



Whipple Consulting Engineers
Spokane, WA

TRAFFIC IMPACT ANALYSIS
FOR

Latah Glen Residential
Community

Spokane, Washington
Updated July, 2021
2020-2564

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Spokane, Washington

Updated
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W.O. No. 2020-2564

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EXECUTIVE SUMMARY

Supplemental to the SEPA Process for the proposed Latah Glen Residential Community development within the City of Spokane, the following Traffic Impact Analysis applies:

1. The City of Spokane and Washington Department of Transportation (WSDOT) have established Level of Service D as the minimum acceptable level for signalized intersections and Level of Service E for unsignalized intersections.
2. The project proposes to develop 157 space manufactured home residential development on approximately $42.03 \pm$ acres.
3. The project site has been used for multiple land uses over the years. The most recent was an auto wrecker business. The remainder of the property is undeveloped area with trees, field grass and weeds. The project site is proposed upon portions of two parcels. The project proposes to build five (5) new north-south private roads and two (2) new east-west private roads, for a total of 7 new private roads. The projects main access is proposed at the east end of the project with a connection to Inland Empire Way, and its connection to SR 195. The project also proposes a Fire Access to Marshall Road. The access is proposed to be gated per local fire requirements, thus reducing the potential for cut through traffic on private roads. Please see Figure 2 preliminary site plan.
4. The project site is currently listed on the city land use map and zoned as Residential Single Family (RSF). The subject property is located on a portion of E $\frac{1}{2}$ of Section 36, T 24 N., R 42 E., W.M within the City of Spokane, Washington. The parcel numbers for the project are 25364.0001, and 25361.0004. The surrounding area is residential, commercial and rural land uses.
5. The project study area intersections were identified through conversations with the City of Spokane and WSDOT. The study also includes the level of service analysis of the AM and PM peak hours of the following intersections:
 - SR 195 & 16th Avenue
 - SR 195 & Thorpe Avenue
 - SR 195 & Inland Empire Way
 - Cheney-Spokane Road & SR 195 NB on/off Ramps
 - Cheney-Spokane Road & SR 195 SB on/off Ramps
 - SR 195 & Meadowlane Drive
 - SR 195 & Hatch Road
 - The scope also included an additional analysis of highway segment and queue length at the I-90/SR 195 EB Ramp, as well as the right turn lane warrant at the intersection of Inland Empire Way & SR 195.
6. The proposed land use is anticipated to generate 36 new trips in the AM peak hour with 10 new trips entering the site and 26 new trips exiting the site. In the PM peak hour, the proposed development is anticipated to generate 66 new trips with 42 new trips entering the site and 24 new trips exiting the site. The proposed land use is anticipated to generate

785 average daily trips to/from the project site.

7. Conclusions

This Traffic Impact Analysis (TIA) has reviewed and analyzed the study area per the scope established by the City of Spokane and WSDOT. Based upon the analysis, field observations, assumptions, methodologies and results which are provided in the body of this report, it is concluded that the development of the proposed project will generate new trips on the existing transportation system and that those trips will have an impact on the transportation system. This conclusion was reached and has been documented within the body of this report.

- Under the **existing** conditions, all intersections are currently operating at an acceptable level of service.
 - For the **year 2026 with background growth rate** scenario, all intersections are anticipated to continue to operate at an acceptable level of service except the intersections of SR 195 & 16th Avenue and SR 195 & Hatch Road. With the mitigation provided by the Spangle-Wheatland project at SR 195 & 16th Avenue (Right Out only on eastbound approach) and ½ J-Turn improvement at SR 195 & Hatch Road, all intersections are anticipated to operate at an acceptable level of service.
 - For the **year 2026 with background growth rate plus background projects and without this project** scenario, with the mitigation provided by the Spangle-Wheatland project (Right Out only on eastbound approach) at SR 195 & 16th Avenue, and ½ J-Turn improvement at SR 195 & Hatch Road, all intersections are anticipated to continue to operate at an acceptable level of service except the intersection of SR 195 & Meadowlane Drive. With WSDOT ½ J-Turn at SR 195 & Meadowlane Drive, all intersections are anticipated to operate at an acceptable level of service.
 - For the **year 2026 with background growth rate plus background projects and with this project** scenario, with the mitigation provided by the Spangle-Wheatland project (Right Out only on eastbound approach) at SR 195 & 16th Avenue, ½ J-Turn improvement at SR 195 & Hatch Road, and WSDOT ½ J-Turn at SR 195 & Meadowlane Drive, all intersections are anticipated to continue to operate at an acceptable level of service. (Please see Wheatland Estates Proposed Traffic/Transportation Conditions of Approval letter in Background Project section of Appendix).
8. As shown in the Additional Analysis - Right Turn Lane Warrant Analysis section, it is concluded that the intersection of Inland Empire Way & SR 195 meets the WSDOT right turn lane warrant. However, the intersection level of service remains at an acceptable level through the buildout period. Additionally, there is also a sight distance concern associated with a dedicated right turn lane, as a vehicle within the turn lane blocks the view of oncoming traffic. We propose additional consultation with the WSDOT that this be reevaluated after the 100th home site has received an occupancy permit.

9. As shown in the additional analysis section – SR 195 Corridor Improvement Projects, it was concluded that with the EB Turn Restrictions at 16th Avenue, Flashing Beacon and Sign at Thorpe Road Exit, and Connection to Inland Empire Way at Cheney-Spokane Road Ramp projects (by other projects, yet to be approved but in the pipeline) that a significant number of trips would be redirected away the NB US 195 to EB I-90 ramp, and that the net result would be no additional trips to the I-90 Ramps.
10. As shown in the additional analysis Highway Segment LOS and Queue Analysis section, based upon the analysis provided it is concluded that the addition of the 13 AM and the 5 PM project trips will have an impact upon the SR 195 & I-90 Interchange, by adding 4 vehicles with a calculated 107 ft addition at queue for AM and 1 vehicle with a calculated 6 ft addition at queue for PM with SR 195 Corridor Improvement Projects.
11. As shown in the additional analysis, based upon the LOS Analysis on the intersection of 23rd Avenue & Inland Empire Way, it is concluded that the addition of the project trips will have a minimal impact upon the intersection of 23rd Avenue (Thorpe Road) & Inland Empire Way, by increasing 0.1 seconds in delay for AM and 0.2 seconds in delay for PM.
12. As shown in the additional analysis, based upon the Queue Analysis on the intersection of 16th Avenue & SR 195, it is concluded that the diverted trips will have a minimal impact upon the northbound left-turn lane at the intersection of 16th Avenue and SR 195, by adding 1 vehicle (2 ft) in queue for AM and 1 vehicle (5 ft) in queue for PM.

13. Recommendations

It is recommended that the project be conditioned to participate in the Corridor Improvement projects as described within this document. The proposed conditions are as follows.

- A. *Vehicular traffic from this project is expected to add 13 AM trips and 5 PM trips to the NB US 195 to EB I-90 ramp. WSDOT has commented that no additional peak hour trips may be added to the ramp due to safety concerns. Latah Glen is therefore required to contribute funds to complete an improvement to the US 195 corridor that will reduce the impact of its traffic on NB US 195 to EB I-90 ramp (“Mitigation Project”). Latah Glen may receive plan approval after a financial commitment is in place (secured by a letter of credit or bond), which has been approved by the City, providing for the funding of the design and the construction for the Mitigation Project(s), which shall be under contract for construction within one year from issuance of the plan approval. The details of the mitigation project(s) will be agreed upon by the developers, City and WSDOT. The applicant’s contributions to funding the design and construction of the mitigation project(s) will qualify for a credit against transportation impact fees per SMC 17D.075.070*
- B. *Latah Glenn may receive plan approval once a financial commitment is in place (secured by a letter of credit or bond), which has been approved by the City, providing for a.) the construction of the 16th Avenue improvements with SR 195, and b.) Cheney-Spokane Road Ramp – Connection to Inland Empire Way Improvement.*

This commitment may be defined as an agreement between several developers to fund and construct the 16th Avenue, and the Cheney-Spokane Road Ramp – Connection to Inland Empire Way Improvement projects within a specified time frame, not to exceed six years, as agreed upon by city staff and WSDOT. The applicant's contributions to funding the design and construction of the Improvement projects will qualify for a credit against transportation impact fees per SMC 17D.075.070.

