

Draft 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. As necessary, based on jurisdictional standards, mitigation measures are identified that would 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 by 2035 over eight phases, with first phase initiated in in 2025 (occupancy in 2026).

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

In addition to the study area intersections identified above, the operations of the US 195/I-90 eastbound (EB) interchange were evaluated for the following operations:

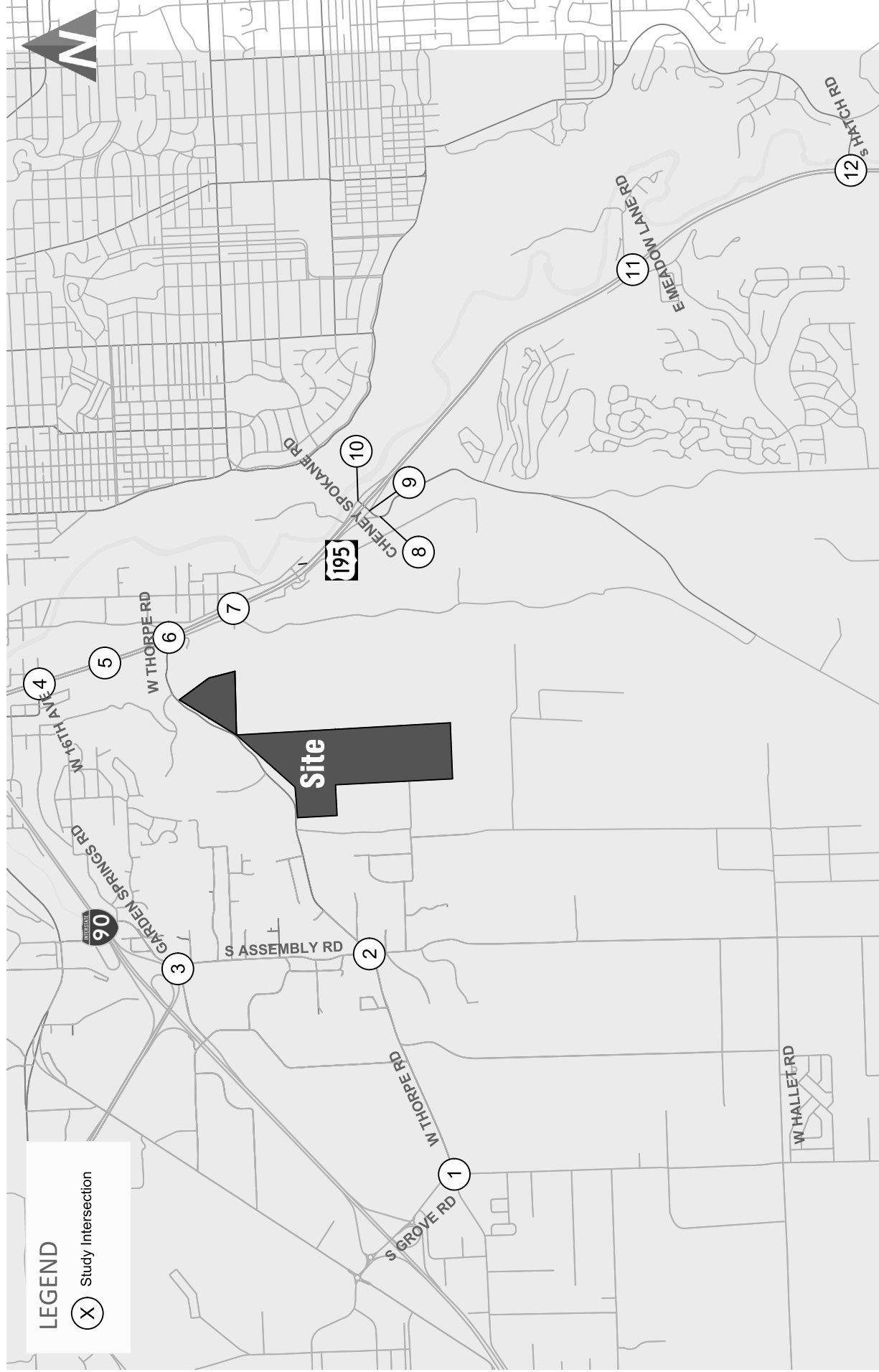
- US 195 to EB I-90 ramp diverge operations
- US 195 to EB I-90 ramp meter queuing analysis
- EB I-90 mainline/US 195 ramp merge operations

The analysis conducted focused on the following areas for existing, future without-project, and future with-project 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.



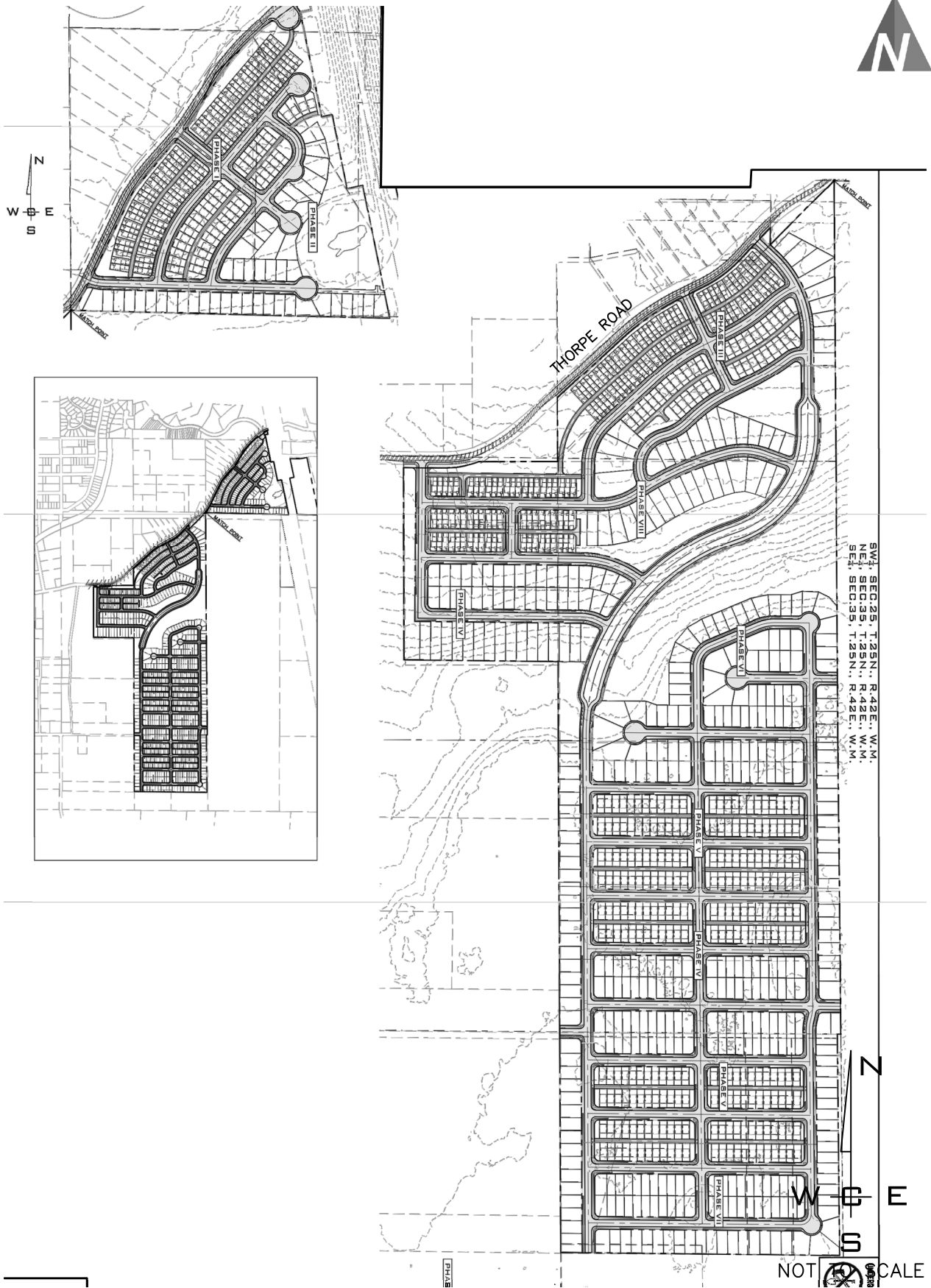
Site Vicinity

Blue Fern Victory Heights

FIGURE

1





Preliminary Site Plan

Blue Fern Victory Heights

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 street 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 1.

Table 1. 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 16th Avenue	Urban Minor Arterial	25	2	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.

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. The timing of this improvement is not certain, however may be advanced as a condition of approval for developments in the area.

Non-Motorized Facilities

As shown in Table 1, 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.

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 2 including days of operation, service routes, and headways.

Table 2. Transit Route Summary

Route	Days of Operation	Hours of Operation		Weekday Peak Period Headway ¹
		Weekdays	Saturday/Sunday	
42 – South Adams	Mon. – Sun.	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	Mon. – Sun.	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	Mon. - Sun.	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	Mon. - Sun.	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.

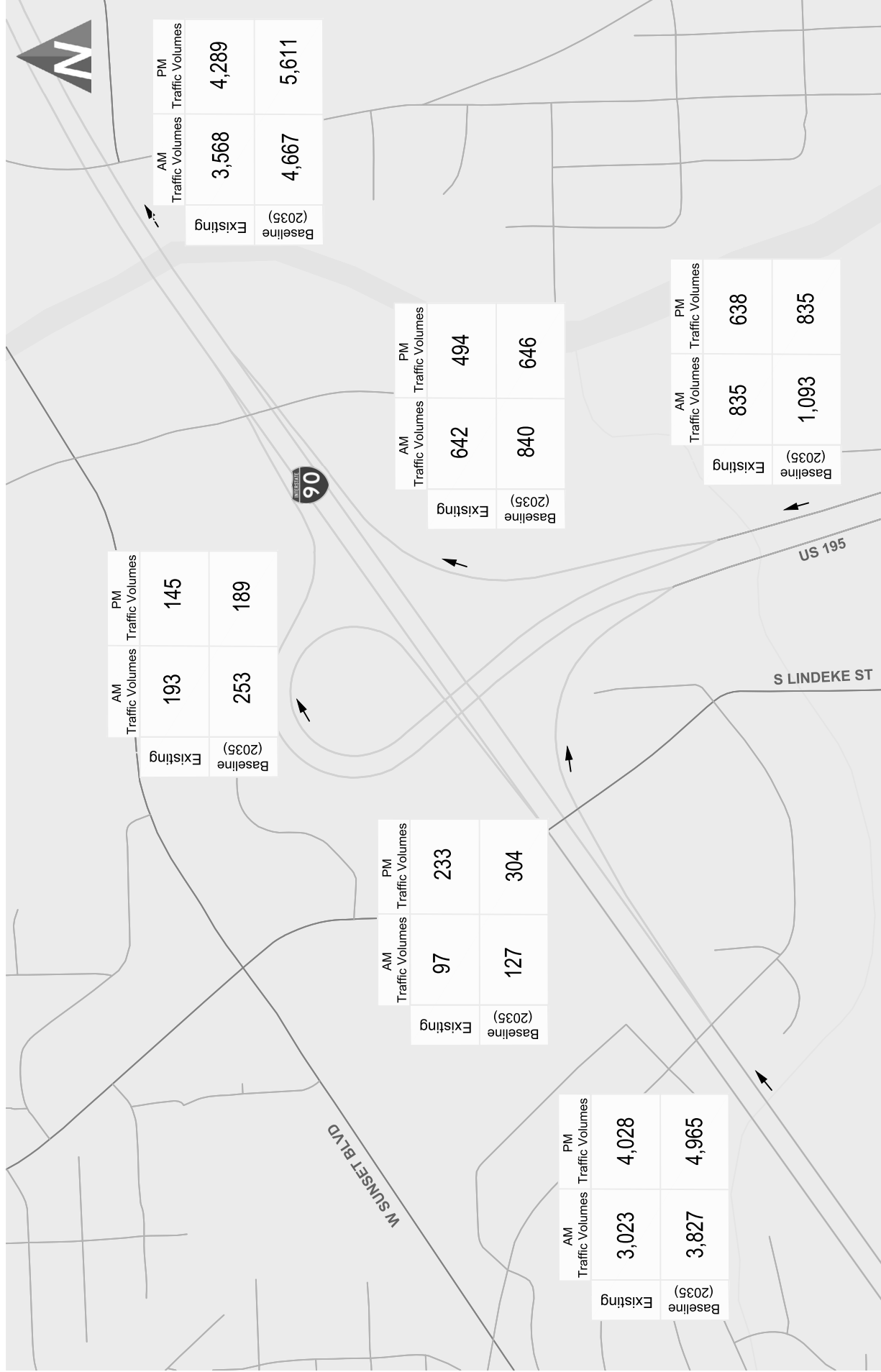
Traffic Volumes

The following sections summarize existing and future (2035) without-project traffic volumes within the study area.

Existing

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. 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. Detailed traffic counts are provided in Appendix A.

Traffic volumes for the I-90 interchange analysis were provided by WSDOT based on Permanent Traffic Recorder (PTR) data from March 2019 through March 2023 and tube count data collected December 2021 at the US 195/I-90 interchange. An annual growth rate of 2.0 percent in the AM peak hour and 1.0 percent in PM peak hour was applied to existing ramp volumes to project future (2035) volumes. A summary of the AM and PM peak hour volumes for the key ramp and roadway links included in the analysis are included in Figure 4.



Existing and Baseline (2035) WSDOT I-90 Interchange Volumes

FIGURE

Future Without-Project Traffic Volumes

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

The forecast future 2035 without-project weekday peak hour traffic volumes are shown in Figure 5. The locations of the pipeline projects relative site are shown on Appendix B.

Traffic Operations

The operational characteristics of an intersection are determined by calculating the intersection level of service (LOS). At signalized intersections and all-way stop-controlled (AWSC) 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 intersection LOS standard is LOS D or better for signalized intersections and LOS E or better for unsignalized intersections.

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. 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 2016) using *Synchro 11*. *Synchro 11* is a software program that uses *HCM* methodology to evaluate intersection LOS and average vehicle delay. Results for the existing and future without-project operations analyses are summarized in Table 3. Detailed LOS worksheets for each intersection analysis are included in Appendix D.

As noted previously, in addition to the intersection operations, WSDOT requested that the analysis included an evaluation of the I-90 US 195 EB ramp and roadway operations. Specifically, the following movements were evaluated:

- US 195 to EB I-90 ramp diverge operations
- US 195 to EB I-90 ramp meter queuing analysis
- EB I-90 mainline/US 195 ramp merge operations

Operations for these movements are expressed in Table 4. The purpose of this analysis is to establish the baseline operations against which the project impacts can be measured. WSDOT does not thresholds as it relates to minimum operating conditions related to ramp operations.



<p>1 Grove Road W Thorpe Road</p> <p>(280) 240 (15) 15 (135) 24 (150) 135 (235) (20) 5 (475) 245 (15) 15 (15) 15 (50) 180 (5) 5 (20) 45 (5) 5 (45) 20 (235) 150 (45) 20</p>	<p>2 S Assembly Road W Thorpe Road</p> <p>(25) 25 (5) 10 (5) 15 (5) 15 (50) 180 (5) 5 (125) 75 (45) 45 (30) 15 (30) 35 (35) 35</p>	<p>3 S Assembly Road Sanden Springs Road</p> <p>(115) 165 (10) 15 (25) 130 (40) 175 (5) 5 (90) 85</p>	<p>4 US 195 W 16th Avenue</p> <p>(45) 175 (10) 45 (0) 0 (25) 15 (0) 0 (5) 5 (115) 165 (115) 165 (180) 115 (6) 5 (1,435) 30</p>	<p>5 US 195 North Turn</p> <p>(810) 1,825 (59) 80 (59) 80 (1,670) 370</p>
<p>6 US 195 W Thorpe Road</p> <p>(155) 270 (165) 110 (755) (75) 1,705 (230) 260 (240) 140 (1,735) (1,170) 1,325 (815) 1,855 (85) 55</p>	<p>7 US 195 South Turn</p> <p>(815) 1,855 (85) 55 (95) 55 (85) 55</p>	<p>8 US 195 SB Ramp West Cheney Spokane Road</p> <p>(235) 780 (115) 155 (75) 170 (925) 825 (85) 470</p>	<p>9 US 195 SB Ramp East Cheney Spokane Road</p> <p>(840) 470 (75) 170 (115) 150 (5) 5 (5) 10</p>	<p>10 US 195 NB Ramp Cheney Spokane Road</p> <p>(125) 165 (5) 5</p>
<p>11 US 195 E Meadow Lane Road</p> <p>(80) 284 (0) 5 (25) 15 (15) 0 (0) 0 (0) 0 (420) 245 (0) 0 (0) 0 (0) 5 (5) 10 (875) 750</p>	<p>12 S Hallett Road</p> <p>(1,325) 1,165 (335) 485 (385) 640 (425) 530 (5) 5 (115) 70 (520) 425</p>			

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

Blue Fern Victory Heights

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Table 3. Existing and Future (2035) Without-Project AM and PM Peak Hour LOS Summary

Intersection	Traffic Control	2035					
		Existing			Without-Project		
		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	8.1	0.434
2. S Assembly Rd/W Thorpe Road	AWSC	A	7.5	-	A	8.4	-
3. S Assembly Rd/Garden Springs Road	TWSC	A	8.9	NB	A	9.6	NB
4. US 195/W 16th Avenue	TWSC	F	206.8	EB	F	156.6	WB
5. US 195/North J-turn	TWSC	A	9.2	NBL	B	10.0	NBL
6. US 195/W Thorpe Road	TWSC	C	15.5	WB	C	24.5	WB
7. US 195/South J-turn	TWSC	C	15.5	SBL	D	26.8	SBL
8. US 195 SB Ramp/Cheney Spokane Road	TWSC	B	10.3	WB	B	11.2	WB
9. US 195 SB Ramp East/Cheney Spokane Road	TWSC	C	17.8	SB	C	24.5	SB
10. US 195 NB Ramp/Cheney Spokane Road	TWSC	A	9.1	NB	A	9.1	NB
11. US 195/E Meadowlane Road	TWSC	F	87.7	EB	C	20.3	WB
12. US 195/S Hatch Road	TWSC	E	44.1	WBL	C	21.6	WB
PM Peak Hour							
1. S Grove Rd/W Thorpe Road	AWSC/Future RAB	B	12.5	-	A	7.2	0.505
2. S Assembly Rd/W Thorpe Road	AWSC	A	8.0	-	A	9.1	-
3. S Assembly Rd/Garden Springs Road	TWSC	A	9.2	NB	B	10.3	NB
4. US 195/W 16th Avenue	TWSC	F	119.2	EB	F	266.7	WB
5. US 195/North J-turn	TWSC	C	16.0	NBL	D	25.9	NBL
6. US 195/W Thorpe Road	TWSC	C	17.3	EB	F	88.6	EB
7. US 195/South J-turn	TWSC	B	10.2	SBL	B	12.1	SBL
8. US 195 SB Ramp/Cheney Spokane Road	TWSC	B	14.8	WB	D	26.4	WB
9. US 195 SB Ramp East/Cheney Spokane Road	TWSC	B	12.4	SB	C	16.4	SB
10. US 195 NB Ramp/Cheney Spokane Road	TWSC	A	9.1	NB	A	9.0	NB
11. US 195/E Meadowlane Road	TWSC	F	55.7	EB	C	20.1	WB
12. US 195/S Hatch Road	TWSC	F	370.2	WBL	C	23.7	WB

Note: TWSC = two-way stop-controlled, AWSC = all-way stop-controlled, RAB = roundabout

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.
4. Volume to capacity is reported for roundabouts

As shown in Table 3, all intersections operate at LOS D or better during the existing conditions except US 195/W 16th Avenue, US 195/E Meadowlane Road, and US 195/S Hatch Road during both AM and PM peak hours.

The City of Spokane and WSDOT have adopted a LOS D as the minimum for signalized intersections and LOS E as the minimum for unsignalized intersections. Therefore, all intersections operate within requirements under future (2035) without-project scenarios with the exception of US 195/W 16th Avenue and US 195/Thorpe Road.

The stop-controlled approaches of the US 195/W 16th Avenue intersection are shown to operate at LOS F under existing and future without-project conditions during both the weekday AM and PM peak hours. With the right-in/right-out and left-in modification at the

intersection on the west leg, the worst operating movement switches from the west leg to the east leg approach. Traffic counts showed 5 or fewer vehicles making westbound through/left turn movements during the weekday AM and PM peak hours. The LOS F condition at the US 195/W Thorpe Road intersection applies to the right-turn movements only due to the right-in/right-out restriction. The J turns constructed north and south of this intersection accommodate left-turns that would normally access this intersection.

US 195 to I-90 EB Ramp Impacts

Table 4 provides a summary of the ramp basic, merge, and diverge operations for the 2035 Without-Project, and 2035 With-Project conditions during the AM and PM peak hours. Under the merge scenario, maximum service rate of 1200 vehicles per hour during AM peak hour and 800 vehicles per hour during PM peak hour were assumed.

Table 4. Existing and Future (2035) Without-Project AM and PM Peak Hour Eastbound I-90 Density and Level of Service

Intersection	Facility Type	Existing LOS	Existing Density (pc/mi/ln) ¹	2035 Without-Project	
				LOS	Density (pc/mi/ln) ¹
<u>AM Peak Hour</u>					
Mainline between US 195 Ramps	Basic	B	14.5	C	19.5
US 195 and I-90 EB	Merge	C	19.8	D	34.4
US 195: I-90 EB and WB	Diverge	A	7.6	B	10.1
<u>PM Peak Hour</u>					
Mainline between US 195 Ramps	Basic	C	19.3	D	27.5
US 195 and I-90 EB	Merge	D	29.3	E	40.5
US 195: I-90 EB and WB	Diverge	A	5.8	A	7.6

As shown in the table, the I-90 EB ramp is forecast to operate at LOS D or better under the analyzed scenarios with the exception of merge movement for future (2035) PM scenario operating at LOS E.

Traffic Safety

This section summarizes the five-year crash summary at the study intersections, methodology of the expected and predicted intersection crashes for the state intersections, and a comparison of the predicted crash reduction for each intersection.

Analysis of Existing Intersection Crashes

The five most recent years of collision records (January 1, 2017 to December 31, 2021) 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 and along the roadway segments adjacent to the project site accesses. A summary of the total and average annual number of reported collisions at the study intersections are provided in Table 5.

Table 5. Five-Year Collision Summary (2017-2021)

Location	Number of Collisions					Total	Annual Average	Collisions per MEV ¹
	2017	2018	2019	2020	2021			
<u>Intersection</u>								
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

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. No pedestrian or bicyclist collisions were reported at the study intersections over the five-year period.

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. Overall, no traffic safety issues requiring improvements were identified.

Expected and Predicted Intersection Crashes Methodology

Analysis of the traffic safety for WSDOT operated intersections as coordinated with the City and WSDOT staff involves the usage of HSM spreadsheets¹ and Crash Modification Factors (CMFs).

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,

¹ <http://safetyperformance.org/tools/>



and other parameters. HSM spreadsheets were used to analyze the WSDOT study area intersections.

Predicted Crash Frequency & Comparison of Crash Reduction

This section summarizes the crash predictions for WSDOT intersections based on the HSM methodology. Where improvements are planned, the crash reduction is forecasted. Full details including calculations and severity distributions are shown in Appendix E. Table 6 below summarizes the findings completed for the future (2035) conditions.

Table 6. Injury and Fatal Crash Reduction Summary

Location	Injury and Fatal Crash Frequency (crashes per year) ¹		
	Expected Crash Frequency	Predicted Crash Frequency	Annual Crash Reduction
<u>Intersection</u>			
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 between the westbound left turn movements with the southbound left turn movements. It is predicted that the North and South J-turn intersections are not anticipated to result in a decrease in injury and fatal crashes.

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 7 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 7. 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
Subtotal	1,003 du	8,328	160	434	594	506	310	816

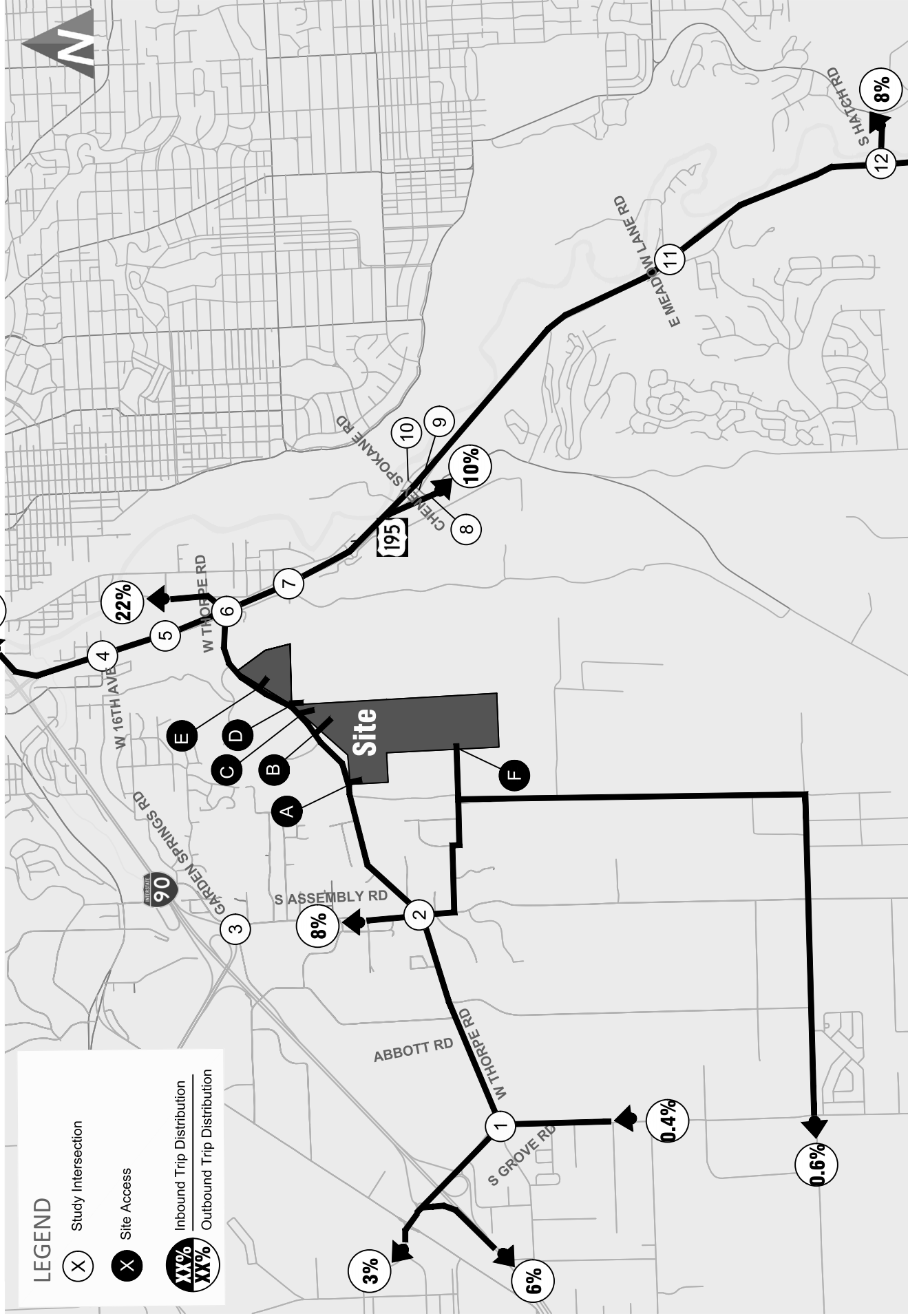
Note: du = dwelling units
1. ITE *Trip Generation Manual*, 11th Edition (2021)

As shown in Table 7, 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 7 were distributed and assigned to the surrounding roadways based on the distribution shown in Figure 6 and Figure 7. The weekday AM and PM peak hour assignment is shown in Figure 8. The project traffic was added to future 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 9. Future (2035) I-90 interchange volumes are shown on Figure 10.

Note, that the trip assignment and traffic volumes reflect a shift in traffic from the J turn to the Cheney-Spokane interchange due to the improvements identified at the US 195/Thorpe Road intersection. Due to the extent of the eastbound right-turn acceleration lane proposed, access to the southern Thorpe Road J turn will be restricted. No modifications to the J-turn are assumed.



Outbound Peak Hour Trip Distribution

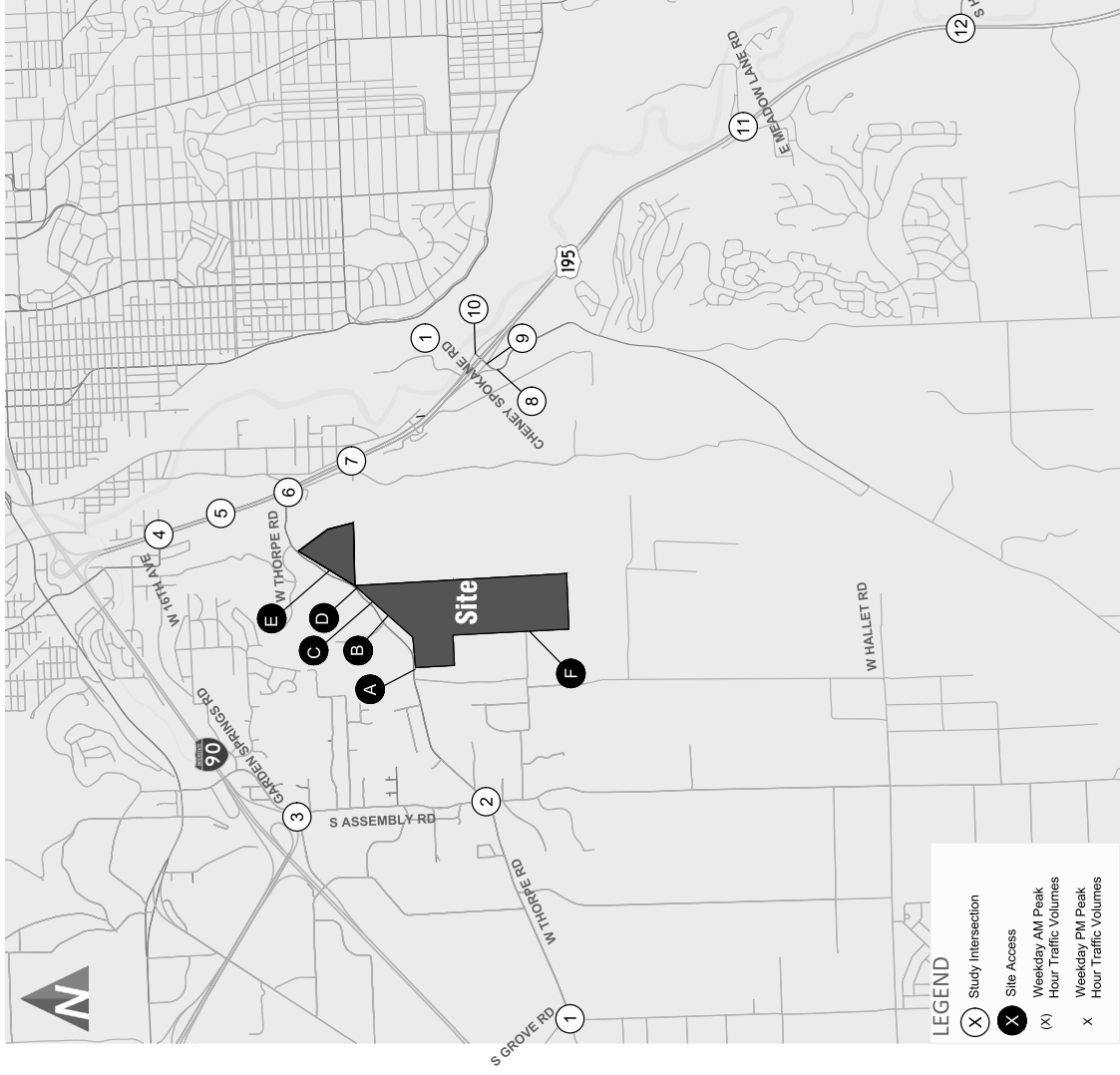


<p>1 Grove Road W Thorpe Road</p> <p>(12) 41 (8) 28 (2) 1 (1) 2</p>	<p>2 S Assembly Road W Thorpe Road</p> <p>(9) 30 (4) 13 (16) 11 (2) 1 (12) 36 (13) 9 (25) 18</p>	<p>3 S Assembly Road Garden Springs Road</p> <p>(19) 62 (34) 25</p>	<p>4 US 195 W 1850 Avenue</p> <p>(85) 268</p>	<p>5 US 195 North Turn</p> <p>(85) 268</p>
<p>6 US 195 W Thorpe Road</p> <p>(124) 399 (10) 30 (357) 254 (2) 6 (56) 69 (2) 5 (43) 30</p>	<p>7 US 195 South Turn</p> <p>(357) 254 (2) 1 (16) 11 (2) 1 (12) 36 (13) 9 (25) 18</p>	<p>8 US 195 SB Ramp West Cheney Spokane Road</p> <p>(270) 192 (31) (16) 50</p>	<p>9 US 195 SB Ramp East Cheney Spokane Road</p> <p>(175)</p>	<p>10 US 195 NB Ramp Cheney Spokane Road</p> <p>(41) 131 (175) (286) 243</p>
<p>11 US 195 E Meadow Lane Road</p> <p>(17) (107) 339 (3) 10 (5) 15 (16) 11</p>	<p>12 S Hatch Road</p> <p>(32) 254 (6) (85) 24 (12) 41 (6) 17 (10) 7 (15) 11</p>	<p>A W Thorpe Road Access 1 (westernmost)</p> <p>(19) 49 (8) 17 (10) 7 (15) 11</p>	<p>B W Thorpe Road Access 2 (west)</p> <p>(28) 54 (2) 6 (21) 15</p>	<p>C W Thorpe Road Access 3 (center)</p> <p>(41) 39 (8) 30 (15) 11 (23) 42 (62) 301 (263) 187</p>
<p>D W Thorpe Road Access 4 (east)</p> <p>(300) 216 (3) 10 (7) 4 (16) 11</p>	<p>E W Thorpe Road Access 5 (easternmost)</p> <p>(109) 352 (17) 47 (1) 4 (3) 12 (43) 31</p>	<p>F Thorpe Rd 1151 W Ave</p> <p>(12) 41 (12) 41 (39) 29</p>		

Project Trip Assignment

Blue Fern Victory Heights

- LEGEND**
- (X) Study Intersection
 - (X) Site Access
 - X PM Peak Hour Project Trip
 - (X) AM Peak Hour Project Trip



<p>1 Grove Road W Thorpe Road</p> <p>(280) 240 (197) 151 (5) 15 (5) 15 (204) 258 (22) 46 (5) 15 (5) 15 (285) 180 (46) 26 (90) 35 (170) 105</p>	<p>2 S Assembly Road W Thorpe Road</p> <p>(116) 116 (17) 46 (25) 25 (18) 24 (5) 15 (5) 15 (54) 185 (135) 78 (9) 18 (45) 45 (46) 26 (90) 35 (170) 105</p>	<p>3 S Assembly Road Sanden Springs Road</p> <p>(115) 165 (25) 130 (10) 15 (5) 5 (5) 5 (124) 110 (115) 165 (25) 130 (10) 15 (5) 5</p>	<p>4 US 195 W 16th Avenue</p> <p>(45) 175 (10) 45 (180) 115 (6) 5 (164) 174 (25) 15 (5) 5 (5) 5 (115) 165 (25) 130 (10) 15 (5) 5</p>	<p>5 US 195 North Turn</p> <p>(206) 371 (1) 45 (206) 371 (1) 45</p>
<p>6 US 195 W Thorpe Road</p> <p>(284) 894 (177) 5 (1) 45 (1) 45 (1) 45 (1) 45 (80) 155</p>	<p>7 US 195 Saulnier Turn</p> <p>(1) 45 (1) 45 (1) 45 (1) 45 (1) 45 (1) 45 (170) 105</p>	<p>8 US 195 SB Ramp West Cheney Spokane Road</p> <p>(81) 81 (270) 192 (115) 165 (25) 130 (10) 15 (5) 5 (115) 165 (25) 130 (10) 15 (5) 5</p>	<p>9 US 195 SB Ramp East Cheney Spokane Road</p> <p>(1128) 638 (75) 170 (115) 165 (25) 130 (10) 15 (5) 5 (115) 165 (25) 130 (10) 15 (5) 5</p>	<p>10 US 195 NB Ramp Cheney Spokane Road</p> <p>(115) 165 (25) 130 (10) 15 (5) 5 (115) 165 (25) 130 (10) 15 (5) 5</p>
<p>11 US 195 E Meadow Lane Road</p> <p>(80) 284 (5) 5 (1) 45 (1) 45 (1) 45 (1) 45 (25) 15</p>	<p>12 S Hallett Road W Thorpe Road</p> <p>(2) 22 (2) 22 (424) 424 (424) 424 (656) 656 (370) 509 (437) 571</p>	<p>A W Thorpe Road Access 1 (westernmost)</p> <p>(110) 239 (6) 17 (6) 17 (19) 11 (10) 7 (19) 11</p>	<p>B W Thorpe Road Access 2 (west)</p> <p>(178) 140 (23) 244 (2) 16 (2) 16 (3) 2 (2) 15</p>	<p>C W Thorpe Road Access 3 (barrier)</p> <p>(125) 165 (5) 5 (173) 162 (8) 30 (8) 30 (2) 30 (15) 11 (263) 187</p>
<p>D W Thorpe Road Access 4 (east)</p> <p>(385) 408 (5) 10 (257) 459 (5) 15 (1) 4 (1) 4 (7) 4 (16) 11</p>	<p>E W Thorpe Road Access 5 (easternmost)</p> <p>(10) 35 (5) 5 (48) 30 (12) 41 (12) 41 (17) 47 (3) 2 (43) 31</p>	<p>Existing Volumes based on Difference in Thorpe Road Volumes</p>		

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

Blue Fern Victory Heights

FIGURE 9



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

FIGURE

Traffic Operations Impact

A future (2035) with-project level of service analysis was conducted for the weekday peak hours 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 8. Detailed LOS worksheets are provided in Appendix D.

Table 8. Future Without-Project and With-Project AM and PM Peak Hour LOS Summary

Intersection	Traffic Control	2035 Without-Project			2035 With-Project		
		LOS ¹	Delay ²	WM ³ / v/c ⁴	LOS	Delay	WM/ v/c
		AM Peak Hour					
1. S Grove Rd/W Thorpe Road	RAB	A	8.1	0.434	A	8.3	0.513
2. S Assembly Rd/W Thorpe Road	AWSC	A	8.4	-	B	8.9	-
3. S Assembly Rd/Garden Springs Road	TWSC	A	9.6	NB	A	9.8	NB
4. US 195/W 16th Avenue	TWSC	F	156.6	WB	F	299.6	WB
5. US 195/North J-turn	TWSC	B	10.0	NBL	B	12.4	NBL
6. US 195/W Thorpe Road	TWSC	C	24.5	WB	F	88.9	WB
7. US 195/South J-turn	TWSC	D	26.8	SBL	F	96.0	SBL
8. US 195 SB Ramp/Cheney Spokane Road	TWSC	B	11.2	WB	D	25.9	WB
9. US 195 SB Ramp East/Cheney Spokane Road	TWSC	C	24.5	SB	E	39.2	SB
10. US 195 NB Ramp/Cheney Spokane Road	TWSC	A	9.1	NB	A	9.1	NB
11. US 195/E Meadowlane Road	TWSC	C	20.3	WB	C	24.5	WB
12. US 195/S Hatch Road	TWSC	C	21.6	WB	C	24.2	WB
PM Peak Hour							
1. S Grove Rd/W Thorpe Road	RAB	A	7.2	0.505	A	7.5	0.477
2. S Assembly Rd/W Thorpe Road	AWSC	A	9.1	-	B	10.1	NB
3. S Assembly Rd/Garden Springs Road	TWSC	B	10.3	NB	B	10.6	WB
4. US 195/W 16th Avenue	TWSC	F	266.7	WB	F	1047.0	NBL
5. US 195/North J-turn	TWSC	D	25.9	NBL	F	401.4	WB
6. US 195/W Thorpe Road	TWSC	F	88.6	EB	F	496.6	SBL
7. US 195/South J-turn	TWSC	B	12.1	SBL	C	16.6	WB
8. US 195 SB Ramp/Cheney Spokane Road	TWSC	D	26.4	WB	F	105.1	SB
9. US 195 SB Ramp East/Cheney Spokane Road	TWSC	C	16.4	SB	C	20.2	NB
10. US 195 NB Ramp/Cheney Spokane Road	TWSC	A	9.0	NB	A	9.0	WB
11. US 195/E Meadowlane Road	TWSC	C	20.1	WB	C	21.1	WB
12. US 195/S Hatch Road	TWSC	C	23.7	WB	D	31.1	-

Note: TWSC = two-way stop-controlled, AWSC = all-way stop-controlled, RAB = roundabout

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 shown for TWSC. EB = eastbound approach. WB = westbound approach. SB = Southbound approach;

4. volume to capacity reported for roundabouts

As shown in Table 8, the study intersections are forecast to operate at the same LOS with the project relative to without-project conditions during both the Weekday AM and PM peak hours with three exception intersections. North J-turn is forecast to operate at LOS F under PM peak hour, US 195/Thorpe Road is forecast to operate at LOS F under both AM and PM peak hours, and South J-turn operating LOS F during AM peak hour. The westbound approach to the US 195/W 16th Avenue is anticipated to operate at LOS F with increased delay between

the future without-project and future with-project conditions due to the increase in northbound traffic on US-195. The proposed development does not assign trips to the east leg of the intersection and as noted previously, the westbound left/through volumes are forecast to be 5 or less.

Although the extension of Inland Empire Way, south to the Cheney Spokane Road interchange is planned in the future no timing and funding has been established, thus not reflected in this this analysis. The extension of this link will provide an alternative route for people destined for the downtown area of Spokane. While this would not impact the operations of the US-195 Thorpe Road intersection, it would decrease the demand on the Thorpe Road southbound J-turn and the westbound approach at the US-195/16th Avenue intersection.

A queuing analysis was conducted at the US 195/I-90 EB on-ramp, US 195/W Thorpe Road, and US 195/South J-Turn for all scenarios during both AM and PM peak hours. The queueing analysis for the US 195/I-90 EB on-ramp assumes maximum service rate of 1200 vehicles per hour during AM peak hour and 800 vehicles per hour during PM peak hour.

Table 9. Existing, Future (2035) Without-Project and, Future (2035) With-Project Queues

Intersection	Approach	Storage Length (ft) ¹	Existing	2035 Without-Project	2035 With-Project
			95th Percentile Queues (ft)	95th Percentile Queues (ft)	95th Percentile Queues (ft)
<u>AM Peak Hour</u>					
US 195/I-90 EB-on ramp	NBR	770	425	525	650
US 195 EB/W Thorpe Road	EB	160	<25	50	125
US 195/South J-Turn (SBL turn-lane)	SBL	450	25	45	185
<u>PM Peak Hour</u>					
US 195/I-90 EB-on ramp	NBR	770	475	625	725
US 195 EB/W Thorpe Road	EB	160	<25	<u>225</u>	<u>405</u>
US 195/South J-Turn (SBL turn-lane)	SBL	450	<25	<25	30

Notes: EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound. R = Right, L = Left, T = Through.

Bold/Underlined 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.
2. Queue lengths rounded to the nearest 25 feet. Queue lengths at unsignalized intersections assume a queue length of 25 feet per car.

As shown in Table 9, queue lengths are anticipated to increase minimally and will not exceed storage length with the exception of the US 195 EB/W Thorpe Road under future (2035) PM peak hour scenarios where both without-project and with-project exceeds the storage lengths. The I-90 storage queue lengths are not anticipated to be exceeded.

US 195 to I-90 EB Ramp Impacts

Table 10 provides a summary of the ramp basic, merge, and diverge operations for the 2035 Without-Project, and 2035 With-Project conditions during the AM and PM peak hours. Under the merge scenario, maximum service rate of 1200 vehicles per hour during AM peak hour and 800 vehicles per hour during PM peak hour were assumed.

Detailed worksheets are included in Appendix G.



Table 10. Future (2035) Without-Project and With-Project AM and PM Peak Hour Eastbound I-90 Density and Level of Service

Intersection	Facility Type	2035		2035	
		Without-Project	Density	With-Project	Density
		LOS	(pc/mi/ln)	LOS	(pc/mi/ln)
<i>AM Peak Hour</i>					
Mainline between US 195 Ramps	Basic	C	19.5	C	19.5
US 195 and I-90 EB	Merge	D	34.4	E	34.6
US 195: I-90 EB and WB	Diverge	B	10.1	B	10.2
<i>PM Peak Hour</i>					
Mainline between US 195 Ramps	Basic	D	27.5	D	27.5
US 195 and I-90 EB	Merge	E	40.5	E	46.4
US 195: I-90 EB and WB	Diverge	A	7.6	A	7.7

Notes: EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound. R = Right, L = Left, T = Through.
1. pc/mi/ln = passenger car per mile per lane.

As shown in the table, the I-90 EB ramp is forecast to operate at LOS D or better under all analyzed scenarios with the exception of merge movement for future (2035) scenarios operating at LOS E. The LOS is forecast to operate consistently with minimal increases in the density between the future conditions.

Thorpe Tunnel Analysis

The following summarizes the series of Vissim model analyses that was completed 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. The intent of the modeling was to determine at what stages of the planned future development would improvements to Thorpe Road be needed to ensure safe and acceptable levels of congestion delays. All Vissim analysis was conducted using PTV Vissim software (version 2022-07).

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 11) 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: the longer west tunnel under the active BNSF rail line and the shorter east tunnel under Fish Lake Trail.

Figure 11. Vissim Model Network Extents



Background Imagery Source: Bing Maps

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.

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.

Future Demand Conditions Tested

A series of 17 different demand scenarios were tested for all of the future improvement scenarios; one scenario for the existing demands (i.e. counts) and two scenarios (No Build and Build) for each of the eight years that the project development phases. The No Build scenario's new demands associated with pipeline developments approved but not yet completed along with general background traffic growth (1% per annum growth).

The Build scenarios add the forecasted demands specific to the planned project development phases to the No Build demands. Table 11 presents the PM peak hour demands for each of the demand scenarios split by those trips that will travel through the Thorpe Road tunnels in each direction, as well as the SR195 through trips traveling southbound past Thorpe Road.

Table 11. Vissim Scenarios: Peak Hour Demands by Phase & Development Conditions

Vissim Scenario #	Vissim Scenario Name	Phase (Year) & Development Conditions	Total PM Peak Hour Demands (vph)		
			Thorpe Tunnels EB	Thorpe Tunnels WB	SB 195 Through Trips
1	S01 Existing	2023 Demands	80	125	1,240
2	P1 Baseline	φ1 (2026) Baseline	266	281	1,598
3	P2 Baseline	φ2 (2027) Baseline	267	282	1,610
4	P3 Baseline	φ3 (2029) Baseline	269	285	1,636
5	P4 Baseline	φ4 (2030) Baseline	270	286	1,649
6	P5 Baseline	φ5 (2032) Baseline	271	289	1,676
7	P6 Baseline	φ6 (2033) Baseline	272	290	1,690
8	P7 Baseline	φ7 (2034) Baseline	273	291	1,703
9	P8 Baseline	φ8 (2035) Baseline	275	294	1,717
12	P1 wProject	φ1 (2026) with Project	291	317	1,598
13	P2 wProject	φ2 (2027) with Project	307	342	1,610
14	P3 wProject	φ3 (2029) with Project	336	385	1,636
15	P4 wProject	φ4 (2030) with Project	389	471	1,649
16	P5 wProject	φ5 (2032) with Project	453	577	1,676
17	P6 wProject	φ6 (2033) with Project	476	614	1,690
18	P7 wProject	φ7 (2034) with Project	505	660	1,703
19	P8 wProject	φ8 (2035) with Project	529	693	1,717

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.

Defined and Tested Improvements

To determine which improvements would need to be implemented in the future as demand for travel on Thorpe Road increases, a series of improvement scenarios were developed and coded into the Vissim model. The following lists the distinct improvements that were considered as part of any improvement scenario, and are each identified by a simple one- or two-character improvement code:

- Improvement Code A:** This adjustment modifies the baseline gap acceptance criteria at the EB RT stop sign to US 195 to test the impacts of more aggressive merging onto SB 195. While not a physical improvement, this change was included to test the impacts of more aggressive behavior assumptions than included in the baseline model which may be seen in more congested conditions, despite the safety concerns that may arise from such behavior. The gaps are reduced from the baseline gap assumptions by 1.5 seconds, meaning vehicles will merge onto southbound US

195 for gaps of 5.0 seconds or more if a car or SUV, or 7.0 seconds or more if a truck or bus.

