%
NBR	2	148		1%	10.69%
Total	20	1385	0.89	1%	100.00%
SBU	0	0			0.00%
SBL	0	0			0.00%
SBT	45	586		8%	92.14%
SBR	3	50		6%	7.86%
Total	48	636	0.96	8%	100.00%
Total	**74**	**2,163**	**0.93**		

Departing

Mvmt	Total	Percentage of: HV	Percentage of: Approach	App.
EBU	0		0.00%	Eastbound
NBL	0		0.00%	
WBT	0		0.00%	
SBR	50	6%	100.00%	
Total	50	6%	100.00%	
WBU	0		0.00%	Westbound
SBL	0		0.00%	
EBT	0		0.00%	
NBR	148	1%	100.00%	
Total	148	1%	100.00%	
NBU	0		0.00%	Northbound
WBL	0		0.00%	
SBT	586	8%	85.17%	
EBR	102	2%	14.83%	
Total	688	7%	100.00%	
SBU	0		0.00%	Southbound
EBL	0		0.00%	
NBT	1237	1%	96.87%	
WBR	40	10%	3.13%	
Total	1277	2%	100.00%	

Pedestrian Volumes

APPROACH	MOVEMENT	7:15	7:30	7:45	8:00	Confli. Ped TOTAL
Eastbound	Crosswalk	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0
	Total	0	0	0	0	



Movement = Mvmt
Pedestrian = Ped
P.H.F.= Peak Hour Factor
App.= Approach
Pct= Percent

Phone: (509) 951-1851
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INTERSECTION

PROJECT: WCE Victory Heights — Thorpe Road
JOB NO. 23-81 — &
DATE OF COUNT: 3/16/2023 — SR 195
Counter: Miovision — Analyst: BNG
PM PEAK HOURS
15 Minute Period Beginning @

APPROACH	Movement	3:30 PM			3:45 PM			4:00 PM			4:15 PM			4:30 PM			4:45 PM			5:00 PM			5:15 PM			5:30 PM			5:45 PM			6:00 PM			6:15 PM		
Type		BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV
Eastbound	U-Turn	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
	Left	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
	Through	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
	Right	0	36	1	0	24	0	0	19	0	0	12	0	0	28	2	0	24	0	0	18	0	0	18	0	0	19	0	0	18	0	0	26	0	0	23	0
	App. Total	0	36	1	0	24	0	0	19	0	0	12	0	0	28	2	0	24	0	0	18	0	0	18	0	0	19	0	0	18	0	0	26	0	0	23	0
	Pct HV	3%			0%			0%			0%			7%			0%			0%			0%			0%			0%			0%			0%		
Westbound	U-Turn	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
	Left	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
	Through	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
	Right	0	5	1	0	6	0	0	14	0	0	9	0	0	11	0	0	5	0	0	8	0	0	11	0	0	8	0	0	5	0	0	12	0	0	7	0
	App. Total	0	5	1	0	6	0	0	14	0	0	9	0	0	11	0	0	5	0	0	8	0	0	11	0	0	8	0	0	5	0	0	12	0	0	7	0
	Pct HV	17%			0%			0%			0%			0%			0%			0%			0%			0%			0%			0%			0%		
Northbound	U-Turn	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
	Left	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
	Through	0	167	5	0	210	14	0	168	17	0	172	16	0	164	6	0	162	6	0	143	5	0	222	6	0	181	6	0	198	6	0	142	4	0	155	1
	Right	0	20	0	0	16	1	0	14	1	0	18	0	0	15	1	0	26	0	0	17	0	0	16	0	0	26	0	0	20	0	0	14	0	0	15	0
	App. Total	0	187	5	0	226	15	0	182	18	0	190	16	0	179	7	0	188	6	0	160	5	0	238	6	0	207	6	0	218	6	0	156	4	0	170	1
	Pct HV	3%			6%			9%			8%			4%			3%			3%			2%			3%			3%			3%			1%		
Southbound	U-Turn	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
	Left	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
	Through	0	263	4	0	261	4	0	269	2	0	303	5	0	300	4	0	298	3	0	301	4	0	341	0	0	288	3	0	237	2	0	182	3	0	179	0
	Right	0	24	1	0	35	1	0	30	1	0	24	0	0	22	0	0	25	0	0	30	0	0	35	0	0	33	0	0	32	0	0	23	1	0	15	0
	App. Total	0	287	5	0	296	5	0	299	3	0	327	5	0	322	4	0	323	3	0	331	4	0	376	0	0	321	3	0	269	2	0	205	4	0	194	0
	Pct HV	2%			2%			1%			2%			1%			1%			1%			0%			1%			1%			2%			0%		
Total Class Volume		0	515	12	0	552	20	0	514	21	0	538	21	0	540	13	0	540	9	0	517	9	0	643	6	0	555	9	0	510	8	0	399	8	0	394	1
Total Interval Volume		527			572			535			559			553			549			526			649			564			518			407			395		
Intersection Pct HV		2%			3%			4%			4%			2%			2%			2%			1%			2%			2%			2%			0%		

Pedestrian Volumes — 15 Minute Period Beginning @

APPROACH	Movement	3:30	3:45	4:00	4:15	4:30	4:45	5:00	5:15	5:30	5:45	6:00	6:15
Eastbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	1	0	0	3	0	0	1	1
Northbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Total		0	0	0	0	1	0	0	3	0	0	1	1

Miovision Vehicle Classification

Bike (BK) | Passenger Car (PC) | Heavy Vehicle (HV)

Intersection Total One Hour Volumes		Pct HV
3:30 PM	2,193	3.4%
3:45 PM	2,219	3.4%
4:00 PM	2,196	2.9%
4:15 PM	2,187	2.4%
4:30 PM	2,277	1.6%
4:45 PM	**2,288**	**1.4%**
5:00 PM	2,257	1.4%
5:15 PM	2,138	1.4%
5:30 PM	1,884	1.4%

App.= Approach
Pct= Percent

Phone: (509) 951-1851
email: beng@trfcnts.com

INTERSECTION

PROJECT: WCE Victory Heights — Thorpe Road & SR 195
JOB NO. 23-81
DATE OF COUNT: 3/16/2023

Counter: Analyst
Miovision: BNG

PM PEAK HOURS

APPROACH	MOVEMENT	4:45 PM			5:00 PM			5:15 PM			5:30 PM		
		BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV
Eastbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	0	0	0	0	0	0	0	0	0	0	0
	Through	0	0	0	0	0	0	0	0	0	0	0	0
	Right	0	24	0	0	18	0	0	18	0	0	19	0
	App. Total	0	24	0	0	18	0	0	18	0	0	19	0
	Pct HV		0%			0%			0%			0%	
Westbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	0	0	0	0	0	0	0	0	0	0	0
	Through	0	0	0	0	0	0	0	0	0	0	0	0
	Right	0	5	0	0	8	0	0	11	0	0	8	0
	App. Total	0	5	0	0	8	0	0	11	0	0	8	0
	Pct HV		0%			0%			0%			0%	
Northbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	0	0	0	0	0	0	0	0	0	0	0
	Through	0	162	6	0	143	5	0	222	6	0	181	6
	Right	0	26	0	0	17	0	0	16	0	0	26	0
	App. Total	0	188	6	0	160	5	0	238	6	0	207	6
	Pct HV		3%			3%			2%			3%	
Southbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	0	0	0	0	0	0	0	0	0	0	0
	Through	0	298	3	0	301	4	0	341	0	0	288	3
	Right	0	25	0	0	30	0	0	35	0	0	33	0
	App. Total	0	323	3	0	331	4	0	376	0	0	321	3
	Pct HV		1%			1%			0%			1%	
Total Class Volume		0	540	9	0	517	9	0	643	6	0	555	9
Total Interval Volume			549			526			649			564	
Intersection Pct Trucks			2%			2%			1%			2%	

Approach

Receiving

Mvmt	TOTAL HV	TOTAL Veh	PHF	Percentage of: HV	Percentage of: Approach
EBU	0	0			0.00%
EBL	0	0			0.00%
EBT	0	0			0.00%
EBR	0	79		0%	100.00%
Total	0	79	0.82	0%	100.00%
WBU	0	0			0.00%
WBL	0	0			0.00%
WBT	0	0			0.00%
WBR	0	32		0%	100.00%
Total	0	32	0.73	0%	100.00%
NBU	0	0			0.00%
NBL	0	0			0.00%
NBT	23	731		3%	89.58%
NBR	0	85		0%	10.42%
Total	23	816	0.84	3%	100.00%
SBU	0	0			0.00%
SBL	0	0			0.00%
SBT	10	1238		1%	90.96%
SBR	0	123		0%	9.04%
Total	10	1361	0.90	1%	100.00%
Total	**33**	**2,288**	**0.88**		

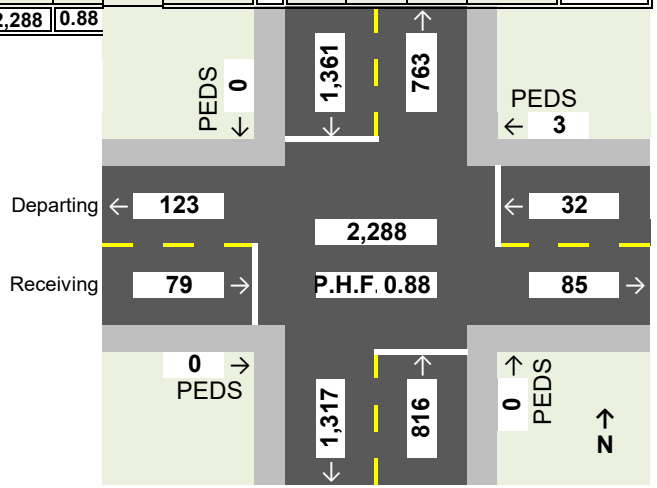
Departing

Mvmt	Total	Percentage of: HV	Percentage of: Approach	App.
EBU	0		0.00%	Eastbound
NBL	0		0.00%	
WBT	0		0.00%	
SBR	123	0%	100.00%	
Total	123	0%	100.00%	
WBU	0		0.00%	Westbound
SBL	0		0.00%	
EBT	0		0.00%	
NBR	85	0%	100.00%	
Total	85	0%	100.00%	
NBU	0		0.00%	Northbound
WBL	0		0.00%	
SBT	1238	1%	94.00%	
EBR	79	0%	6.00%	
Total	1317	1%	100.00%	
SBU	0		0.00%	Southbound
EBL	0		0.00%	
NBT	731	3%	95.81%	
WBR	32	0%	4.19%	
Total	763	3%	100.00%	

Pedestrian Volumes

APPROACH	MOVEMENT	4:45	5:00	5:15	5:30	Confli. Ped TOTAL
Eastbound	Crosswalk	0	0	0	0	0
Westbound	Crosswalk	0	0	3	0	3
Northbound	Crosswalk	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0
	Total	0	0	3	0	

Traffic Counts & Surveys Inc.



Movement = Mvmt
Pedestrian = Ped
P.H.F.= Peak Hour Factor
App.= Approach
Pct= Percent

INTERSECTION

Phone: (509) 951-1851
email: beng@trfcnts.com

PROJECT: WCE Victory Heights
JOB NO. 23-81
DATE OF COUNT: 3/16/2023
Counter Miovision
Analyst BNG

South J Turn (Thorpe Road)
&
SR 195

AM PEAK HOURS
15 Minute Period Beginning @

APPROACH	Movement	6:30 AM			6:45 AM			7:00 AM			7:15 AM			7:30 AM			7:45 AM			8:00 AM			8:15 AM			8:30 AM			8:45 AM			9:00 AM			9:15 AM		
Type		BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV
Westbound	U-Turn	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
	Left	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
	Right	0	18	0	0	16	0	0	9	0	0	18	0	0	32	0	0	17	0	0	19	0	0	16	0	0	16	0	0	6	0	0	10	0	0	15	1
	App. Total	0	18	0	0	16	0	0	9	0	0	18	0	0	32	0	0	17	0	0	19	0	0	16	0	0	16	0	0	6	0	0	10	0	0	15	1
	Pct HV		0%			0%			0%			0%			0%			0%			0%			0%			0%			0%			0%			6%	
Northbound	U-Turn	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
	Through	0	204	2	0	242	0	0	250	1	0	316	4	0	387	3	0	384	2	0	278	2	0	300	5	0	254	3	0	222	4	0	189	5	0	200	1
	Right	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
	App. Total	0	204	2	0	242	0	0	250	1	0	316	4	0	387	3	0	384	2	0	278	2	0	300	5	0	254	3	0	222	4	0	189	5	0	200	1
	Pct HV		1%			0%			0%			1%			1%			1%			1%			2%			1%			2%			3%			0%	
Southbound	U-Turn	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
	Left	0	18	0	0	16	0	0	9	0	0	18	0	0	32	0	0	17	0	0	19	0	0	16	0	0	16	0	0	6	0	0	10	0	0	15	1
	Through	0	57	8	0	76	13	0	89	2	0	149	8	0	119	8	0	140	8	0	147	6	0	155	5	0	120	6	0	142	11	0	115	9	0	110	0
	App. Total	0	75	8	0	92	13	0	98	2	0	167	8	0	151	8	0	157	8	0	166	6	0	171	5	0	136	6	0	148	11	0	125	9	0	125	1
	Pct HV		10%			12%			2%			5%			5%			5%			3%			3%			4%			7%			7%			1%	
Total Class Volume		0	297	10	0	350	13	0	357	3	0	501	12	0	570	11	0	558	10	0	463	8	0	487	10	0	406	9	0	376	15	0	324	14	0	340	3
Total Interval Volume			307			363			360			513			581			568			471			497			415			391			338			343	
Intersection Pct HV			3%			4%			1%			2%			2%			2%			2%			2%			2%			4%			4%			1%	

Pedestrian Volumes

APPROACH	Movement	15 Minute Period Beginning @ 6:30	6:45	7:00	7:15	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15
Eastbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	0	0	0	0	0	0

Miovision Vehicle Classification

Bike (BK) | Passenger Car (PC) | Heavy Vehicle (HV)

Intersection Total One Hour Volumes		Pct HV
6:30 AM	1,543	0.0%
6:45 AM	1,817	0.0%
7:00 AM	2,022	0.0%
7:15 AM	**2,133**	**0.0%**
7:30 AM	2,117	0.0%
7:45 AM	1,951	0.0%
8:00 AM	1,774	0.0%
8:15 AM	1,641	0.0%
8:30 AM	1,487	0.0%

App.= Approach
Pct= Percent

INTERSECTION

Phone: (509) 951-1851
email: beng@trfcnts.com

PROJECT: WCE Victory Heights South J Turn (Thorpe Road) & SR 195
JOB NO. 23-81
DATE OF COUNT: 3/16/2023
Counter Analyst
Miovision BNG

APPROACH	MOVEMENT	AM PEAK HOURS 7:15 AM BK	PC	HV	7:30 AM BK	PC	HV	7:45 AM BK	PC	HV	8:00 AM BK	PC	HV
Westbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	0	0	0	0	0	0	0	0	0	0	0
	Right	0	18	0	0	32	0	0	17	0	0	19	0
	App. Total	0	18	0	0	32	0	0	17	0	0	19	0
	Pct HV		0%			0%			0%			0%	
Northbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Through	0	316	4	0	387	3	0	384	2	0	278	2
	Right	0	0	0	0	0	0	0	0	0	0	0	0
	App. Total	0	316	4	0	387	3	0	384	2	0	278	2
	Pct HV		1%			1%			1%			1%	
Southbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	18	0	0	32	0	0	17	0	0	19	0
	Through	0	149	8	0	119	8	0	140	8	0	147	6
	App. Total	0	167	8	0	151	8	0	157	8	0	166	6
	Pct HV		5%			5%			5%			3%	
Total Class Volume		0	501	12	0	570	11	0	558	10	0	463	8
Total Interval Volume			513			581			568			471	
Intersection Pct Trucks			2%			2%			2%			2%	

Approach

Departing

Mvmt	TOTAL HV	TOTAL Veh	PHF	Percentage of: HV	Percentage of: Approach
WBU	0	0			0.00%
WBL	0	0			0.00%
WBR	0	86		0%	100.00%
Total	0	86	0.67	0%	100.00%
NBU	0	0			0.00%
NBT	11	1376		1%	100.00%
NBR	0	0			0.00%
Total	11	1376	0.88	1%	100.00%
SBU	0	0			0.00%
SBL	0	86		0%	12.82%
SBT	30	585		5%	87.18%
Total	30	671	0.96	4%	100.00%
Total	**41**	**2,133**	**0.92**		

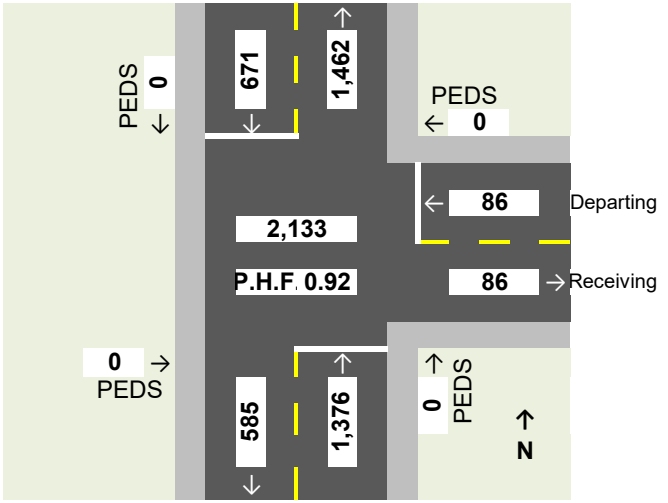
Receiving

Mvmt	Total	Percentage of: HV	Percentage of: Approach	App.
WBU	0		0.00%	Westbound
SBL	86	0%	100.00%	
NBR	0		0.00%	
Total	86		100.00%	
NBU	0		0.00%	Northbound
SBT	585	5%	100.00%	
WBL	0		0.00%	
Total	585	5%	100.00%	
SBU	0		0.00%	Southbound
WBR	86	0%	5.88%	
NBT	1376	1%	94.12%	
Total	1462	1%	100.00%	

Pedestrian Volumes

APPROACH	MOVEMENT	7:15	7:30	7:45	8:00	Confli. Ped TOTAL
Eastbound	Crosswalk	0	0	0	0	**0**
Westbound	Crosswalk	0	0	0	0	**0**
Northbound	Crosswalk	0	0	0	0	**0**
Southbound	Crosswalk	0	0	0	0	**0**
	Total	0	0	0	0	

Movement = Mvmt
Pedestrian = Ped
P.H.F.= Peak Hour Factor
App.= Approach
Pct= Percent



INTERSECTION

Phone: (509) 951-1851
email: beng@trfcnts.com

PROJECT: WCE Victory Heights — South J Turn (Thorpe Road)
JOB NO. 23-81 — &
DATE OF COUNT: 3/16/2023 — SR 195
Counter: Miovision — Analyst: BNG
PM PEAK HOURS
15 Minute Period Beginning @

APPROACH	Movement	3:30 PM			3:45 PM			4:00 PM			4:15 PM			4:30 PM			4:45 PM			5:00 PM			5:15 PM			5:30 PM			5:45 PM			6:00 PM			6:15 PM		
Type		BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV
Westbound	U-Turn	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
	Left	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
	Right	0	22	1	0	8	0	0	11	0	0	8	0	0	14	0	0	19	0	0	11	0	0	11	0	0	11	0	0	14	0	0	14	0	0	14	0
	App. Total	0	22	1	0	8	0	0	11	0	0	8	0	0	14	0	0	19	0	0	11	0	0	11	0	0	11	0	0	14	0	0	14	0	0	14	0
	Pct HV		4%			0%			0%			0%			0%			0%			0%			0%			0%			0%			0%			0%	
Northbound	U-Turn	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
	Through	0	187	3	0	226	11	0	182	11	0	190	9	0	179	4	0	188	2	0	160	3	0	238	5	0	207	3	0	218	3	0	156	0	0	170	1
	Right	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
	App. Total	0	187	3	0	226	11	0	182	11	0	190	9	0	179	4	0	188	2	0	160	3	0	238	5	0	207	3	0	218	3	0	156	0	0	170	1
	Pct HV		2%			5%			6%			5%			2%			1%			2%			2%			1%			1%			0%			1%	
Southbound	U-Turn	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
	Left	0	22	1	0	8	0	0	11	0	0	8	0	0	14	0	0	19	0	0	11	0	0	11	0	0	11	0	0	14	0	0	14	0	0	14	0
	Through	0	277	4	0	277	2	0	277	2	0	307	2	0	314	1	0	303	1	0	308	3	0	348	0	0	296	3	0	241	2	0	194	2	0	188	0
	App. Total	0	299	5	0	285	2	0	288	2	0	315	2	0	328	1	0	322	1	0	319	3	0	359	0	0	307	3	0	255	2	0	208	2	0	202	0
	Pct HV		2%			1%			1%			1%			0%			0%			1%			0%			1%			1%			1%			0%	
Total Class Volume		0	508	9	0	519	13	0	481	13	0	513	11	0	521	5	0	529	3	0	490	6	0	608	5	0	525	6	0	487	5	0	378	2	0	386	1
Total Interval Volume			517			532			494			524			526			532			496			613			531			492			380			387	
Intersection Pct HV			2%			2%			3%			2%			1%			1%			1%			1%			1%			1%			1%			0%	

Pedestrian Volumes

APPROACH	Movement	15 Minute Period Beginning @ 3:30	3:45	4:00	4:15	4:30	4:45	5:00	5:15	5:30	5:45	6:00	6:15
Eastbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	0	0	0	0	0	0

Miovision Vehicle Classification

Bike (BK) | Passenger Car (PC) | Heavy Vehicle (HV)

Intersection Total One Hour Volumes		Pct HV
3:30 PM	2,067	2.2%
3:45 PM	2,076	2.0%
4:00 PM	2,076	1.5%
4:15 PM	2,078	1.2%
4:30 PM	2,167	0.9%
4:45 PM	**2,172**	**0.9%**
5:00 PM	2,132	1.0%
5:15 PM	2,016	0.9%
5:30 PM	1,790	0.8%

App.= Approach
Pct= Percent

INTERSECTION

Phone: (509) 951-1851
email: beng@trfcnts.com

PROJECT: WCE Victory Heights — South J Turn (Thorpe Road) & SR 195
JOB NO. 23-81
DATE OF COUNT: 3/16/2023
Counter: Miovision — Analyst: BNG

APPROACH	MOVEMENT	PM PEAK HOURS 4:45 PM BK	PC	HV	5:00 PM BK	PC	HV	5:15 PM BK	PC	HV	5:30 PM BK	PC	HV
Westbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	0	0	0	0	0	0	0	0	0	0	0
	Right	0	19	0	0	11	0	0	11	0	0	11	0
	App. Total	0	19	0	0	11	0	0	11	0	0	11	0
	Pct HV		0%			0%			0%			0%	
Northbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Through	0	188	2	0	160	3	0	238	5	0	207	3
	Right	0	0	0	0	0	0	0	0	0	0	0	0
	App. Total	0	188	2	0	160	3	0	238	5	0	207	3
	Pct HV		1%			2%			2%			1%	
Southbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	19	0	0	11	0	0	11	0	0	11	0
	Through	0	303	1	0	308	3	0	348	0	0	296	3
	App. Total	0	322	1	0	319	3	0	359	0	0	307	3
	Pct HV		0%			1%			0%			1%	
Total Class Volume		0	529	3	0	490	6	0	608	5	0	525	6
Total Interval Volume			532			496			613			531	
Intersection Pct Trucks			1%			1%			1%			1%	

Approach — Departing

Mvmt	TOTAL HV	TOTAL Veh	PHF	Percentage of: HV	Percentage of: Approach
WBU	0	0			0.00%
WBL	0	0			0.00%
WBR	0	52		0%	100.00%
Total	0	52	0.68	0%	100.00%
NBU	0	0			0.00%
NBT	13	806		2%	100.00%
NBR	0	0			0.00%
Total	13	806	0.83	2%	100.00%
SBU	0	0			0.00%
SBL	0	52		0%	3.96%
SBT	7	1262		1%	96.04%
Total	7	1314	0.92	1%	100.00%
Total	**20**	**2,172**	**0.89**		

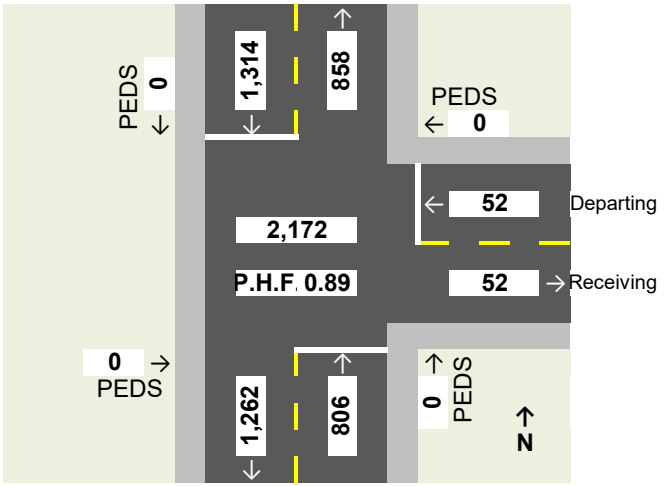
Approach — Receiving

Mvmt	Total	Percentage of: HV	Percentage of: Approach	App.
WBU	0		0.00%	Westbound
SBL	52	0%	100.00%	
NBR	0		0.00%	
Total	52	0%	100.00%	
NBU	0		0.00%	Northbound
SBT	1262	1%	100.00%	
WBL	0		0.00%	
Total	1262	1%	100.00%	
SBU	0		0.00%	Southbound
WBR	52	0%	6.06%	
NBT	806	2%	93.94%	
Total	858	2%	100.00%	

Pedestrian Volumes

APPROACH	MOVEMENT	4:45	5:00	5:15	5:30	Confli. Ped TOTAL
Eastbound	Crosswalk	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0
	Total	0	0	0	0	

Movement = Mvmt
Pedestrian = Ped
P.H.F.= Peak Hour Factor
App.= Approach
Pct= Percent



INTERSECTION

Phone: (509) 951-1851
email: beng@trfcnts.com

PROJECT: WCE Victory Heights — Cheney-Spokane Rd
JOB NO. 23-78 — &
DATE OF COUNT: 3/14/2023 — SR 195 SB West
Counter: Miovision — Analyst: BNG
AM PEAK HOURS
15 Minute Period Beginning @

APPROACH	Movement	6:30 AM			6:45 AM			7:00 AM			7:15 AM			7:30 AM			7:45 AM			8:00 AM			8:15 AM			8:30 AM			8:45 AM			9:00 AM			9:15 AM		
Type		BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV
Westbound	U-Turn	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
	Left	0	8	0	0	12	0	0	22	0	0	23	0	0	26	0	0	17	0	0	15	0	0	17	1	0	22	1	0	38	1	0	25	0	0	25	1
	Right	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
	App. Total	0	8	0	0	12	0	0	22	0	0	23	0	0	26	0	0	17	0	0	15	0	0	17	1	0	22	1	0	38	1	0	25	0	0	25	1
	Pct HV		0%			0%			0%			0%			0%			0%			0%			6%			4%			3%			0%			4%	
Northbound	U-Turn	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
	Through	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
	Right	0	100	2	0	86	2	0	117	4	0	159	8	0	204	1	0	149	3	0	123	2	0	85	2	0	106	2	0	91	3	0	90	2	0	101	2
	App. Total	0	100	2	0	86	2	0	117	4	0	159	8	0	204	1	0	149	3	0	123	2	0	85	2	0	106	2	0	91	3	0	90	2	0	101	2
	Pct HV		2%			2%			3%			5%			0%			2%			2%			2%			2%			3%			2%			2%	
Southbound	U-Turn	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
	Left	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
	Through	0	15	3	0	34	2	0	30	1	0	44	5	0	45	2	0	35	3	0	39	4	0	55	1	0	53	1	0	50	0	0	58	1	0	46	4
	App. Total	0	15	3	0	34	2	0	30	1	0	44	5	0	45	2	0	35	3	0	39	4	0	55	1	0	53	1	0	50	0	0	58	1	0	46	4
	Pct HV		17%			6%			3%			10%			4%			8%			9%			2%			2%			0%			2%			8%	
Total Class Volume		0	123	5	0	132	4	0	169	5	0	226	13	0	275	3	0	201	6	0	177	6	0	157	4	0	181	4	0	179	4	0	173	3	0	172	7
Total Interval Volume			128			136			174			239			278			207			183			161			185			183			176			179	
Intersection Pct HV			4%			3%			3%			5%			1%			3%			3%			2%			2%			2%			2%			4%	

Pedestrian Volumes

APPROACH	Movement	15 Minute Period Beginning @ 6:30	6:45	7:00	7:15	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15
Eastbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	0	0	0	0	0	0

Miovision Vehicle Classification

Bike (BK) | Passenger Car (PC) | Heavy Vehicle (HV)

Intersection Total One Hour Volumes		Pct HV
6:30 AM	677	2.4%
6:45 AM	827	1.8%
7:00 AM	898	1.8%
7:15 AM	**907**	**1.5%**
7:30 AM	829	1.0%
7:45 AM	736	1.2%
8:00 AM	712	1.3%
8:15 AM	705	1.3%
8:30 AM	723	1.2%

App.= Approach
Pct= Percent

INTERSECTION

Phone: (509) 951-1851
email: beng@trfcnts.com

PROJECT: WCE Victory Heights Cheney-Spokane Rd & SR 195 SB West
JOB NO. 23-78
DATE OF COUNT: 3/14/2023
Counter Analyst
Miovision BNG

APPROACH	MOVEMENT	AM PEAK HOURS 7:15 AM BK	PC	HV	7:30 AM BK	PC	HV	7:45 AM BK	PC	HV	8:00 AM BK	PC	HV
Westbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	23	0	0	26	0	0	17	0	0	15	0
	Right	0	0	0	0	0	0	0	0	0	0	0	0
	App. Total	0	23	0	0	26	0	0	17	0	0	15	0
	Pct HV		0%			0%			0%			0%	
Northbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Through	0	0	0	0	0	0	0	0	0	0	0	0
	Right	0	159	8	0	204	1	0	149	3	0	123	2
	App. Total	0	159	8	0	204	1	0	149	3	0	123	2
	Pct HV		5%			0%			2%			2%	
Southbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	0	0	0	0	0	0	0	0	0	0	0
	Through	0	44	5	0	45	2	0	35	3	0	39	4
	App. Total	0	44	5	0	45	2	0	35	3	0	39	4
	Pct HV		10%			4%			8%			9%	
Total Class Volume		0	226	13	0	275	3	0	201	6	0	177	6
Total Interval Volume			239			278			207			183	
Intersection Pct Trucks			5%			1%			3%			3%	

Approach

Departing

Mvmt	TOTAL HV	TOTAL Veh	PHF	Percentage of: HV	Percentage of: Approach
WBU	0	0			0.00%
WBL	0	81		0%	100.00%
WBR	0	0			0.00%
Total	0	81	0.78	0%	100.00%
NBU	0	0			0.00%
NBT	0	0			0.00%
NBR	14	649		2%	100.00%
Total	14	649	0.79	2%	100.00%
SBU	0	0			0.00%
SBL	0	0			0.00%
SBT	14	177		8%	100.00%
Total	14	177	0.90	8%	100.00%
Total	**28**	**907**	**0.82**		

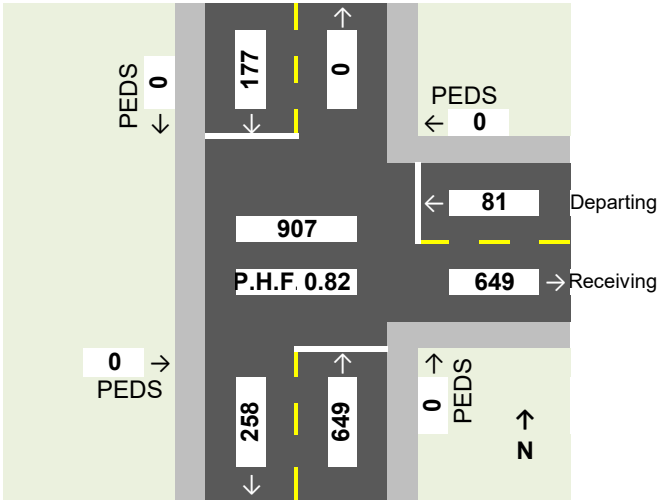
Receiving

Mvmt	Total	Percentage of: HV	Percentage of: Approach	App.
WBU	0		0.00%	Westbound
SBL	0		0.00%	
NBR	649	2%	100.00%	
Total	649		100.00%	
NBU	0		0.00%	Northbound
SBT	177	8%	68.60%	
WBL	81	0%	31.40%	
Total	258	5%	100.00%	
SBU	0			Southbound
WBR	0			
NBT	0			
Total	0			

Pedestrian Volumes

APPROACH	MOVEMENT	7:15	7:30	7:45	8:00	Confli. Ped TOTAL
Eastbound	Crosswalk	0	0	0	0	**0**
Westbound	Crosswalk	0	0	0	0	**0**
Northbound	Crosswalk	0	0	0	0	**0**
Southbound	Crosswalk	0	0	0	0	**0**
	Total	0	0	0	0	

Movement = Mvmt
Pedestrian = Ped
P.H.F.= Peak Hour Factor
App.= Approach
Pct= Percent



INTERSECTION

Phone: (509) 951-1851
email: beng@trfcnts.com

PROJECT: WCE Victory Heights — Cheney-Spokane Rd
JOB NO. 23-78 — &
DATE OF COUNT: 3/14/2023 — SR 195 SB West
Counter: Miovision — Analyst: BNG
PM PEAK HOURS
15 Minute Period Beginning @

APPROACH	Movement	3:30 PM			3:45 PM			4:00 PM			4:15 PM			4:30 PM			4:45 PM			5:00 PM			5:15 PM			5:30 PM			5:45 PM			6:00 PM			6:15 PM		
Type		BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV
Westbound	U-Turn	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
	Left	0	20	0	0	26	1	0	28	1	0	19	0	0	26	0	0	32	1	0	22	0	0	24	0	0	23	0	0	28	0	0	14	0	0	16	0
	Right	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
	App. Total	0	20	0	0	26	1	0	28	1	0	19	0	0	26	0	0	32	1	0	22	0	0	24	0	0	23	0	0	28	0	0	14	0	0	16	0
	Pct HV		0%			4%			3%			0%			0%			3%			0%			0%			0%			0%			0%			0%	
Northbound	U-Turn	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
	Through	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
	Right	0	83	0	0	115	1	0	104	1	0	103	4	0	83	2	0	113	1	0	117	1	0	104	1	0	93	2	0	101	0	0	79	0	0	63	0
	App. Total	0	83	0	0	115	1	0	104	1	0	103	4	0	83	2	0	113	1	0	117	1	0	104	1	0	93	2	0	101	0	0	79	0	0	63	0
	Pct HV		0%			1%			1%			4%			2%			1%			1%			1%			2%			0%			0%			0%	
Southbound	U-Turn	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
	Left	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
	Through	0	102	1	0	119	2	0	126	2	0	117	2	0	123	4	0	142	0	0	117	0	0	129	0	0	98	1	0	92	0	0	66	0	0	77	0
	App. Total	0	102	1	0	119	2	0	126	2	0	117	2	0	123	4	0	142	0	0	117	0	0	129	0	0	98	1	0	92	0	0	66	0	0	77	0
	Pct HV		1%			2%			2%			2%			3%			0%			0%			0%			1%			0%			0%			0%	
Total Class Volume		0	205	1	0	260	4	0	258	4	0	239	6	0	232	6	0	287	2	0	256	1	0	257	1	0	214	3	0	221	0	0	159	0	0	156	0
Total Interval Volume			206			264			262			245			238			289			257			258			217			221			159			156	
Intersection Pct HV			0%			2%			2%			2%			3%			1%			0%			0%			1%			0%			0%			0%	

Pedestrian Volumes

APPROACH	Movement	15 Minute Period Beginning @ 3:30	3:45	4:00	4:15	4:30	4:45	5:00	5:15	5:30	5:45	6:00	6:15
Eastbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	0	0	0	0	0	0

Miovision Vehicle Classification

Bike (BK) | Passenger Car (PC) | Heavy Vehicle (HV)

Intersection Total One Hour Volumes		Pct HV
3:30 PM	977	1.5%
3:45 PM	1,009	2.0%
4:00 PM	1,034	1.7%
4:15 PM	1,029	1.5%
4:30 PM	**1,042**	**1.0%**
4:45 PM	1,021	0.7%
5:00 PM	953	0.5%
5:15 PM	855	0.5%
5:30 PM	753	0.4%

App.= Approach
Pct= Percent

INTERSECTION

Phone: (509) 951-1851
email: beng@trfcnts.com

PROJECT: WCE Victory Heights Cheney-Spokane Rd & SR 195 SB West
JOB NO. 23-78
DATE OF COUNT: 3/14/2023

Counter Analyst
Miovision BNG

APPROACH	MOVEMENT	PM PEAK HOURS 4:30 PM BK	PC	HV	4:45 PM BK	PC	HV	5:00 PM BK	PC	HV	5:15 PM BK	PC	HV
Westbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	26	0	0	32	1	0	22	0	0	24	0
	Right	0	0	0	0	0	0	0	0	0	0	0	0
	App. Total	0	26	0	0	32	1	0	22	0	0	24	0
	Pct HV		0%			3%			0%			0%	
Northbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Through	0	0	0	0	0	0	0	0	0	0	0	0
	Right	0	83	2	0	113	1	0	117	1	0	104	1
	App. Total	0	83	2	0	113	1	0	117	1	0	104	1
	Pct HV		2%			1%			1%			1%	
Southbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	0	0	0	0	0	0	0	0	0	0	0
	Through	0	123	4	0	142	0	0	117	0	0	129	0
	App. Total	0	123	4	0	142	0	0	117	0	0	129	0
	Pct HV		3%			0%			0%			0%	
Total Class Volume		0	232	6	0	287	2	0	256	1	0	257	1
Total Interval Volume			238			289			257			258	
Intersection Pct Trucks			3%			1%			0%			0%	

Approach

Departing

Mvmt	TOTAL HV	TOTAL Veh	PHF	Percentage of: HV	Percentage of: Approach
WBU	0	0			0.00%
WBL	1	105		1%	100.00%
WBR	0	0			0.00%
Total	1	105	0.80	1%	100.00%
NBU	0	0			0.00%
NBT	0	0			0.00%
NBR	5	422		1%	100.00%
Total	5	422	0.89	1%	100.00%
SBU	0	0			0.00%
SBL	0	0			0.00%
SBT	4	515		1%	100.00%
Total	4	515	0.91	1%	100.00%
Total	**10**	**1,042**	**0.90**		

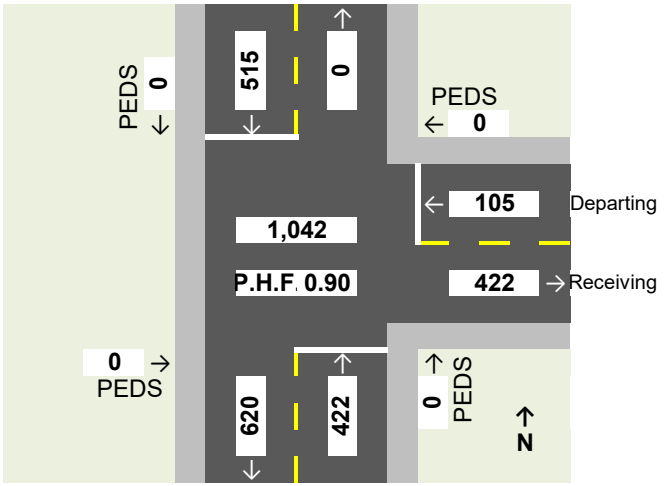
Receiving

Mvmt	Total	Percentage of: HV	Percentage of: Approach	App.
WBU	0		0.00%	Westbound
SBL	0		0.00%	
NBR	422	1%	100.00%	
Total	422	1%	100.00%	
NBU	0		0.00%	Northbound
SBT	515	1%	83.06%	
WBL	105	1%	16.94%	
Total	620	1%	100.00%	
SBU	0			Southbound
WBR	0			
NBT	0			
Total	0			

Pedestrian Volumes

APPROACH	MOVEMENT	4:30	4:45	5:00	5:15	Confli. Ped TOTAL
Eastbound	Crosswalk	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0
	Total	0	0	0	0	

Movement = Mvmt
Pedestrian = Ped
P.H.F.= Peak Hour Factor
App.= Approach
Pct= Percent



Phone: (509) 951-1851
email: beng@trfcnts.com

INTERSECTION

PROJECT: WCE Victory Heights
JOB NO. 23-81
DATE OF COUNT: 3/14/2023
Counter: Miovision
Analyst: BNG

Cheney-Spokane Road
&
SR 195 SB Ramps

AM PEAK HOURS
15 Minute Period Beginning @

APPROACH	Movement	6:30 AM			6:45 AM			7:00 AM			7:15 AM			7:30 AM			7:45 AM			8:00 AM			8:15 AM			8:30 AM			8:45 AM			9:00 AM			9:15 AM		
Type		BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV
Eastbound	U-Turn	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
	Left	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
	Through	0	92	1	0	80	2	0	108	3	0	147	6	0	190	1	0	136	3	0	108	1	0	74	1	0	98	2	0	82	3	0	77	2	0	83	1
	Right	0	8	1	0	6	0	0	9	1	0	12	2	0	14	0	0	13	0	0	15	1	0	11	1	0	8	0	0	9	0	0	13	0	0	18	1
	App. Total	0	100	2	0	86	2	0	117	4	0	159	8	0	204	1	0	149	3	0	123	2	0	85	2	0	106	2	0	91	3	0	90	2	0	101	2
	Pct HV		2%			2%			3%			5%			0%			2%			2%			2%			2%			3%			2%			2%	
Westbound	U-Turn	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
	Left	0	1	0	0	1	0	0	0	0	0	1	0	0	2	0	0	0	0	0	2	0	0	2	1	0	2	0	0	0	0	0	3	0	0	1	0
	Through	0	8	0	0	12	0	0	22	0	0	23	0	0	26	0	0	17	0	0	15	0	0	17	1	0	22	1	0	38	1	0	25	0	0	25	1
	Right	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
	App. Total	0	9	0	0	13	0	0	22	0	0	24	0	0	28	0	0	17	0	0	17	0	0	19	2	0	24	1	0	38	1	0	28	0	0	26	1
	Pct HV		0%			0%			0%			0%			0%			0%			0%			10%			4%			3%			0%			4%	
Northbound	U-Turn	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
	Left	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
	Through	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
	Right	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
	App. Total	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
	Pct HV																																				
Southbound	U-Turn	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
	Left	0	0	1	0	1	1	0	1	0	0	2	1	0	3	0	0	3	0	0	7	1	0	4	0	0	3	1	0	2	0	0	0	0	0	0	1
	Through	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
	Right	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
	App. Total	0	0	2	0	1	1	0	1	0	0	2	1	0	3	0	0	3	0	0	7	1	0	4	0	0	4	1	0	2	0	0	0	0	0	0	1
	Pct HV		100%			50%			0%			33%			0%			0%			13%			0%			20%			0%						100%	
Total Class Volume		0	109	4	0	100	3	0	140	4	0	185	9	0	235	1	0	169	3	0	147	3	0	108	4	0	134	4	0	131	4	0	118	2	0	127	4
Total Interval Volume			113			103			144			194			236			172			150			112			138			135			120			131	
Intersection Pct HV			4%			3%			3%			5%			0%			2%			2%			4%			3%			3%			2%			3%	

Pedestrian Volumes

APPROACH	Movement	15 Minute Period Beginning @ 6:30	6:45	7:00	7:15	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15
Eastbound	Crosswalk	0	0	0	0	0	0	0	0	0	1	0	1
Westbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	0	0	0	1	0	1

Miovision Vehicle Classification

Bike (BK) | Passenger Car (PC) | Heavy Vehicle (HV)

Intersection Total One Hour Volumes		Pct HV
6:30 AM	554	3.6%
6:45 AM	677	2.5%
7:00 AM	746	2.3%
7:15 AM	**752**	**2.1%**
7:30 AM	670	1.6%
7:45 AM	572	2.4%
8:00 AM	535	2.8%
8:15 AM	505	2.8%
8:30 AM	524	2.7%

App.= Approach
Pct= Percent

Phone: (509) 951-1851
email: beng@trfcnts.com

INTERSECTION

PROJECT: WCE Victory Heights Cheney-Spokane Road & SR 195 SB Ramps
JOB NO. 23-81
DATE OF COUNT: 3/14/2023

Counter: Analyst
Miovision: BNG

AM PEAK HOURS

APPROACH	MOVEMENT	7:15 AM BK	7:15 AM PC	7:15 AM HV	7:30 AM BK	7:30 AM PC	7:30 AM HV	7:45 AM BK	7:45 AM PC	7:45 AM HV	8:00 AM BK	8:00 AM PC	8:00 AM HV
Eastbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	0	0	0	0	0	0	0	0	0	0	0
	Through	0	147	6	0	190	1	0	136	3	0	108	1
	Right	0	12	2	0	14	0	0	13	0	0	15	1
	App. Total	0	159	8	0	204	1	0	149	3	0	123	2
	Pct HV		5%			0%			2%			2%	
Westbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	1	0	0	2	0	0	0	0	0	2	0
	Through	0	23	0	0	26	0	0	17	0	0	15	0
	Right	0	0	0	0	0	0	0	0	0	0	0	0
	App. Total	0	24	0	0	28	0	0	17	0	0	17	0
	Pct HV		0%			0%			0%			0%	
Northbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	0	0	0	0	0	0	0	0	0	0	0
	Through	0	0	0	0	0	0	0	0	0	0	0	0
	Right	0	0	0	0	0	0	0	0	0	0	0	0
	App. Total	0	0	0	0	0	0	0	0	0	0	0	0
	Pct HV												
Southbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	2	1	0	3	0	0	3	0	0	7	1
	Through	0	0	0	0	0	0	0	0	0	0	0	0
	Right	0	0	0	0	0	0	0	0	0	0	0	0
	App. Total	0	2	1	0	3	0	0	3	0	0	7	1
	Pct HV		33%			0%			0%			13%	
Total Class Volume		0	185	9	0	235	1	0	169	3	0	147	3
Total Interval Volume			194			236			172			150	
Intersection Pct Trucks			5%			0%			2%			2%	

Approach

Receiving

Mvmt	TOTAL HV	TOTAL Veh	PHF	Percentage of: HV	Percentage of: Approach
EBU	0	0			0.00%
EBL	0	0			0.00%
EBT	11	592		2%	91.22%
EBR	3	57		5%	8.78%
Total	14	649	0.79	2%	100.00%
WBU	0	0			0.00%
WBL	0	5		0%	5.81%
WBT	0	81		0%	94.19%
WBR	0	0			0.00%
Total	0	86	0.77	0%	100.00%
NBU	0	0			
NBL	0	0			
NBT	0	0			
NBR	0	0			
Total	0	0			
SBU	0	0			0.00%
SBL	2	17		12%	100.00%
SBT	0	0			0.00%
SBR	0	0			0.00%
Total	2	17	0.53	12%	100.00%
Total	**16**	**752**	**0.80**		

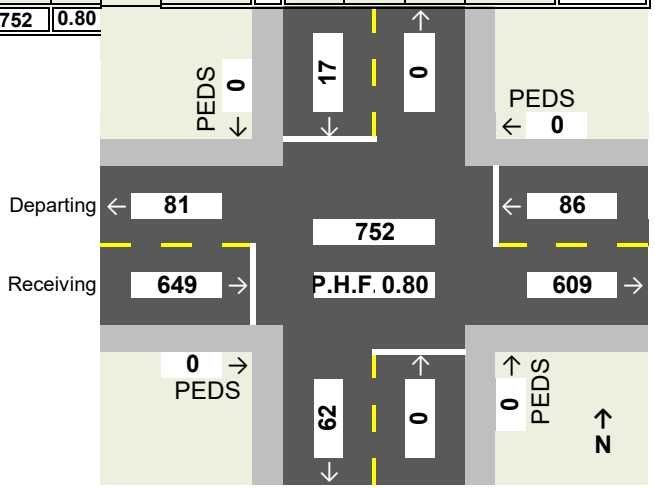
Departing

Mvmt	Total	Percentage of: HV	Percentage of: Approach	App.
EBU	0		0.00%	Eastbound
NBL	0		0.00%	
WBT	81	0%	100.00%	
SBR	0		0.00%	
Total	81	0%	100.00%	
WBU	0		0.00%	Westbound
SBL	17	12%	2.79%	
EBT	592	2%	97.21%	
NBR	0		0.00%	
Total	609	2%	100.00%	
NBU	0		0.00%	Northbound
WBL	5	0%	8.06%	
SBT	0		0.00%	
EBR	57	5%	91.94%	
Total	62	5%	100.00%	
SBU	0			Southbound
EBL	0			
NBT	0			
WBR	0			
Total	0			

Pedestrian Volumes

APPROACH	MOVEMENT	7:15	7:30	7:45	8:00	Confli. Ped TOTAL
Eastbound	Crosswalk	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0
	Total	0	0	0	0	

Traffic Counts & Surveys Inc.