- i. *The 16th Avenue and SR 195, improvement project will consist of the following:*
 - *Install a raised curb island*
 - *Channelize the turn lane*
 - *Add a southbound acceleration lane.*
 - ii. *The Cheney-Spokane Road Ramp – Connection to Inland Empire Way Improvement project will consist of the following:*
 - *Extend the northbound ramp to Inland Empire Way,*
 - *One or Two-way connection to Inland Empire Way,*
 - *Install ramp with acceleration lane*
 - *Install ramp meter signal*
 - *Relocate existing sign bridge*
 - iii. *Latah Glen Financial Commitment*

*The financial commitment for Latah Glen development based upon the rate of participation is as follows for the Cheney-Spokane Road Ramp improvement with 157 PM peak hour trips at \$1,910.64 per PM peak hour trip. The participation percentage is anticipated to total \$299,970.48(157 trips * \$1,910.64). In summary the total financial commitment due is \$299,970.48 or greater depending upon final cost, less a 25% contribution to the construction of improvements at 16th and SR-195 as proposed in the Spangle-Wheatland Estate mitigation proposal.*
 - iv. *The applicant's contributions to funding the design and construction of the Improvement projects will qualify for a credit against transportation impact fees per SMC 17D.075.070.*
 - v. *It should be noted that the Latah Glen Community commitment to this improvement has been set tentatively at \$299,970.48 this commitment along with the value of \$776,630.48 from Marshall Creek would result in a beginning commitment of \$1,076,600± to the Inland Empire Way access, Phase 1. It is understood that this is an approximated commitment may increase due to actual construction costs for the improvements proposed.*
 - vi. *Lastly, the current impact fee credit of \$1160.64 would occur at time of building permit which results in an effective developer contribution of \$750/unit (\$1910.64-\$1160.64).*
14. Based upon the conclusions within this study, the proposed project is recommended to complete all required conditions of approval and should be allowed to move forward without further traffic analysis, or offsite mitigation.

INTRODUCTION

Introduction, Purpose of Report and Study Area

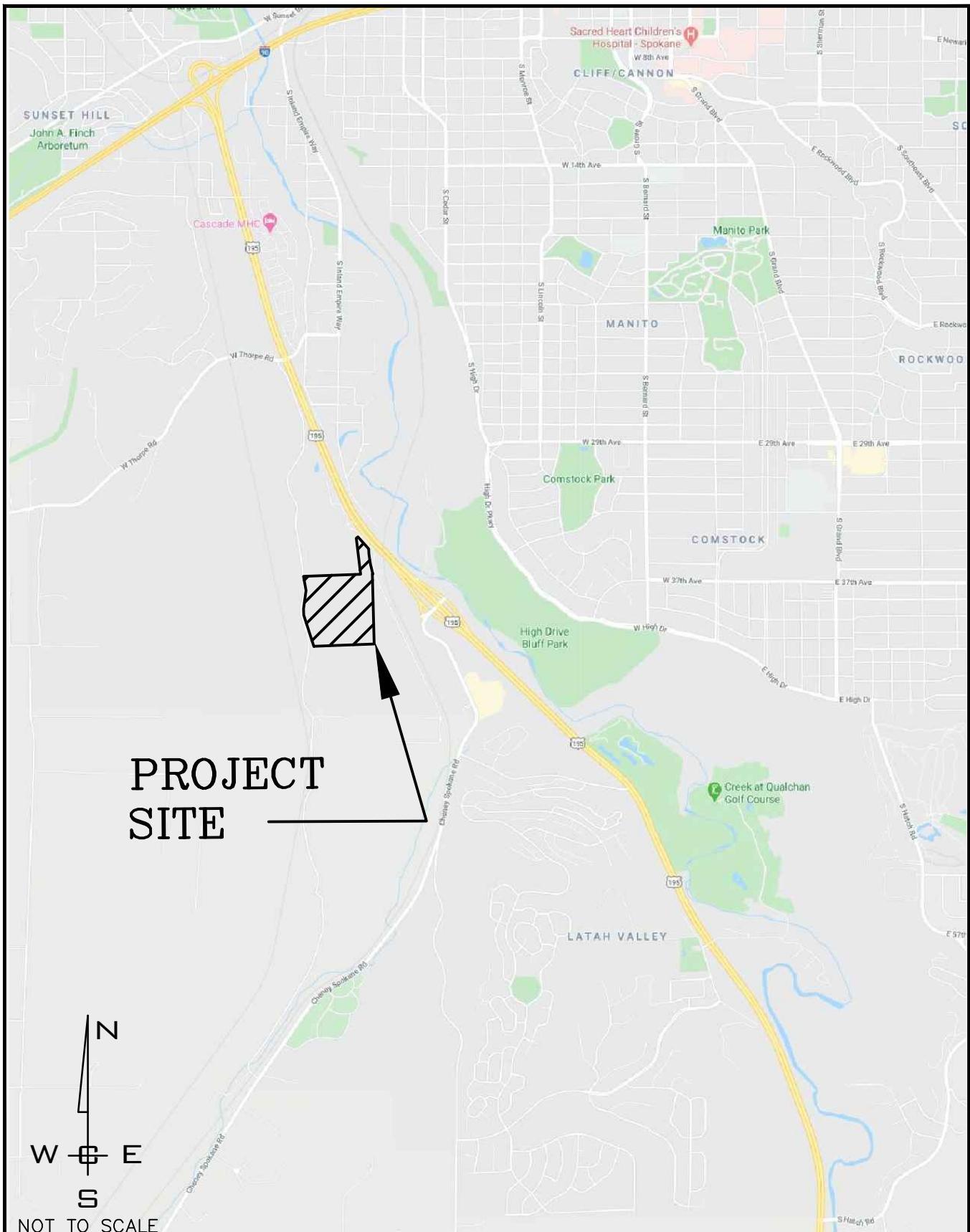
This traffic impact analysis is required by the City of Spokane as part of the SEPA process for the proposed Latah Glen Residential Community. The project proposes to develop 157 space for manufactured homes residential development on approximately $42.03 \pm$ acres. Please see Figure 1 Vicinity Map and Figure 2 Preliminary Site Plan.

The purpose of this analysis is to review, assess, and identify the potential traffic related impacts that the proposed project may have on the transportation network and where possible minimize and/or mitigate any impact. This TIA will be completed in accordance with the current traffic guidelines from the City of Spokane and the Institute of Transportation Engineers (A Recommended Practice – Traffic Access and Impact Studies for Site Development, 2010) as well as their respective requirements.

Site Location and Development Description

The subject property is located on a portion of the E ½ of Section 36, T 24 N., R 42 E., W.M. within the City of Spokane, Washington. The project proposes to develop 157 space for manufactured homes residential development on approximately $42.03 \pm$ acres. The project site has been used for multiple land uses over the years. The most recent was an auto wrecker/ auto repair business within the 2,000 sf +/- (2.0 ksf) shop onsite. The remainder of the property is undeveloped area with trees, field grass and weeds.

The project site is proposed upon portions of two parcels. The project proposes to build six (6) new north-south private roads and three (3) new east-west private roads, for a total of 9 new private roads. The projects main access is proposed at the east end of the project with a connection to Inland Empire Way, and its connection to SR 195. The project also proposes a Fire Access to Marshall Road. The access is proposed to be gated per local fire requirements, thus reducing the potential for cut through traffic on private roads. Please see Figure 2 preliminary site plan.