- **Improvement Code B:** This improvement adds an acceleration lane (~400 ft) to SB US 195 from Thorpe Rd and removes the existing stop sign. Vehicles can now freely turn into the acceleration lane and subsequently change lanes into the mainline SB 195 traffic flows.
- **Improvement Code D:** This improvement adds a traffic signal to control all flows through the east (short) tunnel. The simple two-phase signal alternates flow in the eastbound and westbound direction, and two-way flows within the tunnel are no longer permitted. Included in the signal design is a queue flush actuation to add up to 10 seconds of green time per cycle to the westbound direction phase if traffic queues back towards the ramp from US 195. The signal operations on a variable 65- to 75-second cycle length, including 20-second EB green time and 25-35 WB green time, with a 10-second clearance interval (3 seconds yellow and 7 seconds all-red) for both directions to clear traffic from the tunnel before allowing the opposing green phase.
- **Improvement Code D2:** This improvement is a modification of the east tunnel signal (Improvement D) that removes the queue flush actuation and runs in fixed time phases in a 65-second cycle length.
- **Improvement Code E:** This improvement adds a traffic signal to control all flows through the west (long) tunnel and at the intersection of Thorpe Road & Westwood Lane. The signal was designed to span the entire distance between the eastern entrance of the west tunnel and the Westwood Lane intersection and would run on a variable 77- to 96-second cycle length split into three phases: Thorpe Road westbound, Thorpe Road eastbound, and Westwood Lane southbound. The westbound green time could be extended by up to 10 seconds via a queue flush actuation under conditions where the westbound queue starts to extend towards the ramp from US 195, and the southbound phase from Westwood Lane would be actuated and skippable if no demands are present. The length of the tunnel combined with the distance to Westwood Lane would require an extended 16-second clearance interval (3 seconds yellow, 13 seconds all-red) to safely clear the tunnel after the westbound green and the southbound green (or eastbound green phase if the southbound phase is skipped).
- **Improvement Code E2:** This improvement is a modification of the west tunnel signal (Improvement E) that removes the queue flush actuation and Westwood Lane actuation and runs fixed time phases in a 90-second cycle length.
- **Improvement Code H:** This improvement adds traffic signals to both of the tunnels that operate in a coordinated manner. The signal timing assumptions of Improvement E (a signal at the west tunnel and Westwood Lane signal) are used for both signals, and the east tunnel signal timings are adjusted to match the west tunnel green times (westbound at the east tunnel with westbound at the west tunnel, and eastbound at the east tunnel with eastbound and southbound at the west tunnel). This helps ensure that the traffic queues between the tunnels will not extend to fill the space between the tunnels. This two-tunnel signal option would also include the actuated and skippable phasing at Westwood Lane and a queue flush actuation for the westbound direction if queues start to extend near the ramp from SB US 195.
- **Improvement Code H2:** This improvement is a modification of Improvement H (signals at both tunnels) that removes both the queue flush actuation and actuated controls at Westwood Lane and runs with fixed time phases in a 90-second cycle length.

- **Improvement Code F:** This improvement assumes a widened east (short) tunnel so that continuous two-way travel through the tunnel is possible, regardless of the vehicle types present in the tunnel in either direction.
- **Improvement Code G:** This improvement assumes a widened west (long) tunnel so that continuous two-way travel through the tunnel is possible, regardless of the vehicle types present in the tunnel in either direction.

Improvement Scenarios Tested

While the above defines the individual improvements that were considered, the actual improvement scenarios simulated were composite sets of the individual improvements. For example, an improvement scenario that considered the addition of an acceleration lane to southbound US 195 (code B), the signalization of the west tunnel and Westwood Lane (code E), and the widening of the east tunnel (code F), would be denoted as scenario improvement BEF. The exception is Scenario X, which comprises the true Do-Nothing scenario where no improvements are made from existing conditions.

In total, 20 different improvement scenarios were simulated, as summarized below:

Table 12. Improvement Scenarios Tested

Improvement Scenario Code	SB 195 Improvements	East Tunnel Improvements	West Tunnel Improvements
X			
EF		F: Widen	E: Signal (w Queue Flush)
E2F		F: Widen	E2: Signal (Fixed Time)
FG		F: Widen	G: Widen
A	A: Aggressive merging		
AH	A: Aggressive merging	H: Signal (w Queue Flush)	H: Signal (w Queue Flush)
AH2	A: Aggressive merging	H2: Signal (Fixed Time)	H2: Signal (Fixed Time)
AEF	A: Aggressive merging	F: Widen	E: Signal (w Queue Flush)
AE2F	A: Aggressive merging	F: Widen	E2: Signal (Fixed Time)
AFG	A: Aggressive merging	F: Widen	G: Widen
B	B: Add Accel Lane		
BH	B: Add Accel Lane	H: Signal (w Queue Flush)	H: Signal (w Queue Flush)
BH2	B: Add Accel Lane	H2: Signal (Fixed Time)	H2: Signal (Fixed Time)
BF	B: Add Accel Lane	F: Widen	
BEF	B: Add Accel Lane	F: Widen	E: Signal (w Queue Flush)
BE2F	B: Add Accel Lane	F: Widen	E2: Signal (Fixed Time)
BG	B: Add Accel Lane		G: Widen
BDG	B: Add Accel Lane	D: Signal (w Queue Flush)	G: Widen
BD2G	B: Add Accel Lane	D2: Signal (Fixed Time)	G: Widen
BFG	B: Add Accel Lane	F: Widen	G: Widen

Each of the 20 improvement scenarios was simulated for each of the 17 demand conditions, resulting in 340 different unique simulation scenarios of combined improvements and demand conditions. 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 for each of the 340 simulation scenarios.

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

After a review of the Vissim simulation results of the tested scenario improvements and development timeline results, a series of staged improvements over time were identified. The developments would need to be implemented in concert with the project phase build-out in order for Thorpe Road to operate under safe and acceptable congestion delays.

It should also 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 more project site traffic choose to enter and exit the site using roadways other than US 195 via Thorpe Road, the timeline between staged improvements should be reevaluated with observed changes in traffic demands for Thorpe Road.

Stage 0: Do Nothing (Scenario X)

The simulation results showed that under a Do-Nothing scenario, Thorpe Road will operate under unacceptable conditions following the completion of the background pipeline projects by 2026. 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 Do-Nothing scenario shows the existing system cannot accommodate the forecasted growth from background pipeline developments, let alone additional traffic from the Victory Heights development.

Figure 12. Simulation Result for Do-Nothing Conditions: Scenario X

Development Phases Years: Without (Baseline) and Without Project Build	Fail ?	Networkwide Results			Average Travel Time (sec)			50th Percentile Max Queue (ft)			95th Percentile Max Queue (ft)		
		Unserviced Vehicles (Latent Demant) (veh)	Average Vehicle Delay (sec/veh)	WB Thorpe from SB195 ML	EB Thorpe to SB 195 ML	SB 195 Through Trip	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	8	0	69	25	1	77	
Baseline	φ1 (2026)	Fail	20	90	848	407	121	606	102	602	278	391	659
	φ2 (2027)	Fail	66	119	753	406	190	631	176	471	411	835	664
	φ3 (2029)	Fail	52	103	870	417	163	650	92	599	269	489	683
	φ4 (2030)	Fail	55	115	770	425	159	642	263	477	405	734	634
	φ5 (2032)	Fail	57	116	801	430	176	628	275	493	385	691	675
	φ6 (2033)	Fail	49	110	788	426	166	622	301	532	307	605	684
	φ7 (2034)	Fail	90	127	764	435	215	646	308	479	357	676	660
	φ8 (2035)	Fail	88	120	906	450	199	618	352	476	349	635	657
Project Build	φ1 (2026)	Fail	92	129	942	424	235	631	232	528	421	893	670
	φ2 (2027)	Fail	144	147	877	388	293	657	376	463	441	936	678
	φ3 (2029)	Fail	190	155	902	463	329	649	516	459	395	959	684
	φ4 (2030)	Fail	458	186	1438	385	616	659	360	543	313	631	620
	φ5 (2032)	Fail	704	211	456	413	897	655	568	548	219	629	557
	φ6 (2033)	Fail	831	226	127	399	960	658	780	344	267	849	466
	φ7 (2034)	Fail	819	221	117	513	927	657	1029	483	273	1048	499
	φ8 (2035)	Fail	957	238	112	442	1013	654	1096	208	384	1100	339

Stage 1: Add Acceleration Lane to SB US 195 (Scenario B)

To move beyond the Do-Nothing scenario, the review of the simulation results showed that the first staged improvement would require addressing the delays from the existing eastbound stop sign that controls the merging of traffic flows onto southbound US 195.

Removing the stop sign and constructing a new acceleration lane to allow eastbound Thorpe Road traffic to more efficiently and safely merge onto the southbound US 195 mainline lanes would allow for acceptable operating conditions through Phase 3 of the project development. The acceleration lane would be designed to restrict access to the southern Thorpe J-turn. 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. Additional improvements would be needed to accommodate traffic demands associated with Phase 4 or beyond.

Figure 13. Simulation Result for Improvement Stage 1: Scenario B

Development Phases Years: Without (Baseline) and Without Project Build	Fail ?	Networkwide Results		Average Travel Time (sec)			50th Percentile Max Queue (ft)			95th Percentile Max Queue (ft)			
		Unservd Vehicles (Latent Demant) (veh)	Average Vehicle Delay (sec/veh)	WB Thorpe from SB195 ML	EB Thorpe to SB 195 ML	SB 195 Through Trip	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	100	80	43	9	0	0	25	1	0	
Baseline	φ1 (2026)	--	0	110	90	43	63	14	0	138	61	0	
	φ2 (2027)	--	0	111	90	43	67	16	0	161	51	0	
	φ3 (2029)	--	0	111	90	44	68	15	0	157	26	0	
	φ4 (2030)	--	0	111	91	43	62	20	0	163	26	0	
	φ5 (2032)	--	0	110	91	44	70	11	0	149	39	0	
	φ6 (2033)	--	0	111	91	44	71	15	0	160	32	0	
	φ7 (2034)	--	0	111	91	44	73	15	0	167	44	0	
	φ8 (2035)	--	0	5	112	92	44	66	18	0	160	47	0
Project Build	φ1 (2026)	--	0	113	94	44	84	19	0	195	82	0	
	φ2 (2027)	--	2	115	97	48	101	75	0	265	239	0	
	φ3 (2029)	--	40	41	121	103	88	184	214	0	325	478	0
	φ4 (2030)	Fail	276	123	129	126	347	495	747	0	459	872	0
	φ5 (2032)	Fail	706	219	142	157	798	661	1080	0	475	1080	0
	φ6 (2033)	Fail	777	226	153	151	807	660	1082	0	477	1084	0
	φ7 (2034)	Fail	912	238	130	171	896	655	1079	0	477	1082	0
	φ8 (2035)	Fail	981	242	116	195	957	654	1085	0	476	1094	0

Stage 1B: Add Signal Controls to both tunnels (Scenario BH)

A variation of the Stage 1 improvement scenario would be to also add signalized controls for both of the tunnels. The simulation results for this improvement scenario show that Thorpe Road would operate under acceptable conditions through to and including Phase 4 of the project development schedule, versus Phase 3 without the signal controls added. While the signals extend the timeline slightly for acceptable operating conditions on Thorpe Road, it is also noted that the addition of the signal controls also increases the average travel time in both directions of Thorpe Road in the earlier phases prior to Phase 3.

Figure 14. Simulation Result for Improvement Stage 1B: Scenario BH

Development Phases Years: Without (Baseline) and Without Project Build	Fail ?	Networkwide Results		Average Travel Time (sec)			50th Percentile Max Queue (ft)			95th Percentile Max Queue (ft)			
		Unservd Vehicles (Latent Demant) (veh)	Average Vehicle Delay (sec/veh)	WB Thorpe from SB195 ML	EB Thorpe to SB 195 ML	SB 195 Through Trip	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)	--	1	8	122	111	43	95	53	0	42	65	0	
Baseline	φ1 (2026)	--	0	111	132	43	199	193	0	125	216	0	
	φ2 (2027)	--	2	14	130	121	43	199	192	0	121	226	0
	φ3 (2029)	--	1	13	132	122	44	210	200	0	125	225	0
	φ4 (2030)	--	1	13	132	121	44	208	195	0	131	225	0
	φ5 (2032)	--	1	11	133	121	44	196	199	0	121	221	0
	φ6 (2033)	--	1	13	133	121	44	206	192	0	128	225	0
	φ7 (2034)	--	1	12	132	121	44	205	207	0	126	222	0
	φ8 (2035)	--	1	12	133	121	44	209	202	0	129	235	0
Project Build	φ1 (2026)	--	0	12	135	123	44	234	215	0	144	249	0
	φ2 (2027)	--	2	16	136	125	44	234	230	0	144	260	0
	φ3 (2029)	--	2	17	139	129	44	280	267	0	177	284	0
	φ4 (2030)	--	2	21	147	138	44	383	330	0	194	377	0
	φ5 (2032)	Fail	1	28	158	192	44	498	593	0	237	717	0
	φ6 (2033)	Fail	4	36	161	246	45	528	835	0	230	949	0
	φ7 (2034)	Fail	15	45	183	296	49	594	1052	0	244	1080	0
	φ8 (2035)	Fail	30	55	209	320	60	641	1100	0	251	1107	0

It is questionable if the limited benefits seen in Phases 3 and 4 of the project development timeline would offset the added expense of building and operating the new traffic signals, but this option does exist as an additional short-term improvement that could further accommodate some additional development demand before more costly improvements related to widening or replacing the existing narrow tunnels.

Stage 2: Widen the East Tunnel (Scenario BF)

The next recommended stage of improvements would be to address the delays associated with one-lane flows through the east tunnel. The simulation results for Scenario BF show acceptable operating conditions through to and including phase five of the project development schedule. In phase five some increased travel delays are seen on Thorpe Road in both directions as traffic still operates under one-lane operations in the longer west tunnel, the travel times, delays, throughput, and queues are still generally within acceptable limits. The scenario results do show that delays, travel times, and queues will exceed acceptable operating conditions starting in Phase 6 of the project. Under the higher demands associated with Phase 6 and later, queues at the west tunnel can be expected to become severe, to the point of extending past the ramp from US 195 to the deceleration lane, creating unsafe operating conditions on southbound US 195.

Figure 15. Simulation Result for Improvement Stage 2: Scenario BF

Year	Development	Fail ?	Networkwide Results		Average Travel Time (sec)			50th Percentile Max Queue (ft)			95th Percentile Max Queue (ft)		
			Unserviced Vehicles (Latent Demand): Networkwide (veh)	Average Vehicle Delay: Networkwide (sec/veh)	WB Thorpe from SB195 ML	EB Thorpe to SB 195 ML	SB 195 Through Trip	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	1	95	76	43	19	0	0	27	0	0
Baseline	φ1 (2026)	--	0	3	102	83	43	116	14	0	134	38	0
	φ2 (2027)	--	0	3	103	83	43	113	17	0	149	32	0
	φ3 (2029)	--	0	3	103	83	44	118	19	0	146	34	0
	φ4 (2030)	--	0	3	102	83	43	110	16	0	151	33	0
	φ5 (2032)	--	0	3	103	83	44	127	18	0	144	50	0
	φ6 (2033)	--	0	3	103	84	44	125	15	0	161	44	0
	φ7 (2034)	--	0	4	103	84	44	127	18	0	171	41	0
	φ8 (2035)	--	0	4	103	85	44	125	24	0	174	49	0
Project Build	φ1 (2026)	--	0	4	105	85	43	149	31	0	180	53	0
	φ2 (2027)	--	0	5	107	87	44	161	42	0	235	75	0
	φ3 (2029)	--	0	6	110	92	44	225	97	0	278	148	0
	φ4 (2030)	--	0	11	123	113	44	398	228	0	493	337	0
	φ5 (2032)	Fail	1	27	167	186	45	780	702	0	952	899	0
	φ6 (2033)	Fail	3	42	233	229	57	928	860	0	1067	1026	0
	φ7 (2034)	Fail	14	59	320	278	80	969	911	0	1128	1054	0
	φ8 (2035)	Fail	41	75	387	305	117	934	867	0	1087	981	0



Stage 2B: Add Signal Controls to the West Tunnel (Scenario BEF)

A variation of the recommended Stage 2 improvements would be to add signalized controls to better manage the queues on Thorpe Road at the west tunnel and in particular the queues in the westbound direction. The below simulation results for Scenario BEF show that adding the signal control at the west tunnel will not extend the acceptable operating conditions on Thorpe Road beyond Phase 5 (the same as Stage 2 improvement scenario BF), the signals will help manage the queues in the westbound direction and prevent queue spillback from the tunnel onto US 195 southbound.

Similar to Stage 1B, it is doubtful that the limited added benefits of managing the westbound queues on Thorpe by adding signal controls to the West tunnel and Westwood Lane would justify the added expense of building and operating the signal, especially considering the unacceptable queuing and longer travel times seen along Thorpe Road.

Figure 16. Simulation Result for Improvement Stage 2B: Scenario BEF

Year	Development	Fail ?	Networkwide Results		Average Travel Time (sec)			50th Percentile Max Queue (ft)			95th Percentile Max Queue (ft)		
			Unservd Vehicles (Latent Demant): Networkwide (veh)	Average Vehicle Delay: Networkwide (sec/veh)	WB Thorpe from SB195 ML	EB Thorpe to SB 195 ML	SB 195 Through Trip	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	95	43	93	53	0	113	65	0
Baseline	φ1 (2026)	--	0	7	115	102	43	197	194	0	235	216	0
	φ2 (2027)	--	2	11	115	101	44	198	192	0	226	227	0
	φ3 (2029)	--	1	10	115	102	44	203	200	0	222	225	0
	φ4 (2030)	--	1	10	116	101	44	208	195	0	230	225	0
	φ5 (2032)	--	1	8	116	102	44	205	199	0	221	221	0
	φ6 (2033)	--	1	9	116	102	44	203	192	0	217	225	0
	φ7 (2034)	--	1	9	116	102	44	198	207	0	232	222	0
	φ8 (2035)	--	1	9	116	101	44	204	202	0	240	235	0
Project Build	φ1 (2026)	--	0	8	117	104	44	228	217	0	264	249	0
	φ2 (2027)	--	2	12	117	103	44	244	233	0	272	266	0
	φ3 (2029)	--	1	12	119	106	44	282	260	0	348	297	0
	φ4 (2030)	--	1	14	126	109	44	377	299	0	465	346	0
	φ5 (2032)	--	1	23	149	153	44	638	546	0	801	676	0
	φ6 (2033)	Fail	3	31	163	204	44	778	776	0	964	943	0
	φ7 (2034)	Fail	13	42	187	259	47	956	1057	0	1126	1081	0
	φ8 (2035)	Fail	29	54	222	287	63	1093	1101	0	1134	1109	0

Stage 3: Widen the West Tunnel (Scenario BFG)

The final recommended improvement stage would be to widen the West tunnel to allow continuous two-way flows under the active BNSF rail line. The below results for Scenario BFG show near free flow conditions with minimal delays across the study area.

Figure 17. Simulation Result for Improvement Stage 3: Scenario BFG

Year	Development	Fail ?	Networkwide Results		Average Travel Time (sec)			50th Percentile Max Queue (ft)			95th Percentile Max Queue (ft)		
			Unservd Vehicles (Latent Demant): Networkwide (veh)	Average Vehicle Delay: Networkwide (sec/veh)	WB Thorpe from SB195 ML	EB Thorpe to SB 195 ML	SB 195 Through Trip	WB Queue at Westwood Lane	EB Queue at Westwood	EB Queue at Right Turn to SB 195	WB Queue at Westwood Lane	EB Queue at Westwood	EB Queue at Right Turn to SB 195
Existing (2023)		--	0	1	87	68	43	0	0	0	0	0	0
Baseline	φ1 (2026)	--	0	1	88	68	43	0	0	0	0	3	0
	φ2 (2027)	--	0	1	88	68	43	0	0	0	0	1	0
	φ3 (2029)	--	0	1	88	68	44	0	0	0	0	2	0
	φ4 (2030)	--	0	1	88	68	43	0	0	0	0	2	0
	φ5 (2032)	--	0	1	88	68	44	0	0	0	0	4	0
	φ6 (2033)	--	0	1	88	68	44	0	0	0	0	2	0
	φ7 (2034)	--	0	1	88	68	44	0	0	0	0	2	0
	φ8 (2035)	--	0	1	88	68	44	0	0	0	3	5	0
Project Build	φ1 (2026)	--	0	1	88	68	43	0	0	0	0	2	0
	φ2 (2027)	--	0	1	88	68	43	0	0	0	0	7	0
	φ3 (2029)	--	0	2	88	69	44	0	0	0	3	2	0
	φ4 (2030)	--	0	2	88	69	44	0	2	0	9	8	0
	φ5 (2032)	--	0	2	89	69	44	0	1	0	8	10	0
	φ6 (2033)	--	0	2	89	69	44	0	3	0	10	15	0
	φ7 (2034)	--	0	2	89	69	44	0	2	0	9	8	0
	φ8 (2035)	--	0	2	89	69	44	4	6	0	19	19	0

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. At unsignalized intersections, LOS is measured by the average delay on the worst-movement of the intersection. Table 13 summarizes the traffic operations at the site driveways under with-project weekday AM and PM peak hour conditions.

Table 13. Site Access Future (2035) With-Project Weekday PM Peak Hour LOS Summary

Site Access	LOS ¹	Delay ²	WM ³
<u>AM Peak Hour</u>			
A. W Thorpe Road/Westernmost Site Access	B	10.8	NB
B. W Thorpe Road/West Site Access	B	10.7	NB
C. W Thorpe Road/Central Site Access	B	10.9	NB
D. W Thorpe Road/East Site Access	B	11.3	NB
E. W Thorpe Road/Easternmost Site Access	B	11.4	NB
F. S Trainor Road/W 41st Avenue	A	9.8	SB
<u>PM Peak Hour</u>			
A. W Thorpe Road/Westernmost Site Access	B	12.5	NB
B. W Thorpe Road/West Site Access	B	12.2	NB
C. W Thorpe Road/Central Site Access	B	12.7	NB
D. W Thorpe Road/East Site Access	B	12.7	NB
E. W Thorpe Road/Easternmost Site Access	B	13.1	NB
F. S Trainor Road/W 41st Avenue	A	9.4	SB
1.	Level of Service (A – F) as defined by the <i>Highway Capacity Manual, 6th Edition</i> (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 13, 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 and Mitigation Recommendations

This traffic impact analysis summarizes the project traffic impacts of the proposed Victory Heights development. General findings and recommendations include:

- 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.
- The unsignalized study intersections are shown to operate acceptably at LOS E or better under future (2035) with-project conditions during both the weekday AM and PM peak with exception of South J-turn operating LOS F during AM peak hour and North J-turn during PM peak hour operating at LOS D. The westbound approach at the US 195/W 16th Avenue is anticipated to operate at LOS F with increased delay between the future without-project and future with-project conditions.
- The queuing analysis conducted at the US 195/I-90 EB on-ramp, US 195/W Thorpe Road, and US 195/South J-Turn identified movements where the 95th percentile queue lengths were projected to exceed the available storage under the without-project conditions. The queuing projections identified no greater than a 1 vehicle increase in the queue lengths for any of these movements. Based on consideration of existing conditions, lengthening of the turn pockets for the SBL and WBL turn lanes are recommended. For the WBL turn lane, the current median should be removed. For the SBL turn movement, the median should be removed to the extent feasible to lengthen the turn pocket. No roadway widening would be triggered for either project. The cost to complete these improvements would be credited against the projects TIF.
- Improvements at the US 195/W 16th Avenue intersection are forecast to result in a reduction in traffic using the US 195 to EB I-90 ramp. With the reduction in background traffic and considering the small number of project trips that may be added, no increase in traffic on the ramp is forecast. Completion of this improvement is anticipated to be completed by the development community (including this project) through conditions imposed on development permits. The City of Spokane has noted that impact fee credits will be given towards the construction of the improvement. We would anticipate the standard WSDOT condition that this project be funded prior to this project moving forward be part of the project conditions.
- Several improvements were identified based on the Vissim analysis conducted for the two tunnels along Thorpe Road. The following table identifies the improvements as well as the development triggers.

Recommended Improvement Staging Timeline

Stage	Improvement Needed	Improvements Triggered By:	Project Unit Count (MF/SF)
1	Add Southbound Acceleration Lane on US 195 from Thorpe Road	Pipeline Projects	0
1B	Add Signal Controls to Both Tunnels	Phase 4	484 (155/329)
2	Widen the East Tunnel	Phase 5	720 (155/565)
3	Widen the West Tunnel	Phase 6	803 (155/648)

While the addition of the acceleration lane to US 195 will be required prior to the completion of even the background pipeline projects and without any project development traffic, the increased demands for Thorpe Road should be monitored as

initial development begins within the area. Should the eventual use of Thorpe Road to enter and exit the neighborhood differ from the assumed trip distributions, the timing of the staged improvements to the project phase schedule may need to be reconsidered. In the most extreme case, lower demand for travel on Thorpe Road than forecasted may indicate the need to reconsider one or both of the tunnel widenings, and the redistribution of funds to provide other improvements to the neighborhood access roads to the west of US 195.

- The improvements identified above are dependent on the outlined assumptions for the trip distribution assumptions that show a majority of the pipeline projects and the Victory Heights project traffic to enter and exit the sites via Thorpe Road and US 195. Due to the complexities, cost, and feasibility of widening the east and west tunnels, we recommend that the key assumptions regarding the trip distribution patterns be verified at the mid-point of the development or prior to the triggering improvements at either the east or west tunnels. This is to assure that costs associated with these improvements are best directed to the needs of the area. Assuming full buildout of the Victory Heights project, project traffic represents 54 percent and 53 percent of the total traffic along Thorpe Road at the two tunnels during the AM and PM peak hours, respectively.

Appendix A: Traffic Counts

INTERSECTION

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

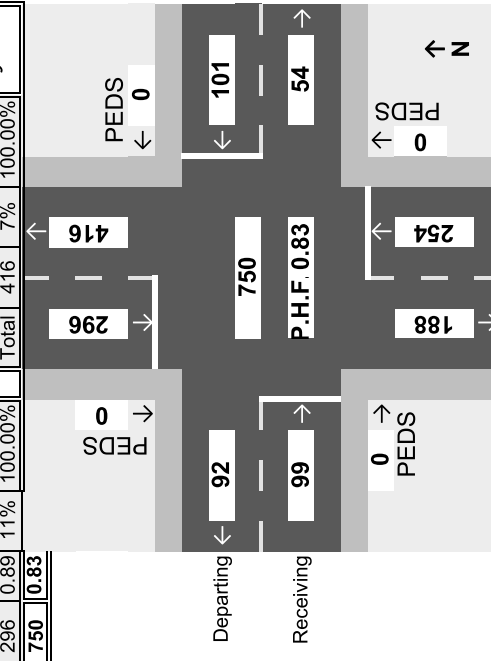
Thorpe Road & SR 195

APPROACH MOVEMENT	AM PEAK HOURS												Receiving						Departing					
	7:00 AM			7:15 AM			7:30 AM			7:45 AM			Mvmt	TOTAL	PHF	Percentage of:		Mvmt	Total	Percentage of:		App.		
	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV				HV	Approach			HV	Approach			
Eastbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	0.00%	0	0	0.00%	0.00%	Eastbound		
U-Turn	0	17	1	0	18	1	0	31	2	0	23	1	0	0	0	5%	94.95%	4	25%	4.35%				
Left	0	1	0	0	2	1	0	1	0	0	0	0	0	0	0	20%	5.05%	14	0%	15.22%				
Through	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			74	8%	80.43%				
Right	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			74	8%	80.43%				
App. Total	0	18	1	0	20	2	0	32	2	0	23	1	0	6	99	6%	100.00%	92	8%	100.00%				
Pct HV	5%			9%			6%			4%														
Westbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	0.00%	0	0	0.00%	0.00%	Westbound		
U-Turn	0	2	0	0	6	0	0	0	0	0	1	1	0	1	10	10%	9.90%	44	34%	81.48%				
Left	0	3	0	0	3	0	0	3	0	0	5	0	0	0	14	0%	13.86%	5	20%	9.26%				
Through	0	13	3	0	16	1	0	23	3	0	16	2	0	9	77	12%	76.24%	5	0%	9.26%				
Right	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			5	0%	9.26%				
App. Total	0	18	3	0	25	1	0	26	3	0	22	3	0	10	101	10%	100.00%	54	30%	100.00%				
Pct HV	14%			4%			10%			12%														
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	0.00%	0	0	0.00%	0.00%	Northbound		
U-Turn	0	2	1	0	0	0	0	0	0	0	1	0	0	1	4	25%	1.57%	10	10%	5.32%				
Left	0	46	0	0	55	5	0	81	5	0	47	6	0	16	245	7%	96.46%	178	7%	94.66%				
Through	0	0	0	0	1	0	0	3	0	0	1	0	0	0	5	0%	1.97%	0	0%	0.00%				
Right	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			0	0%	0.00%				
App. Total	0	48	1	0	56	5	0	84	5	0	49	6	0	17	254	7%	100.00%	188	7%	100.00%				
Pct HV	2%			8%			6%			11%														
Southbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	0.00%	0	0	0.00%	0.00%	Southbound		
U-Turn	0	8	4	0	7	5	0	4	2	0	10	4	0	15	44	34%	14.86%	94	5%	22.60%				
Left	0	39	1	0	54	4	0	42	5	0	30	3	0	13	178	7%	60.14%	245	7%	58.89%				
Through	0	22	0	0	11	2	0	18	2	0	17	2	0	6	74	8%	25.00%	77	12%	18.51%				
Right	0	69	5	0	72	11	0	64	9	0	57	9	0	34	296	11%	100.00%	416	7%	100.00%				
App. Total	0	153	10	0	173	19	0	206	19	0	151	19	0	67	750	14%	0.83	0	0	0.00%				
Pct HV	7%			13%			12%			14%														
Total Class Volume	163			192			225			170			750											
Total Interval Volume	6%			10%			8%			11%			9%											
Intersection Pct Trucks																								

Pedestrian Volumes	APPROACH MOVEMENT	Confl.			
		7:00	7:15	7:30	7:45
Eastbound	Crosswalk	0	0	0	0
Westbound	Crosswalk	0	0	0	0
Northbound	Crosswalk	0	0	0	0
Southbound	Crosswalk	0	0	0	0
Total		0	0	0	0



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



INTERSECTION

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

Thorpe Road
&
SR 195

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

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	0	0	0	0	0	0	0	0	0	0	0	0
Westbound	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	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	Passenger Car (PC)		Heavy Vehicle (HV)	
	Bike (BK)	PC	BK	HV
Bicycles on Road	0	0	0	0
Motorcycles	0	0	0	0
Cars	0	0	0	0
Light Goods Vehicles	0	0	0	0
Mediums	0	0	0	0
Buses	0	0	0	0
Single Unit Trucks	0	0	0	0
Articulated Trucks	0	0	0	0

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

App.= Approach
Pct= Percent

INTERSECTION

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

Thorpe Road

&

SR 195

Counter Analyst

Microvision BNG

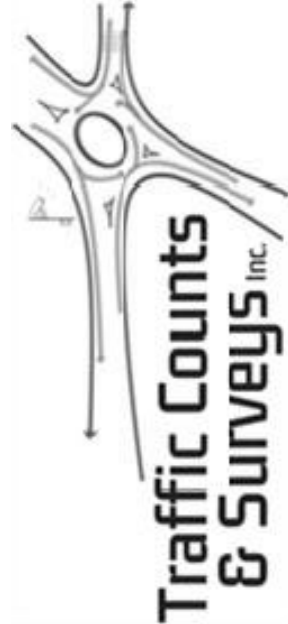
PM PEAK HOURS

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

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

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

APPROACH MOVEMENT	Receiving				Departing			
	Mvmt	TOTAL	PHF	Percentage of: HV / Approach	Mvmt	Total	Percentage of: HV / Approach	App.
Eastbound	EBU	0	0	0.00%	EBU	0	0.00%	Eastbound
	EBL	4	129	86.00%	NBL	2	0%	2.22%
	EBT	1	15	7%	WBT	16	6%	17.78%
	EBR	0	6	0%	SBR	72	14%	80.00%
App. Total	Total	5	150	0.71	Total	90	12%	100.00%
Pct HV	2%				100.00%			
Westbound	WBU	0	0	0.00%	WBU	0	0.00%	Westbound
	WBL	0	6	0%	SBL	40	10%	60.61%
	WBT	1	16	6%	EBT	15	7%	22.73%
	WBR	3	87	3%	NBR	11	18%	16.67%
App. Total	Total	4	109	0.57	Total	66	11%	100.00%
Pct HV	4%				100.00%			
Northbound	NBU	0	0	0.00%	NBU	0	0.00%	Northbound
	NBL	0	2	0%	WBL	6	0%	2.65%
	NBT	3	148	2%	SBT	214	4%	94.69%
	NBR	2	11	18%	EBR	6	0%	2.65%
App. Total	Total	5	161	0.86	Total	226	4%	100.00%
Pct HV	3%				100.00%			
Southbound	SBU	0	0	0.00%	SBU	0	0.00%	Southbound
	SBL	4	40	10%	EBL	129	3%	35.44%
	SBT	9	214	4%	NBT	148	2%	40.66%
	SBR	10	72	14%	WBR	87	3%	23.90%
App. Total	Total	23	326	0.86	Total	364	3%	100.00%
Pct HV	7%				100.00%			



INTERSECTION

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

Thorpe 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	
	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
U-Turn	0	1	0	0	2	0	1	0	0	2	1	0	2	0	0	0	0	0	0	0	0	0	0	0
Left	0	2	0	0	0	1	0	0	4	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
Through	0	0	0	0	0	1	0	2	0	4	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Right	0	0	0	0	0	1	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0
App. Total	0	3	0	0	2	2	0	2	2	6	1	0	7	0	0	3	0	0	1	0	0	0	0	0
Pct HV	0%		50%		0%		50%		14%		0%		0%		0%		0%		10%		0%		0%	
Westbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
U-Turn	0	3	0	0	5	0	0	0	4	0	0	9	0	0	0	0	12	0	0	0	0	0	0	0
Left	0	5	0	0	7	1	0	0	2	2	0	5	0	0	4	0	0	4	0	0	0	0	0	0
Through	0	0	0	0	0	0	0	0	0	2	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
App. Total	0	8	0	0	12	1	0	8	2	0	14	0	0	14	0	0	16	0	0	0	0	0	0	0
Pct HV	0%		8%		0%		20%		0%		0%		0%		0%		0%		0%		0%		0%	
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
U-Turn	0	5	0	0	5	1	0	4	0	0	0	7	0	0	6	1	0	0	0	0	0	0	0	0
Left	0	2	0	0	3	0	0	4	0	16	0	11	0	0	2	0	7	0	0	0	0	0	0	0
Through	0	4	0	0	3	0	0	3	0	0	0	6	0	0	5	0	0	0	0	0	0	0	0	0
Right	0	11	0	0	11	1	0	19	0	24	0	24	0	0	14	1	0	18	0	0	0	0	0	0
App. Total	0	11	0	0	11	1	0	19	0	24	0	24	0	0	14	1	0	18	0	0	0	0	0	0
Pct HV	0%		8%		0%		0%		0%		7%		0%		0%		0%		0%		0%		0%	
Southbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
U-Turn	0	1	1	0	3	0	0	2	0	2	0	1	0	0	2	0	0	0	0	0	0	0	0	0
Left	0	2	0	0	2	0	0	6	1	0	9	0	0	0	6	0	0	0	0	0	0	0	0	0
Through	0	4	1	0	7	0	0	9	1	10	0	2	1	0	2	0	0	6	2	0	5	1	0	0
Right	0	7	2	0	12	2	0	15	2	0	14	0	0	11	0	0	13	2	0	16	2	0	0	0
App. Total	0	29	2	0	37	6	0	50	4	0	52	3	0	42	1	0	57	2	0	57	3	0	40	1
Pct HV	22%		14%		0%		12%		0%		0%		14%		0%		13%		11%		0%		0%	
Total Class Volume	31		43		33		54		55		59		43		59		60		43		38		41	
Total Interval Volume	6%		14%		0%		7%		5%		3%		2%		3%		5%		2%		3%		2%	
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		Heavy Vehicle (HV)	
Bike (BK)	Passenger Car (PC)	Light Vehicle (LV)	Medium Vehicle (MV)
Bicycle on Road Motorcycle Car Light Goods Vehicle Bus Single Unit Trucks Articulated Trucks	Light Vehicle Medium Vehicle	Light Vehicle Medium Vehicle Single Unit Trucks Articulated Trucks	Light Vehicle Medium Vehicle Single Unit Trucks Articulated Trucks
All Vehicles (no classification)			

Intersection Total		Pct	
One Hour Volumes		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

INTERSECTION

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

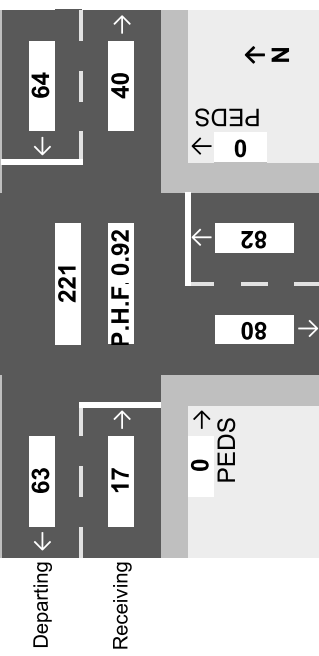
Thorpe Road & Assembly Road

Counter Analyst

Miovision BNG

APPROACH MOVEMENT	AM PEAK HOURS												Receiving				Departing				App.
	7:45 AM			8:00 AM			8:15 AM			8:30 AM			Mvmt	TOTAL	PHF	Percentage of: HV / Approach	Mvmt	TOTAL	Percentage of: HV / Approach		
	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV									
Eastbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	0	0	0.00%
U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	0	0	0.00%
Left	0	2	0	0	1	0	0	0	0	0	0	0	0	3	0	0	3	38.10%	24	8	38.10%
Through	0	3	0	0	1	0	0	5	0	0	0	0	0	9	0	0	9	31.75%	20	0	31.75%
Right	0	2	0	0	1	0	0	1	0	0	1	0	0	5	0	0	5	29.41%	19	21	30.16%
App. Total	0	7	0	0	3	0	0	6	0	0	1	0	0	17	0.61	0	17	100.00%	63	10	100.00%
Pct HV	0%												0%				0%				
Westbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	0	0	0.00%
U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	0	0	0.00%
Left	0	9	0	0	7	0	0	12	0	0	12	0	0	40	0	0	40	62.50%	5	0	12.50%
Through	0	5	0	0	4	0	0	7	0	0	4	0	0	20	0	0	20	31.25%	9	0	22.50%
Right	0	0	0	0	0	0	0	1	0	0	0	0	0	4	0	0	4	6.25%	26	0	65.00%
App. Total	0	14	0	0	14	0	0	20	0	0	16	0	0	64	0.80	0	64	100.00%	40	0	100.00%
Pct HV	0%												0%				0%				
Northbound	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1	1	1.22%	1	0	0%
U-Turn	0	7	0	0	6	1	0	3	0	0	6	1	0	24	0	24	24	29.27%	40	0	50.00%
Left	0	11	0	0	2	0	0	7	0	0	11	0	0	31	0	31	31	37.80%	34	6	42.50%
Through	0	6	0	0	5	0	0	8	0	0	7	0	0	26	0	26	26	31.71%	5	0	6.25%
Right	0	24	0	0	14	1	0	18	0	0	24	1	0	82	0.82	82	82	100.00%	80	3	100.00%
App. Total	0%												7%				4%				
Pct HV	0%												7%				4%				
Southbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	0	0	0.00%
U-Turn	0	1	0	0	2	0	0	1	0	0	1	0	0	5	0	5	5	8.62%	3	0	7.89%
Left	0	9	1	0	7	0	0	6	0	0	10	1	0	34	0	34	34	58.62%	31	0	81.58%
Through	0	2	1	0	2	0	0	6	2	0	5	1	0	19	0.21	19	19	32.76%	4	0	10.53%
Right	0	12	2	0	11	0	0	13	2	0	16	2	0	58	0.81	58	58	100.00%	38	0	100.00%
App. Total	14%												13%				10%				
Pct HV	14%												13%				10%				
Total Class Volume	0	57	2	0	42	1	0	57	2	0	57	3	0	221	0.92	221	221		8	221	0.92
Total Interval Volume	59												59				60				
Intersection Pct Trucks	3%												3%				5%				

APPROACH MOVEMENT	7:45			8:00			8:15			8:30			TOTAL	Pct
	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV		
Eastbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Westbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	0	0	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	0	0



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

INTERSECTION

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

Thorpe 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	
	BK	HV	BK	HV	BK	HV	BK	HV	BK	HV	BK	HV	BK	HV	BK	HV	BK	HV	BK	HV	BK	HV	BK	HV
Eastbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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
Left	0	4	1	0	7	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Through	0	6	0	0	7	1	0	5	1	0	3	0	0	10	0	5	0	0	8	0	0	0	0	0
Right	0	2	0	0	6	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
App. Total	0	12	1	0	20	3	0	7	3	0	0	0	0	15	0	0	0	0	12	0	0	0	0	0
Pct HV	8%		13%		30%		0%		0%		0%		0%		0%		0%		0%		0%		0%	
Westbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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	
Left	0	7	0	0	7	0	0	6	0	0	0	0	0	11	0	4	0	0	17	0	0	0	0	0
Through	0	3	0	0	5	0	0	2	0	0	0	0	0	3	0	8	0	0	6	0	0	0	0	0
Right	0	0	0	0	3	0	0	3	0	0	0	0	0	2	0	4	0	0	4	0	0	0	0	0
App. Total	0	10	0	0	15	0	0	11	0	0	0	0	0	16	0	0	0	0	27	0	0	0	0	0
Pct HV	0%		0%		0%		0%		0%		0%		0%		0%		0%		0%		0%		0%	
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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	
Left	0	4	0	0	2	0	0	3	0	0	0	0	0	3	0	5	0	0	6	0	0	0	0	0
Through	0	6	1	0	12	0	0	8	0	0	0	0	0	5	0	4	0	0	9	0	0	0	0	0
Right	0	14	0	0	5	0	0	7	0	0	0	0	0	6	0	7	0	0	10	0	0	0	0	0
App. Total	0	24	1	0	19	0	0	18	0	0	0	0	0	14	0	0	0	0	25	0	0	0	0	0
Pct HV	4%		0%		0%		6%		0%		0%		0%		0%		0%		0%		0%		0%	
Southbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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	
Left	0	5	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Through	0	6	0	0	17	1	0	12	1	0	19	0	0	24	0	15	0	0	23	1	0	0	0	
Right	0	2	1	0	2	0	0	3	0	0	5	0	0	0	0	6	0	0	5	0	0	0	0	
App. Total	0	13	1	0	22	1	0	16	1	0	26	0	0	30	0	23	0	0	31	2	0	0	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	0	95	2	0	61	0	0	
Total Interval Volume	62	62	80	56	56	7%	56	56	2%	66	66	81	75	75	64	64	0%	97	97	61	61	62	67	
Intersection Pct HV	5%		5%		7%		2%		0%		0%		0%		0%		2%		0%		2%		0%	

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	0	0	0	0	0	0	0	0	0	0	0	0
Westbound	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	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	Intersection Total	
	One Hour Volumes	Pct
Bike (BK)	254	4.7%
Passenger Car (PC)	258	3.5%
Heavy Vehicle (HV)	259	1.9%
Light Goods Vehicles	278	0.4%
Light Trucks	286	0.0%
Medium Trucks	317	0.6%
Single Unit Trucks	297	0.7%
Articulated Trucks	284	1.1%
Medium Buses	287	1.0%



App.= Approach
Pct= Percent

INTERSECTION

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

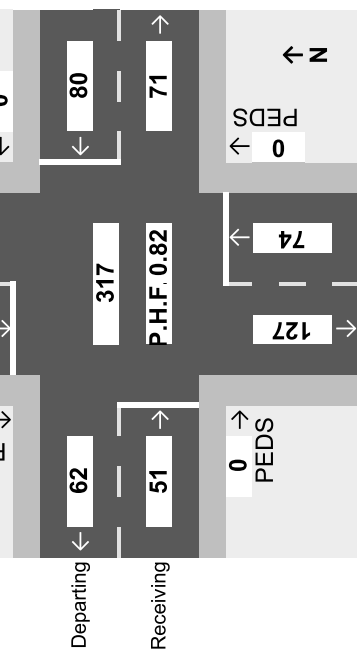
Thorpe Road & Assembly Road

Counter Analyst

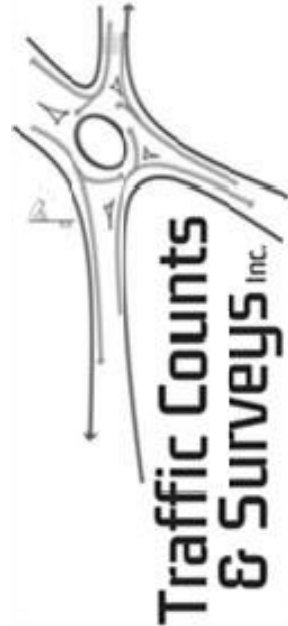
Microvision BNG

APPROACH MOVEMENT	PM PEAK HOURS												Receiving			Departing			App.		
	4:45 PM			5:00 PM			5:15 PM			5:30 PM			Mvmt	Total	Percentage of: HV / Approach	Mvmt	Total	Percentage of: HV / Approach			
	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV								PHF	Percentage of: HV / Approach
Eastbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	EBU	0	0.00%			
Left	0	5	0	0	4	0	0	4	0	0	2	0	0	15	29.41%	NBL	17	0%			
Through	0	8	0	0	10	0	0	5	0	0	8	0	0	31	60.78%	WBT	25	0%			
Right	0	2	0	0	1	0	0	0	0	0	2	0	0	5	9.80%	SBR	20	0%			
App. Total	0	15	0	0	15	0	0	9	0	0	12	0	0	51	100.00%	Total	62	0%			
Pct HV	0%												0%			0%			0%		
Westbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	WBU	0	0.00%			
Left	0	9	0	0	11	0	0	4	0	0	17	0	0	41	51.25%	SBL	11	9%			
Through	0	8	0	0	3	0	0	8	0	0	6	0	0	25	31.25%	EBT	31	0%			
Right	0	4	0	0	2	0	0	4	0	0	4	0	0	14	17.50%	NBR	29	0%			
App. Total	0	21	0	0	16	0	0	16	0	0	27	0	0	80	100.00%	Total	71	1%			
Pct HV	0%												0%			0%			0%		
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	NBU	0	0.00%			
Left	0	3	0	0	3	0	0	5	0	0	6	0	0	17	22.97%	WBL	41	0%			
Through	0	10	0	0	5	0	0	4	0	0	9	0	0	28	37.84%	SBT	81	1%			
Right	0	6	0	0	6	0	0	7	0	0	10	0	0	29	39.19%	EBR	5	0%			
App. Total	0	19	0	0	14	0	0	16	0	0	25	0	0	74	100.00%	Total	127	1%			
Pct HV	0%												0%			0%			0%		
Southbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	SBU	0	0.00%			
Left	0	4	0	0	1	0	0	2	0	0	3	1	0	11	9.82%	EBL	15	0%			
Through	0	18	0	0	24	0	0	15	0	0	23	1	0	81	72.32%	NBT	28	0%			
Right	0	4	0	0	5	0	0	6	0	0	5	0	0	20	17.86%	SBR	14	0%			
App. Total	0	26	0	0	30	0	0	23	0	0	31	2	0	112	100.00%	Total	57	0%			
Pct HV	0%												0%			0%			0%		
Total Class Volume	0	81	0	0	75	0	0	64	0	0	95	2	2	317	0.82	Total	317	1%			
Total Interval Volume	81	81	0	75	75	0	64	64	0	97	97	2	317	0.82	Total	317	1%				
Intersection Pct Trucks	0%												0%			0%			0%		

APPROACH MOVEMENT	4:45			5:00			5:15			5:30			TOTAL
	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	
Eastbound	0	0	0	0	0	0	0	0	0	0	0	0	0
Westbound	0	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	0	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	0



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



INTERSECTION

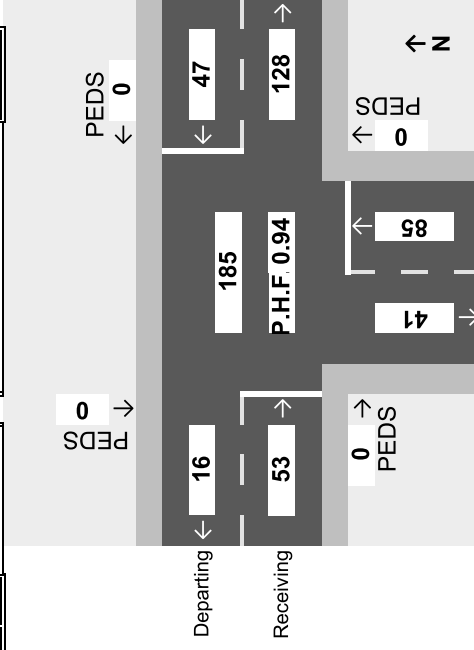
PROJECT: WCE Victory Heights
JOB NO. 23-81
DATE OF COUNT: 3/22/2023
Counter Analyst BNG
Miovision BNG

Garden Springs Road & Assembly Road

APPROACH MOVEMENT	AM PEAK HOURS												Receiving						Departing											
	7:15 AM				7:30 AM				7:45 AM				8:00 AM				TOTAL			Percentage of:			Percentage of:							
	BK	PC	HV		BK	PC	HV		BK	PC	HV		BK	PC	HV		Mvmt	HV	Veh	PHF	HV	Approach	Mvmt	Total	HV	Approach	App.			
Eastbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	0.00%	0.00%	0	0	0	0.00%	0	0	0	0.00%
Through	0	5	0	0	0	14	0	0	0	13	0	0	0	14	1	0	0	14	47	2%	88.68%	2%	12	12	0	75.00%	0	12	0	0%
Right	0	1	1	0	0	1	0	0	0	1	1	0	0	1	1	0	0	1	6	50%	11.32%	50%	4	4	0	25.00%	0	4	0	0%
App. Total	0	6	1	0	0	15	0	0	0	14	1	0	0	14	2	0	4	53	0.83	8%	100.00%	8%	16	16	0	100.00%	0	16	0	0%
Pct HV	14%												7%				13%													
Westbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	0.00%	0.00%	0	0	0	0.00%	0	0	0	0.00%
Left	0	6	0	0	0	7	0	0	0	10	1	0	0	11	0	0	1	35	0	3%	74.47%	3%	81	81	1	63.28%	1	81	1	1%
Through	0	3	0	0	0	3	0	0	0	4	0	0	0	2	0	0	0	12	0	0%	25.53%	0%	47	47	2	36.72%	2	47	2	2%
App. Total	0	9	0	0	0	10	0	0	0	14	1	0	0	13	0	0	1	47	0.78	2%	100.00%	2%	128	128	2	100.00%	2	128	2	100.00%
Pct HV	0%												7%				0%													
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	0.00%	0.00%	0	0	0	0.00%	0	0	0	0.00%
Left	0	2	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	4	0	0%	4.71%	0%	35	35	3	85.37%	3	35	3	85.37%
Right	0	27	0	0	0	23	1	0	0	18	0	0	0	12	0	0	1	81	0	1%	95.29%	1%	6	6	0	14.63%	0	6	0	0%
App. Total	0	29	0	0	0	23	1	0	0	19	0	0	0	13	0	0	1	85	0.73	1%	100.00%	1%	41	41	10	100.00%	10	41	10	100.00%
Pct HV	0%												4%				0%													
Total Class Volume	0	44	1	0	0	48	1	0	0	47	2	0	0	40	2	0	4	185	0.94				4	185	0		0	185	0	
Total Interval Volume	45												49				42				185									
Intersection Pct Trucks	2%												4%				5%				2%									