Movement = Mvmt
Pedestrian = Ped
P.H.F.= Peak Hour Factor
App.= Approach
Pct= Percent

Phone: (509) 951-1851
email: beng@trfcnts.com

INTERSECTION

PROJECT: WCE Victory Heights — Cheney-Spokane Road
JOB NO. 23-81 — &
DATE OF COUNT: 3/14/2023 — SR 195 SB Ramps
Counter: Miovision — Analyst: BNG
PM PEAK HOURS
15 Minute Period Beginning @

APPROACH	Movement	3:30 PM			3:45 PM			4:00 PM			4:15 PM			4:30 PM			4:45 PM			5:00 PM			5:15 PM			5:30 PM			5:45 PM			6:00 PM			6:15 PM		
Type		BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV
Eastbound	U-Turn	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
	Left	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
	Through	0	54	0	0	82	0	0	66	0	0	70	3	0	47	2	0	82	1	0	84	1	0	66	1	0	67	1	0	73	0	0	60	0	0	55	0
	Right	0	29	0	0	33	1	0	38	1	0	33	1	0	36	0	0	31	0	0	33	0	0	38	0	0	26	1	0	28	0	0	19	0	0	8	0
	App. Total	0	83	0	0	115	1	0	104	1	0	103	4	0	83	2	0	113	1	0	117	1	0	104	1	0	93	2	0	101	0	0	79	0	0	63	0
	Pct HV		0%			1%			1%			4%			2%			1%			1%			1%			2%			0%			0%			0%	
Westbound	U-Turn	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
	Left	0	2	0	0	2	0	0	3	0	0	0	0	0	2	0	0	3	0	0	1	0	0	4	0	0	1	0	0	2	0	0	4	0	0	0	0
	Through	0	19	0	0	26	1	0	28	1	0	19	0	0	25	0	0	32	1	0	22	0	0	24	0	0	23	0	0	28	0	0	14	0	0	16	0
	Right	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
	App. Total	0	21	0	0	28	1	0	31	1	0	19	0	0	27	0	0	35	1	0	23	0	0	28	0	0	24	0	0	30	0	0	18	0	0	16	0
	Pct HV		0%			3%			3%			0%			0%			3%			0%			0%			0%			0%			0%			0%	
Northbound	U-Turn	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
	Left	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
	Through	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
	Right	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
	App. Total	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
	Pct HV																																				
Southbound	U-Turn	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
	Left	0	2	0	0	4	1	0	1	1	0	3	0	0	4	0	0	1	0	0	2	0	0	3	0	0	2	0	0	1	0	0	2	0	0	2	0
	Through	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Right	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	App. Total	0	3	0	0	4	1	0	1	1	0	3	0	0	5	0	0	2	0	0	2	0	0	3	0	0	2	0	0	1	0	0	2	0	0	2	0
	Pct HV		0%			20%			50%			0%			0%			0%			0%			0%			0%			0%			0%			0%	
Total Class Volume		0	107	0	0	147	3	0	136	3	0	125	4	0	115	2	0	150	2	0	142	1	0	135	1	0	119	2	0	132	0	0	99	0	0	81	0
Total Interval Volume			107			150			139			129			117			152			143			136			121			132			99			81	
Intersection Pct HV			0%			2%			2%			3%			2%			1%			1%			1%			2%			0%			0%			0%	

Pedestrian Volumes

APPROACH	Movement	15 Minute Period Beginning @ 3:30	3:45	4:00	4:15	4:30	4:45	5:00	5:15	5:30	5:45	6:00	6:15
Eastbound	Crosswalk	0	0	0	0	0	1	1	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	1	1	0	0	0	0	0

Miovision Vehicle Classification

Bike (BK) | Passenger Car (PC) | Heavy Vehicle (HV)

Intersection Total One Hour Volumes		Pct HV
3:30 PM	525	1.9%
3:45 PM	535	2.2%
4:00 PM	537	2.0%
4:15 PM	541	1.7%
4:30 PM	548	1.1%
4:45 PM	**552**	**1.1%**
5:00 PM	532	0.8%
5:15 PM	488	0.6%
5:30 PM	433	0.5%

App.= Approach
Pct= Percent

Phone: (509) 951-1851
email: beng@trfcnts.com

INTERSECTION

PROJECT: WCE Victory Heights — Cheney-Spokane Road & SR 195 SB Ramps
JOB NO. 23-81
DATE OF COUNT: 3/14/2023

Counter: Analyst
Miovision: BNG

PM PEAK HOURS

APPROACH	MOVEMENT	4:45 PM BK	4:45 PM PC	4:45 PM HV	5:00 PM BK	5:00 PM PC	5:00 PM HV	5:15 PM BK	5:15 PM PC	5:15 PM HV	5:30 PM BK	5:30 PM PC	5:30 PM HV
Eastbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	0	0	0	0	0	0	0	0	0	0	0
	Through	0	82	1	0	84	1	0	66	1	0	67	1
	Right	0	31	0	0	33	0	0	38	0	0	26	1
	App. Total	0	113	1	0	117	1	0	104	1	0	93	2
	Pct HV		1%			1%			1%			2%	
Westbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	3	0	0	1	0	0	4	0	0	1	0
	Through	0	32	1	0	22	0	0	24	0	0	23	0
	Right	0	0	0	0	0	0	0	0	0	0	0	0
	App. Total	0	35	1	0	23	0	0	28	0	0	24	0
	Pct HV		3%			0%			0%			0%	
Northbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	0	0	0	0	0	0	0	0	0	0	0
	Through	0	0	0	0	0	0	0	0	0	0	0	0
	Right	0	0	0	0	0	0	0	0	0	0	0	0
	App. Total	0	0	0	0	0	0	0	0	0	0	0	0
	Pct HV												
Southbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	1	0	0	2	0	0	3	0	0	2	0
	Through	0	1	0	0	0	0	0	0	0	0	0	0
	Right	0	0	0	0	0	0	0	0	0	0	0	0
	App. Total	0	2	0	0	2	0	0	3	0	0	2	0
	Pct HV		0%			0%			0%			0%	
Total Class Volume		0	150	2	0	142	1	0	135	1	0	119	2
Total Interval Volume			152			143			136			121	
Intersection Pct Trucks			1%			1%			1%			2%	

Approach

Receiving

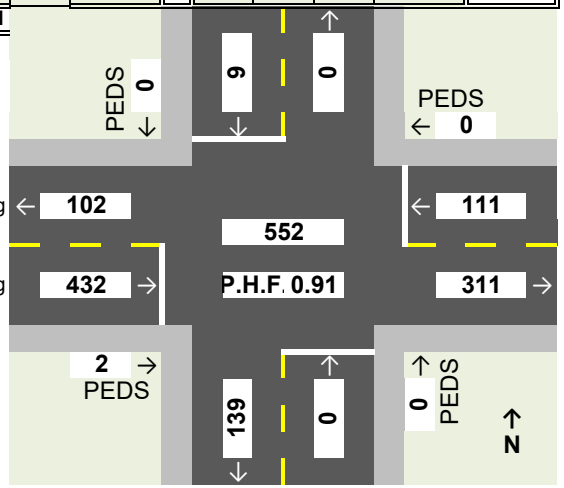
Mvmt	TOTAL HV	TOTAL Veh	PHF	Percentage of: HV	Percentage of: Approach
EBU	0	0			0.00%
EBL	0	0			0.00%
EBT	4	303		1%	70.14%
EBR	1	129		1%	29.86%
Total	5	432	0.92	1%	100.00%
WBU	0	0			0.00%
WBL	0	9		0%	8.11%
WBT	1	102		1%	91.89%
WBR	0	0			0.00%
Total	1	111	0.77	1%	100.00%
NBU	0	0			
NBL	0	0			
NBT	0	0			
NBR	0	0			
Total	0	0			
SBU	0	0			0.00%
SBL	0	8		0%	88.89%
SBT	0	1		0%	11.11%
SBR	0	0			0.00%
Total	0	9	0.75	0%	100.00%
Total	**6**	**552**	**0.91**		

Departing

Mvmt	Total	Percentage of: HV	Percentage of: Approach	App.
EBU	0		0.00%	Eastbound
NBL	0		0.00%	
WBT	102	1%	100.00%	
SBR	0		0.00%	
Total	102	1%	100.00%	
WBU	0		0.00%	Westbound
SBL	8	0%	2.57%	
EBT	303	1%	97.43%	
NBR	0		0.00%	
Total	311	1%	100.00%	
NBU	0		0.00%	Northbound
WBL	9	0%	6.47%	
SBT	1	0%	0.72%	
EBR	129	1%	92.81%	
Total	139	1%	100.00%	
SBU	0			Southbound
EBL	0			
NBT	0			
WBR	0			
Total	0			

Pedestrian Volumes

APPROACH	MOVEMENT	4:45	5:00	5:15	5:30	Confli. Ped TOTAL
Eastbound	Crosswalk	1	1	0	0	**2**
Westbound	Crosswalk	0	0	0	0	**0**
Northbound	Crosswalk	0	0	0	0	**0**
Southbound	Crosswalk	0	0	0	0	**0**
	Total	1	1	0	0	



Movement = Mvmt
Pedestrian = Ped
P.H.F.= Peak Hour Factor
App.= Approach
Pct= Percent

INTERSECTION

Phone: (509) 951-1851
email: beng@trfcnts.com

PROJECT: WCE Victory Heights — Cheney-Spokane Road
JOB NO. 21-83 — &
DATE OF COUNT: 3/14/2023 — SR 195 NB Ramps
Counter: Miovision — Analyst: BNG
AM PEAK HOURS
15 Minute Period Beginning @

APPROACH	Movement	6:30 AM			6:45 AM			7:00 AM			7:15 AM			7:30 AM			7:45 AM			8:00 AM			8:15 AM			8:30 AM			8:45 AM			9:00 AM			9:15 AM		
Type		BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV
Eastbound	U-Turn	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
	Left	0	93	2	0	85	4	0	113	2	0	145	7	0	193	1	0	130	3	0	115	2	0	80	1	0	94	3	0	85	3	0	77	1	0	85	1
	Right	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
	App. Total	0	93	2	0	85	4	0	113	2	0	145	7	0	193	1	0	130	3	0	115	2	0	80	1	0	94	3	0	85	3	0	77	1	0	85	1
	Pct HV		2%			4%			2%			5%			1%			2%			2%			1%			3%			3%			1%			1%	
Northbound	U-Turn	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
	Left	0	8	0	0	13	0	0	23	0	0	27	0	0	27	0	0	14	0	0	17	0	0	21	2	0	28	1	0	33	1	0	27	0	0	27	2
	Through	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	App. Total	0	8	0	0	13	0	0	23	0	0	27	0	0	29	3	0	14	0	0	17	0	0	21	2	0	28	1	0	33	1	0	27	0	0	27	2
	Pct HV		0%			0%			0%			0%			9%			0%			0%			9%			3%			3%			0%			7%	
Southbound	U-Turn	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
	Through	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
	Right	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
	App. Total	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
	Pct HV																																				
Total Class Volume		0	101	2	0	98	4	0	136	2	0	172	7	0	222	4	0	144	3	0	132	2	0	101	3	0	122	4	0	118	4	0	104	1	0	112	3
Total Interval Volume		103			102			138			179			226			147			134			104			126			122			105			115		
Intersection Pct HV		2%			4%			1%			4%			2%			2%			1%			3%			3%			3%			1%			3%		

Pedestrian Volumes — 15 Minute Period Beginning @

APPROACH	Movement	6:30	6:45	7:00	7:15	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15
Eastbound	Crosswalk	0	0	0	0	0	0	0	0	0	2	0	1
Westbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	0	0	0	2	0	1

Miovision Vehicle Classification

Bike (BK) | Passenger Car (PC) | Heavy Vehicle (HV)

Intersection Total One Hour Volumes		Pct HV
6:30 AM	522	2.9%
6:45 AM	645	2.6%
7:00 AM	**690**	**2.3%**
7:15 AM	686	2.3%
7:30 AM	611	2.0%
7:45 AM	511	2.3%
8:00 AM	486	2.7%
8:15 AM	457	2.6%
8:30 AM	468	2.6%

App.= Approach
Pct= Percent

INTERSECTION

Phone: (509) 951-1851
email: beng@trfcnts.com

PROJECT: WCE Victory Heights Cheney-Spokane Road & SR 195 NB Ramps
JOB NO. 21-83
DATE OF COUNT: 3/14/2023
Counter Analyst
Miovision BNG

APPROACH	MOVEMENT	AM PEAK HOURS 7:00 AM BK	PC	HV	7:15 AM BK	PC	HV	7:30 AM BK	PC	HV	7:45 AM BK	PC	HV
Eastbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	113	2	0	145	7	0	193	1	0	130	3
	Right	0	0	0	0	0	0	0	0	0	0	0	0
	App. Total	0	113	2	0	145	7	0	193	1	0	130	3
	Pct HV		2%			5%			1%			2%	
Northbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	23	0	0	27	0	0	27	0	0	14	0
	Through	0	0	0	0	0	0	0	2	3	0	0	0
	App. Total	0	23	0	0	27	0	0	29	3	0	14	0
	Pct HV		0%			0%			9%			0%	
Southbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Through	0	0	0	0	0	0	0	0	0	0	0	0
	Right	0	0	0	0	0	0	0	0	0	0	0	0
	App. Total	0	0	0	0	0	0	0	0	0	0	0	0
	Pct HV												
Total Class Volume		0	136	2	0	172	7	0	222	4	0	144	3
Total Interval Volume			138			179			226			147	
Intersection Pct Trucks			1%			4%			2%			2%	

Approach

Receiving

Mvmt	TOTAL HV	TOTAL Veh	PHF	Percentage of: HV	Percentage of: Approach
EBU	0	0			0.00%
EBL	13	594		2%	100.00%
EBR	0	0			0.00%
Total	13	594	0.77	2%	100.00%
NBU	0	0			0.00%
NBL	0	91		0%	94.79%
NBT	3	5		60%	5.21%
Total	3	96	0.75	3%	100.00%
SBU	0	0			
SBT	0	0			
SBR	0	0			
Total	0	0			
Total	**16**	**690**	**0.76**		

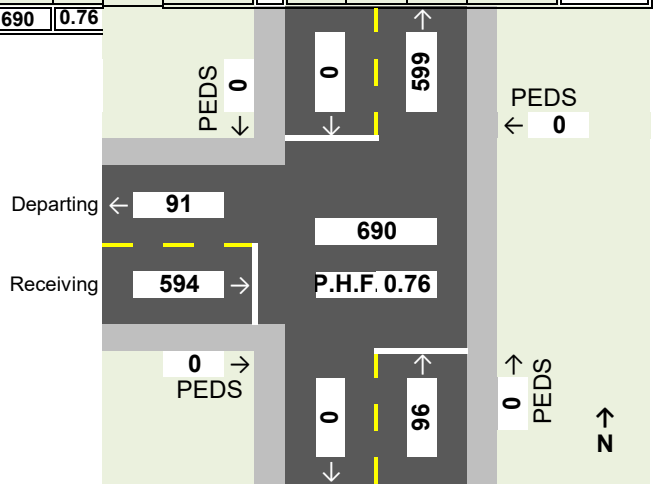
Departing

Mvmt	Total	Percentage of: HV	Percentage of: Approach	App.
EBU	0	0%	0.00%	Eastbound
NBL	91	0%	100.00%	
SBR	0	0%	0.00%	
Total	91	0%	100.00%	
NBU	0	0%		Northbound
EBR	0	0%		
SBT	0	0%		
Total	0			
SBU	0	0%	0.00%	Southbound
NBT	5	300%	0.83%	
EBL	594	####	99.17%	
Total	599	3%	100.00%	

Pedestrian Volumes

APPROACH	MOVEMENT	7:00	7:15	7:30	7:45	Confli. Ped TOTAL
Eastbound	Crosswalk	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0
	Total	0	0	0	0	

Movement = Mvmt
Pedestrian = Ped
P.H.F.= Peak Hour Factor
App.= Approach
Pct= Percent



INTERSECTION

Phone: (509) 951-1851
email: beng@trfcnts.com

PROJECT: WCE Victory Heights
JOB NO. 21-83
DATE OF COUNT: 3/14/2023
Counter: Miovision
Analyst: BNG

Cheney-Spokane Road
&
SR 195 NB Ramps

PM PEAK HOURS
15 Minute Period Beginning @

APPROACH	Movement	3:30 PM			3:45 PM			4:00 PM			4:15 PM			4:30 PM			4:45 PM			5:00 PM			5:15 PM			5:30 PM			5:45 PM			6:00 PM			6:15 PM		
Type		BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV
Eastbound	U-Turn	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
	Left	0	57	0	0	86	2	0	69	2	0	69	4	0	54	2	0	82	2	0	86	1	0	66	1	0	71	1	0	76	0	0	57	1	0	57	0
	Right	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
	App. Total	0	57	0	0	86	2	0	69	2	0	69	4	0	54	2	0	82	2	0	86	1	0	66	1	0	71	1	0	76	0	0	57	1	0	57	0
	Pct HV		0%			2%			3%			5%			4%			2%			1%			1%			1%			0%			2%			0%	
Northbound	U-Turn	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
	Left	0	21	0	0	27	1	0	31	1	0	21	0	0	25	0	0	36	1	0	21	0	0	30	0	0	25	0	0	28	0	0	18	0	0	16	0
	Through	0	0	0	0	0	0	0	1	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
	App. Total	0	21	0	0	27	1	0	32	1	0	21	0	0	25	0	0	36	1	0	21	0	0	30	0	0	25	0	0	28	0	0	18	0	0	16	0
	Pct HV		0%			4%			3%			0%			0%			3%			0%			0%			0%			0%			0%			0%	
Southbound	U-Turn	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
	Through	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
	Right	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
	App. Total	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
	Pct HV																																				
Total Class Volume		0	78	0	0	113	3	0	101	3	0	90	4	0	79	2	0	118	3	0	107	1	0	96	1	0	96	1	0	104	0	0	75	1	0	73	0
Total Interval Volume			78			116			104			94			81			121			108			97			97			104			76			73	
Intersection Pct HV			0%			3%			3%			4%			2%			2%			1%			1%			1%			0%			1%			0%	

Pedestrian Volumes

APPROACH	Movement	15 Minute Period Beginning @											
		3:30	3:45	4:00	4:15	4:30	4:45	5:00	5:15	5:30	5:45	6:00	6:15
Eastbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	0	0	0	0	0	0

Miovision Vehicle Classification

Bike (BK) | Passenger Car (PC) | Heavy Vehicle (HV)

Intersection Total One Hour Volumes		Pct HV
3:30 AM	392	2.6%
3:45 AM	395	3.0%
4:00 AM	**400**	**3.0%**
4:15 AM	404	2.5%
4:30 AM	407	1.7%
4:45 AM	423	1.4%
5:00 AM	406	0.7%
5:15 AM	374	0.8%
5:30 AM	350	0.6%

App.= Approach
Pct= Percent

INTERSECTION

Phone: (509) 951-1851
email: beng@trfcnts.com

PROJECT: WCE Victory Heights — Cheney-Spokane Road & SR 195 NB Ramps
JOB NO. 21-83
DATE OF COUNT: 3/14/2023
Counter Analyst
Miovision BNG

APPROACH	MOVEMENT	PM PEAK HOURS 4:00 PM BK	PC	HV	4:15 PM BK	PC	HV	4:30 PM BK	PC	HV	4:45 PM BK	PC	HV
Eastbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	69	2	0	69	4	0	54	2	0	82	2
	Right	0	0	0	0	0	0	0	0	0	0	0	0
	App. Total	0	69	2	0	69	4	0	54	2	0	82	2
	Pct HV		3%			5%			4%			2%	
Northbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	31	1	0	21	0	0	25	0	0	36	1
	Through	0	1	0	0	0	0	0	0	0	0	0	0
	App. Total	0	32	1	0	21	0	0	25	0	0	36	1
	Pct HV		3%			0%			0%			3%	
Southbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Through	0	0	0	0	0	0	0	0	0	0	0	0
	Right	0	0	0	0	0	0	0	0	0	0	0	0
	App. Total	0	0	0	0	0	0	0	0	0	0	0	0
	Pct HV												
Total Class Volume		0	101	3	0	90	4	0	79	2	0	118	3
Total Interval Volume			104			94			81			121	
Intersection Pct Trucks			3%			4%			2%			2%	

Approach — Receiving

Mvmt	TOTAL HV	TOTAL Veh	PHF	Percentage of: HV	Percentage of: Approach
EBU	0	0			0.00%
EBL	10	284		4%	100.00%
EBR	0	0			0.00%
Total	10	284	0.85	4%	100.00%
NBU	0	0			0.00%
NBL	2	115		2%	99.14%
NBT	0	1		0%	0.86%
Total	2	116	0.78	2%	100.00%
SBU	0	0			
SBT	0	0			
SBR	0	0			
Total	0	0			
Total	**12**	**400**	**0.83**		

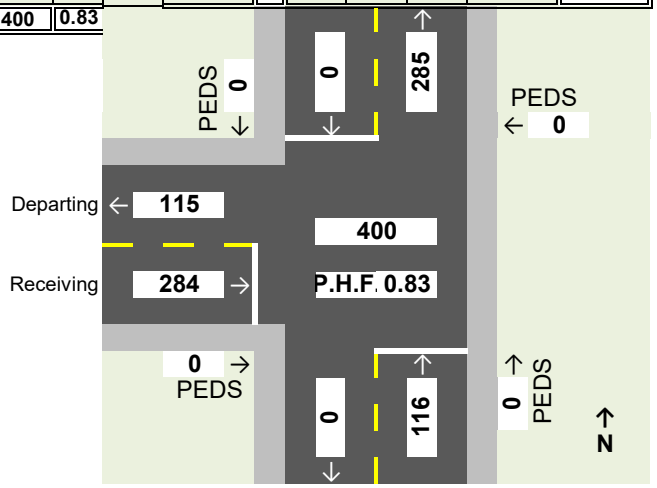
Approach — Departing

Mvmt	Total	Percentage of: HV	Percentage of: Approach	App.
EBU	0	0%	0.00%	Eastbound
NBL	115	200%	100.00%	
SBR	0	0%	0.00%	
Total	115	2%	100.00%	
NBU	0	0%		Northbound
EBR	0	0%		
SBT	0	0%		
Total	0			
SBU	0	0%	0.00%	Southbound
NBT	1	0%	0.35%	
EBL	284	####	99.65%	
Total	285	4%	100.00%	

Pedestrian Volumes

APPROACH	MOVEMENT	7:00	7:15	7:30	7:45	Confli. Ped TOTAL
Eastbound	Crosswalk	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0
	Total	0	0	0	0	

Movement = Mvmt
Pedestrian = Ped
P.H.F.= Peak Hour Factor
App.= Approach
Pct= Percent



Phone: (509) 951-1851
email: beng@trfcnts.com

INTERSECTION

PROJECT: WCE Victory Heights — Meadowlane
JOB NO. 23-81 — &
DATE OF COUNT: 3/14/2023 — SR 195
Counter: Miovision — Analyst: BNG
AM PEAK HOURS
15 Minute Period Beginning @

APPROACH	Movement	6:30 AM			6:45 AM			7:00 AM			7:15 AM			7:30 AM			7:45 AM			8:00 AM			8:15 AM			8:30 AM			8:45 AM			9:00 AM			9:15 AM		
Type		BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV
Eastbound	U-Turn	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
	Left	0	34	0	0	39	0	0	32	0	0	43	0	0	67	0	0	37	0	0	27	0	0	27	0	0	34	0	0	22	0	0	19	0	0	19	0
	Through	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
	Right	0	13	0	0	15	1	0	13	1	0	13	1	0	16	1	0	22	1	0	35	1	0	29	0	0	38	2	0	18	0	0	18	0	0	10	0
	App. Total	0	47	0	0	54	1	0	45	1	0	56	1	0	83	1	0	59	1	0	62	1	0	56	0	0	72	2	0	40	0	0	37	0	0	29	0
	Pct HV		0%			2%			2%			2%			1%			2%			2%			0%			3%			0%			0%			0%	
Westbound	U-Turn	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
	Left	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3	0	0	2	0	0	1	0
	Through	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Right	0	0	0	0	3	0	0	1	0	0	1	0	0	5	0	0	2	0	0	3	0	0	3	1	0	3	0	0	5	0	0	7	0	0	2	2
	App. Total	0	0	0	0	5	0	0	1	0	0	1	0	0	7	0	0	3	1	0	3	0	0	3	1	0	3	0	0	8	0	0	9	0	0	3	2
	Pct HV					0%			0%			0%			0%			25%			0%			25%			0%			0%			0%			40%	
Northbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
	Left	0	2	2	0	3	0	0	5	0	0	8	1	0	4	0	0	4	0	0	2	1	0	21	0	0	22	0	0	23	0	0	10	0	0	6	0
	Through	0	107	3	0	106	3	0	125	2	0	193	3	0	188	4	0	138	3	0	134	2	0	147	8	0	133	6	0	123	5	0	119	3	0	107	11
	Right	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	3	0
	App. Total	0	109	5	0	109	3	0	131	2	0	201	4	0	193	4	0	143	3	0	136	3	0	168	8	0	155	6	0	149	5	0	131	3	0	116	11
	Pct HV		4%			3%			2%			2%			2%			2%			2%			5%			4%			3%			2%			9%	
Southbound	U-Turn	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	2	0	0	2	0	0	2	0	0	1	0
	Left	0	1	0	0	0	0	0	0	0	0	2	0	0	0	1	0	2	0	0	2	0	0	0	0	0	1	0	0	4	0	0	3	0	0	0	1
	Through	0	49	10	0	55	14	0	69	5	0	88	9	0	89	9	0	80	10	0	96	8	0	102	16	0	92	8	0	58	12	0	71	8	0	81	5
	Right	0	3	1	0	7	0	0	6	1	0	4	1	0	5	0	0	9	2	0	18	0	0	12	1	0	12	0	0	14	0	0	12	0	0	11	1
	App. Total	0	54	11	0	62	14	0	75	6	0	94	10	0	94	10	0	91	12	0	117	8	0	116	17	0	107	8	0	78	12	0	88	8	0	93	7
	Pct HV		17%			18%			7%			10%			10%			12%			6%			13%			7%			13%			8%			7%	
Total Class Volume		0	210	16	0	230	18	0	252	9	0	352	15	0	377	15	0	296	17	0	318	12	0	343	26	0	337	16	0	275	17	0	265	11	0	241	20
Total Interval Volume			226			248			261			367			392			313			330			369			353			292			276			261	
Intersection Pct HV			7%			7%			3%			4%			4%			5%			4%			7%			5%			6%			4%			8%	

Pedestrian Volumes — 15 Minute Period Beginning @

APPROACH	Movement	6:30	6:45	7:00	7:15	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15
Eastbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	0	0	0	0	0	0

Miovision Vehicle Classification

Bike (BK) | Passenger Car (PC) | Heavy Vehicle (HV)

Intersection Total One Hour Volumes		Pct HV
6:30 AM	1,102	5.3%
6:45 AM	1,268	4.5%
7:00 AM	1,333	4.2%
7:15 AM	1,402	4.2%
7:30 AM	**1,404**	**5.0%**
7:45 AM	1,365	5.2%
8:00 AM	1,344	5.3%
8:15 AM	1,290	5.4%
8:30 AM	1,182	5.4%

App.= Approach
Pct= Percent

Phone: (509) 951-1851
email: beng@trfcnts.com

INTERSECTION

PROJECT: WCE Victory Heights Meadowlane & SR 195
JOB NO. 23-81
DATE OF COUNT: 3/14/2023

Counter Analyst
Miovision BNG

AM PEAK HOURS

APPROACH	MOVEMENT	7:30 AM			7:45 AM			8:00 AM			8:15 AM		
		BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV
Eastbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	67	0	0	37	0	0	27	0	0	27	0
	Through	0	0	0	0	0	0	0	0	0	0	0	0
	Right	0	16	1	0	22	1	0	35	1	0	29	0
	App. Total	0	83	1	0	59	1	0	62	1	0	56	0
	Pct HV		1%			2%			2%			0%	
Westbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	2	0	0	1	0	0	0	0	0	0	0
	Through	0	0	0	0	0	1	0	0	0	0	0	0
	Right	0	5	0	0	2	0	0	3	0	0	3	1
	App. Total	0	7	0	0	3	1	0	3	0	0	3	1
	Pct HV		0%			25%			0%			25%	
Northbound	U-Turn	0	0	0	0	1	0	0	0	0	0	0	0
	Left	0	4	0	0	4	0	0	2	1	0	21	0
	Through	0	188	4	0	138	3	0	134	2	0	147	8
	Right	0	1	0	0	0	0	0	0	0	0	0	0
	App. Total	0	193	4	0	143	3	0	136	3	0	168	8
	Pct HV		2%			2%			2%			5%	
Southbound	U-Turn	0	0	0	0	0	0	0	1	0	0	2	0
	Left	0	0	1	0	2	0	0	2	0	0	0	0
	Through	0	89	9	0	80	10	0	96	8	0	102	16
	Right	0	5	0	0	9	2	0	18	0	0	12	1
	App. Total	0	94	10	0	91	12	0	117	8	0	116	17
	Pct HV		10%			12%			6%			13%	
Total Class Volume		0	377	15	0	296	17	0	318	12	0	343	26
Total Interval Volume			392			313			330			369	
Intersection Pct Trucks			4%			5%			4%			7%	

Approach

Receiving

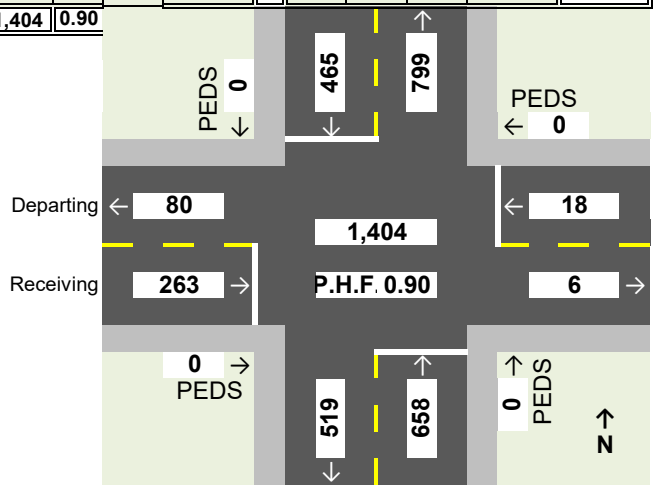
Mvmt	TOTAL HV	TOTAL Veh	PHF	Percentage of: HV	Percentage of: Approach
EBU	0	0			0.00%
EBL	0	158		0%	60.08%
EBT	0	0			0.00%
EBR	3	105		3%	39.92%
Total	3	263	0.78	1%	100.00%
WBU	0	0			0.00%
WBL	0	3		0%	16.67%
WBT	1	1		100%	5.56%
WBR	1	14		7%	77.78%
Total	2	18	0.64	11%	100.00%
NBU	0	1		0%	0.15%
NBL	1	32		3%	4.86%
NBT	17	624		3%	94.83%
NBR	0	1		0%	0.15%
Total	18	658	0.84	3%	100.00%
SBU	0	3		0%	0.65%
SBL	1	5		20%	1.08%
SBT	43	410		10%	88.17%
SBR	3	47		6%	10.11%
Total	47	465	0.87	10%	100.00%
Total	**70**	**1,404**	**0.90**		

Departing

Mvmt	Total	Percentage of: HV	Percentage of: Approach	App.
EBU	0		0.00%	Eastbound
NBL	32	3%	40.00%	
WBT	1	100%	1.25%	
SBR	47	6%	58.75%	
Total	80	6%	100.00%	
WBU	0		0.00%	Westbound
SBL	5	20%	83.33%	
EBT	0		0.00%	
NBR	1	0%	16.67%	
Total	6	17%	100.00%	
NBU	1	0%	0.19%	Northbound
WBL	3	0%	0.58%	
SBT	410	10%	79.00%	
EBR	105	3%	20.23%	
Total	519	9%	100.00%	
SBU	3	0%	0.38%	Southbound
EBL	158	0%	19.77%	
NBT	624	3%	78.10%	
WBR	14	7%	1.75%	
Total	799	2%	100.00%	

Pedestrian Volumes

APPROACH	MOVEMENT	7:30	7:45	8:00	8:15	Confli. Ped TOTAL
Eastbound	Crosswalk	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0
	Total	0	0	0	0	



Movement = Mvmt
Pedestrian = Ped
P.H.F.= Peak Hour Factor
App.= Approach
Pct= Percent

Phone: (509) 951-1851
email: beng@trfcnts.com

INTERSECTION

PROJECT: WCE Victory Heights — Meadowlane
JOB NO. 23-81 — &
DATE OF COUNT: 3/14/2023 — SR 195
Counter: Miovision — Analyst: BNG
PM PEAK HOURS
15 Minute Period Beginning @

APPROACH	Movement	3:30 PM			3:45 PM			4:00 PM			4:15 PM			4:30 PM			4:45 PM			5:00 PM			5:15 PM			5:30 PM			5:45 PM			6:00 PM			6:15 PM		
Type		BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV
Eastbound	U-Turn	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
	Left	0	11	0	0	12	0	0	14	0	0	12	0	0	10	0	0	12	0	0	14	0	0	12	0	0	11	0	0	11	0	0	14	0	0	13	0
	Through	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Right	0	14	1	0	15	1	0	18	1	0	12	0	0	26	0	0	18	0	0	24	0	0	20	0	0	18	0	0	20	0	0	6	0	0	9	0
	App. Total	0	25	1	0	27	2	0	32	2	0	24	0	0	36	0	0	30	0	0	39	0	0	32	0	0	29	0	0	31	0	0	20	0	0	22	0
	Pct HV		4%			7%			6%			0%			0%			0%			0%			0%			0%			0%			0%			0%	
Westbound	U-Turn	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
	Left	0	0	0	0	2	0	0	1	0	0	2	0	0	1	0	0	2	0	0	3	0	0	1	0	0	1	0	0	0	0	0	1	0	0	1	0
	Through	0	0	0	0	0	1	0	0	1	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
	Right	0	3	0	0	1	0	0	7	0	0	4	0	0	6	0	0	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	3	0
	App. Total	0	3	0	0	3	1	0	8	1	0	6	0	0	7	0	0	5	0	0	3	0	0	1	0	0	1	0	0	1	0	0	2	0	0	4	0
	Pct HV		0%			25%			11%			0%			0%			0%			0%			0%			0%			0%			0%			0%	
Northbound	U-Turn	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
	Left	0	36	0	0	19	0	0	19	0	0	22	1	0	19	0	0	28	0	0	27	0	0	24	0	0	21	0	0	13	0	0	15	0	0	19	0
	Through	0	112	5	0	104	10	0	111	5	0	100	5	0	109	7	0	128	8	0	79	9	0	117	6	0	117	7	0	86	14	0	66	4	0	79	3
	Right	0	1	0	0	0	1	0	0	1	0	2	0	0	1	0	0	1	0	0	4	0	0	2	0	0	1	0	0	0	0	0	1	0	0	0	0
	App. Total	0	149	5	0	124	11	0	131	6	0	124	6	0	129	7	0	158	8	0	111	9	0	143	6	0	140	7	0	99	14	0	82	4	0	98	3
	Pct HV		3%			8%			4%			5%			5%			5%			8%			4%			5%			12%			5%			3%	
Southbound	U-Turn	0	0	0	0	0	0	0	3	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
	Left	0	3	0	0	1	0	0	5	0	0	3	0	0	1	0	0	3	0	0	1	0	0	2	0	0	1	0	0	2	0	0	3	0	0	4	0
	Through	0	158	4	0	160	1	0	162	1	0	179	4	0	181	4	0	166	6	0	174	6	0	208	0	0	152	2	0	133	3	0	116	1	0	107	1
	Right	0	32	0	0	26	1	0	28	1	0	34	0	0	39	0	0	36	0	0	36	0	0	45	0	0	30	0	0	30	0	0	24	0	0	29	0
	App. Total	0	193	4	0	187	2	0	198	2	0	218	4	0	222	4	0	205	6	0	211	6	0	255	0	0	183	2	0	166	3	0	143	1	0	140	1
	Pct HV		2%			1%			1%			2%			2%			3%			3%			0%			1%			2%			1%			1%	
Total Class Volume		0	370	10	0	341	16	0	369	11	0	372	10	0	394	11	0	398	14	0	364	15	0	431	6	0	353	9	0	297	17	0	247	5	0	264	4
Total Interval Volume			380			357			380			382			405			412			379			437			362			314			252			268	
Intersection Pct HV			3%			4%			3%			3%			3%			3%			4%			1%			2%			5%			2%			1%	

Pedestrian Volumes

APPROACH	Movement	15 Minute Period Beginning @ 3:30	3:45	4:00	4:15	4:30	4:45	5:00	5:15	5:30	5:45	6:00	6:15
Eastbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	0	0	0	0	0	0

Miovision Vehicle Classification

Bike (BK) | Passenger Car (PC) | Heavy Vehicle (HV)

Intersection Total One Hour Volumes		Pct HV
3:30 PM	1,499	3.1%
3:45 PM	1,524	3.1%
4:00 PM	1,579	2.9%
4:15 PM	1,578	3.2%
4:30 PM	**1,633**	**2.8%**
4:45 PM	1,590	2.8%
5:00 PM	1,492	3.2%
5:15 PM	1,365	2.7%
5:30 PM	1,196	2.9%

App.= Approach
Pct= Percent

Phone: (509) 951-1851
email: beng@trfcnts.com

INTERSECTION

PROJECT: WCE Victory Heights Meadowlane & SR 195
JOB NO. 23-81
DATE OF COUNT: 3/14/2023

Counter Analyst
Miovision BNG

PM PEAK HOURS

APPROACH	MOVEMENT	4:30 PM			4:45 PM			5:00 PM			5:15 PM		
		BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV
Eastbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	10	0	0	12	0	0	14	0	0	12	0
	Through	0	0	0	0	0	0	0	1	0	0	0	0
	Right	0	26	0	0	18	0	0	24	0	0	20	0
	App. Total	0	36	0	0	30	0	0	39	0	0	32	0
	Pct HV		0%			0%			0%			0%	
Westbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	1	0	0	2	0	0	3	0	0	1	0
	Through	0	0	0	0	0	0	0	0	0	0	0	0
	Right	0	6	0	0	3	0	0	0	0	0	0	0
	App. Total	0	7	0	0	5	0	0	3	0	0	1	0
	Pct HV		0%			0%			0%			0%	
Northbound	U-Turn	0	0	0	0	1	0	0	1	0	0	0	0
	Left	0	19	0	0	28	0	0	27	0	0	24	0
	Through	0	109	7	0	128	8	0	79	9	0	117	6
	Right	0	1	0	0	1	0	0	4	0	0	2	0
	App. Total	0	129	7	0	158	8	0	111	9	0	143	6
	Pct HV		5%			5%			8%			4%	
Southbound	U-Turn	0	1	0	0	0	0	0	0	0	0	0	0
	Left	0	1	0	0	3	0	0	1	0	0	2	0
	Through	0	181	4	0	166	6	0	174	6	0	208	0
	Right	0	39	0	0	36	0	0	36	0	0	45	0
	App. Total	0	222	4	0	205	6	0	211	6	0	255	0
	Pct HV		2%			3%			3%			0%	
Total Class Volume		0	394	11	0	398	14	0	364	15	0	431	6
Total Interval Volume			405			412			379			437	
Intersection Pct Trucks			3%			3%			4%			1%	

Approach

Receiving

Mvmt	TOTAL HV	TOTAL Veh	PHF	Percentage of: HV	Percentage of: Approach
EBU	0	0			0.00%
EBL	0	48		0%	35.04%
EBT	0	1		0%	0.73%
EBR	0	88		0%	64.23%
Total	0	137	0.88	0%	100.00%
WBU	0	0			0.00%
WBL	0	7		0%	43.75%
WBT	0	0			0.00%
WBR	0	9		0%	56.25%
Total	0	16	0.57	0%	100.00%
NBU	0	2		0%	0.35%
NBL	0	98		0%	17.16%
NBT	30	463		6%	81.09%
NBR	0	8		0%	1.40%
Total	30	571	0.86	5%	100.00%
SBU	0	1		0%	0.11%
SBL	0	7		0%	0.77%
SBT	16	745		2%	81.96%
SBR	0	156		0%	17.16%
Total	16	909	0.89	2%	100.00%
Total	**46**	**1,633**	**0.93**		

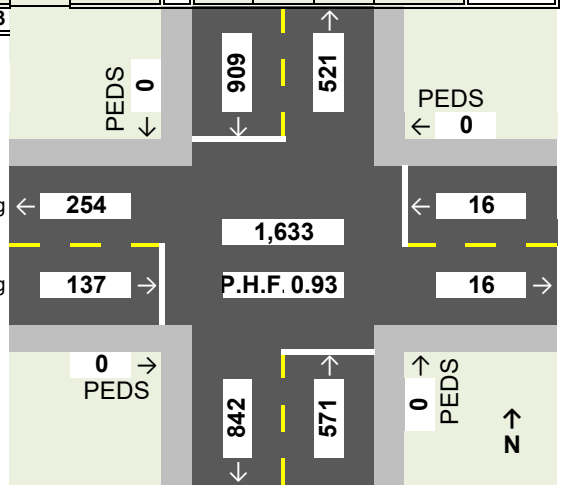
Departing

Mvmt	Total	Percentage of: HV	Percentage of: Approach	App.
EBU	0		0.00%	Eastbound
NBL	98	0%	38.58%	
WBT	0		0.00%	
SBR	156	0%	61.42%	
Total	254	0%	100.00%	
WBU	0		0.00%	Westbound
SBL	7	0%	43.75%	
EBT	1	0%	6.25%	
NBR	8	0%	50.00%	
Total	16	0%	100.00%	
NBU	2	0%	0.24%	Northbound
WBL	7	0%	0.83%	
SBT	745	2%	88.48%	
EBR	88	0%	10.45%	
Total	842	2%	100.00%	
SBU	1	0%	0.19%	Southbound
EBL	48	0%	9.21%	
NBT	463	6%	88.87%	
WBR	9	0%	1.73%	
Total	521	6%	100.00%	

Pedestrian Volumes

APPROACH	MOVEMENT	4:30	4:45	5:00	5:15	Confli. Ped TOTAL
Eastbound	Crosswalk	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0
	Total	0	0	0	0	

Movement = Mvmt
Pedestrian = Ped
P.H.F.= Peak Hour Factor
App.= Approach
Pct= Percent



INTERSECTION

Phone: (509) 951-1851
email: beng@trfcnts.com

PROJECT: WCE Victory Heights — Hatch Road
JOB NO. 23-81 — &
DATE OF COUNT: 3/14/2023 — SR 195
Counter: Miovision — Analyst: BNG
AM PEAK HOURS
15 Minute Period Beginning @

APPROACH	Movement	6:30 AM			6:45 AM			7:00 AM			7:15 AM			7:30 AM			7:45 AM			8:00 AM			8:15 AM			8:30 AM			8:45 AM			9:00 AM			9:15 AM		
Type		BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV
Westbound	U-Turn	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
	Left	0	4	0	0	13	1	0	7	0	0	13	0	0	20	0	0	6	0	0	8	0	0	12	0	0	13	0	0	16	0	0	12	1	0	13	0
	Right	0	59	3	0	51	0	0	59	1	0	90	0	0	99	4	0	75	0	0	55	1	0	88	0	0	73	0	0	66	1	0	58	1	0	48	0
	App. Total	0	63	3	0	64	1	0	66	1	0	103	0	0	119	4	0	81	0	0	63	1	0	100	0	0	86	0	0	82	1	0	70	2	0	61	0
	Pct HV	5%			2%			1%			0%			3%			0%			2%			0%			0%			1%			3%			0%		
Northbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Through	0	59	2	0	50	3	0	74	2	0	99	3	0	94	0	0	69	3	0	86	2	0	65	6	0	79	5	0	71	3	0	78	2	0	69	9
	Right	0	11	0	0	4	0	0	8	1	0	23	0	0	20	0	0	19	0	0	21	0	0	23	0	0	27	0	0	18	0	0	11	0	0	18	0
	App. Total	0	70	2	0	54	3	0	82	3	0	122	3	0	114	0	0	89	3	0	107	2	0	88	6	0	106	5	0	89	3	0	89	2	0	87	9
	Pct HV	3%			5%			4%			2%			0%			3%			2%			6%			5%			3%			2%			9%		
Southbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0
	Left	0	33	0	0	28	2	0	38	0	0	46	2	0	55	1	0	61	1	0	70	2	0	81	1	0	67	3	0	55	3	0	43	0	0	42	0
	Through	0	37	10	0	40	13	0	43	5	0	47	12	0	56	8	0	37	11	0	62	9	0	52	11	0	57	14	0	31	10	0	42	11	0	54	5
	App. Total	0	70	10	0	68	15	0	81	5	0	93	14	0	111	9	0	98	12	0	132	11	0	135	12	0	124	17	0	88	13	0	85	11	0	96	5
	Pct HV	13%			18%			6%			13%			8%			11%			8%			8%			12%			13%			11%			5%		
Total Class Volume		0	203	15	0	186	19	0	229	9	0	318	17	0	344	13	0	268	15	0	302	14	0	323	18	0	316	22	0	259	17	0	244	15	0	244	14
Total Interval Volume		218			205			238			335			357			283			316			341			338			276			259			258		
Intersection Pct HV		7%			9%			4%			5%			4%			5%			4%			5%			7%			6%			6%			5%		

Pedestrian Volumes — 15 Minute Period Beginning @

APPROACH	Movement	6:30	6:45	7:00	7:15	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15
Eastbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	0	0	0	0	0	0

Miovision Vehicle Classification

Bike (BK) | Passenger Car (PC) | Heavy Vehicle (HV)

Intersection Total One Hour Volumes		Pct HV
6:30 AM	996	0.1%
6:45 AM	1,135	0.1%
7:00 AM	1,213	0.1%
7:15 AM	1,291	0.0%
7:30 AM	**1,297**	**0.0%**
7:45 AM	1,278	0.0%
8:00 AM	1,271	0.0%
8:15 AM	1,214	0.0%
8:30 AM	1,131	0.0%

App.= Approach
Pct= Percent

INTERSECTION

Phone: (509) 951-1851
email: beng@trfcnts.com

PROJECT: WCE Victory Heights Hatch Road & SR 195
JOB NO. 23-81
DATE OF COUNT: 3/14/2023
Counter Analyst
Miovision BNG

APPROACH	MOVEMENT	AM PEAK HOURS 7:30 AM BK	PC	HV	7:45 AM BK	PC	HV	8:00 AM BK	PC	HV	8:15 AM BK	PC	HV
Westbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	20	0	0	6	0	0	8	0	0	12	0
	Right	0	99	4	0	75	0	0	55	1	0	88	0
	App. Total	0	119	4	0	81	0	0	63	1	0	100	0
	Pct HV		3%			0%			2%			0%	
Northbound	U-Turn	0	0	0	0	1	0	0	0	0	0	0	0
	Through	0	94	0	0	69	3	0	86	2	0	65	6
	Right	0	20	0	0	19	0	0	21	0	0	23	0
	App. Total	0	114	0	0	89	3	0	107	2	0	88	6
	Pct HV		0%			3%			2%			6%	
Southbound	U-Turn	0	0	0	0	0	0	0	0	0	0	2	0
	Left	0	55	1	0	61	1	0	70	2	0	81	1
	Through	0	56	8	0	37	11	0	62	9	0	52	11
	App. Total	0	111	9	0	98	12	0	132	11	0	135	12
	Pct HV		8%			11%			8%			8%	
Total Class Volume		0	344	13	0	268	15	0	302	14	0	323	18
Total Interval Volume			357			283			316			341	
Intersection Pct Trucks			4%			5%			4%			5%	

Approach

Departing

Mvmt	TOTAL HV	TOTAL Veh	PHF	Percentage of: HV	Percentage of: Approach
WBU	0	0			0.00%
WBL	0	46		0%	12.50%
WBR	5	322		2%	87.50%
Total	5	368	0.75	1%	100.00%
NBU	0	1		0%	0.24%
NBT	11	325		3%	79.46%
NBR	0	83		0%	20.29%
Total	11	409	0.90	3%	100.00%
SBU	0	2		0%	0.38%
SBL	5	272		2%	52.31%
SBT	39	246		16%	47.31%
Total	44	520	0.88	8%	100.00%
Total	**60**	**1,297**	**0.91**		

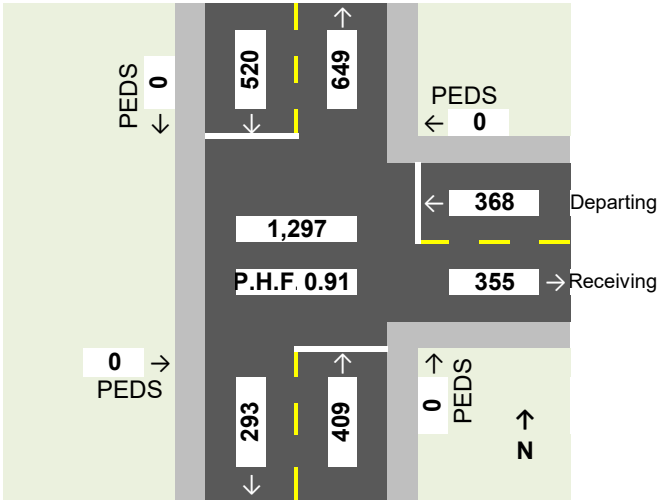
Receiving

Mvmt	Total	Percentage of: HV	Percentage of: Approach	App.
WBU	0		0.00%	Westbound
SBL	272	2%	76.62%	
NBR	83	0%	23.38%	
Total	355		100.00%	
NBU	1	0%	0.34%	Northbound
SBT	246	16%	83.96%	
WBL	46	0%	15.70%	
Total	293	13%	100.00%	
SBU	2	0%	0.31%	Southbound
WBR	322	2%	49.61%	
NBT	325	3%	50.08%	
Total	649	2%	100.00%	

Pedestrian Volumes

APPROACH	MOVEMENT	7:30	7:45	8:00	8:15	Confli. Ped TOTAL
Eastbound	Crosswalk	0	0	0	0	**0**
Westbound	Crosswalk	0	0	0	0	**0**
Northbound	Crosswalk	0	0	0	0	**0**
Southbound	Crosswalk	0	0	0	0	**0**
	Total	0	0	0	0	

Movement = Mvmt
Pedestrian = Ped
P.H.F.= Peak Hour Factor
App.= Approach
Pct= Percent



INTERSECTION

Phone: (509) 951-1851
email: beng@trfcnts.com

PROJECT: WCE Victory Heights — Hatch Road
JOB NO. 23-81 — &
DATE OF COUNT: 3/14/2023 — SR 195
Counter: Miovision — Analyst: BNG
PM PEAK HOURS
15 Minute Period Beginning @