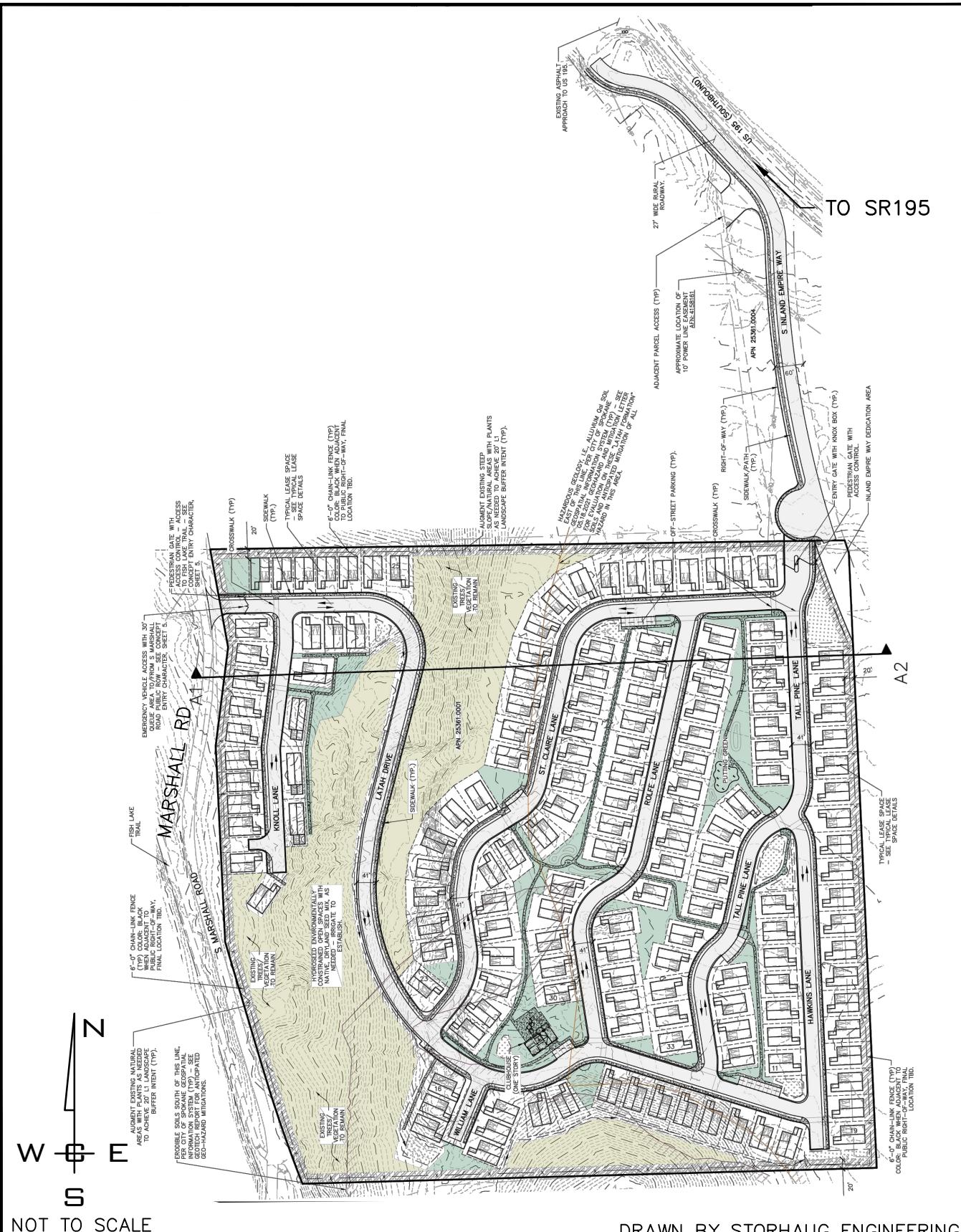
PROJ #: 20-2564
DATE: 06/29/21
DRAWN: KMK
APPROVED: TRW

**TRAFFIC IMPACT ANALYSIS
LATAH GLEN RESIDENTIAL
3504 S INLAND EMPIRE WAY
SPOKANE, WASHINGTON**

FIGURE 1

VICINITY MAP

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EXISTING AND PROPOSED CONDITIONS

Existing and Proposed Conditions within the Study Area

Land Use & Zoning

The project site is currently listed on the City land use map and zoned as Residential Single Family (RSF). The subject property is located on a portion of the E ½ of Section 36, T 24 N., R 42 E., W.M within the City of Spokane, Washington. The parcel numbers for the project are 25364.0001, and 25361.0004. The surrounding area is residential, commercial and rural land uses.

Existing Roadways

The overall transportation network in this area consists of a State Route, arterials, and local access roads. The project is proposed to be accessed via Inland Empire Way. The proposed project trips are anticipated to use the following roadways:

Marshall Road is generally a two-way, 2-lane north/south, local access road. Marshall Road extends northwest from Cheney-Spokane Road and crosses over the railroad track before turning sharply northeast and passing under Fish Lake Trail. Marshall Road continues through 44th Avenue and along the west side of the project site before terminating at Thorpe Road. Marshall Road primarily serves large lot residential uses. The speed limit on Marshall Road within the study area is 25 MPH.

Inland Empire Way is generally a two-way, 2-lane north/south, local access road that extends west from SR 195 and turns sharply south along the railroad track along the east side of the project area before terminating at Victoria Lane. Inland Empire Way primarily serves rural land use. The speed limit on Inland Empire Way within the study area is 25 MPH.

State Route 195 is generally a north/south, two-way, 4-lane highway. State Route 195 extends south from Interstate 90 at Exit 279 and goes through 16th Avenue, Thorpe Road and the Cities of Spangle, Freedom, Plaza, Rosalia, Thornton, Cashup, Steptoe, Colfax, Pullman, Johnson, Colton, and Uniontown before merging with State Route 95.

Study Area Intersections (TIA Scope)

The project study area intersections were identified through public traffic scoping meeting on September 23rd, 2020 and finalized in conversations with the City of Spokane and WSDOT. The study encompasses the AM and PM peak hour analysis of the following intersections:

- SR 195 & 16th Avenue
- SR 195 & Thorpe Avenue
- SR 195 & Inland Empire Way
- Cheney-Spokane Road & SR 195 NB on/off Ramps
- Cheney-Spokane Road & SR 195 SB on/off Ramps
- SR 195 & Meadowlane Drive
- SR 195 & Hatch Road

The scope also included an additional analysis of highway segment and Queue length at the I-90/SR195 EB Ramp, as well as the Right turn lane Warrant at the intersection of Inland Empire Way & SR 195

Traffic Control and Descriptions

SR 195 & 16th Avenue is an unsignalized 4-leg two-way-stop-controlled intersection with stop control on the east and westbound approaches with the following lane configuration: the east and westbound approaches have one receiving lane and one left-through-right lane. The north and southbound approaches have two receiving lanes, a left turn lane, a through lane, and a through-right lane. With the separated highway there is space for 1 vehicle within the median

SR 195 & Thorpe Road (J-Turns) The J-turn design redirects left turns away from the central intersection and reduces conflicts. The central intersection is an unsignalized 4-leg two-way-stop-controlled intersection with stop control on the east and westbound approaches with the following lane configuration: the east and westbound approaches have one receiving lane and a right turn lane. The westbound right turn lane is channelized into an acceleration lane. The northbound approach has two receiving lanes, two through lanes, and a right turn pocket. The southbound approach has one acceleration lane, two receiving lanes, two through lanes, and a right turn lane.

SR 195 & Inland Empire Way is an unsignalized stop-controlled intersection with stop control on the eastbound approach of Inland Empire Way, with the following lane configuration: the eastbound approach has one receiving lane and one right turn lane. The northbound approach has two receiving lanes and two through lanes. The southbound approach has two receiving lanes, a through lane, and a through-right lane with a right turn taper.

Cheney-Spokane Road & SR 195 NB on/off Ramps is an unsignalized two-way-stop-controlled intersection with stop control on the north and southbound approaches, with the following lane configuration: the eastbound approach has one receiving lane and one left turn lane. The northbound approach has no receiving lane and one left-through lane. The southbound approach has one receiving lane and a right turn lane.

Cheney-Spokane Road & SR 195 SB on/off Ramps (1) is an unsignalized -stop-controlled intersection with stop control on the southbound on/off one-way ramps with the following lane configuration: the eastbound approach has one receiving lane and a through-right lane. The westbound approach has one receiving lane and a left-through lane. The northbound approach has one receiving lane. The southbound approach has one left-through-right lane.

Cheney-Spokane Road & SR 195 SB off Ramp (2) is an unsignalized -stop-controlled intersection with stop control on the westbound approach with the following lane configuration: The westbound approach has one receiving lane and a left turn lane that stops for the southbound lane. The northbound approach has one receiving lane and a channelized right turn lane. The southbound approach has one through lane.

SR 195 & Meadow Lane Road is an unsignalized two-way-stop-controlled intersection with stop control on the east and westbound approaches with the following lane configuration: the east and westbound approaches have one receiving lane and a left-through-right lane. The northbound approach has two receiving lanes, a left turn lane, a through lane, and a through-right lane. The southbound approach has two receiving lanes, a left turn lane, two through lanes and a right turn lane.

SR 195 & Hatch Road is an unsignalized one-way-stop-controlled intersection with stop control on the westbound approach with the following lane configuration: the westbound approach has one receiving lane and a left -right turn lane. The northbound approach has two receiving lanes, one through lane, and a through-right lane. The southbound approach has two receiving lanes, a left turn lane, and two through lanes.

Traffic Safety

For the intersections within the study area accident report summaries were received from the City of Spokane and WSDOT. Generally, accidents are documented by type of occurrence, such as property damage or injury. No fatalities were reported for the study intersections during the last three years.