APPROACH MOVEMENT	Confli.		
	Ped	Ped	TOTAL
Eastbound	7.15	7.30	7.45
Crosswalk	0	0	0
Westbound	0	0	0
Crosswalk	0	0	0
Northbound	0	0	0
Crosswalk	0	0	0
Southbound	0	0	0
Total	0	0	0

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



PROJECT: WCE Victory Heights
JOB NO. 23-81
DATE OF COUNT: 3/22/2023
Counter Analyst
BNG 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	
	BK	HV	BK	HV	BK	HV	BK	HV	BK	HV	BK	HV	BK	HV	BK	HV	BK	HV	BK	HV	BK	HV	BK	HV
Eastbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
U-Turn	0	18	1	0	10	0	7	0	0	21	0	11	0	5	0	16	1	10	0	0	0	0	0	0
Through	0	2	0	0	2	0	2	0	0	1	0	0	1	0	0	3	0	0	0	0	3	0	0	0
Right	0	20	1	0	12	1	9	0	0	22	0	12	0	9	0	19	1	11	0	13	0	0	7	0
App. Total	5%		8%		0%		0%		0%		0%		0%		5%		0%		0%		0%		0%	
Pct HV																								
Westbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
U-Turn	0	22	1	0	31	0	27	0	0	32	1	37	0	38	0	47	0	36	0	33	0	0	28	1
Left	0	4	0	0	4	0	9	0	0	4	0	5	0	5	0	5	0	10	0	7	0	0	8	0
Through	0	26	1	0	35	0	36	0	0	36	1	42	0	43	0	52	0	46	0	40	0	0	36	1
App. Total	4%		0%		0%		0%		3%		0%		0%		0%		0%		0%		3%		0%	
Pct HV																								
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
U-Turn	0	0	0	0	2	0	2	0	0	0	0	2	0	1	0	1	0	1	0	0	0	0	1	0
Left	0	16	1	0	19	0	18	0	0	25	0	17	0	17	0	15	0	16	0	18	0	0	7	0
Right	0	16	1	0	21	0	20	0	0	25	0	19	0	18	0	16	0	17	0	18	0	0	8	0
App. Total	6%		0%		0%		16%		0%		0%		0%		0%		0%		0%		0%		0%	
Pct HV																								
Total Class Volume	0	62	3	0	68	1	65	0	0	83	1	73	0	70	0	87	1	74	0	71	0	0	51	1
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%	

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	0	0	0	0	0	0	0	0	0	0	0	0
Westbound	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	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	Passenger Car (PC)		Heavy Vehicle (HV)	
	Bike (BK)	Motorcycles	Light Goods Vehicles	Mediums
Bike (BK)	84	1%	73	0%
Motorcycles	0	0%	0	0%
Cars	0	0%	0	0%
Light Goods Vehicles	0	0%	0	0%
Buses	0	0%	0	0%
Single-Unit Trucks	0	0%	0	0%
Articulated Trucks	0	0%	0	0%

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

App.= Approach
Pct= Percent

INTERSECTION

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

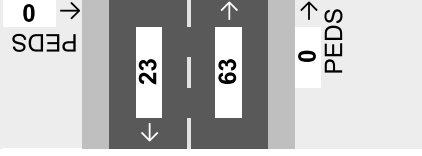
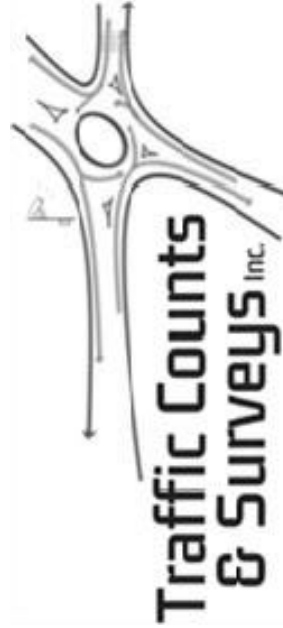
Garden Springs Road & Assembly Road

Counter Analyst

APPROACH MOVEMENT	PM PEAK HOURS												Approach			Departing					
	4:30 PM			4:45 PM			5:00 PM			5:15 PM			Mvmt	Total	Percentage of: HV	Approach	Mvmt	Total	Percentage of: HV	Approach	
	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV									
Eastbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	0	0	0.00%	0	0	0.00%
U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	0	0	0.00%	0	0	0.00%
Through	0	21	0	0	11	0	0	5	0	0	16	1	0	54	2%	19	0%	82.61%	19	0%	82.61%
Right	0	1	0	0	1	0	0	4	0	0	3	0	0	9	0%	4	0%	17.39%	4	0%	17.39%
App. Total	0	22	0	0	12	0	0	9	0	0	19	1	0	63	2%	23	0%	100.00%	23	0%	100.00%
Pct HV	0%			0%			0%			5%											
Westbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	0	0	0.00%	0	0	0.00%
U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	0	0	0.00%	0	0	0.00%
Left	0	32	1	0	37	0	0	38	0	0	47	0	1	155	1%	74	0%	57.81%	74	0%	57.81%
Through	0	4	0	0	5	0	0	5	0	0	5	0	0	19	0%	54	2%	42.19%	54	2%	42.19%
App. Total	0	36	1	0	42	0	0	43	0	0	52	0	1	174	1%	128	1%	100.00%	128	1%	100.00%
Pct HV	3%			0%			0%			0%											
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	0	0	0.00%	0	0	0.00%
U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	0	0	0.00%	0	0	0.00%
Left	0	0	0	0	2	0	0	1	0	0	1	0	0	4	0%	155	1%	94.51%	155	1%	94.51%
Right	0	25	0	0	17	0	0	17	0	0	15	0	0	74	0%	9	0%	5.49%	9	0%	5.49%
App. Total	0	25	0	0	19	0	0	18	0	0	16	0	0	78	0%	164	1%	100.00%	164	1%	100.00%
Pct HV	0%			0%			0%			0%											
Total Class Volume	0	83	1	0	73	0	0	70	0	0	87	1	1	315	0.89	315	0%		315	0%	
Total Interval Volume	84			73			70			88			315								
Intersection Pct Trucks	1%			0%			0%			1%			0%								

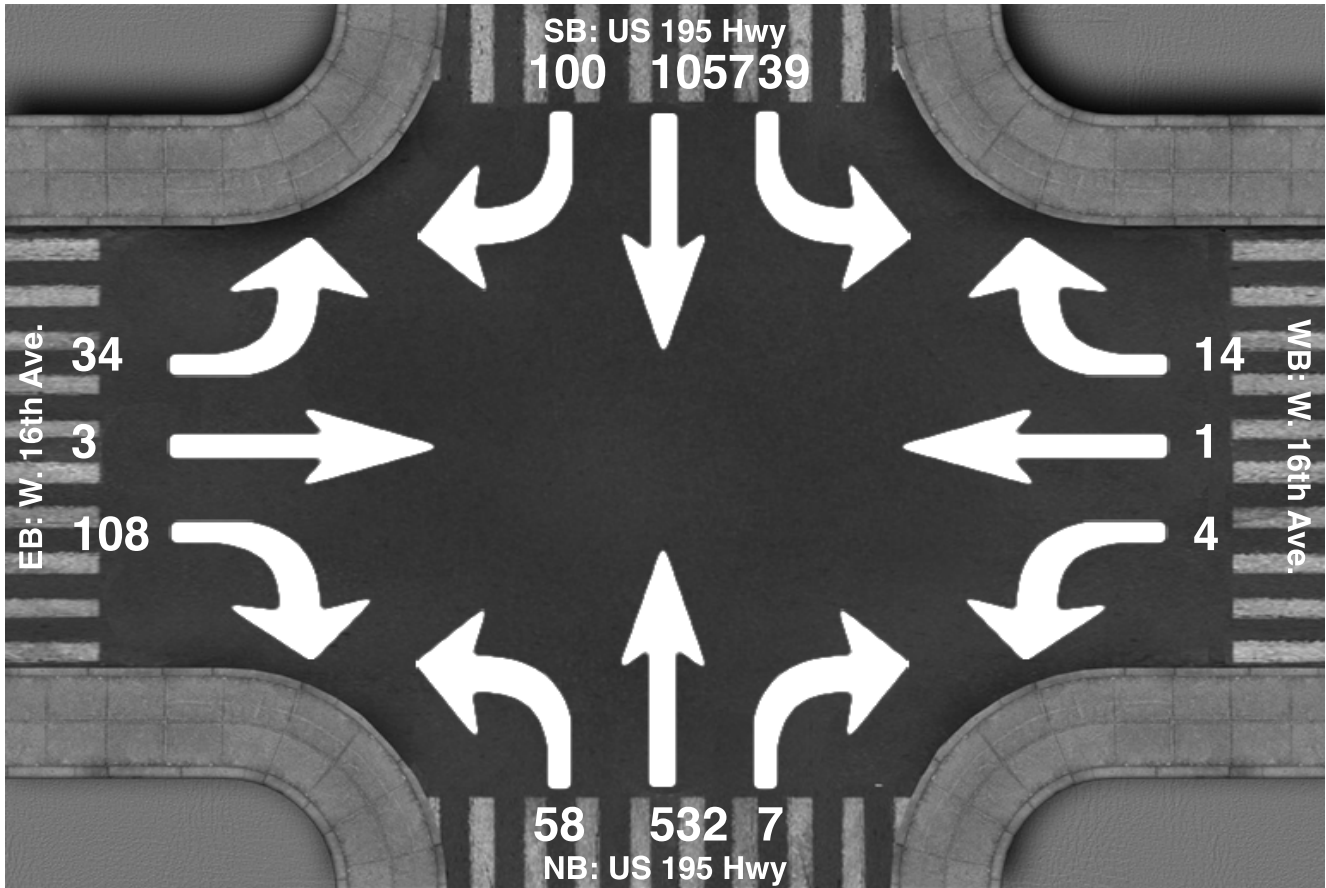
APPROACH MOVEMENT	Ped			TOTAL
	Eastbound	Westbound	Northbound	
Eastbound	0	0	0	0
Westbound	0	0	0	0
Northbound	0	0	0	0
Southbound	0	0	0	0
Total	0	0	0	0

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



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



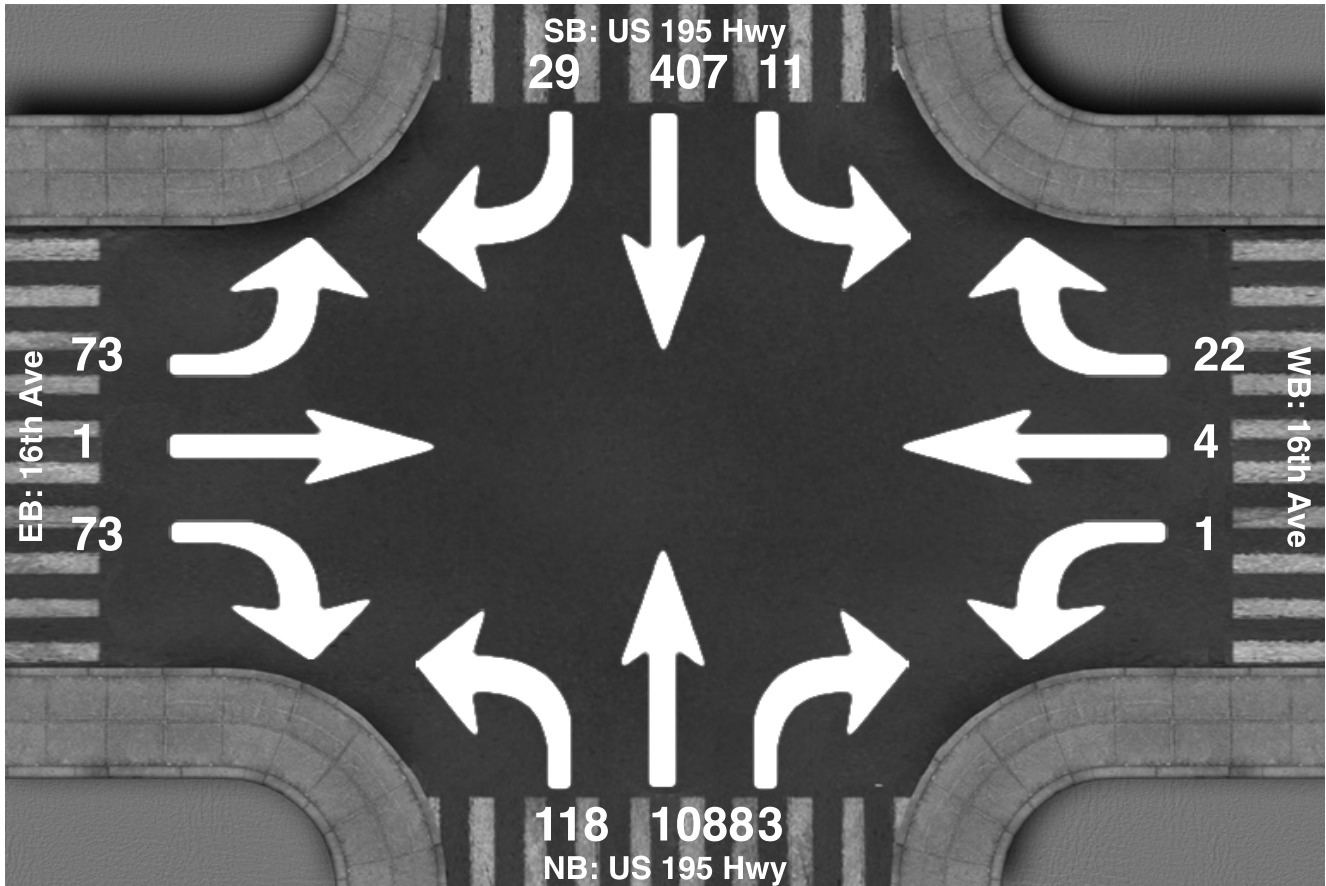
Intersection Peak Hour

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			

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			

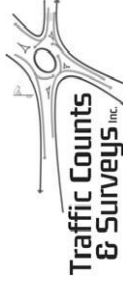
INTERSECTION

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

North 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								
	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
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	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	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	0	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	0	0	0	5	0			
Pct HV	10%			0%			0%			8%			0%			0%			0%			0%			0%			0%			0%			0%			0%					
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
U-Turn	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	0	0	0	5	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	0	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	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	181	5	0	195	8			
Pct HV	2%			2%			0%			2%			1%			2%			2%			2%			2%			2%			3%			3%			4%					
Southbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
U-Turn	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	121	13	0	113	5			
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	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	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	121	13	0	113	5			
Pct HV	20%			19%			8%			7%			6%			10%			7%			6%			9%			11%			10%			3%			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	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%			6%								

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)

All Vehicles (no classification)

App.= Approach
Pct= Percent

INTERSECTION

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

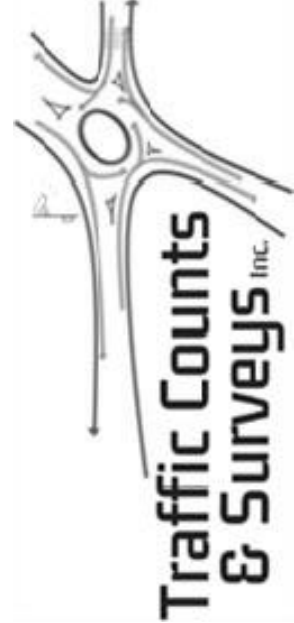
Counter Analyst

Micivision BNG

APPROACH MOVEMENT	AM PEAK HOURS												Receiving			Departing			App.		
	7:15 AM			7:30 AM			7:45 AM			8:00 AM			Mvmt	Total	Percentage of: HV	Percentage of: HV	Approach				
	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV						TOTAL		PHF	Percentage of: HV
Eastbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%			
U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%			
Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%			
Right	0	11	1	0	17	0	0	10	0	10	0	0	49	2%	100.00%	2%	100.00%	100.00%			
App. Total	0	11	1	0	17	0	0	10	0	10	0	0	49	0.72	2%	100.00%	2%	100.00%			
Pct HV	8%												0%			0%			0%		
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%			
U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%			
Left	0	11	1	0	17	0	0	10	0	10	0	0	49	2%	3.84%	2%	100.00%	7.15%			
Through	0	293	4	0	336	5	0	330	6	248	6	0	1228	2%	96.16%	2%	100.00%	92.85%			
App. Total	0	304	5	0	353	5	0	340	6	258	6	0	1277	0.89	2%	100.00%	2%	100.00%			
Pct HV	2%												2%			2%			2%		
Southbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%			
U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%			
Through	0	149	12	0	143	9	0	142	16	154	11	0	636	8%	100.00%	8%	100.00%	100.00%			
Right	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%			
App. Total	0	149	12	0	143	9	0	142	16	154	11	0	636	0.96	8%	100.00%	8%	100.00%			
Pct HV	7%												10%			7%			8%		
Total Class Volume	0	464	18	0	513	14	0	492	22	422	17	0	1,962	0.93							
Total Interval Volume	482												514			439			1,962		
Intersection Pct Trucks	4%												4%			4%			4%		

Pedestrian Volumes	Confli.			
	7:15	7:30	7:45	8:00
APPROACH MOVEMENT				
Eastbound	0	0	0	0
Westbound	0	0	0	0
Northbound	0	0	0	0
Southbound	0	0	0	0
Total	0	0	0	0

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

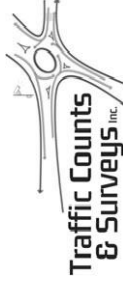


INTERSECTION

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

North J-turn (Thorpe Road)
&
SR 195

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		
	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	0	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%			0%			0%		
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
U-Turn	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
Left	0	162	6	0	198	14	0	169	17	0	169	16	0	157	6	0	136	5	0	214	6	0	214	6	0	168	6	0	185	6	0	140	4	0	150	1
Through	0	172	6	0	216	14	0	182	17	0	181	16	0	175	6	0	151	5	0	233	6	0	233	6	0	189	6	0	203	6	0	154	5	0	162	1
App. Total	0	172	6	0	216	14	0	182	17	0	181	16	0	175	6	0	151	5	0	233	6	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%			3%		
Southbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
U-Turn	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
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	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%			2%			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%			3%		

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	0	0	0	0	0	0	0	0	0	0	0	0
Westbound	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	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	Passenger Car (PC)		Heavy Vehicle (HV)	
	Bike (BK)	Truck (TR)	Truck (TR)	Truck (TR)
Bike (BK)	0	0	0	0
Motorcycles	0	0	0	0
Cars	0	0	0	0
Light Goods Vehicles	0	0	0	0
Mediums	0	0	0	0
Single Unit Trucks	0	0	0	0
Articulated Trucks	0	0	0	0

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

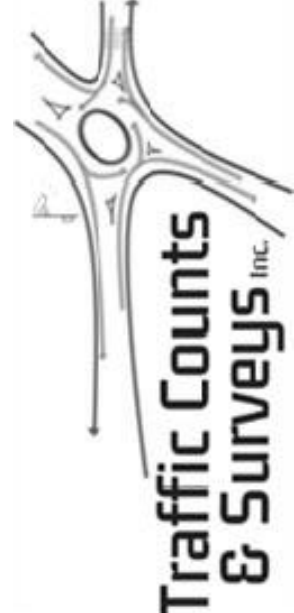
App.= Approach
Pct= Percent

INTERSECTION

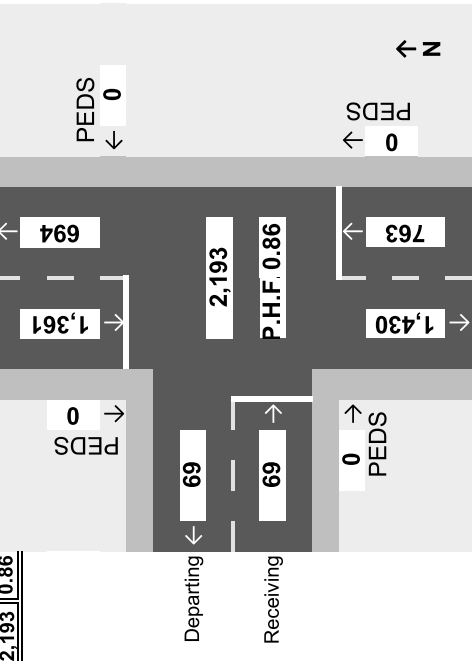
PROJECT: WCE Victory Heights North J-turn (Thorpe Road) & SR 195
 JOB NO. 23-81
 DATE OF COUNT: 3/22/2023
 Counter Analyst

APPROACH MOVEMENT	PM PEAK HOURS												Receiving			Departing			
	4:45 PM			5:00 PM			5:15 PM			5:30 PM			Mvmt	Total	Percentage of: HV	Percentage of: HV	App.		
	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV						TOTAL	PHF
Eastbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%	0	0.00%
U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%	0	0.00%
Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%	0	0.00%
Right	0	14	0	0	15	0	0	19	0	0	21	0	0	69	0%	0	0%	0	100.00%
App. Total	0	14	0	0	15	0	0	19	0	0	21	0	0	69	0.82	0%	0	100.00%	
Pct HV	0%			0%			0%			0%									
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%	0	0.00%
U-Turn	0	14	0	0	15	0	0	19	0	0	21	0	0	69	0	0%	0	9.04%	
Left	0	153	6	0	136	5	0	214	6	0	188	6	23	694	3%	3%	90.96%		
Through	0	167	6	0	151	5	0	233	6	0	189	6	23	763	0.80	3%	100.00%		
App. Total	0	167	6	0	151	5	0	233	6	0	189	6	23	763	0.80	3%	100.00%		
Pct HV	3%			3%			3%			3%									
Southbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%	0	0.00%
U-Turn	0	323	3	0	331	4	0	376	0	0	321	3	10	1361	1%	1%	100.00%		
Through	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0.00%	
Right	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0.00%	
App. Total	0	323	3	0	331	4	0	376	0	0	321	3	10	1361	0.90	1%	100.00%		
Pct HV	1%			1%			0%			1%									
Total Class Volume	0	504	9	0	497	9	0	628	6	0	531	9	33		2,193	0.86	Total		
Total Interval Volume	513			506			634			540			2,193						
Intersection Pct Trucks	2%			2%			1%			2%			2%						

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



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



INTERSECTION

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

Thorpe Road
&
SR 195

AM PEAK HOURS

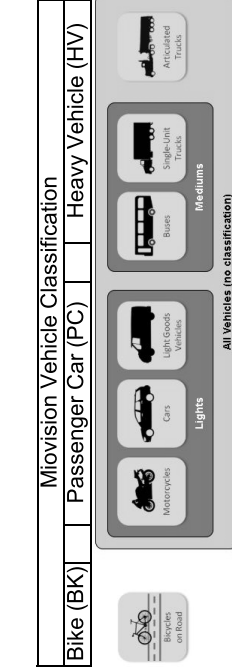
15 Minute Period Beginning @



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	
	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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
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
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
Right	0	19	0	0	21	1	0	13	0	22	0	0	27	0	0	22	2	0	24	0	0	16	1	0
App. Total	0	19	0	0	21	1	0	13	0	22	0	0	27	0	0	22	2	0	24	0	0	16	1	0
Pct HV	0%		5%		0%		3%		0%		0%		5%		8%		0%		0%		6%		0%	
Westbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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
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
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
Right	0	10	0	0	3	0	0	7	0	10	1	0	9	0	0	5	1	0	10	0	0	4	0	0
App. Total	0	10	0	0	3	0	0	7	0	10	1	0	9	0	0	5	1	0	10	0	0	4	0	0
Pct HV	0%		0%		0%		11%		9%		0%		18%		17%		50%		0%		0%		0%	
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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
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
Through	0	193	4	0	223	4	0	233	1	343	4	0	331	6	0	249	4	0	231	3	0	177	5	0
Right	0	11	0	0	19	0	0	17	1	44	0	0	53	0	0	29	1	0	23	1	0	12	1	0
App. Total	0	204	4	0	242	4	0	250	2	387	4	0	384	6	0	278	5	0	254	4	0	189	6	0
Pct HV	2%		2%		1%		2%		1%		2%		2%		2%		2%		2%		3%		4%	
Southbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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
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
Through	0	56	17	0	71	17	0	85	7	129	9	0	130	14	0	145	11	0	111	13	0	109	13	0
Right	0	14	0	0	2	0	0	10	1	14	0	0	12	2	0	9	0	0	22	0	0	12	0	0
App. Total	0	70	17	0	73	17	0	95	8	143	9	0	142	16	0	154	11	0	133	13	0	121	13	0
Pct HV	20%		19%		8%		8%		6%		10%		7%		7%		6%		9%		10%		4%	
Total Class Volume	0	303	21	0	339	22	0	365	10	562	14	0	562	22	0	462	19	0	413	18	0	330	20	0
Total Interval Volume	324			361			375		576		584		584		481		513		431		407		350	
Intersection Pct HV	6%		6%		3%		3%		2%		4%		4%		4%		4%		4%		6%		4%	

Pedestrian Volumes

APPROACH Movement	6:30	6:45	7:00	7:15	7:30	7:45	7:55	8:05	8:15	8:25	8:35	8:45	8:55	9:05	9:15
Eastbound Crosswalk	0	0	0	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	0	0	0
Northbound Crosswalk	0	0	0	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	0	0	0
Total	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0



Intersection Total		Pct
One Hour Volumes		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

INTERSECTION

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

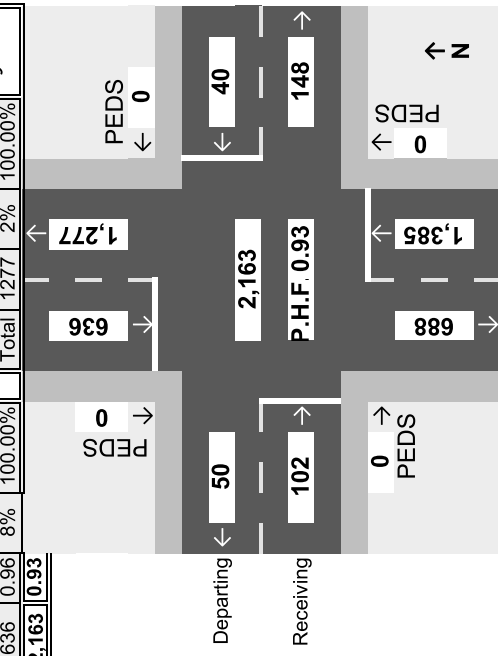
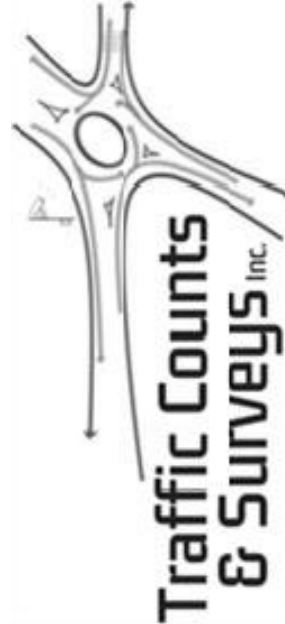
Thorpe Road & SR 195

Microvision BNG

APPROACH MOVEMENT	AM PEAK HOURS												Receiving						Departing					
	7:15 AM				7:30 AM				7:45 AM				8:00 AM				Mvmt	Total	Percentage of: HV / Approach	App.				
	BK	PC	HV	PC	BK	PC	HV	PC	BK	PC	HV	PC	BK	PC	HV	PC								
Eastbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	EBU	0	0.00%	Eastbound				
Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NBL	0	0.00%					
Through	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	EBT	0	0.00%					
Right	0	30	1	0	0	22	0	0	0	27	0	0	0	21	1	0	SBR	50	6%	100.00%				
App. Total	0	30	1	0	0	22	0	0	0	27	0	0	0	21	1	Total	50	6%	100.00%					
Pct HV	3%				0%				0%				5%											
Westbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	WBU	0	0.00%	Westbound				
Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SBL	0	0.00%					
Through	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	WBT	0	0.00%					
Right	0	8	1	0	0	10	1	0	0	9	0	0	0	9	2	0	WBR	4	10%	100.00%				
App. Total	0	8	1	0	0	10	1	0	0	9	0	0	0	9	2	Total	148	1%	100.00%					
Pct HV	11%				9%				0%				18%											
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NBU	0	0.00%	Northbound				
Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NBL	0	0.00%					
Through	0	296	4	0	0	343	4	0	0	331	6	0	0	249	4	0	NBT	18	1%	89.31%				
Right	0	20	1	0	0	44	0	0	0	53	0	0	0	29	1	0	NBR	2	1%	10.69%				
App. Total	0	316	5	0	0	387	4	0	0	384	6	0	0	278	5	Total	688	7%	100.00%					
Pct HV	2%				1%				2%				2%											
Southbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SBU	0	0.00%	Southbound				
Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SBL	0	0.00%					
Through	0	137	11	0	0	129	9	0	0	130	14	0	0	145	11	0	SBT	45	8%	92.14%				
Right	0	12	1	0	0	14	0	0	0	12	2	0	0	9	0	0	SBR	3	6%	7.86%				
App. Total	0	149	12	0	0	143	9	0	0	142	16	0	0	154	11	Total	1277	2%	100.00%					
Pct HV	7%				6%				10%				7%											
Total Class Volume	0	503	19	0	0	562	14	0	0	562	22	0	0	462	19	Total	74	0.93%						
Total Interval Volume	522	576		584	584		481	481		481		481		481		2,163	3%							
Intersection Pct Trucks	4%				2%				4%				4%											

Pedestrian Volumes	Confli.			
	7:15	7:30	7:45	8:00
APPROACH MOVEMENT				
Eastbound	0	0	0	0
Westbound	0	0	0	0
Northbound	0	0	0	0
Southbound	0	0	0	0
Total	0	0	0	0

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



INTERSECTION

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

Thorpe Road
&
SR 195

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		
	BK	HV	BK	HV	BK	HV	BK	HV	BK	HV	BK	HV	BK	HV	BK	HV	BK	HV	BK	HV	BK	HV	BK	HV	BK
Eastbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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	
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	
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	
Right	0	36	1	0	24	0	0	12	0	28	2	0	18	0	0	18	0	19	0	18	0	0	26	0	
App. Total	0	36	1	0	24	0	12	12	0	28	2	0	18	0	0	18	0	19	0	18	0	0	26	0	
Pct HV	3%		0%		0%		0%		7%		0%		0%		0%		0%		0%		0%		0%		
Westbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
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		
Left	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		
Right	0	5	1	0	6	0	9	0	0	11	0	0	5	0	8	0	11	0	8	0	5	0	12		
App. Total	0	5	1	0	6	0	9	0	0	11	0	0	5	0	8	0	11	0	8	0	5	0	12		
Pct HV	17%		0%		0%		0%		0%		0%		0%		0%		0%		0%		0%		0%		
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
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		
Left	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	172	16	0	164	6	0	162	6	0	222	6	181	6	0	198	6	142		
Right	0	20	0	0	16	1	18	0	0	15	1	0	26	0	0	16	0	26	0	0	20	0	14		
App. Total	0	187	5	0	226	15	190	16	0	179	7	0	188	6	0	238	6	207	6	0	218	6	156		
Pct HV	3%		6%		9%		8%		4%		3%		3%		2%		3%		3%		3%		1%		
Southbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
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		
Left	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	303	5	0	300	4	0	298	3	0	341	0	288	3	0	237	2	182		
Right	0	24	1	0	35	1	24	0	0	22	0	0	25	0	0	35	0	33	0	0	32	0	23		
App. Total	0	287	5	0	296	5	327	5	0	322	4	0	323	3	0	376	0	321	3	0	269	2	205		
Pct HV	2%		2%		1%		2%		1%		1%		1%		0%		1%		1%		2%		0%		
Total Class Volume	0	515	12	0	552	20	538	21	0	540	13	0	540	9	0	643	6	555	9	0	510	8	399		
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%		

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	0	0	0	0	0	0	0	0	0	0	0	0
Westbound	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	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	Passenger Car (PC)		Heavy Vehicle (HV)	
	Bike (BK)	PC	Bike (BK)	HV
Bicycles on Road	0	0	0	0
Motorcycles	0	0	0	0
Lights	0	0	0	0
Cars	0	0	0	0
Light Goods Vehicles	0	0	0	0
Mediums	0	0	0	0
Buses	0	0	0	0
Single Unit Trucks	0	0	0	0
Articulated Trucks	0	0	0	0
All Vehicles (no classification)	0	0	0	0

Intersection Total	Pct	
	One Hour Volumes	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

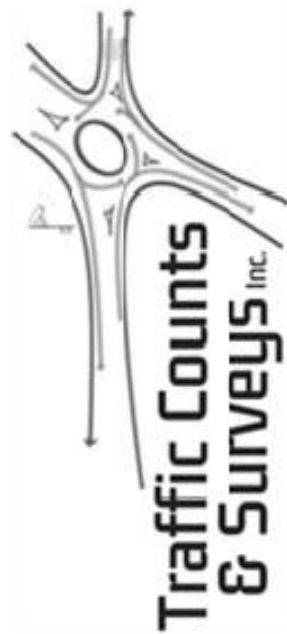
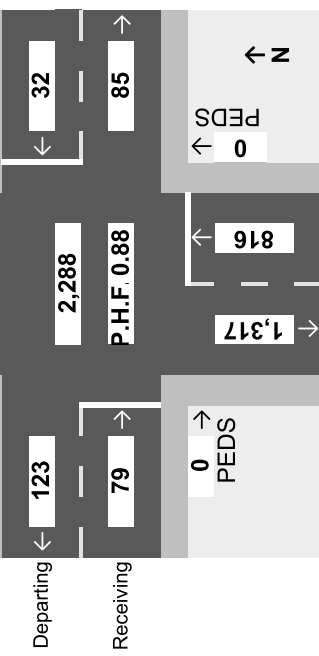
INTERSECTION

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

Thorpe Road & SR 195

APPROACH MOVEMENT	PM PEAK HOURS												Receiving			Departing			App.
	4:45 PM			5:00 PM			5:15 PM			5:30 PM			Mvmt	Total	Percentage of: HV / Approach	Mvmt	Total	Percentage of: HV / Approach	
	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV							
Eastbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	EBU	0	0.00%	
Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	NBL	0	0.00%	
Through	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	WBT	0	0.00%	
Right	0	24	0	0	18	0	0	18	0	0	19	0	0	79	100.00%	SBR	123	0%	
App. Total	0	24	0	0	18	0	0	18	0	0	19	0	0	79	100.00%	Total	123	0%	
Pct HV	0%			0%			0%			0%									
Westbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	WBU	0	0.00%	
Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	SBL	0	0.00%	
Through	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	EBT	0	0.00%	
Right	0	5	0	0	8	0	0	11	0	0	8	0	0	32	100.00%	NBR	85	0%	
App. Total	0	5	0	0	8	0	0	11	0	0	8	0	0	32	100.00%	Total	85	0%	
Pct HV	0%			0%			0%			0%									
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	NBU	0	0.00%	
Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	NBL	0	0.00%	
Through	0	162	6	0	143	5	0	222	6	0	181	6	23	731	3%	SBT	1238	1%	
Right	0	26	0	0	17	0	0	16	0	0	26	0	0	85	10.42%	EBR	79	0%	
App. Total	0	188	6	0	160	5	0	238	6	0	207	6	23	816	3%	Total	1317	1%	
Pct HV	3%			3%			2%			3%									
Southbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	SBU	0	0.00%	
Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	EBL	0	0.00%	
Through	0	298	3	0	301	4	0	341	0	0	288	3	10	1238	1%	NBT	731	3%	
Right	0	25	0	0	30	0	0	35	0	0	33	0	0	123	0%	SBR	32	0%	
App. Total	0	323	3	0	331	4	0	376	0	0	321	3	10	1361	1%	Total	763	3%	
Pct HV	1%			1%			0%			1%									
Total Class Volume	0	540	9	0	517	9	0	643	6	0	555	9	33	2,288	0.88	Total	2,288	1%	
Total Interval Volume	549			526			649			564			2,288						
Intersection Pct Trucks	2%			2%			1%			2%			1%						

APPROACH MOVEMENT	4:45			5:00			5:15			5:30			TOTAL
	Ped	Cycl	Truck	Ped	Cycl	Truck	Ped	Cycl	Truck	Ped	Cycl	Truck	
Eastbound	0	0	0	0	0	0	0	0	0	0	0	0	0
Westbound	0	0	3	0	0	0	0	0	0	0	0	0	3
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	3	0	0	0	0	0	0	0	0	0	3



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

INTERSECTION

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

South J Turn (Thorpe Road)
&
SR 195



AM PEAK HOURS

15 Minute Period Beginning @

APPROACH Movement Type	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	
	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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	
Left	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	18	0	32	0	17	0	19	0	16	0	16	0	6	0	10	0	
App. Total	0	18	0	0	16	0	0	18	0	32	0	17	0	19	0	16	0	16	0	6	0	10	0	
Pct HV	0%		0%		0%		0%		0%		0%		0%		0%		0%		0%		0%		6%	
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
U-Turn	0	204	2	0	242	0	0	316	4	0	387	3	0	278	2	0	300	5	0	222	4	0	189	5
Through	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	
App. Total	0	204	2	0	242	0	0	316	4	0	387	3	0	278	2	0	300	5	0	222	4	0	189	5
Pct HV	1%		0%		0%		1%		1%		1%		1%		2%		2%		2%		3%		0%	
Southbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
U-Turn	0	18	0	0	16	0	0	18	0	32	0	17	0	19	0	16	0	16	0	6	0	10	0	
Left	0	57	8	0	76	13	0	149	8	0	119	8	0	140	8	0	155	5	0	142	11	0	115	9
Through	0	75	8	0	92	13	0	167	8	0	151	8	0	157	8	0	171	5	0	148	11	0	125	9
App. Total	0	297	10	0	350	13	0	501	12	0	570	11	0	558	10	0	487	10	0	376	15	0	324	14
Pct HV	10%		12%		2%		5%		5%		5%		3%		3%		4%		7%		7%		1%	
Total Class Volume	0	297	10	0	350	13	0	501	12	0	570	11	0	558	10	0	487	10	0	376	15	0	324	14
Total Interval Volume	307				363			513		581			471		497		415		391		338		343	
Intersection Pct HV	3%				4%			2%		2%			2%		2%		2%		4%		4%		1%	

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	0	0	0	0	0	0	0	0	0	0	0	0
Westbound	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	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)
	Lights	
	All Vehicles (no classification)	

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

App.= Approach
Pct= Percent

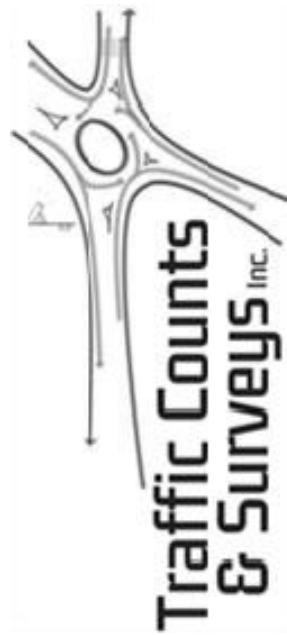
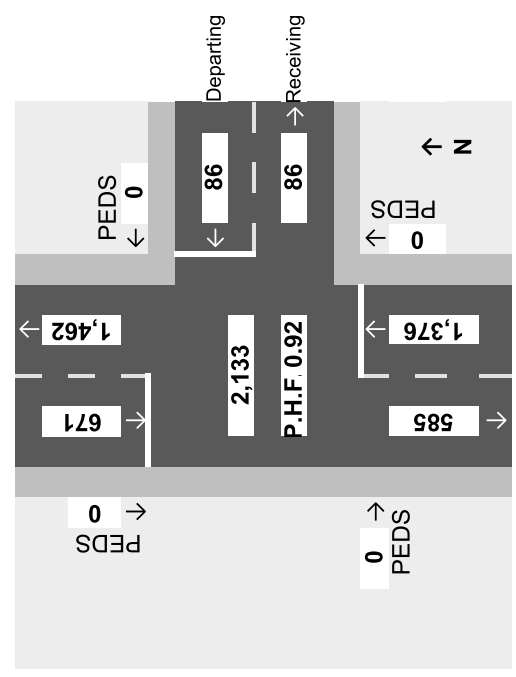
INTERSECTION

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

APPROACH / MOVEMENT	AM PEAK HOURS												Approach						
	7:15 AM			7:30 AM			7:45 AM			8:00 AM			Departing			Receiving			
	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	Mvmt	TOTAL HV / Veh	PHF	Percentage of: HV / Approach	Mvmt	Total	Percentage of: HV / Approach
Westbound	0	0	0	0	0	0	0	0	0	0	0	0	WB	0	0	0.00%	WB	0	0.00%
Left	0	0	0	0	0	0	0	0	0	0	0	0	WBL	0	0	0.00%	SBL	86	0%
Right	0	18	0	0	32	0	0	17	0	0	19	0	WBR	0	86	100.00%	NBR	0	0.00%
App. Total	0	18	0	0	32	0	0	17	0	0	19	0	Total	0	86	0%	Total	86	100.00%
Pct HV	0%			0%			0%			0%									
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	NBU	0	0	0.00%	NBU	0	0.00%
Through	0	316	4	0	387	3	0	384	2	0	278	2	NBT	11	1376	1%	SBT	585	5%
Right	0	0	0	0	0	0	0	0	0	0	0	0	NBR	0	0	0.00%	WBL	0	0.00%
App. Total	0	316	4	0	387	3	0	384	2	0	278	2	Total	11	1376	0.88%	Total	585	5%
Pct HV	1%			1%			1%			1%									
Southbound	0	0	0	0	0	0	0	0	0	0	0	0	SBU	0	0	0.00%	SBU	0	0.00%
Left	0	18	0	0	32	0	0	17	0	0	19	0	SBL	0	86	0%	WBR	86	0%
Through	0	149	8	0	119	8	0	140	8	0	147	6	SBT	30	585	5%	NBT	1376	1%
App. Total	0	167	8	0	151	8	0	157	8	0	166	6	Total	30	671	0.96%	Total	1462	1%
Pct HV	5%			5%			5%			3%									
Total Class Volume	0	501	12	0	570	11	0	558	10	0	463	8	Total	41	2,133	0.92%	Total	2,133	0.92%
Total Interval Volume	513			581			568			471			Total	2,133		Total	2,133		
Intersection Pct Trucks	2%			2%			2%			2%			Total	2%		Total	2%		

Pedestrian Volumes	Confli.			
	7:15	7:30	7:45	8:00
APPROACH				
Eastbound	0	0	0	0
Westbound	0	0	0	0
Northbound	0	0	0	0
Southbound	0	0	0	0
Total	0	0	0	0

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



INTERSECTION

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

South J Turn (Thorpe Road)
&
SR 195



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								
	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
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	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	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	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	0	14	0			
Pct HV	4%			0%			0%			0%			0%			0%			0%			0%			0%			0%			0%			0%			0%					
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
U-Turn	0	187	3	0	226	11	0	182	11	0	190	9	0	179	4	0	188	2	0	160	3	0	160	3	0	238	5	0	207	3	0	218	3	0	156	0	0	170	1			
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	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	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	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%			0%			1%			0%			0%			1%								
Southbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
U-Turn	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	0	14	0			
Left	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	359	0	0	296	3	0	241	2	0	194	2	0	188	0			
Through	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						
App. Total	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						
Pct HV	2%			1%			1%			1%			0%			1%			1%			0%			1%			1%			0%			0%								
Total Class Volume	517			532			494			524			526			532			496			613			531			492			380			387								
Total Interval Volume	517			532			494			524			526			532			496			613			531			492			380			387								
Intersection Pct HV	2%			2%			3%			2%			1%			1%			3%			1%			1%			1%			1%			0%								

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

Bike (BK)	Miovision Vehicle Classification		Heavy Vehicle (HV)
	Passenger Car (PC)	Light Vehicle (LV)	
	Motorcycles	Cars	Buses
	Light Goods Vehicles	Mediums	Single Unit Articulated Trucks
	Bicycles on Road	Trucks	Articulated Trucks

All Vehicles (no classification)

Intersection Total	Pct	
	One Hour Volumes	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

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

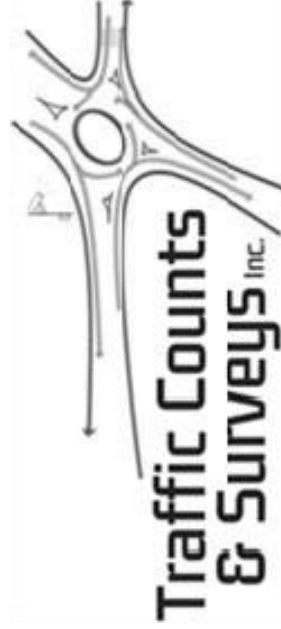
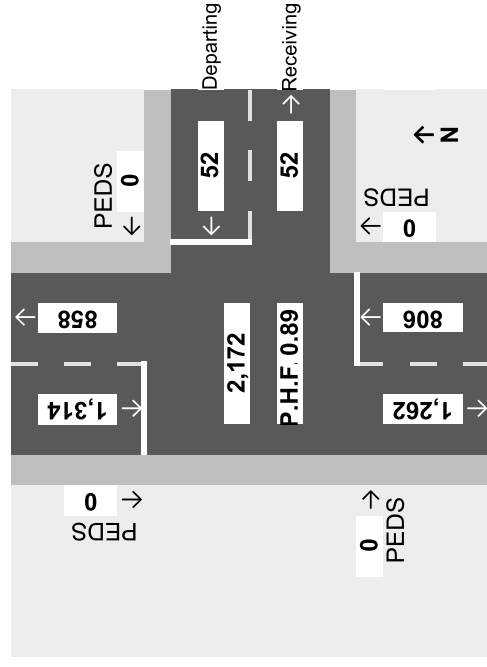
South J Turn (Thorpe Road) &

SR 195

APPROACH MOVEMENT	PM PEAK HOURS												Approach					
	4:45 PM			5:00 PM			5:15 PM			5:30 PM			Departing			Receiving		
	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	Mvmt	TOTAL	PHF	Percentage of: HV	Percentage of: HV	App.
Westbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	0.00%	Westbound
Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	0.00%	
Right	0	19	0	0	11	0	0	11	0	0	11	0	0	52	0	0%	0.00%	
App. Total	0	19	0	0	11	0	0	11	0	0	11	0	0	52	0.68	0%	100.00%	
Pct HV	0%			0%			0%			0%								
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	0.00%	Northbound
Through	0	188	2	0	160	3	0	238	5	0	207	3	13	806	2	2%	100.00%	
Right	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	0.00%	
App. Total	0	188	2	0	160	3	0	238	5	0	207	3	13	806	0.83	2%	100.00%	
Pct HV	1%			2%			2%			1%								
Southbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	0.00%	Southbound
Left	0	19	0	0	11	0	0	11	0	0	11	0	0	52	0	0%	3.96%	
Through	0	303	1	0	308	3	0	348	0	0	296	3	7	1262	1	1%	96.04%	
App. Total	0	322	1	0	319	3	0	359	0	0	307	3	7	1314	0.92	1%	100.00%	
Pct HV	0%			1%			0%			1%								
Total Class Volume	0	529	3	0	490	6	0	608	5	0	525	6	20	2,172	0.89			
Total Interval Volume	532			496			613			531			2,172					
Intersection Pct Trucks	1%			1%			1%			1%			1%					

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

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



INTERSECTION

PROJECT: WCE Victory Heights
JOB NO. 23-78
DATE OF COUNT: 3/14/2023
Counter Analyst
Miovision BNG

Cheney-Spokane Rd
&
SR 195 SB West
AM PEAK HOURS
15 Minute Period Beginning @



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

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

App.= Approach
Pct= Percent

Miovision Vehicle Classification		
Bike (BK)	Passenger Car (PC)	Heavy Vehicle (HV)
Bicycles on Road	Motorcycles Cars Light Trucks Medium Trucks Buses	Single Unit Trucks Articulated Trucks
All Vehicles (no classification)		

Intersection Total		Pct
One Hour Volumes		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%

INTERSECTION

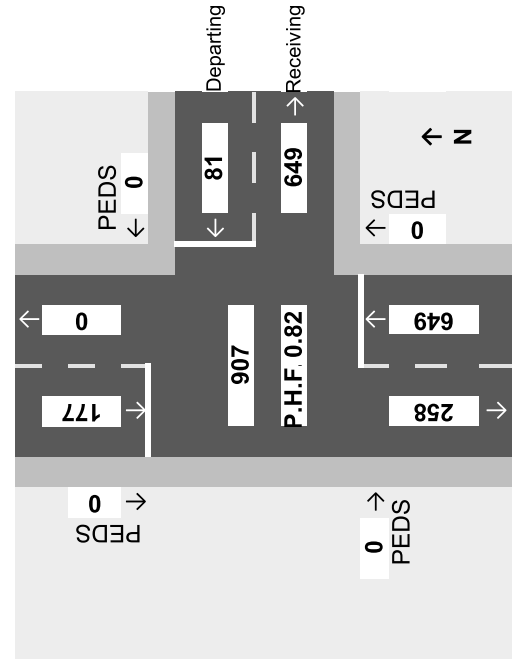
PROJECT: WCE Victory Heights
JOB NO. 23-78
DATE OF COUNT: 3/14/2023
Counter Analyst BNG
Miovision