APPROACH	Movement	3:30 PM			3:45 PM			4:00 PM			4:15 PM			4:30 PM			4:45 PM			5:00 PM			5:15 PM			5:30 PM			5:45 PM			6:00 PM			6:15 PM		
Type		BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV
Westbound	U-Turn	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
	Left	0	30	0	0	19	0	0	13	0	0	21	0	0	38	0	0	15	1	0	23	0	0	38	0	0	21	0	0	15	0	0	15	0	0	18	0
	Right	0	79	1	0	68	1	0	69	1	0	68	1	0	73	1	0	88	1	0	71	0	0	81	0	0	75	0	0	59	0	0	48	0	0	63	1
	App. Total	0	109	1	0	87	1	0	82	1	0	89	1	0	111	1	0	103	2	0	94	0	0	119	0	0	96	0	0	74	0	0	63	0	0	81	1
	Pct HV		1%			1%			1%			1%			1%			2%			0%			0%			0%			0%			0%			1%	
Northbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0
	Through	0	67	5	0	52	9	0	67	5	0	51	6	0	58	5	0	70	7	0	46	8	0	60	6	0	55	9	0	39	11	0	36	4	0	38	3
	Right	0	16	2	0	19	0	0	14	0	0	22	1	0	6	1	0	12	0	0	16	0	0	17	0	0	11	0	0	18	0	0	14	0	0	15	0
	App. Total	0	83	7	0	71	9	0	81	5	0	73	7	0	64	6	0	82	7	0	62	8	0	78	6	0	66	9	0	57	11	0	51	4	0	54	3
	Pct HV		8%			11%			6%			9%			9%			8%			11%			7%			12%			16%			7%			5%	
Southbound	U-Turn	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
	Left	0	75	2	0	92	0	0	73	0	0	102	0	0	98	0	0	109	1	0	102	0	0	103	0	0	70	1	0	75	0	0	58	0	0	66	1
	Through	0	104	3	0	86	2	0	102	3	0	100	4	0	107	4	0	79	5	0	95	6	0	115	0	0	101	1	0	79	3	0	70	1	0	54	1
	App. Total	0	180	5	0	178	2	0	175	3	0	202	4	0	205	4	0	188	6	0	197	6	0	218	0	0	172	2	0	154	3	0	128	1	0	120	2
	Pct HV		3%			1%			2%			2%			2%			3%			3%			0%			1%			2%			1%			2%	
Total Class Volume		0	372	13	0	336	12	0	338	9	0	364	12	0	380	11	0	373	15	0	353	14	0	415	6	0	334	11	0	285	14	0	242	5	0	255	6
Total Interval Volume			385			348			347			376			391			388			367			421			345			299			247			261	
Intersection Pct HV			3%			3%			3%			3%			3%			4%			4%			1%			3%			5%			2%			2%	

Pedestrian Volumes

APPROACH	Movement	15 Minute Period Beginning @ 3:30	3:45	4:00	4:15	4:30	4:45	5:00	5:15	5:30	5:45	6:00	6:15
Eastbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	0	0	0	0	0	0

Miovision Vehicle Classification

Bike (BK) | Passenger Car (PC) | Heavy Vehicle (HV)

Intersection Total One Hour Volumes		Pct HV
3:30 PM	1,456	3.2%
3:45 PM	1,462	3.0%
4:00 PM	1,502	3.1%
4:15 PM	1,522	3.4%
4:30 PM	**1,567**	**2.9%**
4:45 PM	1,521	3.0%
5:00 PM	1,432	3.1%
5:15 PM	1,312	2.7%
5:30 PM	1,152	3.1%

App.= Approach
Pct= Percent

INTERSECTION

Phone: (509) 951-1851
email: beng@trfcnts.com

PROJECT: WCE Victory Heights Hatch Road & SR 195
JOB NO. 23-81
DATE OF COUNT: 3/14/2023

Counter Analyst
Miovision BNG

PM PEAK HOURS

APPROACH	MOVEMENT	4:30 PM			4:45 PM			5:00 PM			5:15 PM		
		BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV
Westbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	38	0	0	15	1	0	23	0	0	38	0
	Right	0	73	1	0	88	1	0	71	0	0	81	0
	App. Total	0	111	1	0	103	2	0	94	0	0	119	0
	Pct HV		1%			2%			0%			0%	
Northbound	U-Turn	0	0	0	0	0	0	0	0	0	0	1	0
	Through	0	58	5	0	70	7	0	46	8	0	60	6
	Right	0	6	1	0	12	0	0	16	0	0	17	0
	App. Total	0	64	6	0	82	7	0	62	8	0	78	6
	Pct HV		9%			8%			11%			7%	
Southbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0
	Left	0	98	0	0	109	1	0	102	0	0	103	0
	Through	0	107	4	0	79	5	0	95	6	0	115	0
	App. Total	0	205	4	0	188	6	0	197	6	0	218	0
	Pct HV		2%			3%			3%			0%	
Total Class Volume		0	380	11	0	373	15	0	353	14	0	415	6
Total Interval Volume			391			388			367			421	
Intersection Pct Trucks			3%			4%			4%			1%	

Approach

Departing

Mvmt	TOTAL HV	TOTAL Veh	PHF	Percentage of: HV	Percentage of: Approach
WBU	0	0			0.00%
WBL	1	115		1%	26.74%
WBR	2	315		1%	73.26%
Total	3	430	0.90	1%	100.00%
NBU	0	1		0%	0.32%
NBT	26	260		10%	83.07%
NBR	1	52		2%	16.61%
Total	27	313	0.88	9%	100.00%
SBU	0	0			0.00%
SBL	1	413		0%	50.12%
SBT	15	411		4%	49.88%
Total	16	824	0.94	2%	100.00%
Total	**46**	**1,567**	**0.93**		

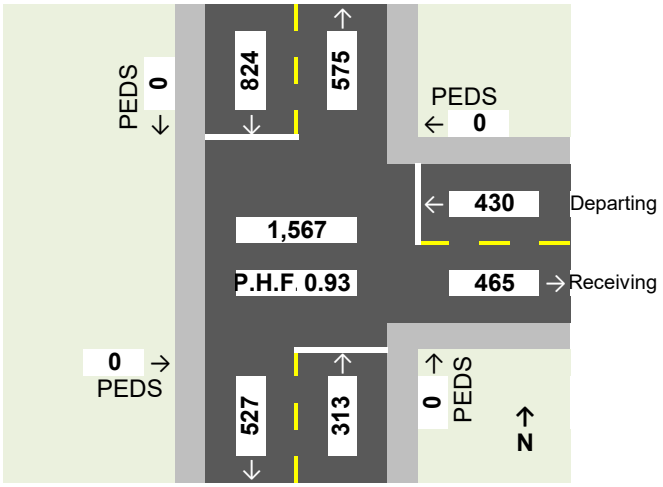
Receiving

Mvmt	Total	Percentage of: HV	Percentage of: Approach	App.
WBU	0		0.00%	Westbound
SBL	413	0%	88.82%	
NBR	52	2%	11.18%	
Total	465	0%	100.00%	
NBU	1	0%	0.19%	Northbound
SBT	411	4%	77.99%	
WBL	115	1%	21.82%	
Total	527	3%	100.00%	
SBU	0		0.00%	Southbound
WBR	315	1%	54.78%	
NBT	260	10%	45.22%	
Total	575	5%	100.00%	

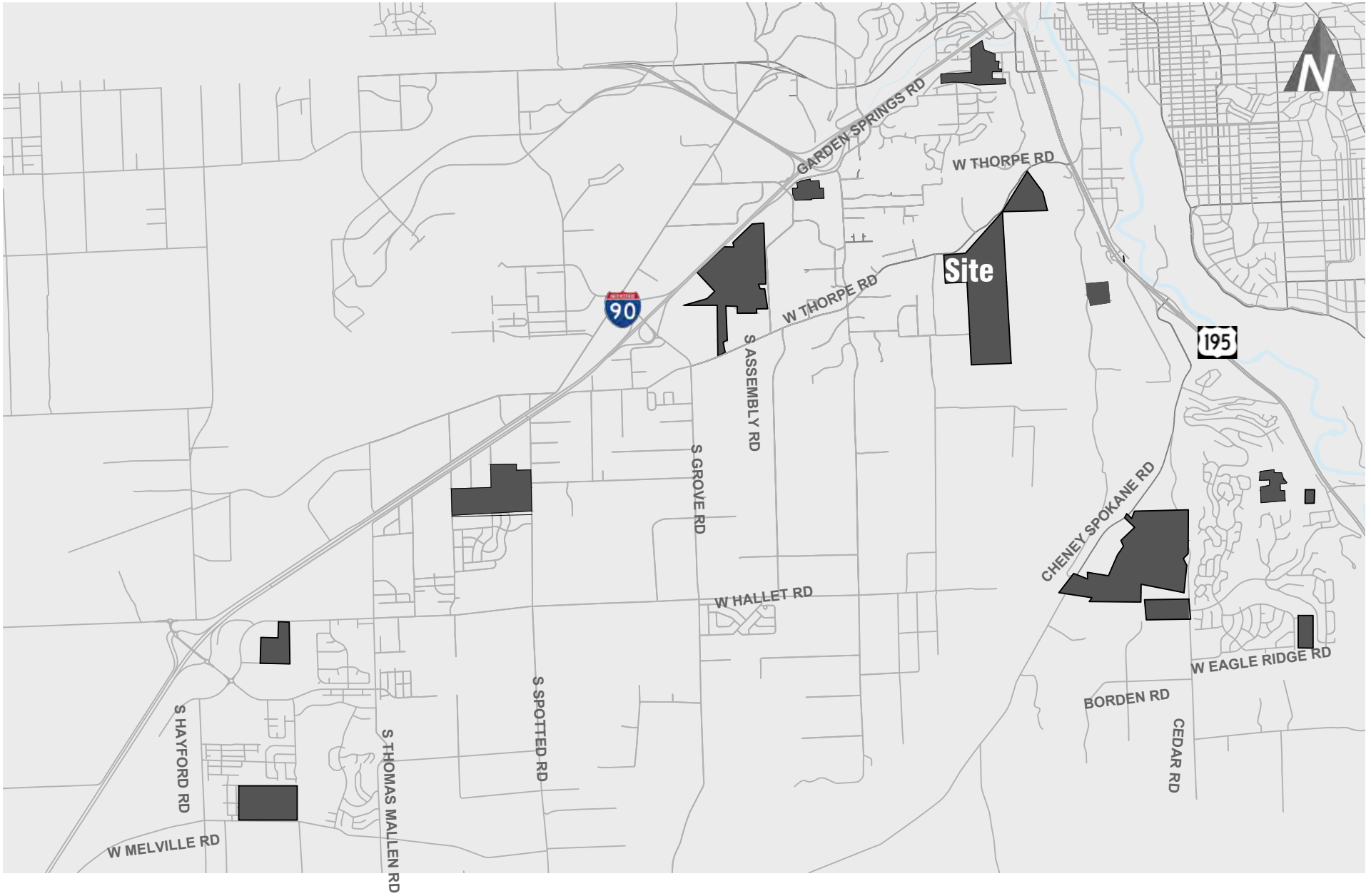
Pedestrian Volumes

APPROACH	MOVEMENT	4:30	4:45	5:00	5:15	Confli. Ped TOTAL
Eastbound	Crosswalk	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0
	Total	0	0	0	0	

Movement = Mvmt
Pedestrian = Ped
P.H.F.= Peak Hour Factor
App.= Approach
Pct= Percent



Appendix B: Locations of Pipeline Projects



Pipeline Locations Relative to Project Site

APPENDIX **B**

Blue Fern Victory Heights

transpogroup

Appendix C: LOS Definitions

Highway Capacity Manual 2010/6th Edition

Signalized intersection level of service (LOS) is defined in terms of a weighted average control delay for the entire intersection. Control delay quantifies the increase in travel time that a vehicle experiences due to the traffic signal control as well as provides a surrogate measure for driver discomfort and fuel consumption. Signalized intersection LOS is stated in terms of average control delay per vehicle (in seconds) during a specified time period (e.g., weekday PM peak hour). Control delay is a complex measure based on many variables, including signal phasing and coordination (i.e., progression of movements through the intersection and along the corridor), signal cycle length, and traffic volumes with respect to intersection capacity and resulting queues. Table 1 summarizes the LOS criteria for signalized intersections, as described in the *Highway Capacity Manual 2010* and 6th Edition (Transportation Research Board, 2010 and 2016, respectively).

Table 1. Level of Service Criteria for Signalized Intersections

Level of Service	Average Control Delay (seconds/vehicle)	General Description
A	≤10	Free Flow
B	>10 – 20	Stable Flow (slight delays)
C	>20 – 35	Stable flow (acceptable delays)
D	>35 – 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	>55 – 80	Unstable flow (intolerable delay)
F[1]	>80	Forced flow (congested and queues fail to clear)

Source: *Highway Capacity Manual 2010 and 6th Edition*, Transportation Research Board, 2010 and 2016, respectively.

1. If the volume-to-capacity (v/c) ratio for a lane group exceeds 1.0 LOS F is assigned to the individual lane group. LOS for overall approach or intersection is determined solely by the control delay.

Unsignalized intersection LOS criteria can be further reduced into two intersection types: all-way stop and two-way stop control. All-way stop control intersection LOS is expressed in terms of the weighted average control delay of the overall intersection or by approach. Two-way stop-controlled intersection LOS is defined in terms of the average control delay for each minor-street movement (or shared movement) as well as major-street left-turns. This approach is because major-street through vehicles are assumed to experience zero delay, a weighted average of all movements results in very low overall average delay, and this calculated low delay could mask deficiencies of minor movements. Table 2 shows LOS criteria for unsignalized intersections.

Table 2. Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay (seconds/vehicle)
A	0 – 10
B	>10 – 15
C	>15 – 25
D	>25 – 35
E	>35 – 50
F[1]	>50

Source: *Highway Capacity Manual 2010 and 6th Edition*, Transportation Research Board, 2010 and 2016, respectively.

1. If the volume-to-capacity (v/c) ratio exceeds 1.0, LOS F is assigned an individual lane group for all unsignalized intersections, or minor street approach at two-way stop-controlled intersections. Overall intersection LOS is determined solely by control delay.

Appendix D: LOS Worksheets

Intersection	
Intersection Delay, s/veh	12.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	95	5	0	10	15	75	4	245	5	45	180	75
Future Vol, veh/h	95	5	0	10	15	75	4	245	5	45	180	75
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	6	6	6	10	10	10	7	7	7	11	11	11
Mvmt Flow	114	6	0	12	18	90	5	295	6	54	217	90
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay, s/veh	11	9.8	12.6	13.7
HCM LOS	B	A	B	B

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	2%	95%	40%	0%	15%
Vol Thru, %	96%	5%	60%	0%	60%
Vol Right, %	2%	0%	0%	100%	25%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	254	100	25	75	300
LT Vol	4	95	10	0	45
Through Vol	245	5	15	0	180
RT Vol	5	0	0	75	75
Lane Flow Rate	306	120	30	90	361
Geometry Grp	2	4a	5	5	2
Degree of Util (X)	0.45	0.211	0.057	0.149	0.519
Departure Headway (Hd)	5.289	6.293	6.847	5.931	5.174
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	679	570	522	604	698
Service Time	3.325	4.341	4.597	3.68	3.208
HCM Lane V/C Ratio	0.451	0.211	0.057	0.149	0.517
HCM Control Delay, s/veh	12.6	11	10	9.7	13.7
HCM Lane LOS	B	B	A	A	B
HCM 95th-tile Q	2.3	0.8	0.2	0.5	3

Intersection	
Intersection Delay, s/veh	7.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	10	5	40	20	4	25	30	25	5	35	20
Future Vol, veh/h	3	10	5	40	20	4	25	30	25	5	35	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	0	0	0	2	2	2	10	10	10
Mvmt Flow	3	11	5	43	22	4	27	33	27	5	38	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, s/veh	7.3	7.7	7.5	7.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	17%	63%	8%
Vol Thru, %	38%	56%	31%	58%
Vol Right, %	31%	28%	6%	33%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	80	18	64	60
LT Vol	25	3	40	5
Through Vol	30	10	20	35
RT Vol	25	5	4	20
Lane Flow Rate	87	20	70	65
Geometry Grp	1	1	1	1
Degree of Util (X)	0.097	0.022	0.082	0.074
Departure Headway (Hd)	4.013	4.083	4.264	4.108
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	884	863	831	863
Service Time	2.076	2.171	2.338	2.175
HCM Lane V/C Ratio	0.098	0.023	0.084	0.075
HCM Control Delay, s/veh	7.5	7.3	7.7	7.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.1	0.3	0.2

Intersection	
Int Delay, s/veh	5.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	45	5	35	10	4	80
Future Vol, veh/h	45	5	35	10	4	80
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, %	8	8	2	2	1	1
Mvmt Flow	48	5	37	11	4	85

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	53	0	136	51
Stage 1	-	-	-	-	51	-
Stage 2	-	-	-	-	85	-
Critical Hdwy	-	-	4.12	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.218	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1553	-	860	1020
Stage 1	-	-	-	-	974	-
Stage 2	-	-	-	-	941	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1553	-	839	1020
Mov Cap-2 Maneuver	-	-	-	-	839	-
Stage 1	-	-	-	-	974	-
Stage 2	-	-	-	-	918	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	5.7	8.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1010	-	-	1553	-
HCM Lane V/C Ratio	0.088	-	-	0.024	-
HCM Control Delay (s/veh)	8.9	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q (veh)	0.3	-	-	0.1	-

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	75	1	70	1	4	20	120	1085	1	10	400	25
Future Vol, veh/h	75	1	70	1	4	20	120	1085	1	10	400	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	-	-	-	-	-	-	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	0	1	1	1	5	5	5
Mvmt Flow	84	1	79	1	4	22	135	1219	1	11	449	28

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1367	1975	239	1737	1989	610	477	0	0	1220	0	0
Stage 1	485	485	-	1490	1490	-	-	-	-	-	-	-
Stage 2	882	1490	-	247	499	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.12	-	-	4.2	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.21	-	-	2.25	-	-
Pot Cap-1 Maneuver	108	63	768	57	62	442	1089	-	-	551	-	-
Stage 1	537	555	-	132	189	-	-	-	-	-	-	-
Stage 2	312	189	-	741	547	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	86	54	768	45	53	442	1089	-	-	551	-	-
Mov Cap-2 Maneuver	86	54	-	45	53	-	-	-	-	-	-	-
Stage 1	470	544	-	116	166	-	-	-	-	-	-	-
Stage 2	252	166	-	650	536	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	163.6	29.5	0.9	0.3
HCM LOS	F	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1089	-	-	149	175	551	-	-
HCM Lane V/C Ratio	0.124	-	-	1.101	0.161	0.02	-	-
HCM Control Delay (s/veh)	8.8	-	-	163.6	29.5	11.7	-	-
HCM Lane LOS	A	-	-	F	D	B	-	-
HCM 95th %tile Q (veh)	0.4	-	-	8.8	0.6	0.1	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	50	50	1230	635	0
Future Vol, veh/h	0	50	50	1230	635	0
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	450	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	8	8
Mvmt Flow	0	54	54	1323	683	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	342	683	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	0	654	906	-	-	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	654	906	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	11	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT
Capacity (veh/h)	906	-	654	-
HCM Lane V/C Ratio	0.059	-	0.082	-
HCM Control Delay (s/veh)	9.2	-	11	-
HCM Lane LOS	A	-	B	-
HCM 95th %tile Q (veh)	0.2	-	0.3	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	100	0	0	40	0	1235	150	0	585	50
Future Vol, veh/h	0	0	100	0	0	40	0	1235	150	0	585	50
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	-	-	Stop	-	-	None	-	-	Free
Storage Length	-	-	0	-	-	0	-	-	150	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	10	10	10	1	1	1	8	8	8
Mvmt Flow	0	0	108	0	0	43	0	1328	161	0	629	54

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	315	-	-	664	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	-	-	7.1	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	-	-	3.4	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	681	0	0	385	0	-	-	0	-	0
Stage 1	0	0	-	0	0	-	0	-	-	0	-	0
Stage 2	0	0	-	0	0	-	0	-	-	0	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	-	-	681	-	-	385	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	11.3	15.5	0	0
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT
Capacity (veh/h)	-	-	681	385	-
HCM Lane V/C Ratio	-	-	0.158	0.112	-
HCM Control Delay (s/veh)	-	-	11.3	15.5	-
HCM Lane LOS	-	-	B	C	-
HCM 95th %tile Q (veh)	-	-	0.6	0.4	-

Intersection	
Int Delay, s/veh	1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	85	1375	0	85	585
Future Vol, veh/h	0	85	1375	0	85	585
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	-	-	450	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	1	1	4	4
Mvmt Flow	0	92	1495	0	92	636

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	748	0	-	1495	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	4.18	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	2.24	-
Pot Cap-1 Maneuver	0	359	-	0	435	-
Stage 1	0	-	-	0	-	-
Stage 2	0	-	-	0	-	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	359	-	-	435	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	18.5	0	2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	WBLn1	SBL	SBT
Capacity (veh/h)	-	359	435	-
HCM Lane V/C Ratio	-	0.257	0.212	-
HCM Control Delay (s/veh)	-	18.5	15.5	-
HCM Lane LOS	-	C	C	-
HCM 95th %tile Q (veh)	-	1	0.8	-

Intersection	
Int Delay, s/veh	3.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	80	0	0	650	0	175
Future Vol, veh/h	80	0	0	650	0	175
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Free	-	None
Storage Length	0	-	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	0	2	2	8	8
Mvmt Flow	98	0	0	793	0	213

Major/Minor	Minor1			Major2	
Conflicting Flow All	213	-		-	-
Stage 1	0	-		-	-
Stage 2	213	-		-	-
Critical Hdwy	6.4	-		-	-
Critical Hdwy Stg 1	-	-		-	-
Critical Hdwy Stg 2	5.4	-		-	-
Follow-up Hdwy	3.5	-		-	-
Pot Cap-1 Maneuver	780	0		0	-
Stage 1	-	0		0	-
Stage 2	827	0		0	-
Platoon blocked, %					-
Mov Cap-1 Maneuver	780	-		-	-
Mov Cap-2 Maneuver	780	-		-	-
Stage 1	-	-		-	-
Stage 2	827	-		-	-

Approach	WB	SB
HCM Control Delay, s/v	10.3	0
HCM LOS	B	

Minor Lane/Major Mvmt	WBLn1	SBT
Capacity (veh/h)	780	-
HCM Lane V/C Ratio	0.125	-
HCM Control Delay (s/veh)	10.3	-
HCM Lane LOS	B	-
HCM 95th %tile Q (veh)	0.4	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	590	55	5	80	0	0	0	0	15	0	0
Future Vol, veh/h	0	590	55	5	80	0	0	0	0	15	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	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	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	0	0	0	0	0	0	12	12	12
Mvmt Flow	0	738	69	6	100	0	0	0	0	19	0	0

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	807	0	0	885	919	100
Stage 1	-	-	-	-	-	-	112	112	-
Stage 2	-	-	-	-	-	-	773	807	-
Critical Hdwy	-	-	-	4.1	-	-	6.52	6.62	6.32
Critical Hdwy Stg 1	-	-	-	-	-	-	5.52	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.52	5.62	-
Follow-up Hdwy	-	-	-	2.2	-	-	3.608	4.108	3.408
Pot Cap-1 Maneuver	0	-	-	827	-	0	303	261	929
Stage 1	0	-	-	-	-	0	888	784	-
Stage 2	0	-	-	-	-	0	438	380	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	827	-	-	301	0	929
Mov Cap-2 Maneuver	-	-	-	-	-	-	301	0	-
Stage 1	-	-	-	-	-	-	888	0	-
Stage 2	-	-	-	-	-	-	434	0	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0	0.6	17.8
HCM LOS			C

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	827	-	301
HCM Lane V/C Ratio	-	-	0.008	-	0.062
HCM Control Delay (s/veh)	-	-	9.4	0	17.8
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q (veh)	-	-	0	-	0.2

Intersection	
Int Delay, s/veh	21.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰						↰				
Traffic Vol, veh/h	595	0	0	0	0	0	90	5	0	0	0	0
Future Vol, veh/h	595	0	0	0	0	0	90	5	0	0	0	0
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	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	2	2	2	0	0	0	3	3	3	0	0	0
Mvmt Flow	783	0	0	0	0	0	118	7	0	0	0	0

Major/Minor	Major1			Minor1		
Conflicting Flow All	0	0	-	1566	1566	-
Stage 1	-	-	-	1566	1566	-
Stage 2	-	-	-	0	0	-
Critical Hdwy	4.12	-	-	6.43	6.53	-
Critical Hdwy Stg 1	-	-	-	5.43	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.218	-	-	3.527	4.027	-
Pot Cap-1 Maneuver	-	-	0	122	111	0
Stage 1	-	-	0	188	171	0
Stage 2	-	-	0	-	-	0
Platoon blocked, %		-				
Mov Cap-1 Maneuver	-	-	-	122	0	-
Mov Cap-2 Maneuver	-	-	-	122	0	-
Stage 1	-	-	-	188	0	-
Stage 2	-	-	-	-	0	-

Approach	EB	NB
HCM Control Delay, s/v		156.8
HCM LOS		F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT
Capacity (veh/h)	122	-	-
HCM Lane V/C Ratio	1.025	-	-
HCM Control Delay (s/veh)	156.8	-	-
HCM Lane LOS	F	-	-
HCM 95th %tile Q (veh)	7	-	-

Intersection	
Int Delay, s/veh	15.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	160	0	105	3	1	15	35	625	1	10	410	45
Future Vol, veh/h	160	0	105	3	1	15	35	625	1	10	410	45
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	-	-	-	-	-	-	425	-	-	300	-	550
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, %	1	1	1	11	11	11	3	3	3	10	10	10
Mvmt Flow	178	0	117	3	1	17	39	694	1	11	456	50

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	904	1251	228	1023	1301	348	506	0	0	695	0	0
Stage 1	478	478	-	773	773	-	-	-	-	-	-	-
Stage 2	426	773	-	250	528	-	-	-	-	-	-	-
Critical Hdwy	7.52	6.52	6.92	7.72	6.72	7.12	4.16	-	-	4.3	-	-
Critical Hdwy Stg 1	6.52	5.52	-	6.72	5.72	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.52	5.52	-	6.72	5.72	-	-	-	-	-	-	-
Follow-up Hdwy	3.51	4.01	3.31	3.61	4.11	3.41	2.23	-	-	2.3	-	-
Pot Cap-1 Maneuver	234	173	778	178	148	623	1048	-	-	845	-	-
Stage 1	540	556	-	339	386	-	-	-	-	-	-	-
Stage 2	579	409	-	707	504	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	218	164	778	146	141	623	1048	-	-	845	-	-
Mov Cap-2 Maneuver	218	164	-	146	141	-	-	-	-	-	-	-
Stage 1	520	549	-	326	372	-	-	-	-	-	-	-
Stage 2	541	394	-	593	497	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	81	15.4	0.5	0.2
HCM LOS	F	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1048	-	-	305	367	845	-	-
HCM Lane V/C Ratio	0.037	-	-	0.965	0.058	0.013	-	-
HCM Control Delay (s/veh)	8.6	-	-	81	15.4	9.3	-	-
HCM Lane LOS	A	-	-	F	C	A	-	-
HCM 95th %tile Q (veh)	0.1	-	-	9.9	0.2	0	-	-

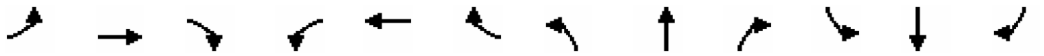
Intersection	
Int Delay, s/veh	6.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	45	320	325	85	275	245
Future Vol, veh/h	45	320	325	85	275	245
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	0	-	-	375	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	1	1	3	3	8	8
Mvmt Flow	49	352	357	93	302	269

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1143	225	0	0	450	0
Stage 1	404	-	-	-	-	-
Stage 2	739	-	-	-	-	-
Critical Hdwy	6.82	6.92	-	-	4.26	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.51	3.31	-	-	2.28	-
Pot Cap-1 Maneuver	195	781	-	-	1065	-
Stage 1	646	-	-	-	-	-
Stage 2	436	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	140	781	-	-	1065	-
Mov Cap-2 Maneuver	140	-	-	-	-	-
Stage 1	646	-	-	-	-	-
Stage 2	312	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	17.1	0	5.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	140	781	1065	-
HCM Lane V/C Ratio	-	-	0.353	0.45	0.284	-
HCM Control Delay (s/veh)	-	-	44.1	13.3	9.7	-
HCM Lane LOS	-	-	E	B	A	-
HCM 95th %tile Q (veh)	-	-	1.5	2.4	1.2	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	355	15	35	210	225	4	105	85	230	50	125
Future Volume (veh/h)	40	355	15	35	210	225	4	105	85	230	50	125
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	1841	1841	1841	1826	1826	1826	1870	1870	1870	1856	1856	1856
Adj Flow Rate, veh/h	43	386	16	38	228	245	4	114	92	250	54	136
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	5	5	5	2	2	2	3	3	3
Cap, veh/h	90	489	414	82	906	404	610	896	666	616	813	725
Arrive On Green	0.05	0.27	0.27	0.05	0.26	0.26	0.46	0.46	0.46	0.46	0.46	0.46
Sat Flow, veh/h	1753	1841	1560	1739	3469	1547	1193	1943	1444	1167	1763	1572
Grp Volume(v), veh/h	43	386	16	38	228	245	4	103	103	250	54	136
Grp Sat Flow(s),veh/h/ln	1753	1841	1560	1739	1735	1547	1193	1777	1610	1167	1763	1572
Q Serve(g_s), s	1.4	11.6	0.5	1.3	3.1	8.3	0.1	2.0	2.2	9.4	1.0	3.0
Cycle Q Clear(g_c), s	1.4	11.6	0.5	1.3	3.1	8.3	3.2	2.0	2.2	11.5	1.0	3.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.90	1.00		1.00
Lane Grp Cap(c), veh/h	90	489	414	82	906	404	610	819	743	616	813	725
V/C Ratio(X)	0.48	0.79	0.04	0.46	0.25	0.61	0.01	0.13	0.14	0.41	0.07	0.19
Avail Cap(c_a), veh/h	456	941	798	452	1774	791	610	819	743	616	813	725
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	27.5	20.4	16.3	27.7	17.4	19.3	10.4	9.2	9.2	12.6	8.9	9.5
Incr Delay (d2), s/veh	3.9	2.9	0.0	4.1	0.1	1.5	0.0	0.3	0.4	0.4	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	0.7	4.9	0.2	0.6	1.2	2.9	0.0	0.7	0.7	2.2	0.3	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	31.4	23.3	16.3	31.8	17.6	20.8	10.4	9.5	9.6	13.0	9.0	9.6
LnGrp LOS	C	C	B	C	B	C	B	A	A	B	A	A
Approach Vol, veh/h		445			511			210			440	
Approach Delay, s/veh		23.8			20.2			9.6			11.5	
Approach LOS		C			C			A			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		32.0	7.3	20.3		32.0	7.6	20.1				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		27.5	15.5	30.5		27.5	15.5	30.5				
Max Q Clear Time (g_c+I1), s		5.2	3.3	13.6		13.5	3.4	10.3				
Green Ext Time (p_c), s		1.2	0.0	2.2		1.8	0.0	2.2				

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	17.4
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	75	0	45	0	0	5	10	105	0	5	75	25
Future Vol, veh/h	75	0	45	0	0	5	10	105	0	5	75	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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	0	0	0	0	0	0	2	2	2
Mvmt Flow	82	0	49	0	0	5	11	114	0	5	82	27

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	245	242	96	266	255	114	109	0	0	114	0	0
Stage 1	106	106	-	136	136	-	-	-	-	-	-	-
Stage 2	139	136	-	130	119	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.1	6.5	6.2	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.5	4	3.3	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	709	660	960	691	652	944	1494	-	-	1475	-	-
Stage 1	900	807	-	872	788	-	-	-	-	-	-	-
Stage 2	864	784	-	878	801	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	698	652	960	650	644	944	1494	-	-	1475	-	-
Mov Cap-2 Maneuver	698	652	-	650	644	-	-	-	-	-	-	-
Stage 1	893	804	-	865	782	-	-	-	-	-	-	-
Stage 2	852	778	-	830	798	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	10.6	8.8	0.6	0.4
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1494	-	-	778	944	1475	-	-
HCM Lane V/C Ratio	0.007	-	-	0.168	0.006	0.004	-	-
HCM Control Delay (s/veh)	7.4	0	-	10.6	8.8	7.5	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q (veh)	0	-	-	0.6	0	0	-	-

Intersection	
Intersection Delay, s/veh	12.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	130	15	5	5	15	85	2	150	10	40	215	70
Future Vol, veh/h	130	15	5	5	15	85	2	150	10	40	215	70
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	3	3	3	4	4	4	3	3	3	7	7	7
Mvmt Flow	157	18	6	6	18	102	2	181	12	48	259	84
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay, s/veh	11.6	9.6	10.7	14.5
HCM LOS	B	A	B	B

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	1%	87%	25%	0%	12%
Vol Thru, %	93%	10%	75%	0%	66%
Vol Right, %	6%	3%	0%	100%	22%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	162	150	20	85	325
LT Vol	2	130	5	0	40
Through Vol	150	15	15	0	215
RT Vol	10	5	0	85	70
Lane Flow Rate	195	181	24	102	392
Geometry Grp	2	4a	5	5	2
Degree of Util (X)	0.294	0.301	0.044	0.163	0.559
Departure Headway (Hd)	5.428	6.004	6.573	5.733	5.138
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	662	598	544	624	701
Service Time	3.472	4.051	4.323	3.483	3.174
HCM Lane V/C Ratio	0.295	0.303	0.044	0.163	0.559
HCM Control Delay, s/veh	10.7	11.6	9.6	9.6	14.5
HCM Lane LOS	B	B	A	A	B
HCM 95th-tile Q	1.2	1.3	0.1	0.6	3.5

Intersection	
Intersection Delay, s/veh	8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	30	5	40	25	15	15	30	30	10	80	20
Future Vol, veh/h	15	30	5	40	25	15	15	30	30	10	80	20
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	2	2	2
Mvmt Flow	18	37	6	49	30	18	18	37	37	12	98	24
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, s/veh	7.9	8.1	7.7	8.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	20%	30%	50%	9%
Vol Thru, %	40%	60%	31%	73%
Vol Right, %	40%	10%	19%	18%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	75	50	80	110
LT Vol	15	15	40	10
Through Vol	30	30	25	80
RT Vol	30	5	15	20
Lane Flow Rate	91	61	98	134
Geometry Grp	1	1	1	1
Degree of Util (X)	0.107	0.076	0.121	0.16
Departure Headway (Hd)	4.212	4.511	4.457	4.307
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	853	796	807	834
Service Time	2.227	2.528	2.472	2.322
HCM Lane V/C Ratio	0.107	0.077	0.121	0.161
HCM Control Delay, s/veh	7.7	7.9	8.1	8.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	0.2	0.4	0.6

Intersection	
Int Delay, s/veh	6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	55	10	155	20	4	75
Future Vol, veh/h	55	10	155	20	4	75
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	89	89	89	89
Heavy Vehicles, %	2	2	1	1	0	0
Mvmt Flow	62	11	174	22	4	84

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	73	0	438	68
Stage 1	-	-	-	-	68	-
Stage 2	-	-	-	-	370	-
Critical Hdwy	-	-	4.11	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.209	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1533	-	580	1001
Stage 1	-	-	-	-	960	-
Stage 2	-	-	-	-	703	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1533	-	513	1001
Mov Cap-2 Maneuver	-	-	-	-	513	-
Stage 1	-	-	-	-	960	-
Stage 2	-	-	-	-	622	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	6.8	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	955	-	-	1533	-
HCM Lane V/C Ratio	0.093	-	-	0.114	-
HCM Control Delay (s/veh)	9.2	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q (veh)	0.3	-	-	0.4	-

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	35	3	110	4	1	15	60	525	5	40	1055	100
Future Vol, veh/h	35	3	110	4	1	15	60	525	5	40	1055	100
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	-	-	-	-	-	-	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	0	0	0	2	2	2	1	1	1
Mvmt Flow	36	3	113	4	1	15	62	541	5	41	1088	103

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1617	1892	596	1296	1941	273	1191	0	0	546	0	0
Stage 1	1222	1222	-	668	668	-	-	-	-	-	-	-
Stage 2	395	670	-	628	1273	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.14	-	-	4.12	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.22	-	-	2.21	-	-
Pot Cap-1 Maneuver	70	71	452	122	66	731	582	-	-	1026	-	-
Stage 1	194	254	-	419	459	-	-	-	-	-	-	-
Stage 2	607	459	-	442	241	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	60	61	452	78	57	731	582	-	-	1026	-	-
Mov Cap-2 Maneuver	60	61	-	78	57	-	-	-	-	-	-	-
Stage 1	173	244	-	374	410	-	-	-	-	-	-	-
Stage 2	530	410	-	314	231	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	100	22.7	1.2	0.3
HCM LOS	F	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	582	-	-	169	224	1026	-	-
HCM Lane V/C Ratio	0.106	-	-	0.903	0.092	0.04	-	-
HCM Control Delay (s/veh)	11.9	-	-	100	22.7	8.7	-	-
HCM Lane LOS	B	-	-	F	C	A	-	-
HCM 95th %tile Q (veh)	0.4	-	-	6.6	0.3	0.1	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	70	70	695	1360	0
Future Vol, veh/h	0	70	70	695	1360	0
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	450	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	3	3	1	1
Mvmt Flow	0	81	81	808	1581	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	791	1581	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	4.16	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	2.23	-	-	-
Pot Cap-1 Maneuver	0	337	407	-	-	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	337	407	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	19.1	1.5	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT
Capacity (veh/h)	407	-	337	-
HCM Lane V/C Ratio	0.2	-	0.242	-
HCM Control Delay (s/veh)	16	-	19.1	-
HCM Lane LOS	C	-	C	-
HCM 95th %tile Q (veh)	0.7	-	0.9	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	80	0	0	30	0	730	85	0	1240	125
Future Vol, veh/h	0	0	80	0	0	30	0	730	85	0	1240	125
Conflicting Peds, #/hr	3	0	0	0	0	3	0	0	0	3	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Stop	-	-	None	-	-	Free
Storage Length	-	-	0	-	-	0	-	-	150	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	0	0	0	3	3	3	1	1	1
Mvmt Flow	0	0	91	0	0	34	0	830	97	0	1409	142

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	705	-	-	418	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	383	0	0	589	0	-	-	0	-	0
Stage 1	0	0	-	0	0	-	0	-	-	0	-	0
Stage 2	0	0	-	0	0	-	0	-	-	0	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	-	-	383	-	-	587	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	17.3	11.5	0	0
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT
Capacity (veh/h)	-	-	383	587	-
HCM Lane V/C Ratio	-	-	0.237	0.058	-
HCM Control Delay (s/veh)	-	-	17.3	11.5	-
HCM Lane LOS	-	-	C	B	-
HCM 95th %tile Q (veh)	-	-	0.9	0.2	-

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	50	805	0	50	1260
Future Vol, veh/h	0	50	805	0	50	1260
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	-	-	450	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	2	2	1	1
Mvmt Flow	0	56	904	0	56	1416

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	452	0	-	904	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	2.21	-
Pot Cap-1 Maneuver	0	560	-	0	754	-
Stage 1	0	-	-	0	-	-
Stage 2	0	-	-	0	-	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	560	-	-	754	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	12.1	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	SBL	SBT
Capacity (veh/h)	-	560	754	-
HCM Lane V/C Ratio	-	0.1	0.075	-
HCM Control Delay (s/veh)	-	12.1	10.2	-
HCM Lane LOS	-	B	B	-
HCM 95th %tile Q (veh)	-	0.3	0.2	-

Intersection	
Int Delay, s/veh	2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	105	0	0	420	0	515
Future Vol, veh/h	105	0	0	420	0	515
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Free	-	None
Storage Length	0	-	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	117	0	0	467	0	572

Major/Minor	Minor1			Major2	
Conflicting Flow All	572	-		-	-
Stage 1	0	-		-	-
Stage 2	572	-		-	-
Critical Hdwy	6.41	-		-	-
Critical Hdwy Stg 1	-	-		-	-
Critical Hdwy Stg 2	5.41	-		-	-
Follow-up Hdwy	3.509	-		-	-
Pot Cap-1 Maneuver	483	0		0	-
Stage 1	-	0		0	-
Stage 2	567	0		0	-
Platoon blocked, %					-
Mov Cap-1 Maneuver	483	-		-	-
Mov Cap-2 Maneuver	483	-		-	-
Stage 1	-	-		-	-
Stage 2	567	-		-	-

Approach	WB	SB
HCM Control Delay, s/v	14.8	0
HCM LOS	B	

Minor Lane/Major Mvmt	WBLn1	SBT
Capacity (veh/h)	483	-
HCM Lane V/C Ratio	0.242	-
HCM Control Delay (s/veh)	14.8	-
HCM Lane LOS	B	-
HCM 95th %tile Q (veh)	0.9	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	305	130	10	100	0	0	0	0	10	1	0
Future Vol, veh/h	0	305	130	10	100	0	0	0	0	10	1	0
Conflicting Peds, #/hr	2	0	2	0	0	0	2	0	0	0	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	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	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	1	1	1	1	1	1	0	0	0	0	0	0
Mvmt Flow	0	335	143	11	110	0	0	0	0	11	1	0

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	480	0	0	539	612	112
Stage 1	-	-	-	-	-	-	132	132	-
Stage 2	-	-	-	-	-	-	407	480	-
Critical Hdwy	-	-	-	4.11	-	-	6.4	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	5.4	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.4	5.5	-
Follow-up Hdwy	-	-	-	2.209	-	-	3.5	4	3.3
Pot Cap-1 Maneuver	0	-	-	1088	-	0	507	411	947
Stage 1	0	-	-	-	-	0	899	791	-
Stage 2	0	-	-	-	-	0	676	558	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	1088	-	-	501	0	945
Mov Cap-2 Maneuver	-	-	-	-	-	-	501	0	-
Stage 1	-	-	-	-	-	-	899	0	-
Stage 2	-	-	-	-	-	-	669	0	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0	0.8	12.4
HCM LOS			B

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	1088	-	501
HCM Lane V/C Ratio	-	-	0.01	-	0.024
HCM Control Delay (s/veh)	-	-	8.3	0	12.4
HCM Lane LOS	-	-	A	A	B
HCM 95th %tile Q (veh)	-	-	0	-	0.1

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰						↰				
Traffic Vol, veh/h	285	0	0	0	0	0	115	1	0	0	0	0
Future Vol, veh/h	285	0	0	0	0	0	115	1	0	0	0	0
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	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	4	4	4	0	0	0	2	2	2	0	0	0
Mvmt Flow	343	0	0	0	0	0	139	1	0	0	0	0

Major/Minor	Major1			Minor1		
Conflicting Flow All	0	0	-	686	686	-
Stage 1	-	-	-	686	686	-
Stage 2	-	-	-	0	0	-
Critical Hdwy	4.14	-	-	6.42	6.52	-
Critical Hdwy Stg 1	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.236	-	-	3.518	4.018	-
Pot Cap-1 Maneuver	-	-	0	413	370	0
Stage 1	-	-	0	500	448	0
Stage 2	-	-	0	-	-	0
Platoon blocked, %		-				
Mov Cap-1 Maneuver	-	-	-	413	0	-
Mov Cap-2 Maneuver	-	-	-	413	0	-
Stage 1	-	-	-	500	0	-
Stage 2	-	-	-	-	0	-

Approach	EB	NB
HCM Control Delay, s/v		18.1
HCM LOS		C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT
Capacity (veh/h)	413	-	-
HCM Lane V/C Ratio	0.338	-	-
HCM Control Delay (s/veh)	18.1	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q (veh)	1.5	-	-

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	50	1	90	5	0	10	100	465	10	10	745	155
Future Vol, veh/h	50	1	90	5	0	10	100	465	10	10	745	155
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	-	-	-	-	-	-	425	-	-	300	-	550
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0	5	5	5	2	2	2
Mvmt Flow	54	1	97	5	0	11	108	500	11	11	801	167

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1289	1550	401	1145	1712	256	968	0	0	511	0	0
Stage 1	823	823	-	722	722	-	-	-	-	-	-	-
Stage 2	466	727	-	423	990	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.2	-	-	4.14	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.25	-	-	2.22	-	-
Pot Cap-1 Maneuver	123	115	604	157	91	749	689	-	-	1050	-	-
Stage 1	338	391	-	389	434	-	-	-	-	-	-	-
Stage 2	551	432	-	585	327	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	106	96	604	114	76	749	689	-	-	1050	-	-
Mov Cap-2 Maneuver	106	96	-	114	76	-	-	-	-	-	-	-
Stage 1	285	387	-	328	366	-	-	-	-	-	-	-
Stage 2	458	364	-	485	324	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	49.7	19.6	1.9	0.1
HCM LOS	E	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	689	-	-	223	262	1050	-	-
HCM Lane V/C Ratio	0.156	-	-	0.68	0.062	0.01	-	-
HCM Control Delay (s/veh)	11.2	-	-	49.7	19.6	8.5	-	-
HCM Lane LOS	B	-	-	E	C	A	-	-
HCM 95th %tile Q (veh)	0.6	-	-	4.3	0.2	0	-	-

Intersection	
Int Delay, s/veh	32.1

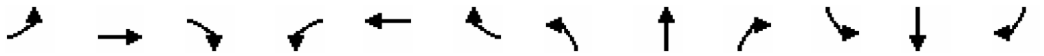
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	115	315	260	50	415	410
Future Vol, veh/h	115	315	260	50	415	410
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	375	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	9	9	2	2
Mvmt Flow	124	339	280	54	446	441

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1420	167	0	0	334	0
Stage 1	307	-	-	-	-	-
Stage 2	1113	-	-	-	-	-
Critical Hdwy	6.82	6.92	-	-	4.14	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.51	3.31	-	-	2.22	-
Pot Cap-1 Maneuver	129	851	-	-	1222	-
Stage 1	722	-	-	-	-	-
Stage 2	278	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 82	851	-	-	1222	-
Mov Cap-2 Maneuver	~ 82	-	-	-	-	-
Stage 1	722	-	-	-	-	-
Stage 2	177	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	107.8	0	4.8
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	82	851	1222	-
HCM Lane V/C Ratio	-	-	1.508	0.398	0.365	-
HCM Control Delay (s/veh)	-	-	$ 370.2	12	9.6	-
HCM Lane LOS	-	-	F	B	A	-
HCM 95th %tile Q (veh)	-	-	9.9	1.9	1.7	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	350	15	60	315	165	10	85	40	165	85	70
Future Volume (veh/h)	200	350	15	60	315	165	10	85	40	165	85	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		0.99
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	1870	1870	1870	1870	1870	1870	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	213	372	16	64	335	176	11	90	43	176	90	74
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	1	1	1	1	1	1
Cap, veh/h	265	518	432	115	685	300	622	1060	477	646	859	639
Arrive On Green	0.15	0.28	0.28	0.06	0.19	0.19	0.44	0.44	0.44	0.44	0.44	0.44
Sat Flow, veh/h	1781	1870	1558	1781	3554	1559	1231	2400	1081	1267	1946	1448
Grp Volume(v), veh/h	213	372	16	64	335	176	11	66	67	176	82	82
Grp Sat Flow(s),veh/h/ln	1781	1870	1558	1781	1777	1559	1231	1791	1691	1267	1791	1603
Q Serve(g_s), s	7.2	11.2	0.5	2.2	5.2	6.4	0.3	1.3	1.4	5.8	1.7	1.9
Cycle Q Clear(g_c), s	7.2	11.2	0.5	2.2	5.2	6.4	2.2	1.3	1.4	7.3	1.7	1.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.64	1.00		0.90
Lane Grp Cap(c), veh/h	265	518	432	115	685	300	622	791	747	646	791	708
V/C Ratio(X)	0.80	0.72	0.04	0.56	0.49	0.59	0.02	0.08	0.09	0.27	0.10	0.12
Avail Cap(c_a), veh/h	443	916	763	443	1741	764	622	791	747	646	791	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	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	20.3	16.4	28.3	22.4	22.9	10.9	10.1	10.1	12.2	10.2	10.2
Incr Delay (d2), s/veh	5.6	1.9	0.0	4.2	0.5	1.8	0.1	0.2	0.2	0.2	0.1	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	3.3	4.7	0.2	1.0	2.1	2.3	0.1	0.5	0.5	1.5	0.6	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	31.3	22.2	16.5	32.4	22.9	24.7	10.9	10.3	10.3	12.5	10.2	10.3
LnGrp LOS	C	C	B	C	C	C	B	B	B	B	B	B
Approach Vol, veh/h		601			575			144			340	
Approach Delay, s/veh		25.3			24.5			10.4			11.4	
Approach LOS		C			C			B			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		32.0	8.5	21.8		32.0	13.8	16.5				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		27.5	15.5	30.5		27.5	15.5	30.5				
Max Q Clear Time (g_c+I1), s		4.2	4.2	13.2		9.3	9.2	8.4				
Green Ext Time (p_c), s		0.7	0.1	2.1		1.4	0.3	2.8				

Intersection Summary												
HCM 6th Ctrl Delay, s/veh			20.9									
HCM 6th LOS			C									

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	60	0	25	0	0	0	50	110	5	5	125	60
Future Vol, veh/h	60	0	25	0	0	0	50	110	5	5	125	60
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	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	1	1	1	1	1	1
Mvmt Flow	66	0	27	0	0	0	55	121	5	5	137	66

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	414	416	170	428	447	124	203	0	0	126	0	0
Stage 1	180	180	-	234	234	-	-	-	-	-	-	-
Stage 2	234	236	-	194	213	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.11	-	-	4.11	-	-
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	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	552	530	879	541	509	932	1375	-	-	1467	-	-
Stage 1	826	754	-	774	715	-	-	-	-	-	-	-
Stage 2	774	713	-	812	730	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	532	505	879	505	485	932	1375	-	-	1467	-	-
Mov Cap-2 Maneuver	532	505	-	505	485	-	-	-	-	-	-	-
Stage 1	790	751	-	741	684	-	-	-	-	-	-	-
Stage 2	741	682	-	783	727	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	12.1	0	2.3	0.2
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1375	-	-	602	-	1467	-	-
HCM Lane V/C Ratio	0.04	-	-	0.155	-	0.004	-	-
HCM Control Delay (s/veh)	7.7	0	-	12.1	0	7.5	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q (veh)	0.1	-	-	0.5	-	0	-	-

MOVEMENT SUMMARY

Site: 1 [Grove Rd & Thorpe Rd Baseline AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

2035 Baseline AM
Site Category: Victory Heights
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: Grove Rd															
3	L2	All MCs	5	7.0	5	7.0	0.432	12.8	LOS B	2.3	61.3	0.59	0.62	0.61	33.7
8	T1	All MCs	324	7.0	324	7.0	0.432	7.0	LOS A	2.3	61.3	0.59	0.62	0.61	34.4
18	R2	All MCs	49	7.0	49	7.0	0.432	6.8	LOS A	2.3	61.3	0.59	0.62	0.61	34.1
Approach			379	7.0	379	7.0	0.432	7.0	LOS A	2.3	61.3	0.59	0.62	0.61	34.4
East: Thorpe Rd															
1	L2	All MCs	22	10.0	22	10.0	0.291	13.6	LOS B	1.4	38.7	0.63	0.69	0.63	33.3
6	T1	All MCs	16	10.0	16	10.0	0.291	7.8	LOS A	1.4	38.7	0.63	0.69	0.63	34.1
16	R2	All MCs	176	10.0	176	10.0	0.291	7.7	LOS A	1.4	38.7	0.63	0.69	0.63	33.8
Approach			214	10.0	214	10.0	0.291	8.3	LOS A	1.4	38.7	0.63	0.69	0.63	33.8
North: Grove Rd															
7	L2	All MCs	159	11.0	159	11.0	0.210	10.2	LOS B	1.0	28.1	0.17	0.55	0.17	33.4
4	T1	All MCs	225	11.0	225	11.0	0.210	4.3	LOS A	1.0	28.4	0.17	0.47	0.17	35.1
14	R2	All MCs	148	11.0	148	11.0	0.210	4.4	LOS A	1.0	28.4	0.17	0.41	0.17	35.5
Approach			533	11.0	533	11.0	0.210	6.1	LOS A	1.0	28.4	0.17	0.48	0.17	34.7
West: Thorpe Rd															
5	L2	All MCs	286	6.0	286	6.0	0.306	11.6	LOS B	1.2	31.1	0.45	0.71	0.45	32.0
2	T1	All MCs	5	6.0	5	6.0	0.306	5.8	LOS A	1.2	31.1	0.45	0.71	0.45	32.7
12	R2	All MCs	1	6.0	1	6.0	0.306	5.6	LOS A	1.2	31.1	0.45	0.71	0.45	32.4
Approach			292	6.0	292	6.0	0.306	11.5	LOS B	1.2	31.1	0.45	0.71	0.45	32.0
All Vehicles			1419	8.7	1419	8.7	0.432	7.8	LOS A	2.3	61.3	0.41	0.59	0.41	33.9

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
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.