ITE MEV Method

$$\text{Rate per MEV} = \frac{\text{number of accidents in three years} X 1 \text{ million}}{\text{PM Peak hour volume} X \text{PM Peak Factor} X 365 X 3 \text{ years}}$$

Equation 4-2 of ITE manual of traffic engineering studies (fourth edition) (modified given the available data, for 3 years and utilizes PM peak hour volumes ~ 10% of ADT)

In this analysis accidents are measured based on frequency per million entering vehicles (MEV). This ratio is a function of the average daily traffic entering the intersection and the annual frequency of accidents. This method of analysis is also considered as an “exposure” analysis. This method of analysis is used to identify areas that need further review. A typical review threshold for accidents at an intersection is 1.00 accidents per MEV. The accident data for the intersections within the study area are shown in Table 1.

Table 1 – Accident Data for Intersections within the Study Area

Intersection	ACCIDENT DATA								Per MEV
	2017		2018		2019		2020		
	PDO	INJ	PDO	INJ	PDO	INJ	PDO	INJ	ADT
SR 195 & 16 th Ave	4	3	2	0	2	2			23,100 0.514
SR 195 & Thorpe Ave(Before J-turn)*	7	2	3	5	0	2			24,150 0.761
SR 195 & Thorpe Ave(After J-turn)*							3	0	24,150 0.292
SR 195 & Inland Empire Way	1	1	0	0	0	1			14,190 0.193
Ch-Sp Rd & SR 195 NB Ramps	0	0	0	0	0	0			4,860 0
Ch-Sp Rd & SR 195 SB Ramps	0	1	0	0	0	0			11,430 0.080
SR 195 & Meadowlane Rd	0	4	3	0	1	3			17,040 0.590
SR 195 & Hatch Rd	1	3	2	1	1	1			14,730 0.558

*Per the WSDOT request, the crash analysis includes the year 2020 to reflect the recent J-turn improvement project (Before J-turn – Jan 2017 ~ Oct 2019, After J-turn – Nov 2019 ~ Dec 2020).

As shown in the table above, all intersections within the study area do not meet or exceed the threshold for further review.

WSDOT HSM Method

The existing traffic safety assessment at the scoped intersections on State Route 195 were estimated using the methods from the *Safety Analysis Guide* published by WSDOT as implemented in HSM spreadsheet tool, version 9.0 placed at <http://safetyperformance.org/tools/>.

The term crash frequency refers to the number of crashes per year. Crash frequency is used to describe:

- **Observed (Table 1)** average crash frequency: the historic average of the number of crashes per year. When the HSM predictive method is used with crash history, the expected average crash frequency replaces the observed average crash frequency as a more reliable value of actual average historic performance.
- **Predicted (Based upon; Geometry & Traffic Volume)** average crash frequency is an output from the HSM predictive analysis using only geometry and existing traffic volumes. It is the average safety performance of similar intersections in crashes per year. The predicted analysis provides a base level for the intersection.
- **Expected (Based upon; Geometry, Traffic Volume & Observed Crash Data)** average crash frequency using geometry, existing traffic volumes and reported crash data. This analysis is considered a more reliable metric of existing or actual average crash performance, measured in crashes per year. This analysis uses the predicted average crash frequency, and the observed crash history as input to the empirical Bayes method in the HSM predictive methods. Results from the empirical Bayes method is calculated by weighting the observed crash history against the predicted number of crashes per year. Note that the analysis result values are averages, and should not be interpreted as point values. Values are also rounded to one decimal place.
- **Potential for Improvement (Difference between Predicted & Expected Crash Frequencies)** average crash frequency is strictly a difference between the Predicted and Expected crash frequencies to identify and determine what locations have the highest potential for improvement and the reduction of fatal and serious injury crashes, and return the greatest benefit for the cost of a safety project.

The results of the predictive analysis within the study area are shown in Table 2. The worksheets for the analysis are included in Appendix.

Table 2 - Accident Analysis for Intersections on SR 195 (Existing Volumes)

ACCIDENT ANALYSIS				
Intersection		Crash Frequency (crashes/yr)		
		Predicted (Geometry/Volume)	Expected (Geometry/Volume/ Accident history)	Potential for Improvement (Difference)
SR 195 & 16 th Avenue	FT & INJ	0.7	1.3	0.6
	PDO	1.0	1.9	0.9
	Total	1.8	3.3	1.5
SR 195 & Thorpe Avenue	FT & INJ	0.7	2.0	1.2
	PDO	1.0	2.8	1.8
	Total	1.8	4.8	3.0
SR 195 & Inland Empire Way	FT & INJ	0.2	0.3	0.1
	PDO	0.1	0.2	0.1
	Total	0.3	0.5	0.2
Cheney-Spokane Road & SR 195 NB on/off Ramps	FT & INJ	0.2	0.1	0
	PDO	0.2	0.2	0
	Total	0.4	0.3	0
Cheney-Spokane Road & SR 195 SB on/off Ramps	FT & INJ	0.6	0.3	0
	PDO	1.0	0.6	0
	Total	1.6	0.9	0
SR 195 & Meadowlane Drive	FT & INJ	1.0	1.3	0.4
	PDO	1.5	2.0	0.6
	Total	2.4	3.4	0.9
SR 195 & Hatch Road	FT & INJ	0.6	1.0	0.4
	PDO	1.1	1.8	0.8
	Total	1.6	2.8	1.2

FT & INJ = Fatal and Injury, PDO = Property Damage Only

As shown on Table 2, based upon the HSM analysis, it is anticipated that the intersections of State Route 195 & 16th Avenue, State Route 195 & Thorpe Avenue, State Route 195 & Meadowlane Drive, and State Route 195 & Hatch Road in the study area may experience more crashes than intersections with similar roadway characteristics and traffic volumes. It is anticipated that the intersections of State Route 195 & Inland Empire Way and Cheney-Spokane Road & State Route 195 NB on/off Ramps will have a safety performance similar to other intersections that have the same roadway characteristics and traffic volumes. It is also anticipated that the intersection of Cheney-Spokane Road & State Route 195 SB on/off Ramps will experience fewer crashes than intersections with similar roadway characteristics and traffic volumes.

Note: There is currently no warrant standard established, that requires that a safety project be implemented by this analysis.

Traffic Volumes and Peak Hours of Operation

Traffic counts were collected in 2018, 2019, 2020, & 2021 under the direction of Whipple Consulting Engineers (WCE) and Idax Data Solutions (IDAX)*, at the following intersection:

- SR 195 & 16th Avenue (August 2019)
- SR 195 & Thorpe Avenue (November 2018)
- SR 195 & Inland Empire Way (January 2021)
- Cheney-Spokane Road & SR 195 NB on/off Ramps (May 2019)
- Cheney-Spokane Road & SR 195 SB on/off Ramps (May 2019)
- SR 195 & Meadowlane Drive (November 2018)
- SR 195 & Hatch Road (February 2020 - IDAX) *

The AM & PM peak hours from these counts are shown on Figures 3 & 4. The raw data for these counts are located in the technical appendix.

Traffic Counts Adjustment Factor

For the effect of the Covid Pandemic, the study area is anticipated to have experienced a decrease in traffic volumes. This effect applies to the year 2021 traffic counts at the intersection of SR 195 & Inland Empire Way. It is the intention of this study to apply a Covid Pandemic Factor to the collected traffic volume, as allowed, to adjust them to the volumes experienced before the effect of the Covid Pandemic, which would be a “normal” baseline year. Based upon the traffic counts on the intersection of SR 195 & Thorpe Avenue before the effect of the Covid Pandemic, the adjustment factors for Covid Pandemic at the intersection of SR 195 & Inland Empire Way have been calculated. The methodology has been summarized below and the calculation and analysis are included in the Traffic Adjustment Calculation of the Appendix.

The method

1. The expected volume for the year 2021 is calculated by taking the southbound traffic volume on SR 195 from a recent pre pandemic count (2018) at the intersection of SR 195 & Thorpe Avenue and multiplying it by the background growth rate for year 2021 (1.03).
2. An adjustment ratio is then calculated by dividing the expected traffic volume on SR 195 of SR 195 & Thorpe Avenue by the actual traffic volume on SR 195 of SR 195 & Inland Empire Way.
3. The adjusted volumes are then calculated by multiplying the actual volume by the adjustment ratio.

LEVEL OF SERVICE

Level of Service (LOS) is an empirical premise developed by the transportation profession to quantify driver perception for such elements as travel time, number of stops, total amount of stopped delay, and impediments caused by other vehicles afforded to drivers who utilize the transportation network. It has been defined by the Transportation Research Board in the *Highway Capacity Manual 6th Edition*. This document has quantified level of service into a range from "A" which indicates little, if any, vehicle delay, to "F" which indicates significant vehicle delay and traffic congestion that may lead to system breakdown due to volumes that may exceed capacity.