Cheney-Spokane Rd & SR 195 SB West

APPROACH MOVEMENT	AM PEAK HOURS												Approach							
	7:15 AM			7:30 AM			7:45 AM			8:00 AM			Departing			Receiving				
	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	Mvmt	TOTAL HV	Veh	PHF	Percentage of: HV / Approach	Mvmt	Total	Percentage of: HV / Approach
Westbound	0	0	0	0	0	0	0	0	0	0	0	0	WB	0	0	0.00%	WB	0	0	0.00%
Left	0	23	0	0	26	0	0	17	0	0	15	0	WBL	0	81	100.00%	SBL	0	0	0.00%
Right	0	0	0	0	0	0	0	0	0	0	0	0	WBR	0	0	0.00%	NBR	649	2%	100.00%
App. Total	0	23	0	0	26	0	0	17	0	0	15	0	Total	0	81	0%	Total	649	100.00%	
Pct HV	0%			0%			0%			0%										
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	NBU	0	0	0.00%	NBU	0	0	0.00%
Through	0	0	0	0	0	0	0	0	0	0	0	0	NBT	0	0	0.00%	SBT	177	8%	68.60%
Right	0	159	8	0	204	1	0	149	3	0	123	2	NBR	14	649	2%	WBL	81	0%	31.40%
App. Total	0	159	8	0	204	1	0	149	3	0	123	2	Total	14	649	2%	Total	258	5%	100.00%
Pct HV	5%			0%			2%			2%										
Southbound	0	0	0	0	0	0	0	0	0	0	0	0	SBU	0	0	0.00%	SBU	0	0	0.00%
Left	0	0	0	0	0	0	0	0	0	0	0	0	SBL	0	0	0.00%	WBR	0	0	0.00%
Through	0	44	5	0	45	2	0	35	3	0	39	4	SBT	14	177	8%	NBT	0	0	0.00%
App. Total	0	44	5	0	45	2	0	35	3	0	39	4	Total	14	177	8%	Total	0	0	0.00%
Pct HV	10%			4%			8%			9%										
Total Class Volume	0	226	13	0	275	3	0	201	6	0	177	6	Total	28	907	0.82	Total	907		
Total Interval Volume	239			278			207			183										
Intersection Pct Trucks	5%			1%			3%			3%										

Pedestrian Volumes	Confli.			
	7:15	7:30	7:45	8:00
APPROACH MOVEMENT				
Eastbound	0	0	0	0
Westbound	0	0	0	0
Northbound	0	0	0	0
Southbound	0	0	0	0
Total	0	0	0	0

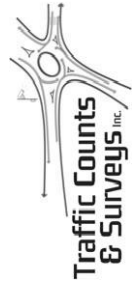
Movement = Mvmt
Pedestrian = Ped
P.H.F. = Peak Hour Factor
App. = Approach
Pct = Percent



INTERSECTION

PROJECT: WCE Victory Heights
JOB NO. 23-78
DATE OF COUNT: 3/14/2023
Counter Analyst
Miovision BNG

Cheney-Spokane Rd
&
SR 195 SB West
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						
	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
U-Turn	0	20	0	0	26	1	0	19	0	0	0	32	1	0	22	0	0	23	0	0	28	0	0	14	0	0	16	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	
Right	0	20	0	0	26	1	0	19	0	0	0	32	1	0	22	0	0	23	0	0	28	0	0	14	0	0	16	0	
App. Total	0	20	0	0	26	1	0	19	0	0	0	32	1	0	22	0	0	23	0	0	28	0	0	14	0	0	16	0	
Pct HV	0%		4%		3%		0%		0%		3%		0%		0%		2%		0%		0%		0%		0%				
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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	
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	
Right	0	83	0	0	115	1	0	103	4	0	83	2	0	113	1	0	104	1	0	104	1	0	104	1	0	79	0	63	0
App. Total	0	83	0	0	115	1	0	103	4	0	83	2	0	113	1	0	104	1	0	104	1	0	104	1	0	79	0	63	0
Pct HV	0%		1%		1%		4%		2%		1%		1%		1%		2%		0%		0%		0%		0%		0%		
Southbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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	
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	
Through	0	102	1	0	119	2	0	117	2	0	123	4	0	142	0	0	129	0	0	98	1	0	92	0	0	66	0	77	0
App. Total	0	102	1	0	119	2	0	117	2	0	123	4	0	142	0	0	129	0	0	98	1	0	92	0	0	66	0	77	0
Pct HV	1%		2%		2%		2%		3%		0%		0%		0%		1%		1%		0%		0%		0%		0%		
Total Class Volume	0	205	1	0	260	4	0	239	6	0	232	6	0	287	2	0	257	1	0	214	3	0	221	0	0	159	0	156	0
Total Interval Volume	206		264		262		245		238		289		257		258		217		221		159		0%		156		0%		
Intersection Pct HV	0%		2%		2%		2%		3%		0%		1%		0%		1%		1%		0%		0%		0%		0%		

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

Bike (BK)	Miovision Vehicle Classification		Heavy Vehicle (HV)
	Passenger Car (PC)	Light Vehicle (LV)	
	Motorcycles Cars Light Goods Vehicles Buses Single Unit Trucks Articulated Trucks	Bicycles on Road Mediums All Vehicles (no classification)	
Intersection Total	977	1,009	1,034
One Hour Volumes	3:30 PM	3:45 PM	4:00 PM
	977	1,009	1,034
	4:15 PM	4:30 PM	4:45 PM
	1,029	1,042	1,021
	953	855	753
	5:00 PM	5:15 PM	5:30 PM
	953	855	753
Pct HV	1.5%	2.0%	1.7%
	1.5%	1.0%	0.7%
	0.5%	0.5%	0.4%

App.= Approach
Pct= Percent

INTERSECTION

PROJECT: WCE Victory Heights
JOB NO. 23-78
DATE OF COUNT: 3/14/2023

Cheney-Spokane Rd

&

SR 195 SB West

Counter Analyst

Mivision BNG

PM PEAK HOURS

5:00 PM

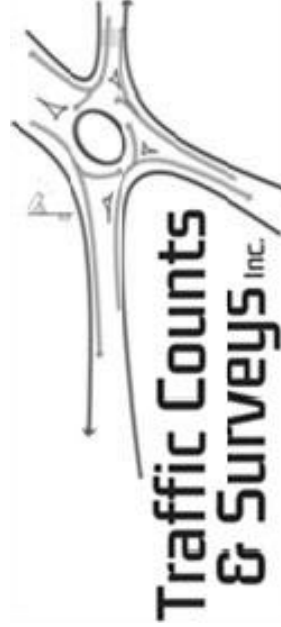
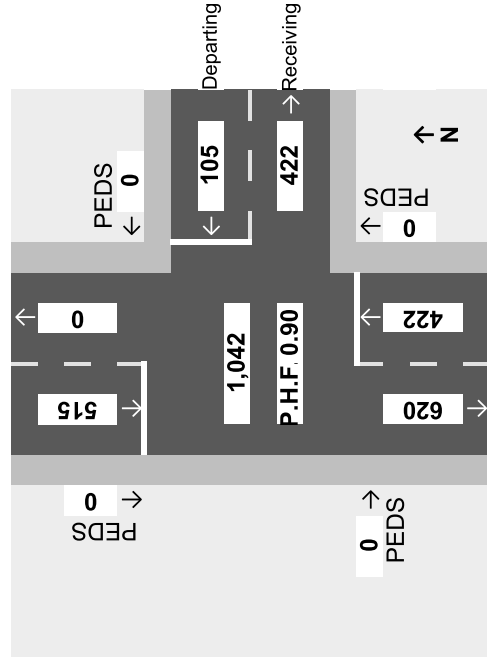
5:15 PM

Approach

APPROACH MOVEMENT	4:30 PM				4:45 PM				5:00 PM				5:15 PM				Approach														
	BK	PC	HV		BK	PC	HV		BK	PC	HV		BK	PC	HV		Mvmt	TOTAL	PHF	Percentage of: HV / Approach	Mvmt	Total	Percentage of: HV / Approach	App.							
Westbound	0	0	0		0	0	0		0	0	0		0	0	0		WBW	0	0	0.00%	WBW	0	0	0.00%	Westbound						
Left	0	26	0		0	32	1		0	22	0		0	24	0		WBL	1	105	1% 100.00%	SBL	0	0	0.00%							
Right	0	0	0		0	0	0		0	0	0		0	0	0		WBR	0	0	0.00%	NBR	422	1%	100.00%	NBR	422	1%	100.00%			
App. Total	0	26	0		0	32	1		0	22	0		0	24	0		Total	1	105	0.80	1%	100.00%	Total	422	1%	100.00%	Total	422	1%	100.00%	
Pct HV	0%				3%				0%				0%																		
Northbound	0	0	0		0	0	0		0	0	0		0	0	0		NBU	0	0	0.00%	NBU	0	0	0.00%	Northbound						
Through	0	0	0		0	0	0		0	0	0		0	0	0		NBT	0	0	0.00%	SBT	515	1%	83.06%							
Right	0	83	2		0	113	1		0	117	1		0	104	1		NBR	5	422	1%	100.00%	WBL	105	1%	16.94%						
App. Total	0	83	2		0	113	1		0	117	1		0	104	1		Total	5	422	0.89	1%	100.00%	Total	620	1%	100.00%	Total	620	1%	100.00%	
Pct HV	2%				1%				1%				1%																		
Southbound	0	0	0		0	0	0		0	0	0		0	0	0		SBU	0	0	0.00%	SBU	0	0	0.00%	Southbound						
Left	0	0	0		0	0	0		0	0	0		0	0	0		SBL	0	0	0.00%	WBR	0	0	0.00%							
Through	0	123	4		0	142	0		0	117	0		0	129	0		SBT	4	515	1%	100.00%	NBT	0	0	0.00%						
App. Total	0	123	4		0	142	0		0	117	0		0	129	0		Total	4	515	0.91	1%	100.00%	Total	0	0	0.00%	Total	0	0	0.00%	
Pct HV	3%				0%				0%				0%																		
Total Class Volume	0	232	6		0	287	2		0	256	1		0	257	1		Total	10	1,042	0.90	Total	1,042	0.90	Total	0	0	0.00%				
Total Interval Volume	238				289				257				258				1,042														
Intersection Pct Trucks	3%				1%				0%				0%				1%														

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

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



INTERSECTION

PROJECT: WCE Victory Heights
JOB NO. 23-81
DATE OF COUNT: 3/14/2023
Counter Analyst
Miovision 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	
	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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	
Left	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	147	6	190	1	0	136	3	0	108	1	0	98	2	0	77	2	
Right	0	8	1	0	6	0	9	12	2	14	0	13	0	15	1	0	11	1	0	9	0	13	0	
App. Total	0	100	2	0	86	2	0	159	8	204	1	0	149	3	0	123	2	0	106	2	0	90	2	
Pct HV	2%		2%		3%		5%		0%		2%		0%		2%		2%		3%		2%		2%	
Westbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
U-Turn	0	1	0	0	1	0	0	1	0	2	0	0	0	2	0	0	0	2	0	0	0	0	0	
Left	0	8	0	0	12	0	0	23	0	26	0	17	0	15	0	0	17	1	0	22	1	0	3	
Through	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	
App. Total	0	9	0	0	13	0	0	24	0	28	0	17	0	17	0	0	19	2	0	24	1	0	26	
Pct HV	0%		0%		0%		0%		0%		0%		0%		10%		4%		3%		0%		4%	
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
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	
Left	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	
Right	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	
Pct HV	0%		0%		0%		0%		0%		0%		0%		10%		4%		3%		0%		4%	
Southbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
U-Turn	0	0	1	0	1	0	0	2	1	3	0	3	0	7	1	0	4	0	0	3	1	0	0	
Left	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Through	0	0	1	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	
App. Total	0	0	2	0	1	1	0	2	1	3	0	3	0	7	1	0	4	0	4	1	0	0	0	
Pct HV	100%		50%		0%		33%		0%		13%		0%		0%		20%		0%		0%		100%	
Total Class Volume	0	109	4	0	100	3	0	185	9	235	1	0	169	3	0	147	3	0	134	4	0	118	2	
Total Interval Volume	113	113	103	144	144	194	236	236	172	150	150	172	150	150	112	108	112	138	135	135	120	120	131	
Intersection Pct HV	4%		3%		3%		5%		0%		2%		2%		4%		3%		3%		2%		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	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		Passenger Car (PC)		Heavy Vehicle (HV)	
Bike (BK)					
	0		0		0
	0		0		0
	0		0		0

Intersection Total		Pct	
One Hour Volumes		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

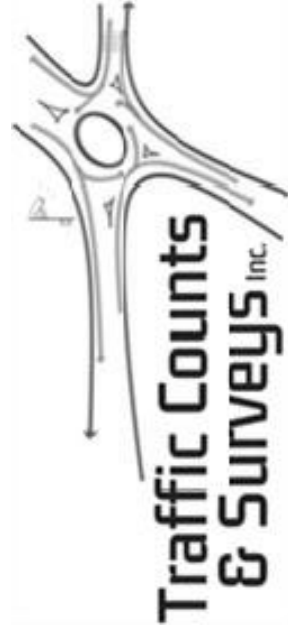
INTERSECTION

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

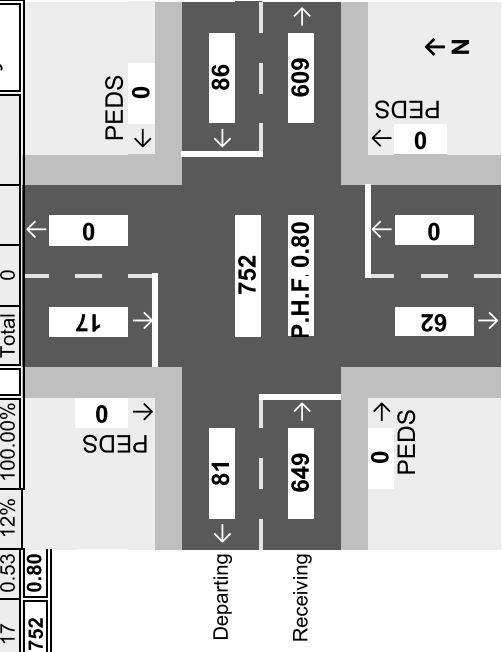
Cheney-Spokane Road & SR 195 SB Ramps

APPROACH MOVEMENT	AM PEAK HOURS												Receiving						Departing					
	7:15 AM			7:30 AM			7:45 AM			8:00 AM			Mvmt	TOTAL HV	TOTAL Veh	PHF	Percentage of:		Mvmt	Total	Percentage of:		App.	
	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV					HV	Approach			HV	Approach		
Eastbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	EBU	0	0	0.00%	Westbound		
Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	NBL	0	0	0.00%	Northbound		
Through	0	147	6	0	190	1	0	136	3	0	108	1	0	0	0	2%	91.22%	WBT	81	0	100.00%	Southbound		
Right	0	12	2	0	14	0	0	13	0	0	15	1	0	0	0	5%	8.78%	SBR	0	0	0.00%			
App. Total	0	159	8	0	204	1	0	149	3	0	123	2	0	14	649	2%	100.00%	Total	81	0	100.00%			
Pct HV	5%			0%			2%			2%														
Westbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	WBU	0	0	0.00%	Westbound		
Left	0	1	0	0	2	0	0	0	0	0	2	0	0	0	5	0%	5.81%	SBL	17	12%	2.79%	Northbound		
Through	0	23	0	0	26	0	0	17	0	0	15	0	0	0	81	0%	94.19%	EBT	592	2%	97.21%	Southbound		
Right	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	NBR	0	0	0.00%			
App. Total	0	24	0	0	28	0	0	17	0	0	17	0	0	0	86	0%	100.00%	Total	609	2%	100.00%			
Pct HV	0%			0%			0%			0%														
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			NBU	0	0	0.00%	Southbound		
Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			WBL	5	0%	8.06%			
Through	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			SBT	0	0	0.00%			
Right	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			EBR	57	5%	91.94%			
App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			Total	62	5%	100.00%			
Pct HV																								
Southbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			SBU	0	0	0.00%	Southbound		
Left	0	2	1	0	3	0	0	3	0	0	7	1	0	2	17	12%	100.00%	EBL	0	0	0.00%			
Through	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			SBT	0	0	0.00%			
Right	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			SBR	0	0	0.00%			
App. Total	0	2	1	0	3	0	0	3	0	0	7	1	0	2	17	12%	100.00%	Total	0	0	0.00%			
Pct HV	33%			0%			0%			13%														
Total Class Volume	0	185	9	0	235	1	0	169	3	0	147	3	0	16	752	0.80		Total	16	752	0.80			
Total Interval Volume	194			236			172			150			752											
Intersection Pct Trucks	5%			0%			2%			2%			2%											

Pedestrian Volumes	Confl.			
	7:15	7:30	7:45	8:00
APPROACH MOVEMENT				
Eastbound	0	0	0	0
Westbound	0	0	0	0
Northbound	0	0	0	0
Southbound	0	0	0	0
Total	0	0	0	0



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



INTERSECTION

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

Cheney-Spokane Road
&
SR 195 SB 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
Eastbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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
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
Through	0	54	0	0	82	0	66	0	47	2	0	82	1	84	1	66	1	67	1	73	0	60	0	55
Right	0	29	0	0	33	1	38	1	36	0	0	31	0	33	0	38	0	26	1	28	0	19	0	8
App. Total	0	83	0	0	115	1	104	1	83	2	0	113	1	117	1	104	1	93	2	101	0	79	0	63
Pct HV	0%		1%		1%		4%		2%		1%		1%		1%		2%		0%		0%		0%	
Westbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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	
Left	0	2	0	0	2	0	3	0	2	0	0	3	0	1	0	4	0	1	0	2	0	4	0	0
Through	0	19	0	0	26	1	28	1	25	0	0	32	1	22	0	24	0	23	0	28	0	14	0	16
Right	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	31	1	27	0	0	35	1	23	0	28	0	24	0	30	0	18	0	16
Pct HV	0%		3%		3%		0%		0%		3%		0%		0%		0%		0%		0%		0%	
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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	
Left	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	
Right	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	
Pct HV	0%		0%		0%		0%		0%		0%		0%		0%		0%		0%		0%		0%	
Southbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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	
Left	0	2	0	0	4	1	1	0	4	0	0	1	0	0	0	3	0	2	0	1	0	2	0	
Through	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	
Right	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
App. Total	0	3	0	0	4	1	1	0	5	0	0	2	0	0	0	3	0	2	0	1	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	150	2	0	142	1	0	135	1	0	119	2	0	99	
Total Interval Volume	107	107	150	139	150	139	129	117	117	152	143	152	143	143	136	136	136	121	132	132	99	99	81	
Intersection Pct HV	0%		2%		2%		3%		2%		1%		1%		1%		2%		0%		0%		0%	

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		Heavy Vehicle (HV)	
Bike (BK)	Passenger Car (PC)		
0	143	0	0
117	143	0	0
2%	1%	0%	0%
All Vehicles (no classification)		Articulated Trucks	Single Unit Trucks
		Buses	Mediums
		Cars	Lights
		Light Goods Vehicles	
		Motorcycles	
		Cars	
		Bicycles on Road	

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

App.= Approach
Pct= Percent

INTERSECTION

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

Cheney-Spokane Road

&

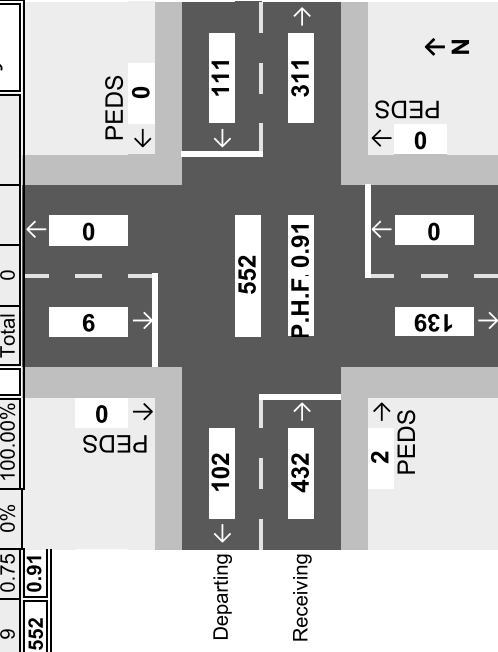
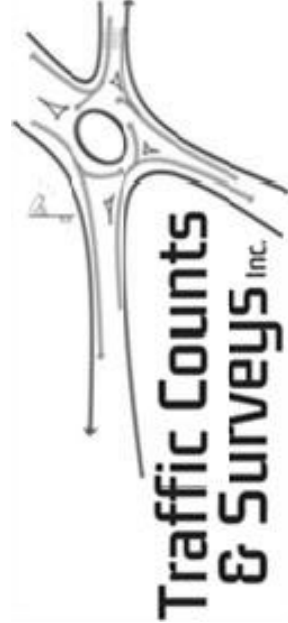
SR 195 SB Ramps

PM PEAK HOURS

APPROACH MOVEMENT	PM PEAK HOURS												Receiving						Departing					
	4:45 PM				5:00 PM				5:15 PM				5:30 PM				Mvmt	TOTAL	PHF	Percentage of: HV	Percentage of: HV	Approach		
	BK	PC	HV		BK	PC	HV		BK	PC	HV		BK	PC	HV								Total	App.
Eastbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	EBU	0	0.00%	0	0.00%	Eastbound		
Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NBL	0	0.00%	0	0.00%			
Through	0	82	1	0	0	84	1	0	66	1	0	67	4	303	1	70.14%	EBT	102	1%	100.00%	1%	100.00%		
Right	0	31	0	0	0	33	0	0	38	0	0	26	1	129	1	29.86%	EBR	0	0.00%	0	0.00%			
App. Total	0	113	1	0	0	117	1	0	104	1	0	93	2	432	1%	100.00%	Total	102	1%	100.00%				
Pct HV	1%				1%				1%				2%											
Westbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	WBU	0	0.00%	0	0.00%	Westbound		
Left	0	3	0	0	0	1	0	0	4	0	0	1	0	9	0	8.11%	WBL	8	0%	2.57%	0%	0.00%		
Through	0	32	1	0	0	22	0	0	24	0	0	23	0	102	1%	91.89%	WBT	303	1%	97.43%	1%	100.00%		
Right	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	WBR	0	0.00%	0	0.00%			
App. Total	0	35	1	0	0	23	0	0	28	0	0	24	0	111	0.77%	100.00%	Total	311	1%	100.00%				
Pct HV	3%				0%				0%															
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NBU	0	0.00%	0	0.00%	Northbound		
Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NBL	9	0%	6.47%	0%	0.00%		
Through	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NBT	1	0%	0.72%	0%	0.00%		
Right	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NBR	129	1%	92.81%	1%	100.00%		
App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Total	139	1%	100.00%				
Pct HV	0%				0%				0%															
Southbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SBU	0	0.00%	0	0.00%	Southbound		
Left	0	1	0	0	0	2	0	0	3	0	0	2	0	8	0%	88.89%	SBL	0	0%	0%	0%	0.00%		
Through	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0%	11.11%	SBT	0	0%	0%	0%	0.00%		
Right	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	SBR	0	0%	0%	0%	0.00%		
App. Total	0	2	0	0	0	2	0	0	3	0	0	2	0	9	0.75%	100.00%	Total	0	0%	0%	0%	0.00%		
Pct HV	0%				0%				0%															
Total Class Volume	150				142				135				119				6		552		0.91			
Total Interval Volume	152				143				136				121				552		1%					
Intersection Pct Trucks	1%				1%				1%				2%				1%							

Pedestrian Volumes	Confli.			
	4:45	5:00	5:15	5:30
APPROACH MOVEMENT				
Eastbound	1	0	0	2
Westbound	0	0	0	0
Northbound	0	0	0	0
Southbound	0	0	0	0
Total	1	0	0	2

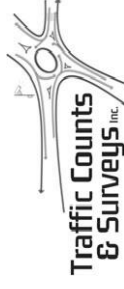
Movement = Mvmt
Pedestrian = Ped
P.H.F. = Peak Hour Factor
App. = Approach
Pct = Percent



INTERSECTION

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

Cheney-Spokane Road
&
SR 195 NB 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					
	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
U-Turn	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			
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	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	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%			1%			1%								
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
U-Turn	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			
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	0	0	0
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	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%			0%			7%								
Southbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	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	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	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	0	0	0
Pct HV	0%			0%			0%			0%			0%			0%			0%			0%			0%			0%			0%			0%					
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%			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	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)

App.= Approach
Pct= Percent

INTERSECTION

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

Cheney-Spokane Road

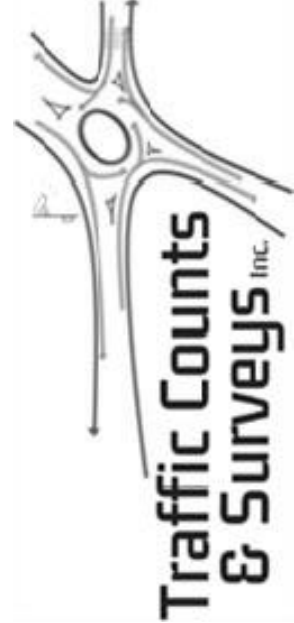
&

SR 195 NB Ramps

APPROACH MOVEMENT	AM PEAK HOURS												Approach				Departing			
	7:00 AM			7:15 AM			7:30 AM			7:45 AM			Mvmt	Total	Percentage of: HV	Percentage of: HV	Approach	App.		
	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV							Mvmt	Total
Eastbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	Eastbound	
U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%			
Left	0	113	2	0	145	7	0	193	1	0	130	3	0	0	0	0	100.00%			
Right	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%			
App. Total	0	113	2	0	145	7	0	193	1	0	130	3	0	0	0	0	100.00%			
Pct HV	2%			5%			1%			2%										
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	Northbound		
U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%			
Left	0	23	0	0	27	0	0	27	0	0	14	0	0	0	0	0	94.79%			
Through	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.21%			
App. Total	0	23	0	0	27	0	0	29	3	0	14	0	0	0	0	0	100.00%			
Pct HV	0%			0%			9%			0%										
Southbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	Southbound		
U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%			
Through	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.83%			
Right	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	99.17%			
App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100.00%			
Pct HV																				
Total Class Volume	0	136	2	0	172	7	0	222	4	0	144	3	0	0	0	0	0.76			
Total Interval Volume	138			179			226			147			690							
Intersection Pct Trucks	1%			4%			2%			2%			2%							

Pedestrian Volumes	Confl.			
	7:00	7:15	7:30	7:45
APPROACH MOVEMENT				
Eastbound	0	0	0	0
Westbound	0	0	0	0
Northbound	0	0	0	0
Southbound	0	0	0	0
Total	0	0	0	0

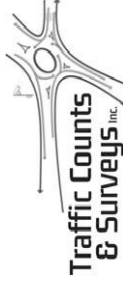
Movement = Mvmt
Pedestrian = Ped
P.H.F. = Peak Hour Factor
App. = Approach
Pct = Percent



INTERSECTION

PROJECT: WCE Victory Heights
JOB NO: 21-83
DATE OF COUNT: 3/14/2023
Counter Analyst
Miovision 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					
	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	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	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	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	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	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	25	0	0	18	0	0	16	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			
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	25	0	0	18	0	0	16	0			
Pct HV	0%			4%			3%			0%			3%			0%			0%			0%			0%			0%			0%								
Southbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
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	0%			0%			0%			0%			0%			0%			0%			0%			0%			0%											
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	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		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		Passenger Car (PC)		Heavy Vehicle (HV)	
Bike (BK)		81	2%	0	0%

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

App.= Approach
Pct= Percent

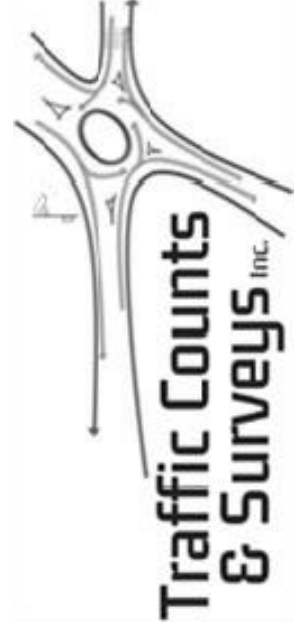
INTERSECTION

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

APPROACH MOVEMENT	PM PEAK HOURS												Receiving			Departing		
	4:00 PM			4:15 PM			4:30 PM			4:45 PM			Mvmt	Total	Percentage of: HV / Approach	App.		
	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV					Mvmt	Total
Eastbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	Eastbound		
Left	0	69	2	0	69	4	0	54	2	0	82	2	EBU	0	0.00%			
Right	0	0	0	0	0	0	0	0	0	0	0	0	NBL	115	200%			
App. Total	0	69	2	0	69	4	0	54	2	0	82	2	SBR	0	0.00%			
Pct HV	3%			5%			4%			2%			Total	115	2%	100.00%		
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	NBU	0	0.00%	Northbound		
U-Turn	0	31	1	0	21	0	0	25	0	0	36	1	NBL	2	2%			
Left	0	1	0	0	0	0	0	0	0	0	0	0	NBT	0	0%			
Through	0	0	0	0	0	0	0	0	0	0	0	0	Total	2	2%	100.00%		
App. Total	0	32	1	0	21	0	0	25	0	0	36	1	Total	2	2%			
Pct HV	3%			0%			0%			3%			Total	12	400	0.83		
Southbound	0	0	0	0	0	0	0	0	0	0	0	0	SBU	0	0.00%	Southbound		
U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	NBT	0	0.35%			
Through	0	0	0	0	0	0	0	0	0	0	0	0	SBR	0	99.65%			
Right	0	0	0	0	0	0	0	0	0	0	0	0	EBL	284	###			
App. Total	0	0	0	0	0	0	0	0	0	0	0	0	Total	285	4%	100.00%		
Pct HV	0%			0%			0%			0%			Total	12	400	0.83		
Total Class Volume	0	101	3	0	90	4	0	79	2	0	118	3	Total	400	3%			
Total Interval Volume	104			94			81			121			400					
Intersection Pct Trucks	3%			4%			2%			2%			3%					

APPROACH MOVEMENT	Ped			TOTAL
	7:00	7:15	7:30	
Eastbound	0	0	0	0
Westbound	0	0	0	0
Northbound	0	0	0	0
Southbound	0	0	0	0
Total	0	0	0	0

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



INTERSECTION

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

Meadowlane & 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	
	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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
Left	0	34	0	0	39	0	0	43	0	67	0	37	0	27	0	0	34	0	0	22	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	
Right	0	13	0	0	15	1	0	13	1	16	1	22	1	35	1	0	38	2	0	18	0	18	0	
App. Total	0	47	0	0	54	1	0	56	1	83	1	59	1	62	1	0	72	2	0	40	0	37	0	
Pct HV	0%		2%		2%		2%		1%		2%		2%		0%		3%		0%		0%		0%	
Westbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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	
Left	0	0	0	2	0	0	0	0	2	0	0	1	0	0	0	0	0	0	0	3	0	2	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	
Right	0	0	0	0	3	0	0	1	0	5	0	2	0	3	0	0	3	0	0	5	0	7	0	
App. Total	0	0	0	0	5	0	0	1	0	7	0	3	1	3	0	0	3	0	0	8	0	9	0	
Pct HV	0%		0%		0%		0%		0%		25%		0%		25%		0%		0%		0%		40%	
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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	
Left	0	2	2	0	3	0	0	8	1	4	0	4	0	2	1	0	22	0	0	23	0	10	0	
Through	0	107	3	0	106	3	0	193	3	188	4	138	3	134	2	0	133	6	0	123	5	119	3	
Right	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0	2	0	
App. Total	0	109	5	0	109	3	0	201	4	193	4	143	3	136	3	0	155	6	0	149	5	131	3	
Pct HV	4%		3%		2%		2%		2%		2%		2%		5%		4%		3%		2%		9%	
Southbound	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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	
Left	0	49	10	0	55	14	0	88	9	89	9	80	10	96	8	0	92	8	0	58	12	71	8	
Through	0	3	1	0	7	0	0	4	1	5	0	9	2	18	0	0	12	1	0	14	0	12	0	
Right	0	54	11	0	62	14	0	94	10	94	10	91	12	117	8	0	107	8	0	78	12	88	8	
App. Total	0	210	16	0	230	18	0	352	15	377	15	296	17	318	12	0	337	16	0	275	17	265	11	
Pct HV	17%		18%		7%		10%		10%		12%		6%		13%		7%		13%		8%		7%	
Total Class Volume	0	210	16	0	230	18	0	352	15	377	15	296	17	318	12	0	337	16	0	275	17	265	11	
Total Interval Volume	226	226	248	248	261	261	367	367	392	392	313	313	330	330	369	369	353	353	292	292	276	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		Passenger Car (PC)		Heavy Vehicle (HV)	
Bike (BK)					
	Bicycle on Road		Motorcycle		Light Goods Vehicles
	Car		Bus		Single Unit Trucks
	Mediums		Articulated Trucks		

Intersection Total		Pct	
One Hour Volumes		One Hour Volumes	
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

INTERSECTION

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

Meadowlane

SR 195

Counter Analyst

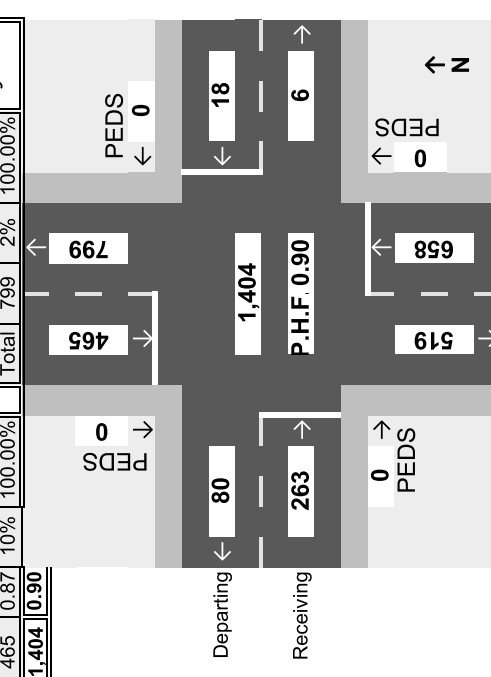
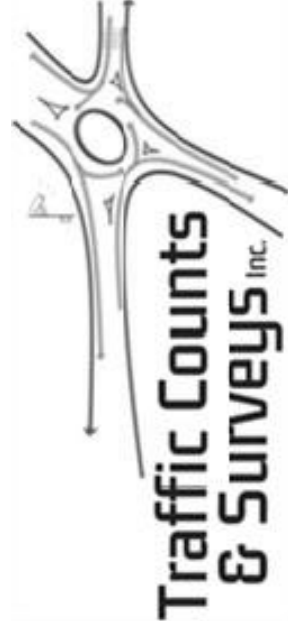
Miovision BNG

AM PEAK HOURS

APPROACH MOVEMENT	AM PEAK HOURS												Receiving						Departing								
	7:30 AM				7:45 AM				8:00 AM				8:15 AM				Mvmt	TOTAL	PHF	Veh	HV	Veh	HV	Approach	Percentage of: HV	Approach	Percentage of: HV
	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	Total											
Eastbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	0.00%			
U-Turn	0	67	0	0	37	0	0	27	0	0	0	0	27	0	0	0	0	0	0	0	0	0	3%	40.00%			
Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100%	1.25%			
Through	0	16	1	0	22	1	0	35	1	0	29	0	0	0	0	0	0	0	0	0	0	3%	39.92%				
Right	0	83	1	0	59	1	0	62	1	0	56	0	0	0	0	0	0	0	0	0	0	1%	100.00%				
App. Total	1%				2%				2%				0%				3	263	0.78	1	263	0.78	1	100.00%	100.00%		
Pct HV	0%				25%				0%				25%				0	0	0	0	0	0	0	0.00%	0.00%		
Westbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%	0.00%			
U-Turn	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%	16.67%			
Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100%	5.56%			
Through	0	5	0	0	2	0	0	3	0	0	3	1	0	0	0	0	0	0	0	0	0	7%	77.78%				
Right	0	7	0	0	3	1	0	3	0	0	3	1	0	0	0	0	0	0	0	0	0	11%	100.00%				
App. Total	0%				25%				0%				25%				2	18	0.64	11	18	0.64	11	100.00%	100.00%		
Pct HV	0%				5%				0%				5%				0	0	0	0	0	0	0	0.00%	0.15%		
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%	0.15%			
U-Turn	0	4	0	0	4	0	0	2	1	0	21	0	0	0	0	0	0	0	0	0	0	3%	4.86%				
Left	0	188	4	0	138	3	0	134	2	0	147	8	0	0	0	0	0	0	0	0	0	3%	94.83%				
Through	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%	0.15%				
Right	0	193	4	0	143	3	0	136	3	0	168	8	0	0	0	0	0	0	0	0	0	3%	100.00%				
App. Total	2%				2%				2%				5%				18	658	0.84	3	658	0.84	3	100.00%	100.00%		
Pct HV	0%				0%				0%				0%				0	0	0	0	0	0	0	0%	0.65%		
Southbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%	0.38%			
U-Turn	0	0	1	0	2	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	20%	1.08%			
Left	0	89	9	0	80	10	0	96	8	0	102	16	0	0	0	0	0	0	0	0	0	10%	88.17%				
Through	0	5	0	0	9	2	0	18	0	0	12	1	0	0	0	0	0	0	0	0	0	6%	10.11%				
Right	0	94	10	0	91	12	0	117	8	0	116	17	0	0	0	0	0	0	0	0	0	10%	100.00%				
App. Total	10%				12%				6%				13%				47	465	0.87	10	465	0.87	10	100.00%	100.00%		
Pct HV	0%				0%				0%				0%				3	3	0	0	3	0	0	0%	0.38%		
Total Class Volume	0	377	15	0	296	17	0	318	12	0	343	26	0	0	0	0	0	0	0	0	0	70	1,404	0.90			
Total Interval Volume	392				313				330				369				1,404										
Intersection Pct Trucks	4%				5%				4%				7%				5%										

Pedestrian Volumes	7:30			7:45			8:00			8:15			TOTAL
	Eastbound	Westbound	Northbound	Eastbound	Westbound	Northbound	Eastbound	Westbound	Northbound	Eastbound	Westbound	Northbound	
Eastbound	0	0	0	0	0	0	0	0	0	0	0	0	0
Westbound	0	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	0	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	0

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



INTERSECTION

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

Meadowlane & SR 195

PM PEAK HOURS

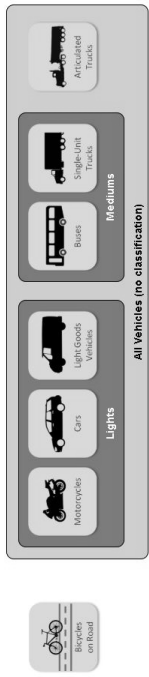
15 Minute Period Beginning @



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		
	BK	HV	BK	HV	BK	HV	BK	HV	BK	HV	BK	HV	BK	HV	BK	HV	BK	HV	BK	HV	BK	HV	BK	HV	BK
Eastbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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	
Left	0	11	0	0	0	14	0	0	10	0	0	12	0	0	14	0	0	11	0	0	0	14	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	
Right	0	14	1	0	0	18	1	0	26	0	0	18	0	0	24	0	0	20	0	0	6	0	0	0	
App. Total	0	25	1	0	0	32	2	0	36	0	0	30	0	0	39	0	0	31	0	0	20	0	0	0	
Pct HV	4%		7%		6%		0%		0%		0%		0%		0%		0%		0%		0%		0%		
Westbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
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	
Left	0	0	0	2	0	0	1	0	1	0	0	2	0	0	3	0	0	1	0	0	0	1	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	
Right	0	3	0	0	0	1	0	0	6	0	0	3	0	0	0	0	0	1	0	0	0	0	0	0	
App. Total	0	3	0	0	0	3	1	0	7	0	0	5	0	0	3	0	0	1	0	0	0	2	0	0	
Pct HV	0%		25%		11%		0%		0%		0%		0%		0%		0%		0%		0%		0%		
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
U-Turn	0	36	0	0	0	19	0	0	19	0	0	28	0	0	27	0	0	21	0	0	15	0	0		
Left	0	112	5	0	104	10	0	111	5	0	128	8	0	79	9	0	117	6	0	86	14	0	66		
Through	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	0	0	0	0		
Right	0	149	5	0	124	11	0	131	6	0	158	8	0	111	9	0	143	6	0	99	14	0	82		
App. Total	0	149	5	0	124	11	0	131	6	0	158	8	0	111	9	0	143	6	0	99	14	0	82		
Pct HV	3%		8%		4%		5%		5%		8%		4%		4%		12%		5%		0%		3%		
Southbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
U-Turn	0	3	0	0	0	1	0	0	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0		
Left	0	158	4	0	160	1	0	162	1	0	166	6	0	174	6	0	208	0	0	133	3	0	116		
Through	0	32	0	0	0	26	1	0	39	0	0	36	0	0	36	0	0	30	0	0	24	0	0		
Right	0	193	4	0	187	2	0	198	2	0	205	6	0	211	6	0	255	0	0	166	3	0	143		
App. Total	0	370	10	0	341	16	0	369	11	0	398	14	0	364	15	0	431	6	0	297	17	0	247		
Pct HV	2%		1%		1%		2%		2%		3%		3%		0%		0%		2%		1%		1%		
Total Class Volume	380		357		380		382		405		412		379		437		362		314		252		268		
Total Interval Volume	3%		4%		3%		3%		3%		3%		4%		1%		2%		5%		2%		1%		
Intersection Pct HV	3%		4%		3%		3%		3%		3%		4%		1%		2%		5%		2%		1%		

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	0	0	0	0	0	0	0	0	0	0	0	0
Westbound	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	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

APPROACH Movement	Miovision Vehicle Classification		Pct
	Passenger Car (PC)	Heavy Vehicle (HV)	
Eastbound	1,499	1,524	3.1%
Westbound	1,579	1,578	2.9%
Northbound	1,633	1,633	2.8%
Southbound	1,590	1,492	2.8%
Total	1,492	1,365	2.7%
Total	1,196	1,196	2.9%



App.= Approach
Pct= Percent

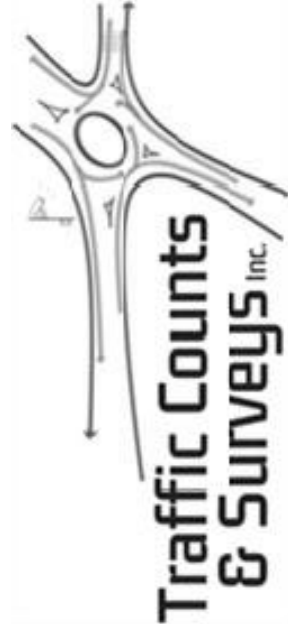
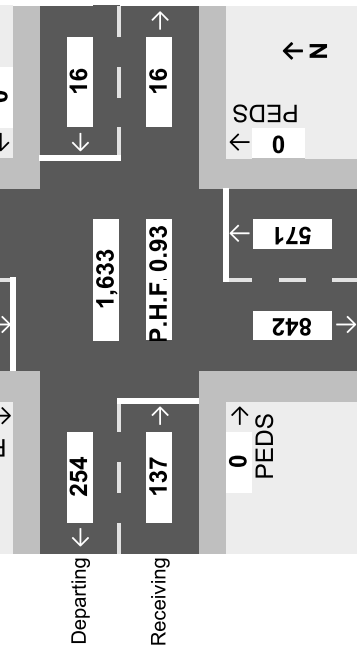
INTERSECTION

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

Meadowlane & SR 195

APPROACH MOVEMENT	PM PEAK HOURS												Receiving			Departing			App.		
	4:30 PM			4:45 PM			5:00 PM			5:15 PM			Mvmt	Total	Percentage of: HV / Approach	Mvmt	Total	Percentage of: HV / Approach			
	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV								PHF	Percentage of: HV / Approach
Eastbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	EBU	0	0.00%			
Left	0	10	0	0	12	0	0	14	0	0	12	0	0	48	35.04%	NBL	98	38.58%			
Through	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0.73%	WBT	0	0.00%			
Right	0	26	0	0	18	0	0	24	0	0	20	0	0	88	64.23%	SBR	156	61.42%			
App. Total	0	36	0	0	30	0	0	39	0	0	32	0	0	137	100.00%	Total	254	100.00%			
Pct HV	0%																				
Westbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	WBU	0	0.00%			
Left	0	1	0	0	2	0	0	3	0	0	1	0	0	7	43.75%	SBL	7	43.75%			
Through	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	EBT	1	6.25%			
Right	0	6	0	0	3	0	0	0	0	0	0	0	0	9	56.25%	NBR	8	50.00%			
App. Total	0	7	0	0	5	0	0	3	0	0	1	0	0	16	100.00%	Total	16	100.00%			
Pct HV	0%																				
Northbound	0	19	0	0	28	0	0	27	0	0	24	0	0	98	17.16%	NBU	2	0.24%			
Left	0	109	7	0	128	8	0	79	9	0	117	6	0	463	81.09%	WBL	7	0.83%			
Through	0	1	0	0	1	0	0	4	0	0	2	0	0	8	1.40%	SBT	745	88.48%			
Right	0	129	7	0	158	8	0	111	9	0	143	6	0	571	100.00%	EBR	88	10.45%			
App. Total	0	129	7	0	158	8	0	111	9	0	143	6	0	571	100.00%	Total	842	100.00%			
Pct HV	5%												4%								
Southbound	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0.11%	SBU	1	0.19%			
Left	0	181	4	0	166	6	0	174	6	0	208	0	0	745	81.96%	EBL	48	9.21%			
Through	0	39	0	0	36	0	0	36	0	0	45	0	0	156	17.16%	NBT	463	88.87%			
Right	0	222	4	0	205	6	0	211	6	0	255	0	0	909	100.00%	WBR	9	1.73%			
App. Total	0	394	11	0	398	14	0	364	15	0	431	6	0	1,633	100.00%	Total	521	100.00%			
Pct HV	2%												0%			2%					
Total Class Volume	405												437			46			1,633		
Total Interval Volume	3%												4%			1%			3%		
Intersection Pct Trucks																					

APPROACH MOVEMENT	4:30			4:45			5:00			5:15			TOTAL
	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	
Eastbound	0	0	0	0	0	0	0	0	0	0	0	0	0
Westbound	0	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	0	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	0



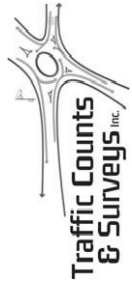
P.H.F. = Peak Hour Factor
App. = Approach
Pct = Percent

Movement = Mvmt
Pedestrian = Ped

INTERSECTION

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

Hatch Road
&
SR 195



AM PEAK HOURS

15 Minute Period Beginning @

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

APPROACH Movement	15 Minute Period Beginning @											
	5:59	5:59	5:59	5:59	5:59	5:59	5:59	5:59	5:59	5:59	5:59	5:59
Eastbound	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Westbound	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	0	0	0	0	0	0	0	0	0	0	0	0
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)

All Vehicles (no classification)

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

App.= Approach
Pct= Percent

INTERSECTION

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

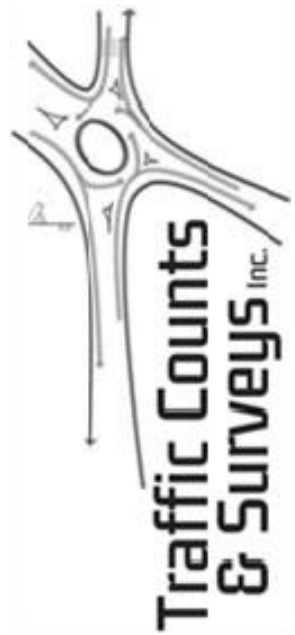
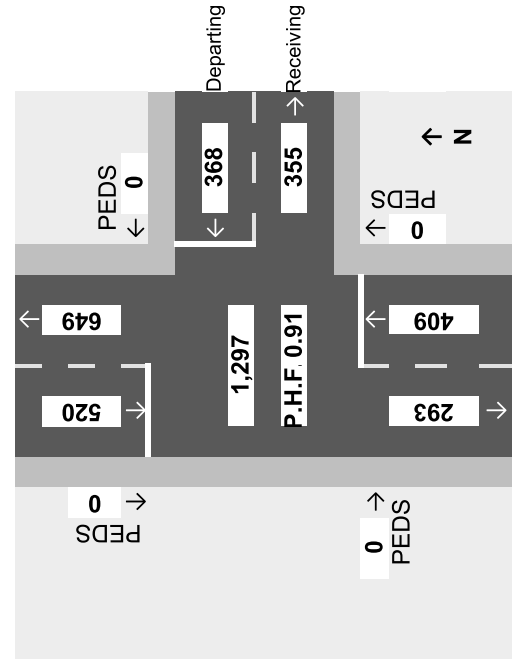
Hatch Road & SR 195

Counter Analyst

APPROACH	MOVEMENT	AM PEAK HOURS												Approach						
		7:30 AM			7:45 AM			8:00 AM			8:15 AM			Departing			Receiving			
		BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	Mvmt	TOTAL	PHF	Percentage of: HV / Approach	Mvmt	Total	Percentage of: HV / Approach
Westbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	WB	0	0	0.00%	WB	0	0.00%
	Left	0	20	0	0	6	0	0	8	0	0	12	0	WBL	0	46	12.50%	SBL	272	2%
	Right	0	99	4	0	75	0	0	55	1	0	88	0	WBR	5	322	2%	NBR	83	0%
	App. Total	0	119	4	0	81	0	0	63	1	0	100	0	Total	5	368	1%	Total	355	100.00%
	Pct HV	3%			0%			2%			0%									
Northbound	U-Turn	0	0	0	0	1	0	0	0	0	0	0	0	NBU	0	1	0%	NBU	1	0%
	Through	0	94	0	0	69	3	0	86	2	0	65	6	NBT	11	325	3%	SBT	246	16%
	Right	0	20	0	0	19	0	0	21	0	0	23	0	NBR	0	83	0%	WBL	46	0%
	App. Total	0	114	0	0	89	3	0	107	2	0	88	6	Total	11	409	3%	Total	293	100.00%
	Pct HV	0%			3%			2%			6%									
Southbound	U-Turn	0	0	0	0	0	0	0	0	0	0	2	0	SBU	0	2	0%	SBU	2	0%
	Left	0	55	1	0	61	1	0	70	2	0	81	1	SBL	5	272	2%	WBR	322	2%
	Through	0	56	8	0	37	11	0	62	9	0	52	11	SBT	39	246	16%	NBT	325	3%
	App. Total	0	111	9	0	98	12	0	132	11	0	135	12	Total	44	520	8%	Total	649	2%
	Pct HV	8%			11%			8%			8%									
Total Class Volume		0	344	13	0	268	15	0	302	14	0	323	18	Total	60	1,297	0.91	Total	1,297	
Total Interval Volume		357			283			316			341			Total	1,297			Total	1,297	
Intersection Pct Trucks		4%			5%			4%			5%				5%				5%	

Pedestrian Volumes	APPROACH	MOVEMENT	Confli.			
			7:30	7:45	8:00	8:15
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						

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



INTERSECTION

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

Hatch Road
&
SR 195



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

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	0	0	0	0	0	0	0	0	0	0	0	0
Westbound	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	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

Bike (BK)	Miovision Vehicle Classification					
	Passenger Car (PC)	Heavy Vehicle (HV)	Light Trucks	Medium Trucks	Single Unit Trucks	Articulated Trucks
391	367	421	345	299	247	261
3%	4%	1%	3%	5%	2%	2%

App.= Approach
Pct= Percent

INTERSECTION

SR 195

Hatch Road

WCE Victory Heights

23-81

DATE OF COUNT: 3/14/2023

Counter Analyst

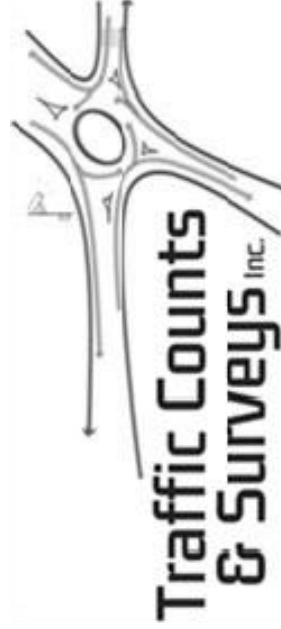
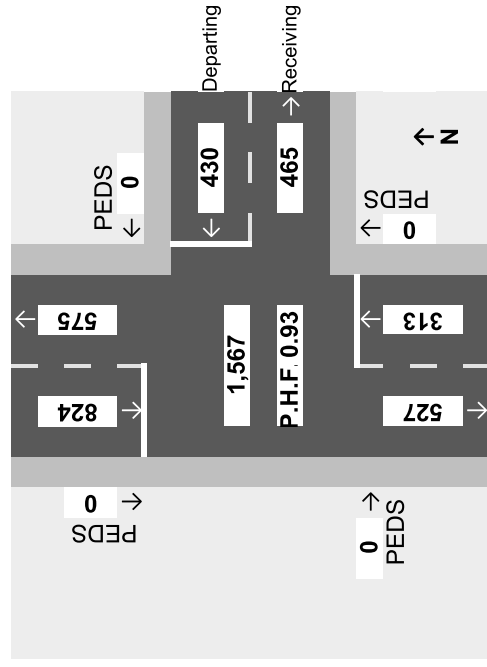
Mivision BNG

APPROACH MOVEMENT	PM PEAK HOURS											
	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	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	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	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%		

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

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

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

Blue Fern Victory Heights



B

APPENDIX

Appendix C:LOS Definitions

Highway Capacity Manual, 2000

Signalized intersection level of service (LOS) is defined in terms of the average total vehicle delay of all movements through an intersection. Vehicle delay is a method of quantifying several intangible factors, including driver discomfort, frustration, and lost travel time. Specifically, LOS criteria are stated in terms of average delay per vehicle during a specified time period (for example, the PM peak hour). Vehicle delay is a complex measure based on many variables, including signal phasing (i.e., progression of movements through the intersection), signal cycle length, and traffic volumes with respect to intersection capacity. Table 1 shows LOS criteria for signalized intersections, as described in the *Highway Capacity Manual* (Transportation Research Board, Special Report 209, 2000).