Intersection	
Intersection Delay, s/veh	8.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	45	5	45	110	15	30	35	30	10	40	25
Future Vol, veh/h	3	45	5	45	110	15	30	35	30	10	40	25
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	0	0	0	2	2	2	10	10	10
Mvmt Flow	3	49	5	49	120	16	33	38	33	11	43	27
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, s/veh	7.9	8.7	8.1	8.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	32%	6%	26%	13%
Vol Thru, %	37%	85%	65%	53%
Vol Right, %	32%	9%	9%	33%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	95	53	170	75
LT Vol	30	3	45	10
Through Vol	35	45	110	40
RT Vol	30	5	15	25
Lane Flow Rate	103	58	185	82
Geometry Grp	1	1	1	1
Degree of Util (X)	0.128	0.072	0.226	0.103
Departure Headway (Hd)	4.458	4.489	4.394	4.57
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	805	798	819	785
Service Time	2.481	2.512	2.412	2.595
HCM Lane V/C Ratio	0.128	0.073	0.226	0.104
HCM Control Delay, s/veh	8.1	7.9	8.7	8.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	0.2	0.9	0.3

Intersection	
Int Delay, s/veh	2.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	115	10	45	255	5	100
Future Vol, veh/h	115	10	45	255	5	100
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, %	8	8	2	2	1	1
Mvmt Flow	122	11	48	271	5	106

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	133	0	495	128
Stage 1	-	-	-	-	128	-
Stage 2	-	-	-	-	367	-
Critical Hdwy	-	-	4.12	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.218	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1452	-	536	925
Stage 1	-	-	-	-	900	-
Stage 2	-	-	-	-	703	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1452	-	515	925
Mov Cap-2 Maneuver	-	-	-	-	515	-
Stage 1	-	-	-	-	900	-
Stage 2	-	-	-	-	676	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	1.1	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	891	-	-	1452	-
HCM Lane V/C Ratio	0.125	-	-	0.033	-
HCM Control Delay (s/veh)	9.6	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q (veh)	0.4	-	-	0.1	-

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	115	1	5	25	190	1185	1	10	540	45
Future Vol, veh/h	0	0	115	1	5	25	190	1185	1	10	540	45
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	-	-	0	-	-	-	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0	1	1	1	5	5	5
Mvmt Flow	0	0	122	1	5	27	202	1261	1	11	574	48

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	311	1975	2310	631	622	0	0	1262	0	0
Stage 1	-	-	-	1666	1666	-	-	-	-	-	-	-
Stage 2	-	-	-	309	644	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	7.5	6.5	6.9	4.12	-	-	4.2	-	-
Critical Hdwy Stg 1	-	-	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	3.5	4	3.3	2.21	-	-	2.25	-	-
Pot Cap-1 Maneuver	0	0	691	38	39	429	962	-	-	531	-	-
Stage 1	0	0	-	103	155	-	-	-	-	-	-	-
Stage 2	0	0	-	682	471	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	691	26	30	429	962	-	-	531	-	-
Mov Cap-2 Maneuver	-	-	-	26	30	-	-	-	-	-	-	-
Stage 1	-	-	-	81	122	-	-	-	-	-	-	-
Stage 2	-	-	-	550	461	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	11.3	46.9	1.3	0.2
HCM LOS	B	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	962	-	-	691	118	531	-	-
HCM Lane V/C Ratio	0.21	-	-	0.177	0.279	0.02	-	-
HCM Control Delay (s/veh)	9.7	-	-	11.3	46.9	11.9	-	-
HCM Lane LOS	A	-	-	B	E	B	-	-
HCM 95th %tile Q (veh)	0.8	-	-	0.6	1.1	0.1	-	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	135	135	1410	850	0
Future Vol, veh/h	0	135	135	1410	850	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	-	0	450	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	8	8
Mvmt Flow	0	145	145	1516	914	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	457	914	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	0	551	742	-	-	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	551	742	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	13.9	1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT
Capacity (veh/h)	742	-	551	-
HCM Lane V/C Ratio	0.196	-	0.263	-
HCM Control Delay (s/veh)	11	-	13.9	-
HCM Lane LOS	B	-	B	-
HCM 95th %tile Q (veh)	0.7	-	1.1	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	240	0	0	55	0	1485	215	0	775	150
Future Vol, veh/h	0	0	240	0	0	55	0	1485	215	0	775	150
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	-	-	Stop	-	-	None	-	-	Free
Storage Length	-	-	0	-	-	0	-	-	150	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	10	10	10	1	1	1	8	8	8
Mvmt Flow	0	0	255	0	0	59	0	1580	229	0	824	160

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	412	-	-	790	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	-	-	7.1	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	-	-	3.4	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	589	0	0	316	0	-	-	0	-	0
Stage 1	0	0	-	0	0	-	0	-	-	0	-	0
Stage 2	0	0	-	0	0	-	0	-	-	0	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	-	-	589	-	-	316	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	15.7	19	0	0
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT
Capacity (veh/h)	-	-	589	316	-
HCM Lane V/C Ratio	-	-	0.433	0.185	-
HCM Control Delay (s/veh)	-	-	15.7	19	-
HCM Lane LOS	-	-	C	C	-
HCM 95th %tile Q (veh)	-	-	2.2	0.7	-

Intersection	
Int Delay, s/veh	4.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	175	1610	0	175	825
Future Vol, veh/h	0	175	1610	0	175	825
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	-	-	450	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	1	1	4	4
Mvmt Flow	0	186	1713	0	186	878

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	857	0	-	1713	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	4.6	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	2.24	-
Pot Cap-1 Maneuver	0	305	-	0	293	-
Stage 1	0	-	-	0	-	-
Stage 2	0	-	-	0	-	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	305	-	-	293	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	33.7	0	6.4
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	WBLn1	SBL	SBT
Capacity (veh/h)	-	305	293	-
HCM Lane V/C Ratio	-	0.61	0.635	-
HCM Control Delay (s/veh)	-	33.7	36.5	-
HCM Lane LOS	-	D	E	-
HCM 95th %tile Q (veh)	-	3.8	4	-

Intersection	
Int Delay, s/veh	3.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	115	0	0	925	0	275
Future Vol, veh/h	115	0	0	925	0	275
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Free	-	None
Storage Length	0	-	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	0	2	2	8	8
Mvmt Flow	140	0	0	1128	0	335

Major/Minor	Minor1			Major2	
Conflicting Flow All	335	-		-	-
Stage 1	0	-		-	-
Stage 2	335	-		-	-
Critical Hdwy	6.4	-		-	-
Critical Hdwy Stg 1	-	-		-	-
Critical Hdwy Stg 2	5.4	-		-	-
Follow-up Hdwy	3.5	-		-	-
Pot Cap-1 Maneuver	664	0		0	-
Stage 1	-	0		0	-
Stage 2	729	0		0	-
Platoon blocked, %					-
Mov Cap-1 Maneuver	664	-		-	-
Mov Cap-2 Maneuver	664	-		-	-
Stage 1	-	-		-	-
Stage 2	729	-		-	-

Approach	WB	SB
HCM Control Delay, s/v	11.9	0
HCM LOS	B	

Minor Lane/Major Mvmt	WBLn1	SBT
Capacity (veh/h)	664	-
HCM Lane V/C Ratio	0.211	-
HCM Control Delay (s/veh)	11.9	-
HCM Lane LOS	B	-
HCM 95th %tile Q (veh)	0.8	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	845	75	5	115	0	0	0	0	35	0	0
Future Vol, veh/h	0	845	75	5	115	0	0	0	0	35	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	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	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	0	0	0	0	0	0	12	12	12
Mvmt Flow	0	929	82	5	126	0	0	0	0	38	0	0

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	1011	0	0	1106	1147	126
Stage 1	-	-	-	-	-	-	136	136	-
Stage 2	-	-	-	-	-	-	970	1011	-
Critical Hdwy	-	-	-	4.1	-	-	6.52	6.62	6.32
Critical Hdwy Stg 1	-	-	-	-	-	-	5.52	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.52	5.62	-
Follow-up Hdwy	-	-	-	2.2	-	-	3.608	4.108	3.408
Pot Cap-1 Maneuver	0	-	-	694	-	0	223	191	898
Stage 1	0	-	-	-	-	0	866	765	-
Stage 2	0	-	-	-	-	0	353	305	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	694	-	-	221	0	898
Mov Cap-2 Maneuver	-	-	-	-	-	-	221	0	-
Stage 1	-	-	-	-	-	-	866	0	-
Stage 2	-	-	-	-	-	-	350	0	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0	0.4	24.7
HCM LOS			C

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	694	-	221
HCM Lane V/C Ratio	-	-	0.008	-	0.174
HCM Control Delay (s/veh)	-	-	10.2	0	24.7
HCM Lane LOS	-	-	B	A	C
HCM 95th %tile Q (veh)	-	-	0	-	0.6

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰						↰				
Traffic Vol, veh/h	0	865	0	0	0	0	125	5	0	0	0	0
Future Vol, veh/h	0	865	0	0	0	0	125	5	0	0	0	0
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	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	0	0	0	3	3	3	0	0	0
Mvmt Flow	0	951	0	0	0	0	137	5	0	0	0	0

Major/Minor	Major1			Minor1		
Conflicting Flow All	0	0	-	951	951	-
Stage 1	-	-	-	951	951	-
Stage 2	-	-	-	0	0	-
Critical Hdwy	4.12	-	-	6.43	6.53	-
Critical Hdwy Stg 1	-	-	-	5.43	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.218	-	-	3.527	4.027	-
Pot Cap-1 Maneuver	-	-	0	287	259	0
Stage 1	-	-	0	374	337	0
Stage 2	-	-	0	-	-	0
Platoon blocked, %		-				
Mov Cap-1 Maneuver	-	-	-	287	0	-
Mov Cap-2 Maneuver	-	-	-	287	0	-
Stage 1	-	-	-	374	0	-
Stage 2	-	-	-	-	0	-

Approach	EB	NB
HCM Control Delay, s/v	0	29.4
HCM LOS		D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT
Capacity (veh/h)	287	-	-
HCM Lane V/C Ratio	0.498	-	-
HCM Control Delay (s/veh)	29.4	0	-
HCM Lane LOS	D	A	-
HCM 95th %tile Q (veh)	2.6	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	25	970	1	10	745
Future Vol, veh/h	0	25	970	1	10	745
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	-	-	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	11	11	3	3	10	10
Mvmt Flow	0	28	1078	1	11	828

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	540	0	0	1079	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.12	-	-	4.3	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.41	-	-	2.3	-
Pot Cap-1 Maneuver	0	464	-	-	597	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	464	-	-	597	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	13.3	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	464	597	-
HCM Lane V/C Ratio	-	-	0.06	0.019	-
HCM Control Delay (s/veh)	-	-	13.3	11.1	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q (veh)	-	-	0.2	0.1	-

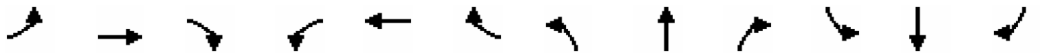
Intersection	
Int Delay, s/veh	8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	430	515	115	345	390
Future Vol, veh/h	2	430	515	115	345	390
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	-	-	375	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	1	1	3	3	8	8
Mvmt Flow	2	473	566	126	379	429

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1602	346	0	0	692	0
Stage 1	629	-	-	-	-	-
Stage 2	973	-	-	-	-	-
Critical Hdwy	6.82	6.92	-	-	4.26	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.51	3.31	-	-	2.28	-
Pot Cap-1 Maneuver	97	653	-	-	860	-
Stage 1	496	-	-	-	-	-
Stage 2	329	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	54	653	-	-	860	-
Mov Cap-2 Maneuver	54	-	-	-	-	-
Stage 1	496	-	-	-	-	-
Stage 2	184	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	23.6	0	5.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	653	860	-
HCM Lane V/C Ratio	-	-	0.724	0.441	-
HCM Control Delay (s/veh)	-	-	23.6	12.4	-
HCM Lane LOS	-	-	C	B	-
HCM 95th %tile Q (veh)	-	-	6.2	2.3	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	480	20	50	295	255	20	130	135	260	60	140
Future Volume (veh/h)	50	480	20	50	295	255	20	130	135	260	60	140
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	1841	1841	1841	1826	1826	1826	1870	1870	1870	1856	1856	1856
Adj Flow Rate, veh/h	54	522	22	54	321	277	22	141	147	283	65	152
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	5	5	5	2	2	2	3	3	3
Cap, veh/h	263	609	516	98	824	368	503	719	641	478	713	636
Arrive On Green	0.15	0.33	0.33	0.06	0.24	0.24	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	1753	1841	1560	1739	3469	1547	1164	1777	1585	1083	1763	1572
Grp Volume(v), veh/h	54	522	22	54	321	277	22	141	147	283	65	152
Grp Sat Flow(s),veh/h/ln	1753	1841	1560	1739	1735	1547	1164	1777	1585	1083	1763	1572
Q Serve(g_s), s	1.8	17.9	0.6	2.0	5.3	11.3	0.9	3.5	4.1	15.7	1.5	4.3
Cycle Q Clear(g_c), s	1.8	17.9	0.6	2.0	5.3	11.3	5.2	3.5	4.1	19.9	1.5	4.3
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	263	609	516	98	824	368	503	719	641	478	713	636
V/C Ratio(X)	0.21	0.86	0.04	0.55	0.39	0.75	0.04	0.20	0.23	0.59	0.09	0.24
Avail Cap(c_a), veh/h	401	815	691	398	1536	685	503	719	641	478	713	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	25.3	21.2	15.4	31.1	21.7	24.0	15.0	13.1	13.2	19.8	12.5	13.3
Incr Delay (d2), s/veh	0.4	7.0	0.0	4.7	0.3	3.1	0.2	0.6	0.8	5.3	0.3	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	0.8	8.3	0.2	1.0	2.1	4.2	0.2	1.4	1.5	4.3	0.6	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	25.6	28.1	15.4	35.8	22.0	27.1	15.2	13.7	14.1	25.1	12.7	14.2
LnGrp LOS	C	C	B	D	C	C	B	B	B	C	B	B
Approach Vol, veh/h		598			652			310			500	
Approach Delay, s/veh		27.4			25.3			14.0			20.2	
Approach LOS		C			C			B			C	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		32.0	8.3	27.4		32.0	14.6	21.1				
Change Period (Y+Rc), s		4.6	4.5	5.0		4.6	4.5	5.0				
Max Green Setting (Gmax), s		27.4	15.5	30.0		27.4	15.5	30.0				
Max Q Clear Time (g_c+I1), s		7.2	4.0	19.9		21.9	3.8	13.3				
Green Ext Time (p_c), s		1.7	0.1	2.5		1.3	0.1	2.8				

Intersection Summary												
HCM 6th Ctrl Delay, s/veh			23.0									
HCM 6th LOS			C									

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	85	0	50	0	0	5	10	180	0	1	100	30
Future Vol, veh/h	85	0	50	0	0	5	10	180	0	1	100	30
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, %	2	2	2	0	0	0	0	0	0	2	2	2
Mvmt Flow	92	0	54	0	0	5	11	196	0	1	109	33

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	349	346	126	373	362	196	142	0	0	196	0	0
Stage 1	128	128	-	218	218	-	-	-	-	-	-	-
Stage 2	221	218	-	155	144	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.1	6.5	6.2	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.5	4	3.3	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	606	577	924	588	569	850	1453	-	-	1377	-	-
Stage 1	876	790	-	789	726	-	-	-	-	-	-	-
Stage 2	781	723	-	852	782	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	598	572	924	550	564	850	1453	-	-	1377	-	-
Mov Cap-2 Maneuver	598	572	-	550	564	-	-	-	-	-	-	-
Stage 1	869	789	-	783	720	-	-	-	-	-	-	-
Stage 2	770	717	-	801	781	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	11.6	9.3	0.4	0.1
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1453	-	-	688	850	1377	-	-
HCM Lane V/C Ratio	0.007	-	-	0.213	0.006	0.001	-	-
HCM Control Delay (s/veh)	7.5	0	-	11.6	9.3	7.6	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q (veh)	0	-	-	0.8	0	0	-	-

MOVEMENT SUMMARY

Site: 1 [Grove Rd & Thorpe Rd Baseline PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

2035 Baseline PM
Site Category: Victory Heights
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: Grove Rd															
3	L2	All MCs	2	3.0	2	3.0	0.229	11.6	LOS B	1.0	26.8	0.47	0.54	0.47	34.2
8	T1	All MCs	198	3.0	198	3.0	0.229	5.8	LOS A	1.0	26.8	0.47	0.54	0.47	34.9
18	R2	All MCs	22	3.0	22	3.0	0.229	5.7	LOS A	1.0	26.8	0.47	0.54	0.47	34.6
Approach			222	3.0	222	3.0	0.229	5.9	LOS A	1.0	26.8	0.47	0.54	0.47	34.9
East: Thorpe Rd															
1	L2	All MCs	49	4.0	49	4.0	0.350	12.2	LOS B	1.7	45.1	0.55	0.63	0.55	34.0
6	T1	All MCs	16	4.0	16	4.0	0.350	6.4	LOS A	1.7	45.1	0.55	0.63	0.55	34.7
16	R2	All MCs	258	4.0	258	4.0	0.350	6.3	LOS A	1.7	45.1	0.55	0.63	0.55	34.4
Approach			324	4.0	324	4.0	0.350	7.2	LOS A	1.7	45.1	0.55	0.63	0.55	34.4
North: Grove Rd															
7	L2	All MCs	126	7.0	126	7.0	0.259	10.2	LOS B	1.3	35.1	0.22	0.50	0.22	34.0
4	T1	All MCs	280	7.0	280	7.0	0.259	4.4	LOS A	1.3	35.5	0.22	0.48	0.22	35.0
14	R2	All MCs	264	7.0	264	7.0	0.259	4.4	LOS A	1.3	35.5	0.21	0.43	0.21	35.4
Approach			670	7.0	670	7.0	0.259	5.5	LOS A	1.3	35.5	0.22	0.46	0.22	35.0
West: Thorpe Rd															
5	L2	All MCs	264	3.0	264	3.0	0.293	11.6	LOS B	1.2	30.6	0.47	0.71	0.47	32.2
2	T1	All MCs	16	3.0	16	3.0	0.293	5.8	LOS A	1.2	30.6	0.47	0.71	0.47	32.8
12	R2	All MCs	5	3.0	5	3.0	0.293	5.7	LOS A	1.2	30.6	0.47	0.71	0.47	32.6
Approach			286	3.0	286	3.0	0.293	11.2	LOS B	1.2	30.6	0.47	0.71	0.47	32.3
All Vehicles			1502	5.0	1502	5.0	0.350	7.0	LOS A	1.7	45.1	0.37	0.56	0.37	34.3

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
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.

Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	160	5	45	65	25	15	35	35	25	90	25
Future Vol, veh/h	15	160	5	45	65	25	15	35	35	25	90	25
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	2	2	2
Mvmt Flow	18	195	6	55	79	30	18	43	43	30	110	30
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, s/veh	9.8	9.2	8.7	9.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	18%	8%	33%	18%
Vol Thru, %	41%	89%	48%	64%
Vol Right, %	41%	3%	19%	18%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	85	180	135	140
LT Vol	15	15	45	25
Through Vol	35	160	65	90
RT Vol	35	5	25	25
Lane Flow Rate	104	220	165	171
Geometry Grp	1	1	1	1
Degree of Util (X)	0.139	0.291	0.219	0.233
Departure Headway (Hd)	4.829	4.769	4.794	4.907
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	736	749	742	727
Service Time	2.902	2.831	2.86	2.973
HCM Lane V/C Ratio	0.141	0.294	0.222	0.235
HCM Control Delay, s/veh	8.7	9.8	9.2	9.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	1.2	0.8	0.9

Intersection	
Int Delay, s/veh	4.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	165	15	190	130	5	90
Future Vol, veh/h	165	15	190	130	5	90
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	89	89	89	89
Heavy Vehicles, %	2	2	1	1	0	0
Mvmt Flow	185	17	213	146	6	101

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	202	0	766	194
Stage 1	-	-	-	-	194	-
Stage 2	-	-	-	-	572	-
Critical Hdwy	-	-	4.11	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.209	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1376	-	374	853
Stage 1	-	-	-	-	844	-
Stage 2	-	-	-	-	569	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1376	-	311	853
Mov Cap-2 Maneuver	-	-	-	-	311	-
Stage 1	-	-	-	-	844	-
Stage 2	-	-	-	-	473	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	4.8	10.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	781	-	-	1376	-
HCM Lane V/C Ratio	0.137	-	-	0.155	-
HCM Control Delay (s/veh)	10.3	-	-	8.1	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q (veh)	0.5	-	-	0.5	-

Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	185	5	1	15	150	620	5	45	1490	175
Future Vol, veh/h	0	0	185	5	1	15	150	620	5	45	1490	175
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	-	-	0	-	-	-	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	0	0	0	2	2	2	1	1	1
Mvmt Flow	0	0	191	5	1	15	155	639	5	46	1536	180

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	858	1812	2760	322	1716	0	0	644	0	0
Stage 1	-	-	-	952	952	-	-	-	-	-	-	-
Stage 2	-	-	-	860	1808	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	7.5	6.5	6.9	4.14	-	-	4.12	-	-
Critical Hdwy Stg 1	-	-	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	3.5	4	3.3	2.22	-	-	2.21	-	-
Pot Cap-1 Maneuver	0	0	304	50	20	680	365	-	-	944	-	-
Stage 1	0	0	-	283	341	-	-	-	-	-	-	-
Stage 2	0	0	-	321	132	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	304	12	11	680	365	-	-	944	-	-
Mov Cap-2 Maneuver	-	-	-	12	11	-	-	-	-	-	-	-
Stage 1	-	-	-	163	196	-	-	-	-	-	-	-
Stage 2	-	-	-	114	126	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	34.8	172.3	4.2	0.2
HCM LOS	D	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	365	-	-	304	40	944	-	-
HCM Lane V/C Ratio	0.424	-	-	0.627	0.541	0.049	-	-
HCM Control Delay (s/veh)	21.9	-	-	34.8	172.3	9	-	-
HCM Lane LOS	C	-	-	D	F	A	-	-
HCM 95th %tile Q (veh)	2	-	-	3.9	1.9	0.2	-	-

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	135	135	890	1895	0
Future Vol, veh/h	0	135	135	890	1895	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	-	0	450	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	3	3	1	1
Mvmt Flow	0	144	144	947	2016	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	1008	2016	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	4.16	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	2.23	-	-	-
Pot Cap-1 Maneuver	0	242	275	-	-	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	242	275	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	39.5	4.2	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT
Capacity (veh/h)	275	-	242	-
HCM Lane V/C Ratio	0.522	-	0.593	-
HCM Control Delay (s/veh)	31.6	-	39.5	-
HCM Lane LOS	D	-	E	-
HCM 95th %tile Q (veh)	2.8	-	3.4	-

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	0	0	265	0	0	70	0	955	130	0	1715	240
Future Vol, veh/h	0	0	265	0	0	70	0	955	130	0	1715	240
Conflicting Peds, #/hr	3	0	0	0	0	3	0	0	0	3	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Stop	-	-	None	-	-	Free
Storage Length	-	-	0	-	-	0	-	-	150	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0	3	3	3	1	1	1
Mvmt Flow	0	0	282	0	0	74	0	1016	138	0	1824	255

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	912	-	-	511	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	~ 280	0	0	513	0	-	-	0	-	0
Stage 1	0	0	-	0	0	-	0	-	-	0	-	0
Stage 2	0	0	-	0	0	-	0	-	-	0	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	-	-	~ 280	-	-	512	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	95.7	13.2	0	0
HCM LOS	F	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT
Capacity (veh/h)	-	-	280	512	-
HCM Lane V/C Ratio	-	-	1.007	0.145	-
HCM Control Delay (s/veh)	-	-	95.7	13.2	-
HCM Lane LOS	-	-	F	B	-
HCM 95th %tile Q (veh)	-	-	10.4	0.5	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	105	1020	0	105	1865
Future Vol, veh/h	0	105	1020	0	105	1865
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	-	-	450	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	2	2	1	1
Mvmt Flow	0	118	1146	0	118	2096

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	573	0	-	1146	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	2.21	-
Pot Cap-1 Maneuver	0	468	-	0	611	-
Stage 1	0	-	-	0	-	-
Stage 2	0	-	-	0	-	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	468	-	-	611	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	15.3	0	0.7
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	WBLn1	SBL	SBT
Capacity (veh/h)	-	468	611	-
HCM Lane V/C Ratio	-	0.252	0.193	-
HCM Control Delay (s/veh)	-	15.3	12.3	-
HCM Lane LOS	-	C	B	-
HCM 95th %tile Q (veh)	-	1	0.7	-

Intersection	
Int Delay, s/veh	4.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	155	0	0	630	0	785
Future Vol, veh/h	155	0	0	630	0	785
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Free	-	None
Storage Length	0	-	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	172	0	0	700	0	872

Major/Minor	Minor1			Major2	
Conflicting Flow All	872	-		-	-
Stage 1	0	-		-	-
Stage 2	872	-		-	-
Critical Hdwy	6.41	-		-	-
Critical Hdwy Stg 1	-	-		-	-
Critical Hdwy Stg 2	5.41	-		-	-
Follow-up Hdwy	3.509	-		-	-
Pot Cap-1 Maneuver	322	0		0	-
Stage 1	-	0		0	-
Stage 2	411	0		0	-
Platoon blocked, %					-
Mov Cap-1 Maneuver	322	-		-	-
Mov Cap-2 Maneuver	322	-		-	-
Stage 1	-	-		-	-
Stage 2	411	-		-	-

Approach	WB	SB
HCM Control Delay, s/v	28.3	0
HCM LOS	D	

Minor Lane/Major Mvmt	WBLn1	SBT
Capacity (veh/h)	322	-
HCM Lane V/C Ratio	0.535	-
HCM Control Delay (s/veh)	28.3	-
HCM Lane LOS	D	-
HCM 95th %tile Q (veh)	3	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	480	170	10	150	0	0	0	0	30	1	0
Future Vol, veh/h	0	480	170	10	150	0	0	0	0	30	1	0
Conflicting Peds, #/hr	2	0	2	0	0	0	2	0	0	0	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	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	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	1	1	1	1	1	1	0	0	0	0	0	0
Mvmt Flow	0	527	187	11	165	0	0	0	0	33	1	0

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	716	0	0	808	903	167
Stage 1	-	-	-	-	-	-	187	187	-
Stage 2	-	-	-	-	-	-	621	716	-
Critical Hdwy	-	-	-	4.11	-	-	6.4	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	5.4	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.4	5.5	-
Follow-up Hdwy	-	-	-	2.209	-	-	3.5	4	3.3
Pot Cap-1 Maneuver	0	-	-	889	-	0	353	279	882
Stage 1	0	-	-	-	-	0	850	749	-
Stage 2	0	-	-	-	-	0	540	437	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	889	-	-	348	0	880
Mov Cap-2 Maneuver	-	-	-	-	-	-	348	0	-
Stage 1	-	-	-	-	-	-	850	0	-
Stage 2	-	-	-	-	-	-	532	0	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0	0.6	16.5
HCM LOS			C

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	889	-	348
HCM Lane V/C Ratio	-	-	0.012	-	0.098
HCM Control Delay (s/veh)	-	-	9.1	0	16.5
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q (veh)	-	-	0	-	0.3

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰						↰				
Traffic Vol, veh/h	0	475	0	0	0	0	165	1	0	0	0	0
Future Vol, veh/h	0	475	0	0	0	0	165	1	0	0	0	0
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	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	4	4	4	0	0	0	2	2	2	0	0	0
Mvmt Flow	0	534	0	0	0	0	185	1	0	0	0	0

Major/Minor	Major1			Minor1		
Conflicting Flow All	0	0	-	534	534	-
Stage 1	-	-	-	534	534	-
Stage 2	-	-	-	0	0	-
Critical Hdwy	4.14	-	-	6.42	6.52	-
Critical Hdwy Stg 1	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.236	-	-	3.518	4.018	-
Pot Cap-1 Maneuver	-	-	0	507	452	0
Stage 1	-	-	0	588	524	0
Stage 2	-	-	0	-	-	0
Platoon blocked, %		-				
Mov Cap-1 Maneuver	-	-	-	507	0	-
Mov Cap-2 Maneuver	-	-	-	507	0	-
Stage 1	-	-	-	588	0	-
Stage 2	-	-	-	-	0	-

Approach	EB	NB
HCM Control Delay, s/v	0	16.2
HCM LOS		C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT
Capacity (veh/h)	507	-	-
HCM Lane V/C Ratio	0.368	-	-
HCM Control Delay (s/veh)	16.2	0	-
HCM Lane LOS	C	A	-
HCM 95th %tile Q (veh)	1.7	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	15	940	10	10	1535
Future Vol, veh/h	0	15	940	10	10	1535
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	-	-	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	5	5	2	2
Mvmt Flow	0	16	1011	11	11	1651

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	511	0	0	1022	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	2.22	-
Pot Cap-1 Maneuver	0	513	-	-	675	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	513	-	-	675	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	12.2	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	513	675	-
HCM Lane V/C Ratio	-	-	0.031	0.016	-
HCM Control Delay (s/veh)	-	-	12.2	10.4	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q (veh)	-	-	0.1	0	-

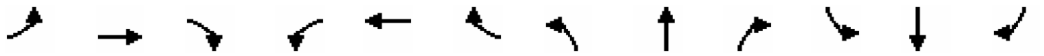
Intersection	
Int Delay, s/veh	9.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	545	415	70	490	635
Future Vol, veh/h	0	545	415	70	490	635
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	-	-	375	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	9	9	2	2
Mvmt Flow	0	586	446	75	527	683

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	261	0	0	521	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.92	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.31	-	-	2.22	-
Pot Cap-1 Maneuver	0	741	-	-	1041	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	741	-	-	1041	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	25.6	0	5.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	741	1041	-
HCM Lane V/C Ratio	-	-	0.791	0.506	-
HCM Control Delay (s/veh)	-	-	25.6	11.9	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q (veh)	-	-	8	2.9	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	225	515	25	100	390	185	20	100	70	185	105	85
Future Volume (veh/h)	225	515	25	100	390	185	20	100	70	185	105	85
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		0.99
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	1870	1870	1870	1870	1870	1870	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	239	548	27	106	415	197	21	106	74	197	112	90
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	1	1	1	1	1	1
Cap, veh/h	295	667	556	141	958	421	472	722	467	486	678	498
Arrive On Green	0.17	0.36	0.36	0.08	0.27	0.27	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	1781	1870	1560	1781	3554	1561	1190	2085	1349	1214	1957	1438
Grp Volume(v), veh/h	239	548	27	106	415	197	21	90	90	197	102	100
Grp Sat Flow(s),veh/h/ln	1781	1870	1560	1781	1777	1561	1190	1791	1642	1214	1791	1605
Q Serve(g_s), s	8.4	17.2	0.7	3.8	6.2	6.8	0.8	2.2	2.5	8.7	2.5	2.8
Cycle Q Clear(g_c), s	8.4	17.2	0.7	3.8	6.2	6.8	3.6	2.2	2.5	11.1	2.5	2.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.82	1.00		0.90
Lane Grp Cap(c), veh/h	295	667	556	141	958	421	472	621	569	486	621	556
V/C Ratio(X)	0.81	0.82	0.05	0.75	0.43	0.47	0.04	0.14	0.16	0.41	0.16	0.18
Avail Cap(c_a), veh/h	592	1215	1014	317	1759	773	472	621	569	486	621	556
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	26.0	18.9	13.6	29.2	19.5	19.7	16.0	14.5	14.6	18.4	14.6	14.7
Incr Delay (d2), s/veh	5.3	2.6	0.0	7.9	0.3	0.8	0.2	0.5	0.6	2.5	0.6	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	3.8	7.2	0.2	1.8	2.4	2.4	0.2	0.9	0.9	2.6	1.1	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	31.2	21.5	13.7	37.0	19.8	20.5	16.2	15.0	15.2	21.0	15.2	15.4
LnGrp LOS	C	C	B	D	B	C	B	B	B	C	B	B
Approach Vol, veh/h		814			718			201			399	
Approach Delay, s/veh		24.1			22.6			15.2			18.1	
Approach LOS		C			C			B			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		27.0	9.6	28.0		27.0	15.2	22.4				
Change Period (Y+Rc), s		4.6	4.5	5.0		4.6	4.5	5.0				
Max Green Setting (Gmax), s		22.4	11.5	42.0		22.4	21.5	32.0				
Max Q Clear Time (g_c+I1), s		5.6	5.8	19.2		13.1	10.4	8.8				
Green Ext Time (p_c), s		0.9	0.1	3.8		1.3	0.5	3.5				

Intersection Summary												
HCM 6th Ctrl Delay, s/veh			21.6									
HCM 6th LOS			C									

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	70	0	30	0	0	0	55	165	1	3	195	70
Future Vol, veh/h	70	0	30	0	0	0	55	165	1	3	195	70
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	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	1	1	1	1	1	1
Mvmt Flow	77	0	33	0	0	0	60	181	1	3	214	77

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	561	561	253	577	599	182	291	0	0	182	0	0
Stage 1	259	259	-	302	302	-	-	-	-	-	-	-
Stage 2	302	302	-	275	297	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.11	-	-	4.11	-	-
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	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	441	439	791	431	418	866	1276	-	-	1399	-	-
Stage 1	750	697	-	712	668	-	-	-	-	-	-	-
Stage 2	712	668	-	736	671	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	422	415	791	396	395	866	1276	-	-	1399	-	-
Mov Cap-2 Maneuver	422	415	-	396	395	-	-	-	-	-	-	-
Stage 1	711	695	-	675	633	-	-	-	-	-	-	-
Stage 2	675	633	-	703	669	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	14.4	0	2	0.1
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1276	-	-	491	-	1399	-	-
HCM Lane V/C Ratio	0.047	-	-	0.224	-	0.002	-	-
HCM Control Delay (s/veh)	8	0	-	14.4	0	7.6	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q (veh)	0.1	-	-	0.9	-	0	-	-

MOVEMENT SUMMARY

Site: 1 [Grove Rd & Thorpe Rd Future WP AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

2035 Future WP AM
Site Category: Victory Heights
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: Grove Rd															
3	L2	All MCs	5	7.0	5	7.0	0.438	12.9	LOS B	2.4	63.2	0.60	0.63	0.63	33.6
8	T1	All MCs	324	7.0	324	7.0	0.438	7.1	LOS A	2.4	63.2	0.60	0.63	0.63	34.4
18	R2	All MCs	51	7.0	51	7.0	0.438	7.0	LOS A	2.4	63.2	0.60	0.63	0.63	34.1
Approach			380	7.0	380	7.0	0.438	7.2	LOS A	2.4	63.2	0.60	0.63	0.63	34.3
East: Thorpe Rd															
1	L2	All MCs	24	10.0	24	10.0	0.353	13.8	LOS B	1.8	48.8	0.66	0.70	0.66	33.3
6	T1	All MCs	16	10.0	16	10.0	0.353	8.0	LOS A	1.8	48.8	0.66	0.70	0.66	34.1
16	R2	All MCs	219	10.0	219	10.0	0.353	7.8	LOS A	1.8	48.8	0.66	0.70	0.66	33.8
Approach			259	10.0	259	10.0	0.353	8.4	LOS A	1.8	48.8	0.66	0.70	0.66	33.7
North: Grove Rd															
7	L2	All MCs	173	11.0	173	11.0	0.216	10.2	LOS B	1.1	29.2	0.18	0.55	0.18	33.3
4	T1	All MCs	225	11.0	225	11.0	0.216	4.3	LOS A	1.1	29.6	0.18	0.47	0.18	35.1
14	R2	All MCs	148	11.0	148	11.0	0.216	4.4	LOS A	1.1	29.6	0.18	0.41	0.18	35.4
Approach			546	11.0	546	11.0	0.216	6.2	LOS A	1.1	29.6	0.18	0.48	0.18	34.6
West: Thorpe Rd															
5	L2	All MCs	286	6.0	286	6.0	0.307	11.7	LOS B	1.2	31.2	0.45	0.71	0.45	32.0
2	T1	All MCs	5	6.0	5	6.0	0.307	5.9	LOS A	1.2	31.2	0.45	0.71	0.45	32.7
Approach			291	6.0	291	6.0	0.307	11.6	LOS B	1.2	31.2	0.45	0.71	0.45	32.0
All Vehicles			1477	8.8	1477	8.8	0.438	7.9	LOS A	2.4	63.2	0.43	0.60	0.43	33.8

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
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.

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	54	9	45	135	28	46	56	30	22	47	25
Future Vol, veh/h	3	54	9	45	135	28	46	56	30	22	47	25
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	0	0	0	2	2	2	10	10	10
Mvmt Flow	3	59	10	49	147	30	50	61	33	24	51	27
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, s/veh	8.2	9.4	8.8	8.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	35%	5%	22%	23%
Vol Thru, %	42%	82%	65%	50%
Vol Right, %	23%	14%	13%	27%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	132	66	208	94
LT Vol	46	3	45	22
Through Vol	56	54	135	47
RT Vol	30	9	28	25
Lane Flow Rate	143	72	226	102
Geometry Grp	1	1	1	1
Degree of Util (X)	0.187	0.093	0.285	0.137
Departure Headway (Hd)	4.69	4.684	4.537	4.829
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	763	763	791	741
Service Time	2.73	2.729	2.572	2.872
HCM Lane V/C Ratio	0.187	0.094	0.286	0.138
HCM Control Delay, s/veh	8.8	8.2	9.4	8.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.7	0.3	1.2	0.5

Intersection	
Int Delay, s/veh	3.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	115	10	64	255	5	134
Future Vol, veh/h	115	10	64	255	5	134
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, %	8	8	2	2	1	1
Mvmt Flow	122	11	68	271	5	143

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	133	0	535	128
Stage 1	-	-	-	-	128	-
Stage 2	-	-	-	-	407	-
Critical Hdwy	-	-	4.12	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.218	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1452	-	508	925
Stage 1	-	-	-	-	900	-
Stage 2	-	-	-	-	674	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1452	-	480	925
Mov Cap-2 Maneuver	-	-	-	-	480	-
Stage 1	-	-	-	-	900	-
Stage 2	-	-	-	-	637	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	1.5	9.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	895	-	-	1452	-
HCM Lane V/C Ratio	0.165	-	-	0.047	-
HCM Control Delay (s/veh)	9.8	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q (veh)	0.6	-	-	0.1	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	115	1	5	25	190	1360	1	10	625	45
Future Vol, veh/h	0	0	115	1	5	25	190	1360	1	10	625	45
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	-	-	0	-	-	-	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0	1	1	1	5	5	5
Mvmt Flow	0	0	122	1	5	27	202	1447	1	11	665	48

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	357	2207	2587	724	713	0	0	1448	0	0
Stage 1	-	-	-	1852	1852	-	-	-	-	-	-	-
Stage 2	-	-	-	355	735	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	7.5	6.5	6.9	4.12	-	-	4.2	-	-
Critical Hdwy Stg 1	-	-	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	3.5	4	3.3	2.21	-	-	2.25	-	-
Pot Cap-1 Maneuver	0	0	645	25	26	373	889	-	-	449	-	-
Stage 1	0	0	-	78	125	-	-	-	-	-	-	-
Stage 2	0	0	-	641	428	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	645	16	20	373	889	-	-	449	-	-
Mov Cap-2 Maneuver	-	-	-	16	20	-	-	-	-	-	-	-
Stage 1	-	-	-	60	97	-	-	-	-	-	-	-
Stage 2	-	-	-	507	418	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	11.9	75.8	1.3	0.2
HCM LOS	B	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	889	-	-	645	82	449	-	-
HCM Lane V/C Ratio	0.227	-	-	0.19	0.402	0.024	-	-
HCM Control Delay (s/veh)	10.2	-	-	11.9	75.8	13.2	-	-
HCM Lane LOS	B	-	-	B	F	B	-	-
HCM 95th %tile Q (veh)	0.9	-	-	0.7	1.6	0.1	-	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	176	176	1585	935	0
Future Vol, veh/h	0	176	176	1585	935	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	-	0	450	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	8	8
Mvmt Flow	0	189	189	1704	1005	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	503	1005	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	0	514	685	-	-	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	514	685	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	16	1.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT
Capacity (veh/h)	685	-	514	-
HCM Lane V/C Ratio	0.276	-	0.368	-
HCM Control Delay (s/veh)	12.2	-	16	-
HCM Lane LOS	B	-	C	-
HCM 95th %tile Q (veh)	1.1	-	1.7	-

Intersection	
Int Delay, s/veh	15.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	597	0	0	65	0	1691	311	0	775	274
Future Vol, veh/h	0	0	597	0	0	65	0	1691	311	0	775	274
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	-	-	Stop	-	-	None	-	-	Free
Storage Length	-	-	0	-	-	0	-	-	150	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	10	10	10	1	1	1	8	8	8
Mvmt Flow	0	0	635	0	0	69	0	1799	331	0	824	291

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	412	-	-	900	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	-	-	7.1	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	-	-	3.4	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	~ 589	0	0	266	0	-	-	0	-	0
Stage 1	0	0	-	0	0	-	0	-	-	0	-	0
Stage 2	0	0	-	0	0	-	0	-	-	0	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	-	-	~ 589	-	-	266	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	86	23.2	0	0
HCM LOS	F	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT
Capacity (veh/h)	-	-	589	266	-
HCM Lane V/C Ratio	-	-	1.078	0.26	-
HCM Control Delay (s/veh)	-	-	86	23.2	-
HCM Lane LOS	-	-	F	C	-
HCM 95th %tile Q (veh)	-	-	18.6	1	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	85.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	445	1642	0	445	913
Future Vol, veh/h	0	445	1642	0	445	913
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	-	-	450	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	1	1	4	4
Mvmt Flow	0	473	1747	0	473	971

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	874	0	-	1747	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	4.6	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	2.24	-
Pot Cap-1 Maneuver	0	~ 297	-	0	~ 283	-
Stage 1	0	-	-	0	-	-
Stage 2	0	-	-	0	-	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	~ 297	-	-	~ 283	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 313.7	0	114.5
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	WBLn1	SBL	SBT
Capacity (veh/h)	-	297	~ 283	-
HCM Lane V/C Ratio	-	1.594	1.673	-
HCM Control Delay (s/veh)	-	$ 313.7	$ 349.4	-
HCM Lane LOS	-	F	F	-
HCM 95th %tile Q (veh)	-	28.3	29.8	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	3.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	115	0	0	941	0	318
Future Vol, veh/h	115	0	0	941	0	318
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Free	-	None
Storage Length	0	-	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	0	2	2	8	8
Mvmt Flow	140	0	0	1148	0	388

Major/Minor	Minor1			Major2	
Conflicting Flow All	388	-		-	-
Stage 1	0	-		-	-
Stage 2	388	-		-	-
Critical Hdwy	6.4	-		-	-
Critical Hdwy Stg 1	-	-		-	-
Critical Hdwy Stg 2	5.4	-		-	-
Follow-up Hdwy	3.5	-		-	-
Pot Cap-1 Maneuver	619	0		0	-
Stage 1	-	0		0	-
Stage 2	690	0		0	-
Platoon blocked, %					-
Mov Cap-1 Maneuver	619	-		-	-
Mov Cap-2 Maneuver	619	-		-	-
Stage 1	-	-		-	-
Stage 2	690	-		-	-

Approach	WB	SB
HCM Control Delay, s/v	12.5	0
HCM LOS	B	

Minor Lane/Major Mvmt	WBLn1	SBT
Capacity (veh/h)	619	-
HCM Lane V/C Ratio	0.227	-
HCM Control Delay (s/veh)	12.5	-
HCM Lane LOS	B	-
HCM 95th %tile Q (veh)	0.9	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	861	75	5	115	0	0	0	0	35	0	0
Future Vol, veh/h	0	861	75	5	115	0	0	0	0	35	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	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	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	0	0	0	0	0	0	12	12	12
Mvmt Flow	0	946	82	5	126	0	0	0	0	38	0	0

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	1028	0	0	1123	1164	126
Stage 1	-	-	-	-	-	-	136	136	-
Stage 2	-	-	-	-	-	-	987	1028	-
Critical Hdwy	-	-	-	4.1	-	-	6.52	6.62	6.32
Critical Hdwy Stg 1	-	-	-	-	-	-	5.52	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.52	5.62	-
Follow-up Hdwy	-	-	-	2.2	-	-	3.608	4.108	3.408
Pot Cap-1 Maneuver	0	-	-	683	-	0	217	186	898
Stage 1	0	-	-	-	-	0	866	765	-
Stage 2	0	-	-	-	-	0	346	299	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	683	-	-	215	0	898
Mov Cap-2 Maneuver	-	-	-	-	-	-	215	0	-
Stage 1	-	-	-	-	-	-	866	0	-
Stage 2	-	-	-	-	-	-	343	0	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0	0.4	25.4
HCM LOS			D

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	683	-	215
HCM Lane V/C Ratio	-	-	0.008	-	0.179
HCM Control Delay (s/veh)	-	-	10.3	0	25.4
HCM Lane LOS	-	-	B	A	D
HCM 95th %tile Q (veh)	-	-	0	-	0.6

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰						↰				
Traffic Vol, veh/h	0	881	0	0	0	0	125	5	0	0	0	0
Future Vol, veh/h	0	881	0	0	0	0	125	5	0	0	0	0
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	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	0	0	0	3	3	3	0	0	0
Mvmt Flow	0	968	0	0	0	0	137	5	0	0	0	0

Major/Minor	Major1			Minor1		
Conflicting Flow All	0	0	-	968	968	-
Stage 1	-	-	-	968	968	-
Stage 2	-	-	-	0	0	-
Critical Hdwy	4.12	-	-	6.43	6.53	-
Critical Hdwy Stg 1	-	-	-	5.43	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.218	-	-	3.527	4.027	-
Pot Cap-1 Maneuver	-	-	0	280	253	0
Stage 1	-	-	0	367	331	0
Stage 2	-	-	0	-	-	0
Platoon blocked, %		-				
Mov Cap-1 Maneuver	-	-	-	280	0	-
Mov Cap-2 Maneuver	-	-	-	280	0	-
Stage 1	-	-	-	367	0	-
Stage 2	-	-	-	-	0	-

Approach	EB	NB
HCM Control Delay, s/v	0	30.5
HCM LOS		D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT
Capacity (veh/h)	280	-	-
HCM Lane V/C Ratio	0.51	-	-
HCM Control Delay (s/veh)	30.5	0	-
HCM Lane LOS	D	A	-
HCM 95th %tile Q (veh)	2.7	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	25	986	1	10	788
Future Vol, veh/h	0	25	986	1	10	788
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	-	-	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	11	11	3	3	10	10
Mvmt Flow	0	28	1096	1	11	876

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	549	0	0	1097	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.12	-	-	4.3	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.41	-	-	2.3	-
Pot Cap-1 Maneuver	0	457	-	-	587	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	457	-	-	587	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	13.4	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	457	587	-
HCM Lane V/C Ratio	-	-	0.061	0.019	-
HCM Control Delay (s/veh)	-	-	13.4	11.3	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q (veh)	-	-	0.2	0.1	-

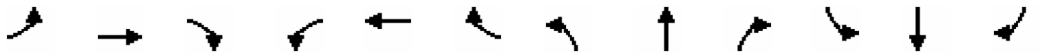
Intersection	
Int Delay, s/veh	8.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	442	519	115	380	398
Future Vol, veh/h	2	442	519	115	380	398
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	-	-	375	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	1	1	3	3	8	8
Mvmt Flow	2	486	570	126	418	437

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1688	348	0	0	696	0
Stage 1	633	-	-	-	-	-
Stage 2	1055	-	-	-	-	-
Critical Hdwy	6.82	6.92	-	-	4.26	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.51	3.31	-	-	2.28	-
Pot Cap-1 Maneuver	85	651	-	-	857	-
Stage 1	494	-	-	-	-	-
Stage 2	298	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	44	651	-	-	857	-
Mov Cap-2 Maneuver	44	-	-	-	-	-
Stage 1	494	-	-	-	-	-
Stage 2	153	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	25	0	6.4
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	651	857	-
HCM Lane V/C Ratio	-	-	0.746	0.487	-
HCM Control Delay (s/veh)	-	-	25	13.1	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q (veh)	-	-	6.7	2.7	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	493	20	50	298	255	20	130	135	260	60	145
Future Volume (veh/h)	63	493	20	50	298	255	20	130	135	260	60	145
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	1841	1841	1841	1826	1826	1826	1870	1870	1870	1856	1856	1856
Adj Flow Rate, veh/h	68	536	22	54	324	277	22	141	147	283	65	158
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	5	5	5	2	2	2	3	3	3
Cap, veh/h	281	636	539	102	848	378	460	652	582	444	647	577
Arrive On Green	0.16	0.35	0.35	0.06	0.24	0.24	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	1753	1841	1560	1739	3469	1547	1158	1777	1585	1083	1763	1572
Grp Volume(v), veh/h	68	536	22	54	324	277	22	141	147	283	65	158
Grp Sat Flow(s),veh/h/ln	1753	1841	1560	1739	1735	1547	1158	1777	1585	1083	1763	1572
Q Serve(g_s), s	2.1	16.6	0.6	1.9	4.8	10.2	0.8	3.4	4.0	15.2	1.5	4.4
Cycle Q Clear(g_c), s	2.1	16.6	0.6	1.9	4.8	10.2	5.2	3.4	4.0	19.2	1.5	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	281	636	539	102	848	378	460	652	582	444	647	577
V/C Ratio(X)	0.24	0.84	0.04	0.53	0.38	0.73	0.05	0.22	0.25	0.64	0.10	0.27
Avail Cap(c_a), veh/h	440	895	758	437	1687	752	549	789	704	527	783	698
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	22.6	18.6	13.4	28.2	19.4	21.5	15.6	13.4	13.6	20.3	12.8	13.7
Incr Delay (d2), s/veh	0.4	5.2	0.0	4.2	0.3	2.7	0.0	0.2	0.2	1.9	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	0.8	7.2	0.2	0.9	1.8	3.7	0.2	1.2	1.3	3.7	0.5	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	23.1	23.8	13.4	32.4	19.7	24.2	15.6	13.6	13.9	22.3	12.9	14.0
LnGrp LOS	C	C	B	C	B	C	B	B	B	C	B	B
Approach Vol, veh/h		626			655			310			506	
Approach Delay, s/veh		23.4			22.7			13.9			18.5	
Approach LOS		C			C			B			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		27.2	8.1	26.3		27.2	14.4	20.1				
Change Period (Y+Rc), s		4.6	4.5	5.0		4.6	4.5	5.0				
Max Green Setting (Gmax), s		27.4	15.5	30.0		27.4	15.5	30.0				
Max Q Clear Time (g_c+I1), s		7.2	3.9	18.6		21.2	4.1	12.2				
Green Ext Time (p_c), s		1.7	0.1	2.8		1.4	0.1	2.9				

Intersection Summary												
HCM 6th Ctrl Delay, s/veh			20.6									
HCM 6th LOS			C									

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	85	0	50	0	0	5	10	180	0	1	100	30
Future Vol, veh/h	85	0	50	0	0	5	10	180	0	1	100	30
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, %	2	2	2	0	0	0	0	0	0	2	2	2
Mvmt Flow	92	0	54	0	0	5	11	196	0	1	109	33

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	349	346	126	373	362	196	142	0	0	196	0	0
Stage 1	128	128	-	218	218	-	-	-	-	-	-	-
Stage 2	221	218	-	155	144	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.1	6.5	6.2	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.5	4	3.3	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	606	577	924	588	569	850	1453	-	-	1377	-	-
Stage 1	876	790	-	789	726	-	-	-	-	-	-	-
Stage 2	781	723	-	852	782	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	598	572	924	550	564	850	1453	-	-	1377	-	-
Mov Cap-2 Maneuver	598	572	-	550	564	-	-	-	-	-	-	-
Stage 1	869	789	-	783	720	-	-	-	-	-	-	-
Stage 2	770	717	-	801	781	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	11.6	9.3	0.4	0.1
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1453	-	-	688	850	1377	-	-
HCM Lane V/C Ratio	0.007	-	-	0.213	0.006	0.001	-	-
HCM Control Delay (s/veh)	7.5	0	-	11.6	9.3	7.6	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q (veh)	0	-	-	0.8	0	0	-	-

MOVEMENT SUMMARY

Site: 1 [Grove Rd & Thorpe Rd Future WP PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

2035 Future WP PM
Site Category: Victory Heights
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: Grove Rd															
3	L2	All MCs	2	3.0	2	3.0	0.239	11.9	LOS B	1.1	28.4	0.50	0.56	0.50	34.1
8	T1	All MCs	198	3.0	198	3.0	0.239	6.1	LOS A	1.1	28.4	0.50	0.56	0.50	34.8
18	R2	All MCs	24	3.0	24	3.0	0.239	5.9	LOS A	1.1	28.4	0.50	0.56	0.50	34.5
Approach			224	3.0	224	3.0	0.239	6.1	LOS A	1.1	28.4	0.50	0.56	0.50	34.8
East: Thorpe Rd															
1	L2	All MCs	51	4.0	51	4.0	0.385	12.3	LOS B	2.0	51.2	0.56	0.64	0.56	34.0
6	T1	All MCs	16	4.0	16	4.0	0.385	6.5	LOS A	2.0	51.2	0.56	0.64	0.56	34.7
16	R2	All MCs	289	4.0	289	4.0	0.385	6.4	LOS A	2.0	51.2	0.56	0.64	0.56	34.4
Approach			356	4.0	356	4.0	0.385	7.2	LOS A	2.0	51.2	0.56	0.64	0.56	34.4
North: Grove Rd															
7	L2	All MCs	171	7.0	171	7.0	0.277	10.2	LOS B	1.5	38.4	0.23	0.52	0.23	33.7
4	T1	All MCs	280	7.0	280	7.0	0.277	4.4	LOS A	1.5	38.8	0.22	0.49	0.22	34.9
14	R2	All MCs	264	7.0	264	7.0	0.277	4.4	LOS A	1.5	38.8	0.22	0.43	0.22	35.4
Approach			715	7.0	715	7.0	0.277	5.8	LOS A	1.5	38.8	0.22	0.48	0.22	34.8
West: Thorpe Rd															
5	L2	All MCs	264	3.0	264	3.0	0.299	11.8	LOS B	1.2	31.2	0.48	0.72	0.48	32.2
2	T1	All MCs	16	3.0	16	3.0	0.299	6.0	LOS A	1.2	31.2	0.48	0.72	0.48	32.8
12	R2	All MCs	5	3.0	5	3.0	0.299	5.8	LOS A	1.2	31.2	0.48	0.72	0.48	32.6
Approach			286	3.0	286	3.0	0.299	11.3	LOS B	1.2	31.2	0.48	0.72	0.48	32.2
All Vehicles			1581	5.0	1581	5.0	0.385	7.2	LOS A	2.0	51.2	0.39	0.57	0.39	34.2

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
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.