Signalized Intersections

For signalized intersections, research has determined that average stopped delay per vehicle is the best available measure of Level of Service. The following tables identify the relationships between level of service and average stopped delay per vehicle. The City of Spokane and WSDOT have adopted level of service D as the minimum acceptable level for all signalized intersections.

Level of Service Criteria and Descriptions - Signalized

LOS	Delay Range (sec)	General Description
A	10	<ul style="list-style-type: none">• Very low delay at intersection.• All signal cycles clear.• No vehicles wait through more than one signal cycle.
B	10 to 20	<ul style="list-style-type: none">• Operating speeds beginning to be affected by other traffic.• Short traffic delays at intersections.• Higher average intersections delays resulting from more vehicles stopping.
C	20 to 35	<ul style="list-style-type: none">• Operating speeds and maneuverability closely controlled by other traffic.• Higher delays at intersections than for LOS B due to a significant number of vehicles stopping.• Not all signal cycles clear the waiting vehicles.
D	35 to 55	<ul style="list-style-type: none">• Tolerable operating speeds, but long traffic delays occur at intersections• The influence of congestion is noticeable.• Many vehicles stop and the proportion of vehicles not stopping declines.• The number of signal cycle failures, for which vehicles must wait through more than one signal cycle are noticeable.
E	55 to 80	<ul style="list-style-type: none">• Speeds are restricted, very long traffic delays are experienced and traffic volumes are near capacity.• Traffic flow is unstable, any interruption, no matter how minor, will cause queues to form and service to deteriorate.• Traffic signal cycle failures are frequent occurrences.
F	80	<ul style="list-style-type: none">• Extreme delays resulting in long queues which may interfere with other traffic movements• Stoppages of long duration and speeds may drop to zero.• Vehicle arrival rates are greater than capacity.• Considered unacceptable by most drivers.

Unsignalized Intersections

The calculation of Level of Service (LOS) at an unsignalized one/two-way stop-controlled intersection is examined in the Transportation Research Board's *Highway Capacity Manual 6th Edition*. For unsignalized intersections, Level of Service is based on the delay experienced by each movement and approach within the intersection. The concept of delay as presented for unsignalized intersections in the Highway Capacity Manual is based on the amount of time a vehicle must spend at the intersection. Vehicles passing straight through the intersection on the major (uncontrolled) street experience no delay at the intersection. On the other hand, vehicles which are turning left from the minor street, because they must yield the right of way to all right turning vehicles, all left turning vehicles from the major street and all through vehicles on both the minor and major streets, must spend more time at the intersection. Levels of Service are assigned to individual movements within the intersection, and are based upon the delay experienced by each movement or approach.

The Transportation Research Board has determined what Levels of Service for unsignalized intersections should be, by designating Level of Service A through F, where Level of Service A represents a facility where no vehicle in any movement is delayed very long and Level of Service F which represents a facility where there is excessive delay for the average vehicle in at least one movement in the intersection. The City of Spokane and WSDOT have adopted level of service E for all unsignalized intersections within the study area.

Level of Service Criteria and Descriptions - Unsignalized

LOS	Delay Range (sec)	Expected Delay to Minor Street Traffic	General Description
A	10	Little to No Delay	<ul style="list-style-type: none">• Nearly all drivers find freedom of operation.• Very seldom is there more than one vehicle in the queue.
B	10 to 15	Short Traffic Delays	<ul style="list-style-type: none">• Some drivers begin to consider the delay an inconvenience• Occasionally there is more than one vehicle in the queue.
C	15 to 25	Average Traffic Delays	<ul style="list-style-type: none">• Many times, there is more than one vehicle in the queue.• Most drivers feel restricted, but not objectionably so.
D	25 to 35	Long Traffic Delays	<ul style="list-style-type: none">• Often there is more than one vehicle in the queue.• Drivers feel quite restricted.
E	35 to 50	Very Long Traffic Delays	<ul style="list-style-type: none">• Represents conditions in which, demand is near or equal capacity.• There is almost always more than one vehicle in the queue.• Drivers find the delays approaching intolerable levels.
F	50	Stop-and-Go Condition Delays Generally Longer than Acceptable	<ul style="list-style-type: none">• Forced flow.• Represents an intersection failure condition that is caused by geometric and/or operational constraints external to the intersection

All Level of Service analyses described in this report were performed in accordance with the procedures described above. As a final note, the Highway Capacity Manual (HCM) analysis and procedures are based upon worst case conditions. Therefore, most of each weekday and the weekends will experience traffic conditions better than those described within this document, which are only for the peak hours of operation

EXISTING LEVEL OF SERVICE AND TRAFFIC ANALYSIS

Existing Level of Service and Traffic Analysis

The existing Levels of Service at the scoped intersections were calculated using the methods from the *6th Edition Highway Capacity Manual* as implemented in Synchro, *version 10 - Build 122*. The existing Levels of Service for the intersection within the study area are summarized on the following tables. The existing traffic volumes used for this report are shown on Figures 3 & 4.

Table 3 – 2021 Existing Intersections Levels of Service (Figure 3&4)

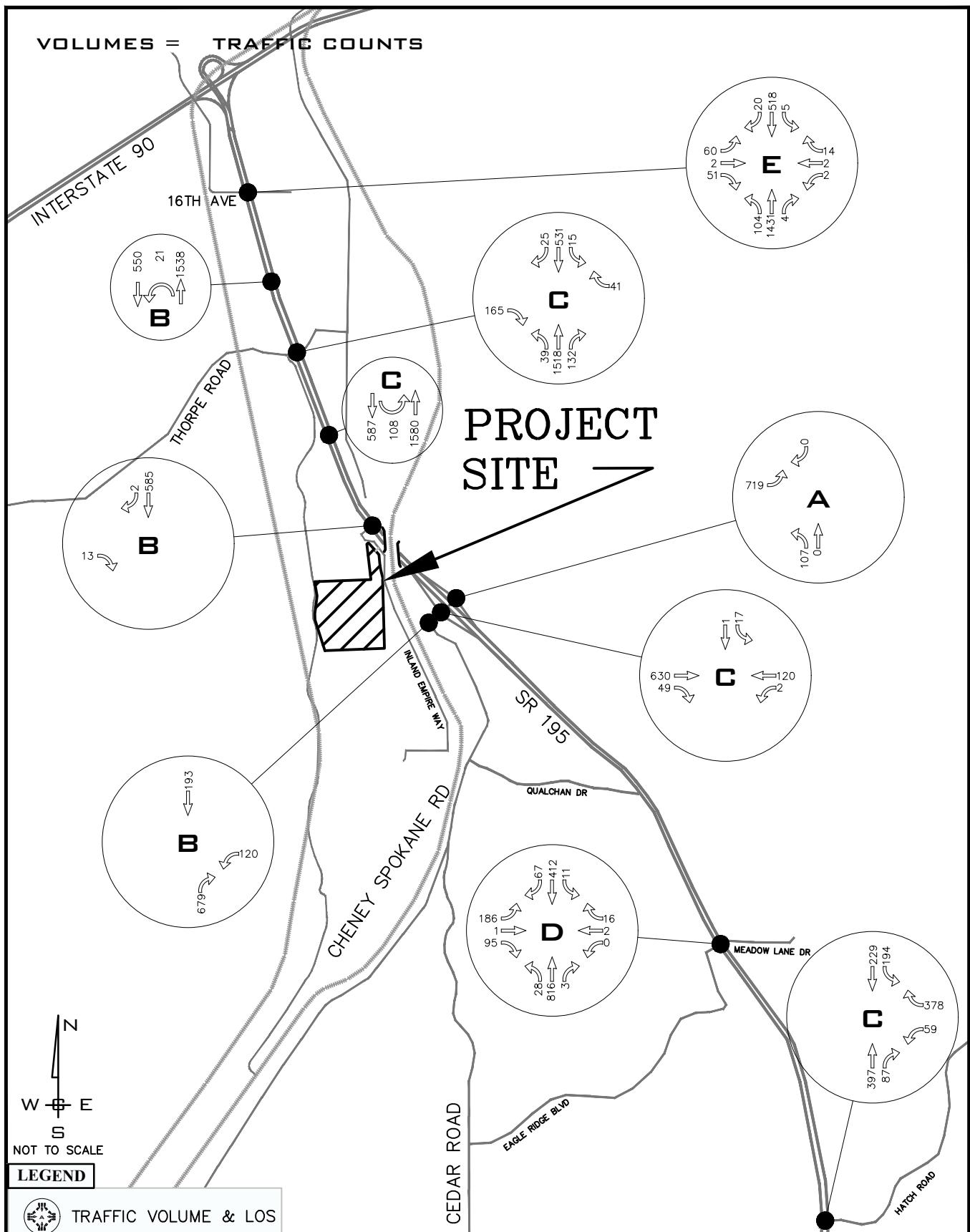
INTERSECTION	(S)ignalized (U)nsignalized	AM Peak Hour		PM Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS
SR 195 & 16 th Avenue	U	39.2	E	42.9	E
SR 195 & Thorpe Avenue	U	20.6	C	18.7	C
• SR 195 & North J-Turn	U	10.4	B	17.3	C
• SR 195 & South J-Turn	U	24.7	C	11.5	B
SR 195 & Inland Empire Way	U	10.7	B	15.1	C
Ch-Sp Road & SR 195 NB on/off Ramps	U	9.0	A	9.0	A
Ch-Sp Road & SR 195 SB on/off Ramps (1)	U	21.5	C	13.7	B
Ch-Sp Road & SR 195 SB on/off Ramps (2)	U	10.7	B	15.7	C
SR 195 & Meadowlane Drive	U	31.4*	D*	31.4*	D*
SR 195 & Hatch Road	U	21.0**	C**	46.7**	E**