Table 1. Level of Service Criteria for Signalized Intersections

Level of Service	Average Control Delay (sec/veh)	General Description (Signalized Intersections)
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	>80	Forced flow (jammed)

Source: *Highway Capacity Manual*, Transportation Research Board, Special Report 209, 2000.

Unsignalized intersection LOS criteria can be further reduced into two intersection types: all-way stop-controlled and two-way stop-controlled. All-way, stop-controlled intersection LOS is expressed in terms of the average vehicle delay of all of the movements, much like that of a signalized intersection. Two-way, stop-controlled intersection LOS is defined in terms of the average vehicle delay of an individual movement(s). This is because the performance of a two-way, stop-controlled intersection is more closely reflected in terms of its individual movements, rather than its performance overall. For this reason, LOS for a two-way, stop-controlled intersection is defined in terms of its individual movements. With this in mind, total average vehicle delay (i.e., average delay of all movements) for a two-way, stop-controlled intersection should be viewed with discretion. Table 2 shows LOS criteria for unsignalized intersections (both all-way and two-way, stop-controlled).

Table 2. Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay (sec/veh)
A	0 - 10
B	>10 - 15
C	>15 - 25
D	>25 - 35
E	>35 - 50
F	>50

Source: *Highway Capacity Manual*, Transportation Research Board, Special Report 209, 2000.

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	5	245	5	45	180	75
Future Vol, veh/h	95	5	0	10	15	75	5	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	6	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	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	255	100	25	75	300
LT Vol	5	95	10	0	45
Through Vol	245	5	15	0	180
RT Vol	5	0	0	75	75
Lane Flow Rate	307	120	30	90	361
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.452	0.211	0.057	0.149	0.52
Departure Headway (Hd)	5.291	6.298	6.853	5.936	5.176
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	679	569	522	603	698
Service Time	3.327	4.347	4.602	3.685	3.21
HCM Lane V/C Ratio	0.452	0.211	0.057	0.149	0.517
HCM Control Delay	12.6	11	10	9.7	13.7
HCM Lane LOS	B	B	A	A	B
HCM 95th-tile Q	2.4	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	5	10	5	40	20	5	25	30	25	5	35	20
Future Vol, veh/h	5	10	5	40	20	5	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	5	11	5	43	22	5	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	7.3	7.7	7.5	7.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	25%	62%	8%
Vol Thru, %	38%	50%	31%	58%
Vol Right, %	31%	25%	8%	33%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	80	20	65	60
LT Vol	25	5	40	5
Through Vol	30	10	20	35
RT Vol	25	5	5	20
Lane Flow Rate	87	22	71	65
Geometry Grp	1	1	1	1
Degree of Util (X)	0.097	0.025	0.084	0.075
Departure Headway (Hd)	4.019	4.118	4.256	4.113
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	882	856	832	862
Service Time	2.087	2.209	2.332	2.184
HCM Lane V/C Ratio	0.099	0.026	0.085	0.075
HCM Control Delay	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

HCM 6th TWSC
 3: S Assembly Rd & Garden Springs Road/S Assembly Road

Blue Fern Victory Heights
 Existing Weekday AM Peak Hour

Intersection						
Int Delay, s/veh	5.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	45	5	35	10	5	80
Future Vol, veh/h	45	5	35	10	5	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	5	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	0	5.7	8.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1007	-	-	1553	-
HCM Lane V/C Ratio	0.09	-	-	0.024	-
HCM Control Delay (s)	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	18.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕			↙	↕		↙	↕	
Traffic Vol, veh/h	75	5	70	5	5	20	120	1085	5	10	400	25
Future Vol, veh/h	75	5	70	5	5	20	120	1085	5	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	6	79	6	6	22	135	1219	6	11	449	28

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1368	1980	239	1742	1991	613	477	0	0	1225	0	0
Stage 1	485	485	-	1492	1492	-	-	-	-	-	-	-
Stage 2	883	1495	-	250	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	62	768	57	61	440	1089	-	-	548	-	-
Stage 1	537	555	-	132	189	-	-	-	-	-	-	-
Stage 2	311	188	-	738	547	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 84	53	768	42	52	440	1089	-	-	548	-	-
Mov Cap-2 Maneuver	~ 84	53	-	42	52	-	-	-	-	-	-	-
Stage 1	470	544	-	116	166	-	-	-	-	-	-	-
Stage 2	250	165	-	642	536	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	206.8		48.8		0.9		0.3	
HCM LOS	F		E					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1089	-	-	139	115	548	-	-
HCM Lane V/C Ratio	0.124	-	-	1.213	0.293	0.021	-	-
HCM Control Delay (s)	8.8	-	-	206.8	48.8	11.7	-	-
HCM Lane LOS	A	-	-	F	E	B	-	-
HCM 95th %tile Q(veh)	0.4	-	-	10	1.1	0.1	-	-

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

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	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)	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
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	-
Stage 1	0	0	-	0	0	-	-	0
Stage 2	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	11.3		15.5		0		0	
HCM LOS	B		C					

Minor Lane/Major Mvmt	NBT	NBR	EBLn1WBLn1	SBT
Capacity (veh/h)	-	-	681	385
HCM Lane V/C Ratio	-	-	0.158	0.112
HCM Control Delay (s)	-	-	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
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.9	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.3	-
Pot Cap-1 Maneuver	0	359	0
Stage 1	0	-	0
Stage 2	0	-	0
Platoon blocked, %			
Mov Cap-1 Maneuver	-	359	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

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

Minor Lane/Major Mvmt	NBTWBLn1	SBL	SBT
Capacity (veh/h)	-	359	435
HCM Lane V/C Ratio	-	0.257	0.212
HCM Control Delay (s)	-	18.5	15.5
HCM Lane LOS	-	C	C
HCM 95th %tile Q(veh)	-	1	0.8

HCM 6th TWSC
8: Cheney Spokane Rd & US 195 SB Off Ramp

Blue Fern Victory Heights
Existing Weekday AM Peak Hour

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	-
Stage 2	827	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	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)	10.3	-
HCM Lane LOS	B	-
HCM 95th %tile Q(veh)	0.4	-

HCM 6th TWSC
 9: US 195 SB On/SB Off Ramp & Cheney Spokane Rd

Blue Fern Victory Heights
 Existing Weekday AM Peak Hour

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	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)	-	-	9.4	0	17.8
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q(veh)	-	-	0	-	0.2

HCM 6th TWSC
 10: US 195 NB On/SB Off Ramp & Cheney Spokane Rd

Blue Fern Victory Heights
 Existing Weekday AM Peak Hour

Intersection												
Int Delay, s/veh	9											
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	0	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	92	76	92	92	92	76	76	92	92	76	76
Heavy Vehicles, %	2	2	2	2	2	2	3	3	2	2	0	0
Mvmt Flow	783	0	0	0	0	0	118	7	0	0	0	0

Major/Minor	Major2	Minor1	Minor2
Conflicting Flow All	-	-	0 1 1 - - - 1
Stage 1	-	-	- 0 0 - - - -
Stage 2	-	-	- 1 1 - - - -
Critical Hdwy	-	-	- 7.13 6.53 - - - 6.2
Critical Hdwy Stg 1	-	-	- - - - - - - -
Critical Hdwy Stg 2	-	-	- 6.13 5.53 - - - -
Follow-up Hdwy	-	-	- 3.527 4.027 - - - 3.3
Pot Cap-1 Maneuver	0	-	0 1019 893 0 0 0 1090
Stage 1	0	-	0 - - 0 0 0 -
Stage 2	0	-	0 1019 893 0 0 0 -
Platoon blocked, %			-
Mov Cap-1 Maneuver	-	-	- 1019 893 - - - 1090
Mov Cap-2 Maneuver	-	-	- 1019 893 - - - -
Stage 1	-	-	- - - - - - - -
Stage 2	-	-	- 1019 893 - - - -

Approach	WB	NB	SB
HCM Control Delay, s	0	9.1	0
HCM LOS		A	A

Minor Lane/Major Mvmt	NBLn1	WBT	SBLn1
Capacity (veh/h)	893	-	-
HCM Lane V/C Ratio	0.007	-	-
HCM Control Delay (s)	9.1	-	0
HCM Lane LOS	A	-	A
HCM 95th %tile Q(veh)	0	-	-

Intersection												
Int Delay, s/veh	17											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↑↑		↗	↑↑	↖
Traffic Vol, veh/h	160	0	105	5	5	15	35	625	5	10	410	45
Future Vol, veh/h	160	0	105	5	5	15	35	625	5	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	6	6	17	39	694	6	11	456	50

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	906	1256	228	1025	1303	350	506	0	0	700	0	0
Stage 1	478	478	-	775	775	-	-	-	-	-	-	-
Stage 2	428	778	-	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	233	171	778	177	148	621	1048	-	-	841	-	-
Stage 1	540	556	-	338	385	-	-	-	-	-	-	-
Stage 2	578	407	-	707	504	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	212	162	778	145	141	621	1048	-	-	841	-	-
Mov Cap-2 Maneuver	212	162	-	145	141	-	-	-	-	-	-	-
Stage 1	520	549	-	325	371	-	-	-	-	-	-	-
Stage 2	533	392	-	593	497	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	87.7		20.1		0.5		0.2	
HCM LOS	F		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1048	-	-	298	266	841	-	-
HCM Lane V/C Ratio	0.037	-	-	0.988	0.104	0.013	-	-
HCM Control Delay (s)	8.6	-	-	87.7	20.1	9.3	-	-
HCM Lane LOS	A	-	-	F	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	10.3	0.3	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
Stage 1	404	-	-
Stage 2	739	-	-
Critical Hdwy	6.82	6.92	-
Critical Hdwy Stg 1	5.82	-	-
Critical Hdwy Stg 2	5.82	-	-
Follow-up Hdwy	3.51	3.31	-
Pot Cap-1 Maneuver	195	781	-
Stage 1	646	-	-
Stage 2	436	-	-
Platoon blocked, %			-
Mov Cap-1 Maneuver	140	781	-
Mov Cap-2 Maneuver	140	-	-
Stage 1	646	-	-
Stage 2	312	-	-

Approach	WB	NB	SB
HCM Control Delay, s	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)	-	-	44.1	13.3	9.7	-
HCM Lane LOS	-	-	E	B	A	-
HCM 95th %tile Q(veh)	-	-	1.5	2.4	1.2	-

HCM 6th AWSC
1: S Grove Rd & W Thorpe Rd

Blue Fern Victory Heights
Existing Weekday PM Peak Hour

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	130	15	5	5	15	85	5	150	10	40	215	70
Future Vol, veh/h	130	15	5	5	15	85	5	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	6	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	11.7	9.6	10.8	14.6
HCM LOS	B	A	B	B

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1	
Vol Left, %		3%	87%	25%	0%	12%
Vol Thru, %		91%	10%	75%	0%	66%
Vol Right, %		6%	3%	0%	100%	22%
Sign Control		Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane		165	150	20	85	325
LT Vol		5	130	5	0	40
Through Vol		150	15	15	0	215
RT Vol		10	5	0	85	70
Lane Flow Rate		199	181	24	102	392
Geometry Grp		2	5	7	7	2
Degree of Util (X)		0.3	0.302	0.044	0.163	0.56
Departure Headway (Hd)		5.436	6.016	6.587	5.747	5.146
Convergence, Y/N		Yes	Yes	Yes	Yes	Yes
Cap		660	596	543	623	701
Service Time		3.48	4.063	4.337	3.497	3.182
HCM Lane V/C Ratio		0.302	0.304	0.044	0.164	0.559
HCM Control Delay		10.8	11.7	9.6	9.6	14.6
HCM Lane LOS		B	B	A	A	B
HCM 95th-tile Q		1.3	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	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	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

HCM 6th TWSC
 3: S Assembly Rd & Garden Springs Road/S Assembly Road

Blue Fern Victory Heights
 Existing Weekday PM Peak Hour

Intersection						
Int Delay, s/veh	6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	55	10	155	20	5	75
Future Vol, veh/h	55	10	155	20	5	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	6	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	0	6.8	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	945	-	-	1533	-
HCM Lane V/C Ratio	0.095	-	-	0.114	-
HCM Control Delay (s)	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	10.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↙	↕		↙	↕	
Traffic Vol, veh/h	35	5	110	5	5	15	60	525	5	40	1055	100
Future Vol, veh/h	35	5	110	5	5	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	5	113	5	5	15	62	541	5	41	1088	103

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1619	1892	596	1297	1941	273	1191	0	0	546	0	0
Stage 1	1222	1222	-	668	668	-	-	-	-	-	-	-
Stage 2	397	670	-	629	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	121	66	731	582	-	-	1026	-	-
Stage 1	194	254	-	419	459	-	-	-	-	-	-	-
Stage 2	605	459	-	442	241	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	57	61	452	76	57	731	582	-	-	1026	-	-
Mov Cap-2 Maneuver	57	61	-	76	57	-	-	-	-	-	-	-
Stage 1	173	244	-	374	410	-	-	-	-	-	-	-
Stage 2	522	410	-	311	231	-	-	-	-	-	-	-

Approach	EB		WB		NB			SB		
HCM Control Delay, s	119.2		35.4		1.2			0.3		
HCM LOS	F		E							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	582	-	-	160	144	1026	-	-
HCM Lane V/C Ratio	0.106	-	-	0.966	0.179	0.04	-	-
HCM Control Delay (s)	11.9	-	-	119.2	35.4	8.7	-	-
HCM Lane LOS	B	-	-	F	E	A	-	-
HCM 95th %tile Q(veh)	0.4	-	-	7.3	0.6	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	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)	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
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	-
Stage 1	0	0	-	0	0	-	-	0
Stage 2	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	17.3		11.5		0		0	
HCM LOS	C		B					

Minor Lane/Major Mvmt	NBT	NBR	EBLn1WBLn1	SBT
Capacity (veh/h)	-	-	383	587
HCM Lane V/C Ratio	-	-	0.237	0.058
HCM Control Delay (s)	-	-	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
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	12.1	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBTWBLn1	SBL	SBT
Capacity (veh/h)	-	560	754
HCM Lane V/C Ratio	-	0.1	0.075
HCM Control Delay (s)	-	12.1	10.2
HCM Lane LOS	-	B	B
HCM 95th %tile Q(veh)	-	0.3	0.2

HCM 6th TWSC
 8: Cheney Spokane Rd & US 195 SB Off Ramp

Blue Fern Victory Heights
 Existing Weekday PM Peak Hour

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	-
Stage 2	567	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	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)	14.8	-
HCM Lane LOS	B	-
HCM 95th %tile Q(veh)	0.9	-

HCM 6th TWSC
 9: US 195 SB On/SB Off Ramp & Cheney Spokane Rd

Blue Fern Victory Heights
 Existing Weekday PM Peak Hour

Intersection												
Int Delay, s/veh	0.5											
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	5	0
Future Vol, veh/h	0	305	130	10	100	0	0	0	0	10	5	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	5	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	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	-	0.033
HCM Control Delay (s)	-	-	8.3	0	12.4
HCM Lane LOS	-	-	A	A	B
HCM 95th %tile Q(veh)	-	-	0	-	0.1

HCM 6th TWSC
 10: US 195 NB On/SB Off Ramp & Cheney Spokane Rd

Blue Fern Victory Heights
 Existing Weekday PM Peak Hour

Intersection												
Int Delay, s/veh	9											
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	5	0	0	0	0
Future Vol, veh/h	285	0	0	0	0	0	115	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	0	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	92	83	92	92	92	83	83	92	92	83	83
Heavy Vehicles, %	4	2	4	2	2	2	2	2	2	2	0	0
Mvmt Flow	343	0	0	0	0	0	139	6	0	0	0	0

Major/Minor	Major2	Minor1	Minor2
Conflicting Flow All	-	-	0 1 1 - - - 1
Stage 1	-	-	- 0 0 - - - -
Stage 2	-	-	- 1 1 - - - -
Critical Hdwy	-	-	- 7.12 6.52 - - - 6.2
Critical Hdwy Stg 1	-	-	- - - - - - - -
Critical Hdwy Stg 2	-	-	- 6.12 5.52 - - - -
Follow-up Hdwy	-	-	- 3.518 4.018 - - - 3.3
Pot Cap-1 Maneuver	0	-	0 1022 895 0 0 0 1090
Stage 1	0	-	0 - - 0 0 0 -
Stage 2	0	-	0 1022 895 0 0 0 -
Platoon blocked, %			-
Mov Cap-1 Maneuver	-	-	- 1022 895 - - - 1090
Mov Cap-2 Maneuver	-	-	- 1022 895 - - - -
Stage 1	-	-	- - - - - - - -
Stage 2	-	-	- 1022 895 - - - -

Approach	WB	NB	SB
HCM Control Delay, s	0	9.1	0
HCM LOS		A	A

Minor Lane/Major Mvmt	NBLn1	WBT	SBLn1
Capacity (veh/h)	895	-	-
HCM Lane V/C Ratio	0.007	-	-
HCM Control Delay (s)	9.1	-	0
HCM Lane LOS	A	-	A
HCM 95th %tile Q(veh)	0	-	-

Intersection												
Int Delay, s/veh	5.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↑↑		↗	↑↑	↗
Traffic Vol, veh/h	50	5	90	5	0	10	100	465	10	10	745	155
Future Vol, veh/h	50	5	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	5	97	5	0	11	108	500	11	11	801	167

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	1289	1550	401	1147	1712	256	968	0	0	511	0	0
Stage 1	823	823	-	722	722	-	-	-	-	-	-	-
Stage 2	466	727	-	425	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	156	91	749	689	-	-	1050	-	-
Stage 1	338	391	-	389	434	-	-	-	-	-	-	-
Stage 2	551	432	-	583	327	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	106	96	604	110	76	749	689	-	-	1050	-	-
Mov Cap-2 Maneuver	106	96	-	110	76	-	-	-	-	-	-	-
Stage 1	285	387	-	328	366	-	-	-	-	-	-	-
Stage 2	458	364	-	478	324	-	-	-	-	-	-	-

Approach	EB		WB			NB			SB		
HCM Control Delay, s	55.7		20.1			1.9			0.1		
HCM LOS	F		C								

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	689	-	-	216	255	1050	-	-
HCM Lane V/C Ratio	0.156	-	-	0.722	0.063	0.01	-	-
HCM Control Delay (s)	11.2	-	-	55.7	20.1	8.5	-	-
HCM Lane LOS	B	-	-	F	C	A	-	-
HCM 95th %tile Q(veh)	0.6	-	-	4.8	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
Stage 1	307	-	-
Stage 2	1113	-	-
Critical Hdwy	6.82	6.92	-
Critical Hdwy Stg 1	5.82	-	-
Critical Hdwy Stg 2	5.82	-	-
Follow-up Hdwy	3.51	3.31	-
Pot Cap-1 Maneuver	129	851	-
Stage 1	722	-	-
Stage 2	278	-	-
Platoon blocked, %			-
Mov Cap-1 Maneuver	~ 82	851	-
Mov Cap-2 Maneuver	~ 82	-	-
Stage 1	722	-	-
Stage 2	177	-	-

Approach	WB	NB	SB
HCM Control Delay, s	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)	-	-	\$ 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 SUMMARY

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

2035 Baseline AM
 Site Category: Victory Heights
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] ft				
South: Grove Rd														
3	L2	5	7.0	6	7.0	0.505	13.8	LOS B	3.2	84.5	0.66	0.80	0.75	35.6
8	T1	290	7.0	349	7.0	0.505	7.7	LOS A	3.2	84.5	0.66	0.80	0.75	35.7
18	R2	45	7.0	54	7.0	0.505	7.9	LOS A	3.2	84.5	0.66	0.80	0.75	34.6
Approach		340	7.0	410	7.0	0.505	7.8	LOS A	3.2	84.5	0.66	0.80	0.75	35.5
East: Thorpe Rd														
1	L2	20	10.0	24	10.0	0.375	14.3	LOS B	2.0	55.0	0.70	0.85	0.72	34.8
6	T1	15	10.0	18	10.0	0.375	8.2	LOS A	2.0	55.0	0.70	0.85	0.72	34.9
16	R2	175	10.0	211	10.0	0.375	8.5	LOS A	2.0	55.0	0.70	0.85	0.72	33.8
Approach		210	10.0	253	10.0	0.375	9.0	LOS A	2.0	55.0	0.70	0.85	0.72	34.0
North: Grove Rd														
7	L2	150	11.0	181	11.0	0.240	10.0	LOS B	1.2	33.5	0.19	0.56	0.19	35.3
4	T1	205	11.0	247	11.0	0.240	3.9	LOS A	1.2	33.7	0.19	0.48	0.19	36.5
14	R2	130	11.0	157	11.0	0.240	4.4	LOS A	1.2	33.7	0.19	0.43	0.19	36.0
Approach		485	11.0	584	11.0	0.240	5.9	LOS A	1.2	33.7	0.19	0.49	0.19	36.0
West: Thorpe Rd														
5	L2	255	6.0	307	6.0	0.352	11.8	LOS B	1.4	37.4	0.49	0.79	0.49	33.7
2	T1	5	6.0	6	6.0	0.352	5.6	LOS A	1.4	37.4	0.49	0.79	0.49	33.7
12	R2	1	6.0	1	6.0	0.352	5.9	LOS A	1.4	37.4	0.49	0.79	0.49	32.7
Approach		261	6.0	314	6.0	0.352	11.6	LOS B	1.4	37.4	0.49	0.79	0.49	33.7
All Vehicles		1296	8.8	1561	8.8	0.505	8.1	LOS A	3.2	84.5	0.46	0.69	0.48	35.0

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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 Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	50	5	45	125	5	30	35	30	5	40	25
Future Vol, veh/h	5	50	5	45	125	5	30	35	30	5	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	5	54	5	49	136	5	33	38	33	5	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	7.9	8.8	8.2	8.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	32%	8%	26%	7%
Vol Thru, %	37%	83%	71%	57%
Vol Right, %	32%	8%	3%	36%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	95	60	175	70
LT Vol	30	5	45	5
Through Vol	35	50	125	40
RT Vol	30	5	5	25
Lane Flow Rate	103	65	190	76
Geometry Grp	1	1	1	1
Degree of Util (X)	0.129	0.081	0.234	0.097
Departure Headway (Hd)	4.484	4.497	4.425	4.577
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	800	797	812	784
Service Time	2.507	2.521	2.445	2.602
HCM Lane V/C Ratio	0.129	0.082	0.234	0.097
HCM Control Delay	8.2	7.9	8.8	8.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	0.3	0.9	0.3

Intersection

Int Delay, s/veh 2.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	115	10	40	255	5	90
Future Vol, veh/h	115	10	40	255	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	94	94	94	94	94	94
Heavy Vehicles, %	8	8	2	2	1	1
Mvmt Flow	122	11	43	271	5	96

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	133	0	485
Stage 1	-	-	-	-	128
Stage 2	-	-	-	-	357
Critical Hdwy	-	-	4.12	-	6.41
Critical Hdwy Stg 1	-	-	-	-	5.41
Critical Hdwy Stg 2	-	-	-	-	5.41
Follow-up Hdwy	-	-	2.218	-	3.509
Pot Cap-1 Maneuver	-	-	1452	-	543
Stage 1	-	-	-	-	900
Stage 2	-	-	-	-	710
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1452	-	524
Mov Cap-2 Maneuver	-	-	-	-	524
Stage 1	-	-	-	-	900
Stage 2	-	-	-	-	685

Approach	EB	WB	NB
HCM Control Delay, s	0	1	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	889	-	-	1452	-
HCM Lane V/C Ratio	0.114	-	-	0.029	-
HCM Control Delay (s)	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	3.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗		↕		↖	↕↗		↖	↕↗	
Traffic Vol, veh/h	0	0	115	5	5	25	180	1465	5	10	525	45
Future Vol, veh/h	0	0	115	5	5	25	180	1465	5	10	525	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	5	5	27	191	1559	5	11	559	48

Major/Minor	Minor2	Minor1		Major1		Major2						
Conflicting Flow All	-	-	304	2246	2573	782	607	0	0	1564	0	0
Stage 1	-	-	-	1944	1944	-	-	-	-	-	-	-
Stage 2	-	-	-	302	629	-	-	-	-	-	-	-
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	698	24	26	341	974	-	-	404	-	-
Stage 1	0	0	-	68	113	-	-	-	-	-	-	-
Stage 2	0	0	-	688	478	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	-	-	698	16	20	341	974	-	-	404	-	-
Mov Cap-2 Maneuver	-	-	-	16	20	-	-	-	-	-	-	-
Stage 1	-	-	-	55	91	-	-	-	-	-	-	-
Stage 2	-	-	-	552	465	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.3	156.6	1	0.2
HCM LOS	B	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	974	-	-	698	55	404	-	-
HCM Lane V/C Ratio	0.197	-	-	0.175	0.677	0.026	-	-
HCM Control Delay (s)	9.6	-	-	11.3	156.6	14.2	-	-
HCM Lane LOS	A	-	-	B	F	B	-	-
HCM 95th %tile Q(veh)	0.7	-	-	0.6	2.8	0.1	-	-

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗	↘	↑↑	↑↑	
Traffic Vol, veh/h	0	55	55	1670	810	0
Future Vol, veh/h	0	55	55	1670	810	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, %	2	2	2	2	8	8
Mvmt Flow	0	59	59	1777	862	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	-	431	862	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	573	776	-	-	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	573	776	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12	0.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT
Capacity (veh/h)	776	-	573	-
HCM Lane V/C Ratio	0.075	-	0.102	-
HCM Control Delay (s)	10	-	12	-
HCM Lane LOS	B	-	B	-
HCM 95th %tile Q(veh)	0.2	-	0.3	-

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	230	0	0	65	0	1755	240	0	755	155
Future Vol, veh/h	0	0	230	0	0	65	0	1755	240	0	755	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	-	-	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	245	0	0	69	0	1867	255	0	803	165

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	-	-	402	-	-	934	-	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	598	0	0	253	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	-	-	598	-	-	253	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	15.1		24.5		0		0	
HCM LOS	C		C					

Minor Lane/Major Mvmt	NBT	NBR	EBLn1WBLn1	SBT
Capacity (veh/h)	-	-	598	253
HCM Lane V/C Ratio	-	-	0.409	0.273
HCM Control Delay (s)	-	-	15.1	24.5
HCM Lane LOS	-	-	C	C
HCM 95th %tile Q(veh)	-	-	2	1.1

Intersection						
Int Delay, s/veh	1.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕		↘	↕
Traffic Vol, veh/h	0	95	1925	0	95	815
Future Vol, veh/h	0	95	1925	0	95	815
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	101	2048	0	101	867

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	1024	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.9	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.3	-
Pot Cap-1 Maneuver	0	236	0
Stage 1	0	-	0
Stage 2	0	-	0
Platoon blocked, %			
Mov Cap-1 Maneuver	-	236	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	31.2	0	2.8
HCM LOS	D		

Minor Lane/Major Mvmt	NBTWBLn1	SBL	SBT
Capacity (veh/h)	-	236	264
HCM Lane V/C Ratio	-	0.428	0.383
HCM Control Delay (s)	-	31.2	26.9
HCM Lane LOS	-	D	D
HCM 95th %tile Q(veh)	-	2	1.7

HCM 6th TWSC
 8: Cheney Spokane Rd & US 195 SB Off Ramp

Blue Fern Victory Heights
 Future (2035) Without-Project Weekday AM Peak Hour

Intersection						
Int Delay, s/veh	3.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙			↗		↑
Traffic Vol, veh/h	115	0	0	925	0	265
Future Vol, veh/h	115	0	0	925	0	265
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	91	91	91	91	91	91
Heavy Vehicles, %	0	0	2	2	8	8
Mvmt Flow	126	0	0	1016	0	291

Major/Minor	Minor1	Major2	
Conflicting Flow All	291	-	-
Stage 1	0	-	-
Stage 2	291	-	-
Critical Hdwy	6.4	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	-	-
Pot Cap-1 Maneuver	704	0	0
Stage 1	-	0	-
Stage 2	763	0	-
Platoon blocked, %			-
Mov Cap-1 Maneuver	704	-	-
Mov Cap-2 Maneuver	704	-	-
Stage 1	-	-	-
Stage 2	763	-	-

Approach	WB	SB
HCM Control Delay, s	11.2	0
HCM LOS	B	

Minor Lane/Major Mvmt	WBLn1	SBT
Capacity (veh/h)	704	-
HCM Lane V/C Ratio	0.18	-
HCM Control Delay (s)	11.2	-
HCM Lane LOS	B	-
HCM 95th %tile Q(veh)	0.7	-

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	840	75	5	115	0	0	0	0	35	0	0
Future Vol, veh/h	0	840	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	923	82	5	126	0	0	0	0	38	0	0

Major/Minor	Major1			Major2			Minor2			
Conflicting Flow All	-	0	0	1005	0	0		1100	1141	126
Stage 1	-	-	-	-	-	-		136	136	-
Stage 2	-	-	-	-	-	-		964	1005	-
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	-	-	697	-	0		225	192	898
Stage 1	0	-	-	-	-	0		866	765	-
Stage 2	0	-	-	-	-	0		355	307	-
Platoon blocked, %	-	-	-	-	-	-		-	-	-
Mov Cap-1 Maneuver	-	-	-	697	-	-		223	0	898
Mov Cap-2 Maneuver	-	-	-	-	-	-		223	0	-
Stage 1	-	-	-	-	-	-		866	0	-
Stage 2	-	-	-	-	-	-		352	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0.4	24.5
HCM LOS			C

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	697	-	223
HCM Lane V/C Ratio	-	-	0.008	-	0.172
HCM Control Delay (s)	-	-	10.2	0	24.5
HCM Lane LOS	-	-	B	A	C
HCM 95th %tile Q(veh)	-	-	0	-	0.6

Intersection												
Int Delay, s/veh	9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙			↑			↑			↗		
Traffic Vol, veh/h	865	0	0	0	0	0	125	5	0	0	0	0
Future Vol, veh/h	865	0	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	0	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	1	-	-	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, %	2	2	2	0	0	0	3	3	3	0	0	0
Mvmt Flow	972	0	0	0	0	0	140	6	0	0	0	0

Major/Minor	Major2	Minor1	Minor2
Conflicting Flow All	-	-	0 1 1
Stage 1	-	-	0 0
Stage 2	-	-	1 1
Critical Hdwy	-	-	7.13 6.53
Critical Hdwy Stg 1	-	-	- -
Critical Hdwy Stg 2	-	-	6.13 5.53
Follow-up Hdwy	-	-	3.527 4.027
Pot Cap-1 Maneuver	0	-	0 1019 893
Stage 1	0	-	0 - -
Stage 2	0	-	0 1019 893
Platoon blocked, %	-		
Mov Cap-1 Maneuver	-	-	- 1019 893
Mov Cap-2 Maneuver	-	-	- 1019 893
Stage 1	-	-	- - -
Stage 2	-	-	- 1019 893

Approach	WB	NB	SB
HCM Control Delay, s	0	9.1	0
HCM LOS		A	A

Minor Lane/Major Mvmt	NBLn1	WBT	SBLn1
Capacity (veh/h)	893	-	-
HCM Lane V/C Ratio	0.006	-	-
HCM Control Delay (s)	9.1	-	0
HCM Lane LOS	A	-	A
HCM 95th %tile Q(veh)	0	-	-

Intersection												
Int Delay, s/veh	4.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↑↑		↗	↑↑	↗
Traffic Vol, veh/h	5	0	420	0	0	25	0	875	5	0	560	80
Future Vol, veh/h	5	0	420	0	0	25	0	875	5	0	560	80
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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	11	11	11	3	3	3	10	10	10
Mvmt Flow	5	0	457	0	0	27	0	951	5	0	609	87

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1085	1565	305	1259	1650	478	696	0	0	956	0	0
Stage 1	609	609	-	954	954	-	-	-	-	-	-	-
Stage 2	476	956	-	305	696	-	-	-	-	-	-	-
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	172	111	694	118	89	510	889	-	-	668	-	-
Stage 1	451	486	-	261	316	-	-	-	-	-	-	-
Stage 2	541	337	-	655	420	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	163	111	694	40	89	510	889	-	-	668	-	-
Mov Cap-2 Maneuver	163	111	-	40	89	-	-	-	-	-	-	-
Stage 1	451	486	-	261	316	-	-	-	-	-	-	-
Stage 2	512	337	-	224	420	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	21.6		12.5		0		0	
HCM LOS	C		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	889	-	-	668	510	668	-	-
HCM Lane V/C Ratio	-	-	-	0.692	0.053	-	-	-
HCM Control Delay (s)	0	-	-	21.6	12.5	0	-	-
HCM Lane LOS	A	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	5.5	0.2	0	-	-

Intersection						
Int Delay, s/veh	7.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↔↔		↖	↗↗
Traffic Vol, veh/h	0	425	520	115	335	395
Future Vol, veh/h	0	425	520	115	335	395
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	92	92	92	92	92	92
Heavy Vehicles, %	1	1	3	3	8	8
Mvmt Flow	0	462	565	125	364	429

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	345	0 0 690 0
Stage 1	-	-	- - - -
Stage 2	-	-	- - - -
Critical Hdwy	-	6.92	- - 4.26 -
Critical Hdwy Stg 1	-	-	- - - -
Critical Hdwy Stg 2	-	-	- - - -
Follow-up Hdwy	-	3.31	- - 2.28 -
Pot Cap-1 Maneuver	0	654	- - 861 -
Stage 1	0	-	- - - -
Stage 2	0	-	- - - -
Platoon blocked, %			- - - -
Mov Cap-1 Maneuver	-	654	- - 861 -
Mov Cap-2 Maneuver	-	-	- - - -
Stage 1	-	-	- - - -
Stage 2	-	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	22.6	0	5.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 654	861	-
HCM Lane V/C Ratio	-	- 0.706	0.423	-
HCM Control Delay (s)	-	- 22.6	12.2	-
HCM Lane LOS	-	- C	B	-
HCM 95th %tile Q(veh)	-	- 5.8	2.1	-

MOVEMENT SUMMARY

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

2035 Baseline AM
 Site Category: Victory Heights
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] ft				
South: Grove Rd														
3	L2	5	3.0	6	3.0	0.282	12.0	LOS B	1.4	34.8	0.54	0.63	0.54	36.3
8	T1	180	3.0	217	3.0	0.282	5.9	LOS A	1.4	34.8	0.54	0.63	0.54	36.2
18	R2	20	3.0	24	3.0	0.282	6.2	LOS A	1.4	34.8	0.54	0.63	0.54	35.1
Approach		205	3.0	247	3.0	0.282	6.1	LOS A	1.4	34.8	0.54	0.63	0.54	36.1
East: Thorpe Rd														
1	L2	45	4.0	54	4.0	0.434	12.9	LOS B	2.4	62.5	0.62	0.78	0.65	35.6
6	T1	15	4.0	18	4.0	0.434	6.8	LOS A	2.4	62.5	0.62	0.78	0.65	35.6
16	R2	245	4.0	295	4.0	0.434	7.0	LOS A	2.4	62.5	0.62	0.78	0.65	34.5
Approach		305	4.0	367	4.0	0.434	7.9	LOS A	2.4	62.5	0.62	0.78	0.65	34.7
North: Grove Rd														
7	L2	135	7.0	163	7.0	0.306	10.1	LOS B	1.7	44.2	0.25	0.53	0.25	35.9
4	T1	255	7.0	307	7.0	0.306	4.0	LOS A	1.7	44.5	0.25	0.51	0.25	36.3
14	R2	240	7.0	289	7.0	0.306	4.5	LOS A	1.7	44.5	0.25	0.46	0.25	35.9
Approach		630	7.0	759	7.0	0.306	5.5	LOS A	1.7	44.5	0.25	0.49	0.25	36.1
West: Thorpe Rd														
5	L2	240	3.0	289	3.0	0.351	11.9	LOS B	1.5	38.5	0.53	0.80	0.53	33.9
2	T1	15	3.0	18	3.0	0.351	5.8	LOS A	1.5	38.5	0.53	0.80	0.53	33.9
12	R2	5	3.0	6	3.0	0.351	6.1	LOS A	1.5	38.5	0.53	0.80	0.53	32.9
Approach		260	3.0	313	3.0	0.351	11.5	LOS B	1.5	38.5	0.53	0.80	0.53	33.9
All Vehicles		1400	5.0	1687	5.0	0.434	7.2	LOS A	2.4	62.5	0.43	0.63	0.43	35.3

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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 Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

HCM 6th AWSC
1: S Grove Rd & W Thorpe Rd

Blue Fern Victory Heights
Future (2035) Without-Project Weekday PM Peak Hour

Intersection	
Intersection Delay, s/veh	46.4
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↔			↕	↗	↖	↗	↖	↖	↗	
Traffic Vol, veh/h	240	15	5	45	15	245	5	180	20	135	255	240
Future Vol, veh/h	240	15	5	45	15	245	5	180	20	135	255	240
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, %	3	3	3	4	4	4	3	3	3	7	7	7
Mvmt Flow	261	16	5	49	16	266	5	196	22	147	277	261
Number of Lanes	0	1	0	0	1	1	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	1
HCM Control Delay	26.8	18.4	18.9	77.1
HCM LOS	D	C	C	F

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	92%	75%	0%	100%	0%
Vol Thru, %	0%	90%	6%	25%	0%	0%	52%
Vol Right, %	0%	10%	2%	0%	100%	0%	48%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	5	200	260	60	245	135	495
LT Vol	5	0	240	45	0	135	0
Through Vol	0	180	15	15	0	0	255
RT Vol	0	20	5	0	245	0	240
Lane Flow Rate	5	217	283	65	266	147	538
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.013	0.492	0.656	0.155	0.552	0.333	1.092
Departure Headway (Hd)	9.082	8.489	8.686	8.905	7.793	8.174	7.308
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	396	428	418	405	466	443	500
Service Time	6.782	6.189	6.686	6.605	5.493	5.874	5.008
HCM Lane V/C Ratio	0.013	0.507	0.677	0.16	0.571	0.332	1.076
HCM Control Delay	11.9	19.1	26.8	13.2	19.7	14.9	94.1
HCM Lane LOS	B	C	D	B	C	B	F
HCM 95th-tile Q	0	2.6	4.6	0.5	3.3	1.4	17.3

Intersection												
Intersection Delay, s/veh	9.1											
Intersection LOS	A											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕			↕			↕		
Traffic Vol, veh/h	15	180	5	45	75	15	15	35	35	10	90	25
Future Vol, veh/h	15	180	5	45	75	15	15	35	35	10	90	25
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	2	2	2
Mvmt Flow	17	202	6	51	84	17	17	39	39	11	101	28
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.6	9	8.5	9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	18%	7%	33%	8%
Vol Thru, %	41%	90%	56%	72%
Vol Right, %	41%	3%	11%	20%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	85	200	135	125
LT Vol	15	15	45	10
Through Vol	35	180	75	90
RT Vol	35	5	15	25
Lane Flow Rate	96	225	152	140
Geometry Grp	1	1	1	1
Degree of Util (X)	0.126	0.29	0.2	0.189
Departure Headway (Hd)	4.757	4.651	4.738	4.835
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	749	769	754	739
Service Time	2.815	2.7	2.789	2.889
HCM Lane V/C Ratio	0.128	0.293	0.202	0.189
HCM Control Delay	8.5	9.6	9	9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	1.2	0.7	0.7

Intersection

Int Delay, s/veh 4.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	165	15	175	130	5	85
Future Vol, veh/h	165	15	175	130	5	85
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	197	146	6	96

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	734
Stage 1	-	-	194
Stage 2	-	-	540
Critical Hdwy	-	4.11	6.2
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	-	2.209	3.3
Pot Cap-1 Maneuver	-	1376	853
Stage 1	-	-	844
Stage 2	-	-	588
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1376	853
Mov Cap-2 Maneuver	-	-	329
Stage 1	-	-	844
Stage 2	-	-	496

Approach	EB	WB	NB
HCM Control Delay, s	0	4.6	10.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	784	-	-	1376	-
HCM Lane V/C Ratio	0.129	-	-	0.143	-
HCM Control Delay (s)	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	5.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗		↕		↖	↕		↖	↕	
Traffic Vol, veh/h	0	0	185	5	5	15	115	750	5	45	1435	175
Future Vol, veh/h	0	0	185	5	5	15	115	750	5	45	1435	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	5	15	119	773	5	46	1479	180

Major/Minor	Minor2		Minor1			Major1		Major2				
Conflicting Flow All	-	-	830	1846	2765	389	1659	0	0	778	0	0
Stage 1	-	-	-	1014	1014	-	-	-	-	-	-	-
Stage 2	-	-	-	832	1751	-	-	-	-	-	-	-
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	317	47	20	615	384	-	-	841	-	-
Stage 1	0	0	-	259	319	-	-	-	-	-	-	-
Stage 2	0	0	-	334	141	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	317	14	13	615	384	-	-	841	-	-
Mov Cap-2 Maneuver	-	-	-	14	13	-	-	-	-	-	-	-
Stage 1	-	-	-	179	220	-	-	-	-	-	-	-
Stage 2	-	-	-	126	133	-	-	-	-	-	-	-

Approach	EB		WB			NB		SB		
HCM Control Delay, s	32.1		266.7			2.4		0.3		
HCM LOS	D		F							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	384	-	-	317	33	841	-	-
HCM Lane V/C Ratio	0.309	-	-	0.602	0.781	0.055	-	-
HCM Control Delay (s)	18.5	-	-	32.1	266.7	9.5	-	-
HCM Lane LOS	C	-	-	D	F	A	-	-
HCM 95th %tile Q(veh)	1.3	-	-	3.7	2.7	0.2	-	-

HCM 6th TWSC
5: North J-Turn & US 195

Blue Fern Victory Heights
Future (2035) Without-Project Weekday PM Peak Hour

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗	↘	↑↑	↑↑	
Traffic Vol, veh/h	0	80	80	970	1825	0
Future Vol, veh/h	0	80	80	970	1825	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	85	85	1032	1941	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	-	971	1941	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	256	295	-	-	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	256	295	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	25.9	1.7	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT
Capacity (veh/h)	295	-	256	-
HCM Lane V/C Ratio	0.288	-	0.332	-
HCM Control Delay (s)	22.1	-	25.9	-
HCM Lane LOS	C	-	D	-
HCM 95th %tile Q(veh)	1.2	-	1.4	-

Intersection												
Int Delay, s/veh	7.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗		↕	↗		↕	↗
Traffic Vol, veh/h	0	0	260	0	0	110	0	1070	140	0	1705	270
Future Vol, veh/h	0	0	260	0	0	110	0	1070	140	0	1705	270
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	277	0	0	117	0	1138	149	0	1814	287

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	-	-	907	-	-	572	-	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	282	0	0	468	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	-	-	282	-	-	467	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	88.6		15.3		0		0	
HCM LOS	F		C					

Minor Lane/Major Mvmt	NBT	NBR	EBLn1WBLn1	SBT
Capacity (veh/h)	-	-	282 467	-
HCM Lane V/C Ratio	-	-	0.981 0.251	-
HCM Control Delay (s)	-	-	88.6 15.3	-
HCM Lane LOS	-	-	F C	-
HCM 95th %tile Q(veh)	-	-	9.9 1	-

Intersection						
Int Delay, s/veh	0.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↗↗		↘	↗↗
Traffic Vol, veh/h	0	55	1160	0	55	1855
Future Vol, veh/h	0	55	1160	0	55	1855
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	2	2	1	1
Mvmt Flow	0	59	1234	0	59	1973

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	617	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.9	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.3	-
Pot Cap-1 Maneuver	0	438	0
Stage 1	0	-	0
Stage 2	0	-	0
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	-	438	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.5	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBTWBLn1	SBL	SBT
Capacity (veh/h)	-	438	566
HCM Lane V/C Ratio	-	0.134	0.103
HCM Control Delay (s)	-	14.5	12.1
HCM Lane LOS	-	B	B
HCM 95th %tile Q(veh)	-	0.5	0.3

HCM 6th TWSC
 8: Cheney Spokane Rd & US 195 SB Off Ramp

Blue Fern Victory Heights
 Future (2035) Without-Project Weekday PM Peak Hour

Intersection						
Int Delay, s/veh	4.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙			↗		↑
Traffic Vol, veh/h	155	0	0	625	0	780
Future Vol, veh/h	155	0	0	625	0	780
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	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	168	0	0	679	0	848

Major/Minor	Minor1	Major2	
Conflicting Flow All	848	-	-
Stage 1	0	-	-
Stage 2	848	-	-
Critical Hdwy	6.41	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	-	-
Pot Cap-1 Maneuver	333	0	0
Stage 1	-	0	-
Stage 2	422	0	-
Platoon blocked, %			-
Mov Cap-1 Maneuver	333	-	-
Mov Cap-2 Maneuver	333	-	-
Stage 1	-	-	-
Stage 2	422	-	-

Approach	WB	SB
HCM Control Delay, s	26.4	0
HCM LOS	D	

Minor Lane/Major Mvmt	WBLn1	SBT
Capacity (veh/h)	333	-
HCM Lane V/C Ratio	0.506	-
HCM Control Delay (s)	26.4	-
HCM Lane LOS	D	-
HCM 95th %tile Q(veh)	2.7	-

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	470	170	10	150	0	0	0	0	30	5	0
Future Vol, veh/h	0	470	170	10	150	0	0	0	0	30	5	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	516	187	11	165	0	0	0	0	33	5	0

Major/Minor	Major1			Major2			Minor2					
Conflicting Flow All	-	0	0	705	0	0				797	892	167
Stage 1	-	-	-	-	-	-				187	187	-
Stage 2	-	-	-	-	-	-				610	705	-
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	-	-	898	-	0				358	283	882
Stage 1	0	-	-	-	-	0				850	749	-
Stage 2	0	-	-	-	-	0				546	442	-
Platoon blocked, %		-	-	-	-	-						
Mov Cap-1 Maneuver	-	-	-	898	-	-				353	0	880
Mov Cap-2 Maneuver	-	-	-	-	-	-				353	0	-
Stage 1	-	-	-	-	-	-				850	0	-
Stage 2	-	-	-	-	-	-				539	0	-