Intersection	
Intersection Delay, s/veh	11.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	190	18	45	83	34	26	51	35	61	116	25
Future Vol, veh/h	15	190	18	45	83	34	26	51	35	61	116	25
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	2	2	2
Mvmt Flow	18	232	22	55	101	41	32	62	43	74	141	30
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, s/veh	11.7	10.6	9.9	11.6
HCM LOS	B	B	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	23%	7%	28%	30%
Vol Thru, %	46%	85%	51%	57%
Vol Right, %	31%	8%	21%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	112	223	162	202
LT Vol	26	15	45	61
Through Vol	51	190	83	116
RT Vol	35	18	34	25
Lane Flow Rate	137	272	198	246
Geometry Grp	1	1	1	1
Degree of Util (X)	0.206	0.396	0.292	0.37
Departure Headway (Hd)	5.44	5.243	5.323	5.407
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	658	685	674	665
Service Time	3.485	3.279	3.363	3.445
HCM Lane V/C Ratio	0.208	0.397	0.294	0.37
HCM Control Delay, s/veh	9.9	11.7	10.6	11.6
HCM Lane LOS	A	B	B	B
HCM 95th-tile Q	0.8	1.9	1.2	1.7

Intersection	
Int Delay, s/veh	5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	165	15	252	130	5	115
Future Vol, veh/h	165	15	252	130	5	115
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	89	89	89	89
Heavy Vehicles, %	2	2	1	1	0	0
Mvmt Flow	185	17	283	146	6	129

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	202	0	906	194
Stage 1	-	-	-	-	194	-
Stage 2	-	-	-	-	712	-
Critical Hdwy	-	-	4.11	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.209	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1376	-	309	853
Stage 1	-	-	-	-	844	-
Stage 2	-	-	-	-	490	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1376	-	240	853
Mov Cap-2 Maneuver	-	-	-	-	240	-
Stage 1	-	-	-	-	844	-
Stage 2	-	-	-	-	380	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	5.5	10.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	771	-	-	1376	-
HCM Lane V/C Ratio	0.175	-	-	0.206	-
HCM Control Delay (s/veh)	10.7	-	-	8.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q (veh)	0.6	-	-	0.8	-

Intersection	
Int Delay, s/veh	10.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	185	5	1	15	150	744	5	45	1758	175
Future Vol, veh/h	0	0	185	5	1	15	150	744	5	45	1758	175
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	-	-	0	-	-	-	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	0	0	0	2	2	2	1	1	1
Mvmt Flow	0	0	191	5	1	15	155	767	5	46	1812	180

Major/Minor	Minor2		Minor1			Major1				Major2		
Conflicting Flow All	-	-	996	2078	3164	386	1992	0	0	772	0	0
Stage 1	-	-	-	1080	1080	-	-	-	-	-	-	-
Stage 2	-	-	-	998	2084	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	7.5	6.5	6.9	4.14	-	-	4.12	-	-
Critical Hdwy Stg 1	-	-	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	3.5	4	3.3	2.22	-	-	2.21	-	-
Pot Cap-1 Maneuver	0	0	247	32	11	618	285	-	-	845	-	-
Stage 1	0	0	-	236	297	-	-	-	-	-	-	-
Stage 2	0	0	-	265	96	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	247	~ 4	5	618	285	-	-	845	-	-
Mov Cap-2 Maneuver	-	-	-	~ 4	5	-	-	-	-	-	-	-
Stage 1	-	-	-	108	135	-	-	-	-	-	-	-
Stage 2	-	-	-	57	91	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	56	$ 825.6	5.3	0.2
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	285	-	-	247	14	845	-	-
HCM Lane V/C Ratio	0.543	-	-	0.772	1.546	0.055	-	-
HCM Control Delay (s/veh)	31.7	-	-	56	$ 825.6	9.5	-	-
HCM Lane LOS	D	-	-	F	F	A	-	-
HCM 95th %tile Q (veh)	3	-	-	5.6	3.4	0.2	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	35.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	266	266	1014	2163	0
Future Vol, veh/h	0	266	266	1014	2163	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	-	0	450	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	3	3	1	1
Mvmt Flow	0	283	283	1079	2301	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	1151	2301	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	4.16	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	2.23	-	-	-
Pot Cap-1 Maneuver	0	~ 194	~ 212	-	-	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	~ 194	~ 212	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	277.9	46.4	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT
Capacity (veh/h)	~ 212	-	194	-
HCM Lane V/C Ratio	1.335	-	1.459	-
HCM Control Delay (s/veh)	223.3	-	277.9	-
HCM Lane LOS	F	-	F	-
HCM 95th %tile Q (veh)	15.7	-	17.3	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	67.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	519	0	0	100	0	1180	199	0	1715	639
Future Vol, veh/h	0	0	519	0	0	100	0	1180	199	0	1715	639
Conflicting Peds, #/hr	3	0	0	0	0	3	0	0	0	3	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Stop	-	-	None	-	-	Free
Storage Length	-	-	0	-	-	0	-	-	150	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0	3	3	3	1	1	1
Mvmt Flow	0	0	552	0	0	106	0	1255	212	0	1824	680

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	912	-	-	631	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	~ 280	0	0	429	0	-	-	0	-	0
Stage 1	0	0	-	0	0	-	0	-	-	0	-	0
Stage 2	0	0	-	0	0	-	0	-	-	0	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	-	-	~ 280	-	-	428	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	$ 479.9	16.2	0	0
HCM LOS	F	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT
Capacity (veh/h)	-	-	280	428	-
HCM Lane V/C Ratio	-	-	1.972	0.249	-
HCM Control Delay (s/veh)	-	-	$ 479.9	16.2	-
HCM Lane LOS	-	-	F	C	-
HCM 95th %tile Q (veh)	-	-	39.3	1	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	4.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	297	1121	0	297	1927
Future Vol, veh/h	0	297	1121	0	297	1927
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	-	-	450	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	2	2	1	1
Mvmt Flow	0	334	1260	0	334	2165

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	630	0	-	1260	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	2.21	-
Pot Cap-1 Maneuver	0	429	-	0	553	-
Stage 1	0	-	-	0	-	-
Stage 2	0	-	-	0	-	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	429	-	-	553	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	37.1	0	2.8
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	WBLn1	SBL	SBT
Capacity (veh/h)	-	429	553	-
HCM Lane V/C Ratio	-	0.778	0.603	-
HCM Control Delay (s/veh)	-	37.1	20.9	-
HCM Lane LOS	-	E	C	-
HCM 95th %tile Q (veh)	-	6.7	4	-

Intersection	
Int Delay, s/veh	4.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	155	0	0	680	0	816
Future Vol, veh/h	155	0	0	680	0	816
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Free	-	None
Storage Length	0	-	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	172	0	0	756	0	907

Major/Minor	Minor1			Major2	
Conflicting Flow All	907	-		-	-
Stage 1	0	-		-	-
Stage 2	907	-		-	-
Critical Hdwy	6.41	-		-	-
Critical Hdwy Stg 1	-	-		-	-
Critical Hdwy Stg 2	5.41	-		-	-
Follow-up Hdwy	3.509	-		-	-
Pot Cap-1 Maneuver	307	0		0	-
Stage 1	-	0		0	-
Stage 2	395	0		0	-
Platoon blocked, %					-
Mov Cap-1 Maneuver	307	-		-	-
Mov Cap-2 Maneuver	307	-		-	-
Stage 1	-	-		-	-
Stage 2	395	-		-	-

Approach	WB	SB
HCM Control Delay, s/v	30.7	0
HCM LOS	D	

Minor Lane/Major Mvmt	WBLn1	SBT
Capacity (veh/h)	307	-
HCM Lane V/C Ratio	0.561	-
HCM Control Delay (s/veh)	30.7	-
HCM Lane LOS	D	-
HCM 95th %tile Q (veh)	3.2	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	530	170	10	150	0	0	0	0	30	1	0
Future Vol, veh/h	0	530	170	10	150	0	0	0	0	30	1	0
Conflicting Peds, #/hr	2	0	2	0	0	0	2	0	0	0	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	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	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	1	1	1	1	1	1	0	0	0	0	0	0
Mvmt Flow	0	582	187	11	165	0	0	0	0	33	1	0

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	771	0	0	863	958	167
Stage 1	-	-	-	-	-	-	187	187	-
Stage 2	-	-	-	-	-	-	676	771	-
Critical Hdwy	-	-	-	4.11	-	-	6.4	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	5.4	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.4	5.5	-
Follow-up Hdwy	-	-	-	2.209	-	-	3.5	4	3.3
Pot Cap-1 Maneuver	0	-	-	848	-	0	328	259	882
Stage 1	0	-	-	-	-	0	850	749	-
Stage 2	0	-	-	-	-	0	509	413	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	848	-	-	323	0	880
Mov Cap-2 Maneuver	-	-	-	-	-	-	323	0	-
Stage 1	-	-	-	-	-	-	850	0	-
Stage 2	-	-	-	-	-	-	502	0	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0	0.6	17.5
HCM LOS			C

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	848	-	323
HCM Lane V/C Ratio	-	-	0.013	-	0.105
HCM Control Delay (s/veh)	-	-	9.3	0	17.5
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q (veh)	-	-	0	-	0.4

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰						↰				
Traffic Vol, veh/h	0	526	0	0	0	0	165	1	0	0	0	0
Future Vol, veh/h	0	526	0	0	0	0	165	1	0	0	0	0
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	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	4	4	4	0	0	0	2	2	2	0	0	0
Mvmt Flow	0	591	0	0	0	0	185	1	0	0	0	0

Major/Minor	Major1			Minor1		
Conflicting Flow All	0	0	-	591	591	-
Stage 1	-	-	-	591	591	-
Stage 2	-	-	-	0	0	-
Critical Hdwy	4.14	-	-	6.42	6.52	-
Critical Hdwy Stg 1	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.236	-	-	3.518	4.018	-
Pot Cap-1 Maneuver	-	-	0	470	420	0
Stage 1	-	-	0	553	494	0
Stage 2	-	-	0	-	-	0
Platoon blocked, %		-				
Mov Cap-1 Maneuver	-	-	-	470	0	-
Mov Cap-2 Maneuver	-	-	-	470	0	-
Stage 1	-	-	-	553	0	-
Stage 2	-	-	-	-	0	-

Approach	EB	NB
HCM Control Delay, s/v	0	17.6
HCM LOS		C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT
Capacity (veh/h)	470	-	-
HCM Lane V/C Ratio	0.397	-	-
HCM Control Delay (s/veh)	17.6	0	-
HCM Lane LOS	C	A	-
HCM 95th %tile Q (veh)	1.9	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	15	991	10	10	1565
Future Vol, veh/h	0	15	991	10	10	1565
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	-	-	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	5	5	2	2
Mvmt Flow	0	16	1066	11	11	1683

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	539	0	0	1077	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	2.22	-
Pot Cap-1 Maneuver	0	492	-	-	643	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	492	-	-	643	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	12.6	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	492	643	-
HCM Lane V/C Ratio	-	-	0.033	0.017	-
HCM Control Delay (s/veh)	-	-	12.6	10.7	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q (veh)	-	-	0.1	0.1	-

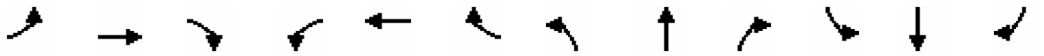
Intersection	
Int Delay, s/veh	11.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	586	425	70	514	641
Future Vol, veh/h	0	586	425	70	514	641
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	-	-	375	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	9	9	2	2
Mvmt Flow	0	630	457	75	553	689

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	266	0	0	532	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.92	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.31	-	-	2.22	-
Pot Cap-1 Maneuver	0	735	-	-	1032	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	735	-	-	1032	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	31.8	0	5.5
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	735	1032	-
HCM Lane V/C Ratio	-	-	0.857	0.536	-
HCM Control Delay (s/veh)	-	-	31.8	12.4	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q (veh)	-	-	10.2	3.3	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	235	524	25	100	398	185	20	100	70	185	105	101
Future Volume (veh/h)	235	524	25	100	398	185	20	100	70	185	105	101
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		0.99
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	1870	1870	1870	1870	1870	1870	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	250	557	27	106	423	197	21	106	74	197	112	107
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	1	1	1	1	1	1
Cap, veh/h	307	675	563	140	950	417	457	717	464	482	622	537
Arrive On Green	0.17	0.36	0.36	0.08	0.27	0.27	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	1781	1870	1560	1781	3554	1561	1171	2085	1349	1214	1809	1562
Grp Volume(v), veh/h	250	557	27	106	423	197	21	90	90	197	111	108
Grp Sat Flow(s),veh/h/ln	1781	1870	1560	1781	1777	1561	1171	1791	1642	1214	1791	1580
Q Serve(g_s), s	8.8	17.7	0.7	3.8	6.4	6.9	0.8	2.3	2.5	8.8	2.8	3.1
Cycle Q Clear(g_c), s	8.8	17.7	0.7	3.8	6.4	6.9	4.0	2.3	2.5	11.2	2.8	3.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.82	1.00		0.99
Lane Grp Cap(c), veh/h	307	675	563	140	950	417	457	616	565	482	616	544
V/C Ratio(X)	0.82	0.83	0.05	0.76	0.45	0.47	0.05	0.15	0.16	0.41	0.18	0.20
Avail Cap(c_a), veh/h	588	1206	1006	315	1746	767	457	616	565	482	616	544
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	26.0	18.9	13.5	29.4	19.8	20.0	16.4	14.8	14.8	18.7	14.9	15.0
Incr Delay (d2), s/veh	5.3	2.6	0.0	8.1	0.3	0.8	0.2	0.5	0.6	2.6	0.6	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(95%),veh/ln	7.1	11.8	0.4	3.4	4.6	4.4	0.4	1.7	1.7	4.7	2.1	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	31.2	21.6	13.6	37.5	20.2	20.8	16.6	15.3	15.4	21.3	15.6	15.9
LnGrp LOS	C	C	B	D	C	C	B	B	B	C	B	B
Approach Vol, veh/h		834			726			201			416	
Approach Delay, s/veh		24.2			22.9			15.5			18.4	
Approach LOS		C			C			B			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		27.0	9.6	28.5		27.0	15.7	22.4				
Change Period (Y+Rc), s		4.6	4.5	5.0		4.6	4.5	5.0				
Max Green Setting (Gmax), s		22.4	11.5	42.0		22.4	21.5	32.0				
Max Q Clear Time (g_c+I1), s		6.0	5.8	19.7		13.2	10.8	8.9				
Green Ext Time (p_c), s		0.9	0.1	3.9		1.4	0.5	3.6				

Intersection Summary												
HCM 6th Ctrl Delay, s/veh			21.8									
HCM 6th LOS			C									

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	70	0	30	0	0	0	55	165	1	3	195	70
Future Vol, veh/h	70	0	30	0	0	0	55	165	1	3	195	70
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	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	1	1	1	1	1	1
Mvmt Flow	77	0	33	0	0	0	60	181	1	3	214	77

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	561	561	253	577	599	182	291	0	0	182	0	0
Stage 1	259	259	-	302	302	-	-	-	-	-	-	-
Stage 2	302	302	-	275	297	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.11	-	-	4.11	-	-
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	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	441	439	791	431	418	866	1276	-	-	1399	-	-
Stage 1	750	697	-	712	668	-	-	-	-	-	-	-
Stage 2	712	668	-	736	671	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	422	415	791	396	395	866	1276	-	-	1399	-	-
Mov Cap-2 Maneuver	422	415	-	396	395	-	-	-	-	-	-	-
Stage 1	711	695	-	675	633	-	-	-	-	-	-	-
Stage 2	675	633	-	703	669	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	14.4	0	2	0.1
HCM LOS	B	A		

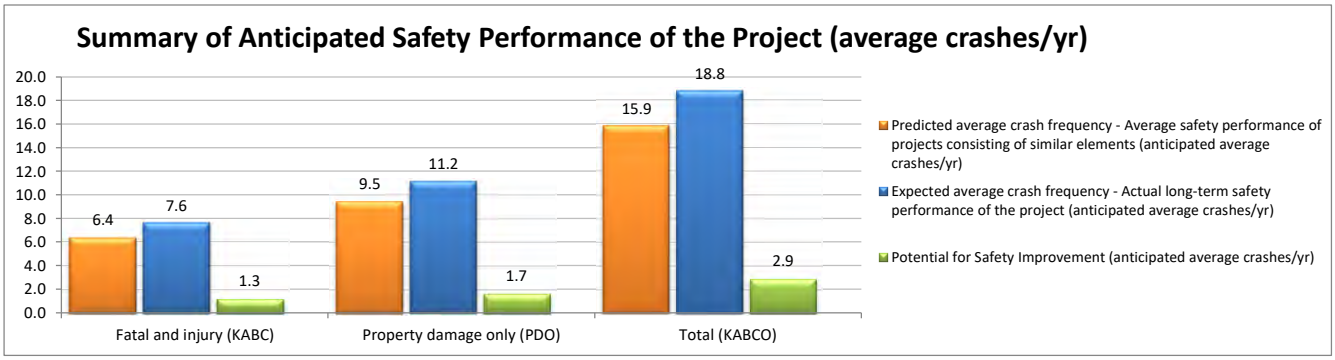
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1276	-	-	491	-	1399	-	-
HCM Lane V/C Ratio	0.047	-	-	0.224	-	0.002	-	-
HCM Control Delay (s/veh)	8	0	-	14.4	0	7.6	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q (veh)	0.1	-	-	0.9	-	0	-	-

Appendix E: Safety Calculation Details

PROJECT SAFETY PERFORMANCE SUMMARY REPORT

General Information		
Project Name	Blue Fern Victory Heights	
Project Description	TIA	
Reference Number	US 195	
Analyst	Transpo Group	
Agency/Company	WSDOT	
Contact Email	0	
Contact Phone	-	
Date Completed	05/12/11	Years of crash data incorporated into the analysis: 5

PROJECT SUMMARY



Project Element	Total Crashes/yr (KABCO)			Fatal and Injury Crashes/yr (KABC)			Property Damage Only Crashes/yr (PDO)		
	Predicted average crash frequency $N_{predicted\ (KABCO)}$	Expected average crash frequency $N_{expected\ (KABCO)}$	Potential for Improvement	Predicted average crash frequency $N_{predicted\ (KABC)}$	Expected average crash frequency $N_{expected\ (KABC)}$	Potential for Improvement	Predicted average crash frequency $N_{predicted\ (O)}$	Expected average crash frequency $N_{expected\ (O)}$	Potential for Improvement
INDIVIDUAL INTERSECTIONS									
Intersection 1	1.7	4.6	2.9	0.7	2.0	1.2	1.0	2.7	1.7
Intersection 2	2.7	0.7	0.0	1.0	0.3	0.0	1.7	0.4	0.0
Intersection 3	5.0	5.3	0.3	2.2	2.4	0.1	2.8	3.0	0.2
Intersection 4	2.0	0.7	0.0	0.8	0.3	0.0	1.3	0.4	0.0
Intersection 5	1.3	1.0	0.0	0.5	0.4	0.0	0.8	0.6	0.0
Intersection 6	0.3	0.3	0.0	0.1	0.1	0.0	0.2	0.2	0.0
Intersection 7	0.3	0.4	0.1	0.1	0.1	0.1	0.2	0.3	0.1
Intersection 8	1.4	2.9	1.5	0.6	1.2	0.6	0.8	1.7	0.9
Intersection 9	1.1	2.9	1.7	0.4	0.9	0.6	0.8	1.9	1.2
COMBINED (sum of column)	15.9	18.8	2.9	6.4	7.6	1.3	9.5	11.2	1.7

PROJECT SUMMARY -- Site-Specific EB Method Summary Results for Urban and Suburban Arterial Project

Crash severity level	$N_{predicted(PROJECT)}$ Predicted average crash frequency - Average safety performance of projects consisting of similar elements (anticipated average crashes/yr)	$N_{expected\ (PROJECT)}$ Expected average crash frequency - Actual long-term safety performance of the project (anticipated average crashes/yr)	$N_{potential\ for\ improvement\ (PROJECT)}$ Potential for Safety Improvement (anticipated average crashes/yr)
Fatal and injury (KABC)	6.4	7.6	1.3
Property damage only (PDO)	9.5	11.2	1.7
Total (KABCO)	15.9	18.8	2.9

HSM1 Extended Spreadsheet for Part C Chapter 12 v.9

Discussion of Results

Given the potential effects of project characteristics on safety performance, results indicate that:

1. It is anticipated that the project will, on average, experience 18.8 crashes per year (7.6 fatal and injury crashes per year; and 11.2 property damage only crashes per year).

2. A similar project is anticipated, on average, to experience 15.9 crashes per year (6.4 fatal and injury crashes per year; and 9.5 property damage only crashes per year).

3. It is anticipated the project has, on average, a potential for safety improvement of 2.9 crashes per year (1.3 fatal and injury crashes per year; and 1.7 property damage only crashes per year).

Appendix F: Trip Generation Calculations

Blue Fern Victory Heights

Proposed Use

									Gross Trips			Total Net New		
Land Use	**Setting**	**Size**	**Units**	**Model**	**Equation**	**Rate**	**Units**	**Inbound %**	**Inbound**	**Outbound**	**Subtotal**	**Inbound**	**Outbound**	**Total**
Single-Family Attached Housing (LU 215)		**220**	du											
Daily	General Urban/Suburban			Equation (lin)	T= 7.62x-50.48	-	-	50%	813	813	1,626	813	813	1,626
AM Peak Hour	General Urban/Suburban			Equation (lin)	T=0.52x-5.70	-	-	31%	34	75	109	34	75	109
PM Peak Hour	General Urban/Suburban			Equation (lin)	T=0.60x-3.93	-	-	57%	73	55	128	73	55	128
Single-Family Detached Housing (LU 210)		**783**	du											
Daily	General Urban/Suburban			Equation (log)	ln(T)= 0.92*ln(x)+2.68	-	-	50%	3,351	3,351	6,702	3,351	3,351	6,702
AM Peak Hour	General Urban/Suburban			Equation (log)	ln(T)=0.91*ln(x)+0.12	-	-	26%	126	359	485	126	359	485
PM Peak Hour	General Urban/Suburban			Equation (log)	ln(T)=0.94*l(x)+0.27	-	-	63%	433	255	688	433	255	688
Subtotal														
Daily									4,164	4,164	8,328	4,164	4,164	8,328
AM Peak Hour									160	434	594	160	434	594
PM Peak Hour									506	310	816	506	310	816

Net New Trips

Daily	4164	4164	8328
AM Peak Hour	160	434	594
PM Peak Hour	506	310	816

Notes:

1. Trip rates based on Institute of Transportation Engineers' (ITE) *Trip Generation* 11th Edition equation and average trip rate as shown above.

Appendix G: Response to Comments

Victory Heights TIA Comments and Responses (August 2024)

Number	Commenter	Date	Time	Comment Format	Comment	Response
1	Inga Note	8/1/2024	10:01 AM	email	The City will not accept the proposal to remove the sidewalk from the tunnels. I looked at this idea a couple of years ago when updating our impact fee projects, and rejected it for safety concerns. I circulated the idea through City staff again, and the answer is still no. If you had asked me about this before turning in the report I would have told you to stick with the prior analysis of the alternating signal and eventual tunnel replacement. So the report needs to be revised to reference those improvement projects and the appropriate phasing.	Comment noted. The previous staging of improvements including signals and widening was included in the updated TIA.
2	Inga Note	8/1/2024	10:01 AM	email	I have a few thoughts on US 195 but WSDOT will provide you more detailed comments. With the back and forth on the synchro files I don't know if they've finished their review. The table of improvements lists a bunch of US 195 projects, but doesn't assign any of them to the developer. The City doesn't have funding to do any of these projects. All of the other recent development projects in the US 195 corridor have been conditioned to mitigate their impact prior to building any homes. I explained this to your clients at the very beginning of this process when they came in for the pre-development meeting.	Comments noted.
3	Inga Note	8/1/2024	10:01 AM	email	I think the first mitigation project needs to be an acceleration lane going SB from Thorpe since that will mitigate the poor LOS at the stop sign and prevent back-ups into the tunnel. But not a channelized one that prevents access to the J-turn because that forces additional trips down to Cheney-Spokane interchange. If you look at the east side of the Thorpe/US 195 intersection there is a stop-controlled acceleration lane there. I think you could do the same thing on the west side. This style of acceleration lane allows drivers who are truly headed south to use the acceleration lane and not wait for a gap. But the drivers who are headed to the J-turn can wait at the stop sign until they see the right gap and then merge over. This is what happens on the other side of the intersection. Maybe WSDOT would agree this is sufficient mitigation for a phase or two, which would allow the developer to get started. If that doesn't provide enough of a benefit (in terms of phases can be built), I think building Lindeke would be the next improvement to consider.	Similar stop controlled acceleration lane as provided on the east side of Thorpe/US 195 is recommended per comment, continuing to allow access to the south J-turn.
4	Inga Note	8/1/2024	11:15 AM	email	I also see some weird numbers in Figure 13. Like intersection #15 (Thorpe/Lindeke) and #6 (Thorpe/195), the volumes don't add up in the EB or WB directions.	The volumes were corrected at the Thorpe/Lindeke intersection.
5	Inga Note	8/1/2024	11:15 AM	email	And the NBL at intersection #5 only increases by 8 trips in the PM between the With Project and the Mitigated With Project. It should go up a lot more if the NBL is closed at 16th.	There are numerous volume shifts that contribute to the shifts as discussed with City and WSDOT. These shifts were detailed in the appendix but additional details were added to the body of the report.
6	Greg Figg	8/1/2024	3:21 PM	email	1.The TIA needs to identify mitigations that this project will provide and the phase at which they are required. Mitigations are needed for projects to maintain acceptable LOS or to mitigate additional delay at intersections that are already functioning below acceptable LOS. Lastly the I-90 EB Ramp should not be expected to accommodate additional volume in the peak hours as the ramp meter rate will be reduced to account for increases in traffic on I-90. Identified mitigations will need to be funded in order for the proposed development to move forward.	The phasing/timing of improvements in the area were identified in the updated report.
7	Greg Figg	8/1/2024	3:21 PM	email	2.Please provide a traffic volume distribution figure for the 2035 mitigated scenario with Lindeke Street in place. Also include the figure for the I-90 ramp volumes with Lindeke in place.	There are numerous shifts assumed as part of the Lindeke extension. A detailed volume shift diagram and description of the shifts is provided in the appendix of the report.
8	Greg Figg	8/1/2024	3:21 PM	email	3.While the proposed Lindeke connection between Thrope and 16th is included in the City of Spokane impact fee ordinance and has been identified by the SRTC as a mitigation, this project is not currently funded. It should not be considered in place for the analysis of this development until funding is secured.	The evaluation of Lindeke is reviewed as a sensitiy analysis. The primary with-project analysis does not assume this conneciton is in place.
9	Greg Figg	8/1/2024	3:21 PM	email	4.This proposed development is responsible to mitigate the additional delay this development will add to intersections that are already functioning below our acceptable LOS of "D" for signalized/roundabout intersections and LOS "E" for stop controlled intersections.	This LOS standard is reflected in the report.
10	Greg Figg	8/1/2024	3:21 PM	email	5.For our freeway merge and diverge areas WSDOT defines acceptable LOS as LOS "D" or better.	The revised analysis focuses on the ramp volume analysis. The merge/diverge analysis was removed as the volumes were indicated to be the key measure of impacts.
11	Greg Figg	8/1/2024	3:21 PM	email	6.Table 19 – Mitigated LOS – Appears to have an error on the reported LOS for the US 195/ North J Turn with Lindeke extension. The delay increases considerably while the volumes are consistent or less than those without Lindeke. Please verify the volumes at the J-Turn as this will include a percentage of those that had previously utilized the northbound left at 16th.	The Lindeke evaluation was updated per the comment. Note that there are numerous shifts included in the anlaysis which are detailed in the appendix.
12	Greg Figg	8/1/2024	3:21 PM	email	7.The connection of the Cheney Spokane Interchange to Inland Empire Way is not a funded project. WSDOT and the City of Spokane have looked to the development community to fund this project. The one-way connection to Inland Empire Way will have a northbound ramp metered connection with US 195 and a companion ramp to Inland Empire that is not metered to improve its attractiveness in the peak hours. The trip distribution figures, and resultant LOS, should account for this.	As clarified with WSDOT staff, as the pipeline project trips are included, the conditioned road extensions were also included.

Victory Heights TIA Comments and Responses (August 2024)

Number	Commenter	Date	Time	Comment Format	Comment	Response
13	Greg Figg	8/1/2024	3:21 PM	email	8.The improvement at US 195/Hatch Road to restrict WB left turns is not a project that is currently funded. The TIA should also analyze this intersection as it exists today.	This improvement was assumed as designed through pipeline development plans.
14	Greg Figg	8/1/2024	3:21 PM	email	9.In Figure 13 the volumes do not match between intersection number 6 and number 15, please revise and adjust the LOS accordingly.	The volumes were corrected at the Thorpe/Lindeke intersection.
15	Greg Figg	8/1/2024	3:21 PM	email	10.Please include as part of US 195/Meadowlane the northbound US 195 J-Turn.	The volume shifts assumed the addiion of the northbound J-Turn to be located north of the US 195/Meadowlane intersection.
16	Clarke, Corey J.	8/8/2024	3:26 PM	email	1.195/Cheney-Spokane I/C (pg. 37-38) and Table 19: Future (2035) With-Project Weekday Peak Hour Traffic a.The SB approach at the SB terminal is an LOS F in the AM with project and with Lindeke extension. It is anticipated that trips will choose alternate routes because of the delay. Anticipating that trips will divert is not acceptable without further analysis as they may overwhelm other locations. WSDOT is a roundabout first agency, and as such an intersection control analysis is needed to show that a signal is the preferred solution at the Cheney Spokane Ramp Terminals. This will require additional analysis – including Synchro – to see if the suggested signal is operational at this location, as well as RAB analysis. This intersection is closely spaced with the NB terminal and operationally there will be an impact to mainline if traffic spills back. The queueing should be captured with a SimTraffic report, and all files should be shared electronically. A.Include language as to when this will be evaluated. Waiting for operations to degrade to a point where the interchange is failing is not adequate.	The revised assumption of the proejcts use of the south J-turn resulted in operations at the 195/Cheney southbound intersection to operate acceptably.
17	Clarke, Corey J.	8/8/2024	3:26 PM	email	2.The NB approach at the NB terminal is being reported as LOS A with 9.3 seconds of delay with project and with the Lindeke St. Extension project This is not accurate. When WSDOT ran this scenario HCS it reports extremely high delay and is failing; please address. a.Modify analysis in all scenarios of this NB Ramp/Cheney Spokane terminal. It is assumed that it is consistently reporting inaccurate results.	The analysis was revised per discussions with WSDOT staff. Synchro was utilized for the analysis but movements were updated to be coded as eastbound through/left and northbound left/through movements. This resulted in LOS F operations forecast for future conditions both with and without the proejct. Note that this operational error was not previously identified for the pipeline developments that had previously evaluated this location.
18	Clarke, Corey J.	8/8/2024	3:26 PM	email	3.Overview of Improvements - B. Thorpe Road Crossing (pg. 38-39): a.It is stated that the improvements at the North J-Turn and Southbound Ramp Terminal for Spokane-Cheney are both identified to continue to have impacts relative to the future (2035) without-project condition. How does the needed improvement without project differ from the needed improvement with project?	The Lindeke analysis reviews both with and without-project.
19	Clarke, Corey J.	8/8/2024	3:26 PM	email	4.US 195/North J-Turn (pg.36) a.The LOS is an F in the PM (+300s delay), and the queue length is over 20 vehicles. If this queue extends beyond the storage, any spillover onto US-195 must be mitigated. The TIA only mentions that it is “anticipated the northbound left-turn lane would be extended to accommodate the extended queue.” How will the needed left turn lane extension be provided?	As confirmed with WSDOT staff, the turn lane would be extended in the median similar to as it currently exists.
20	Clarke, Corey J.	8/8/2024	3:26 PM	email	5.Project Description- Development Phasing Summary (pg.1) a.Please provide a table showing the phase of development with corresponding mitigations.	Timing of recommended improvements in the study area is included in the updated report.
21	Clarke, Corey J.	8/8/2024	3:26 PM	email	6.In the 2035 build year the following rates should be used for the US-195 to EB I-90 ramp meter: a.AM Peak Hour – 800 total (400 per lane) b.PM Peak Hour – 400 total (200 per lane)	Figure 15 of the revised report demonstrates the implementation of the regional improvement project, the Lindeke Street extension, provides for a reduction in vehicles at the US 195 to I-90 Eastbound ramp, meeting the goals identified the US 195/I-90 Transportation Study. As this reduction is being demonstrated, the merge/diverge analysis is no longer included in the revised report.
22	Clarke, Corey J.	8/8/2024	3:26 PM	email	7.Analysis should take into account the lane utilization factor on I-90 with the presence of the Maple/Monroe St. exit to the east. Approximately 40% of the EB volume is in the outside lane.	Figure 15 of the revised report demonstrates the implementation of the regional improvement project, the Lindeke Street extension, provides for a reduction in vehicles at the US 195 to I-90 Eastbound ramp, meeting the goals identified the US 195/I-90 Transportation Study. As this reduction is being demonstrated, the merge/diverge analysis is no longer included in the revised report.
23	Clarke, Corey J.	8/8/2024	3:26 PM	email	8.Please include in the Lindeke Extension analysis a scenario which keeps the Thorpe Rd. South J-Turn in place.	The south J-turn was assumed to be closed as it operationally fails with the proejct as shown in the revised TIA. The S J-turn failing is one of the triggers for the potential installation of the Lindeke extension.

Victory Heights TIA Comments and Responses (December 2024)

Number	Commenter	Date	Comment	Response
1	Greg Figg	9/26/2024	Lindeke St. – Lindeke St. is needed to address failure at the South J-Turn and to prevent further degradation of the EB I-90/US-195 merge point. The TIA needs to address Lindeke mitigation.	The report identifies the Lindeke Improvement within the Regional Improvement Implementation Review Section and includes evaluation of operations with and without the project.
2	Greg Figg	9/26/2024	US-195 and Thorpe Rd. – Without mitigation the proposed project will exacerbate the future Level of Service deficiencies. This will also lead to traffic backups adversely affecting the Thorpe Rd. Tunnel operations. Mitigation that addressed the additional delay created by Victory Heights needs to be provided. It should also be noted that no other background projects are conditioned for the southbound acceleration lane on US-195.	Table 16 and Figure 12 of the revised report identify the locations not meeting the defined standards.
3	Greg Figg	9/26/2024	North J-Turn – With the added volumes from Victory Heights, the TIA indicates the North US-195 J-Turn will fail. The TIA needs to propose mitigation for the North J-Turn.	As coordinated with WSDOT, the northbound J-Turn would need to be closed with the LOS falling below standard. This adjustment was included in the revised report. Additionally, it was also coordainted with WSDOT and assumed that some of the Canyon Bluffs development would use the northern W 16th Avenue conenction rather than soley relying on the North J-Turn given its connectivity. This adjusted assignment is reflected in the analysis.
4	Greg Figg	9/26/2024	South J-Turn - With the added volumes from Victory Heights, the TIA indicates the South US-195 J-Turn will fail. The TIA needs to propose mitigation for the South J-Turn.	As coordinated with WSDOT, the southbound left J-turn movement was calibrated by collecting existing traffic volumes of the southbound J-turn movement and conflicting northbound through volumes and observing the corresponding delay of the southbound J-turn movement during the weekday AM peak period (7-9am). The Synchro analysis was then calibrated by adjusting the critical headway time and applying that to the TIA forecasts. The timing of when the southbound J-turn LOS would exceed the standard was revised in Table 16 accordingly, indicating the J-Turn would need to be closed.
5	Greg Figg	9/26/2024	Cheney-Spokane Interchange NB Ramps – In the July 2024 submittal the TIA indicated that this ramp terminal would function at LOS A. WSDOT questioned this result as it did not appear that the analysis software was operating appropriately. In the most recent submittal it now shows a failing level of service. Based on conversations with WSDOT and City of Spokane Traffic, we do not believe this is correct either. WSDOT requests a further discussion regarding the input parameters used in this analysis.	The channelization of the eastbound left-turn movement within Synchro was revised to reflect a eastbound through movement as coorindated with WSDOT. This was done to better reflect actual delay at the intersection given the non-typical movements at the intersection.
6	Greg Figg	9/26/2024	The TIA is proposing phasing of the certain mitigating measures. A project phasing table needs to be included in the TIA identifying the number of units to be constructed, the mitigating measures proposed, and resultant LOS.	Table 16 provides the details regarding when timing is necessary in regards to number of units of the proejct as well as the improvement and details on the findings with that improvement.
7	Greg Figg	9/26/2024	Many of the traffic volumes in the TIA have changed from those reported in the July 2024 submittal. The TIA needs to provide a summary of and rationale for the changes made between the two submittals.	The volume changes between the July and September 2024 reports were related to adjusted assumptions for the Inland Empire extension shifts. The adjustments were discussed in the conversation with both WSDOT and City staff regarding the comments recieved for the July 2024 report. The assumed adjustments in assumptions were documented in the report for the Inland Empire extension shift on page 10 of the revised report. Further adjustments to the traffic volume forcasts under the November 2024 included adjusted assignment of the Canyon Bluffs development to also use the W 16th Avenue connection to US 195 rather than soley the North J-Turn movement given its connection to 16th Avenue.
8	Clarke, Corey J.	10/3/2024	WSDOT acknowledges that the J-Turns reach a failing Level of Service through Phase 4 and Phase 5. Please provide a phasing table and cumulative turning movement volumes associated with each phase for the locations below in order to accurately show when the J-turns start to fail. Also please provide any electronic files that are associated with the results. •Thorpe Rd. •J-turns •Cheney-Spokane I/C	See Appendix J. The Synchro and VISSIM files will be provided.
9	Inga Note	10/4/2024	Report Comments: For Tables 4 (2035 column), 11 (both columns), 12 (two columns), 17 (both columns) – please add a note that clarifies these values assume the Inland Empire Way NB only connection has been built.	Note was added to the tables.
10	Inga Note	10/4/2024	Table 16 – Project B lumps together the signalization and widening of the tunnels. But Table 14 spells out the improvement triggers in more detail. Please incorporate these recommendations into Table 16.	This improvement was separated as identified.

Victory Heights TIA Comments and Responses (December 2024)

Number	Commenter	Date	Comment	Response
11	Inga Note	10/4/2024	Table 16 – there are several improvements listed in the table as “Without Project” in the Timing column. None of these projects are funded and the other developers are not conditioned to build them. That needs to be noted in the table. We are planning to pursue a grant next year for Inland Empire Way connection. But the others would need to be funded by the applicant or they can wait until the City finds a way to fund the projects.	The footnote was added per the comment.
12	Inga Note	10/4/2024	There are several notes in the document that say Victory Heights will mitigate its traffic impact fees through payment of Traffic Impact Fees. That only works if the City has the remaining funds to build the projects.	Noted
13	Inga Note	10/4/2024	Appendix H – please add details to this section so I know exactly which VISSIM scenario file applies to each table.	This detail has been included within the appendix.
14	Inga Note	10/4/2024	Appendix H – please make the font larger or orient to landscape mode so I can actually read the tables explaining the Improvement Staging	Font to be updated per comment.
15	Inga Note	10/4/2024	Analysis Comments: Work with WSDOT on the analysis of Cheney Spokane Road/US 195 NB ramp. It does not operate at LOS F today. Something isn’t right in the methodology.	The channelization of the eastbound left-turn movement within Synchro was revised to reflect a eastbound through movement as coorindated with WSDOT. This was done to better reflect actual delay at the intersection given the non-typical movements at the intersection.
16	Inga Note	10/4/2024	City staff is unable to run any of the scenarios using the VAP setup of the signal controllers in VISSIM. Our license does not include that feature and without the ability to review it I can’t confirm how it operates. Please use the fixed-time scenarios (BH2, BE2F) as the basis for your conditions as they include a fixed-time controller setup. Obviously an actuated setup is going to be more efficient and will be what we use, but I can’t guarantee that we’ll have dynamic queue flush capability with our signal controllers. In addition the VISSIM model doesn’t have the ped phase coded. I think this is okay as it can probably run concurrent with the clearance for the tunnel and won’t be much different from how the fixed-time signal is operating in VISSIM, but without a signal design and detailed evaluation of controller setup, I don’t know if that’s possible.	Analysis has been revised per comment. Both the queue flush and non-queue flush options were evaluated. The non-queue flush operations are included in the updated report.
17	Inga Note	10/4/2024	The analysis for the southbound US 195 acceleration lane from Thorpe needs to be updated to include both the stop sign and the merging movement over to the J-turn, as that will influence whether drivers use the acceleration lane or wait for a gap in the mainline traffic to ensure they can make three lane changes in a short distance.	The acceleration lane with stop sign is included in the revised report.
18	Inga Note	10/4/2024	For improvements that are triggered at a certain phase (for example closure of the SB J-turn), we need to see the synchro files with the appropriate volumes to confirm they work through the completion of the prior phase.	The files will be provided.
19	Inga Note	10/4/2024	For the VISSIM analysis, the tables are reporting Average Vehicle Delay Networkwide. Does that mean that the through traffic on US 195 is included in the delay calculation? What we really need is delay at the tunnel entrances and the EB stop sign. And adding Westwood Lane for the signalized scenarios.	The delay was added to the updated report as noted and coordinated with City staff.
20	Inga Note	10/4/2024	The NBL at the Thorpe J-turn will need to be mitigated to reduce the delay. 344 seconds of delay (Table 17) is not acceptable and will lead to drivers taking unsafe gaps across US 195 and/or queue spill back into the mainline. I think WSDOT commented on this.	As coordinated with WSDOT, the northbound J-Turn would need to be closed with the LOS falling below standard. This adjustment was included in the revised report.
21	Inga Note	10/4/2024	Appendix H – clarify what methodology you are using to determine “Fail” in the first column. The queues are quite long under Phase 5 for the Stage 3 improvement. When I watch the simulation it takes a couple of signal cycles for EB vehicles to get through the tunnel.	The assumed timing was added to Table 16.