*Left-Turn Movement on EB Approach

**Left-Turn Movement on WB Approach: 95th %tile Q on WB – AM: 3.6 veh (90 ft), PM: 2.7 veh (68 ft)

The City of Spokane and WSDOT have adopted level of service D as the minimum acceptable level for signalized intersections and level of service E as the minimum acceptable level for unsignalized intersections.

As shown in Table 3, the intersections are currently operating at an acceptable level of service.

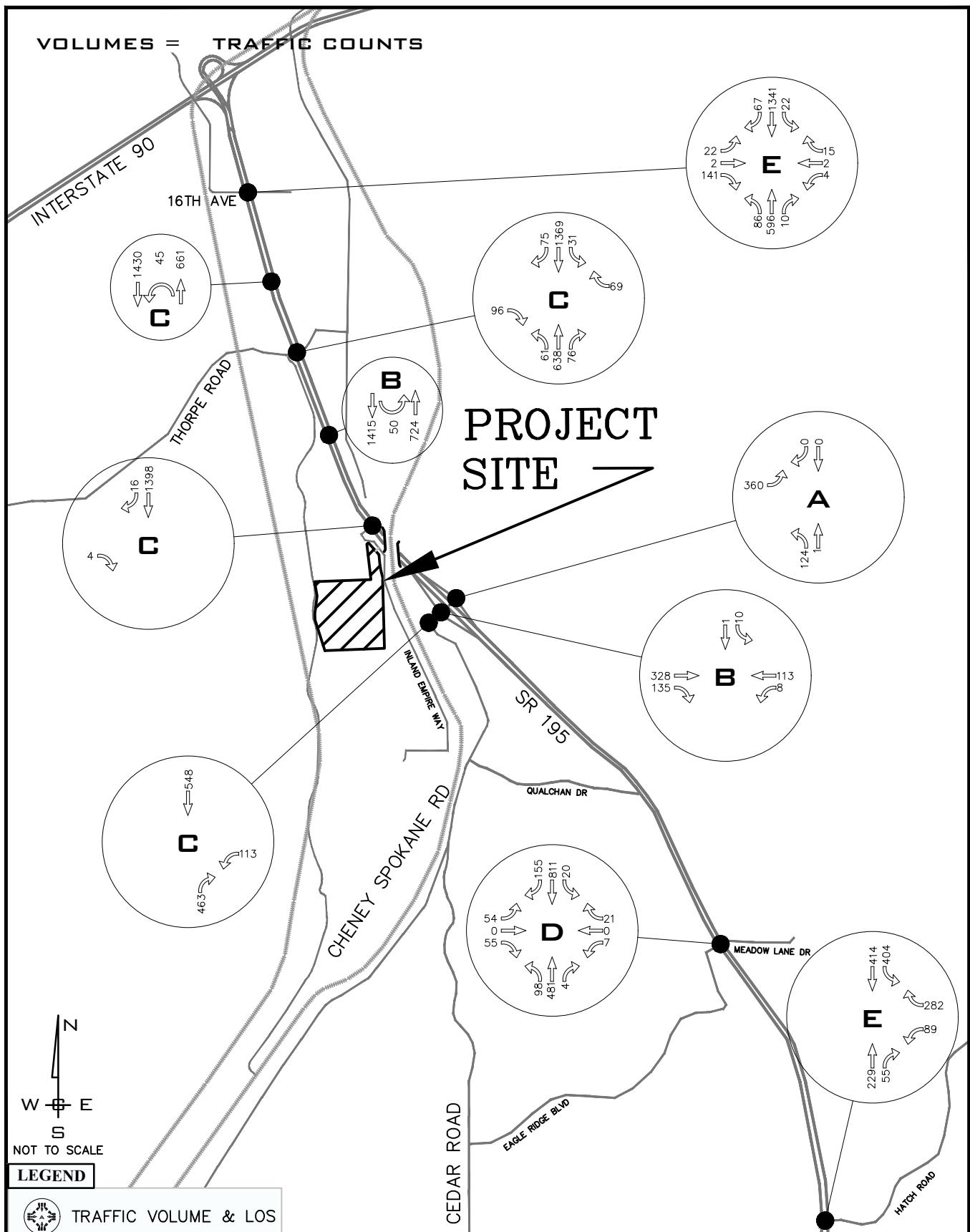


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FIGURE 3 2021 AM EXISTING TRAFFIC VOL. & LOS

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FIGURE 4

2021 PM EXISTING TRAFFIC VOL. & LOS

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FUTURE YEAR TRAFFIC IMPACT ANALYSIS

Future Year Traffic Impact Analysis

The build out year (2026) analysis are requirement, per the scope of TIA meeting. Three scenarios were examined for the build out year (2026) analysis. The first scenario assumes that the existing traffic volumes as shown on Figures 3 & 4 experience an increase above the existing volumes at the established background rate. The second scenario assumes that the development has not moved forward and analyzes the scoped intersections with the background growth rate and the background project trips as shown on Figures 7 & 8. The third scenario assumes that the development has moved forward and analyzes the scoped intersection with the background growth rate, the background projects, and the project trips as shown on Figures 11 & 12. These scenarios will allow a determination to be made as to what the future conditions may be both with/without the background project trips and with/without the project trips.

Background Traffic Growth

Background traffic growth is an anticipated increase in traffic volume from year to year. As the existing land uses that surround a transportation facility mature, an increase in traffic results and may be due to either an increase in drivers per household or a household's purchase of an additional vehicle. Many things can cause an increase in the traffic volumes of a facility. The objective of the background traffic growth rate is to anticipate what the traffic volumes may be in the future. The background traffic growth rate for an area or street is determined by means of physical counts collected by local governmental agencies. The counts are compared on a yearly basis and a rate of increase is calculated from the data.

The background growth rate was determined to be 1.0% per year. Based on a five-year build out, compounded annually, the total increase in traffic rate for the year 2026 is anticipated to be 1.051.

Public/Private Improvement Projects

Within the SR 195 Corridor there are multiple improvement projects proposed and conditioned within the decisions of the background projects. These improvements are anticipated to maintain acceptable level of service, promote the redirection of trips from the I-90/SR 195 Eastbound ramp and also repair a bridge which will have the result of widening the roadway, which will allow for a separation of lanes. These improvement projects are listed here by position from the north to the south along the corridor:

SR 195 & 16th Avenue

As a part of the Wheatland Estates Study the intersection of SR 195 & 16th Avenue is an at grade intersection with SR 195. The improvement project proposes restricting the eastbound movement from a left-through-right lane to a channelized right turn only lane, with an acceleration lane. This project improves safety by removing competing and conflicting movements within the median, improves intersection level of service to an acceptable level and promotes the redistribution of I-90 bound trips as those trips must travel south past Thorpe Rd to the J-turn to then return to 16th Avenue and then to I-90.

SR 195 & Thorpe Rd

As a part of the Summit Development and the Tangle Ridge Development the intersection of SR 195 & Thorpe Road is an at grade intersection with SR 195 with north and south J-turns. The improvement project consists of a directional sign with flashing beacons. The sign provides drivers alternate routes to the downtown core and the South Hill. The flashing beacons are to be activated when the ramp meter signal at the I-90/SR 195 Eastbound Ramp is active, providing additional driver information prior to the Thorpe Exit. The project promotes the redirection of I-90 eastbound trips by offering alternative time saving routes.