Approach	EB			WB			SB		
HCM Control Delay, s	0			0.6			16.4		
HCM LOS							C		

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	898	-	353
HCM Lane V/C Ratio	-	-	0.012	-	0.109
HCM Control Delay (s)	-	-	9.1	0	16.4
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q(veh)	-	-	0	-	0.4

Intersection

Int Delay, s/veh 8.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙				↑			↑				↗
Traffic Vol, veh/h	470	0	0	0	0	0	165	5	0	0	0	0
Future Vol, veh/h	470	0	0	0	0	0	165	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	0	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	1	-	-	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	528	0	0	0	0	0	185	6	0	0	0	0

Major/Minor	Major2	Minor1	Minor2
Conflicting Flow All	-	-	0 1 1 - - - 1
Stage 1	-	-	- 0 0 - - - -
Stage 2	-	-	- 1 1 - - - -
Critical Hdwy	-	-	- 7.12 6.52 - - - 6.2
Critical Hdwy Stg 1	-	-	- - - - - - - -
Critical Hdwy Stg 2	-	-	- 6.12 5.52 - - - -
Follow-up Hdwy	-	-	- 3.518 4.018 - - - 3.3
Pot Cap-1 Maneuver	0	-	0 1022 895 0 0 0 1090
Stage 1	0	-	0 - - 0 0 0 -
Stage 2	0	-	0 1022 895 0 0 0 -
Platoon blocked, %	-	-	- - - - - - - -
Mov Cap-1 Maneuver	-	-	- 1022 895 - - - 1090
Mov Cap-2 Maneuver	-	-	- 1022 895 - - - -
Stage 1	-	-	- - - - - - - -
Stage 2	-	-	- 1022 895 - - - -

Approach	WB	NB	SB
HCM Control Delay, s	0	9	0
HCM LOS		A	A

Minor Lane/Major Mvmt	NBLn1	WBT	SBLn1
Capacity (veh/h)	895	-	-
HCM Lane V/C Ratio	0.006	-	-
HCM Control Delay (s)	9	-	0
HCM Lane LOS	A	-	A
HCM 95th %tile Q(veh)	0	-	-

HCM 6th TWSC
11: US 195 & E Meadowlane Rd

Blue Fern Victory Heights
Future (2035) Without-Project Weekday PM Peak Hour

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	245	0	0	15	5	790	10	5	1005	280
Future Vol, veh/h	0	0	245	0	0	15	5	790	10	5	1005	280
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	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0	5	5	5	2	2	2
Mvmt Flow	0	0	261	0	0	16	5	840	11	5	1069	298

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1509	1940	535	1401	2233	426	1367	0	0	851	0	0
Stage 1	1079	1079	-	856	856	-	-	-	-	-	-	-
Stage 2	430	861	-	545	1377	-	-	-	-	-	-	-
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	85	66	495	102	43	582	483	-	-	783	-	-
Stage 1	237	297	-	323	377	-	-	-	-	-	-	-
Stage 2	579	375	-	495	214	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	82	65	495	48	42	582	483	-	-	783	-	-
Mov Cap-2 Maneuver	82	65	-	48	42	-	-	-	-	-	-	-
Stage 1	235	295	-	320	373	-	-	-	-	-	-	-
Stage 2	557	371	-	233	213	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	20.1		11.4		0.1		0	
HCM LOS	C		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	483	-	-	495	582	783	-	-
HCM Lane V/C Ratio	0.011	-	-	0.527	0.027	0.007	-	-
HCM Control Delay (s)	12.5	-	-	20.1	11.4	9.6	-	-
HCM Lane LOS	B	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	3	0.1	0	-	-

Intersection						
Int Delay, s/veh	8.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↔		↖	↗
Traffic Vol, veh/h	5	530	425	70	485	640
Future Vol, veh/h	5	530	425	70	485	640
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	94	94	94	94	94	94
Heavy Vehicles, %	1	1	9	9	2	2
Mvmt Flow	5	564	452	74	516	681

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1862	263	0
Stage 1	489	-	-
Stage 2	1373	-	-
Critical Hdwy	6.82	6.92	-
Critical Hdwy Stg 1	5.82	-	-
Critical Hdwy Stg 2	5.82	-	-
Follow-up Hdwy	3.51	3.31	-
Pot Cap-1 Maneuver	65	739	-
Stage 1	585	-	-
Stage 2	202	-	-
Platoon blocked, %			-
Mov Cap-1 Maneuver	33	739	-
Mov Cap-2 Maneuver	33	-	-
Stage 1	585	-	-
Stage 2	101	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23.7	0	5.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	739	1037
HCM Lane V/C Ratio	-	-	0.763	0.498
HCM Control Delay (s)	-	-	23.7	11.9
HCM Lane LOS	-	-	C	B
HCM 95th %tile Q(veh)	-	-	7.3	2.8

MOVEMENT SUMMARY

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

2035 Future WP AM
 Site Category: Victory Heights
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] ft				
South: Grove Rd														
3	L2	5	7.0	6	7.0	0.523	14.2	LOS B	3.4	90.9	0.69	0.83	0.79	35.4
8	T1	295	7.0	355	7.0	0.523	8.1	LOS A	3.4	90.9	0.69	0.83	0.79	35.5
18	R2	46	7.0	55	7.0	0.523	8.3	LOS A	3.4	90.9	0.69	0.83	0.79	34.4
Approach		346	7.0	417	7.0	0.523	8.2	LOS A	3.4	90.9	0.69	0.83	0.79	35.3
East: Thorpe Rd														
1	L2	22	10.0	27	10.0	0.454	15.4	LOS B	2.8	76.1	0.74	0.90	0.84	34.3
6	T1	15	10.0	18	10.0	0.454	9.2	LOS A	2.8	76.1	0.74	0.90	0.84	34.4
16	R2	214	10.0	258	10.0	0.454	9.5	LOS A	2.8	76.1	0.74	0.90	0.84	33.3
Approach		251	10.0	302	10.0	0.454	10.0	LOS B	2.8	76.1	0.74	0.90	0.84	33.5
North: Grove Rd														
7	L2	162	11.0	195	11.0	0.249	10.1	LOS B	1.3	35.5	0.20	0.56	0.20	35.2
4	T1	205	11.0	247	11.0	0.249	3.9	LOS A	1.3	35.8	0.20	0.48	0.20	36.4
14	R2	135	11.0	163	11.0	0.249	4.4	LOS A	1.3	35.8	0.20	0.43	0.20	35.9
Approach		502	11.0	605	11.0	0.249	6.0	LOS A	1.3	35.8	0.20	0.49	0.20	35.9
West: Thorpe Rd														
5	L2	260	6.0	313	6.0	0.361	11.8	LOS B	1.5	38.6	0.50	0.80	0.50	33.6
2	T1	5	6.0	6	6.0	0.361	5.7	LOS A	1.5	38.6	0.50	0.80	0.50	33.7
Approach		265	6.0	319	6.0	0.361	11.7	LOS B	1.5	38.6	0.50	0.80	0.50	33.6
All Vehicles		1364	8.8	1643	8.8	0.523	8.4	LOS A	3.4	90.9	0.48	0.71	0.53	34.8

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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 Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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	5	54	9	45	135	18	46	56	30	17	47	25
Future Vol, veh/h	5	54	9	45	135	18	46	56	30	17	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	5	59	10	49	147	20	50	61	33	18	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	8.2	9.3	8.8	8.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	35%	7%	23%	19%
Vol Thru, %	42%	79%	68%	53%
Vol Right, %	23%	13%	9%	28%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	132	68	198	89
LT Vol	46	5	45	17
Through Vol	56	54	135	47
RT Vol	30	9	18	25
Lane Flow Rate	143	74	215	97
Geometry Grp	1	1	1	1
Degree of Util (X)	0.186	0.096	0.272	0.129
Departure Headway (Hd)	4.664	4.663	4.551	4.792
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	768	766	788	746
Service Time	2.702	2.706	2.587	2.833
HCM Lane V/C Ratio	0.186	0.097	0.273	0.13
HCM Control Delay	8.8	8.2	9.3	8.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.7	0.3	1.1	0.4

Intersection

Int Delay, s/veh 3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	115	10	59	255	5	124
Future Vol, veh/h	115	10	59	255	5	124
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	63	271	5	132

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	133	0	525
Stage 1	-	-	-	-	128
Stage 2	-	-	-	-	397
Critical Hdwy	-	-	4.12	-	6.41
Critical Hdwy Stg 1	-	-	-	-	5.41
Critical Hdwy Stg 2	-	-	-	-	5.41
Follow-up Hdwy	-	-	2.218	-	3.509
Pot Cap-1 Maneuver	-	-	1452	-	515
Stage 1	-	-	-	-	900
Stage 2	-	-	-	-	681
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1452	-	489
Mov Cap-2 Maneuver	-	-	-	-	489
Stage 1	-	-	-	-	900
Stage 2	-	-	-	-	646

Approach	EB	WB	NB
HCM Control Delay, s	0	1.4	9.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	894	-	-	1452	-
HCM Lane V/C Ratio	0.154	-	-	0.043	-
HCM Control Delay (s)	9.8	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	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	0	0	115	5	5	25	180	1640	5	10	610	45
Future Vol, veh/h	0	0	115	5	5	25	180	1640	5	10	610	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	5	5	27	191	1745	5	11	649	48

Major/Minor	Minor2	Minor1		Major1		Major2						
Conflicting Flow All	-	-	349	2477	2849	875	697	0	0	1750	0	0
Stage 1	-	-	-	2130	2130	-	-	-	-	-	-	-
Stage 2	-	-	-	347	719	-	-	-	-	-	-	-
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	653	16	17	297	902	-	-	342	-	-
Stage 1	0	0	-	52	91	-	-	-	-	-	-	-
Stage 2	0	0	-	648	436	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	-	-	653	11	13	297	902	-	-	342	-	-
Mov Cap-2 Maneuver	-	-	-	11	13	-	-	-	-	-	-	-
Stage 1	-	-	-	41	72	-	-	-	-	-	-	-
Stage 2	-	-	-	510	422	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.8	299.6	1	0.2
HCM LOS	B	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	902	-	-	653	38	342	-
HCM Lane V/C Ratio	0.212	-	-	0.187	0.98	0.031	-
HCM Control Delay (s)	10.1	-	-	11.8	299.6	15.9	-
HCM Lane LOS	B	-	-	B	F	C	-
HCM 95th %tile Q(veh)	0.8	-	-	0.7	3.7	0.1	-

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗	↘	↑↑	↑↑	
Traffic Vol, veh/h	0	206	206	1855	915	0
Future Vol, veh/h	0	206	206	1855	915	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, %	2	2	2	2	8	8
Mvmt Flow	0	219	219	1973	973	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	-	487	973	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	526	704	-	-	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	526	704	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.6	1.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT
Capacity (veh/h)	704	-	526	-
HCM Lane V/C Ratio	0.311	-	0.417	-
HCM Control Delay (s)	12.4	-	16.6	-
HCM Lane LOS	B	-	C	-
HCM 95th %tile Q(veh)	1.3	-	2	-

Intersection												
Int Delay, s/veh	14.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗		↕	↗		↕	↗
Traffic Vol, veh/h	0	0	602	0	0	80	0	1976	341	0	775	284
Future Vol, veh/h	0	0	602	0	0	80	0	1976	341	0	775	284
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	640	0	0	85	0	2102	363	0	824	302

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	-	-	412	-	-	1051	-	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	210	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	-	-	210	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB			SB		
HCM Control Delay, s	88.9		33.4		0			0		
HCM LOS	F		D							

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT
Capacity (veh/h)	-	-	589	210	-
HCM Lane V/C Ratio	-	-	1.087	0.405	-
HCM Control Delay (s)	-	-	88.9	33.4	-
HCM Lane LOS	-	-	F	D	-
HCM 95th %tile Q(veh)	-	-	19	1.8	-

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

Intersection						
Int Delay, s/veh	9.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕		↘	↕
Traffic Vol, veh/h	0	170	2232	0	170	1192
Future Vol, veh/h	0	170	2232	0	170	1192
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	181	2374	0	181	1268

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	1187	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.9	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.3	-
Pot Cap-1 Maneuver	0	184	0
Stage 1	0	-	0
Stage 2	0	-	0
Platoon blocked, %			
Mov Cap-1 Maneuver	-	184	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	113.8	0	12
HCM LOS	F		

Minor Lane/Major Mvmt	NBTWBLn1	SBL	SBT
Capacity (veh/h)	-	184	195
HCM Lane V/C Ratio	-	0.983	0.927
HCM Control Delay (s)	-	113.8	96.4
HCM Lane LOS	-	F	F
HCM 95th %tile Q(veh)	-	8	7.4

HCM 6th TWSC
8: Cheney Spokane Rd & US 195 SB Off Ramp

Blue Fern Victory Heights
Future (2035) With-Project Weekday AM Peak Hour

Intersection						
Int Delay, s/veh	4.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙			↗		↑
Traffic Vol, veh/h	115	0	0	941	270	313
Future Vol, veh/h	115	0	0	941	270	313
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	91	91	91	91	91	91
Heavy Vehicles, %	0	0	2	2	8	8
Mvmt Flow	126	0	0	1034	297	344

Major/Minor	Minor1	Major2	
Conflicting Flow All	938	-	0
Stage 1	0	-	-
Stage 2	938	-	-
Critical Hdwy	6.4	-	4.18
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	-	2.272
Pot Cap-1 Maneuver	296	0	-
Stage 1	-	0	-
Stage 2	384	0	-
Platoon blocked, %			-
Mov Cap-1 Maneuver	296	-	-
Mov Cap-2 Maneuver	296	-	-
Stage 1	-	-	-
Stage 2	384	-	-

Approach	WB	SB
HCM Control Delay, s	25.9	
HCM LOS	D	

Minor Lane/Major Mvmt	WBLn1	SBL	SBT
Capacity (veh/h)	296	-	-
HCM Lane V/C Ratio	0.427	-	-
HCM Control Delay (s)	25.9	-	-
HCM Lane LOS	D	-	-
HCM 95th %tile Q(veh)	2	-	-

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔					↔↔		
Traffic Vol, veh/h	0	1126	75	5	115	0	0	0	0	35	0	0
Future Vol, veh/h	0	1126	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	1237	82	5	126	0	0	0	0	38	0	0

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	1319	0	0	1414	1455	126
Stage 1	-	-	-	-	-	-	136	136	-
Stage 2	-	-	-	-	-	-	1278	1319	-
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	-	-	531	-	0	144	124	898
Stage 1	0	-	-	-	-	0	866	765	-
Stage 2	0	-	-	-	-	0	249	216	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	531	-	-	143	0	898
Mov Cap-2 Maneuver	-	-	-	-	-	-	143	0	-
Stage 1	-	-	-	-	-	-	866	0	-
Stage 2	-	-	-	-	-	-	247	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0.5	39.2
HCM LOS	E		

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	531	-	143
HCM Lane V/C Ratio	-	-	0.01	-	0.269
HCM Control Delay (s)	-	-	11.9	0	39.2
HCM Lane LOS	-	-	B	A	E
HCM 95th %tile Q(veh)	-	-	0	-	1

Intersection

Int Delay, s/veh 9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙				↑			↑				↗
Traffic Vol, veh/h	1151	0	0	0	0	0	125	5	0	0	0	0
Future Vol, veh/h	1151	0	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	0	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	1	-	-	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, %	2	2	2	0	0	0	3	3	3	0	0	0
Mvmt Flow	1293	0	0	0	0	0	140	6	0	0	0	0

Major/Minor	Major2	Minor1	Minor2
Conflicting Flow All	-	-	0 1 1 - - - 1
Stage 1	-	-	- 0 0 - - - -
Stage 2	-	-	- 1 1 - - - -
Critical Hdwy	-	-	- 7.13 6.53 - - - 6.2
Critical Hdwy Stg 1	-	-	- - - - - - - -
Critical Hdwy Stg 2	-	-	- 6.13 5.53 - - - -
Follow-up Hdwy	-	-	- 3.527 4.027 - - - 3.3
Pot Cap-1 Maneuver	0	-	0 1019 893 0 0 0 1090
Stage 1	0	-	0 - - 0 0 0 -
Stage 2	0	-	0 1019 893 0 0 0 -
Platoon blocked, %			-
Mov Cap-1 Maneuver	-	-	- 1019 893 - - - 1090
Mov Cap-2 Maneuver	-	-	- 1019 893 - - - -
Stage 1	-	-	- - - - - - - -
Stage 2	-	-	- 1019 893 - - - -

Approach	WB	NB	SB
HCM Control Delay, s	0	9.1	0
HCM LOS		A	A

Minor Lane/Major Mvmt	NBLn1	WBT	SBLn1
Capacity (veh/h)	893	-	-
HCM Lane V/C Ratio	0.006	-	-
HCM Control Delay (s)	9.1	-	0
HCM Lane LOS	A	-	A
HCM 95th %tile Q(veh)	0	-	-

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	5	0	420	0	0	25	0	902	5	0	623	80
Future Vol, veh/h	5	0	420	0	0	25	0	902	5	0	623	80
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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	11	11	11	3	3	3	10	10	10
Mvmt Flow	5	0	457	0	0	27	0	980	5	0	677	87

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1167	1662	339	1322	1747	493	764	0	0	985	0	0
Stage 1	677	677	-	983	983	-	-	-	-	-	-	-
Stage 2	490	985	-	339	764	-	-	-	-	-	-	-
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	150	97	660	106	78	498	838	-	-	650	-	-
Stage 1	411	453	-	250	306	-	-	-	-	-	-	-
Stage 2	531	327	-	625	390	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	142	97	660	33	78	498	838	-	-	650	-	-
Mov Cap-2 Maneuver	142	97	-	33	78	-	-	-	-	-	-	-
Stage 1	411	453	-	250	306	-	-	-	-	-	-	-
Stage 2	502	327	-	193	390	-	-	-	-	-	-	-

Approach	EB		WB		NB			SB		
HCM Control Delay, s	24.5		12.6		0			0		
HCM LOS	C		B							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	838	-	-	633	498	650	-	-
HCM Lane V/C Ratio	-	-	-	0.73	0.055	-	-	-
HCM Control Delay (s)	0	-	-	24.5	12.6	0	-	-
HCM Lane LOS	A	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	6.3	0.2	0	-	-

HCM 6th TWSC
12: US 195 & Hatch Road

Blue Fern Victory Heights
Future (2035) With-Project Weekday AM Peak Hour

Intersection						
Int Delay, s/veh	8.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↔↔		↖	↖↖
Traffic Vol, veh/h	0	437	530	115	370	424
Future Vol, veh/h	0	437	530	115	370	424
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	92	92	92	92	92	92
Heavy Vehicles, %	1	1	3	3	8	8
Mvmt Flow	0	475	576	125	402	461

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	- 351	0	0 701
Stage 1	- -	-	- -
Stage 2	- -	-	- -
Critical Hdwy	- 6.92	-	- 4.26
Critical Hdwy Stg 1	- -	-	- -
Critical Hdwy Stg 2	- -	-	- -
Follow-up Hdwy	- 3.31	-	- 2.28
Pot Cap-1 Maneuver	0 648	-	- 853
Stage 1	0 -	-	- -
Stage 2	0 -	-	- -
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	- 648	-	- 853
Mov Cap-2 Maneuver	- -	-	- -
Stage 1	- -	-	- -
Stage 2	- -	-	- -

Approach	WB	NB	SB
HCM Control Delay, s	24.2	0	6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 648	853	-
HCM Lane V/C Ratio	-	- 0.733	0.471	-
HCM Control Delay (s)	-	- 24.2	12.9	-
HCM Lane LOS	-	- C	B	-
HCM 95th %tile Q(veh)	-	- 6.4	2.6	-

HCM 6th TWSC
 13: Access 1 (Westernmost) & W Thorpe Rd

Blue Fern Victory Heights
 Future (2035) With-Project Weekday AM Peak Hour

Intersection						
Int Delay, s/veh	0.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔		↔
Traffic Vol, veh/h	110	6	3	178	10	15
Future Vol, veh/h	110	6	3	178	10	15
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	87	87	87	87	87	87
Heavy Vehicles, %	5	5	5	5	2	2
Mvmt Flow	126	7	3	205	11	17

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	133	0	341 130
Stage 1	-	-	-	-	130 -
Stage 2	-	-	-	-	211 -
Critical Hdwy	-	-	4.15	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.245	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	1433	-	655 920
Stage 1	-	-	-	-	896 -
Stage 2	-	-	-	-	824 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1433	-	654 920
Mov Cap-2 Maneuver	-	-	-	-	654 -
Stage 1	-	-	-	-	896 -
Stage 2	-	-	-	-	822 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	9.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	791	-	-	1433	-
HCM Lane V/C Ratio	0.036	-	-	0.002	-
HCM Control Delay (s)	9.7	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

HCM 6th TWSC
 14: Access 2 (West) & W Thorpe Rd

Blue Fern Victory Heights
 Future (2035) With-Project Weekday AM Peak Hour

Intersection						
Int Delay, s/veh	0.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	123	2	10	178	3	21
Future Vol, veh/h	123	2	10	178	3	21
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	87	87	87	87	87	87
Heavy Vehicles, %	5	5	5	5	2	2
Mvmt Flow	141	2	11	205	3	24

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	143	0	369
Stage 1	-	-	-	-	142
Stage 2	-	-	-	-	227
Critical Hdwy	-	-	4.15	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.245	-	3.518
Pot Cap-1 Maneuver	-	-	1421	-	631
Stage 1	-	-	-	-	885
Stage 2	-	-	-	-	811
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1421	-	625
Mov Cap-2 Maneuver	-	-	-	-	625
Stage 1	-	-	-	-	885
Stage 2	-	-	-	-	804

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	858	-	-	1421	-
HCM Lane V/C Ratio	0.032	-	-	0.008	-
HCM Control Delay (s)	9.3	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

HCM 6th TWSC
 15: Access (center) & W Thorpe Rd

Blue Fern Victory Heights
 Future (2035) With-Project Weekday AM Peak Hour

Intersection						
Int Delay, s/veh	5.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	136	8	92	173	15	263
Future Vol, veh/h	136	8	92	173	15	263
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	87	87	87	87	87	87
Heavy Vehicles, %	5	5	5	5	2	2
Mvmt Flow	156	9	106	199	17	302

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	165	0	572
Stage 1	-	-	-	-	161
Stage 2	-	-	-	-	411
Critical Hdwy	-	-	4.15	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.245	-	3.518
Pot Cap-1 Maneuver	-	-	1395	-	482
Stage 1	-	-	-	-	868
Stage 2	-	-	-	-	669
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1395	-	441
Mov Cap-2 Maneuver	-	-	-	-	441
Stage 1	-	-	-	-	868
Stage 2	-	-	-	-	612

Approach	EB	WB	NB
HCM Control Delay, s	0	2.7	11.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	839	-	-	1395	-
HCM Lane V/C Ratio	0.381	-	-	0.076	-
HCM Control Delay (s)	11.9	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.8	-	-	0.2	-

HCM 6th TWSC
 16: Access 4 (East) & W Thorpe Rd

Blue Fern Victory Heights
 Future (2035) With-Project Weekday AM Peak Hour

Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	395	3	5	257	7	16
Future Vol, veh/h	395	3	5	257	7	16
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	87	87	87	87	87	87
Heavy Vehicles, %	5	5	5	5	0	0
Mvmt Flow	454	3	6	295	8	18

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	457	0	763
Stage 1	-	-	-	-	456
Stage 2	-	-	-	-	307
Critical Hdwy	-	-	4.15	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.245	-	3.5
Pot Cap-1 Maneuver	-	-	1088	-	375
Stage 1	-	-	-	-	643
Stage 2	-	-	-	-	751
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1088	-	372
Mov Cap-2 Maneuver	-	-	-	-	372
Stage 1	-	-	-	-	643
Stage 2	-	-	-	-	746

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	12.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	510	-	-	1088	-
HCM Lane V/C Ratio	0.052	-	-	0.005	-
HCM Control Delay (s)	12.4	-	-	8.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection

Int Delay, s/veh 0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	409	1	17	259	3	43
Future Vol, veh/h	409	1	17	259	3	43
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	87	87	87	87	87	87
Heavy Vehicles, %	5	5	5	5	2	2
Mvmt Flow	470	1	20	298	3	49

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	471
Stage 1	-	-	471
Stage 2	-	-	338
Critical Hdwy	-	4.15	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	-	2.245	3.518
Pot Cap-1 Maneuver	-	1075	350
Stage 1	-	-	628
Stage 2	-	-	722
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1075	342
Mov Cap-2 Maneuver	-	-	342
Stage 1	-	-	628
Stage 2	-	-	706

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	12
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	566	-	-	1075	-
HCM Lane V/C Ratio	0.093	-	-	0.018	-
HCM Control Delay (s)	12	-	-	8.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection						
Int Delay, s/veh	3.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	40	12	39	5	5	10
Future Vol, veh/h	40	12	39	5	5	10
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	43	13	42	5	5	11

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	47	0	-	0	144 45
Stage 1	-	-	-	-	45 -
Stage 2	-	-	-	-	99 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1560	-	-	-	849 1025
Stage 1	-	-	-	-	977 -
Stage 2	-	-	-	-	925 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1560	-	-	-	825 1025
Mov Cap-2 Maneuver	-	-	-	-	825 -
Stage 1	-	-	-	-	950 -
Stage 2	-	-	-	-	925 -

Approach	EB	WB	SB
HCM Control Delay, s	5.7	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1560	-	-	-	948
HCM Lane V/C Ratio	0.028	-	-	-	0.017
HCM Control Delay (s)	7.4	0	-	-	8.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

MOVEMENT SUMMARY

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

2035 Future WP PM
 Site Category: Victory Heights
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] ft				
South: Grove Rd														
3	L2	5	3.0	6	3.0	0.295	12.4	LOS B	1.5	37.2	0.57	0.66	0.57	36.1
8	T1	180	3.0	217	3.0	0.295	6.3	LOS A	1.5	37.2	0.57	0.66	0.57	36.1
18	R2	22	3.0	27	3.0	0.295	6.5	LOS A	1.5	37.2	0.57	0.66	0.57	35.0
Approach		207	3.0	249	3.0	0.295	6.4	LOS A	1.5	37.2	0.57	0.66	0.57	36.0
East: Thorpe Rd														
1	L2	46	4.0	55	4.0	0.477	13.3	LOS B	2.9	74.8	0.65	0.81	0.70	35.5
6	T1	15	4.0	18	4.0	0.477	7.2	LOS A	2.9	74.8	0.65	0.81	0.70	35.5
16	R2	274	4.0	330	4.0	0.477	7.4	LOS A	2.9	74.8	0.65	0.81	0.70	34.4
Approach		335	4.0	404	4.0	0.477	8.2	LOS A	2.9	74.8	0.65	0.81	0.70	34.5
North: Grove Rd														
7	L2	176	7.0	212	7.0	0.327	10.2	LOS B	1.8	48.6	0.26	0.55	0.26	35.6
4	T1	255	7.0	307	7.0	0.327	4.0	LOS A	1.9	48.9	0.26	0.51	0.26	36.2
14	R2	240	7.0	289	7.0	0.327	4.5	LOS A	1.9	48.9	0.26	0.46	0.26	35.9
Approach		671	7.0	808	7.0	0.327	5.8	LOS A	1.9	48.9	0.26	0.50	0.26	35.9
West: Thorpe Rd														
5	L2	240	3.0	289	3.0	0.359	12.1	LOS B	1.5	39.5	0.54	0.82	0.54	33.8
2	T1	15	3.0	18	3.0	0.359	6.0	LOS A	1.5	39.5	0.54	0.82	0.54	33.8
12	R2	5	3.0	6	3.0	0.359	6.3	LOS A	1.5	39.5	0.54	0.82	0.54	32.9
Approach		260	3.0	313	3.0	0.359	11.6	LOS B	1.5	39.5	0.54	0.82	0.54	33.8
All Vehicles		1473	5.0	1775	5.0	0.477	7.5	LOS A	2.9	74.8	0.44	0.65	0.46	35.2

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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 Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Intersection												
Intersection Delay, s/veh	10.1											
Intersection LOS	B											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	185	18	45	78	24	26	51	35	46	116	25
Future Vol, veh/h	15	185	18	45	78	24	26	51	35	46	116	25
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	2	2	2
Mvmt Flow	17	208	20	51	88	27	29	57	39	52	130	28
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.5	9.7	9.3	10.3
HCM LOS	B	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	23%	7%	31%	25%
Vol Thru, %	46%	85%	53%	62%
Vol Right, %	31%	8%	16%	13%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	112	218	147	187
LT Vol	26	15	45	46
Through Vol	51	185	78	116
RT Vol	35	18	24	25
Lane Flow Rate	126	245	165	210
Geometry Grp	1	1	1	1
Degree of Util (X)	0.18	0.335	0.235	0.296
Departure Headway (Hd)	5.153	4.917	5.125	5.174
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	700	723	705	700
Service Time	3.162	3.016	3.125	3.174
HCM Lane V/C Ratio	0.18	0.339	0.234	0.3
HCM Control Delay	9.3	10.5	9.7	10.3
HCM Lane LOS	A	B	A	B
HCM 95th-tile Q	0.7	1.5	0.9	1.2

Intersection

Int Delay, s/veh 4.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	165	15	237	130	5	110
Future Vol, veh/h	165	15	237	130	5	110
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	1	1	0	0
Mvmt Flow	185	17	266	146	6	124

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	202	0	872 194
Stage 1	-	-	-	-	194 -
Stage 2	-	-	-	-	678 -
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	-	324 853
Stage 1	-	-	-	-	844 -
Stage 2	-	-	-	-	508 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1376	-	256 853
Mov Cap-2 Maneuver	-	-	-	-	256 -
Stage 1	-	-	-	-	844 -
Stage 2	-	-	-	-	401 -

Approach	EB	WB	NB
HCM Control Delay, s	0	5.3	10.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	774	-	-	1376	-
HCM Lane V/C Ratio	0.167	-	-	0.194	-
HCM Control Delay (s)	10.6	-	-	8.2	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.6	-	-	0.7	-

Intersection												
Int Delay, s/veh	12.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗		↕		↖	↕		↖	↕	
Traffic Vol, veh/h	0	0	185	5	5	15	115	874	5	45	1703	175
Future Vol, veh/h	0	0	185	5	5	15	115	874	5	45	1703	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	5	15	119	901	5	46	1756	180

Major/Minor	Minor2	Minor1		Major1		Major2						
Conflicting Flow All	-	-	968	2112	3170	453	1936	0	0	906	0	0
Stage 1	-	-	-	1142	1142	-	-	-	-	-	-	-
Stage 2	-	-	-	970	2028	-	-	-	-	-	-	-
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	257	30	11	559	300	-	-	753	-	-
Stage 1	0	0	-	217	278	-	-	-	-	-	-	-
Stage 2	0	0	-	276	102	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	-	-	257	~ 5	6	559	300	-	-	753	-	-
Mov Cap-2 Maneuver	-	-	-	~ 5	6	-	-	-	-	-	-	-
Stage 1	-	-	-	131	168	-	-	-	-	-	-	-
Stage 2	-	-	-	67	96	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	50.7	\$ 1047	2.8	0.2
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	300	-	-	257	13	753	-	-
HCM Lane V/C Ratio	0.395	-	-	0.742	1.983	0.062	-	-
HCM Control Delay (s)	24.6	-	-	50.7	\$ 1047	10.1	-	-
HCM Lane LOS	C	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	1.8	-	-	5.3	4	0.2	-	-

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

Intersection						
Int Delay, s/veh	82.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗	↘	↑↑	↑↑	
Traffic Vol, veh/h	0	371	371	1114	2113	0
Future Vol, veh/h	0	371	371	1114	2113	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	395	395	1185	2248	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	-	1124	2248	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 ~ 203	~ 223		-	-	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	- ~ 203	~ 223		-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	\$ 481.5	100.3	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT
Capacity (veh/h)	~ 223	-	203	-
HCM Lane V/C Ratio	1.77	-	1.944	-
HCM Control Delay (s)	\$ 401.4	-	\$ 481.5	-
HCM Lane LOS	F	-	F	-
HCM 95th %tile Q(veh)	27	-	29.1	-

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

HCM 6th TWSC
6: US 195 & W Thorpe Rd

Blue Fern Victory Heights
Future (2035) With-Project Weekday PM Peak Hour

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	529	0	0	155	0	1325	219	0	1715	694
Future Vol, veh/h	0	0	529	0	0	155	0	1325	219	0	1715	694
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	563	0	0	165	0	1410	233	0	1824	738

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	-	-	912	-	-	708	-	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	382	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	-	-	381	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB			SB		
HCM Control Delay, s	\$ 496.6		21.5		0			0		
HCM LOS	F		C							

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT
Capacity (veh/h)	-	-	280	381	-
HCM Lane V/C Ratio	-	-	2.01	0.433	-
HCM Control Delay (s)	-	-	\$ 496.6	21.5	-
HCM Lane LOS	-	-	F	C	-
HCM 95th %tile Q(veh)	-	-	40.5	2.1	-

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	1479	0	105	2124
Future Vol, veh/h	0	105	1479	0	105	2124
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	2	2	1	1
Mvmt Flow	0	112	1573	0	112	2260

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	787	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.9	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.3	-
Pot Cap-1 Maneuver	0	339	0
Stage 1	0	-	0
Stage 2	0	-	0
Platoon blocked, %			
Mov Cap-1 Maneuver	-	339	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.8	0	0.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBTWBLn1	SBL	SBT
Capacity (veh/h)	-	339	420
HCM Lane V/C Ratio	-	0.33	0.266
HCM Control Delay (s)	-	20.8	16.6
HCM Lane LOS	-	C	C
HCM 95th %tile Q(veh)	-	1.4	1.1

HCM 6th TWSC
 8: Cheney Spokane Rd & US 195 SB Off Ramp

Blue Fern Victory Heights
 Future (2035) With-Project Weekday PM Peak Hour

Intersection						
Int Delay, s/veh	14.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙			↗		↑
Traffic Vol, veh/h	155	0	0	675	192	811
Future Vol, veh/h	155	0	0	675	192	811
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	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	168	0	0	734	209	882

Major/Minor	Minor1	Major2
Conflicting Flow All	1300	0
Stage 1	0	-
Stage 2	1300	-
Critical Hdwy	6.41	4.11
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	5.41	-
Follow-up Hdwy	3.509	2.209
Pot Cap-1 Maneuver	179	0
Stage 1	-	0
Stage 2	257	0
Platoon blocked, %		
Mov Cap-1 Maneuver	179	-
Mov Cap-2 Maneuver	179	-
Stage 1	-	-
Stage 2	257	-

Approach	WB	SB
HCM Control Delay, s	105.1	
HCM LOS	F	

Minor Lane/Major Mvmt	WBLn1	SBL	SBT
Capacity (veh/h)	179	-	-
HCM Lane V/C Ratio	0.941	-	-
HCM Control Delay (s)	105.1	-	-
HCM Lane LOS	F	-	-
HCM 95th %tile Q(veh)	7.3	-	-

HCM 6th TWSC
 9: US 195 SB On/SB Off Ramp & Cheney Spokane Rd

Blue Fern Victory Heights
 Future (2035) With-Project Weekday PM Peak Hour

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	638	170	10	150	0	0	0	0	30	5	0
Future Vol, veh/h	0	638	170	10	150	0	0	0	0	30	5	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	701	187	11	165	0	0	0	0	33	5	0

Major/Minor	Major1			Major2			Minor2					
Conflicting Flow All	-	0	0	890	0	0				982	1077	167
Stage 1	-	-	-	-	-	-				187	187	-
Stage 2	-	-	-	-	-	-				795	890	-
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	-	-	766	-	0				279	221	882
Stage 1	0	-	-	-	-	0				850	749	-
Stage 2	0	-	-	-	-	0				448	364	-
Platoon blocked, %		-	-	-	-	-						
Mov Cap-1 Maneuver	-	-	-	766	-	-				275	0	880
Mov Cap-2 Maneuver	-	-	-	-	-	-				275	0	-
Stage 1	-	-	-	-	-	-				850	0	-
Stage 2	-	-	-	-	-	-				441	0	-

Approach	EB			WB			SB		
HCM Control Delay, s	0			0.6			20.2		
HCM LOS							C		

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	766	-	275
HCM Lane V/C Ratio	-	-	0.014	-	0.14
HCM Control Delay (s)	-	-	9.8	0	20.2
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q(veh)	-	-	0	-	0.5

Intersection

Int Delay, s/veh 8.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙				↑			↑				↗
Traffic Vol, veh/h	713	0	0	0	0	0	165	5	0	0	0	0
Future Vol, veh/h	713	0	0	0	0	0	165	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	0	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	1	-	-	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	801	0	0	0	0	0	185	6	0	0	0	0

Major/Minor	Major2	Minor1	Minor2
Conflicting Flow All	-	-	0 1 1 - - - 1
Stage 1	-	-	- 0 0 - - - -
Stage 2	-	-	- 1 1 - - - -
Critical Hdwy	-	-	- 7.12 6.52 - - - 6.2
Critical Hdwy Stg 1	-	-	- - - - - - - -
Critical Hdwy Stg 2	-	-	- 6.12 5.52 - - - -
Follow-up Hdwy	-	-	- 3.518 4.018 - - - 3.3
Pot Cap-1 Maneuver	0	-	0 1022 895 0 0 0 1090
Stage 1	0	-	0 - - 0 0 0 -
Stage 2	0	-	0 1022 895 0 0 0 -
Platoon blocked, %	-	-	- - - - - - - -
Mov Cap-1 Maneuver	-	-	- 1022 895 - - - 1090
Mov Cap-2 Maneuver	-	-	- 1022 895 - - - -
Stage 1	-	-	- - - - - - - -
Stage 2	-	-	- 1022 895 - - - -

Approach	WB	NB	SB
HCM Control Delay, s	0	9	0
HCM LOS		A	A

Minor Lane/Major Mvmt	NBLn1	WBT	SBLn1
Capacity (veh/h)	895	-	-
HCM Lane V/C Ratio	0.006	-	-
HCM Control Delay (s)	9	-	0
HCM Lane LOS	A	-	A
HCM 95th %tile Q(veh)	0	-	-

HCM 6th TWSC
11: US 195 & E Meadowlane Rd

Blue Fern Victory Heights
Future (2035) With-Project Weekday PM Peak Hour

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	245	0	0	15	5	861	10	5	1045	280
Future Vol, veh/h	0	0	245	0	0	15	5	861	10	5	1045	280
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	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0	5	5	5	2	2	2
Mvmt Flow	0	0	261	0	0	16	5	916	11	5	1112	298

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1590	2059	556	1498	2352	464	1410	0	0	927	0	0
Stage 1	1122	1122	-	932	932	-	-	-	-	-	-	-
Stage 2	468	937	-	566	1420	-	-	-	-	-	-	-
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	74	56	480	86	36	550	465	-	-	733	-	-
Stage 1	223	284	-	291	348	-	-	-	-	-	-	-
Stage 2	550	346	-	481	204	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	71	55	480	39	35	550	465	-	-	733	-	-
Mov Cap-2 Maneuver	71	55	-	39	35	-	-	-	-	-	-	-
Stage 1	221	282	-	288	344	-	-	-	-	-	-	-
Stage 2	528	342	-	218	203	-	-	-	-	-	-	-

Approach	EB		WB		NB			SB		
HCM Control Delay, s	21.1		11.7		0.1			0		
HCM LOS	C		B							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	465	-	-	480	550	733	-	-
HCM Lane V/C Ratio	0.011	-	-	0.543	0.029	0.007	-	-
HCM Control Delay (s)	12.8	-	-	21.1	11.7	9.9	-	-
HCM Lane LOS	B	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	3.2	0.1	0	-	-

Intersection						
Int Delay, s/veh	10.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↔↔		↖	↖↖
Traffic Vol, veh/h	5	571	460	70	509	656
Future Vol, veh/h	5	571	460	70	509	656
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	94	94	94	94	94	94
Heavy Vehicles, %	1	1	9	9	2	2
Mvmt Flow	5	607	489	74	541	698

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1957	282	0
Stage 1	526	-	-
Stage 2	1431	-	-
Critical Hdwy	6.82	6.92	-
Critical Hdwy Stg 1	5.82	-	-
Critical Hdwy Stg 2	5.82	-	-
Follow-up Hdwy	3.51	3.31	-
Pot Cap-1 Maneuver	56	718	-
Stage 1	560	-	-
Stage 2	188	-	-
Platoon blocked, %			-
Mov Cap-1 Maneuver	26	718	-
Mov Cap-2 Maneuver	26	-	-
Stage 1	560	-	-
Stage 2	87	-	-

Approach	WB	NB	SB
HCM Control Delay, s	31.1	0	5.5
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	718	1005
HCM Lane V/C Ratio	-	-	0.846	0.539
HCM Control Delay (s)	-	-	31.1	12.7
HCM Lane LOS	-	-	D	B
HCM 95th %tile Q(veh)	-	-	9.7	3.3

HCM 6th TWSC
 13: Access 1 (Westernmost) & W Thorpe Rd

Blue Fern Victory Heights
 Future (2035) With-Project Weekday PM Peak Hour

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	239	17	7	140	7	11
Future Vol, veh/h	239	17	7	140	7	11
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	91	91	91	91	91	91
Heavy Vehicles, %	0	0	1	1	2	2
Mvmt Flow	263	19	8	154	8	12

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	282	0	443 273
Stage 1	-	-	-	-	273 -
Stage 2	-	-	-	-	170 -
Critical Hdwy	-	-	4.11	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.209	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	1286	-	572 766
Stage 1	-	-	-	-	773 -
Stage 2	-	-	-	-	860 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1286	-	568 766
Mov Cap-2 Maneuver	-	-	-	-	568 -
Stage 1	-	-	-	-	773 -
Stage 2	-	-	-	-	854 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	10.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	675	-	-	1286	-
HCM Lane V/C Ratio	0.029	-	-	0.006	-
HCM Control Delay (s)	10.5	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

HCM 6th TWSC
 14: Access 2 (West) & W Thorpe Rd

Blue Fern Victory Heights
 Future (2035) With-Project Weekday PM Peak Hour

Intersection						
Int Delay, s/veh	0.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	244	6	28	145	2	15
Future Vol, veh/h	244	6	28	145	2	15
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	91	91	91	91	91	91
Heavy Vehicles, %	0	0	1	1	2	2
Mvmt Flow	268	7	31	159	2	16

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	275	0	493 272
Stage 1	-	-	-	-	272 -
Stage 2	-	-	-	-	221 -
Critical Hdwy	-	-	4.11	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.209	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	1294	-	535 767
Stage 1	-	-	-	-	774 -
Stage 2	-	-	-	-	816 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1294	-	521 767
Mov Cap-2 Maneuver	-	-	-	-	521 -
Stage 1	-	-	-	-	774 -
Stage 2	-	-	-	-	795 -

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	10.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	727	-	-	1294	-
HCM Lane V/C Ratio	0.026	-	-	0.024	-
HCM Control Delay (s)	10.1	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

HCM 6th TWSC
 15: Access (center) & W Thorpe Rd

Blue Fern Victory Heights
 Future (2035) With-Project Weekday PM Peak Hour

Intersection						
Int Delay, s/veh	5.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	229	30	301	162	11	187
Future Vol, veh/h	229	30	301	162	11	187
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	91	91	91	91	91	91
Heavy Vehicles, %	0	0	1	1	2	2
Mvmt Flow	252	33	331	178	12	205

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	285	0	1109
Stage 1	-	-	-	-	269
Stage 2	-	-	-	-	840
Critical Hdwy	-	-	4.11	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.209	-	3.518
Pot Cap-1 Maneuver	-	-	1283	-	232
Stage 1	-	-	-	-	776
Stage 2	-	-	-	-	424
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1283	-	166
Mov Cap-2 Maneuver	-	-	-	-	166
Stage 1	-	-	-	-	776
Stage 2	-	-	-	-	303

Approach	EB	WB	NB
HCM Control Delay, s	0	5.7	13.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	641	-	-	1283	-
HCM Lane V/C Ratio	0.339	-	-	0.258	-
HCM Control Delay (s)	13.5	-	-	8.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.5	-	-	1	-

HCM 6th TWSC
 16: Access 4 (East) & W Thorpe Rd

Blue Fern Victory Heights
 Future (2035) With-Project Weekday PM Peak Hour

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	406	10	15	459	4	11
Future Vol, veh/h	406	10	15	459	4	11
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	91	91	91	91	91	91
Heavy Vehicles, %	0	0	1	1	0	0
Mvmt Flow	446	11	16	504	4	12

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	457	0	988
Stage 1	-	-	-	-	452
Stage 2	-	-	-	-	536
Critical Hdwy	-	-	4.11	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.209	-	3.5
Pot Cap-1 Maneuver	-	-	1109	-	276
Stage 1	-	-	-	-	645
Stage 2	-	-	-	-	591
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1109	-	270
Mov Cap-2 Maneuver	-	-	-	-	270
Stage 1	-	-	-	-	645
Stage 2	-	-	-	-	579

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	13.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	457	-	-	1109	-
HCM Lane V/C Ratio	0.036	-	-	0.015	-
HCM Control Delay (s)	13.2	-	-	8.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection

Int Delay, s/veh 0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	413	4	47	472	2	31
Future Vol, veh/h	413	4	47	472	2	31
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	91	91	91	91	91	91
Heavy Vehicles, %	0	0	1	1	2	2
Mvmt Flow	454	4	52	519	2	34

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	458
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.11
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.209
Pot Cap-1 Maneuver	-	-	1108
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1108
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	12
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	548	-	-	1108	-
HCM Lane V/C Ratio	0.066	-	-	0.047	-
HCM Control Delay (s)	12	-	-	8.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Intersection						
Int Delay, s/veh	3.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	30	41	29	5	5	35
Future Vol, veh/h	30	41	29	5	5	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	45	32	5	5	38

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	37	0	-	0	146 35
Stage 1	-	-	-	-	35 -
Stage 2	-	-	-	-	111 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1574	-	-	-	846 1038
Stage 1	-	-	-	-	987 -
Stage 2	-	-	-	-	914 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1574	-	-	-	828 1038
Mov Cap-2 Maneuver	-	-	-	-	828 -
Stage 1	-	-	-	-	966 -
Stage 2	-	-	-	-	914 -

Approach	EB	WB	SB
HCM Control Delay, s	3.1	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1574	-	-	-	1006
HCM Lane V/C Ratio	0.021	-	-	-	0.043
HCM Control Delay (s)	7.3	0	-	-	8.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

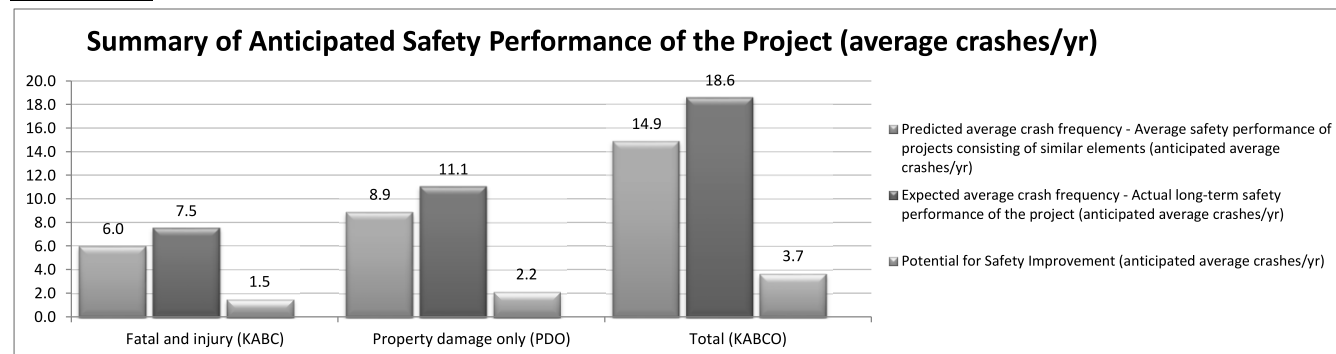
Appendix E: Safety Calculation Details

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	-	
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	Expected average crash frequency	Potential for Improvement	Predicted average crash frequency	Expected average crash frequency	Potential for Improvement	Predicted average crash frequency	Expected average crash frequency	Potential for Improvement
	N _{predicted (KABCO)}	N _{expected (KABCO)}		N _{predicted (KABC)}	N _{expected (KABC)}		N _{predicted (O)}	N _{expected (O)}	
INDIVIDUAL INTERSECTIONS									
Intersection 1	1.6	4.6	3.0	0.7	1.9	1.2	0.9	2.6	1.7
Intersection 2	2.2	0.6	0.0	0.8	0.2	0.0	1.4	0.4	0.0
Intersection 3	4.7	5.3	0.6	2.1	2.3	0.3	2.6	2.9	0.3
Intersection 4	2.1	0.7	0.0	0.8	0.3	0.0	1.3	0.5	0.0
Intersection 5	1.2	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	2.8	1.8	0.4	0.9	0.6	0.7	1.9	1.2
COMBINED (sum of column)	14.9	18.6	3.7	6.0	7.5	1.5	8.9	11.1	2.2

PROJECT SUMMARY -- Site-Specific EB Method Summary Results for Urban and Suburban Arterial Project

Crash severity level	N _{predicted (PROJECT)}	N _{expected (PROJECT)}	N _{potential for improvement (PROJECT)}
	Predicted average crash frequency - Average safety performance of projects consisting of similar elements (anticipated average crashes/yr)	Expected average crash frequency - Actual long-term safety performance of the project (anticipated average crashes/yr)	Potential for Safety Improvement (anticipated average crashes/yr)
Fatal and injury (KABC)	6.0	7.5	1.5
Property damage only (PDO)	8.9	11.1	2.2
Total (KABCO)	14.9	18.6	3.7

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 18.6 crashes per year (7.5 fatal and injury crashes per year; and 11.1 property damage only crashes per year).
2. A similar project is anticipated, on average, to experience 14.9 crashes per year (6 fatal and injury crashes per year; and 8.9 property damage only crashes per year).
3. It is anticipated the project has, on average, a potential for safety improvement of 3.7 crashes per year (1.5 fatal and injury crashes per year; and 2.2 property damage only crashes per year).