Appendix H: Detailed Vissim Results

Stage 0 (Do Nothing)

Development Phases Years: Without (Baseline) and With Project Build		Fail ? (Control Delay > LOS E)	Networkwide Results		Average Travel Time (sec)			Average Control Delay (s/veh)			50th Percentile Max Queue (ft)			95th Percentile Max Queue (ft)		
			Unserved Vehicles (Latent Demant) (veh)	Average Vehicle Delay (sec/veh)	WB Thorpe from SB195 ML	EB Thorpe to SB 195 ML	SB 195 Through Trip	West Tunnel & Westwood Lane	East Tunnel	EB RT Stop Sign to SB195	WB Queue at East Tunnel	EB Queue at Westwood	EB Queue at Right Turn to SB 195	WB Queue at East Tunnel	EB Queue at Westwood	EB Queue at Right Turn to SB 195
Existing (2023)		--	0	3	100	104	43	3	1	23	8	0	69	21	1	77
Baseline	φ1 (2026)	Fail	20	90	848	407	121	36	141	189	606	102	602	662	391	659
	φ2 (2027)	Fail	66	119	753	406	190	23	144	210	631	176	471	669	835	664
	φ3 (2029)	Fail	52	103	870	417	163	29	176	193	650	92	599	667	489	683
	φ4 (2030)	Fail	55	115	770	425	159	46	162	193	642	263	477	665	734	634
	φ5 (2032)	Fail	57	116	801	430	176	38	157	195	628	275	493	664	691	675
	φ6 (2033)	Fail	49	110	788	426	166	34	141	201	622	301	532	661	605	684
	φ7 (2034)	Fail	90	127	764	435	215	36	182	202	646	308	479	665	676	660
	φ8 (2035)	Fail	88	120	906	450	199	69	169	204	618	352	476	660	635	657
Project Build	φ1 (2026)	Fail	92	129	942	424	235	76	160	182	631	232	528	663	893	670
	φ2 (2027)	Fail	144	147	877	388	293	54	160	169	657	376	463	660	936	678
	φ3 (2029)	Fail	190	155	902	463	329	77	166	164	649	516	459	663	959	684
	φ4 (2030)	Fail	458	186	1438	385	616	77	159	134	659	360	543	664	631	620
	φ5 (2032)	Fail	704	211	456	413	897	143	104	122	655	568	548	657	629	557
	φ6 (2033)	Fail	831	226	127	399	960	133	98	128	658	780	344	659	849	466
	φ7 (2034)	Fail	819	221	117	513	927	228	96	120	657	1029	483	657	1048	499
	φ8 (2035)	Fail	957	238	112	442	1013	223	85	124	654	1096	208	656	1100	339

Stage 1 (Add SB 195 Accel Lane with Stop Sign)

			Networkwide Results		Average Travel Time (sec)			Average Control Delay (s/veh)			50th Percentile Max Queue (ft)			95th Percentile Max Queue (ft)		
Development Phases Years: Without (Baseline) and With Project Build		Fail ? (Control Delay > LOS E)	Unserved Vehicles (Latent Demant) (veh)	Average Vehicle Delay (sec/veh)	WB Thorpe from SB195 ML	EB Thorpe to SB 195 ML	SB 195 Through Trip	West Tunnel & Westwood Lane	East Tunnel	EB RT Stop Sign to SB195	WB Queue at East Tunnel	EB Queue at Westwood	EB Queue at Right Turn to SB 195	WB Queue at East Tunnel	EB Queue at Westwood	EB Queue at Right Turn to SB 195
Existing (2023)		--	0	2	100	89	43	3	1	7	9	0	46	19	1	54
Baseline	φ1 (2026)	--	0	6	110	106	43	10	3	14	63	13	152	86	59	202
	φ2 (2027)	--	0	6	111	105	43	10	3	14	65	16	151	103	45	176
	φ3 (2029)	--	0	6	111	106	44	10	3	14	68	17	152	77	30	179
	φ4 (2030)	--	0	6	111	106	44	10	3	14	62	15	151	97	30	172
	φ5 (2032)	--	0	6	110	105	44	9	3	13	70	11	152	86	40	170
	φ6 (2033)	--	0	6	111	107	44	10	3	14	70	16	155	94	31	183
	φ7 (2034)	--	0	6	111	106	44	10	3	14	68	15	149	83	39	191
	φ8 (2035)	--	0	6	111	107	44	11	3	14	73	23	147	87	46	180
Project Build	φ1 (2026)	--	0	7	113	111	44	12	4	15	85	21	171	99	79	225
	φ2 (2027)	--	2	14	116	116	47	14	5	18	97	74	211	204	151	240
	φ3 (2029)	--	36	42	121	127	86	18	6	21	187	209	199	348	490	278
	φ4 (2030)	--	300	149	185	183	382	39	36	46	614	802	208	662	1080	328
	φ5 (2032)	Fail	671	213	263	228	711	51	78	63	657	1044	73	661	1085	240
	φ6 (2033)	Fail	774	219	1050	214	844	37	144	88	657	687	272	663	1001	308
	φ7 (2034)	Fail	853	224	688	247	907	86	121	87	654	860	205	656	1018	210
	φ8 (2035)	Fail	922	235	117	300	927	93	45	73	657	1042	69	657	1082	169

***NOTE: Build Phase 4 control delay reports as acceptable, but EB queues spillback and affect SB 195 mainline operations*

Stage 2: Signalize Both Tunnels (including Westwood Ln Phase for West Tunnel Signal)

Fixed Time

Development Phases Years: Without (Baseline) and With Project Build		Fail ? (Control Delay > LOS E)	Networkwide Results: Unserved Vehicles (Latent Demant) (veh)	Networkwide Results: Average Vehicle Delay (sec/veh)	Average Travel Time (sec): WB Thorpe from SB195 ML	Average Travel Time (sec): EB Thorpe to SB 195 ML	Average Travel Time (sec): SB 195 Through Trip	Average Control Delay (s/veh): West Tunnel & Westwood Lane	Average Control Delay (s/veh): East Tunnel	Average Control Delay (s/veh): EB RT Stop Sign to SB195	50th Percentile Max Queue (ft): WB Queue at East Tunnel	50th Percentile Max Queue (ft): EB Queue at Westwood	50th Percentile Max Queue (ft): EB Queue at Right Turn to SB 195	95th Percentile Max Queue (ft): WB Queue at East Tunnel	95th Percentile Max Queue (ft): EB Queue at Westwood	95th Percentile Max Queue (ft): EB Queue at Right Turn to SB 195
Existing (2023)		--	0	6	123	126	43	19	20	8	97	57	59	114	71	73
Baseline	φ1 (2026)	--	0	12	131	138	43	25	18	16	192	218	167	244	239	190
	φ2 (2027)	--	0	12	131	137	44	25	19	16	209	215	168	238	241	181
	φ3 (2029)	--	0	12	131	138	44	25	18	17	209	211	172	243	246	192
	φ4 (2030)	--	0	12	131	138	44	25	19	16	213	207	168	251	249	195
	φ5 (2032)	--	0	12	132	138	44	25	19	16	207	211	168	235	238	187
	φ6 (2033)	--	0	12	131	138	44	25	18	16	210	217	169	244	245	189
	φ7 (2034)	--	0	12	132	138	44	25	18	16	221	217	164	270	248	183
	φ8 (2035)	--	0	12	132	138	44	25	19	16	214	222	172	256	248	185
Project Build	φ1 (2026)	--	0	14	133	142	44	26	19	17	226	254	174	268	277	204
	φ2 (2027)	--	0	15	136	143	44	27	20	18	242	262	191	300	292	208
	φ3 (2029)	--	0	16	139	148	44	29	22	19	303	282	204	340	321	225
	φ4 (2030)	--	0	22	152	165	44	37	26	22	409	361	228	465	424	251
	φ5 (2032)	--	1	40	199	257	47	74	40	24	582	847	254	619	960	277
	φ6 (2033)	Fail	6	59	255	296	70	89	46	26	652	1002	260	673	1033	286
	φ7 (2034)	Fail	37	84	332	326	130	101	49	25	669	1094	264	679	1108	283
	φ8 (2035)	Fail	81	100	376	338	170	105	50	25	671	1100	261	676	1111	282

Stage 2: Signalize Both Tunnels (including Westwood Ln Phase for West Tunnel Signal)

With EB Queue Flush Actuation

Development Phases Years: Without (Baseline) and With Project Build		Fail ? (Control Delay > LOS E)	Networkwide Results: Unserved Vehicles (Latent Demant) (veh)	Networkwide Results: Average Vehicle Delay (sec/veh)	Average Travel Time (sec): WB Thorpe from SB195 ML	Average Travel Time (sec): EB Thorpe to SB 195 ML	Average Travel Time (sec): SB 195 Through Trip	Average Control Delay (s/veh): West Tunnel & Westwood Lane	Average Control Delay (s/veh): East Tunnel	Average Control Delay (s/veh): EB RT Stop Sign to SB195	50th Percentile Max Queue (ft): WB Queue at East Tunnel	50th Percentile Max Queue (ft): EB Queue at Westwood	50th Percentile Max Queue (ft): EB Queue at Right Turn to SB 195	95th Percentile Max Queue (ft): WB Queue at East Tunnel	95th Percentile Max Queue (ft): EB Queue at Westwood	95th Percentile Max Queue (ft): EB Queue at Right Turn to SB 195
Existing (2023)		--	1	8	122	120	43	18	19	7	95	53	56	114	65	63
Baseline	φ1 (2026)	--	0	13	132	138	43	24	21	16	199	193	173	238	216	188
	φ2 (2027)	--	2	16	130	138	43	23	21	16	199	192	169	223	226	186
	φ3 (2029)	--	1	15	132	139	44	23	21	16	210	200	165	232	225	177
	φ4 (2030)	--	1	15	132	138	44	23	21	16	208	195	161	237	225	191
	φ5 (2032)	--	1	13	133	138	44	23	21	16	196	199	160	225	221	180
	φ6 (2033)	--	1	14	133	138	44	23	21	16	206	192	161	231	225	198
	φ7 (2034)	--	1	14	132	138	44	23	21	16	205	207	163	242	222	187
	φ8 (2035)	--	1	14	133	138	44	23	21	16	209	202	170	230	235	183
Project Build	φ1 (2026)	--	0	14	135	142	44	25	22	17	234	215	181	262	249	224
	φ2 (2027)	--	2	18	136	144	44	25	23	18	234	230	185	261	260	218
	φ3 (2029)	--	2	19	139	151	44	27	24	21	280	267	225	307	284	263
	φ4 (2030)	--	2	24	147	163	44	31	27	24	383	330	255	429	377	278
	φ5 (2032)	--	1	32	158	225	44	54	32	33	498	597	315	569	718	368
	φ6 (2033)	--	4	39	161	279	45	74	35	32	528	837	307	596	948	341
	φ7 (2034)	Fail	15	48	182	328	48	89	39	31	593	1052	305	643	1080	340
	φ8 (2035)	Fail	30	57	206	351	61	95	42	30	642	1103	293	667	1107	324

Stage 3: Widen East Tunnel, Keep West Tunnel signalized (including Westwood Ave Phase)

Fixed Time

Development Phases Years: Without (Baseline) and With Project Build		Fail ? (Control Delay > LOS E)	Networkwide Results		Average Travel Time (sec)			Average Control Delay (s/veh)			50th Percentile Max Queue (ft)			95th Percentile Max Queue (ft)		
			Unserved Vehicles (Latent Demant) (veh)	Average Vehicle Delay (sec/veh)	WB Thorpe from SB195 ML	EB Thorpe to SB 195 ML	SB 195 Through Trip	West Tunnel & Westwood Lane	East Tunnel	EB RT Stop Sign to SB195	WB Queue at West Tunnel	EB Queue at Westwood	EB Queue at Right Turn to SB 195	WB Queue at West Tunnel	EB Queue at Westwood	EB Queue at Right Turn to SB 195
Existing (2023)		--	0	5	113	110	43	28	0	8	93	57	61	116	71	73
Baseline	φ1 (2026)	--	0	10	116	128	43	31	0	19	200	218	208	241	239	233
	φ2 (2027)	--	0	10	117	128	43	31	0	20	203	215	213	250	241	229
	φ3 (2029)	--	0	10	117	128	44	31	0	20	205	211	211	233	246	238
	φ4 (2030)	--	0	10	117	129	44	31	0	20	215	207	214	261	249	234
	φ5 (2032)	--	0	10	118	128	44	31	0	20	210	211	215	226	238	233
	φ6 (2033)	--	0	10	117	129	44	31	0	20	209	217	212	247	245	239
	φ7 (2034)	--	0	10	117	129	44	31	0	20	207	217	211	254	248	231
	φ8 (2035)	--	0	10	117	129	44	31	1	20	220	222	209	259	248	232
Project Build	φ1 (2026)	--	0	11	118	132	44	32	1	21	236	254	236	258	272	246
	φ2 (2027)	--	0	12	119	134	44	33	1	22	252	262	244	307	292	257
	φ3 (2029)	--	0	13	120	138	44	34	1	24	295	282	256	328	321	275
	φ4 (2030)	--	0	17	126	153	44	41	2	27	395	361	283	466	421	299
	φ5 (2032)	Fail	1	35	174	244	44	82	18	30	749	847	300	873	960	316
	φ6 (2033)	Fail	6	51	239	282	56	99	34	31	1038	1004	305	1092	1029	318
	φ7 (2034)	Fail	30	76	326	312	107	112	40	31	1123	1095	306	1139	1106	316
	φ8 (2035)	Fail	72	94	382	323	156	117	43	31	1135	1102	303	1141	1109	315

Stage 3: Widen East Tunnel, Keep West Tunnel signalized (including Westwood Ave Phase)

With EB Queue Flush Actuation

			Networkwide Results		Average Travel Time (sec)			Average Control Delay (s/veh)			50th Percentile Max Queue (ft)			95th Percentile Max Queue (ft)		
Development Phases Years: Without (Baseline) and With Project Build		Fail ? (Control Delay > LOS E)	Unserved Vehicles (Latent Demant) (veh)	Average Vehicle Delay (sec/veh)	WB Thorpe from SB195 ML	EB Thorpe to SB 195 ML	SB 195 Through Trip	West Tunnel & Westwood Lane	East Tunnel	EB RT Stop Sign to SB195	WB Queue at West Tunnel	EB Queue at Westwood	EB Queue at Right Turn to SB 195	WB Queue at West Tunnel	EB Queue at Westwood	EB Queue at Right Turn to SB 195
Existing (2023)		--	1	7	111	105	43	25	0	7	93	53	54	113	65	71
Baseline	φ1 (2026)	--	0	9	115	122	43	28	0	18	197	194	197	235	216	220
	φ2 (2027)	--	2	13	115	120	44	27	0	18	198	192	192	226	227	225
	φ3 (2029)	--	1	12	115	122	44	28	0	18	203	200	193	222	225	213
	φ4 (2030)	--	1	12	116	121	44	28	0	18	208	195	191	230	225	216
	φ5 (2032)	--	1	10	116	122	44	28	0	18	205	199	198	221	221	223
	φ6 (2033)	--	1	11	116	121	44	28	0	18	203	192	194	217	225	227
	φ7 (2034)	--	1	11	116	122	44	28	0	18	198	207	202	232	222	235
	φ8 (2035)	--	1	11	116	121	44	27	0	18	204	202	206	240	235	219
Project Build	φ1 (2026)	--	0	11	117	125	44	29	1	20	228	217	223	264	249	237
	φ2 (2027)	--	2	14	117	125	44	29	1	21	250	233	222	270	266	248
	φ3 (2029)	--	1	14	119	129	44	30	1	22	282	260	245	338	297	255
	φ4 (2030)	--	1	17	126	136	44	34	2	25	383	299	263	459	346	290
	φ5 (2032)	--	1	27	149	184	44	58	9	30	600	546	300	781	676	311
	φ6 (2033)	--	3	34	163	235	44	78	15	30	766	776	297	942	943	316
	φ7 (2034)	Fail	13	44	186	290	47	98	24	31	937	1057	295	1098	1081	311
	φ8 (2035)	Fail	30	57	222	318	63	105	30	30	1071	1101	301	1108	1109	309

Stage 4: Both Tunnels Removed

Development Phases Years: Without (Baseline) and With Project Build		Fail ? (Control Delay > LOS E)	Networkwide Results		Average Travel Time (sec)			Average Control Delay (s/veh)			50th Percentile Max Queue (ft)			95th Percentile Max Queue (ft)		
			Unserved Vehicles (Latent Demant) (veh)	Average Vehicle Delay (sec/veh)	WB Thorpe from SB195 ML	EB Thorpe to SB 195 ML	SB 195 Through Trip	West Tunnel & Westwood Lane	East Tunnel	EB RT Stop Sign to SB195	WB Queue at East Tunnel	EB Queue at Westwood	EB Queue at Right Turn to SB 195	WB Queue at East Tunnel	EB Queue at Westwood	EB Queue at Right Turn to SB 195
Existing (2023)		--	0	1	87	76	43	2	0	6	0	0	44	0	0	54
Baseline	φ1 (2026)	--	0	3	88	80	43	1	0	10	0	0	110	0	3	128
	φ2 (2027)	--	0	3	88	80	43	1	0	10	0	0	113	0	1	134
	φ3 (2029)	--	0	3	88	81	44	1	0	10	0	0	122	0	2	132
	φ4 (2030)	--	0	3	88	81	44	1	0	10	0	0	118	0	2	140
	φ5 (2032)	--	0	3	88	80	44	1	0	10	0	0	112	0	4	136
	φ6 (2033)	--	0	3	88	81	44	1	0	10	0	0	115	0	2	132
	φ7 (2034)	--	0	3	88	81	44	1	0	10	0	0	111	0	2	130
	φ8 (2035)	--	0	3	88	81	44	1	0	10	0	0	110	0	5	133
Project Build	φ1 (2026)	--	0	3	88	81	44	1	0	11	0	0	121	0	2	145
	φ2 (2027)	--	0	3	88	82	44	1	0	12	0	0	131	0	7	146
	φ3 (2029)	--	0	3	88	83	44	1	0	13	0	0	150	0	2	168
	φ4 (2030)	--	0	4	88	87	44	1	0	17	0	2	180	0	8	225
	φ5 (2032)	--	0	6	89	100	44	1	0	30	0	1	287	0	10	365
	φ6 (2033)	--	0	8	89	114	44	1	1	41	0	3	385	0	15	478
	φ7 (2034)	Fail	0	14	89	160	44	2	9	65	0	5	637	0	19	789
	φ8 (2035)	Fail	0	22	89	216	44	11	19	77	0	43	1015	0	117	1114

*Note** EB RT stop sign is obsolete once J-Turn on SB 195 is removed*

Appendix I: Regional Improvement Review

Detailed Traffic Volume Shift Descriptions.

1. **Thorpe to I-90E** – Assumed to be 60% of J-turn movement. Percentage assumed consistent with distribution provided by City with remaining 40% assumed Thorpe to Thorpe in shift #2. Note J-turn volumes assumed to be from Thorpe given 16th Avenue currently allows eastbound left-turn movement today; therefore, not assumed to be contributing to j-turn movement. Additionally, per distribution from City, I-90 westbound did not use US 195 and therefore not assumed contributing to J-turn.
2. **Thorpe to Thorpe** – Assumed to be 40% of J-turn movement. Percentage assumed consistent with distribution provided by City with remaining 60% assumed Thorpe to Thorpe in shift #1. Note J-turn volumes assumed to be from Thorpe given 16th Avenue currently allows eastbound left-turn movement today; therefore, not assumed to be contributing to j-turn movement. Additionally, per distribution from City, I-90 westbound did not use US 195 and therefore not assumed contributing to J-turn.
3. **Project to I-90E** – Under the mitigated condition, project trips to I-90 eastbound (outbound from the project) assumed to be assigned equally via US 195 (previously assumed path), Lindeke St, and via the Grove St on-ramp recognizing congestion of alternative routes.
4. **Canyon Bluffs to I-90E** – This pipeline distribution was assumed to have the same distribution as the project given its proximity and direction of distribution from the City. The changes identified per shift #3 for the project were also assumed for the Canyon Bluffs pipeline development project.
5. **Closure of Northbound Left-Turn** – This movement was split between using the north J-turn to Thorpe connecting to the Lindeke St Extension and continuing past 16th Avenue to I-90 westbound and Assembly Rd.
6. **Closure of Southbound Right-Turn** – This movement was shifted to continue past 16th Avenue to use Thorpe to the Lindeke St Extension.
7. **Closure of Eastbound Right-Turn** – This movement was shifted to use the Lindeke Street to Thorpe connection to connect to US 195.
8. **Inbound Project Trips at Government/Sunset** – The inbound project trips that were assigned through the Government Way/Sunset Boulevard intersection to Assembly Road were shifted to utilize the Lindeke Street extension.
9. **Outbound Project Trips at Government/Sunset** – The outbound project trips that were assigned through the Government Way/Sunset Boulevard intersection via Assembly Road were shifted to utilize the Lindeke Street extension.
10. **Trips at Government/Sunset** – Background project trips assumed to be to/from the Government Way/Sunset Boulevard intersection and Thorpe Road were shifted to use the Lindeke extension. The volumes were estimated assuming 25 percent of trips between Thorpe/Assembly were directed toward the Government Way/Sunset Boulevard intersection.
11. **Project Trips no longer using Inland Empire** – The project trips assumed to use Inland Empire extension were shifted to use the Lindeke extension.
12. **Inland Empire to North J-Turn** – Westbound trips from Inland Empire to Thorpe via the north J-turn were shifted to use the Lindeke Street Extension. This shift assumed 50% of the westbound right-turn from Inland Empire was directed from Downtown (consistent with project distribution as provided by City staff) and so shifted to Lindeke.

Background Shifts

50% of WBR from Inland Empire assumed to be from Downtown and so shifted to Lindeke (consistent with project distribution)

25% of background trips currently to/from Thorpe/Assembly assumed to use the alternate route.

Shift considered but not assumed.

NBL - 50% to j-turn, 50% to I-90 WB
EBR - to Thorpe
SBL - to Thorpe

Closure of west leg of 16th Ave

Re-distribution of project trips

J-turn closure

Assumed that 2/3 of J-turn associated with those going from Thorpe to I-90 EB, consistent with distribution of project. The remaining 1/3 assumed Thorpe to Inland Empire Way. All j-turn assumed per Thorpe as 16th left-turn allowed movement today.

Shifted Route | Non-Shifted Route | X Shifted Route #

Lindeke Street Extension Routes

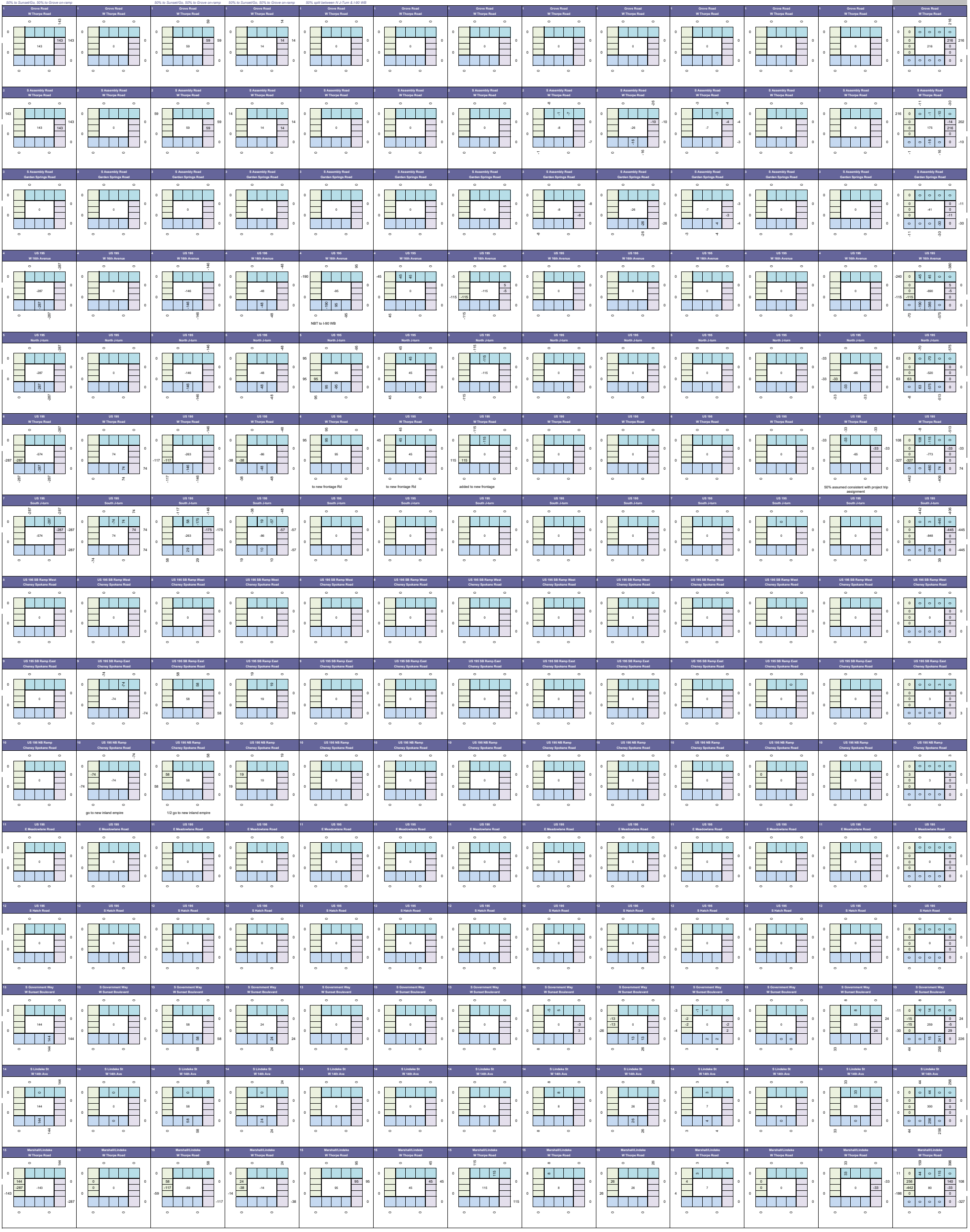
Blue Fern Victory Heights

transpogroup

APPENDIX
I-1

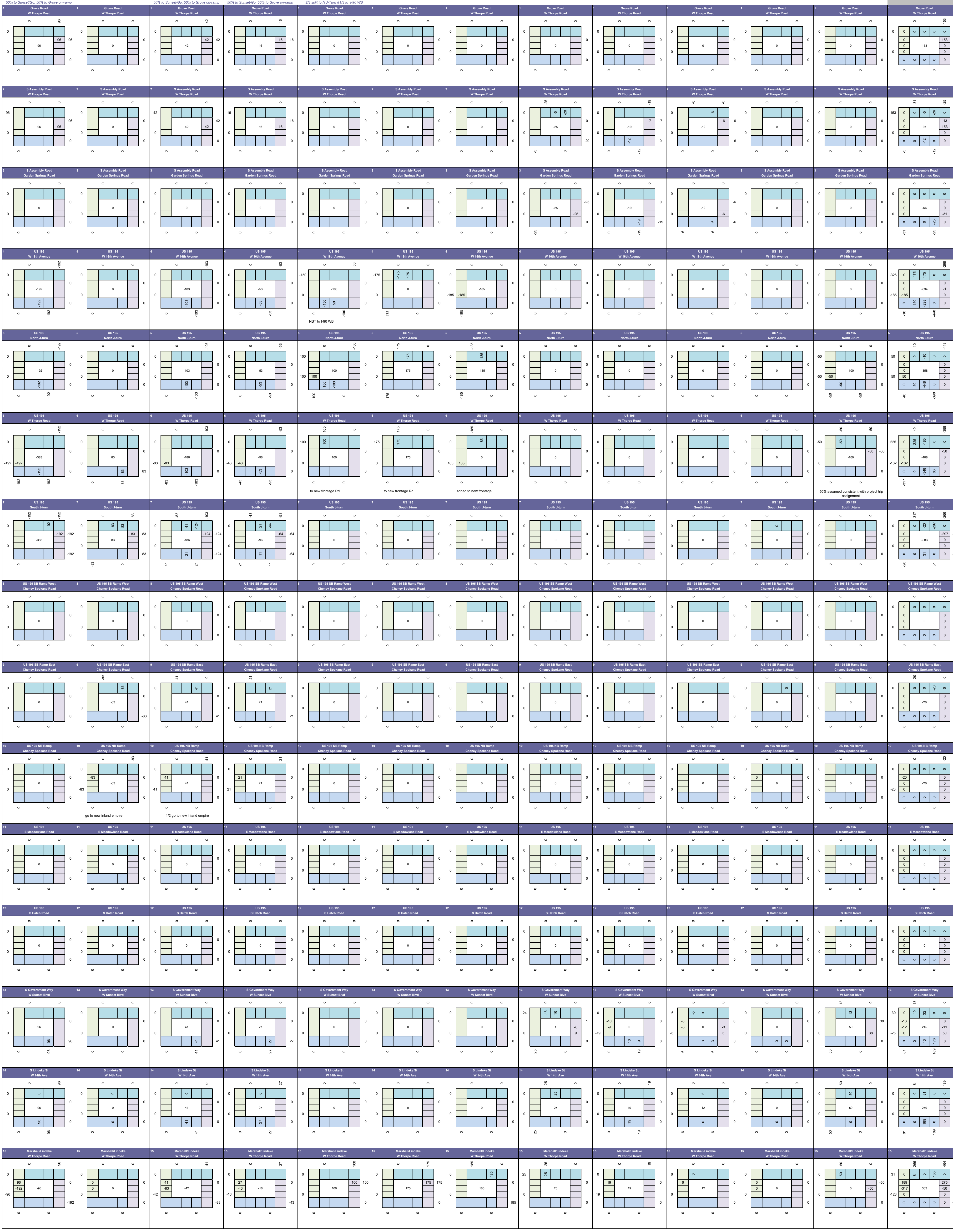
Lindeke Extension Detailed Weekday AM Peak Hour Traffic Volume Shifts

Background Shift #1	Background Shift #2	Background Shift #3	Background Shift #4	Background Shift #5	Background Shift #6	Background Shift #7	Background Shift #8	Background Shift #9	Background Shift #10	Background Shift #11	Background Shift #12	Sum of shifts
Thorpe to I-90E	Thorpe to Thorpe	Project to I-90E	Canyon Bluff to I-90E	16th NBL	16th SBR	16th EBR/WBT	SB Adjust (Project inbound Gov)	NB Adjust (Project outbound Gov)	Thorpe (adjust from int 2)	empire inland (project)	not inland empire and j-turn to Thorpe	
50% to Sunset/Go. 50% to Grove on-ramp		2/3 shifted - 1/3 to each path 50% to Sunset/Go. 50% to Grove on-ramp	50% to Sunset/Go. 50% to Grove on-ramp	50% split between N J-Turn & I-90 WB								



Lindeke Extension Detailed Weekday PM Peak Hour Traffic Volume Shifts

Background Shift #1	Background Shift #2	Background Shift #3	Background Shift #4	Background Shift #5	Background Shift #6	Background Shift #7	Background Shift #8	Background Shift #9	Background Shift #10	Background Shift #11	Background Shift #12	Sum of shifts
Thorpe to I-90E	Thorpe to Thorpe	Project to I-90E	Canyon Bluff to I-90E	16th NBL	16th SBR	16th EBR	SB Adjust (Project inbound Gov)	NB Adjust (Project outbound Gov)	Thorpe (adjust from int 2)	empire inland (project)	not inland empire and j-turn to Thorpe	
50% to Sunset/Go, 50% to Grove on-ramp		*2/3 shifted - 1/3 to each path* *50% to Sunset/Go, 50% to Grove on-ramp*	*50% to Sunset/Go, 50% to Grove on-ramp*	*2/3 split to N J-Turn &1/3 to I-90 WB*								



MOVEMENT SUMMARY

Site: 1 [Grove Rd & Thorpe Rd Future Baseline AM - MIT (Site Folder: With Lindeke Extension - without-project)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

2035 Future WP - MIT AM
Site Category: Victory Heights
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: Grove Rd															
3	L2	All MCs	5	7.0	5	7.0	0.432	12.8	LOS B	2.3	61.3	0.59	0.62	0.61	33.7
8	T1	All MCs	324	7.0	324	7.0	0.432	7.0	LOS A	2.3	61.3	0.59	0.62	0.61	34.4
18	R2	All MCs	49	7.0	49	7.0	0.432	6.8	LOS A	2.3	61.3	0.59	0.62	0.61	34.1
Approach			379	7.0	379	7.0	0.432	7.0	LOS A	2.3	61.3	0.59	0.62	0.61	34.4
East: Thorpe Rd															
1	L2	All MCs	22	10.0	22	10.0	0.398	14.2	LOS B	2.2	58.4	0.67	0.72	0.70	33.1
6	T1	All MCs	16	10.0	16	10.0	0.398	8.3	LOS A	2.2	58.4	0.67	0.72	0.70	33.9
16	R2	All MCs	254	10.0	254	10.0	0.398	8.2	LOS A	2.2	58.4	0.67	0.72	0.70	33.6
Approach			292	10.0	292	10.0	0.398	8.6	LOS A	2.2	58.4	0.67	0.72	0.70	33.6
North: Grove Rd															
7	L2	All MCs	159	11.0	159	11.0	0.211	10.2	LOS B	1.0	28.4	0.17	0.55	0.17	33.4
4	T1	All MCs	225	11.0	225	11.0	0.211	4.3	LOS A	1.1	28.7	0.17	0.47	0.17	35.1
14	R2	All MCs	148	11.0	148	11.0	0.211	4.4	LOS A	1.1	28.7	0.17	0.41	0.17	35.4
Approach			533	11.0	533	11.0	0.211	6.1	LOS A	1.1	28.7	0.17	0.48	0.17	34.7
West: Thorpe Rd															
5	L2	All MCs	286	6.0	286	6.0	0.305	11.6	LOS B	1.2	31.0	0.45	0.71	0.45	32.0
2	T1	All MCs	5	6.0	5	6.0	0.305	5.8	LOS A	1.2	31.0	0.45	0.71	0.45	32.7
Approach			291	6.0	291	6.0	0.305	11.5	LOS B	1.2	31.0	0.45	0.71	0.45	32.0
All Vehicles			1496	8.8	1496	8.8	0.432	7.9	LOS A	2.3	61.3	0.43	0.60	0.44	33.8

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
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.

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	45	5	45	181	11	30	35	30	7	40	25
Future Vol, veh/h	3	45	5	45	181	11	30	35	30	7	40	25
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	0	0	0	2	2	2	10	10	10
Mvmt Flow	3	49	5	49	197	12	33	38	33	8	43	27
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, s/veh	8	9.5	8.4	8.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	32%	6%	19%	10%
Vol Thru, %	37%	85%	76%	56%
Vol Right, %	32%	9%	5%	35%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	95	53	237	72
LT Vol	30	3	45	7
Through Vol	35	45	181	40
RT Vol	30	5	11	25
Lane Flow Rate	103	58	258	78
Geometry Grp	1	1	1	1
Degree of Util (X)	0.133	0.073	0.315	0.103
Departure Headway (Hd)	4.629	4.575	4.409	4.732
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	774	782	817	757
Service Time	2.657	2.606	2.433	2.762
HCM Lane V/C Ratio	0.133	0.074	0.316	0.103
HCM Control Delay, s/veh	8.4	8	9.5	8.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	0.2	1.4	0.3

Intersection	
Int Delay, s/veh	2.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	115	10	42	255	5	96
Future Vol, veh/h	115	10	42	255	5	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	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	8	8	2	2	1	1
Mvmt Flow	122	11	45	271	5	102

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	133	0	489	128
Stage 1	-	-	-	-	128	-
Stage 2	-	-	-	-	361	-
Critical Hdwy	-	-	4.12	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.218	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1452	-	540	925
Stage 1	-	-	-	-	900	-
Stage 2	-	-	-	-	707	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1452	-	521	925
Mov Cap-2 Maneuver	-	-	-	-	521	-
Stage 1	-	-	-	-	900	-
Stage 2	-	-	-	-	682	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	1.1	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	891	-	-	1452	-
HCM Lane V/C Ratio	0.121	-	-	0.031	-
HCM Control Delay (s/veh)	9.6	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q (veh)	0.4	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	1	0	30	0	1120	1	10	585	0
Future Vol, veh/h	0	0	0	1	0	30	0	1120	1	10	585	0
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	-	-	0	-	-	-	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0	1	1	1	5	5	5
Mvmt Flow	0	0	0	1	0	32	0	1191	1	11	622	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	311	1525	1836	596	622	0	0	1192	0	0
Stage 1	-	-	-	1192	1192	-	-	-	-	-	-	-
Stage 2	-	-	-	333	644	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	7.5	6.5	6.9	4.12	-	-	4.2	-	-
Critical Hdwy Stg 1	-	-	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	3.5	4	3.3	2.21	-	-	2.25	-	-
Pot Cap-1 Maneuver	0	0	691	82	77	452	962	-	-	565	-	-
Stage 1	0	0	-	202	263	-	-	-	-	-	-	-
Stage 2	0	0	-	660	471	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	691	81	76	452	962	-	-	565	-	-
Mov Cap-2 Maneuver	-	-	-	81	76	-	-	-	-	-	-	-
Stage 1	-	-	-	202	263	-	-	-	-	-	-	-
Stage 2	-	-	-	647	462	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	15	0	0.2
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	962	-	-	-	394	565	-	-
HCM Lane V/C Ratio	-	-	-	-	0.084	0.019	-	-
HCM Control Delay (s/veh)	0	-	-	0	15	11.5	-	-
HCM Lane LOS	A	-	-	A	C	B	-	-
HCM 95th %tile Q (veh)	0	-	-	-	0.3	0.1	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	203	203	1155	780	0
Future Vol, veh/h	0	203	203	1155	780	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	-	0	450	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	8	8
Mvmt Flow	0	218	218	1242	839	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	420	839	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	0	582	791	-	-	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	582	791	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	14.9	1.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT
Capacity (veh/h)	791	-	582	-
HCM Lane V/C Ratio	0.276	-	0.375	-
HCM Control Delay (s/veh)	11.3	-	14.9	-
HCM Lane LOS	B	-	B	-
HCM 95th %tile Q (veh)	1.1	-	1.7	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	204	0	0	28	0	1325	210	0	660	263
Future Vol, veh/h	0	0	204	0	0	28	0	1325	210	0	660	263
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	-	-	Stop	-	-	None	-	-	Free
Storage Length	-	-	0	-	-	0	-	-	150	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	10	10	10	1	1	1	8	8	8
Mvmt Flow	0	0	217	0	0	30	0	1410	223	0	702	280

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	351	-	-	705	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	-	-	7.1	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	-	-	3.4	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	645	0	0	361	0	-	-	0	-	0
Stage 1	0	0	-	0	0	-	0	-	-	0	-	0
Stage 2	0	0	-	0	0	-	0	-	-	0	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	-	-	645	-	-	361	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	13.4	15.9	0	0
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT
Capacity (veh/h)	-	-	645	361	-
HCM Lane V/C Ratio	-	-	0.336	0.083	-
HCM Control Delay (s/veh)	-	-	13.4	15.9	-
HCM Lane LOS	-	-	B	C	-
HCM 95th %tile Q (veh)	-	-	1.5	0.3	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	1620	0	0	849
Future Vol, veh/h	0	0	1620	0	0	849
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	-	-	450	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	1	1	4	4
Mvmt Flow	0	0	1723	0	0	903

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	862	0	-	1723	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	4.6	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	2.24	-
Pot Cap-1 Maneuver	0	302	-	0	290	-
Stage 1	0	-	-	0	-	-
Stage 2	0	-	-	0	-	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	302	-	-	290	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	290	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s/veh)	-	0	0	-
HCM Lane LOS	-	A	A	-
HCM 95th %tile Q (veh)	-	-	0	-

Intersection	
Int Delay, s/veh	3.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	115	0	0	925	0	275
Future Vol, veh/h	115	0	0	925	0	275
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Free	-	None
Storage Length	0	-	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	0	2	2	8	8
Mvmt Flow	140	0	0	1128	0	335

Major/Minor	Minor1			Major2	
Conflicting Flow All	335	-		-	-
Stage 1	0	-		-	-
Stage 2	335	-		-	-
Critical Hdwy	6.4	-		-	-
Critical Hdwy Stg 1	-	-		-	-
Critical Hdwy Stg 2	5.4	-		-	-
Follow-up Hdwy	3.5	-		-	-
Pot Cap-1 Maneuver	664	0		0	-
Stage 1	-	0		0	-
Stage 2	729	0		0	-
Platoon blocked, %					-
Mov Cap-1 Maneuver	664	-		-	-
Mov Cap-2 Maneuver	664	-		-	-
Stage 1	-	-		-	-
Stage 2	729	-		-	-

Approach	WB	SB
HCM Control Delay, s/v	11.9	0
HCM LOS	B	

Minor Lane/Major Mvmt	WBLn1	SBT
Capacity (veh/h)	664	-
HCM Lane V/C Ratio	0.211	-
HCM Control Delay (s/veh)	11.9	-
HCM Lane LOS	B	-
HCM 95th %tile Q (veh)	0.8	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	845	75	5	115	0	0	0	0	59	0	0
Future Vol, veh/h	0	845	75	5	115	0	0	0	0	59	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	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	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	0	0	0	0	0	0	12	12	12
Mvmt Flow	0	929	82	5	126	0	0	0	0	65	0	0

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	1011	0	0	1106	1147	126
Stage 1	-	-	-	-	-	-	136	136	-
Stage 2	-	-	-	-	-	-	970	1011	-
Critical Hdwy	-	-	-	4.1	-	-	6.52	6.62	6.32
Critical Hdwy Stg 1	-	-	-	-	-	-	5.52	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.52	5.62	-
Follow-up Hdwy	-	-	-	2.2	-	-	3.608	4.108	3.408
Pot Cap-1 Maneuver	0	-	-	694	-	0	223	191	898
Stage 1	0	-	-	-	-	0	866	765	-
Stage 2	0	-	-	-	-	0	353	305	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	694	-	-	221	0	898
Mov Cap-2 Maneuver	-	-	-	-	-	-	221	0	-
Stage 1	-	-	-	-	-	-	866	0	-
Stage 2	-	-	-	-	-	-	350	0	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0	0.4	27.9
HCM LOS			D

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	694	-	221
HCM Lane V/C Ratio	-	-	0.008	-	0.293
HCM Control Delay (s/veh)	-	-	10.2	0	27.9
HCM Lane LOS	-	-	B	A	D
HCM 95th %tile Q (veh)	-	-	0	-	1.2

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰						↰				
Traffic Vol, veh/h	0	889	0	0	0	0	125	5	0	0	0	0
Future Vol, veh/h	0	889	0	0	0	0	125	5	0	0	0	0
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	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	0	0	0	3	3	3	0	0	0
Mvmt Flow	0	977	0	0	0	0	137	5	0	0	0	0

Major/Minor	Major1			Minor1		
Conflicting Flow All	0	0	-	977	977	-
Stage 1	-	-	-	977	977	-
Stage 2	-	-	-	0	0	-
Critical Hdwy	4.12	-	-	6.43	6.53	-
Critical Hdwy Stg 1	-	-	-	5.43	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.218	-	-	3.527	4.027	-
Pot Cap-1 Maneuver	-	-	0	277	250	0
Stage 1	-	-	0	363	328	0
Stage 2	-	-	0	-	-	0
Platoon blocked, %		-				
Mov Cap-1 Maneuver	-	-	-	277	0	-
Mov Cap-2 Maneuver	-	-	-	277	0	-
Stage 1	-	-	-	363	0	-
Stage 2	-	-	-	-	0	-

Approach	EB	NB
HCM Control Delay, s/v	0	31.1
HCM LOS		D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT
Capacity (veh/h)	277	-	-
HCM Lane V/C Ratio	0.516	-	-
HCM Control Delay (s/veh)	31.1	0	-
HCM Lane LOS	D	A	-
HCM 95th %tile Q (veh)	2.7	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	25	970	1	10	745
Future Vol, veh/h	0	25	970	1	10	745
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	-	-	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	11	11	3	3	10	10
Mvmt Flow	0	28	1078	1	11	828

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	540	0	0	1079	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.12	-	-	4.3	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.41	-	-	2.3	-
Pot Cap-1 Maneuver	0	464	-	-	597	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	464	-	-	597	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	13.3	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	464	597	-
HCM Lane V/C Ratio	-	-	0.06	0.019	-
HCM Control Delay (s/veh)	-	-	13.3	11.1	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q (veh)	-	-	0.2	0.1	-

Intersection	
Int Delay, s/veh	8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	430	515	115	345	390
Future Vol, veh/h	2	430	515	115	345	390
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	-	-	375	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	1	1	3	3	8	8
Mvmt Flow	2	473	566	126	379	429

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1602	346	0	0	692	0
Stage 1	629	-	-	-	-	-
Stage 2	973	-	-	-	-	-
Critical Hdwy	6.82	6.92	-	-	4.26	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.51	3.31	-	-	2.28	-
Pot Cap-1 Maneuver	97	653	-	-	860	-
Stage 1	496	-	-	-	-	-
Stage 2	329	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	54	653	-	-	860	-
Mov Cap-2 Maneuver	54	-	-	-	-	-
Stage 1	496	-	-	-	-	-
Stage 2	184	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	23.6	0	5.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	653	860	-
HCM Lane V/C Ratio	-	-	0.724	0.441	-
HCM Control Delay (s/veh)	-	-	23.6	12.4	-
HCM Lane LOS	-	-	C	B	-
HCM 95th %tile Q (veh)	-	-	6.2	2.3	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	478	20	73	293	255	20	132	217	260	68	139
Future Volume (veh/h)	48	478	20	73	293	255	20	132	217	260	68	139
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	1841	1841	1841	1826	1826	1826	1870	1870	1870	1856	1856	1856
Adj Flow Rate, veh/h	52	520	22	79	318	277	22	143	236	283	74	151
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	5	5	5	2	2	2	3	3	3
Cap, veh/h	281	605	513	118	820	366	491	708	631	397	702	626
Arrive On Green	0.16	0.33	0.33	0.07	0.24	0.24	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	1753	1841	1560	1739	3469	1547	1156	1777	1585	996	1763	1572
Grp Volume(v), veh/h	52	520	22	79	318	277	22	143	236	283	74	151
Grp Sat Flow(s),veh/h/ln	1753	1841	1560	1739	1735	1547	1156	1777	1585	996	1763	1572
Q Serve(g_s), s	1.8	18.2	0.7	3.1	5.3	11.5	0.9	3.6	7.2	19.3	1.8	4.4
Cycle Q Clear(g_c), s	1.8	18.2	0.7	3.1	5.3	11.5	5.3	3.6	7.2	26.5	1.8	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	281	605	513	118	820	366	491	708	631	397	702	626
V/C Ratio(X)	0.19	0.86	0.04	0.67	0.39	0.76	0.04	0.20	0.37	0.71	0.11	0.24
Avail Cap(c_a), veh/h	395	803	680	392	1513	675	491	708	631	397	702	626
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	25.0	21.6	15.7	31.3	22.1	24.4	15.5	13.5	14.6	24.0	13.0	13.8
Incr Delay (d2), s/veh	0.3	7.3	0.0	6.4	0.3	3.2	0.0	0.1	0.4	6.0	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	0.7	8.4	0.2	1.4	2.1	4.3	0.2	1.4	2.5	4.9	0.7	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	25.3	28.9	15.8	37.7	22.4	27.7	15.6	13.7	15.0	30.0	13.1	14.0
LnGrp LOS	C	C	B	D	C	C	B	B	B	C	B	B
Approach Vol, veh/h		594			674			401			508	
Approach Delay, s/veh		28.1			26.3			14.6			22.7	
Approach LOS		C			C			B			C	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		32.0	9.2	27.6		32.0	15.5	21.3				
Change Period (Y+Rc), s		4.6	4.5	5.0		4.6	4.5	5.0				
Max Green Setting (Gmax), s		27.4	15.5	30.0		27.4	15.5	30.0				
Max Q Clear Time (g_c+I1), s		9.2	5.1	20.2		28.5	3.8	13.5				
Green Ext Time (p_c), s		2.3	0.1	2.4		0.0	0.1	2.8				

Intersection Summary												
HCM 6th Ctrl Delay, s/veh			23.8									
HCM 6th LOS			C									

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	85	0	50	0	0	5	10	264	0	1	131	30
Future Vol, veh/h	85	0	50	0	0	5	10	264	0	1	131	30
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, %	2	2	2	0	0	0	0	0	0	2	2	2
Mvmt Flow	92	0	54	0	0	5	11	287	0	1	142	33

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	473	470	159	497	486	287	175	0	0	287	0	0
Stage 1	161	161	-	309	309	-	-	-	-	-	-	-
Stage 2	312	309	-	188	177	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.1	6.5	6.2	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.5	4	3.3	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	501	492	886	487	484	757	1414	-	-	1275	-	-
Stage 1	841	765	-	705	663	-	-	-	-	-	-	-
Stage 2	699	660	-	818	756	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	493	487	886	454	479	757	1414	-	-	1275	-	-
Mov Cap-2 Maneuver	493	487	-	454	479	-	-	-	-	-	-	-
Stage 1	833	764	-	699	657	-	-	-	-	-	-	-
Stage 2	688	654	-	767	755	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	13.1	9.8	0.3	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1414	-	-	590	757	1275	-	-
HCM Lane V/C Ratio	0.008	-	-	0.249	0.007	0.001	-	-
HCM Control Delay (s/veh)	7.6	0	-	13.1	9.8	7.8	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q (veh)	0	-	-	1	0	0	-	-

MOVEMENT SUMMARY

Site: 15 [Thorpe Rd / Lindeke Connection / Marshall Rd - Baseline - AM - MIT (Site Folder: With Lindeke Extension - without-project)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

2035 Future WP - MIT AM
Site Category: MIT
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: Marshall Rd															
3	L2	All MCs	16	0.0	16	0.0	0.017	10.8	LOS B	0.1	1.9	0.39	0.61	0.39	32.7
8	T1	All MCs	1	0.0	1	0.0	0.017	4.9	LOS A	0.1	1.9	0.39	0.61	0.39	33.4
18	R2	All MCs	2	0.0	2	0.0	0.017	4.9	LOS A	0.1	1.9	0.39	0.61	0.39	33.1
Approach			20	0.0	20	0.0	0.017	9.8	LOS A	0.1	1.9	0.39	0.61	0.39	32.8
East: Thorpe Rd															
1	L2	All MCs	5	5.0	5	5.0	0.225	10.3	LOS B	1.1	29.8	0.27	0.44	0.27	34.9
6	T1	All MCs	130	5.0	130	5.0	0.225	4.3	LOS A	1.1	29.8	0.27	0.44	0.27	35.8
16	R2	All MCs	154	5.0	154	5.0	0.225	4.4	LOS A	1.1	29.8	0.27	0.44	0.27	35.4
Approach			289	5.0	289	5.0	0.225	4.5	LOS A	1.1	29.8	0.27	0.44	0.27	35.6
North: Lindeke Connection															
7	L2	All MCs	126	4.0	126	4.0	0.128	10.4	LOS B	0.6	15.5	0.30	0.60	0.30	32.9
4	T1	All MCs	1	4.0	1	4.0	0.128	4.4	LOS A	0.6	15.5	0.30	0.60	0.30	33.6
14	R2	All MCs	34	4.0	34	4.0	0.128	4.5	LOS A	0.6	15.5	0.30	0.60	0.30	33.3
Approach			162	4.0	162	4.0	0.128	9.1	LOS A	0.6	15.5	0.30	0.60	0.30	33.0
West: Thorpe Rd															
5	L2	All MCs	92	5.0	92	5.0	0.152	10.4	LOS B	0.7	19.0	0.29	0.54	0.29	33.7
2	T1	All MCs	98	5.0	98	5.0	0.152	4.4	LOS A	0.7	19.0	0.29	0.54	0.29	34.5
12	R2	All MCs	1	5.0	1	5.0	0.152	4.5	LOS A	0.7	19.0	0.29	0.54	0.29	34.1
Approach			191	5.0	191	5.0	0.152	7.3	LOS A	0.7	19.0	0.29	0.54	0.29	34.1
All Vehicles			662	4.6	662	4.6	0.225	6.6	LOS A	1.1	29.8	0.29	0.51	0.29	34.4

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
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: 1 [Grove Rd & Thorpe Rd Future Baseline PM - MIT (Site Folder: With Lindeke Extension - without-project)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

2035 Future WP -MIT PM
Site Category: Victory Heights
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: Grove Rd															
3	L2	All MCs	2	3.0	2	3.0	0.229	11.6	LOS B	1.0	26.8	0.47	0.54	0.47	34.2
8	T1	All MCs	198	3.0	198	3.0	0.229	5.8	LOS A	1.0	26.8	0.47	0.54	0.47	34.9
18	R2	All MCs	22	3.0	22	3.0	0.229	5.7	LOS A	1.0	26.8	0.47	0.54	0.47	34.6
Approach			222	3.0	222	3.0	0.229	5.9	LOS A	1.0	26.8	0.47	0.54	0.47	34.9
East: Thorpe Rd															
1	L2	All MCs	49	4.0	49	4.0	0.408	12.4	LOS B	2.1	55.2	0.57	0.64	0.57	34.0
6	T1	All MCs	16	4.0	16	4.0	0.408	6.6	LOS A	2.1	55.2	0.57	0.64	0.57	34.7
16	R2	All MCs	312	4.0	312	4.0	0.408	6.4	LOS A	2.1	55.2	0.57	0.64	0.57	34.4
Approach			378	4.0	378	4.0	0.408	7.2	LOS A	2.1	55.2	0.57	0.64	0.57	34.4
North: Grove Rd															
7	L2	All MCs	126	7.0	126	7.0	0.259	10.2	LOS B	1.3	35.4	0.22	0.50	0.22	34.0
4	T1	All MCs	280	7.0	280	7.0	0.259	4.4	LOS A	1.4	35.8	0.22	0.48	0.22	35.0
14	R2	All MCs	264	7.0	264	7.0	0.259	4.4	LOS A	1.4	35.8	0.21	0.43	0.21	35.4
Approach			670	7.0	670	7.0	0.259	5.5	LOS A	1.4	35.8	0.22	0.46	0.22	35.0
West: Thorpe Rd															
5	L2	All MCs	264	3.0	264	3.0	0.293	11.6	LOS B	1.2	30.6	0.47	0.71	0.47	32.2
2	T1	All MCs	16	3.0	16	3.0	0.293	5.8	LOS A	1.2	30.6	0.47	0.71	0.47	32.8
12	R2	All MCs	5	3.0	5	3.0	0.293	5.7	LOS A	1.2	30.6	0.47	0.71	0.47	32.6
Approach			286	3.0	286	3.0	0.293	11.2	LOS B	1.2	30.6	0.47	0.71	0.47	32.3
All Vehicles			1556	5.0	1556	5.0	0.408	7.0	LOS A	2.1	55.2	0.39	0.56	0.39	34.3

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
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.