SR 195 & Inland Empire Way

This is a temporary solution to connects the Northbound route of Cheney-Spokane Road to Inland Empire Way. This project has not been conditioned by a project yet. This improvement projects extends the SR 195 northbound onramp at Cheney-Spokane Road further along SR 195 under the railroad bridge. The on ramp is separated from SR 195 by a barrier wall. After the railroad bridge the inland Empire way Exit would be restored, thus creating the northbound link. For SR 195 bound trips they would proceed on the ramp that would then merge onto SR 195. A secondary component would be the installation of a ramp meter just before this junction. The project promotes the redistribution of downtown and south hill destination trips to the alternative route of Inland Empire Way. The installation of the ramp meter further encourages the alternate route by increasing travel time.

SR 195 & Meadowlane

As a part of the Summit and Wheatland Estates Developments, the intersection of SR 195 & Meadowlane is an at grade intersection. The improvement project is the installation of a J-turn south of the intersection. The improvement project proposes restricting the eastbound movement from a left-through-right lane to a channelized right turn only lane, with an acceleration lane. The northbound trips would be redirected as eastbound right turns, that would then utilize the J-turn to return the trips to a northbound direction. This project improves safety by removing competing and conflicting movements within the median, and improves intersection level of service to an acceptable level.

SR 195 & Hatch Road

Per the Six Year Comprehensive Street Program (2021 - 2026), the City of Spokane includes the reconstruction of the Hatch Bridge deck to perpetuate the existing functionality. The project expands the roadway width and increases the storage length of the westbound right turn lane. This improvement is anticipated to increase intersection capacity and improve intersection level of service.

FUTURE ANALYSIS WITH BACKGROUND TRAFFIC GROWTH

Year 2026 with Background Traffic Growth

This scenario assumes that the existing traffic volumes experience an increase above the existing volumes at the established background rate. The traffic volumes for this condition include the existing traffic, as shown on Figures 3 & 4, multiplied by the background growth rate for year 2026(1.051). Please see Figures 5 & 6 for the traffic volumes used for this scenario. A summary of the Level of Service results is shown in the following table. This scenario creates a future year baseline that allows for a direct comparison of the with background project scenario.

Table 4 – Year 2026 Level of Service, with Background Traffic Growth (Figure 5&6)

INTERSECTION	(S)ignalized (U)nsignalized	AM Peak Hour		PM Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS
SR 195 & 16th Avenue • RO only on EB Approach	U (U)	48.4 (23.4)	E (C)	58.6 (14.5)	F (B)
SR 195 & Thorpe Avenue • SR 195 & North J-Turn • SR 195 & South J-Turn	U U U	22.2 10.5 28.0	C B D	20.1 18.3 11.7	C C B
SR 195 & Inland Empire Way	U	10.8	B	15.7	C
Ch-Sp Road & SR 195 NB on/off Ramps	U	9.1	A	9.1	A
Ch-Sp Road & SR 195 SB on/off Ramps (1)	U	23.0	C	14.2	B
Ch-Sp Road & SR 195 SB on/off Ramps (2)	U	10.9	B	16.6	C
SR 195 & Meadowlane Drive	U	37.5*	E*	35.1*	E*
SR 195 & Hatch Road • RO only on WB Approach ○ SR 195 & North J-Turn	U (U) (U)	22.7** (20.0)*** (10.2)	C** (C) *** (B)	58.5** (12.1)*** (13.1)	F** (B) *** (B)

*Left-Turn Movement on EB Approach

**Left-Turn Movement on WB Approach: 95th %tile Q on WB LT-AM:4.2 veh (105ft), PM:3.3 veh (83ft)

***95th %tile Q on WB – AM: 5.8 veh (145ft), PM: 2.3 veh(58ft)

The City of Spokane and WSDOT have adopted level of service D as the minimum acceptable level for signalized intersections and level of service E as the minimum acceptable level for unsignalized intersections.

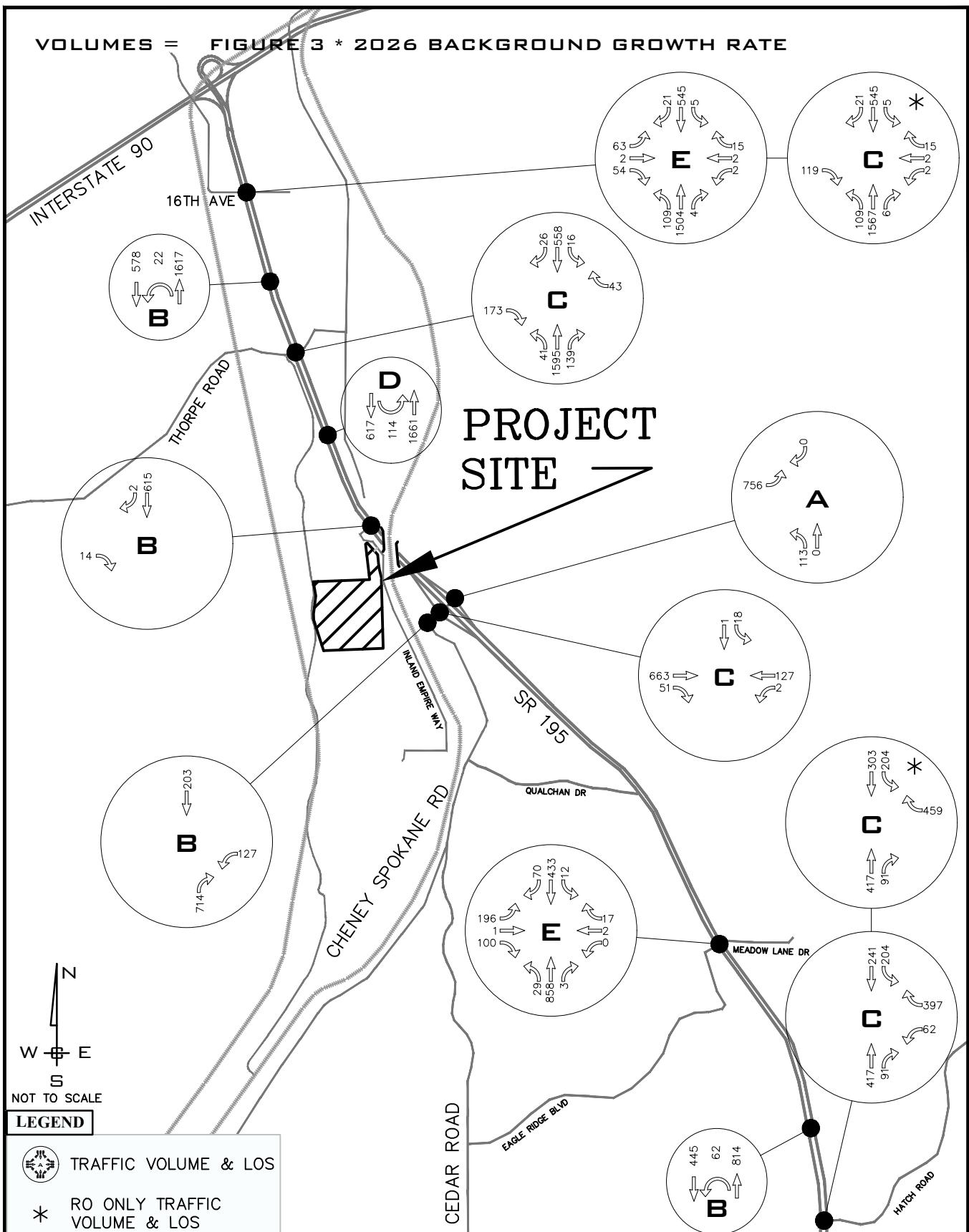
As shown in Table 4, the intersections are anticipated to operate at an acceptable level of service except the intersections of SR 195 & 16th Avenue and SR 195 & Hatch Road. With the reconfiguration on eastbound approach to a right out only, the intersection of SR 195 & 16th Avenue is anticipated to operate at an acceptable level of service. With WSDOT ½ J-Turn, the intersection of SR 195 & Hatch Road is anticipated to operate at an acceptable level of service.

SR 195 & 16th Avenue as a part of the Wheatland Estates Study the intersection of SR 195 & 16th Avenue is an at grade intersection with SR 195. The improvement project proposes restricting the eastbound movement from a left-through-right lane to a channelized right turn only lane, with an acceleration lane. This project improves safety by removing competing and conflicting movements within the median, improves intersection level of service to an acceptable

level and promotes the redistribution of I-90 bound trips as those trips must travel south past Thorpe Rd to the J-turn to then return to 16th Avenue and then to I-90.

At Hatch Road a ½ J turn is proposed that would redirect the westbound left turns to turn right and travel a distance before crossing over the median into an acceleration lane located to the far right. These trips would then accelerate and travel south through the intersection, similar to the J turns installed at Thorpe Road & SR 195.