Appendix F: Trip Generation Calculations

Blue Fern Victory Heights

<u>Proposed Use</u>											
Land Use	Setting	Size	Units	Model	Equation	Rate	Units	Inbound %	Inbound	Gross Trips	Total Net New
									Inbound	Outbound	Total
Single-Family Attached Housing (LU 216)											
Daily	General Urban/Suburban	220 du	-	Equation (lin)	$T = 7.62x - 50.48$	-	-	50%	813	813	1,626
AM Peak Hour	General Urban/Suburban		-	Equation (lin)	$T = 0.52x - 5.70$	-	-	31%	34	75	109
PM Peak Hour	General Urban/Suburban		-	Equation (lin)	$T = 0.60x - 3.93$	-	-	57%	73	55	128
Single-Family Detached Housing (LU 210)											
Daily	General Urban/Suburban	783 du	-	Equation (log)	$\ln(T) = 0.92 \ln(x) + 2.68$	-	-	50%	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
PM Peak Hour	General Urban/Suburban		-	Equation (log)	$\ln(T) = 0.94 \ln(x) + 0.27$	-	-	63%	433	255	688
Subtotal											
Daily									4,164	4,164	8,328
AM Peak Hour									160	434	594
PM Peak Hour									506	310	816
Net New Trips											
Daily									4,164	4,164	8,328
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: I-90 Density and LOS Worksheets

HCS7 Basic Freeway Report

Project Information

Analyst	Transpo Group	Date	5/31/2023
Agency	WSDOT	Analysis Year	2023 Existing
Jurisdiction		Time Period Analyzed	AM Peak Hour
Project Description	Blue Fern Victory Heights		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	2926	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1090
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.45
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	75.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	14.5
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS7 Basic Freeway Report

Project Information

Analyst	Transpo Group	Date	5/31/2023
Agency	WSDOT	Analysis Year	2023 Existing
Jurisdiction		Time Period Analyzed	PM Peak Hour
Project Description	Blue Fern Victory Heights		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	3795	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1414
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.59
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	73.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.3
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS7 Basic Freeway Report

Project Information

Analyst	Transpo Group	Date	5/31/2023
Agency	WSDOT	Analysis Year	2035 Without-Project
Jurisdiction		Time Period Analyzed	AM Peak Hour
Project Description	Blue Fern Victory Heights		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	3827	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1426
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.59
Passenger Car Equivalent (ET)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	73.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.5
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS7 Basic Freeway Report

Project Information

Analyst	Transpo Group	Date	5/31/2023
Agency	WSDOT	Analysis Year	2035 Without-Project
Jurisdiction		Time Period Analyzed	PM Peak Hour
Project Description	Blue Fern Victory Heights		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	4965	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1849
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.77
Passenger Car Equivalent (ET)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.5
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS7 Basic Freeway Report

Project Information

Analyst	Transpo Group	Date	5/31/2023
Agency	WSDOT	Analysis Year	2035 With-Project
Jurisdiction		Time Period Analyzed	AM Peak Hour
Project Description	Blue Fern Victory Heights		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	3827	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1426
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.59
Passenger Car Equivalent (ET)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	73.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.5
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS7 Basic Freeway Report

Project Information

Analyst	Transpo Group	Date	5/31/2023
Agency		Analysis Year	2033 With-Project
Jurisdiction		Time Period Analyzed	PM Peak Hour
Project Description	Blue Fern Victory Heights		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	4965	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1849
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.77
Passenger Car Equivalent (ET)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.5
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS7 Freeway Diverge Report

Project Information

Analyst	Transpo Group	Date	5/31/2023
Agency	WSDOT	Analysis Year	2023 Existing
Jurisdiction		Time Period Analyzed	AM Peak Hour
Project Description	Blue Fern Victory Heights		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V _i), veh/h	835	642
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	1.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.990	0.990
Flow Rate (v _i), pc/h	897	690
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.19	0.34

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	8.4
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.490
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	-
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	59.0
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	1.000	Outer Lanes Freeway Speed (S _O), mi/h	-
Flow in Lanes 1 and 2 (V _{L2}), pc/h	897	Ramp Junction Speed (S), mi/h	59.0
Flow Entering Ramp-Infl. Area (V _{R12}), pc/h	-	Average Density (D), pc/mi/ln	7.6
Level of Service (LOS)	A		

HCS7 Freeway Diverge Report

Project Information

Analyst	Transpo Group	Date	5/31/2023
Agency	WSDOT	Analysis Year	2023 Existing
Jurisdiction		Time Period Analyzed	PM Peak Hour
Project Description	Blue Fern Victory Heights		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V _i), veh/h	638	494
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	1.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.990	0.990
Flow Rate (v _i), pc/h	686	531
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.14	0.27

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	6.6
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.476
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	-
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	59.5
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	1.000	Outer Lanes Freeway Speed (S _O), mi/h	-
Flow in Lanes 1 and 2 (V _{L2}), pc/h	686	Ramp Junction Speed (S), mi/h	59.5
Flow Entering Ramp-Infl. Area (V _{R12}), pc/h	-	Average Density (D), pc/mi/ln	5.8
Level of Service (LOS)	A		

HCS7 Freeway Diverge Report

Project Information

Analyst	Transpo Group	Date	5/31/2023
Agency	WSDOT	Analysis Year	2035 Without-Project
Jurisdiction		Time Period Analyzed	AM Peak Hour
Project Description	Blue Fern Victory Heights		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V _i), veh/h	1093	840
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	1.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.990	0.990
Flow Rate (v _i), pc/h	1175	903
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.24	0.45

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	10.8
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.509
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	-
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	58.4
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	1.000	Outer Lanes Freeway Speed (S _O), mi/h	-
Flow in Lanes 1 and 2 (V _{L2}), pc/h	1175	Ramp Junction Speed (S), mi/h	58.4
Flow Entering Ramp-Infl. Area (V _{R12}), pc/h	-	Average Density (D), pc/mi/ln	10.1
Level of Service (LOS)	B		

HCS7 Freeway Diverge Report

Project Information

Analyst	Transpo Group	Date	5/31/2023
Agency	WSDOT	Analysis Year	2035 Without-Project
Jurisdiction		Time Period Analyzed	PM Peak Hour
Project Description	Blue Fern Victory Heights		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V _i), veh/h	835	646
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	1.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.990	0.990
Flow Rate (v _i), pc/h	897	694
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.19	0.35

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	8.4
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.490
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	-
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	59.0
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	1.000	Outer Lanes Freeway Speed (S _O), mi/h	-
Flow in Lanes 1 and 2 (V _{L2}), pc/h	897	Ramp Junction Speed (S), mi/h	59.0
Flow Entering Ramp-Infl. Area (V _{R12}), pc/h	-	Average Density (D), pc/mi/ln	7.6
Level of Service (LOS)	A		

HCS7 Freeway Diverge Report

Project Information

Analyst	Transpo Group	Date	5/31/2023
Agency	WSDOT	Analysis Year	2035 With-Project
Jurisdiction		Time Period Analyzed	AM Peak Hour
Project Description	Blue Fern Victory Heights		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V _i), veh/h	1093	1014
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	1.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.990	0.990
Flow Rate (v _i), pc/h	1175	1090
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.24	0.55

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	10.8
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _S)	0.526
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	-
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	57.8
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	1.000	Outer Lanes Freeway Speed (S _O), mi/h	-
Flow in Lanes 1 and 2 (v ₁₂), pc/h	1175	Ramp Junction Speed (S), mi/h	57.8
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	10.2
Level of Service (LOS)	B		

HCS7 Freeway Diverge Report

Project Information

Analyst	Transpo Group	Date	5/31/2023
Agency	WSDOT	Analysis Year	2035 With-Project
Jurisdiction		Time Period Analyzed	PM Peak Hour
Project Description	Blue Fern Victory Heights		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V _i), veh/h	835	770
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	1.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.990	0.990
Flow Rate (v _i), pc/h	897	827
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.19	0.41

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	8.4
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _S)	0.502
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	-
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	58.6
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	1.000	Outer Lanes Freeway Speed (S _O), mi/h	-
Flow in Lanes 1 and 2 (v ₁₂), pc/h	897	Ramp Junction Speed (S), mi/h	58.6
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	7.7
Level of Service (LOS)	A		

HCS7 Freeway Merge Report

Project Information

Analyst	Transpo Group	Date	5/30/2023
Agency	WSDOT	Analysis Year	2023
Jurisdiction		Time Period Analyzed	AM Peak Hour
Project Description	Blue Fern Victory Heights		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	64.0	45.0
Segment Length (L) / Acceleration Length (L _A), ft	970	465
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V _i), veh/h	2926	642
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.93	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.918	0.980
Flow Rate (v _i), pc/h	3391	697
Capacity (c), pc/h	6900	2100
Volume-to-Capacity Ratio (v/c)	0.59	0.33

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	1032.7	Density in Ramp Influence Area (D _R), pc/mi/ln	25.9
Distance to Upstream Ramp (L _{UP}), ft	1250	Speed Index (M _s)	0.360
Downstream Equilibrium Distance (L _{EQ}), ft	8224.6	Flow Outer Lanes (v _{OA}), pc/h/ln	1058
Distance to Downstream Ramp (L _{DOWN}), ft	2470	On-Ramp Influence Area Speed (S _R), mi/h	56.1
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.688	Outer Lanes Freeway Speed (S _O), mi/h	62.0
Flow in Lanes 1 and 2 (V _{L12}), pc/h	2333	Ramp Junction Speed (S), mi/h	57.5
Flow Entering Ramp-Infl. Area (V _{R12}), pc/h	3030	Average Density (D), pc/mi/ln	23.7
Level of Service (LOS)	C		

HCS7 Freeway Merge Report

Project Information

Analyst	Transpo Group	Date	5/30/2023
Agency	WSDOT	Analysis Year	2023 Existing
Jurisdiction	WSDOT	Time Period Analyzed	PM Peak Hour
Project Description	Blue Fern Victory Heights		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	64.0	45.0
Segment Length (L) / Acceleration Length (L _A), ft	970	465
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V _i), veh/h	3795	494
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.61	8.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.921	0.920
Flow Rate (v _i), pc/h	4384	571
Capacity (c), pc/h	6900	2100
Volume-to-Capacity Ratio (v/c)	0.72	0.27

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	1218.2	Density in Ramp Influence Area (D _R), pc/mi/ln	30.3
Distance to Upstream Ramp (L _{UP}), ft	1250	Speed Index (M _S)	0.420
Downstream Equilibrium Distance (L _{EQ}), ft	8224.6	Flow Outer Lanes (v _{OA}), pc/h/ln	1368
Distance to Downstream Ramp (L _{DOWN}), ft	2470	On-Ramp Influence Area Speed (S _R), mi/h	54.8
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.688	Outer Lanes Freeway Speed (S _O), mi/h	60.9
Flow in Lanes 1 and 2 (V _{L12}), pc/h	3016	Ramp Junction Speed (S), mi/h	56.4
Flow Entering Ramp-Infl. Area (V _{R12}), pc/h	3587	Average Density (D), pc/mi/ln	29.3
Level of Service (LOS)	D		

HCS7 Freeway Merge Report

Project Information

Analyst	Transpo Group	Date	5/30/2023
Agency	WSDOT	Analysis Year	2035 Without-Project
Jurisdiction	WSDOT	Time Period Analyzed	AM Peak Hour
Project Description	Blue Fern Victory Heights		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	64.0	45.0
Segment Length (L) / Acceleration Length (L _A), ft	970	465
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V _i), veh/h	3827	840
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.93	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.918	0.980
Flow Rate (v _i), pc/h	4435	912
Capacity (c), pc/h	6900	2100
Volume-to-Capacity Ratio (v/c)	0.77	0.43

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	1302.1	Density in Ramp Influence Area (D _R), pc/mi/ln	34.4
Distance to Upstream Ramp (L _{UP}), ft	1250	Speed Index (M _s)	0.520
Downstream Equilibrium Distance (L _{EQ}), ft	10314.2	Flow Outer Lanes (v _{OA}), pc/h/ln	1224
Distance to Downstream Ramp (L _{DOWN}), ft	2470	On-Ramp Influence Area Speed (S _R), mi/h	52.6
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.724	Outer Lanes Freeway Speed (S _o), mi/h	61.4
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3211	Ramp Junction Speed (S), mi/h	54.4
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	4123	Average Density (D), pc/mi/ln	32.8
Level of Service (LOS)	D		

HCS7 Freeway Merge Report

Project Information

Analyst	Transpo Group	Date	5/30/2023
Agency	WSDOT	Analysis Year	2035 Without-Project
Jurisdiction	WSDOT	Time Period Analyzed	PM Peak Hour
Project Description	Blue Fern Victory Heights		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	64.0	45.0
Segment Length (L) / Acceleration Length (L _A), ft	970	465
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V _i), veh/h	4965	646
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.61	8.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.921	0.920
Flow Rate (v _i), pc/h	5735	747
Capacity (c), pc/h	6900	2100
Volume-to-Capacity Ratio (v/c)	0.94	0.36

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	1545.0	Density in Ramp Influence Area (D _R), pc/mi/ln	40.5
Distance to Upstream Ramp (L _{UP}), ft	1250	Speed Index (M _s)	0.799
Downstream Equilibrium Distance (L _{EQ}), ft	10267.5	Flow Outer Lanes (v _{OA}), pc/h/ln	1589
Distance to Downstream Ramp (L _{DOWN}), ft	2470	On-Ramp Influence Area Speed (S _R), mi/h	46.4
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.723	Outer Lanes Freeway Speed (S _o), mi/h	60.1
Flow in Lanes 1 and 2 (v ₁₂), pc/h	4146	Ramp Junction Speed (S), mi/h	49.1
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	4893	Average Density (D), pc/mi/ln	44.0
Level of Service (LOS)	E		

HCS7 Freeway Merge Report

Project Information

Analyst	Transpo Group	Date	5/30/2023
Agency	WSDOT	Analysis Year	2035 With-Project
Jurisdiction	WSDOT	Time Period Analyzed	AM Peak Hour
Project Description	Blue Fern Victory Heights		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	64.0	45.0
Segment Length (L) / Acceleration Length (L _A), ft	970	465
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V _i), veh/h	3827	1014
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.93	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.918	0.980
Flow Rate (v _i), pc/h	4435	1101
Capacity (c), pc/h	6900	2100
Volume-to-Capacity Ratio (v/c)	0.80	0.52

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	1342.6	Density in Ramp Influence Area (D _R), pc/mi/ln	35.8
Distance to Upstream Ramp (L _{UP}), ft	1250	Speed Index (M _s)	0.570
Downstream Equilibrium Distance (L _{EQ}), ft	10314.2	Flow Outer Lanes (v _{OA}), pc/h/ln	1224
Distance to Downstream Ramp (L _{DOWN}), ft	2470	On-Ramp Influence Area Speed (S _R), mi/h	51.5
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.724	Outer Lanes Freeway Speed (S _o), mi/h	61.4
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3211	Ramp Junction Speed (S), mi/h	53.4
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	4312	Average Density (D), pc/mi/ln	34.6
Level of Service (LOS)	E		

HCS7 Freeway Merge Report

Project Information

Analyst	Transpo Group	Date	5/30/2023
Agency	WSDOT	Analysis Year	2035 With-Project
Jurisdiction	WSDOT	Time Period Analyzed	PM Peak Hour
Project Description	Blue Fern Victory Heights		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	64.0	45.0
Segment Length (L) / Acceleration Length (L _A), ft	970	465
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V _i), veh/h	4965	770
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	8.61	8.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.921	0.920
Flow Rate (v _i), pc/h	5735	890
Capacity (c), pc/h	6900	2100
Volume-to-Capacity Ratio (v/c)	0.96	0.42

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	1575.6	Density in Ramp Influence Area (D _R), pc/mi/ln	41.5
Distance to Upstream Ramp (L _{UP}), ft	1250	Speed Index (M _s)	0.879
Downstream Equilibrium Distance (L _{EQ}), ft	10267.5	Flow Outer Lanes (v _{OA}), pc/h/ln	1589
Distance to Downstream Ramp (L _{DOWN}), ft	2470	On-Ramp Influence Area Speed (S _R), mi/h	44.7
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.723	Outer Lanes Freeway Speed (S _O), mi/h	60.1
Flow in Lanes 1 and 2 (v ₁₂), pc/h	4146	Ramp Junction Speed (S), mi/h	47.6
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	5036	Average Density (D), pc/mi/ln	46.4
Level of Service (LOS)	E		



Calculations provided by Transpo Group

Whipple Consulting Engineers

Queuing Spreadsheet

This spread sheet utilizes the Queuing Formula from the Transportation and Traffic Engineering Handbook, 2nd Edition

Victory Heights Blue Fern 1/7/2023 By Job No. 1.23122.00 2023 AM Existing shh

Max. Service Rate = 1200 vph
Min. Service Rate = 800 vph

Service Rate = mu 20.00 Vehicles / Minute

Arrival Rate = lambda 642 Vehicles / Hour 10.70 Vehicles / Minute 9.30

Average Queue Length = E(m) Eq. 15.113 from Appendix Vehicles/Minute

E(m) = lambda^2 / (mu(mu - lambda)) Vehicles / Minute

Average Queue Length = E(m) = 0.54 Vehicles / Minute

Per hour 32.1 Vehicles / Hr

Per lane 17 Vehicles/hr/lane Veh = 25 ft

Queue Length/lane 425 ft



Calculations provided by Transpo Group

Whipple Consulting Engineers

Queuing Spreadsheet

This spread sheet utilizes the Queuing Formula from the Transporation and Traffic Engineering Handbook, 2nd Edition

Victory Heights Blue Fern 1/7/2023 By Job No. 1.23122.00 2023 AM Existing shh

Max. Service Rate = 800 vph

Min. Service Rate = 300 vph

Service Rate = μ 13.33 Vehicles / Minute 800

Arrival Rate = λ 494 Vehicles / Hour 8.23 Vehicles / Minute 5.10

Average Queue Length = $E(m)$ Eq. 15.113 from Appendix Vehicles/Minute

$$E(m) = \frac{\lambda^2}{\mu(\mu - \lambda)} \text{ Vehicles / Minute}$$

Average Queue Length = $E(m)$ = 0.62 Vehicles / Minute

Per hour 37.05 Vehicles / Hr

Per lane 19 Vehicles/hr/lane Veh = 25 ft

Queue Length/lane 475 ft



Calculations provided by Transpo Group

Whipple Consulting Engineers

Queuing Spreadsheet

This spread sheet utilizes the Queuing Formula from the
Transportation and Traffic Engineering Handbook, 2nd Edition

Victory Heights Blue Fern		Job No.	1.23122.00	2035 AM With-Project
1/7/2023	By	shh		

Max. Service Rate	=	1200 vph
Min. Service Rate	=	800 vph

Service Rate = μ **20.00** Vehicles / Minute

Arrival Rate =	λ	1014 Vehicles / Hour	16.90 Vehicles / Minute
			3.10

Average Queue Length = $E(m)$ Eq. 15.113 from Appendix Vehicles/Minute

$$E(m) = \frac{\lambda^2}{\mu(\mu - \lambda)} \quad \text{Vehicles / Minute}$$

Average Queue Length = $E(m)$ = 0.85 Vehicles / Minute

Per hour 50.7 Vehicles / Hr

Per lane 26 Vehicles/hr/lane Veh = 25 ft

Queue Length/lane 650 ft

Appendix H: Detailed Vissim Results

IMPROVEMENT STAGING:

0. Do Nothing

Improvements:	1. Add SB Accel to SR195 Tunnels										2. Add Short Tunnel				3. Add Signal to West Tunnel				3. Widen Both Tunnels			
	X	EF	EZF	FG	A	AH	AH2	AEF	AEZF	AFG	B	BH	BH2	BF	BEF	BEZF	BG	BDG	BD2G	BFG		
A. More Aggressive Merging to SR195																						
B. SR195 Acceleration Lane (400')																						
C. 10% Polite Driver Metering																						
D. Add Short Tunnel Signal (Act. wQFlush)																						
D2. Add Short Tunnel Signal (Fixed Time)																						
E. Add Long Tunnel Signal (Act. wQFlush)																						
E2. Add Long Tunnel Signal (Fixed Time)																						
H. Add Both Tunnel Signal (Act. wQFlush)																						
H2. Add Both Tunnel Signal (Fixed Time)																						
F. Widen Short Tunnel																						
G. Widen Long Tunnel																						

Year	Development	Unserviced Vehicles (Latent Demand): Networkwide (veh)																			
		X	EF	EZF	FG	A	AH	AH2	AEF	AEZF	AFG	B	BH	BH2	BF	BEF	BEZF	BG	BDG	BD2G	BFG
Existing (2023)		0	1	0	0	0	1	0	1	0	0	1	0	0	0	1	0	0	0	0	0
Baseline	φ1 (2026)	20	11	13	10	7	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0
	φ2 (2027)	66	12	14	10	20	2	1	2	0	1	0	2	0	0	2	0	0	0	0	0
	φ3 (2029)	52	15	16	13	29	2	0	2	0	1	0	1	0	0	1	0	0	0	0	0
	φ4 (2030)	55	17	18	15	13	2	2	2	2	1	0	1	0	0	1	0	0	0	0	0
	φ5 (2032)	57	17	18	15	8	2	2	2	2	1	0	1	0	0	1	0	0	0	0	0
	φ6 (2033)	49	18	21	16	12	3	2	3	2	1	0	1	0	0	1	0	0	0	0	0
	φ7 (2034)	90	21	22	19	23	3	2	2	2	1	0	1	0	0	1	0	0	0	0	0
	φ8 (2035)	88	20	22	19	48	3	3	3	3	2	0	1	0	0	1	0	0	0	0	0
	φ1 (2026)	92	22	24	20	40	3	3	2	3	2	0	0	0	0	0	0	0	0	0	0
	φ2 (2027)	144	30	32	28	62	7	8	7	7	4	2	2	0	0	2	0	0	0	0	0
Project Build	φ3 (2029)	190	46	48	44	153	18	19	16	18	13	40	2	0	1	0	0	0	0	0	
	φ4 (2030)	458	71	74	68	399	41	43	40	41	37	276	2	0	0	0	0	0	0	0	
	φ5 (2032)	704	108	109	106	676	76	71	74	76	69	706	1	1	1	1	0	0	0	0	
	φ6 (2033)	831	121	105	119	821	92	73	89	79	84	777	4	5	3	3	6	0	0	0	
	φ7 (2034)	819	136	120	137	829	99	101	101	97	99	912	15	39	14	13	32	0	0	0	
	φ8 (2035)	957	135	150	148	984	105	140	107	131	113	981	30	85	41	29	70	0	0	0	

Year	Development	Average Vehicle Delay: Networkwide (sec/veh)																			
		X	EF	EZF	FG	A	AH	AH2	AEF	AEZF	AFG	B	BH	BH2	BF	BEF	BEZF	BG	BDG	BD2G	BFG
Existing (2023)		3	8	6	2	2	9	6	7	5	2	1	8	6	1	7	4	1	3	3	1
Baseline	φ1 (2026)	90	68	67	67	66	47	46	45	45	41	4	11	10	3	7	8	2	5	5	1
	φ2 (2027)	119	69	68	68	80	45	45	44	44	39	4	14	10	3	11	8	2	5	5	1
	φ3 (2029)	103	69	69	69	76	48	48	46	47	42	4	13	10	3	10	8	2	5	5	1
	φ4 (2030)	115	71	70	70	71	50	50	49	49	43	4	13	11	3	10	8	2	5	5	1
	φ5 (2032)	116	70	69	70	71	50	50	48	49	45	4	11	10	3	8	8	2	5	5	1
	φ6 (2033)	110	72	70	70	73	52	51	50	50	47	4	13	10	3	9	8	2	5	5	1
	φ7 (2034)	127	72	70	71	82	52	52	51	51	48	4	12	11	4	9	8	2	5	5	1
	φ8 (2035)	120	71	69	71	88	52	54	52	54	49	5	12	11	4	9	8	2	5	5	1
	φ1 (2026)	129	73	71	73	96	54	55	53	54	52	5	12	12	4	8	9	2	6	6	1
	φ2 (2027)	147	75	73	74	108	61	60	59	59	58	15	16	13	5	12	9	3	6	6	1
Project Build	φ3 (2029)	155	77	75	77	143	66	64	65	63	64	41	17	14	6	12	10	3	7	7	2
	φ4 (2030)	196	79	76	77	168	72	70	71	69	70	123	21	19	11	14	14	4	8	8	2
	φ5 (2032)	211	81	81	78	207	75	77	75	75	72	219	28	38	27	23	31	7	10	10	2
	φ6 (2033)	226	82	87	77	228	76	87	77	83	72	226	36	57	42	31	47	10	11	12	2
	φ7 (2034)	221	83	104	77	222	77	105	79	101	72	238	45	83	59	42	73	14	14	15	2
	φ8 (2035)	238	85	118	76	240	81	117	82	114	72	242	55	99	75	54	91	26	18	22	2

Year	Development	Average Travel Time: WB Thorpe from SB195 ML (sec)																				
		X	EF	EZF	FG	A	AH	AH2	AEF	AEZF	AFG	B	BH	BH2	BF	BEF	BEZF	BG	BDG	BD2G	BFG	
Existing (2023)	Existing	100	111	113	87	100	122	123	111	113	87	100	122	123	95	111	113	92	103	103	87	
Baseline	φ1 (2026)	848	115	116	88	523	132	131	114	116	88	110	132	131	102	115	116	95	105	106	88	
	φ2 (2027)	753	114	117	88	490	130	131	114	117	88	111	130	131	103	115	117	95	105	106	88	
	φ3 (2029)	870	115	117	88	486	132	131	115	117	88	111	132	131	103	115	117	95	105	106	88	
	φ4 (2030)	770	115	117	88	549	132	131	115	117	88	111	132	131	102	116	117	95	106	106	88	
	φ5 (2032)	801	115	118	88	541	132	132	115	118	88	110	133	132	103	116	118	95	106	106	88	
	φ6 (2033)	788	115	117	88	583	132	130	115	117	88	111	133	131	103	116	117	95	105	106	88	
	φ7 (2034)	764	115	117	88	638	132	132	115	117	88	111	132	132	103	116	117	95	106	105	88	
	φ8 (2035)	906	115	117	88	554	133	132	115	117	88	112	133	132	103	116	117	95	106	106	88	
	Project Build	φ1 (2026)	942	115	118	88	600	134	133	116	118	88	113	135	133	105	117	118	95	106	107	88
		φ2 (2027)	877	116	119	88	709	135	136	116	119	88	115	136	136	107	117	119	96	107	107	88
φ3 (2029)		902	118	120	88	675	138	139	119	120	88	121	139	139	110	119	120	97	108	108	88	
φ4 (2030)		1438	124	126	88	1165	145	152	124	126	88	129	147	152	123	126	126	100	109	110	88	
φ5 (2032)		456	142	173	89	201	152	201	144	174	89	142	158	200	167	149	174	107	112	116	89	
φ6 (2033)		127	155	242	89	172	156	261	155	240	89	153	161	261	233	163	239	113	113	120	89	
φ7 (2034)		117	170	326	89	149	175	329	172	326	89	130	183	333	320	187	322	124	115	131	89	
φ8 (2035)		112	198	383	89	114	195	375	197	377	89	116	209	377	387	222	379	152	118	155	89	

Year	Development	Average Travel Time: EB Thorpe to SB 195 ML (sec)																				
		X	EF	EZF	FG	A	AH	AH2	AEF	AEZF	AFG	B	BH	BH2	BF	BEF	BEZF	BG	BDG	BD2G	BFG	
Existing (2023)	Existing	104	120	126	92	96	128	134	113	119	84	80	111	116	76	95	100	72	86	86	68	
Baseline	φ1 (2026)	407	1319	1362	1279	327	648	636	632	637	589	90	121	120	83	102	107	75	91	90	68	
	φ2 (2027)	406	1303	1405	1319	331	565	625	573	620	569	90	121	120	83	101	107	75	90	90	68	
	φ3 (2029)	417	1393	1489	1385	346	644	675	619	682	624	90	122	120	83	102	107	75	90	90	68	
	φ4 (2030)	425	1495	1575	1447	334	685	724	687	733	633	91	121	121	83	101	108	75	90	91	68	
	φ5 (2032)	430	1477	1539	1459	364	722	746	716	748	692	91	121	120	83	102	107	75	90	91	68	
	φ6 (2033)	426	1536	1642	1485	352	740	790	745	792	723	91	121	121	84	102	107	75	90	91	68	
	φ7 (2034)	435	1624	1689	1580	364	777	798	779	802	754	91	121	121	84	102	108	75	90	91	68	
	φ8 (2035)	450	1574	1673	1560	348	793	846	790	865	776	92	121	121	85	101	107	75	90	92	68	
	Project Build	φ1 (2026)	424	1476	1506	1432	346	754	769	752	786	734	94	123	123	85	104	109	76	92	91	68
		φ2 (2027)	388	1527	1598	1504	367	828	875	840	875	833	97	125	124	87	103	110	76	92	92	68
φ3 (2029)		463	1678	1750	1643	371	977	1005	972	1002	954	103	129	128	92	106	112	77	93	92	69	
φ4 (2030)		385	1693	1800	1672	403	1082	1109	1089	1128	1090	126	138	142	113	109	125	80	95	95	69	
φ5 (2032)		413	1787	1823	1789	380	1157	1091	1194	1214	1178	157	192	232	186	153	212	88	100	99	69	
φ6 (2033)		399	1798	1424	1799	382	1182	954	1213	1069	1228	151	246	271	229	204	251	98	107	102	69	
φ7 (2034)		513	1765	1132	1857	453	1106	903	1194	954	1239	171	296	301	278	259	280	112	121	110	69	
φ8 (2035)		442	1499	1020	1846	316	1028	843	1104	912	1272	195	320	313	305	287	292	153	142	115	69	

Year	Development	Average Travel Time: SB 195 Through Trip (sec)																				
		X	EF	EZF	FG	A	AH	AH2	AEF	AEZF	AFG	B	BH	BH2	BF	BFF	BEZF	BG	BDG	BD2G	BFG	
Existing (2023)	Existing	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	
		121	44	44	44	80	44	44	44	44	44	43	43	43	43	43	43	43	43	43	43	43
		190	44	44	44	116	44	44	44	44	44	43	43	43	43	44	44	44	43	44	44	43
		163	44	44	44	116	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
		159	44	44	44	97	44	44	44	44	44	43	44	44	44	44	44	44	43	44	44	43
		176	44	44	44	85	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
		166	44	44	44	99	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
		215	44	44	44	126	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
Project Build	Existing	199	44	44	44	137	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	
		235	44	44	44	126	44	44	44	44	44	44	44	44	43	44	44	43	44	44	43	
		293	44	44	44	180	44	44	44	44	44	48	44	44	44	44	44	44	44	44	44	43
		329	44	44	44	287	44	44	44	44	44	88	44	44	44	44	44	44	44	44	44	44
		616	44	44	44	519	44	44	44	44	44	347	44	44	44	44	44	44	44	44	44	44
		887	44	44	44	859	44	47	44	44	45	798	44	44	46	45	44	44	44	44	44	44
		960	44	44	44	932	44	73	44	44	56	807	45	71	57	44	44	56	45	44	44	44
		927	44	110	44	924	46	127	44	107	44	896	49	130	80	47	109	45	44	44	45	44
1013	51	157	44	988	54	168	50	152	44	957	60	174	117	63	149	53	44	44	49	44		

50th Percentile Max Queue: WB Queue at Westwood Lane (ft)																										
Year	Development	X	EF	EZF	FG	A	AH	AH2	AEF	AEZF	AFG	B	BH	BH2	BF	BEF	BEZF	BG	BDG	BD2G	BFG					
Existing (2023)	Existing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Baseline	Existing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Build	Existing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

50th Percentile Max Queue: WB Queue at West Tunnel (ft)																						
Year	Development	X	EF	EZF	FG	A	AH	AH2	AEF	AEZF	AFG	B	BH	BH2	BF	BEF	BEZF	BG	BDG	BD2G	BFG	
Existing (2023)	Existing	16	93	93	0	16	35	34	93	93	200	0	16	35	34	19	93	93	0	0	0	0
		140	191	200	0	134	96	81	197	200	200	0	124	96	81	116	197	200	0	0	0	0
		218	191	203	0	147	93	80	197	203	203	0	122	97	80	113	198	203	0	0	0	0
		146	202	205	0	142	93	80	203	205	205	0	127	99	80	118	203	205	0	0	0	0
		216	206	215	0	120	103	78	211	215	215	0	111	100	78	110	208	215	0	0	0	0
		186	197	210	0	129	104	84	204	210	210	0	122	104	84	127	205	210	0	0	0	0
		204	204	209	0	108	104	87	201	209	209	0	140	102	87	125	203	209	0	0	0	0
		191	198	207	0	141	99	94	198	207	207	0	133	99	94	127	198	207	0	0	0	0
Baseline	Existing	193	196	220	0	176	103	89	203	220	220	0	136	103	89	125	204	220	0	0	0	0
		157	222	236	0	194	109	93	225	236	236	0	149	110	93	149	228	236	0	0	0	0
		240	240	252	0	155	124	118	244	252	252	0	195	127	118	161	244	252	0	0	0	0
		233	282	292	0	231	150	130	284	292	292	0	254	152	130	225	282	292	0	0	0	0
		181	367	369	0	167	179	174	359	369	369	0	418	182	174	346	364	369	0	0	0	0
		127	441	464	0	190	204	214	441	466	466	0	473	212	215	437	449	465	0	0	0	0
		265	473	480	0	333	212	216	469	482	482	0	475	217	219	402	473	482	0	0	0	0
		207	485	485	0	218	221	222	486	485	485	0	476	219	222	394	486	487	0	0	0	0
Project Build	Existing	379	486	488	0	380	225	226	487	488	488	0	475	233	225	385	489	487	0	0	0	0

		50th Percentile Max Queue: WB Queue at East Tunnel (ft)																			
Year	Development	X	EF	EZF	FG	A	AH	AH2	AEF	AEZF	AFG	B	BH	BH2	BF	BEF	BEZF	BG	BDG	BD2G	BFG
Existing (2023)	Existing	8	0	0	0	8	95	97	0	0	0	9	95	97	0	0	0	6	76	68	0
Baseline	φ1 (2026)	606	0	0	0	590	197	192	0	0	0	63	199	192	0	0	0	58	152	150	0
	φ2 (2027)	631	0	0	0	598	191	209	0	0	0	67	199	209	0	0	0	56	150	154	0
	φ3 (2029)	650	0	0	0	539	209	209	0	0	0	68	210	209	0	0	0	63	153	161	0
	φ4 (2030)	642	0	0	0	569	204	213	0	0	0	62	208	213	0	0	0	69	158	151	0
	φ5 (2032)	628	0	0	0	562	198	207	0	0	0	70	196	207	0	0	0	62	165	156	0
	φ6 (2033)	622	0	0	0	590	201	210	0	0	0	71	206	210	0	0	0	68	156	159	0
	φ7 (2034)	646	0	0	0	568	203	221	0	0	0	73	205	221	0	0	0	66	151	153	0
	φ8 (2035)	618	0	0	0	605	209	214	0	0	0	66	209	214	0	0	0	74	164	154	0
Project Build	φ1 (2026)	631	0	0	0	615	225	226	0	0	0	84	234	226	0	0	0	77	174	181	0
	φ2 (2027)	657	0	0	0	643	234	242	0	0	0	101	234	242	0	0	0	87	189	187	0
	φ3 (2029)	649	0	0	0	636	280	303	0	0	0	184	280	303	0	0	0	111	212	211	0
	φ4 (2030)	659	6	24	0	624	377	409	15	24	0	495	383	409	53	13	24	172	293	281	0
	φ5 (2032)	655	142	307	0	656	467	586	165	307	0	661	498	586	343	189	307	308	350	394	0
	φ6 (2033)	658	301	581	0	659	528	643	289	578	0	660	528	649	526	305	578	364	410	427	0
	φ7 (2034)	657	416	657	0	658	590	669	422	659	0	655	594	670	575	470	658	532	437	497	0
	φ8 (2035)	654	572	671	0	657	627	670	570	673	0	654	641	673	548	605	672	575	497	606	0

		50th Percentile Max Queue: EB Queue at Westwood Ln (ft)																			
Year	Development	X	EF	EZF	FG	A	AH	AH2	AEF	AEZF	AFG	B	BH	BH2	BF	BEF	BEZF	BG	BDG	BD2G	BFG
Existing (2023)	Existing	0	53	57	0	0	53	57	53	57	0	0	53	57	0	53	57	0	0	0	0
Baseline	φ1 (2026)	102	730	781	632	65	305	306	283	283	106	14	193	218	14	194	218	0	0	2	0
	φ2 (2027)	176	736	848	700	121	273	306	265	296	84	16	192	215	17	192	215	0	0	0	0
	φ3 (2029)	92	809	894	729	119	255	267	233	258	59	15	200	211	19	200	211	0	0	0	0
	φ4 (2030)	263	897	973	789	41	311	349	307	333	107	20	195	207	16	195	207	0	0	0	0
	φ5 (2032)	275	884	979	793	80	325	347	284	341	109	11	199	211	18	199	211	0	0	0	0
	φ6 (2033)	301	932	1019	873	32	328	378	300	346	116	15	192	217	15	192	217	0	0	0	0
	φ7 (2034)	308	990	1009	905	55	369	383	356	363	205	15	207	217	18	207	217	0	0	1	0
	φ8 (2035)	352	979	1011	932	199	334	419	315	390	189	18	202	222	24	202	222	0	0	0	0
Project Build	φ1 (2026)	232	1044	1057	962	175	421	450	393	428	258	19	215	254	31	217	254	0	0	0	0
	φ2 (2027)	376	1083	1108	1076	172	570	649	544	598	459	75	230	262	42	233	262	1	2	1	0
	φ3 (2029)	516	1107	1105	1116	530	964	987	907	947	781	214	267	282	97	260	282	0	0	1	0
	φ4 (2030)	360	1108	1108	1121	421	1106	1102	1105	1104	1107	747	330	361	228	299	361	0	0	1	2
	φ5 (2032)	568	1110	1110	1119	488	1108	1105	1109	1110	1121	1080	593	847	702	546	847	3	2	1	1
	φ6 (2033)	780	1112	1108	1121	883	1107	1102	1108	1108	1119	1082	835	1003	860	776	1004	11	7	7	3
	φ7 (2034)	1029	1108	1104	1121	1004	1106	1104	1107	1105	1121	1079	1052	1094	911	1057	1095	40	26	20	2
	φ8 (2035)	1096	1108	1108	1117	1049	1106	1101	1105	1107	1107	1123	1085	1100	867	1101	1102	304	72	16	6

Year	Development	50th Percentile Max Queue: EB Queue at West Tunnel (ft)																				
		X	EF	EZF	FG	A	AH	AH2	AEF	AEZF	AFG	B	BH	BH2	BF	BEF	BEZF	BG	BDG	BD2G	BFG	
Existing (2023)	Existing	19	0	0	0	19	0	0	0	0	19	0	0	0	19	0	0	0	0	0	0	0
Baseline	φ1 (2026)	88	158	163	168	92	72	63	58	57	66	102	0	0	108	0	0	0	0	0	0	0
	φ2 (2027)	111	158	156	170	94	51	54	48	44	49	105	0	0	110	0	0	0	0	0	0	0
	φ3 (2029)	89	153	160	164	74	76	77	55	63	58	103	0	0	106	0	0	0	0	0	0	0
	φ4 (2030)	121	158	165	167	85	73	86	61	71	47	109	0	0	107	0	0	0	0	0	0	0
	φ5 (2032)	115	160	159	165	80	74	71	61	64	74	113	0	0	108	0	0	0	0	0	0	0
	φ6 (2033)	116	160	160	164	78	100	98	94	95	106	113	0	0	109	0	0	0	0	0	0	0
	φ7 (2034)	121	159	161	168	86	91	104	92	94	105	115	0	0	110	0	0	0	0	0	0	0
	φ8 (2035)	116	159	162	165	81	105	124	100	125	115	113	0	0	114	0	0	0	0	0	0	0
Project Build	φ1 (2026)	104	161	162	165	103	110	124	114	116	129	112	0	0	122	0	0	0	0	0	0	0
	φ2 (2027)	126	162	161	168	119	138	149	123	153	165	134	0	0	133	0	0	0	0	0	0	0
	φ3 (2029)	122	160	163	167	128	153	156	153	157	173	143	0	0	134	0	0	0	0	0	0	0
	φ4 (2030)	115	159	166	169	122	155	159	156	160	173	150	0	0	158	0	0	0	0	0	0	0
	φ5 (2032)	150	160	165	172	160	155	159	158	164	175	146	0	0	156	0	0	0	0	0	0	0
	φ6 (2033)	156	162	164	172	153	155	158	156	158	175	146	0	0	158	0	0	4	0	0	0	0
	φ7 (2034)	167	161	160	171	164	155	156	159	159	174	145	0	0	152	0	0	37	39	13	0	0
	φ8 (2035)	155	158	157	170	148	151	154	153	156	175	143	0	0	148	0	0	96	56	20	0	0

Year	Development	50th Percentile Max Queue: EB Queue at East Tunnel (ft)																				
		X	EF	EZF	FG	A	AH	AH2	AEF	AEZF	AFG	B	BH	BH2	BF	BEF	BEZF	BG	BDG	BD2G	BFG	
Existing (2023)	Existing	6	0	0	0	6	37	38	0	0	0	7	37	38	0	0	0	6	59	52	0	0
Baseline	φ1 (2026)	373	617	616	618	232	432	426	388	409	381	70	134	93	0	0	0	59	172	160	0	0
	φ2 (2027)	480	620	617	617	313	394	403	359	397	385	76	141	95	0	0	0	50	175	164	0	0
	φ3 (2029)	403	616	616	616	306	467	499	421	486	477	71	136	96	0	0	0	55	176	169	0	0
	φ4 (2030)	483	617	619	615	294	510	507	489	502	468	69	130	95	0	0	0	58	170	174	0	0
	φ5 (2032)	425	620	615	621	285	481	514	477	508	510	77	130	96	0	0	0	58	173	176	0	0
	φ6 (2033)	412	617	616	619	299	506	528	506	525	551	71	132	99	0	0	0	67	174	171	0	0
	φ7 (2034)	457	617	615	617	343	520	553	516	545	545	76	137	87	0	0	0	60	172	178	0	0
	φ8 (2035)	453	621	617	619	348	567	580	557	579	568	67	140	102	0	0	0	68	173	184	0	0
Project Build	φ1 (2026)	470	621	619	623	381	551	561	557	573	589	82	148	112	0	0	0	72	184	192	0	0
	φ2 (2027)	482	620	620	622	393	604	611	612	620	613	147	159	111	0	0	0	81	198	199	0	0
	φ3 (2029)	516	618	621	620	453	613	612	620	623	621	219	170	126	0	0	0	97	216	219	0	0
	φ4 (2030)	510	623	619	623	487	617	616	626	624	626	430	198	145	0	0	0	143	246	262	0	0
	φ5 (2032)	595	622	623	623	604	614	611	624	625	626	590	219	159	0	0	0	245	322	314	0	0
	φ6 (2033)	603	624	624	623	597	612	611	625	623	625	588	224	160	0	0	0	345	360	342	0	0
	φ7 (2034)	613	624	620	624	610	611	609	624	621	624	590	224	161	0	0	0	441	446	397	0	0
	φ8 (2035)	601	624	623	622	595	611	606	623	620	626	588	231	158	0	0	0	500	491	429	0	0

Year	Development	50th Percentile Max Queue: EB Queue at Right Turn to SB 195 (ft)																				
		X	EF	EZF	FG	A	AH	AH2	AEF	AEZF	AFG	B	BH	BH2	BF	BEF	BEZF	BG	BDG	BD2G	BFG	
Existing (2023)	Existing	69	75	76	69	63	65	71	73	74	62	0	0	0	0	0	0	0	0	0	0	
Baseline	φ1 (2026)	602	680	679	681	539	666	664	674	678	680	0	0	0	0	0	0	0	0	0	0	
	φ2 (2027)	471	677	679	682	513	612	669	641	679	674	0	0	0	0	0	0	0	0	0	0	
	φ3 (2029)	599	677	680	679	510	655	670	666	678	674	0	0	0	0	0	0	0	0	0	0	
	φ4 (2030)	477	679	682	681	560	666	671	671	681	680	0	0	0	0	0	0	0	0	0	0	
	φ5 (2032)	493	677	681	680	587	672	672	682	683	683	0	0	0	0	0	0	0	0	0	0	
	φ6 (2033)	532	681	679	680	600	670	673	682	680	683	0	0	0	0	0	0	0	0	0	0	
	φ7 (2034)	479	679	681	681	553	671	672	683	680	680	0	0	0	0	0	0	0	0	0	0	
	φ8 (2035)	476	680	680	680	561	674	674	682	680	683	0	0	0	0	0	0	0	0	0	0	
	Project Build	φ1 (2026)	528	677	679	682	453	670	674	682	685	684	0	0	0	0	0	0	0	0	0	0
		φ2 (2027)	463	679	681	683	517	671	673	684	682	684	0	0	0	0	0	0	0	0	0	0
φ3 (2029)		459	681	681	683	391	675	673	685	684	683	0	0	0	0	0	0	0	0	0	0	
φ4 (2030)		543	685	681	684	471	675	673	687	687	687	0	0	0	0	0	0	0	0	0	0	
φ5 (2032)		548	682	681	682	551	673	677	688	687	686	0	0	0	0	0	0	0	0	0	0	
φ6 (2033)		344	682	684	683	277	677	678	687	687	687	0	0	0	0	0	0	0	0	0	0	
φ7 (2034)		483	681	684	682	414	677	674	689	689	687	0	0	0	0	0	0	0	0	0	0	
φ8 (2035)		208	684	687	684	138	676	674	687	687	686	0	0	0	0	0	0	0	0	0	0	

Year	Development	95th Percentile Max Queue: WB Queue at Westwood Lane (ft)																			
		X	EF	EZF	FG	A	AH	AH2	AEF	AEZF	AFG	B	BH	BH2	BF	BEF	BEZF	BG	BDG	BD2G	BFG
Existing (2023)	Existing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Baseline	φ1 (2026)	1	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	4	0
	φ2 (2027)	2	0	0	0	15	0	0	0	0	0	3	0	0	4	0	0	0	0	2	0
	φ3 (2029)	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0
	φ4 (2030)	0	0	0	0	0	0	0	0	0	0	8	0	0	7	0	0	0	0	0	0
	φ5 (2032)	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0
	φ6 (2033)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	14
	φ7 (2034)	0	0	0	0	0	0	0	0	0	0	2	0	0	3	0	0	0	8	0	3
	φ8 (2035)	6	0	0	0	17	0	0	0	0	0	4	0	0	0	0	0	0	4	5	3
Project Build	φ1 (2026)	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	8	11	0
	φ2 (2027)	0	0	0	0	4	0	0	0	0	0	9	0	0	4	0	0	5	0	0	0
	φ3 (2029)	0	0	0	0	0	0	0	0	0	0	9	0	0	4	0	0	6	0	5	3
	φ4 (2030)	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	11	0	10	9
	φ5 (2032)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21	19	22	8
	φ6 (2033)	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	16	18	16	10
	φ7 (2034)	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	1	32	15	9
	φ8 (2035)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	49	17	19

Year	Development	95th Percentile Max Queue: WB Queue at West Tunnel (ft)																			
		X	EF	EZF	FG	A	AH	AH2	AEF	AEZF	AFG	B	BH	BH2	BF	BEF	BEZF	BG	BDG	BD2G	BFG
Existing (2023)	Existing	25	113	116	0	25	42	41	113	116	0	25	42	41	27	113	116	0	0	0	0
	φ1 (2026)	278	225	241	0	243	123	106	234	241	0	138	125	106	134	235	241	0	0	0	0
Baseline	φ2 (2027)	411	224	250	0	389	108	105	219	250	0	161	121	105	149	226	250	0	0	0	0
	φ3 (2029)	269	222	233	0	257	125	103	222	233	0	157	125	103	146	222	233	0	0	0	0
	φ4 (2030)	405	230	261	0	278	129	108	232	261	0	163	131	108	151	230	261	0	0	0	0
	φ5 (2032)	385	223	226	0	281	120	106	223	226	0	149	121	106	144	221	226	0	0	0	0
	φ6 (2033)	307	217	247	0	212	121	107	219	247	0	160	128	107	161	217	247	0	0	0	0
	φ7 (2034)	357	232	254	0	300	124	103	226	254	0	167	126	103	171	232	254	0	0	0	0
	φ8 (2035)	349	224	259	0	292	132	100	232	259	0	160	129	100	174	240	259	0	0	0	0
	φ1 (2026)	421	259	258	0	331	145	119	264	258	0	195	144	119	180	264	258	0	0	0	0
	φ2 (2027)	441	260	303	0	377	143	136	266	303	0	265	144	136	226	270	303	0	0	0	0
	φ3 (2029)	395	327	328	0	461	171	161	325	328	0	325	177	161	260	338	328	0	0	0	0
Project Build	φ4 (2030)	313	407	434	0	358	193	206	406	434	0	459	194	206	385	412	434	0	0	0	0
	φ5 (2032)	219	468	486	0	283	221	237	467	486	0	475	237	241	471	477	486	0	0	0	0
	φ6 (2033)	267	483	490	0	372	223	235	480	491	0	477	230	249	463	482	489	0	0	0	0
	φ7 (2034)	273	493	491	0	279	240	230	493	491	0	477	244	233	463	492	495	0	0	0	0
	φ8 (2035)	384	495	491	0	417	246	238	494	494	0	476	251	233	472	494	492	6	6	0	0