Intersection	
Intersection Delay, s/veh	9.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	160	5	45	114	19	15	35	35	19	90	25
Future Vol, veh/h	15	160	5	45	114	19	15	35	35	19	90	25
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	2	2	2
Mvmt Flow	18	195	6	55	139	23	18	43	43	23	110	30
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, s/veh	9.9	9.9	8.9	9.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	18%	8%	25%	14%
Vol Thru, %	41%	89%	64%	67%
Vol Right, %	41%	3%	11%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	85	180	178	134
LT Vol	15	15	45	19
Through Vol	35	160	114	90
RT Vol	35	5	19	25
Lane Flow Rate	104	220	217	163
Geometry Grp	1	1	1	1
Degree of Util (X)	0.143	0.295	0.291	0.228
Departure Headway (Hd)	4.954	4.831	4.821	5.027
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	715	738	738	708
Service Time	3.042	2.903	2.894	3.107
HCM Lane V/C Ratio	0.145	0.298	0.294	0.23
HCM Control Delay, s/veh	8.9	9.9	9.9	9.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	1.2	1.2	0.9

Intersection	
Int Delay, s/veh	4.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	165	15	184	130	5	84
Future Vol, veh/h	165	15	184	130	5	84
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	89	89	89	89
Heavy Vehicles, %	2	2	1	1	0	0
Mvmt Flow	185	17	207	146	6	94

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	202	0	754	194
Stage 1	-	-	-	-	194	-
Stage 2	-	-	-	-	560	-
Critical Hdwy	-	-	4.11	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.209	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1376	-	380	853
Stage 1	-	-	-	-	844	-
Stage 2	-	-	-	-	576	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1376	-	318	853
Mov Cap-2 Maneuver	-	-	-	-	318	-
Stage 1	-	-	-	-	844	-
Stage 2	-	-	-	-	482	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	4.7	10.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	779	-	-	1376	-
HCM Lane V/C Ratio	0.128	-	-	0.15	-
HCM Control Delay (s/veh)	10.3	-	-	8.1	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q (veh)	0.4	-	-	0.5	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	5	0	15	0	549	5	45	1665	0
Future Vol, veh/h	0	0	0	5	0	15	0	549	5	45	1665	0
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	-	-	0	-	-	-	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	0	0	0	2	2	2	1	1	1
Mvmt Flow	0	0	0	5	0	15	0	566	5	46	1716	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	858	1519	2377	286	1716	0	0	571	0	0
Stage 1	-	-	-	569	569	-	-	-	-	-	-	-
Stage 2	-	-	-	950	1808	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	7.5	6.5	6.9	4.14	-	-	4.12	-	-
Critical Hdwy Stg 1	-	-	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	3.5	4	3.3	2.22	-	-	2.21	-	-
Pot Cap-1 Maneuver	0	0	304	83	35	717	365	-	-	1005	-	-
Stage 1	0	0	-	479	509	-	-	-	-	-	-	-
Stage 2	0	0	-	283	132	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	304	80	33	717	365	-	-	1005	-	-
Mov Cap-2 Maneuver	-	-	-	80	33	-	-	-	-	-	-	-
Stage 1	-	-	-	479	509	-	-	-	-	-	-	-
Stage 2	-	-	-	270	126	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	21.4	0	0.2
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	365	-	-	-	240	1005	-	-
HCM Lane V/C Ratio	-	-	-	-	0.086	0.046	-	-
HCM Control Delay (s/veh)	0	-	-	0	21.4	8.8	-	-
HCM Lane LOS	A	-	-	A	C	A	-	-
HCM 95th %tile Q (veh)	0	-	-	-	0.3	0.1	-	-

Intersection	
Int Delay, s/veh	8.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	200	200	669	1885	0
Future Vol, veh/h	0	200	200	669	1885	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	-	0	450	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	3	3	1	1
Mvmt Flow	0	213	213	712	2005	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	1003	2005	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	4.16	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	2.23	-	-	-
Pot Cap-1 Maneuver	0	244	278	-	-	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	244	278	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	72.3	11.6	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT
Capacity (veh/h)	278	-	244	-
HCM Lane V/C Ratio	0.765	-	0.872	-
HCM Control Delay (s/veh)	50.3	-	72.3	-
HCM Lane LOS	F	-	F	-
HCM 95th %tile Q (veh)	5.7	-	7.2	-

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	0	0	340	0	0	35	0	834	157	0	1530	480
Future Vol, veh/h	0	0	340	0	0	35	0	834	157	0	1530	480
Conflicting Peds, #/hr	3	0	0	0	0	3	0	0	0	3	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Stop	-	-	None	-	-	Free
Storage Length	-	-	0	-	-	0	-	-	150	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0	3	3	3	1	1	1
Mvmt Flow	0	0	362	0	0	37	0	887	167	0	1628	511

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	814	-	-	447	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	~ 325	0	0	564	0	-	-	0	-	0
Stage 1	0	0	-	0	0	-	0	-	-	0	-	0
Stage 2	0	0	-	0	0	-	0	-	-	0	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	-	-	~ 325	-	-	562	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	120.2	11.9	0	0
HCM LOS	F	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT
Capacity (veh/h)	-	-	325	562	-
HCM Lane V/C Ratio	-	-	1.113	0.066	-
HCM Control Delay (s/veh)	-	-	120.2	11.9	-
HCM Lane LOS	-	-	F	B	-
HCM 95th %tile Q (veh)	-	-	14.2	0.2	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	1031	0	0	1860
Future Vol, veh/h	0	0	1031	0	0	1860
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	-	-	450	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	2	2	1	1
Mvmt Flow	0	0	1158	0	0	2090

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	579	0	-	1158	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	2.21	-
Pot Cap-1 Maneuver	0	463	-	0	605	-
Stage 1	0	-	-	0	-	-
Stage 2	0	-	-	0	-	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	463	-	-	605	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	605	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s/veh)	-	0	0	-
HCM Lane LOS	-	A	A	-
HCM 95th %tile Q (veh)	-	-	0	-

Intersection	
Int Delay, s/veh	4.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	155	0	0	630	0	785
Future Vol, veh/h	155	0	0	630	0	785
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Free	-	None
Storage Length	0	-	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	172	0	0	700	0	872

Major/Minor	Minor1			Major2	
Conflicting Flow All	872	-		-	-
Stage 1	0	-		-	-
Stage 2	872	-		-	-
Critical Hdwy	6.41	-		-	-
Critical Hdwy Stg 1	-	-		-	-
Critical Hdwy Stg 2	5.41	-		-	-
Follow-up Hdwy	3.509	-		-	-
Pot Cap-1 Maneuver	322	0		0	-
Stage 1	-	0		0	-
Stage 2	411	0		0	-
Platoon blocked, %					-
Mov Cap-1 Maneuver	322	-		-	-
Mov Cap-2 Maneuver	322	-		-	-
Stage 1	-	-		-	-
Stage 2	411	-		-	-

Approach	WB	SB
HCM Control Delay, s/v	28.3	0
HCM LOS	D	

Minor Lane/Major Mvmt	WBLn1	SBT
Capacity (veh/h)	322	-
HCM Lane V/C Ratio	0.535	-
HCM Control Delay (s/veh)	28.3	-
HCM Lane LOS	D	-
HCM 95th %tile Q (veh)	3	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	480	170	10	150	0	0	0	0	25	1	0
Future Vol, veh/h	0	480	170	10	150	0	0	0	0	25	1	0
Conflicting Peds, #/hr	2	0	2	0	0	0	2	0	0	0	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	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	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	1	1	1	1	1	1	0	0	0	0	0	0
Mvmt Flow	0	527	187	11	165	0	0	0	0	27	1	0

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	716	0	0	808	903	167
Stage 1	-	-	-	-	-	-	187	187	-
Stage 2	-	-	-	-	-	-	621	716	-
Critical Hdwy	-	-	-	4.11	-	-	6.4	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	5.4	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.4	5.5	-
Follow-up Hdwy	-	-	-	2.209	-	-	3.5	4	3.3
Pot Cap-1 Maneuver	0	-	-	889	-	0	353	279	882
Stage 1	0	-	-	-	-	0	850	749	-
Stage 2	0	-	-	-	-	0	540	437	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	889	-	-	348	0	880
Mov Cap-2 Maneuver	-	-	-	-	-	-	348	0	-
Stage 1	-	-	-	-	-	-	850	0	-
Stage 2	-	-	-	-	-	-	532	0	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0	0.6	16.3
HCM LOS			C

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	889	-	348
HCM Lane V/C Ratio	-	-	0.012	-	0.082
HCM Control Delay (s/veh)	-	-	9.1	0	16.3
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q (veh)	-	-	0	-	0.3

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰						↰				
Traffic Vol, veh/h	0	470	0	0	0	0	165	1	0	0	0	0
Future Vol, veh/h	0	470	0	0	0	0	165	1	0	0	0	0
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	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	4	4	4	0	0	0	2	2	2	0	0	0
Mvmt Flow	0	528	0	0	0	0	185	1	0	0	0	0

Major/Minor	Major1			Minor1		
Conflicting Flow All	0	0	-	528	528	-
Stage 1	-	-	-	528	528	-
Stage 2	-	-	-	0	0	-
Critical Hdwy	4.14	-	-	6.42	6.52	-
Critical Hdwy Stg 1	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.236	-	-	3.518	4.018	-
Pot Cap-1 Maneuver	-	-	0	511	456	0
Stage 1	-	-	0	592	528	0
Stage 2	-	-	0	-	-	0
Platoon blocked, %		-				
Mov Cap-1 Maneuver	-	-	-	511	0	-
Mov Cap-2 Maneuver	-	-	-	511	0	-
Stage 1	-	-	-	592	0	-
Stage 2	-	-	-	-	0	-

Approach	EB	NB
HCM Control Delay, s/v	0	16
HCM LOS		C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT
Capacity (veh/h)	511	-	-
HCM Lane V/C Ratio	0.365	-	-
HCM Control Delay (s/veh)	16	0	-
HCM Lane LOS	C	A	-
HCM 95th %tile Q (veh)	1.7	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	15	940	10	10	1535
Future Vol, veh/h	0	15	940	10	10	1535
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	-	-	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	5	5	2	2
Mvmt Flow	0	16	1011	11	11	1651

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	511	0	0	1022	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	2.22	-
Pot Cap-1 Maneuver	0	513	-	-	675	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	513	-	-	675	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	12.2	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	513	675	-
HCM Lane V/C Ratio	-	-	0.031	0.016	-
HCM Control Delay (s/veh)	-	-	12.2	10.4	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q (veh)	-	-	0.1	0	-

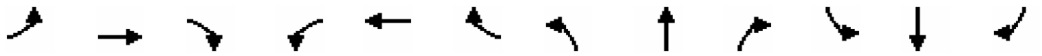
Intersection	
Int Delay, s/veh	9.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	545	415	70	490	635
Future Vol, veh/h	0	545	415	70	490	635
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	-	-	375	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	9	9	2	2
Mvmt Flow	0	586	446	75	527	683

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	261	0	0	521	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.92	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.31	-	-	2.22	-
Pot Cap-1 Maneuver	0	741	-	-	1041	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	741	-	-	1041	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	25.6	0	5.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	741	1041	-
HCM Lane V/C Ratio	-	-	0.791	0.506	-
HCM Control Delay (s/veh)	-	-	25.6	11.9	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q (veh)	-	-	8	2.9	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	222	512	25	129	387	185	20	103	134	185	117	82
Future Volume (veh/h)	222	512	25	129	387	185	20	103	134	185	117	82
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		0.99
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	1870	1870	1870	1870	1870	1870	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	236	545	27	137	412	197	21	110	143	197	124	87
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	1	1	1	1	1	1
Cap, veh/h	291	660	550	176	1023	449	452	603	538	417	697	453
Arrive On Green	0.16	0.35	0.35	0.10	0.29	0.29	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	1781	1870	1560	1781	3554	1561	1180	1791	1598	1136	2069	1345
Grp Volume(v), veh/h	236	545	27	137	412	197	21	110	143	197	106	105
Grp Sat Flow(s),veh/h/ln	1781	1870	1560	1781	1777	1561	1180	1791	1598	1136	1791	1623
Q Serve(g_s), s	8.5	17.7	0.8	5.0	6.2	6.8	0.9	2.9	4.3	10.2	2.8	3.1
Cycle Q Clear(g_c), s	8.5	17.7	0.8	5.0	6.2	6.8	3.9	2.9	4.3	14.5	2.8	3.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.83
Lane Grp Cap(c), veh/h	291	660	550	176	1023	449	452	603	538	417	603	547
V/C Ratio(X)	0.81	0.83	0.05	0.78	0.40	0.44	0.05	0.18	0.27	0.47	0.18	0.19
Avail Cap(c_a), veh/h	576	1181	985	308	1710	751	452	603	538	417	603	547
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	26.8	19.7	14.2	29.3	19.1	19.3	17.0	15.6	16.1	21.3	15.5	15.6
Incr Delay (d2), s/veh	5.4	2.7	0.0	7.3	0.3	0.7	0.2	0.7	1.2	3.8	0.6	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(95%),veh/ln	6.9	12.0	0.5	4.3	4.4	4.3	0.4	2.2	3.0	5.3	2.1	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	32.2	22.4	14.2	36.6	19.3	20.0	17.2	16.2	17.3	25.2	16.2	16.4
LnGrp LOS	C	C	B	D	B	B	B	B	B	C	B	B
Approach Vol, veh/h		808			746			274			408	
Approach Delay, s/veh		25.0			22.7			16.9			20.6	
Approach LOS		C			C			B			C	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		27.0	11.1	28.5		27.0	15.4	24.1				
Change Period (Y+Rc), s		4.6	4.5	5.0		4.6	4.5	5.0				
Max Green Setting (Gmax), s		22.4	11.5	42.0		22.4	21.5	32.0				
Max Q Clear Time (g_c+I1), s		6.3	7.0	19.7		16.5	10.5	8.8				
Green Ext Time (p_c), s		1.4	0.1	3.7		1.0	0.5	3.5				

Intersection Summary												
HCM 6th Ctrl Delay, s/veh			22.4									
HCM 6th LOS			C									

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	70	0	30	0	0	0	55	232	1	3	236	70
Future Vol, veh/h	70	0	30	0	0	0	55	232	1	3	236	70
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	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	1	1	1	1	1	1
Mvmt Flow	77	0	33	0	0	0	60	255	1	3	259	77

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	680	680	298	696	718	256	336	0	0	256	0	0
Stage 1	304	304	-	376	376	-	-	-	-	-	-	-
Stage 2	376	376	-	320	342	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.11	-	-	4.11	-	-
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	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	368	376	746	359	357	788	1229	-	-	1315	-	-
Stage 1	710	667	-	649	620	-	-	-	-	-	-	-
Stage 2	649	620	-	696	642	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	351	353	746	327	336	788	1229	-	-	1315	-	-
Mov Cap-2 Maneuver	351	353	-	327	336	-	-	-	-	-	-	-
Stage 1	670	665	-	612	585	-	-	-	-	-	-	-
Stage 2	612	585	-	663	640	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	16.7	0	1.5	0.1
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1229	-	-	417	-	1315	-	-
HCM Lane V/C Ratio	0.049	-	-	0.264	-	0.003	-	-
HCM Control Delay (s/veh)	8.1	0	-	16.7	0	7.7	0	-
HCM Lane LOS	A	A	-	C	A	A	A	-
HCM 95th %tile Q (veh)	0.2	-	-	1	-	0	-	-

MOVEMENT SUMMARY

Site: 15 [Thorpe Rd / Lindeke Connection / Marshall Rd - Baseline - PM - MIT (Site Folder: With Lindeke Extension - without-project)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

2035 Future WP - MIT AM
Site Category: MIT
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: Marshall Rd															
3	L2	All MCs	5	0.0	5	0.0	0.020	11.2	LOS B	0.1	2.4	0.45	0.56	0.45	34.2
8	T1	All MCs	1	0.0	1	0.0	0.020	5.3	LOS A	0.1	2.4	0.45	0.56	0.45	34.9
18	R2	All MCs	16	0.0	16	0.0	0.020	5.3	LOS A	0.1	2.4	0.45	0.56	0.45	34.6
Approach			23	0.0	23	0.0	0.020	6.7	LOS A	0.1	2.4	0.45	0.56	0.45	34.5
East: Thorpe Rd															
1	L2	All MCs	5	0.0	5	0.0	0.376	10.1	LOS B	2.4	58.8	0.26	0.43	0.26	35.2
6	T1	All MCs	217	0.0	217	0.0	0.376	4.2	LOS A	2.4	58.8	0.26	0.43	0.26	36.0
16	R2	All MCs	299	0.0	299	0.0	0.376	4.2	LOS A	2.4	58.8	0.26	0.43	0.26	35.6
Approach			522	0.0	522	0.0	0.376	4.3	LOS A	2.4	58.8	0.26	0.43	0.26	35.8
North: Lindeke Connection															
7	L2	All MCs	201	0.0	201	0.0	0.195	10.6	LOS B	1.0	24.8	0.37	0.62	0.37	32.8
4	T1	All MCs	1	0.0	1	0.0	0.195	4.7	LOS A	1.0	24.8	0.37	0.62	0.37	33.5
14	R2	All MCs	45	0.0	45	0.0	0.195	4.7	LOS A	1.0	24.8	0.37	0.62	0.37	33.2
Approach			247	0.0	247	0.0	0.195	9.5	LOS A	1.0	24.8	0.37	0.62	0.37	32.9
West: Thorpe Rd															
5	L2	All MCs	73	0.0	73	0.0	0.189	10.5	LOS B	1.0	24.6	0.36	0.52	0.36	34.1
2	T1	All MCs	152	0.0	152	0.0	0.189	4.6	LOS A	1.0	24.6	0.36	0.52	0.36	34.8
12	R2	All MCs	16	0.0	16	0.0	0.189	4.7	LOS A	1.0	24.6	0.36	0.52	0.36	34.5
Approach			241	0.0	241	0.0	0.189	6.4	LOS A	1.0	24.6	0.36	0.52	0.36	34.6
All Vehicles			1033	0.0	1033	0.0	0.376	6.1	LOS A	2.4	58.8	0.32	0.50	0.32	34.7

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
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: 1 [Grove Rd & Thorpe Rd Future WP AM - MIT (Site Folder: With Lindeke Extension - with-project)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

2035 Future WP - MIT AM
Site Category: Victory Heights
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: Grove Rd															
3	L2	All MCs	5	7.0	5	7.0	0.438	12.9	LOS B	2.4	63.3	0.61	0.63	0.63	33.6
8	T1	All MCs	324	7.0	324	7.0	0.438	7.1	LOS A	2.4	63.3	0.61	0.63	0.63	34.4
18	R2	All MCs	51	7.0	51	7.0	0.438	7.0	LOS A	2.4	63.3	0.61	0.63	0.63	34.1
Approach			380	7.0	380	7.0	0.438	7.2	LOS A	2.4	63.3	0.61	0.63	0.63	34.3
East: Thorpe Rd															
1	L2	All MCs	24	10.0	24	10.0	0.676	18.1	LOS B	6.0	161.7	0.83	0.90	1.14	31.4
6	T1	All MCs	16	10.0	16	10.0	0.676	12.3	LOS B	6.0	161.7	0.83	0.90	1.14	32.1
16	R2	All MCs	456	10.0	456	10.0	0.676	12.1	LOS B	6.0	161.7	0.83	0.90	1.14	31.8
Approach			497	10.0	497	10.0	0.676	12.4	LOS B	6.0	161.7	0.83	0.90	1.14	31.8
North: Grove Rd															
7	L2	All MCs	173	11.0	173	11.0	0.217	10.2	LOS B	1.1	30.7	0.19	0.55	0.19	33.3
4	T1	All MCs	225	11.0	225	11.0	0.217	4.3	LOS A	1.1	31.1	0.19	0.47	0.19	35.1
14	R2	All MCs	148	11.0	148	11.0	0.217	4.4	LOS A	1.1	31.1	0.18	0.41	0.18	35.4
Approach			546	11.0	546	11.0	0.217	6.2	LOS A	1.1	31.1	0.19	0.48	0.19	34.6
West: Thorpe Rd															
5	L2	All MCs	286	6.0	286	6.0	0.307	11.7	LOS B	1.2	31.3	0.45	0.71	0.45	32.0
2	T1	All MCs	5	6.0	5	6.0	0.307	5.9	LOS A	1.2	31.3	0.45	0.71	0.45	32.6
Approach			291	6.0	291	6.0	0.307	11.6	LOS B	1.2	31.3	0.45	0.71	0.45	32.0
All Vehicles			1714	9.0	1714	9.0	0.676	9.1	LOS A	6.0	161.7	0.51	0.67	0.60	33.2

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
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.

Intersection	
Intersection Delay, s/veh	11.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	54	9	45	351	14	46	40	30	12	46	25
Future Vol, veh/h	3	54	9	45	351	14	46	40	30	12	46	25
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	0	0	0	2	2	2	10	10	10
Mvmt Flow	3	59	10	49	382	15	50	43	33	13	50	27
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, s/veh	8.5	13.4	9.4	9.2
HCM LOS	A	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	40%	5%	11%	14%
Vol Thru, %	34%	82%	86%	55%
Vol Right, %	26%	14%	3%	30%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	116	66	410	83
LT Vol	46	3	45	12
Through Vol	40	54	351	46
RT Vol	30	9	14	25
Lane Flow Rate	126	72	446	90
Geometry Grp	1	1	1	1
Degree of Util (X)	0.182	0.098	0.563	0.133
Departure Headway (Hd)	5.195	4.91	4.549	5.309
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	685	723	789	669
Service Time	3.271	2.986	2.599	3.39
HCM Lane V/C Ratio	0.184	0.1	0.565	0.135
HCM Control Delay, s/veh	9.4	8.5	13.4	9.2
HCM Lane LOS	A	A	B	A
HCM 95th-tile Q	0.7	0.3	3.6	0.5

Intersection	
Int Delay, s/veh	2.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	115	10	53	255	5	104
Future Vol, veh/h	115	10	53	255	5	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, %	8	8	2	2	1	1
Mvmt Flow	122	11	56	271	5	111

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	133	0	511	128
Stage 1	-	-	-	-	128	-
Stage 2	-	-	-	-	383	-
Critical Hdwy	-	-	4.12	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.218	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1452	-	524	925
Stage 1	-	-	-	-	900	-
Stage 2	-	-	-	-	691	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1452	-	500	925
Mov Cap-2 Maneuver	-	-	-	-	500	-
Stage 1	-	-	-	-	900	-
Stage 2	-	-	-	-	660	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	1.3	9.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	890	-	-	1452	-
HCM Lane V/C Ratio	0.13	-	-	0.039	-
HCM Control Delay (s/veh)	9.7	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q (veh)	0.4	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	1	0	30	0	975	1	10	670	0
Future Vol, veh/h	0	0	0	1	0	30	0	975	1	10	670	0
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	-	-	0	-	-	-	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0	1	1	1	5	5	5
Mvmt Flow	0	0	0	1	0	32	0	1037	1	11	713	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	357	1417	1773	519	713	0	0	1038	0	0
Stage 1	-	-	-	1038	1038	-	-	-	-	-	-	-
Stage 2	-	-	-	379	735	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	7.5	6.5	6.9	4.12	-	-	4.2	-	-
Critical Hdwy Stg 1	-	-	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	3.5	4	3.3	2.21	-	-	2.25	-	-
Pot Cap-1 Maneuver	0	0	645	99	84	507	889	-	-	648	-	-
Stage 1	0	0	-	251	311	-	-	-	-	-	-	-
Stage 2	0	0	-	620	428	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	645	98	83	507	889	-	-	648	-	-
Mov Cap-2 Maneuver	-	-	-	98	83	-	-	-	-	-	-	-
Stage 1	-	-	-	251	311	-	-	-	-	-	-	-
Stage 2	-	-	-	609	421	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	13.7	0	0.2
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	889	-	-	-	447	648	-	-
HCM Lane V/C Ratio	-	-	-	-	0.074	0.016	-	-
HCM Control Delay (s/veh)	0	-	-	0	13.7	10.6	-	-
HCM Lane LOS	A	-	-	A	B	B	-	-
HCM 95th %tile Q (veh)	0	-	-	-	0.2	0.1	-	-

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	239	239	1010	865	0
Future Vol, veh/h	0	239	239	1010	865	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	-	0	450	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	8	8
Mvmt Flow	0	257	257	1086	930	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	465	930	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	0	544	731	-	-	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	544	731	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	17.4	2.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT
Capacity (veh/h)	731	-	544	-
HCM Lane V/C Ratio	0.352	-	0.472	-
HCM Control Delay (s/veh)	12.6	-	17.4	-
HCM Lane LOS	B	-	C	-
HCM 95th %tile Q (veh)	1.6	-	2.5	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	270	0	0	33	0	1211	385	0	660	382
Future Vol, veh/h	0	0	270	0	0	33	0	1211	385	0	660	382
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	-	-	Stop	-	-	None	-	-	Free
Storage Length	-	-	0	-	-	0	-	-	150	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	10	10	10	1	1	1	8	8	8
Mvmt Flow	0	0	287	0	0	35	0	1288	410	0	702	406

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	351	-	-	644	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	-	-	7.1	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	-	-	3.4	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	645	0	0	397	0	-	-	0	-	0
Stage 1	0	0	-	0	0	-	0	-	-	0	-	0
Stage 2	0	0	-	0	0	-	0	-	-	0	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	-	-	645	-	-	397	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	15	14.9	0	0
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT
Capacity (veh/h)	-	-	645	397	-
HCM Lane V/C Ratio	-	-	0.445	0.088	-
HCM Control Delay (s/veh)	-	-	15	14.9	-
HCM Lane LOS	-	-	C	B	-
HCM 95th %tile Q (veh)	-	-	2.3	0.3	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	1681	0	0	916
Future Vol, veh/h	0	0	1681	0	0	916
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	-	-	450	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	1	1	4	4
Mvmt Flow	0	0	1788	0	0	974

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	894	0	-	1788	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	4.6	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	2.24	-
Pot Cap-1 Maneuver	0	288	-	0	271	-
Stage 1	0	-	-	0	-	-
Stage 2	0	-	-	0	-	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	288	-	-	271	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	271	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s/veh)	-	0	0	-
HCM Lane LOS	-	A	A	-
HCM 95th %tile Q (veh)	-	-	0	-

Intersection	
Int Delay, s/veh	3.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	115	0	0	941	0	318
Future Vol, veh/h	115	0	0	941	0	318
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Free	-	None
Storage Length	0	-	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	0	2	2	8	8
Mvmt Flow	140	0	0	1148	0	388

Major/Minor	Minor1			Major2	
Conflicting Flow All	388	-		-	-
Stage 1	0	-		-	-
Stage 2	388	-		-	-
Critical Hdwy	6.4	-		-	-
Critical Hdwy Stg 1	-	-		-	-
Critical Hdwy Stg 2	5.4	-		-	-
Follow-up Hdwy	3.5	-		-	-
Pot Cap-1 Maneuver	619	0		0	-
Stage 1	-	0		0	-
Stage 2	690	0		0	-
Platoon blocked, %					-
Mov Cap-1 Maneuver	619	-		-	-
Mov Cap-2 Maneuver	619	-		-	-
Stage 1	-	-		-	-
Stage 2	690	-		-	-

Approach	WB	SB
HCM Control Delay, s/v	12.5	0
HCM LOS	B	

Minor Lane/Major Mvmt	WBLn1	SBT
Capacity (veh/h)	619	-
HCM Lane V/C Ratio	0.227	-
HCM Control Delay (s/veh)	12.5	-
HCM Lane LOS	B	-
HCM 95th %tile Q (veh)	0.9	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	861	75	5	115	0	0	0	0	38	0	0
Future Vol, veh/h	0	861	75	5	115	0	0	0	0	38	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	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	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	0	0	0	0	0	0	12	12	12
Mvmt Flow	0	946	82	5	126	0	0	0	0	42	0	0

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	1028	0	0	1123	1164	126
Stage 1	-	-	-	-	-	-	136	136	-
Stage 2	-	-	-	-	-	-	987	1028	-
Critical Hdwy	-	-	-	4.1	-	-	6.52	6.62	6.32
Critical Hdwy Stg 1	-	-	-	-	-	-	5.52	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.52	5.62	-
Follow-up Hdwy	-	-	-	2.2	-	-	3.608	4.108	3.408
Pot Cap-1 Maneuver	0	-	-	683	-	0	217	186	898
Stage 1	0	-	-	-	-	0	866	765	-
Stage 2	0	-	-	-	-	0	346	299	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	683	-	-	215	0	898
Mov Cap-2 Maneuver	-	-	-	-	-	-	215	0	-
Stage 1	-	-	-	-	-	-	866	0	-
Stage 2	-	-	-	-	-	-	343	0	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0	0.4	25.7
HCM LOS			D

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	683	-	215
HCM Lane V/C Ratio	-	-	0.008	-	0.194
HCM Control Delay (s/veh)	-	-	10.3	0	25.7
HCM Lane LOS	-	-	B	A	D
HCM 95th %tile Q (veh)	-	-	0	-	0.7

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰						↰				
Traffic Vol, veh/h	0	884	0	0	0	0	125	5	0	0	0	0
Future Vol, veh/h	0	884	0	0	0	0	125	5	0	0	0	0
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	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	0	0	0	3	3	3	0	0	0
Mvmt Flow	0	971	0	0	0	0	137	5	0	0	0	0

Major/Minor	Major1			Minor1		
Conflicting Flow All	0	0	-	971	971	-
Stage 1	-	-	-	971	971	-
Stage 2	-	-	-	0	0	-
Critical Hdwy	4.12	-	-	6.43	6.53	-
Critical Hdwy Stg 1	-	-	-	5.43	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.218	-	-	3.527	4.027	-
Pot Cap-1 Maneuver	-	-	0	279	252	0
Stage 1	-	-	0	366	330	0
Stage 2	-	-	0	-	-	0
Platoon blocked, %		-				
Mov Cap-1 Maneuver	-	-	-	279	0	-
Mov Cap-2 Maneuver	-	-	-	279	0	-
Stage 1	-	-	-	366	0	-
Stage 2	-	-	-	-	0	-

Approach	EB	NB
HCM Control Delay, s/v	0	30.7
HCM LOS		D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT
Capacity (veh/h)	279	-	-
HCM Lane V/C Ratio	0.512	-	-
HCM Control Delay (s/veh)	30.7	0	-
HCM Lane LOS	D	A	-
HCM 95th %tile Q (veh)	2.7	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	25	986	1	10	788
Future Vol, veh/h	0	25	986	1	10	788
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	-	-	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	11	11	3	3	10	10
Mvmt Flow	0	28	1096	1	11	876

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	549	0	0	1097	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.12	-	-	4.3	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.41	-	-	2.3	-
Pot Cap-1 Maneuver	0	457	-	-	587	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	457	-	-	587	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	13.4	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	457	587	-
HCM Lane V/C Ratio	-	-	0.061	0.019	-
HCM Control Delay (s/veh)	-	-	13.4	11.3	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q (veh)	-	-	0.2	0.1	-

Intersection	
Int Delay, s/veh	8.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	442	519	115	380	398
Future Vol, veh/h	2	442	519	115	380	398
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	-	-	375	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	1	1	3	3	8	8
Mvmt Flow	2	486	570	126	418	437

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1688	348	0	0	696	0
Stage 1	633	-	-	-	-	-
Stage 2	1055	-	-	-	-	-
Critical Hdwy	6.82	6.92	-	-	4.26	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.51	3.31	-	-	2.28	-
Pot Cap-1 Maneuver	85	651	-	-	857	-
Stage 1	494	-	-	-	-	-
Stage 2	298	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	44	651	-	-	857	-
Mov Cap-2 Maneuver	44	-	-	-	-	-
Stage 1	494	-	-	-	-	-
Stage 2	153	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	25	0	6.4
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	651	857	-
HCM Lane V/C Ratio	-	-	0.746	0.487	-
HCM Control Delay (s/veh)	-	-	25	13.1	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q (veh)	-	-	6.7	2.7	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	478	20	79	293	255	20	145	376	260	74	139
Future Volume (veh/h)	48	478	20	79	293	255	20	145	376	260	74	139
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	1841	1841	1841	1826	1826	1826	1870	1870	1870	1856	1856	1856
Adj Flow Rate, veh/h	52	520	22	86	318	277	22	158	409	283	80	151
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	5	5	5	2	2	2	3	3	3
Cap, veh/h	285	605	512	122	819	365	487	705	629	261	700	624
Arrive On Green	0.16	0.33	0.33	0.07	0.24	0.24	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	1753	1841	1560	1739	3469	1547	1149	1777	1585	837	1763	1572
Grp Volume(v), veh/h	52	520	22	86	318	277	22	158	409	283	80	151
Grp Sat Flow(s),veh/h/ln	1753	1841	1560	1739	1735	1547	1149	1777	1585	837	1763	1572
Q Serve(g_s), s	1.8	18.2	0.7	3.3	5.3	11.5	0.9	4.1	14.5	12.9	2.0	4.4
Cycle Q Clear(g_c), s	1.8	18.2	0.7	3.3	5.3	11.5	5.3	4.1	14.5	27.4	2.0	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	285	605	512	122	819	365	487	705	629	261	700	624
V/C Ratio(X)	0.18	0.86	0.04	0.70	0.39	0.76	0.05	0.22	0.65	1.08	0.11	0.24
Avail Cap(c_a), veh/h	394	800	678	391	1508	673	487	705	629	261	700	624
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	24.9	21.7	15.8	31.4	22.2	24.5	15.7	13.8	16.9	30.6	13.1	13.9
Incr Delay (d2), s/veh	0.3	7.4	0.0	7.2	0.3	3.2	0.0	0.2	2.4	79.7	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	0.7	8.5	0.2	1.6	2.1	4.3	0.2	1.5	5.2	10.0	0.7	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	25.2	29.1	15.8	38.6	22.5	27.8	15.7	13.9	19.3	110.3	13.2	14.1
LnGrp LOS	C	C	B	D	C	C	B	B	B	F	B	B
Approach Vol, veh/h		594			681			589			514	
Approach Delay, s/veh		28.2			26.7			17.7			66.9	
Approach LOS		C			C			B			E	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	32.0	9.3	27.7	32.0	15.7	21.3
Change Period (Y+Rc), s	4.6	4.5	5.0	4.6	4.5	5.0
Max Green Setting (Gmax), s	27.4	15.5	30.0	27.4	15.5	30.0
Max Q Clear Time (g_c+I1), s	16.5	5.3	20.2	29.4	3.8	13.5
Green Ext Time (p_c), s	2.9	0.1	2.4	0.0	0.1	2.8

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	33.5
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	85	0	50	0	0	5	10	436	0	1	144	30
Future Vol, veh/h	85	0	50	0	0	5	10	436	0	1	144	30
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, %	2	2	2	0	0	0	0	0	0	2	2	2
Mvmt Flow	92	0	54	0	0	5	11	474	0	1	157	33

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	675	672	174	699	688	474	190	0	0	474	0	0
Stage 1	176	176	-	496	496	-	-	-	-	-	-	-
Stage 2	499	496	-	203	192	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.1	6.5	6.2	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.5	4	3.3	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	368	377	869	357	372	595	1396	-	-	1088	-	-
Stage 1	826	753	-	559	549	-	-	-	-	-	-	-
Stage 2	554	545	-	804	745	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	361	372	869	332	368	595	1396	-	-	1088	-	-
Mov Cap-2 Maneuver	361	372	-	332	368	-	-	-	-	-	-	-
Stage 1	817	752	-	553	543	-	-	-	-	-	-	-
Stage 2	543	539	-	753	744	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	16.4	11.1	0.2	0
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1396	-	-	461	595	1088	-	-
HCM Lane V/C Ratio	0.008	-	-	0.318	0.009	0.001	-	-
HCM Control Delay (s/veh)	7.6	0	-	16.4	11.1	8.3	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q (veh)	0	-	-	1.4	0	0	-	-

MOVEMENT SUMMARY

Site: 15 [Thorpe Rd / Lindeke Connection / Marshall Rd - WP - AM - MIT (Site Folder: With Lindeke Extension - with-project)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

2035 Future WP - MIT AM
Site Category: MIT
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: Marshall Rd															
3	L2	All MCs	16	0.0	16	0.0	0.020	12.1	LOS B	0.1	2.6	0.57	0.65	0.57	32.4
8	T1	All MCs	1	0.0	1	0.0	0.020	6.1	LOS A	0.1	2.6	0.57	0.65	0.57	33.0
18	R2	All MCs	2	0.0	2	0.0	0.020	6.2	LOS A	0.1	2.6	0.57	0.65	0.57	32.7
Approach			20	0.0	20	0.0	0.020	11.1	LOS B	0.1	2.6	0.57	0.65	0.57	32.4
East: Thorpe Rd															
1	L2	All MCs	5	5.0	5	5.0	0.381	11.5	LOS B	2.3	59.9	0.53	0.54	0.53	34.2
6	T1	All MCs	260	5.0	260	5.0	0.381	5.6	LOS A	2.3	59.9	0.53	0.54	0.53	35.0
16	R2	All MCs	154	5.0	154	5.0	0.381	5.6	LOS A	2.3	59.9	0.53	0.54	0.53	34.7
Approach			420	5.0	420	5.0	0.381	5.7	LOS A	2.3	59.9	0.53	0.54	0.53	34.9
North: Lindeke Connection															
7	L2	All MCs	126	4.0	126	4.0	0.157	11.0	LOS B	0.8	21.1	0.44	0.62	0.44	32.8
4	T1	All MCs	1	4.0	1	4.0	0.157	5.1	LOS A	0.8	21.1	0.44	0.62	0.44	33.5
14	R2	All MCs	48	4.0	48	4.0	0.157	5.1	LOS A	0.8	21.1	0.44	0.62	0.44	33.2
Approach			176	4.0	176	4.0	0.157	9.4	LOS A	0.8	21.1	0.44	0.62	0.44	32.9
West: Thorpe Rd															
5	L2	All MCs	281	5.0	281	5.0	0.363	10.5	LOS B	2.2	58.4	0.36	0.56	0.36	33.2
2	T1	All MCs	170	5.0	170	5.0	0.363	4.6	LOS A	2.2	58.4	0.36	0.56	0.36	33.9
12	R2	All MCs	1	5.0	1	5.0	0.363	4.7	LOS A	2.2	58.4	0.36	0.56	0.36	33.6
Approach			453	5.0	453	5.0	0.363	8.3	LOS A	2.2	58.4	0.36	0.56	0.36	33.5
All Vehicles			1068	4.7	1068	4.7	0.381	7.5	LOS A	2.3	59.9	0.45	0.57	0.45	33.9

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
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: 1 [Grove Rd & Thorpe Rd Future WP PM - MIT (Site Folder: With Lindeke Extension - with-project)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

2035 Future WP -MIT PM
Site Category: Victory Heights
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: Grove Rd															
3	L2	All MCs	2	3.0	2	3.0	0.239	11.9	LOS B	1.1	28.4	0.50	0.56	0.50	34.1
8	T1	All MCs	198	3.0	198	3.0	0.239	6.1	LOS A	1.1	28.4	0.50	0.56	0.50	34.8
18	R2	All MCs	24	3.0	24	3.0	0.239	5.9	LOS A	1.1	28.4	0.50	0.56	0.50	34.5
Approach			224	3.0	224	3.0	0.239	6.1	LOS A	1.1	28.4	0.50	0.56	0.50	34.8
East: Thorpe Rd															
1	L2	All MCs	51	4.0	51	4.0	0.567	13.7	LOS B	4.0	103.6	0.66	0.72	0.76	33.5
6	T1	All MCs	16	4.0	16	4.0	0.567	7.9	LOS A	4.0	103.6	0.66	0.72	0.76	34.2
16	R2	All MCs	457	4.0	457	4.0	0.567	7.7	LOS A	4.0	103.6	0.66	0.72	0.76	33.9
Approach			524	4.0	524	4.0	0.567	8.3	LOS A	4.0	103.6	0.66	0.72	0.76	33.9
North: Grove Rd															
7	L2	All MCs	171	7.0	171	7.0	0.277	10.2	LOS B	1.5	39.6	0.23	0.52	0.23	33.7
4	T1	All MCs	280	7.0	280	7.0	0.277	4.4	LOS A	1.5	40.1	0.23	0.49	0.23	34.9
14	R2	All MCs	264	7.0	264	7.0	0.277	4.4	LOS A	1.5	40.1	0.23	0.43	0.23	35.4
Approach			715	7.0	715	7.0	0.277	5.8	LOS A	1.5	40.1	0.23	0.47	0.23	34.8
West: Thorpe Rd															
5	L2	All MCs	264	3.0	264	3.0	0.299	11.8	LOS B	1.2	31.3	0.48	0.72	0.48	32.2
2	T1	All MCs	16	3.0	16	3.0	0.299	6.0	LOS A	1.2	31.3	0.48	0.72	0.48	32.8
12	R2	All MCs	5	3.0	5	3.0	0.299	5.8	LOS A	1.2	31.3	0.48	0.72	0.48	32.6
Approach			286	3.0	286	3.0	0.299	11.3	LOS B	1.2	31.3	0.48	0.72	0.48	32.2
All Vehicles			1749	4.9	1749	4.9	0.567	7.5	LOS A	4.0	103.6	0.44	0.60	0.47	34.1

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Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
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Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
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.

Intersection	
Intersection Delay, s/veh	12.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	190	18	45	236	21	26	39	35	35	111	25
Future Vol, veh/h	15	190	18	45	236	21	26	39	35	35	111	25
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	2	2	2
Mvmt Flow	18	232	22	55	288	26	32	48	43	43	135	30
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, s/veh	12.2	14.5	10.4	11.9
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	26%	7%	15%	20%
Vol Thru, %	39%	85%	78%	65%
Vol Right, %	35%	8%	7%	15%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	100	223	302	171
LT Vol	26	15	45	35
Through Vol	39	190	236	111
RT Vol	35	18	21	25
Lane Flow Rate	122	272	368	209
Geometry Grp	1	1	1	1
Degree of Util (X)	0.199	0.41	0.543	0.338
Departure Headway (Hd)	5.875	5.428	5.306	5.829
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	607	661	678	613
Service Time	3.947	3.485	3.358	3.892
HCM Lane V/C Ratio	0.201	0.411	0.543	0.341
HCM Control Delay, s/veh	10.4	12.2	14.5	11.9
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	0.7	2	3.3	1.5

Intersection	
Int Delay, s/veh	4.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	165	15	221	130	5	90
Future Vol, veh/h	165	15	221	130	5	90
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	89	89	89	89
Heavy Vehicles, %	2	2	1	1	0	0
Mvmt Flow	185	17	248	146	6	101

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	202	0	836	194
Stage 1	-	-	-	-	194	-
Stage 2	-	-	-	-	642	-
Critical Hdwy	-	-	4.11	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.209	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1376	-	340	853
Stage 1	-	-	-	-	844	-
Stage 2	-	-	-	-	528	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1376	-	273	853
Mov Cap-2 Maneuver	-	-	-	-	273	-
Stage 1	-	-	-	-	844	-
Stage 2	-	-	-	-	425	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	5.2	10.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	767	-	-	1376	-
HCM Lane V/C Ratio	0.139	-	-	0.18	-
HCM Control Delay (s/veh)	10.5	-	-	8.2	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q (veh)	0.5	-	-	0.7	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	5	0	15	0	446	5	45	1933	0
Future Vol, veh/h	0	0	0	5	0	15	0	446	5	45	1933	0
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	-	-	0	-	-	-	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	0	0	0	2	2	2	1	1	1
Mvmt Flow	0	0	0	5	0	15	0	460	5	46	1993	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	997	1552	2548	233	1993	0	0	465	0	0
Stage 1	-	-	-	463	463	-	-	-	-	-	-	-
Stage 2	-	-	-	1089	2085	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	7.5	6.5	6.9	4.14	-	-	4.12	-	-
Critical Hdwy Stg 1	-	-	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	3.5	4	3.3	2.22	-	-	2.21	-	-
Pot Cap-1 Maneuver	0	0	246	79	27	775	285	-	-	1100	-	-
Stage 1	0	0	-	554	568	-	-	-	-	-	-	-
Stage 2	0	0	-	233	96	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	246	76	26	775	285	-	-	1100	-	-
Mov Cap-2 Maneuver	-	-	-	76	26	-	-	-	-	-	-	-
Stage 1	-	-	-	554	568	-	-	-	-	-	-	-
Stage 2	-	-	-	223	92	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	21.8	0	0.2
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	285	-	-	-	235	1100	-	-
HCM Lane V/C Ratio	-	-	-	-	0.088	0.042	-	-
HCM Control Delay (s/veh)	0	-	-	0	21.8	8.4	-	-
HCM Lane LOS	A	-	-	A	C	A	-	-
HCM 95th %tile Q (veh)	0	-	-	-	0.3	0.1	-	-

Intersection	
Int Delay, s/veh	66.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	316	316	566	2153	0
Future Vol, veh/h	0	316	316	566	2153	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	-	0	450	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	3	3	1	1
Mvmt Flow	0	336	336	602	2290	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	1145	2290	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	4.16	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	2.23	-	-	-
Pot Cap-1 Maneuver	0	~ 196	~ 214	-	-	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	~ 196	~ 214	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	$384.4	114.2	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT
Capacity (veh/h)	~ 214	-	196	-
HCM Lane V/C Ratio	1.571	-	1.715	-
HCM Control Delay (s/veh)	$ 318.8	-	$ 384.4	-
HCM Lane LOS	F	-	F	-
HCM 95th %tile Q (veh)	21.2	-	23	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	22.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	387	0	0	50	0	832	282	0	1530	864
Future Vol, veh/h	0	0	387	0	0	50	0	832	282	0	1530	864
Conflicting Peds, #/hr	3	0	0	0	0	3	0	0	0	3	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Stop	-	-	None	-	-	Free
Storage Length	-	-	0	-	-	0	-	-	150	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0	3	3	3	1	1	1
Mvmt Flow	0	0	412	0	0	53	0	885	300	0	1628	919

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	814	-	-	446	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	~ 325	0	0	565	0	-	-	0	-	0
Stage 1	0	0	-	0	0	-	0	-	-	0	-	0
Stage 2	0	0	-	0	0	-	0	-	-	0	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	-	-	~ 325	-	-	563	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	175.7	12.1	0	0
HCM LOS	F	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT
Capacity (veh/h)	-	-	325	563	-
HCM Lane V/C Ratio	-	-	1.267	0.094	-
HCM Control Delay (s/veh)	-	-	175.7	12.1	-
HCM Lane LOS	-	-	F	B	-
HCM 95th %tile Q (veh)	-	-	19	0.3	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	1152	0	0	1907
Future Vol, veh/h	0	0	1152	0	0	1907
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	-	-	450	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	2	2	1	1
Mvmt Flow	0	0	1294	0	0	2143

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	647	0	-	1294	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	2.21	-
Pot Cap-1 Maneuver	0	418	-	0	537	-
Stage 1	0	-	-	0	-	-
Stage 2	0	-	-	0	-	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	418	-	-	537	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	537	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s/veh)	-	0	0	-
HCM Lane LOS	-	A	A	-
HCM 95th %tile Q (veh)	-	-	0	-

Intersection	
Int Delay, s/veh	4.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	155	0	0	680	0	816
Future Vol, veh/h	155	0	0	680	0	816
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Free	-	None
Storage Length	0	-	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	172	0	0	756	0	907

Major/Minor	Minor1			Major2	
Conflicting Flow All	907	-		-	-
Stage 1	0	-		-	-
Stage 2	907	-		-	-
Critical Hdwy	6.41	-		-	-
Critical Hdwy Stg 1	-	-		-	-
Critical Hdwy Stg 2	5.41	-		-	-
Follow-up Hdwy	3.509	-		-	-
Pot Cap-1 Maneuver	307	0		0	-
Stage 1	-	0		0	-
Stage 2	395	0		0	-
Platoon blocked, %					-
Mov Cap-1 Maneuver	307	-		-	-
Mov Cap-2 Maneuver	307	-		-	-
Stage 1	-	-		-	-
Stage 2	395	-		-	-

Approach	WB	SB
HCM Control Delay, s/v	30.7	0
HCM LOS	D	

Minor Lane/Major Mvmt	WBLn1	SBT
Capacity (veh/h)	307	-
HCM Lane V/C Ratio	0.561	-
HCM Control Delay (s/veh)	30.7	-
HCM Lane LOS	D	-
HCM 95th %tile Q (veh)	3.2	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	530	170	10	150	0	0	0	0	10	1	0
Future Vol, veh/h	0	530	170	10	150	0	0	0	0	10	1	0
Conflicting Peds, #/hr	2	0	2	0	0	0	2	0	0	0	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	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	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	1	1	1	1	1	1	0	0	0	0	0	0
Mvmt Flow	0	582	187	11	165	0	0	0	0	11	1	0

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	771	0	0	863	958	167
Stage 1	-	-	-	-	-	-	187	187	-
Stage 2	-	-	-	-	-	-	676	771	-
Critical Hdwy	-	-	-	4.11	-	-	6.4	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	5.4	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.4	5.5	-
Follow-up Hdwy	-	-	-	2.209	-	-	3.5	4	3.3
Pot Cap-1 Maneuver	0	-	-	848	-	0	328	259	882
Stage 1	0	-	-	-	-	0	850	749	-
Stage 2	0	-	-	-	-	0	509	413	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	848	-	-	323	0	880
Mov Cap-2 Maneuver	-	-	-	-	-	-	323	0	-
Stage 1	-	-	-	-	-	-	850	0	-
Stage 2	-	-	-	-	-	-	502	0	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0	0.6	16.6
HCM LOS			C

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	848	-	323
HCM Lane V/C Ratio	-	-	0.013	-	0.037
HCM Control Delay (s/veh)	-	-	9.3	0	16.6
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q (veh)	-	-	0	-	0.1

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↟						↟				
Traffic Vol, veh/h	0	506	0	0	0	0	165	1	0	0	0	0
Future Vol, veh/h	0	506	0	0	0	0	165	1	0	0	0	0
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	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	4	4	4	0	0	0	2	2	2	0	0	0
Mvmt Flow	0	569	0	0	0	0	185	1	0	0	0	0

Major/Minor	Major1			Minor1		
Conflicting Flow All	0	0	-	569	569	-
Stage 1	-	-	-	569	569	-
Stage 2	-	-	-	0	0	-
Critical Hdwy	4.14	-	-	6.42	6.52	-
Critical Hdwy Stg 1	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.236	-	-	3.518	4.018	-
Pot Cap-1 Maneuver	-	-	0	484	432	0
Stage 1	-	-	0	566	506	0
Stage 2	-	-	0	-	-	0
Platoon blocked, %		-				
Mov Cap-1 Maneuver	-	-	-	484	0	-
Mov Cap-2 Maneuver	-	-	-	484	0	-
Stage 1	-	-	-	566	0	-
Stage 2	-	-	-	-	0	-

Approach	EB	NB
HCM Control Delay, s/v	0	17
HCM LOS		C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT
Capacity (veh/h)	484	-	-
HCM Lane V/C Ratio	0.385	-	-
HCM Control Delay (s/veh)	17	0	-
HCM Lane LOS	C	A	-
HCM 95th %tile Q (veh)	1.8	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	15	991	10	10	1565
Future Vol, veh/h	0	15	991	10	10	1565
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	-	-	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	5	5	2	2
Mvmt Flow	0	16	1066	11	11	1683

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	539	0	0	1077	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	2.22	-
Pot Cap-1 Maneuver	0	492	-	-	643	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	492	-	-	643	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	12.6	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	492	643	-
HCM Lane V/C Ratio	-	-	0.033	0.017	-
HCM Control Delay (s/veh)	-	-	12.6	10.7	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q (veh)	-	-	0.1	0.1	-

Intersection	
Int Delay, s/veh	11.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	586	425	70	514	641
Future Vol, veh/h	0	586	425	70	514	641
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	-	-	375	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	9	9	2	2
Mvmt Flow	0	630	457	75	553	689

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	266	0	0	532	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.92	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.31	-	-	2.22	-
Pot Cap-1 Maneuver	0	735	-	-	1032	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	735	-	-	1032	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	31.8	0	5.5
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	735	1032	-
HCM Lane V/C Ratio	-	-	0.857	0.536	-
HCM Control Delay (s/veh)	-	-	31.8	12.4	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q (veh)	-	-	10.2	3.3	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	222	512	25	150	387	185	20	113	246	185	137	82
Future Volume (veh/h)	222	512	25	150	387	185	20	113	246	185	137	82
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		0.99
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	1870	1870	1870	1870	1870	1870	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	236	545	27	160	412	197	21	120	262	197	146	87
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	1	1	1	1	1	1
Cap, veh/h	290	656	548	201	1071	471	427	589	526	305	724	406
Arrive On Green	0.16	0.35	0.35	0.11	0.30	0.30	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	1781	1870	1560	1781	3554	1561	1156	1791	1598	1009	2202	1233
Grp Volume(v), veh/h	236	545	27	160	412	197	21	120	262	197	117	116
Grp Sat Flow(s),veh/h/ln	1781	1870	1560	1781	1777	1561	1156	1791	1598	1009	1791	1644
Q Serve(g_s), s	8.7	18.2	0.8	6.0	6.2	6.9	0.9	3.3	9.0	13.3	3.2	3.5
Cycle Q Clear(g_c), s	8.7	18.2	0.8	6.0	6.2	6.9	4.4	3.3	9.0	22.2	3.2	3.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.75
Lane Grp Cap(c), veh/h	290	656	548	201	1071	471	427	589	526	305	589	541
V/C Ratio(X)	0.81	0.83	0.05	0.79	0.38	0.42	0.05	0.20	0.50	0.65	0.20	0.21
Avail Cap(c_a), veh/h	562	1154	962	301	1670	734	427	589	526	305	589	541
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	27.5	20.2	14.6	29.4	18.8	19.0	18.1	16.4	18.3	27.3	16.4	16.5
Incr Delay (d2), s/veh	5.5	2.8	0.0	8.4	0.2	0.6	0.2	0.8	3.4	10.1	0.8	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(95%),veh/ln	7.1	12.3	0.5	5.2	4.4	4.3	0.5	2.5	6.4	7.0	2.4	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	33.1	23.0	14.6	37.9	19.0	19.6	18.3	17.2	21.7	37.4	17.2	17.4
LnGrp LOS	C	C	B	D	B	B	B	B	C	D	B	B
Approach Vol, veh/h		808			769			403			430	
Approach Delay, s/veh		25.7			23.1			20.2			26.5	
Approach LOS		C			C			C			C	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		27.0	12.2	28.9		27.0	15.6	25.5				
Change Period (Y+Rc), s		4.6	4.5	5.0		4.6	4.5	5.0				
Max Green Setting (Gmax), s		22.4	11.5	42.0		22.4	21.5	32.0				
Max Q Clear Time (g_c+I1), s		11.0	8.0	20.2		24.2	10.7	8.9				
Green Ext Time (p_c), s		1.9	0.1	3.7		0.0	0.5	3.5				

Intersection Summary												
HCM 6th Ctrl Delay, s/veh			24.1									
HCM 6th LOS			C									

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	70	0	30	0	0	0	55	354	1	3	276	70
Future Vol, veh/h	70	0	30	0	0	0	55	354	1	3	276	70
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	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	1	1	1	1	1	1
Mvmt Flow	77	0	33	0	0	0	60	389	1	3	303	77

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	858	858	342	874	896	390	380	0	0	390	0	0
Stage 1	348	348	-	510	510	-	-	-	-	-	-	-
Stage 2	510	510	-	364	386	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.11	-	-	4.11	-	-
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	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	279	297	705	272	282	663	1184	-	-	1174	-	-
Stage 1	672	638	-	550	541	-	-	-	-	-	-	-
Stage 2	550	541	-	659	614	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	264	277	705	246	263	663	1184	-	-	1174	-	-
Mov Cap-2 Maneuver	264	277	-	246	263	-	-	-	-	-	-	-
Stage 1	628	636	-	514	506	-	-	-	-	-	-	-
Stage 2	514	506	-	626	612	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	21.6	0	1.1	0.1
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1184	-	-	325	-	1174	-	-
HCM Lane V/C Ratio	0.051	-	-	0.338	-	0.003	-	-
HCM Control Delay (s/veh)	8.2	0	-	21.6	0	8.1	0	-
HCM Lane LOS	A	A	-	C	A	A	A	-
HCM 95th %tile Q (veh)	0.2	-	-	1.5	-	0	-	-

MOVEMENT SUMMARY

Site: 15 [Thorpe Rd / Lindeke Connection / Marshall Rd - WP - PM - MIT (Site Folder: With Lindeke Extension - with-project)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

2035 Future WP - MIT AM
Site Category: MIT
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: Marshall Rd															
3	L2	All MCs	5	0.0	5	0.0	0.024	12.1	LOS B	0.1	3.1	0.57	0.61	0.57	33.8
8	T1	All MCs	1	0.0	1	0.0	0.024	6.2	LOS A	0.1	3.1	0.57	0.61	0.57	34.6
18	R2	All MCs	16	0.0	16	0.0	0.024	6.2	LOS A	0.1	3.1	0.57	0.61	0.57	34.3
Approach			23	0.0	23	0.0	0.024	7.6	LOS A	0.1	3.1	0.57	0.61	0.57	34.2
East: Thorpe Rd															
1	L2	All MCs	5	0.0	5	0.0	0.749	12.3	LOS B	8.8	220.8	0.72	0.60	0.77	33.8
6	T1	All MCs	635	0.0	635	0.0	0.749	6.4	LOS A	8.8	220.8	0.72	0.60	0.77	34.5
16	R2	All MCs	299	0.0	299	0.0	0.749	6.4	LOS A	8.8	220.8	0.72	0.60	0.77	34.2
Approach			939	0.0	939	0.0	0.749	6.4	LOS A	8.8	220.8	0.72	0.60	0.77	34.4
North: Lindeke Connection															
7	L2	All MCs	201	0.0	201	0.0	0.338	13.1	LOS B	2.4	59.0	0.77	0.72	0.77	32.3
4	T1	All MCs	1	0.0	1	0.0	0.338	7.1	LOS A	2.4	59.0	0.77	0.72	0.77	32.9
14	R2	All MCs	88	0.0	88	0.0	0.338	7.2	LOS A	2.4	59.0	0.77	0.72	0.77	32.7
Approach			290	0.0	290	0.0	0.338	11.3	LOS B	2.4	59.0	0.77	0.72	0.77	32.4
West: Thorpe Rd															
5	L2	All MCs	205	0.0	205	0.0	0.343	10.7	LOS B	2.3	56.4	0.46	0.56	0.46	33.5
2	T1	All MCs	203	0.0	203	0.0	0.343	4.8	LOS A	2.3	56.4	0.46	0.56	0.46	34.1
12	R2	All MCs	16	0.0	16	0.0	0.343	4.8	LOS A	2.3	56.4	0.46	0.56	0.46	33.9
Approach			425	0.0	425	0.0	0.343	7.6	LOS A	2.3	56.4	0.46	0.56	0.46	33.8
All Vehicles			1677	0.0	1677	0.0	0.749	7.6	LOS A	8.8	220.8	0.66	0.61	0.69	33.9

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
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.

Appendix J: Phased With-Project Operations and Traffic Volumes

Victory Heights - Phasing LOS and Queueing Summary

No Closures

PM Peak Hour — **Northbound Left Turn**

	5. US 195/North J-Turn	LOS	Delay (s)	95th Percentile Queue (feet)
	Avilable Storage			**350**
	Baseline (2035)	*E*	*40.0*	*105*
2029	Phase Three	E	36.6	95
2030	Phase Four	F	54.1	145

PM Peak Hour — **Northbound Left Turn**

	4. US 195/16th	LOS	Delay (s)	95th Percentile Queue (feet)
	Avilable Storage			
	Baseline (2035)	*C*	*19.5*	*35*
2029	Phase Three	C	21.4	50
2030	Phase Four	C	23.1	55

No Closures

AM Peak Hour — **bound Left Turn**

	7. US 195/South J-Turn	LOS	Delay (s)	95th Percentile Queue (feet)
	Avilable Storage			**315**
	Baseline (2035)	*E*	*36.5*	*100*
2027	Phase Two	E	37.4	120
2029	Phase Three	F	53.9	180

Closing the SB J-Turn

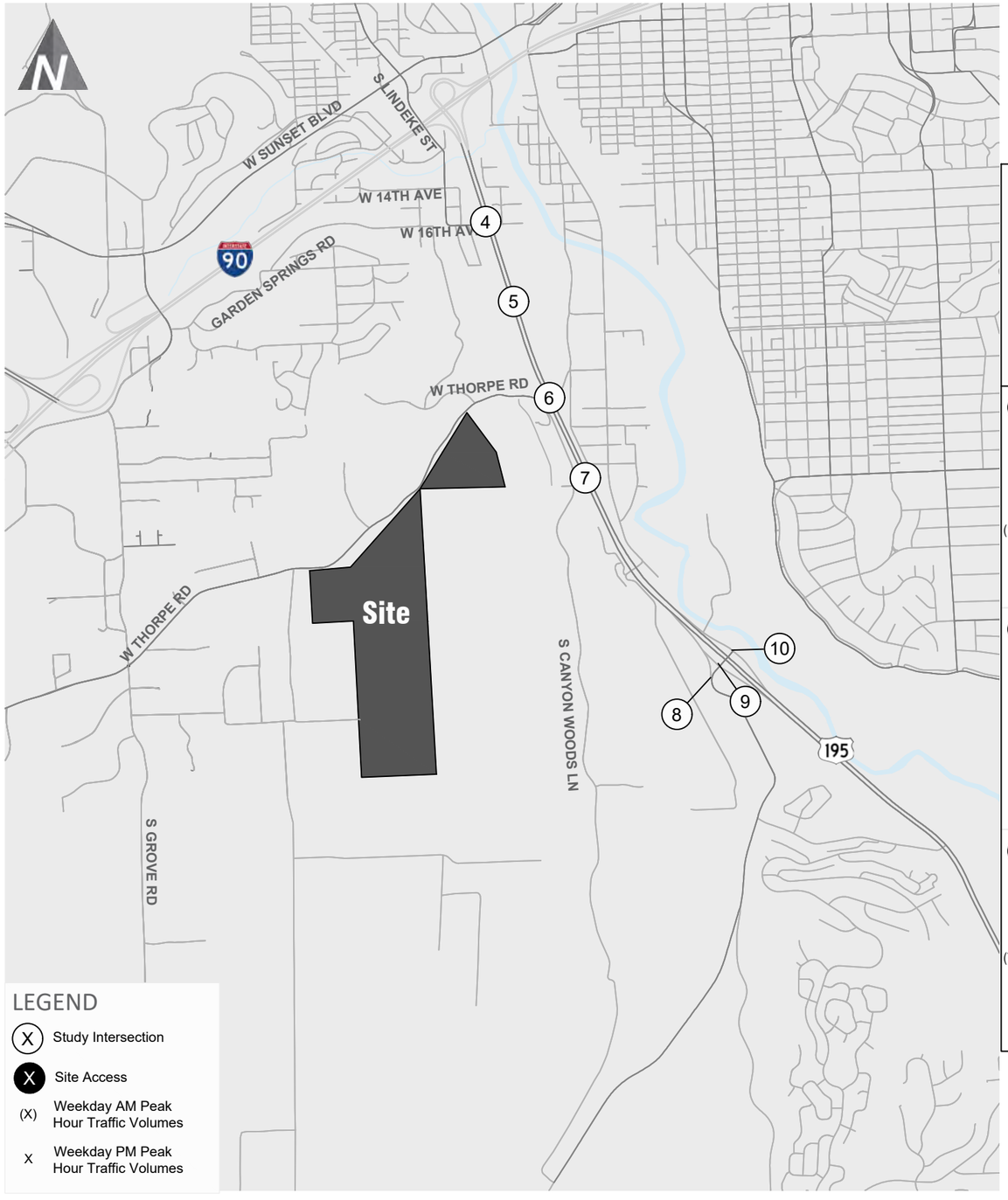
with closure of South J-Turn: *50% Cheney Spokane*
50% Grove I-90 on-ramp

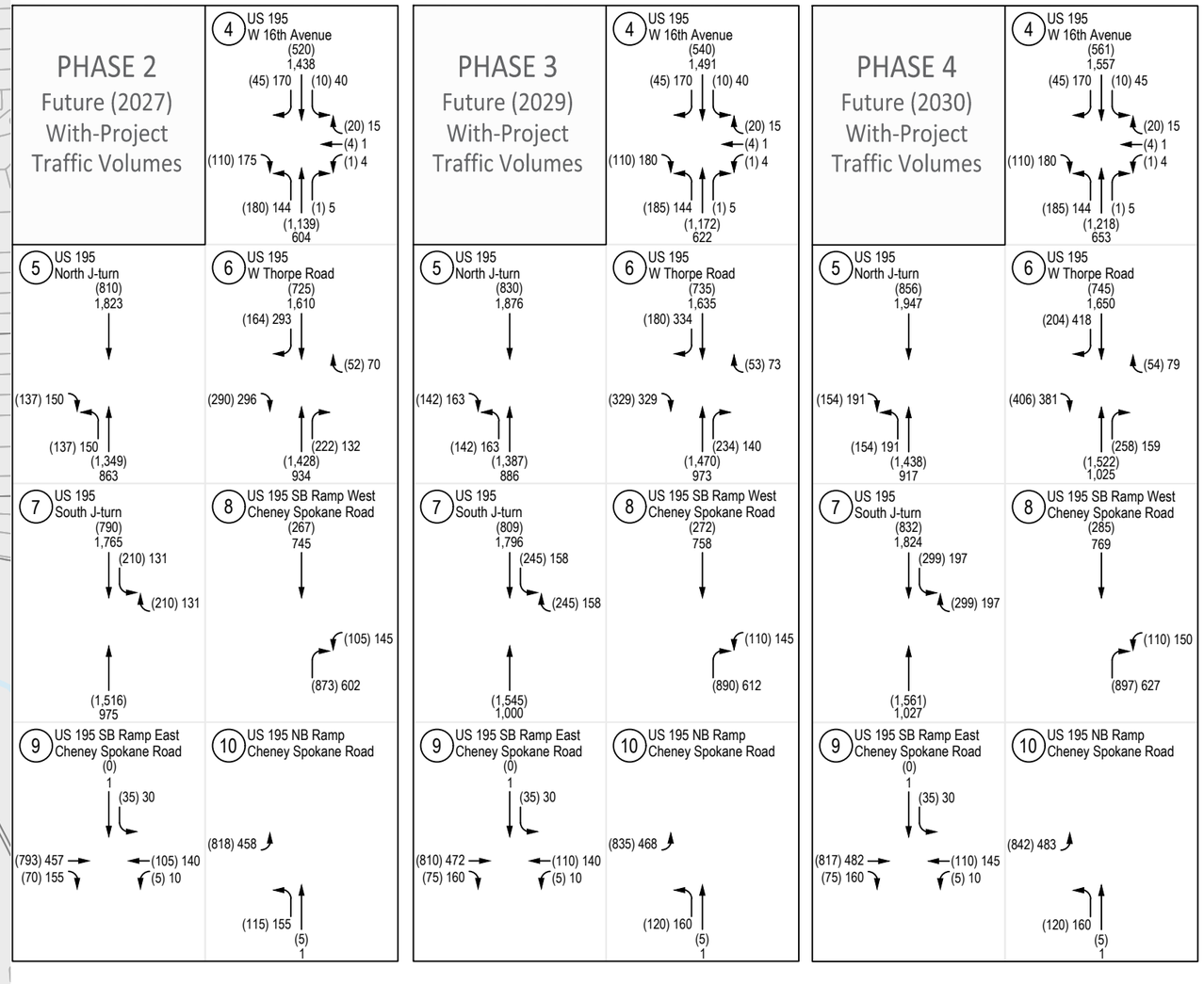
AM Peak Hour — **Southbound Left Turn**

	9. US 195 SB Ramp/ Cheney Spokane Rd	LOS	Delay (s)	95th Percentile Queue (feet)
	Avilable Storage			
	Baseline (2035)	*C*	*23.4*	*15*
2029	Phase Three	E	47.4	120
2030	Phase Four	F	64.2	165

AM Peak Hour — **Northbound Left Turn**

	10. US 195 NB Ramp/ Cheney Spokane Rd	LOS	Delay (s)	95th Percentile Queue (feet)
	Avilable Storage			
	Baseline (2035)	*D*	*29.3*	*65*
2029	Phase Three	E	35.8	75
2030	Phase Four	E	39.2	85



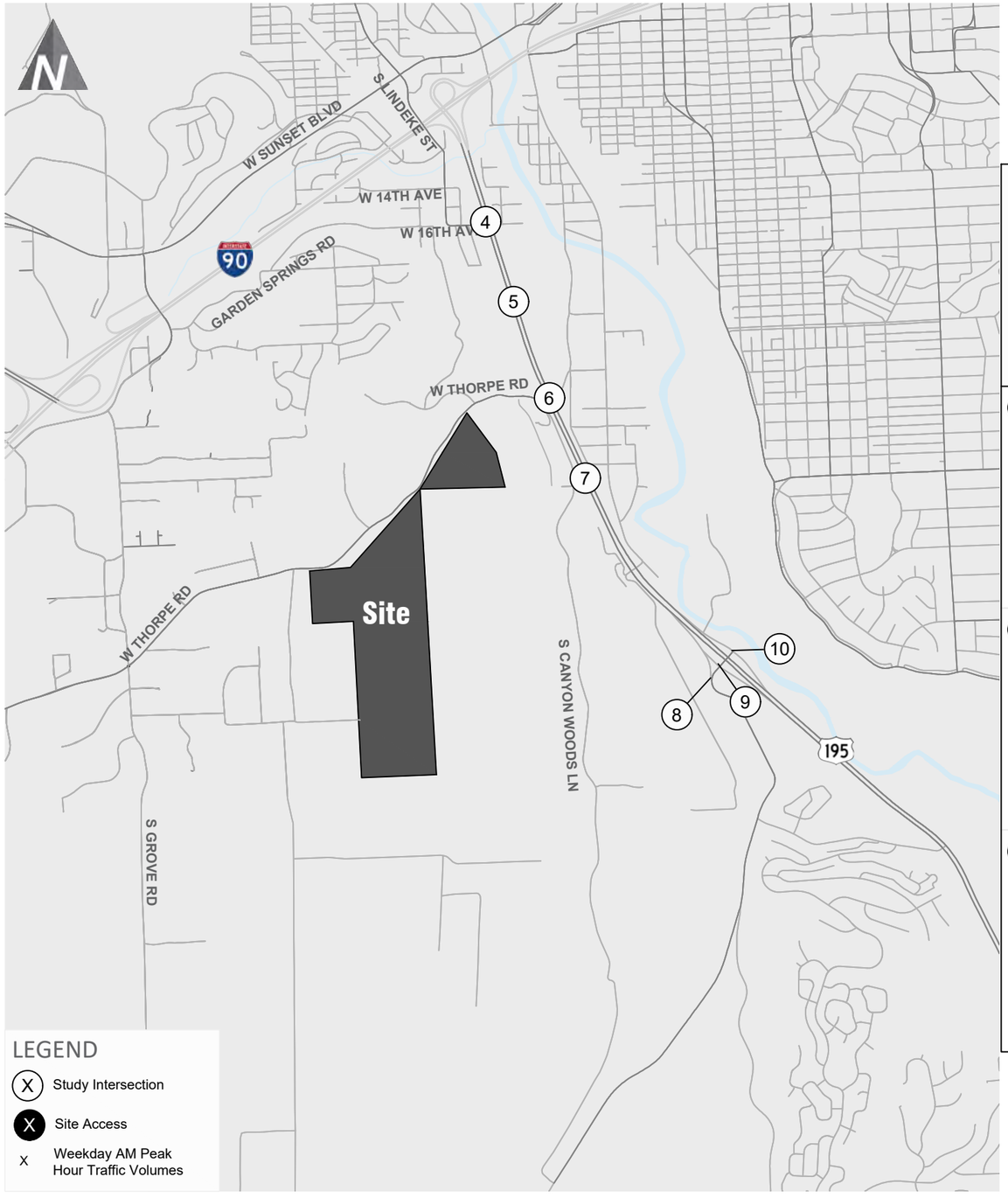


Phase 2 (2027), Phase 3 (2029), and Phase 4 (2030) Future With-Project Weekday Peak Hour Traffic Volumes (No Closures)

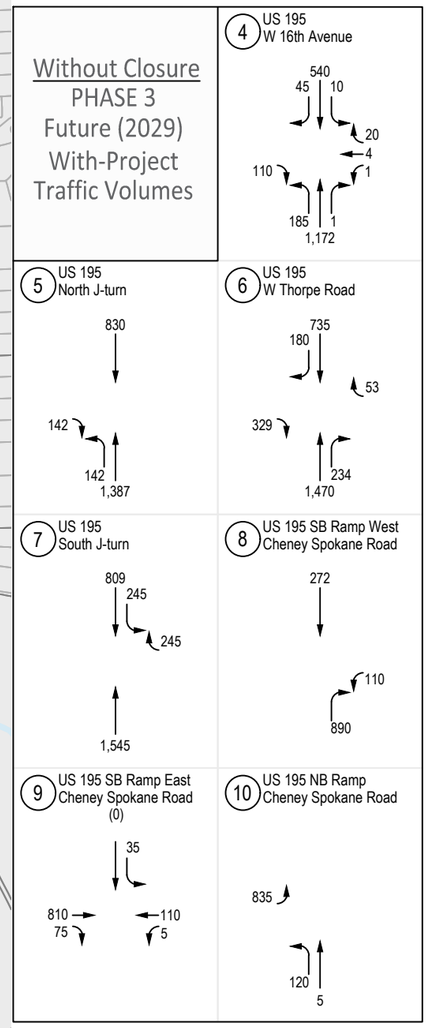
APPENDIX J

Blue Fern Victory Heights

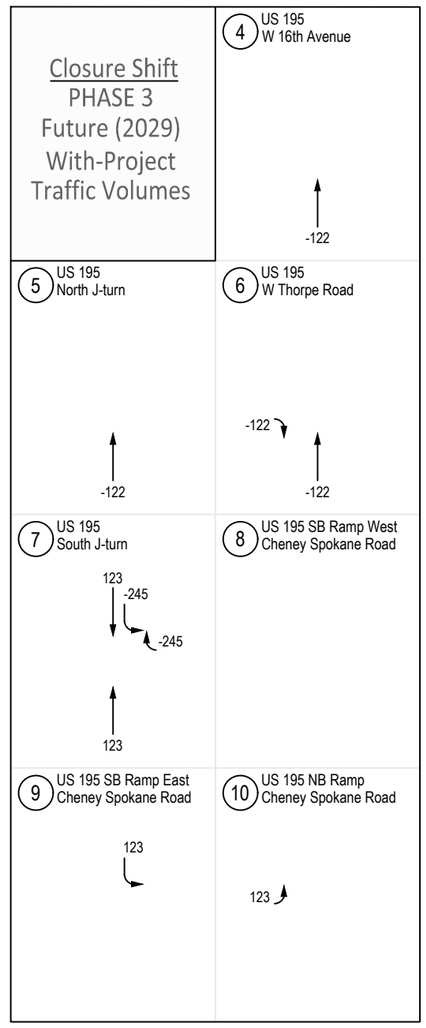
transpogroup



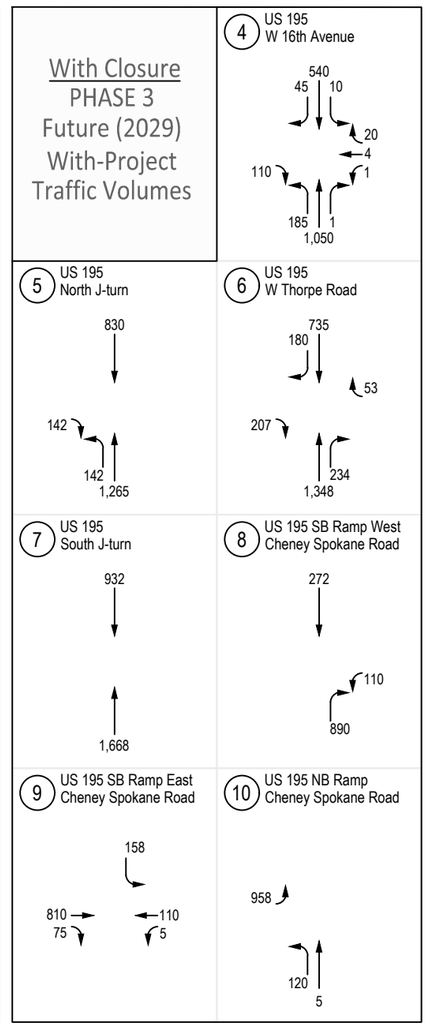
Without Closure PHASE 3 Future (2029) With-Project Traffic Volumes



Closure Shift PHASE 3 Future (2029) With-Project Traffic Volumes



With Closure PHASE 3 Future (2029) With-Project Traffic Volumes

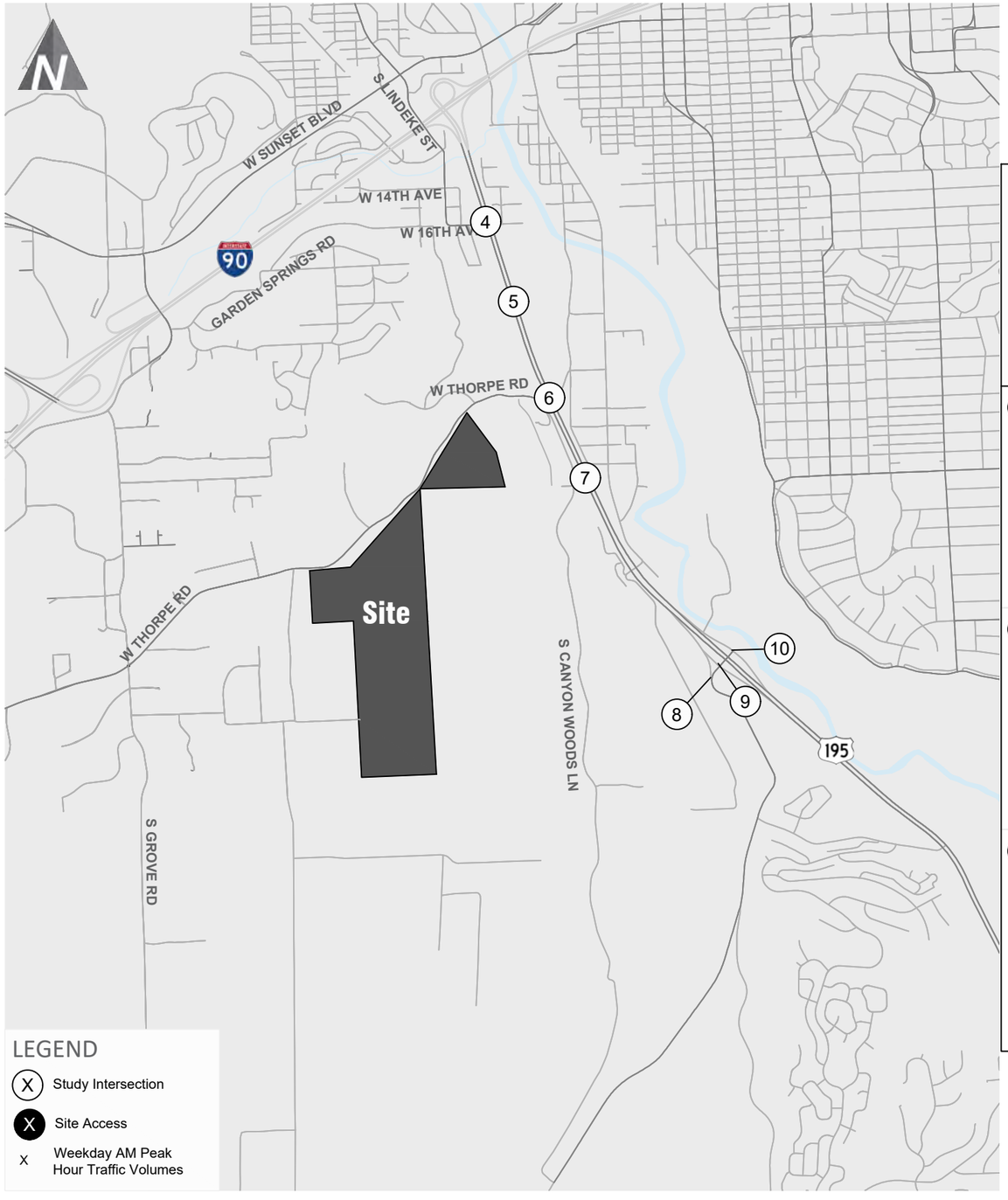


Phase 3 Future (2029) With-Project Weekday AM Peak Hour Traffic Volumes With SB J-Turn Closure

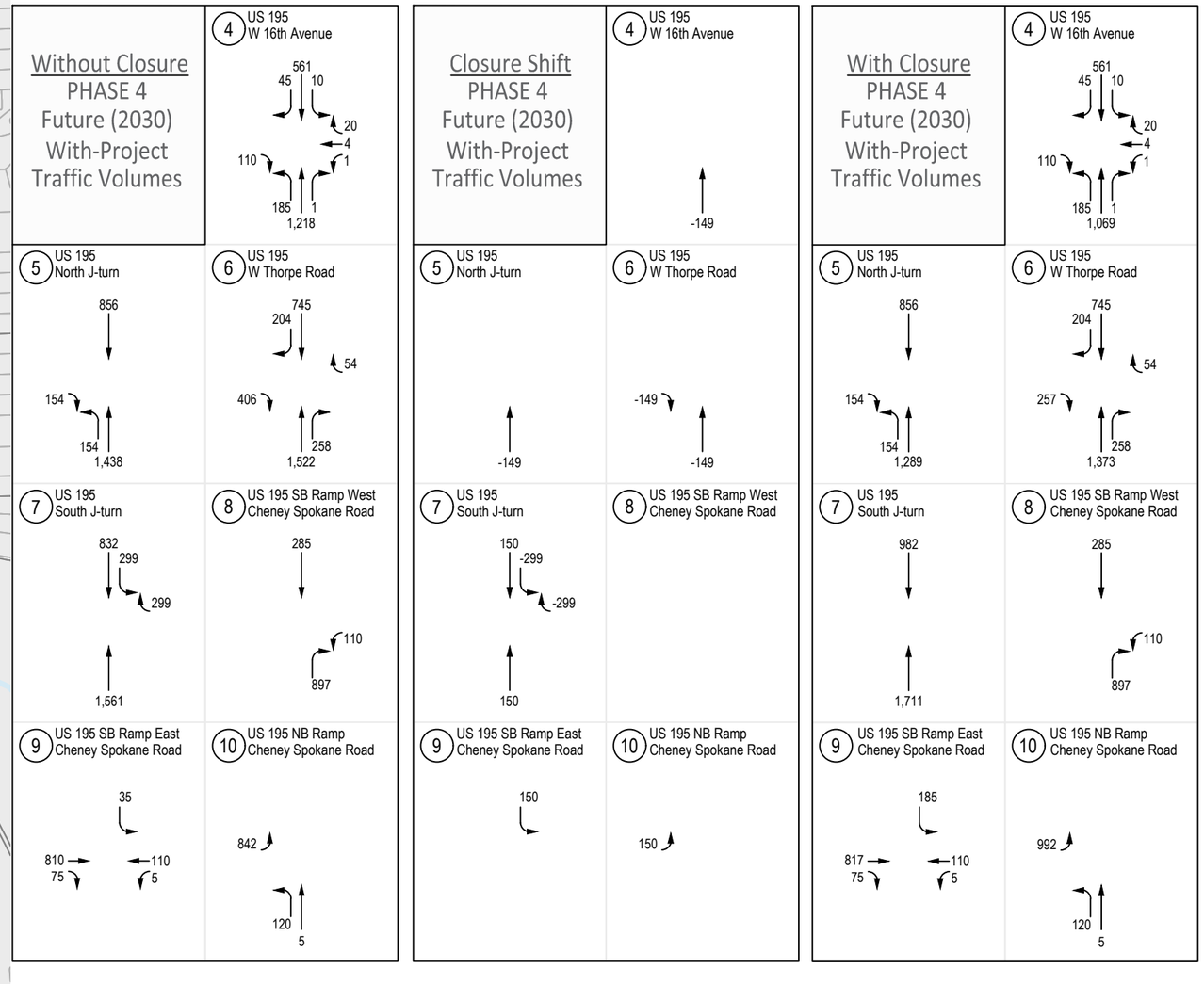
Blue Fern Victory Heights

APPENDIX J

transpogroup



Without Closure
PHASE 4
Future (2030)
With-Project
Traffic Volumes



Closure Shift
PHASE 4
Future (2030)
With-Project
Traffic Volumes

With Closure
PHASE 4
Future (2030)
With-Project
Traffic Volumes

Phase 4 Future (2030) With-Project Weekday AM Peak Hour Traffic Volumes With SB J-Turn Closure

Blue Fern Victory Heights

APPENDIX J

transpogroup

Intersection	
Int Delay, s/veh	5.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	210	1516	0	210	790
Future Vol, veh/h	0	210	1516	0	210	790
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	-	-	450	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	1	1	4	4
Mvmt Flow	0	223	1613	0	223	840

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	806	0	-	1613	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	4.6	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	2.24	-
Pot Cap-1 Maneuver	0	329	-	0	324	-
Stage 1	0	-	-	0	-	-
Stage 2	0	-	-	0	-	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	329	-	-	324	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	36.23	0	7.86
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	WBLn1	SBL	SBT
Capacity (veh/h)	-	329	324	-
HCM Lane V/C Ratio	-	0.679	0.689	-
HCM Control Delay (s/veh)	-	36.2	37.4	-
HCM Lane LOS	-	E	E	-
HCM 95th %tile Q(veh)	-	4.7	4.8	-

Intersection	
Int Delay, s/veh	9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	245	1545	0	245	809
Future Vol, veh/h	0	245	1545	0	245	809
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	-	-	450	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	1	1	4	4
Mvmt Flow	0	261	1644	0	261	861

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	822	0	-	1644	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	4.6	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	2.24	-
Pot Cap-1 Maneuver	0	321	-	0	314	-
Stage 1	0	-	-	0	-	-
Stage 2	0	-	-	0	-	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	321	-	-	314	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	50.44	0	12.53
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	WBLn1	SBL	SBT
Capacity (veh/h)	-	321	314	-
HCM Lane V/C Ratio	-	0.811	0.829	-
HCM Control Delay (s/veh)	-	50.4	53.9	-
HCM Lane LOS	-	F	F	-
HCM 95th %tile Q(veh)	-	6.8	7.1	-

Intersection	
Int Delay, s/veh	6.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	810	75	5	110	0	0	0	0	158	0	0
Future Vol, veh/h	0	810	75	5	110	0	0	0	0	158	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	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	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	0	0	0	0	0	0	12	12	12
Mvmt Flow	0	890	82	5	121	0	0	0	0	174	0	0

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	973	0	0	1022	1104	121
Stage 1	-	-	-	-	-	-	132	132	-
Stage 2	-	-	-	-	-	-	890	973	-
Critical Hdwy	-	-	-	4.1	-	-	6.52	6.62	6.32
Critical Hdwy Stg 1	-	-	-	-	-	-	5.52	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.52	5.62	-
Follow-up Hdwy	-	-	-	2.2	-	-	3.608	4.108	3.408
Pot Cap-1 Maneuver	0	-	-	717	-	0	250	202	904
Stage 1	0	-	-	-	-	0	870	768	-
Stage 2	0	-	-	-	-	0	385	318	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	717	-	-	248	0	904
Mov Cap-2 Maneuver	-	-	-	-	-	-	248	0	-
Stage 1	-	-	-	-	-	-	870	0	-
Stage 2	-	-	-	-	-	-	382	0	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0	0.44	47.38
HCM LOS			E

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	78	-	248
HCM Lane V/C Ratio	-	-	0.008	-	0.699
HCM Control Delay (s/veh)	-	-	10.1	0	47.4
HCM Lane LOS	-	-	B	A	E
HCM 95th %tile Q(veh)	-	-	0	-	4.7

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰						↰				
Traffic Vol, veh/h	0	958	0	0	0	0	120	5	0	0	0	0
Future Vol, veh/h	0	958	0	0	0	0	120	5	0	0	0	0
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	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	0	0	0	3	3	3	0	0	0
Mvmt Flow	0	1053	0	0	0	0	132	5	0	0	0	0

Major/Minor	Major1			Minor1		
Conflicting Flow All	0	0	-	1053	1053	-
Stage 1	-	-	-	1053	1053	-
Stage 2	-	-	-	0	0	-
Critical Hdwy	4.12	-	-	6.43	6.53	-
Critical Hdwy Stg 1	-	-	-	5.43	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.218	-	-	3.527	4.027	-
Pot Cap-1 Maneuver	-	-	0	250	225	0
Stage 1	-	-	0	334	302	0
Stage 2	-	-	0	-	-	0
Platoon blocked, %		-				
Mov Cap-1 Maneuver	-	-	-	250	0	-
Mov Cap-2 Maneuver	-	-	-	250	0	-
Stage 1	-	-	-	334	0	-
Stage 2	-	-	-	-	0	-

Approach	EB	NB
HCM Control Delay, s/v	0	35.77
HCM LOS		E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT
Capacity (veh/h)	250	-	-
HCM Lane V/C Ratio	0.55	-	-
HCM Control Delay (s/veh)	35.8	0	-
HCM Lane LOS	E	A	-
HCM 95th %tile Q(veh)	3	-	-

Intersection	
Int Delay, s/veh	4.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	180	4	1	15	144	622	5	40	1491	170
Future Vol, veh/h	0	0	180	4	1	15	144	622	5	40	1491	170
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	-	-	0	-	-	-	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	0	0	0	2	2	2	1	1	1
Mvmt Flow	0	0	186	4	1	15	148	641	5	41	1537	175

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	856	1792	2736	323	1712	0	0	646	0	0
Stage 1	-	-	-	941	941	-	-	-	-	-	-	-
Stage 2	-	-	-	851	1795	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	7.5	6.5	6.9	4.14	-	-	4.12	-	-
Critical Hdwy Stg 1	-	-	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	3.5	4	3.3	2.22	-	-	2.21	-	-
Pot Cap-1 Maneuver	0	0	305	52	21	678	366	-	-	942	-	-
Stage 1	0	0	-	287	345	-	-	-	-	-	-	-
Stage 2	0	0	-	325	134	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	305	12	12	678	366	-	-	942	-	-
Mov Cap-2 Maneuver	-	-	-	12	12	-	-	-	-	-	-	-
Stage 1	-	-	-	171	205	-	-	-	-	-	-	-
Stage 2	-	-	-	122	128	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	33.53	144.1	3.99	0.21
HCM LOS	D	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	366	-	-	305	44	942	-	-
HCM Lane V/C Ratio	0.405	-	-	0.608	0.467	0.044	-	-
HCM Control Delay (s/veh)	21.4	-	-	33.5	144.1	9	-	-
HCM Lane LOS	C	-	-	D	F	A	-	-
HCM 95th %tile Q(veh)	1.9	-	-	3.7	1.7	0.1	-	-

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	163	163	886	1876	0
Future Vol, veh/h	0	163	163	886	1876	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	-	0	450	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	3	3	1	1
Mvmt Flow	0	173	173	943	1996	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	998	1996	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	4.16	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	2.23	-	-	-
Pot Cap-1 Maneuver	0	246	280	-	-	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	246	280	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	48.42	5.69	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT
Capacity (veh/h)	280	-	246	-
HCM Lane V/C Ratio	0.619	-	0.705	-
HCM Control Delay (s/veh)	36.6	-	48.4	-
HCM Lane LOS	E	-	E	-
HCM 95th %tile Q(veh)	3.8	-	4.7	-

Intersection	
Int Delay, s/veh	10

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	817	75	5	110	0	0	0	0	185	0	0
Future Vol, veh/h	0	817	75	5	110	0	0	0	0	185	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	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	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	0	0	0	0	0	0	12	12	12
Mvmt Flow	0	898	82	5	121	0	0	0	0	203	0	0

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	980	0	0	1030	1112	121
Stage 1	-	-	-	-	-	-	132	132	-
Stage 2	-	-	-	-	-	-	898	980	-
Critical Hdwy	-	-	-	4.1	-	-	6.52	6.62	6.32
Critical Hdwy Stg 1	-	-	-	-	-	-	5.52	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.52	5.62	-
Follow-up Hdwy	-	-	-	2.2	-	-	3.608	4.108	3.408
Pot Cap-1 Maneuver	0	-	-	712	-	0	248	200	904
Stage 1	0	-	-	-	-	0	870	768	-
Stage 2	0	-	-	-	-	0	382	315	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	712	-	-	246	0	904
Mov Cap-2 Maneuver	-	-	-	-	-	-	246	0	-
Stage 1	-	-	-	-	-	-	870	0	-
Stage 2	-	-	-	-	-	-	379	0	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0	0.44	64.22
HCM LOS			F

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	78	-	246
HCM Lane V/C Ratio	-	-	0.008	-	0.827
HCM Control Delay (s/veh)	-	-	10.1	0	64.2
HCM Lane LOS	-	-	B	A	F
HCM 95th %tile Q(veh)	-	-	0	-	6.5

Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰						↰				
Traffic Vol, veh/h	0	992	0	0	0	0	120	5	0	0	0	0
Future Vol, veh/h	0	992	0	0	0	0	120	5	0	0	0	0
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	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	0	0	0	3	3	3	0	0	0
Mvmt Flow	0	1090	0	0	0	0	132	5	0	0	0	0

Major/Minor	Major1			Minor1		
Conflicting Flow All	0	0	-	1090	1090	-
Stage 1	-	-	-	1090	1090	-
Stage 2	-	-	-	0	0	-
Critical Hdwy	4.12	-	-	6.43	6.53	-
Critical Hdwy Stg 1	-	-	-	5.43	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.218	-	-	3.527	4.027	-
Pot Cap-1 Maneuver	-	-	0	237	214	0
Stage 1	-	-	0	321	290	0
Stage 2	-	-	0	-	-	0
Platoon blocked, %		-				
Mov Cap-1 Maneuver	-	-	-	237	0	-
Mov Cap-2 Maneuver	-	-	-	237	0	-
Stage 1	-	-	-	321	0	-
Stage 2	-	-	-	-	0	-

Approach	EB	NB
HCM Control Delay, s/v	0	39.21
HCM LOS		E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT
Capacity (veh/h)	237	-	-
HCM Lane V/C Ratio	0.58	-	-
HCM Control Delay (s/veh)	39.2	0	-
HCM Lane LOS	E	A	-
HCM 95th %tile Q(veh)	3.3	-	-

Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	180	4	1	15	144	653	5	45	1557	170
Future Vol, veh/h	0	0	180	4	1	15	144	653	5	45	1557	170
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	-	-	0	-	-	-	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	0	0	0	2	2	2	1	1	1
Mvmt Flow	0	0	186	4	1	15	148	673	5	46	1605	175

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	890	1868	2846	339	1780	0	0	678	0	0
Stage 1	-	-	-	973	973	-	-	-	-	-	-	-
Stage 2	-	-	-	895	1873	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	7.5	6.5	6.9	4.14	-	-	4.12	-	-
Critical Hdwy Stg 1	-	-	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	3.5	4	3.3	2.22	-	-	2.21	-	-
Pot Cap-1 Maneuver	0	0	290	46	17	663	345	-	-	916	-	-
Stage 1	0	0	-	275	333	-	-	-	-	-	-	-
Stage 2	0	0	-	306	122	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	290	9	9	663	345	-	-	916	-	-
Mov Cap-2 Maneuver	-	-	-	9	9	-	-	-	-	-	-	-
Stage 1	-	-	-	156	190	-	-	-	-	-	-	-
Stage 2	-	-	-	104	116	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	37.15	209.8	4.15	0.23
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	345	-	-	290	34	916	-	-
HCM Lane V/C Ratio	0.431	-	-	0.64	0.599	0.051	-	-
HCM Control Delay (s/veh)	23.1	-	-	37.2	209.8	9.1	-	-
HCM Lane LOS	C	-	-	E	F	A	-	-
HCM 95th %tile Q(veh)	2.1	-	-	4.1	2	0.2	-	-

Intersection	
Int Delay, s/veh	7.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	191	191	917	1947	0
Future Vol, veh/h	0	191	191	917	1947	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	-	0	450	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	3	3	1	1
Mvmt Flow	0	203	203	976	2071	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	1036	2071	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	4.16	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	2.23	-	-	-
Pot Cap-1 Maneuver	0	232	262	-	-	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	232	262	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	75.52	9.33	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT
Capacity (veh/h)	262	-	232	-
HCM Lane V/C Ratio	0.777	-	0.875	-
HCM Control Delay (s/veh)	54.1	-	75.5	-
HCM Lane LOS	F	-	F	-
HCM 95th %tile Q(veh)	5.8	-	7.1	-

Appendix K: South J-Turn/US 195 Weekday AM peak hour Calibration

				Rolling Hour				
Time (15-Minute Intervals)	SB Vol	NB Total Volume Count	J-Turn Average (Sec)	NB Total Volume Count	SB J-Turn Count	J-Turn Average (Sec)	PHF	
7:00-7:15 AM	22	319	16.55	1617	79	33.4	0.81	peak hour (J-Turn)
7:15-7:30 AM	20	431	29.85	1651	71	34.9	0.83	peak hour (NB Vol)
7:30-7:45 AM	19	500	52.95	1553	75	31.4	0.78	
7:45-8:00 AM	18	367	37.33	1307	66	22.3	0.89	
8:00-8:15 AM	14	353	14.29	1207	68	15.6	0.85	
8:15-8:30 AM	24	333	20.00					
8:30-8:45 AM	10	254	11.90					
8:45-9:00 AM	20	267	13.10					

Note: Tabs labeled to the right with the time label were only used to calculate average for the J-Turns.

Time (15-Minute Intervals)	J-Turn (SB Delay in Sec)																							
7:00-7:15 AM	12	15	6	19	12	10	32	27	16	25	10	8	12	14	19	24	15	16	10	13	17	32		
7:15-7:30 AM	35	30	28	15	17	23	21	19	40	24	21	22	27	23	24	22	13	65	67	61				
7:30-7:45 AM	52	48	41	36	98	90	75	44	27	20	26	24	10	27	84	80	78	76	70					
7:45-8:00 AM	60	45	38	15	108	107	103	12	13	7	21	33	30	15	29	21	10	5						
8:00-8:15 AM	10	13	9	14	32	7	13	10	14	12	17	15	13	21										
8:15-8:30 AM	10	38	34	42	59	33	27	21	16	13	14	9	34	12	18	6	19	14	11	8	17	11	5	9
8:30-8:45 AM	9	17	9	12	14	8	6	22	15	7														
8:45-9:00 AM	9	6	5	5	4	11	27	25	13	39	11	16	23	5	8	15	10	14	9	7				

Intersection	
Int Delay, s/veh	2.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	79	1617	0	79	0
Future Vol, veh/h	0	79	1617	0	79	0
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	-	-	450	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	0	0	1	1	4	4
Mvmt Flow	0	98	1996	0	98	0

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	998	0	-	1996	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	4.6	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	2.24	-
Pot Cap-1 Maneuver	0	246	-	0	219	-
Stage 1	0	-	-	0	-	-
Stage 2	0	-	-	0	-	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	246	-	-	219	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	28.9	0	34
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	WBLn1	SBL	SBT
Capacity (veh/h)	-	246	219	-
HCM Lane V/C Ratio	-	0.396	0.445	-
HCM Control Delay (s/veh)	-	28.9	34	-
HCM Lane LOS	-	D	D	-
HCM 95th %tile Q (veh)	-	1.8	2.1	-