Year	Development	95th Percentile Max Queue: WB Queue at East Tunnel (ft)																			
		X	EF	EZF	FG	A	AH	AH2	AEF	AEZF	AFG	B	BH	BH2	BF	BEF	BEZF	BG	BDG	BD2G	BFG
Existing (2023)	Existing	21	0	0	0	21	114	114	0	0	0	19	114	114	0	0	0	17	89	95	0
	φ1 (2026)	662	0	0	0	642	235	244	0	0	0	77	238	244	0	0	0	84	175	169	0
Baseline	φ2 (2027)	669	0	0	0	658	228	238	0	0	0	99	223	238	0	0	0	83	184	172	0
	φ3 (2029)	667	0	0	0	665	232	243	0	0	0	75	232	243	0	0	0	75	170	175	0
	φ4 (2030)	665	0	0	0	664	231	251	0	0	0	88	237	251	0	0	0	81	176	167	0
	φ5 (2032)	664	0	0	0	645	222	235	0	0	0	82	225	235	0	0	0	80	180	178	0
	φ6 (2033)	661	0	0	0	641	221	244	0	0	0	99	231	244	0	0	0	85	186	185	0
	φ7 (2034)	665	0	0	0	660	242	270	0	0	0	90	242	270	0	0	0	78	178	190	0
	φ8 (2035)	660	0	0	0	664	228	256	0	0	0	83	230	256	0	0	0	91	182	182	0
	φ1 (2026)	663	0	0	0	656	258	268	0	0	0	100	262	268	0	0	0	103	190	196	0
	φ2 (2027)	660	2	3	0	666	262	300	2	3	0	211	261	300	9	2	3	112	211	206	0
	Project Build	φ3 (2029)	663	2	7	0	664	304	340	10	7	0	342	307	340	18	10	7	139	250	243
φ4 (2030)		664	29	45	0	657	429	465	29	45	0	571	429	465	109	53	45	230	328	319	0
φ5 (2032)		657	271	410	0	657	526	623	295	410	0	661	569	623	481	325	410	387	414	437	0
φ6 (2033)		659	430	627	0	660	590	673	452	626	0	663	596	670	604	482	629	509	469	525	0
φ7 (2034)		657	591	675	0	658	645	679	604	678	0	655	643	679	666	633	676	585	502	620	0
φ8 (2035)		656	633	678	0	659	662	680	631	679	0	657	662	679	615	640	675	630	572	640	0

Year	Development	95th Percentile Max Queue: EB Queue at Westwood Ln (ft)																				
		X	EF	EZF	FG	A	AH	AH2	AEF	AEZF	AFG	B	BH	BH2	BF	BEF	BEZF	BG	BDG	BD2G	BFG	
Existing (2023)	Existing	1	65	71	0	1	65	71	65	71	0	1	65	71	0	65	71	3	2	0	0	
Baseline	φ1 (2026)	391	1118	1112	1120	385	645	679	571	635	359	61	216	239	38	216	239	3	2	2	3	
	φ2 (2027)	835	1109	1111	1125	725	641	513	588	357	51	226	241	32	227	241	1	2	4	1	1	
	φ3 (2029)	489	1115	1114	1123	512	684	845	563	796	498	26	225	246	34	225	246	8	2	2	2	
	φ4 (2030)	734	1116	1118	1126	422	783	878	730	826	524	26	225	249	33	225	249	12	5	2	2	
	φ5 (2032)	691	1118	1116	1123	450	870	938	789	906	666	39	221	238	50	221	238	1	2	1	4	
	φ6 (2033)	605	1117	1118	1129	224	846	998	815	963	754	32	225	245	44	225	245	2	11	3	2	
	φ7 (2034)	676	1115	1115	1125	368	925	1035	892	1006	793	44	222	248	41	222	248	2	5	2	2	
	φ8 (2035)	635	1115	1114	1125	376	953	1078	912	1085	851	47	235	248	49	235	248	3	3	4	5	
	Project Build	φ1 (2026)	893	1117	1112	1127	650	984	1053	937	1037	823	82	249	277	53	249	277	2	3	6	2
		φ2 (2027)	936	1119	1116	1128	729	1047	1113	1039	1110	1063	239	260	292	75	266	292	11	7	15	7
φ3 (2029)		959	1118	1112	1125	1007	1111	1115	1111	1112	1123	478	284	321	148	297	321	5	3	20	2	
φ4 (2030)		631	1117	1114	1125	993	1111	1112	1113	1113	1123	872	377	424	337	346	421	5	9	11	8	
φ5 (2032)		629	1119	1116	1128	550	1116	1111	1114	1113	1127	1080	717	960	899	676	960	11	11	27	10	
φ6 (2033)		849	1117	1112	1125	960	1113	1110	1111	1112	1128	1084	949	1031	1026	943	1029	51	17	23	15	
φ7 (2034)		1048	1116	1108	1125	1018	1114	1111	1113	1110	1127	1082	1080	1106	1054	1081	1106	197	63	34	8	
φ8 (2035)		1100	1111	1113	1126	1080	1112	1110	1111	1112	1127	1094	1107	1109	981	1109	1109	437	156	34	19	

Year	Development	95th Percentile Max Queue: EB Queue at West Tunnel (ft)																			
		X	EF	EZF	FG	A	AH	AH2	AEF	AEZF	AFG	B	BH	BH2	BF	BEF	BEZF	BG	BDG	BD2G	BFG
Existing (2023)	Existing	29	0	0	0	29	0	0	0	0	0	29	0	0	34	0	0	0	0	0	0
Baseline	φ1 (2026)	135	170	168	176	118	156	161	147	161	168	127	0	0	125	0	0	0	0	0	0
	φ2 (2027)	139	167	172	173	127	110	159	113	154	161	126	0	0	132	0	0	0	0	0	0
	φ3 (2029)	137	168	169	176	118	150	161	151	159	174	118	0	0	110	0	0	0	0	0	0
	φ4 (2030)	145	164	173	175	114	153	163	151	167	177	129	0	0	119	0	0	0	0	0	0
	φ5 (2032)	147	168	173	174	117	154	164	156	167	175	120	0	0	134	0	0	0	0	0	0
	φ6 (2033)	144	168	171	176	128	162	161	160	164	177	130	0	0	134	0	0	0	0	0	0
	φ7 (2034)	147	169	171	175	129	160	166	161	166	179	135	0	0	125	0	0	0	0	0	0
	φ8 (2035)	149	170	173	174	115	162	168	162	172	177	127	0	0	128	0	0	0	0	0	0
Project Build	φ1 (2026)	153	169	170	177	137	159	165	161	166	179	144	0	0	137	0	0	0	0	0	0
	φ2 (2027)	156	166	170	179	145	162	171	166	169	178	149	0	0	141	0	0	0	0	0	0
	φ3 (2029)	162	169	174	177	153	163	169	162	172	177	150	0	0	149	0	0	0	0	0	0
	φ4 (2030)	143	168	170	178	154	164	170	165	168	181	158	0	0	161	0	0	0	0	0	0
	φ5 (2032)	164	165	173	177	172	160	166	164	169	178	154	0	0	164	0	0	21	3	0	0
	φ6 (2033)	162	167	170	182	160	159	166	163	164	181	155	0	0	161	0	0	55	20	16	0
	φ7 (2034)	172	168	170	182	168	163	164	162	165	182	152	0	0	156	0	0	94	83	36	0
φ8 (2035)	157	170	167	181	153	158	164	160	165	179	151	0	0	157	0	0	128	118	52	0	

Year	Development	Average Delay: SB 195 to Thorpe (sec/veh)																						
		X	EF	EZF	FG	A	AH	AH2	AEF	AEZF	AFG	B	BH	BH2	BF	BEF	BEZF	BG	BDG	BD2G	BFG			
Existing (2023)	Existing	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
		218	3	3	3	119	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
		162	3	3	3	111	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
		283	3	3	3	113	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
		213	3	3	3	164	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
		236	3	3	3	118	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
		199	3	3	3	132	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
		248	3	3	3	168	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
		231	3	3	3	161	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
		249	3	3	3	140	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Project Build	Project Build	316	3	3	3	216	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
		269	3	3	3	232	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
		553	3	3	3	327	3	4	3	3	3	4	3	4	3	3	3	3	3	3	3	3	3	
		179	3	8	3	4	4	23	3	9	3	4	5	22	9	4	9	4	4	4	4	4	4	3
		12	4	42	3	21	6	70	4	40	3	7	7	68	34	5	40	6	4	5	5	3	3	
		15	8	109	3	11	17	131	8	108	3	7	21	136	80	14	105	9	4	9	4	9	3	3
		6	23	157	4	6	33	176	23	153	4	6	42	176	107	39	155	28	5	25	25	4	4	
		6	23	157	4	6	33	176	23	153	4	6	42	176	107	39	155	28	5	25	25	4	4	

Year	Development	Average Delay: EB RT to SB 195 (sec/veh)																					
		X	EF	EZF	FG	A	AH	AH2	AEF	AEZF	AFG	B	BH	BH2	BF	BEF	BEZF	BG	BDG	BD2G	BFG		
Existing (2023)	Existing	23	24	24	23	15	16	17	17	17	15	0	0	0	0	0	0	0	0	0	0	0	0
		189	377	380	380	168	229	228	232	233	232	0	1	1	1	0	0	0	0	1	1	1	0
		207	376	384	386	166	217	225	223	228	230	0	1	1	1	0	0	0	0	1	1	1	0
		194	394	402	402	173	232	237	234	241	240	0	1	1	1	0	0	0	0	1	1	1	0
		197	413	414	413	169	240	245	246	249	242	0	1	1	1	0	0	0	0	1	1	1	0
		196	406	410	416	173	251	251	255	254	255	0	1	1	1	0	0	0	0	1	1	1	0
		202	419	425	419	171	255	256	261	260	262	0	1	1	1	0	0	0	0	1	1	1	0
		208	438	435	442	177	256	256	263	260	266	0	1	1	1	0	0	0	0	1	1	1	0
		206	426	433	434	173	260	268	266	273	268	0	1	1	1	0	0	0	0	1	1	1	0
		Project Build	Project Build	184	385	380	387	156	234	238	240	243	243	0	1	1	0	0	0	0	1	1	1
170	386			386	392	156	242	245	248	248	251	0	1	1	1	0	0	0	1	1	1	0	
172	401			399	402	148	253	256	255	256	258	0	1	1	1	0	0	0	1	1	1	0	
138	385			389	387	128	257	254	259	258	263	0	1	1	1	0	0	0	0	1	1	1	0
139	391			377	395	122	260	240	266	260	267	0	1	1	1	0	0	0	0	1	1	1	0
170	385			305	395	131	263	211	267	231	273	1	1	1	1	0	0	0	0	1	1	1	0
135	383			250	405	114	245	199	262	207	271	0	1	1	1	0	0	0	0	1	1	1	0
158	328			224	396	106	228	184	242	196	275	0	1	1	1	0	0	0	0	1	1	1	0

Year	Development	Average Delay: WB Through East Tunnel (sec/veh)																			
		X	EF	EZF	FG	A	AH	AH2	AEF	AEZF	AFG	B	BH	BH2	BF	BEF	BEZF	BG	BDG	BD2G	BFG
Existing (2023)	Existing	1	0	0	0	1	22	23	0	0	0	1	22	23	0	0	0	1	14	13	0
Baseline	φ1 (2026)	183	0	0	0	122	24	25	0	0	0	3	24	25	0	0	0	3	15	15	0
	φ2 (2027)	201	0	0	0	146	22	25	0	0	3	24	25	0	0	0	0	3	15	15	0
	φ3 (2029)	286	0	0	0	133	24	25	0	0	3	24	25	0	0	0	0	3	15	16	0
	φ4 (2030)	203	0	0	0	172	24	25	0	0	3	24	25	0	0	0	0	3	15	15	0
	φ5 (2032)	230	0	0	0	139	24	25	0	0	3	24	25	0	0	0	0	3	15	15	0
	φ6 (2033)	146	0	0	0	129	23	24	0	0	3	24	24	0	0	0	0	3	15	15	0
	φ7 (2034)	227	0	0	0	157	24	25	0	0	3	24	25	0	0	0	0	3	15	15	0
	φ8 (2035)	218	0	0	0	166	24	26	0	0	3	24	26	0	0	0	0	3	16	15	0
Project Build	φ1 (2026)	267	0	0	0	182	25	25	0	0	4	25	25	0	0	0	0	3	16	16	0
	φ2 (2027)	233	0	1	0	170	24	27	1	1	4	24	27	1	1	0	1	4	16	16	0
	φ3 (2029)	190	1	1	0	179	25	28	1	1	7	26	28	1	1	1	1	5	17	17	0
	φ4 (2030)	442	2	3	0	249	29	34	2	3	11	30	34	4	2	3	3	8	18	19	0
	φ5 (2032)	149	11	31	0	11	33	56	13	31	0	20	36	56	27	15	31	14	20	24	0
	φ6 (2033)	15	20	58	0	46	35	67	20	58	0	27	38	66	49	25	58	19	22	27	0
	φ7 (2034)	39	32	70	0	21	43	70	33	71	0	25	45	71	73	40	70	25	23	34	0
	φ8 (2035)	11	44	76	0	13	46	72	44	76	0	12	49	72	87	50	76	36	25	41	0

Year	Development	Average Delay: EB Through East Tunnel (sec/veh)																			
		X	EF	EZF	FG	A	AH	AH2	AEF	AEZF	AFG	B	BH	BH2	BF	BEF	BEZF	BG	BDG	BD2G	BFG
Existing (2023)	Existing	1	0	0	0	1	14	14	0	0	0	1	14	14	0	0	0	1	16	15	0
Baseline	φ1 (2026)	94	289	292	293	52	146	141	145	146	3	17	12	12	0	0	0	3	20	19	0
	φ2 (2027)	81	287	296	300	56	127	140	127	143	4	19	12	12	0	0	0	2	19	19	0
	φ3 (2029)	97	302	311	313	57	145	148	144	153	4	18	12	12	0	0	0	2	19	19	0
	φ4 (2030)	92	324	324	327	59	155	156	158	163	3	18	12	12	0	0	0	3	19	20	0
	φ5 (2032)	96	313	319	326	68	163	162	165	168	4	17	12	12	0	0	0	3	19	20	0
	φ6 (2033)	93	329	332	331	70	168	168	172	174	4	18	12	12	0	0	0	3	19	20	0
	φ7 (2034)	96	345	342	352	73	171	172	175	179	4	18	12	12	0	0	0	3	19	20	0
	φ8 (2035)	95	334	343	343	62	177	183	182	192	4	18	12	12	0	0	0	3	19	20	0
Project Build	φ1 (2026)	95	305	301	309	63	160	158	164	167	4	18	13	13	0	0	0	3	20	20	0
	φ2 (2027)	81	310	310	318	73	171	173	176	179	5	20	13	13	0	0	0	4	21	21	0
	φ3 (2029)	105	331	330	335	75	192	192	198	200	7	21	15	15	0	0	0	5	22	21	0
	φ4 (2030)	97	323	329	328	73	204	200	213	220	13	24	17	17	0	1	1	7	23	23	0
	φ5 (2032)	88	338	325	344	87	209	191	225	219	22	27	19	19	0	1	1	15	27	27	0
	φ6 (2033)	91	333	259	344	83	211	167	227	194	236	20	29	20	0	1	1	20	32	29	0
	φ7 (2034)	88	332	210	355	85	197	156	224	172	236	35	31	19	0	1	1	28	39	33	0
	φ8 (2035)	49	285	189	349	45	182	144	208	164	242	24	32	19	0	1	1	41	46	36	0

Year	Development	Average Delay: WB Through West Tunnel (sec/veh)																			
		X	EF	EZF	FG	A	AH	AH2	AEF	AEZF	AFG	B	BH	BH2	BF	BEF	BEZF	BG	BDG	BD2G	BFG
Existing (2023)	Existing	2	21	22	0	2	8	8	21	22	0	2	8	8	1	21	22	0	0	0	0
Baseline	φ1 (2026)	41	23	24	0	11	15	13	23	24	0	10	15	13	8	24	24	0	0	0	0
	φ2 (2027)	12	22	25	0	11	14	12	23	25	0	10	15	12	9	23	25	0	0	0	0
	φ3 (2029)	17	23	24	0	15	15	12	23	24	0	10	15	12	9	24	24	0	0	0	0
	φ4 (2030)	29	23	25	0	19	15	12	24	25	0	10	15	12	8	24	25	0	0	0	0
	φ5 (2032)	19	23	26	0	10	15	13	24	26	0	9	15	13	9	24	26	0	0	0	0
	φ6 (2033)	13	23	25	0	48	16	13	24	25	0	10	16	13	9	24	25	0	0	0	0
	φ7 (2034)	16	23	25	0	34	15	13	23	25	0	10	15	13	9	24	25	0	0	0	0
	φ8 (2035)	62	23	25	0	22	16	13	24	25	0	11	15	13	9	24	25	0	0	0	0
Project Build	φ1 (2026)	68	24	26	0	42	17	14	24	26	0	11	17	14	10	25	26	0	0	0	0
	φ2 (2027)	57	24	27	0	39	18	15	24	27	0	13	18	15	12	25	27	0	0	0	0
	φ3 (2029)	19	26	28	0	15	20	17	26	28	0	19	20	17	15	27	28	0	0	0	0
	φ4 (2030)	56	30	32	0	23	23	23	30	32	0	20	23	23	24	32	32	0	0	0	0
	φ5 (2032)	39	39	44	0	200	25	30	39	44	0	25	27	30	38	41	44	0	0	0	0
	φ6 (2033)	24	42	49	0	25	25	31	42	49	0	27	26	31	49	44	49	0	0	0	0
	φ7 (2034)	27	42	51	0	33	25	32	42	51	0	27	26	31	61	43	51	0	1	1	1
	φ8 (2035)	19	41	52	0	20	25	32	41	52	0	8	25	32	80	42	52	0	1	1	1

Year	Development	Average Delay: EB Through West Tunnel (sec/veh)																			
		X	EF	EZF	FG	A	AH	AH2	AEF	AEZF	AFG	B	BH	BH2	BF	BEF	BEZF	BG	BDG	BD2G	BFG
Existing (2023)	Existing	2	0	0	0	2	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0
Baseline	φ1 (2026)	24	171	173	179	11	68	64	67	66	69	6	1	1	6	1	1	0	0	0	0
	φ2 (2027)	19	170	178	185	12	51	61	56	64	66	6	1	1	6	1	1	0	0	0	0
	φ3 (2029)	26	182	191	194	11	68	73	65	78	78	6	1	1	6	1	1	0	0	0	0
	φ4 (2030)	27	198	200	204	13	74	77	78	83	78	6	1	1	6	1	1	0	0	0	0
	φ5 (2032)	27	190	195	202	15	77	80	78	86	92	6	1	1	6	1	1	0	0	0	0
	φ6 (2033)	25	202	208	208	15	84	89	88	93	99	7	1	1	6	1	1	0	0	0	0
	φ7 (2034)	27	214	211	223	17	86	88	90	94	101	6	1	1	6	1	1	0	0	0	0
	φ8 (2035)	34	208	212	217	10	91	96	94	104	104	6	1	1	7	1	1	0	0	0	0
Project Build	φ1 (2026)	32	189	186	195	21	82	81	87	89	98	7	1	1	7	1	1	0	0	0	0
	φ2 (2027)	29	197	197	205	25	92	93	98	100	110	8	1	1	8	1	1	0	0	0	0
	φ3 (2029)	40	213	211	221	22	111	110	116	117	126	9	1	1	9	1	1	0	0	0	0
	φ4 (2030)	35	212	215	220	36	121	117	130	129	143	13	1	1	13	1	1	0	0	0	0
	φ5 (2032)	53	223	212	234	54	126	111	141	135	152	14	1	1	21	1	1	1	1	1	1
	φ6 (2033)	38	218	163	233	39	128	88	142	115	159	14	1	1	32	1	1	4	3	1	0
	φ7 (2034)	54	219	124	242	46	115	79	139	97	159	17	1	1	23	1	1	8	9	4	0
	φ8 (2035)	37	182	109	239	35	101	68	124	91	164	29	1	1	36	1	1	20	18	6	0

Year	Development	Average Delay: EB Through at Westwood Lane (sec/veh)																				
		X	EF	EZF	FG	A	AH	AH2	AEF	AEZF	AFG	B	BH	BH2	BF	BEF	BEZF	BG	BDG	BD2G	BFG	
Existing (2023)	Existing	0	24	28	0	0	24	28	24	28	0	0	24	28	0	24	28	0	0	0	0	0
Baseline	φ1 (2026)	13	372	420	323	12	106	113	59	105	53	3	29	34	3	29	34	0	0	0	0	
	φ2 (2027)	7	362	436	339	10	77	106	80	95	45	3	27	34	3	27	34	0	0	0	0	
	φ3 (2029)	10	406	476	366	9	103	135	88	124	61	2	29	34	3	29	34	0	0	0	0	
	φ4 (2030)	15	436	510	383	10	123	158	115	148	68	3	28	35	2	28	35	0	0	0	0	
	φ5 (2032)	19	433	500	395	13	143	165	129	155	88	2	28	34	3	28	34	0	0	0	0	
	φ6 (2033)	22	437	530	406	12	146	184	139	172	99	2	28	34	3	28	34	0	0	0	0	
	φ7 (2034)	16	471	546	431	13	166	191	155	183	117	3	28	34	3	28	34	0	0	0	0	
	φ8 (2035)	24	465	549	430	11	170	217	156	214	126	3	28	34	3	28	34	0	0	0	0	
	Project Build	φ1 (2026)	25	459	503	415	20	182	200	165	190	127	4	30	36	3	30	36	0	0	0	0
		φ2 (2027)	25	482	548	458	34	220	262	216	249	189	5	30	36	4	30	36	0	0	0	0
φ3 (2029)		62	564	631	527	37	311	341	295	328	264	8	32	38	8	32	38	0	0	0	0	
φ4 (2030)		32	598	679	567	72	384	422	376	415	357	21	37	50	27	35	50	0	0	0	0	
φ5 (2032)		56	648	717	635	42	438	436	439	472	416	43	88	135	90	78	135	0	0	0	0	
φ6 (2033)		58	673	563	643	59	454	383	452	419	440	49	138	170	134	126	171	1	0	0	0	
φ7 (2034)		149	649	443	673	170	432	367	447	377	451	59	184	200	143	179	200	3	1	1	0	
φ8 (2035)		119	562	405	672	85	402	345	413	361	488	87	206	211	173	205	211	16	6	1	0	

Year	Development	Average Delay: WB Through at Westwood Lane (sec/veh)																				
		X	EF	EZF	FG	A	AH	AH2	AEF	AEZF	AFG	B	BH	BH2	BF	BEF	BEZF	BG	BDG	BD2G	BFG	
Existing (2023)	Existing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Baseline	φ1 (2026)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	φ2 (2027)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	φ3 (2029)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	φ4 (2030)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	φ5 (2032)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	φ6 (2033)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	φ7 (2034)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	φ8 (2035)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Project Build	φ1 (2026)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	φ2 (2027)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	φ3 (2029)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	φ4 (2030)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	φ5 (2032)	0	1	1	0	0	0	1	1	1	1	0	1	1	0	1	1	0	0	0	0	0
	φ6 (2033)	0	1	1	0	0	1	1	1	1	1	0	1	1	0	1	1	0	0	0	0	0
	φ7 (2034)	0	1	1	0	0	1	1	1	1	1	0	1	1	0	1	1	0	0	0	0	0
φ8 (2035)	0	1	1	0	0	1	1	1	1	1	0	1	1	0	1	1	0	1	1	1	0	

Year		Average Delay: SB Left from Westwood Lane (sec/veh)																				
Year	Development	X	EF	EZF	FG	A	AH	AH2	AEF	AEZF	AFG	B	BH	BH2	BF	BEF	BEZF	BG	BDG	BD2G	BFG	
Existing (2023)	Existing	9	44	44	9	9	44	44	44	44	9	9	44	44	9	44	44	9	9	9	9	9
Baseline	φ1 (2026)	32	70	78	10	28	51	46	53	51	30	13	48	41	13	48	41	10	11	11	10	
	φ2 (2027)	19	69	79	12	33	50	55	54	57	23	12	48	47	14	47	47	11	12	11	11	
	φ3 (2029)	27	67	82	13	19	50	48	52	56	18	12	46	44	13	46	44	11	12	12	10	
	φ4 (2030)	39	76	83	11	25	52	50	56	57	14	13	49	44	14	49	44	11	12	12	11	
	φ5 (2032)	29	70	87	11	30	47	48	52	55	26	13	44	42	13	44	42	11	12	11	11	
	φ6 (2033)	46	60	93	12	28	47	52	54	63	19	13	45	47	14	45	47	11	11	12	11	11
	φ7 (2034)	28	79	86	11	21	49	53	54	61	27	13	46	46	13	46	46	11	11	11	11	11
	φ8 (2035)	49	73	102	14	24	49	56	55	65	22	14	45	46	15	45	46	11	11	11	10	10
Project Build	φ1 (2026)	51	83	78	12	40	52	49	56	59	36	14	48	41	13	48	41	11	11	12	11	
	φ2 (2027)	39	70	88	11	35	53	56	57	68	23	18	48	47	16	47	47	12	13	12	11	
	φ3 (2029)	108	82	83	13	44	55	54	61	65	13	25	47	44	24	47	44	12	12	14	12	
	φ4 (2030)	71	78	95	12	60	52	52	62	67	234	45	48	43	58	50	43	13	15	13	13	
	φ5 (2032)	573	70	87	11	534	61	50	62	68	11	64	49	43	149	47	43	18	16	16	15	
	φ6 (2033)	169	93	84	11	155	59	56	62	68	56	164	51	48	279	49	47	19	17	16	14	
	φ7 (2034)	660	83	75	22	482	54	54	75	70	65	165	50	46	322	51	46	28	27	20	15	
	φ8 (2035)	350	72	73	113	187	55	55	64	68	164	69	53	46	407	49	46	66	61	22	17	

Year		Average Throughput: SB 195 to Thorpe (# veh)																			
Year	Development	X	EF	EZF	FG	A	AH	AH2	AEF	AEZF	AFG	B	BH	BH2	BF	BEF	BEZF	BG	BDG	BD2G	BFG
Existing (2023)	Existing	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125
Baseline	φ1 (2026)	213	277	277	277	231	277	277	277	277	277	277	277	277	277	277	277	277	277	277	277
	φ2 (2027)	156	278	278	278	206	278	278	278	278	278	278	278	278	278	278	278	278	278	278	278
	φ3 (2029)	179	282	282	282	212	282	282	282	282	282	282	282	282	282	282	282	282	282	282	282
	φ4 (2030)	172	283	283	283	223	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283
	φ5 (2032)	170	287	287	287	223	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287
	φ6 (2033)	193	289	289	289	221	289	289	289	289	289	289	289	289	289	289	289	289	289	289	289
	φ7 (2034)	151	290	290	290	220	290	290	290	290	290	290	290	290	290	290	290	290	290	290	290
	φ8 (2035)	169	293	293	293	210	293	293	293	293	293	293	293	293	293	293	293	293	293	293	293
Project Build	φ1 (2026)	171	312	312	312	208	312	312	312	312	312	312	312	312	312	312	312	312	312	312	312
	φ2 (2027)	169	339	339	339	233	339	339	339	339	339	322	339	339	339	339	339	339	339	339	339
	φ3 (2029)	178	383	383	383	197	383	383	383	383	383	321	383	383	383	383	383	383	383	383	383
	φ4 (2030)	110	477	477	477	190	477	477	477	477	477	243	477	477	477	477	477	477	477	477	477
	φ5 (2032)	37	583	580	583	44	583	574	583	580	583	79	583	574	582	582	583	580	583	583	583
	φ6 (2033)	26	618	600	618	36	618	588	618	601	618	76	618	588	604	618	602	618	618	618	618
	φ7 (2034)	36	663	607	663	41	659	595	663	604	663	55	655	593	613	659	605	662	663	661	663
	φ8 (2035)	30	691	606	697	29	689	594	691	608	697	48	681	596	639	682	607	689	697	690	697

Year	Development	Average Throughput: EB RT to SB 195 (# veh)																			
		X	EF	EZF	FG	A	AH	AH2	AEF	AEZF	AFG	B	BH	BH2	BF	BEF	BEZF	BG	BDG	BD2G	BFG
Existing (2023)	Existing	77	73	78	77	77	73	77	73	77	77	77	77	77	77	73	77	77	78	77	77
Baseline	φ1 (2026)	233	152	150	151	225	211	214	212	213	212	272	270	269	271	270	271	271	273	269	271
	φ2 (2027)	169	151	149	148	206	214	214	214	215	214	272	264	271	272	264	272	272	274	270	271
	φ3 (2029)	228	146	145	145	220	211	212	212	212	211	273	268	274	274	269	273	273	276	271	273
	φ4 (2030)	183	138	139	139	236	208	208	207	208	209	275	269	274	274	275	274	274	277	272	274
	φ5 (2032)	195	141	140	138	231	204	206	205	205	204	276	272	275	276	274	275	275	278	274	276
	φ6 (2033)	208	138	136	139	253	202	202	202	202	202	277	272	276	278	272	277	276	279	275	277
	φ7 (2034)	186	134	135	133	238	201	202	201	202	200	278	272	277	278	272	278	277	280	276	277
	φ8 (2035)	194	136	134	134	223	203	198	201	196	199	279	274	277	279	275	279	279	281	277	279
Project Build	φ1 (2026)	201	151	153	152	222	218	218	218	217	217	296	297	297	296	297	297	297	299	295	297
	φ2 (2027)	194	150	151	151	235	218	218	217	219	218	293	305	313	314	306	313	313	315	311	312
	φ3 (2029)	220	147	149	148	179	216	217	217	218	217	277	335	342	342	337	342	342	343	340	343
	φ4 (2030)	281	156	154	156	226	220	222	220	220	220	180	380	392	389	387	391	391	392	389	391
	φ5 (2032)	333	153	160	153	337	219	240	217	221	217	44	446	440	434	446	440	450	454	450	452
	φ6 (2033)	221	157	209	155	179	219	269	217	252	216	37	451	444	461	454	444	473	474	471	476
	φ7 (2034)	299	160	251	152	261	236	285	223	280	217	19	446	446	482	454	448	502	501	500	503
	φ8 (2035)	141	193	273	156	97	249	303	243	292	216	11	444	447	475	445	449	517	522	521	526

Year	Development	Average Throughput: WB Through East Tunnel (# veh)																			
		X	EF	EZF	FG	A	AH	AH2	AEF	AEZF	AFG	B	BH	BH2	BF	BEF	BEZF	BG	BDG	BD2G	BFG
Existing (2023)	Existing	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	125	126	126
Baseline	φ1 (2026)	199	277	277	277	216	276	277	277	277	277	277	276	277	277	277	277	277	275	278	277
	φ2 (2027)	134	278	278	278	188	278	278	278	278	278	278	278	278	278	278	278	278	276	280	278
	φ3 (2029)	163	282	282	282	196	281	281	282	282	282	282	282	281	282	282	282	282	279	283	282
	φ4 (2030)	152	283	283	283	206	283	283	283	283	283	283	283	283	283	283	283	283	281	284	283
	φ5 (2032)	151	286	286	286	204	285	286	286	286	286	286	287	286	286	286	286	286	284	288	286
	φ6 (2033)	176	288	288	288	204	288	288	288	288	288	288	288	288	288	288	288	288	286	290	288
	φ7 (2034)	132	290	290	290	204	290	290	290	290	290	290	289	290	290	290	290	290	288	292	290
	φ8 (2035)	150	293	293	293	194	294	292	293	293	293	293	293	292	293	293	293	293	291	294	293
Project Build	φ1 (2026)	153	312	312	312	190	313	312	312	312	312	312	311	312	312	312	312	312	310	314	312
	φ2 (2027)	150	339	340	340	214	340	339	339	340	340	318	340	339	339	339	340	340	337	341	340
	φ3 (2029)	159	384	383	384	179	383	383	384	383	384	313	384	383	383	384	383	383	381	387	384
	φ4 (2030)	94	476	476	477	175	475	474	476	476	477	226	475	474	474	476	476	475	473	479	477
	φ5 (2032)	22	582	572	583	29	581	571	581	572	583	60	579	571	581	580	572	582	580	586	583
	φ6 (2033)	13	616	587	619	19	617	586	617	587	619	58	616	586	599	615	588	617	616	623	619
	φ7 (2034)	24	657	592	664	28	658	593	657	591	664	39	652	591	607	651	591	661	661	665	664
	φ8 (2035)	18	685	593	699	16	688	592	685	595	699	33	681	595	636	676	594	690	696	695	699

Year	Development	Average Throughput: EB Through East Tunnel (# veh)																				
		X	EF	EZF	FG	A	AH	AH2	AEF	AEZF	AFG	B	BH	BH2	BF	BEF	BEZF	BG	BDG	BD2G	BFG	
Existing (2023)	Existing	77	73	77	77	77	73	77	77	77	77	77	73	77	77	73	77	77	78	77	77	77
Baseline	φ1 (2026)	236	164	161	161	233	225	227	226	225	225	271	270	269	271	272	271	270	274	269	270	270
	φ2 (2027)	166	164	160	159	206	228	228	228	228	227	272	264	271	272	264	272	272	275	270	272	272
	φ3 (2029)	225	159	155	155	225	225	225	227	224	224	274	268	274	274	269	273	273	277	271	271	273
	φ4 (2030)	181	152	151	150	238	221	221	221	219	222	275	270	274	275	270	274	274	277	272	272	274
	φ5 (2032)	192	154	151	149	235	217	218	217	216	215	276	273	275	275	274	275	275	279	274	274	275
	φ6 (2033)	205	150	147	148	260	215	215	215	213	213	276	272	276	277	272	277	276	280	275	276	276
	φ7 (2034)	183	146	145	142	243	214	215	213	213	211	277	272	277	278	273	278	277	280	276	277	277
	φ8 (2035)	190	148	144	143	223	215	210	214	208	210	279	275	279	280	276	279	279	283	277	279	279
Project Build	φ1 (2026)	196	163	163	159	222	232	231	232	228	228	296	297	297	296	299	297	297	301	295	297	297
	φ2 (2027)	184	162	161	158	233	230	230	229	229	227	292	305	313	313	306	313	313	316	311	311	312
	φ3 (2029)	214	157	156	154	172	227	227	229	227	226	277	335	342	343	338	342	343	346	340	343	343
	φ4 (2030)	275	163	160	159	221	230	233	230	229	225	180	380	392	389	387	391	392	394	389	391	391
	φ5 (2032)	332	159	164	155	342	228	249	225	227	222	43	446	440	435	448	440	450	455	450	453	453
	φ6 (2033)	217	161	211	156	177	227	277	225	257	219	36	451	444	462	455	444	474	476	471	471	476
	φ7 (2034)	300	162	252	153	263	243	291	228	284	220	19	446	446	482	454	448	502	502	499	504	504
	φ8 (2035)	136	194	274	156	94	257	308	247	295	218	11	443	447	475	445	449	518	525	521	521	526

Year	Development	Average Throughput: WB Through West Tunnel (# veh)																				
		X	EF	EZF	FG	A	AH	AH2	AEF	AEZF	AFG	B	BH	BH2	BF	BEF	BEZF	BG	BDG	BD2G	BFG	
Existing (2023)	Existing	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	125	127	126	126
Baseline	φ1 (2026)	194	276	277	277	214	275	276	276	277	277	276	276	276	277	276	277	277	275	279	277	277
	φ2 (2027)	127	277	278	278	182	278	278	278	278	278	278	279	278	278	278	278	278	277	280	278	278
	φ3 (2029)	158	281	282	282	192	280	281	281	282	282	282	281	281	282	281	282	282	280	283	282	282
	φ4 (2030)	144	283	283	283	202	282	282	282	283	283	283	282	282	283	282	283	283	283	281	284	283
	φ5 (2032)	143	285	286	285	198	285	285	285	286	285	285	285	285	286	286	286	286	284	287	285	285
	φ6 (2033)	169	287	288	288	204	286	287	287	288	288	288	287	287	287	287	288	288	288	290	288	288
	φ7 (2034)	126	288	289	290	201	288	288	289	289	290	290	288	288	289	289	289	290	288	291	290	290
	φ8 (2035)	143	292	292	293	188	293	292	293	292	293	294	292	292	292	293	292	292	292	295	293	293
Project Build	φ1 (2026)	145	311	312	312	183	311	310	312	312	312	310	311	310	312	311	312	312	310	314	312	312
	φ2 (2027)	141	339	339	339	206	340	339	339	339	339	316	340	339	340	339	339	340	337	342	339	339
	φ3 (2029)	153	383	383	383	170	382	383	382	383	383	309	382	383	383	383	383	383	381	386	383	383
	φ4 (2030)	90	474	474	474	169	474	474	474	474	475	220	475	473	475	473	474	475	474	477	477	475
	φ5 (2032)	23	579	571	582	30	582	570	578	571	582	55	579	570	579	576	571	582	579	585	585	582
	φ6 (2033)	13	615	586	619	19	616	585	614	586	619	54	615	585	595	612	587	617	616	621	621	619
	φ7 (2034)	24	657	592	663	28	656	592	657	590	663	35	652	590	605	651	590	661	661	662	662	663
	φ8 (2035)	15	685	593	699	14	687	592	685	595	699	29	680	595	633	677	595	690	698	692	692	699

Year	Development	Average Throughput: EB Through West Tunnel (# veh)																				
		X	EF	EZF	FG	A	AH	AH2	AEF	AEZF	AFG	B	BH	BH2	BF	BEF	BEZF	BG	BDG	BDZG	BFG	
Existing (2023)	Existing	77	73	77	77	77	73	77	77	77	77	77	73	77	77	77	77	77	77	77	77	77
Baseline	φ1 (2026)	245	177	178	176	240	238	241	239	241	240	271	271	271	270	270	271	270	270	270	270	270
	φ2 (2027)	174	178	177	174	215	241	241	241	244	242	271	263	272	272	263	272	271	271	271	271	271
	φ3 (2029)	234	173	173	170	233	237	238	239	239	238	273	268	273	273	268	273	273	273	273	273	273
	φ4 (2030)	192	166	168	165	249	234	234	234	234	234	275	268	274	274	268	274	274	274	274	274	274
	φ5 (2032)	200	167	168	163	245	229	231	231	232	229	276	272	275	275	272	275	275	275	275	275	275
	φ6 (2033)	214	165	164	164	267	227	228	228	229	228	277	271	277	277	271	277	277	276	276	276	276
	φ7 (2034)	190	161	162	157	251	226	228	226	228	226	277	272	278	277	272	278	277	277	277	277	277
	φ8 (2035)	200	163	161	158	232	226	224	227	233	224	279	274	279	280	274	279	279	279	279	279	279
Project Build	φ1 (2026)	205	177	179	174	231	243	244	245	244	243	297	298	297	296	298	297	298	298	298	298	298
	φ2 (2027)	193	175	177	173	242	242	242	242	245	243	293	305	313	313	305	313	313	313	313	313	313
	φ3 (2029)	226	171	172	169	181	240	239	242	242	241	282	336	342	343	338	342	343	343	343	343	343
	φ4 (2030)	280	176	176	174	229	241	244	244	244	241	187	381	391	388	386	391	391	391	391	391	391
	φ5 (2032)	342	172	179	167	353	240	260	238	243	237	52	447	440	436	447	440	453	454	453	453	454
	φ6 (2033)	226	174	226	167	186	237	289	237	273	232	44	453	445	462	455	444	475	475	475	475	475
	φ7 (2034)	310	175	267	162	273	255	303	242	299	232	25	448	448	483	453	448	502	502	503	503	504
	φ8 (2035)	144	207	287	163	101	267	319	260	309	230	17	445	449	475	444	449	519	524	525	525	526

Year	Development	Average Throughput: EB Through at Westwood Lane (# veh)																				
		X	EF	EZF	FG	A	AH	AH2	AEF	AEZF	AFG	B	BH	BH2	BF	BEF	BEZF	BG	BDG	BDZG	BFG	
Existing (2023)	Existing	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Baseline	φ1 (2026)	226	171	164	178	223	226	225	228	227	233	245	245	246	246	245	246	245	245	245	245	245
	φ2 (2027)	170	175	163	176	201	234	227	232	229	233	246	246	247	246	246	247	246	246	246	246	246
	φ3 (2029)	220	167	157	171	213	227	222	231	224	232	247	246	248	247	246	248	247	247	247	247	247
	φ4 (2030)	181	162	153	166	231	224	218	224	219	231	248	248	249	248	248	249	248	248	248	248	248
	φ5 (2032)	188	162	153	166	227	218	215	220	216	225	248	248	249	248	248	249	248	248	248	248	248
	φ6 (2033)	200	164	149	167	242	219	211	220	213	224	249	249	250	249	249	250	249	249	249	249	249
	φ7 (2034)	178	157	146	160	233	216	211	218	213	222	250	250	251	250	250	251	250	250	250	250	250
	φ8 (2035)	190	159	146	162	216	214	206	217	207	221	252	251	252	252	251	252	252	252	252	252	252
Project Build	φ1 (2026)	197	172	165	178	219	231	229	235	229	242	273	273	273	273	272	273	274	274	274	274	274
	φ2 (2027)	188	174	162	178	233	239	227	237	230	245	273	287	289	288	288	289	288	288	288	288	288
	φ3 (2029)	222	169	158	175	178	233	224	237	227	244	264	316	317	317	316	317	318	318	318	318	318
	φ4 (2030)	269	174	161	181	224	237	227	241	228	246	182	364	366	363	366	366	365	365	365	365	365
	φ5 (2032)	335	172	164	175	342	238	243	236	227	245	57	423	414	414	425	414	427	427	427	427	427
	φ6 (2033)	226	171	210	174	190	235	271	235	256	240	50	432	418	436	432	418	449	449	449	449	449
	φ7 (2034)	314	174	250	169	277	248	284	240	281	240	31	430	421	459	431	421	476	476	476	476	476
	φ8 (2035)	150	206	269	171	108	266	300	259	292	237	25	427	421	453	423	421	496	498	498	498	498

Year	Development	Average Throughput: WB Through at Westwood Lane (# veh)																					
		X	EF	EZF	FG	A	AH	AH2	AEF	AEZF	AFG	B	BH	BH2	BF	BEF	BEZF	BG	BDG	BD2G	BFG		
Existing (2023)	Existing	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	
		226	171	164	178	223	226	225	228	227	233	245	245	246	246	245	246	245	245	245	245	245	
		170	175	163	176	201	234	227	232	229	233	246	246	247	246	246	246	247	246	246	246	246	
		220	167	157	171	213	227	222	231	224	231	247	246	248	247	248	248	248	247	247	247	247	247
		181	162	153	168	231	224	218	224	219	224	248	248	249	248	248	248	249	248	248	248	248	248
		188	162	153	166	227	218	215	220	216	225	248	248	249	248	248	248	249	248	248	248	248	248
		200	164	149	167	242	219	211	220	213	224	249	249	250	249	249	249	250	249	249	249	249	249
		178	157	146	160	233	216	211	218	213	222	250	250	251	250	250	250	251	250	250	250	250	250
		190	159	146	162	216	214	206	217	207	221	252	252	252	251	252	252	252	252	252	252	252	252
		197	172	165	178	219	231	229	235	229	242	273	273	273	273	273	272	273	274	274	274	274	274
Project Build	Existing	188	174	162	178	233	239	227	237	230	245	273	287	289	288	288	289	288	288	288	288	288	
		222	169	158	175	178	233	224	237	227	244	264	316	317	317	316	317	318	318	318	318	318	
		269	174	161	181	224	237	227	241	228	246	182	364	366	366	365	366	365	365	365	365	365	
		335	172	164	175	342	238	243	236	227	245	57	423	414	413	425	414	427	427	427	427	427	427
		226	171	210	174	190	235	271	235	256	240	50	432	418	436	432	418	449	449	449	449	449	449
		314	174	250	169	277	248	284	240	281	240	31	430	421	459	431	421	476	476	476	476	476	476
		150	206	269	171	108	266	300	259	292	237	25	427	421	453	423	421	496	496	496	496	496	496
		24	20	24	24	24	20	24	20	24	24	24	24	20	24	24	20	24	24	24	24	24	24
		23	16	24	9	21	21	25	20	24	17	25	25	24	25	25	24	25	25	25	25	25	25
		17	12	24	8	20	12	25	15	25	19	25	25	17	25	25	17	25	25	25	25	25	25
22	14	25	8	22	17	25	16	25	17	26	26	20	25	26	20	25	26	26	26	26	26		
20	12	25	7	23	17	26	17	26	16	26	26	20	26	26	20	26	26	26	26	26	26		
19	14	25	8	23	19	26	19	26	15	27	23	23	26	27	23	26	26	26	26	26	26		
21	10	26	8	26	16	26	16	26	15	27	21	21	26	27	21	26	27	27	27	27	27		
19	13	27	7	24	17	27	17	26	14	27	21	21	27	27	21	27	27	27	27	27	27		
18	13	27	7	21	20	27	19	27	13	27	22	22	27	27	22	27	27	27	27	27	27		
16	13	24	7	19	20	24	18	24	12	25	24	24	25	25	24	25	25	25	25	25	25		
16	10	25	6	18	12	25	14	25	10	23	17	17	25	25	17	25	25	25	25	25	25		
14	11	25	4	13	14	25	14	25	7	21	19	19	25	26	20	25	26	26	26	26	26		
16	10	25	3	13	11	26	11	26	5	13	16	16	26	26	20	26	26	26	26	26	26		
14	8	26	2	16	10	26	11	26	3	3	23	23	26	24	21	26	26	27	27	26	26		
7	11	26	2	4	10	26	10	26	3	2	19	19	26	26	21	26	27	27	27	27	27		
2	8	27	2	3	12	27	9	27	3	2	18	18	27	24	20	27	27	27	27	27	27		
1	9	27	2	1	8	27	8	27	2	1	17	17	27	23	20	27	27	27	27	27	27		

Year	Development	Average Throughput: SB Left from Westwood Lane (# veh)																					
		X	EF	EZF	FG	A	AH	AH2	AEF	AEZF	AFG	B	BH	BH2	BF	BEF	BEZF	BG	BDG	BD2G	BFG		
Existing (2023)	Existing	24	20	24	24	24	20	24	20	24	24	24	20	24	24	20	24	24	24	24	24	24	
		23	16	24	9	21	21	25	20	24	17	25	24	25	25	24	24	25	25	25	25	25	
		17	12	24	8	20	12	25	15	25	19	25	25	17	25	25	17	25	25	25	25	25	
		22	14	25	8	22	17	25	16	25	17	26	20	20	25	26	20	25	26	26	26	26	26
		20	12	25	7	23	17	26	17	26	16	26	20	20	26	26	20	26	26	26	26	26	26
		19	14	25	8	23	19	26	19	26	15	27	23	23	26	27	23	26	26	26	26	26	26
		21	10	26	8	26	16	26	16	26	15	27	21	21	26	27	21	26	27	27	27	27	27
		19	13	27	7	24	17	27	17	26	14	27	21	21	27	27	21	27	27	27	27	27	27
		18	13	27	7	21	20	27	19	27	13	27	22	22	27	27	22	27	27	27	27	27	27
		16	13	24	7	19	20	24	18	24	12	25	24	24	25	25	24	25	25	25	25	25	25
Project Build	Existing	16	10	25	6	18	12	25	14	25	10	23	17	25	25	17	25	25	25	25	25	25	
		14	11	25	4	13	14	25	14	25	7	21	19	25	26	20	25	26	26	26	26	26	
		16	10	25	3	13	11	26	11	26	5	13	16	26	26	20	26	26	26	26	26	26	
		14	8	26	2	16	10	26	11	26	3	3	23	26	24	21	26	26	27	27	26	26	
		7	11	26	2	4	10	26	10	26	3	2	19	19	26	21	26	21	26	27	27	27	
		2	8	27	2	3	12	27	9	27	3	2	18	18	27	24	20	27	27	27	27	27	27
		1	9	27	2	1	8	27	8	27	2	1	17	17	27	23	20	27	27	27	27	27	27
		24	20	24	24	24	20	24	20	24	24	24	24	20	24	24	20	24	24	24	24	24	24
		23	16	24	9	21	21	25	20	24	17	25	24	25	25	24	24	25	25	25	25	25	25
		17	12	24	8	20	12	25	15	25	19	25	25	17	25	25	17	25	25	25	25	25	25
22	14	25	8	22	17	25	16	25	17	26	20	20	25	26	20	25	26	26	26	26	26		
20	12	25	7	23	17	26	17	26	16	26	20	20	26	26	20	26	26	26	26	26	26		
19	14	25	8	23	19	26	19	26	15	27	23	23	26	27	23	26	26	26	26	26	26		
21	10	26	8	26	16	26	16	26	15	27	21	21	26	27	21	26	27	27	27	27	27		
19	13	27	7	24	17	27	17	26	14	27	21	21	27	27	21	27	27	27	27	27	27		
18	13	27	7	21	20	27	19	27	13	27	22	22	27	27	22	27	27	27	27	27	27		
16	13	24	7	19	20	24	18	24	12	25	24	24	25	25	24	25	25	25	25	25	25		
16	10	25	6	18	12	25	14	25	10	23	17	17	25	25	17	25	25	25	25	25	25		
14	11	25	4	13	14	25	14	25	7	21	19	19	25	26	20	25	26	26	26	26	26		
16	10	25	3	13	11	26	11	26	5	13	16	16	26	26	20	26	26	26	26	26	26		
14	8	26	2	16	10	26	11	26	3	3	23	23	26	24	21	26	26	27	27	26	26		
7	11	26	2	4	10	26	10	26	3	2	19	19	26	26	21	26	27	27	27	27	27		
2	8	27	2	3	12	27	9	27	3	2	18	18	27	24	20	27	27	27	27	27	27		
1	9	27	2	1	8	27	8	27	2	1	17	17	27	23	20	27	27	27	27	27	27		