VOLUMES = FIGURE 3 * 2026 BACKGROUND GROWTH RATE



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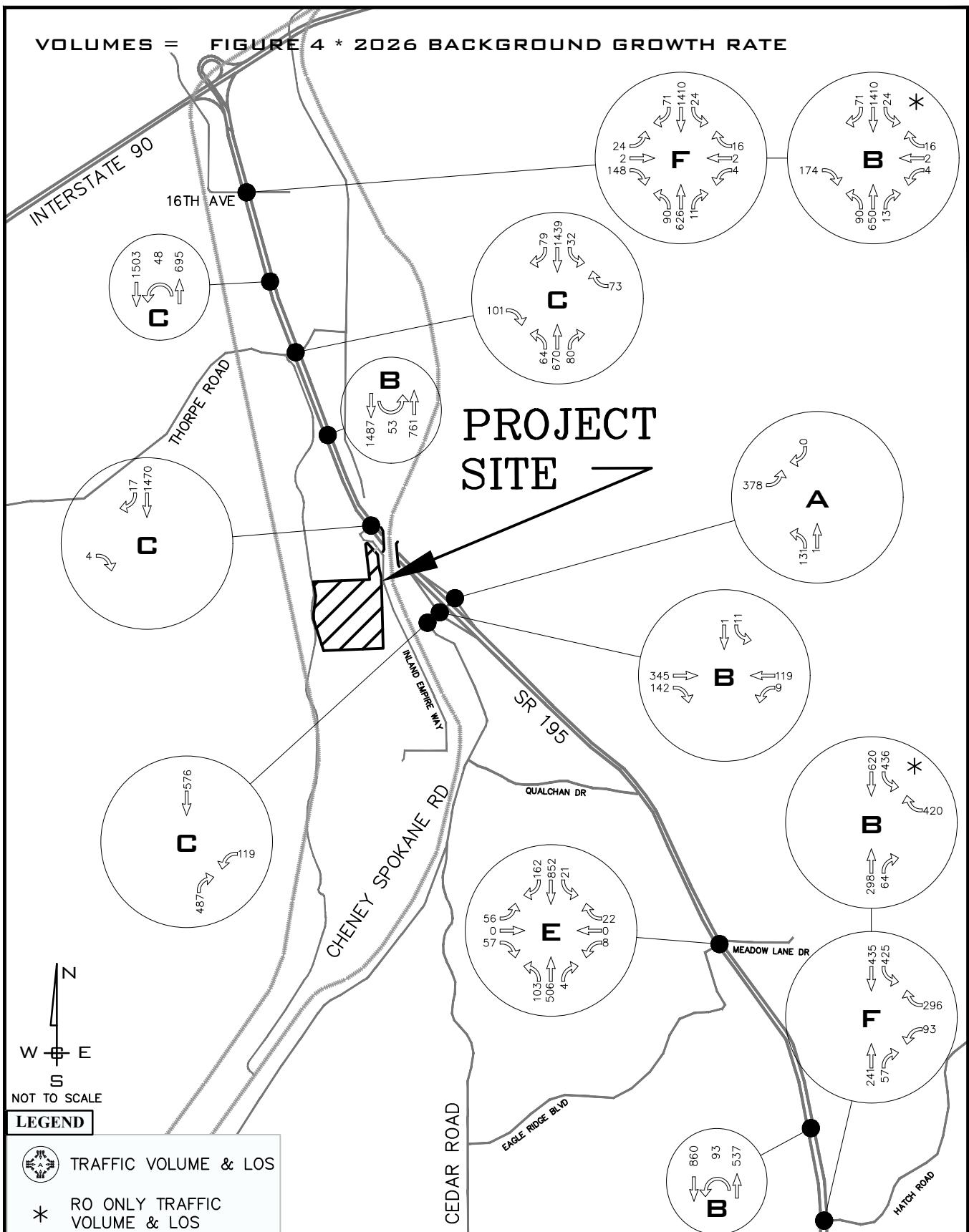
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FIGURE 5

2026 AM VOL. W GROWTH RATE & LOS

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VOLUMES = FIGURE 4 * 2026 BACKGROUND GROWTH RATE



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FIGURE 6

2026 PM VOL. W GROWTH RATE & LOS

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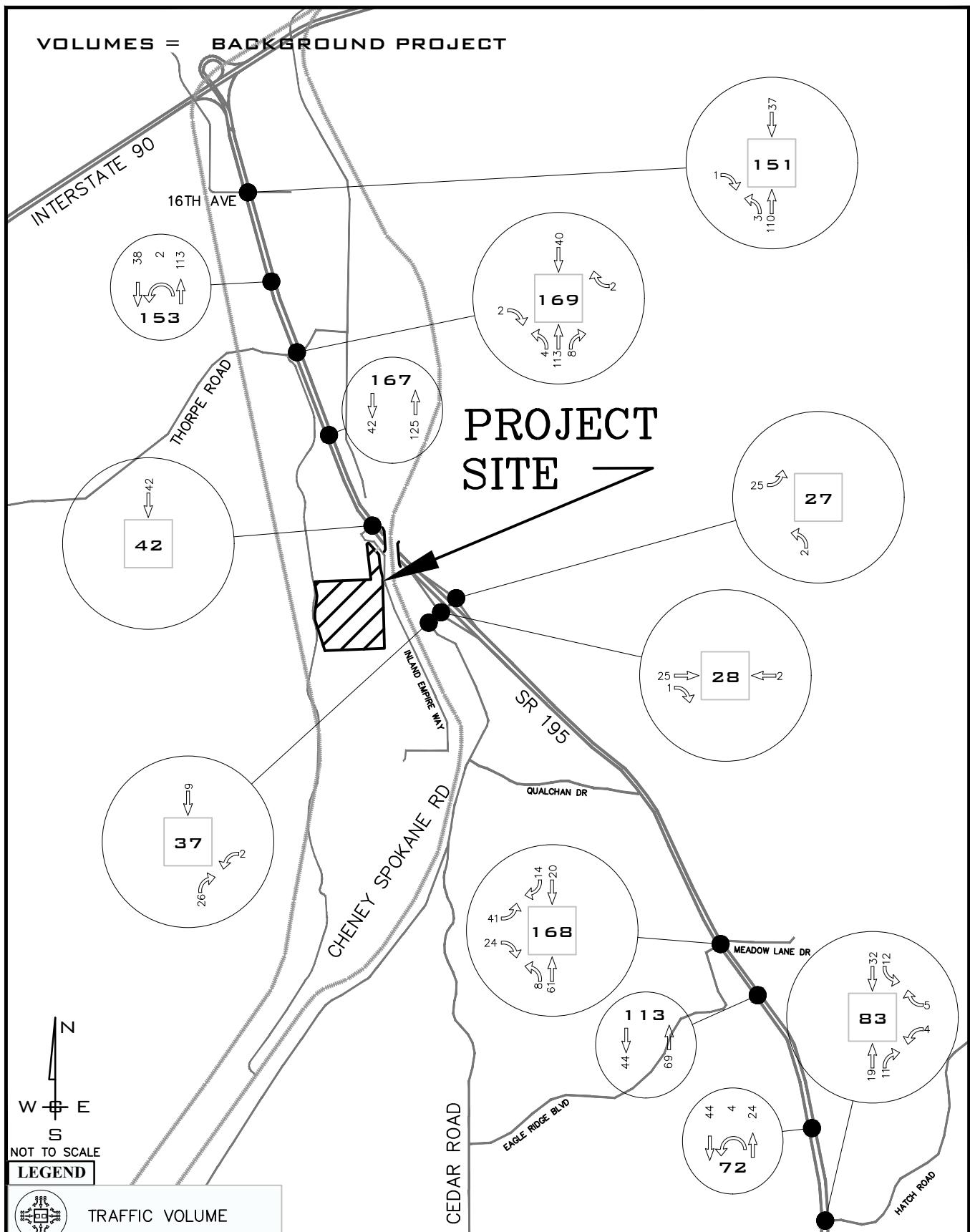
FUTURE ANALYSIS WITH BACKGROUND PROJECTS

Background Project Traffic

In addition to the natural increase in background growth, background projects that have already been approved or have made application and have been vested before this project have been included. The summary of background project traffic volumes used for this report are shown on Table 5. Please see Figures 7 & 8 for a graphical representation of this distribution.

Table 5 – Summary of the Background Project Trip Generation (Figure 7&8)

Background Projects	Land Use (ITE LUC)	Unit	AM Peak Hour Trips			PM Peak Hour Trips		
			Vol. / LUC	Directional Distribution		Vol. / LUC	Directional Distribution	
				In	Out		In	Out
Eagle Ridge 13 th Addition	Single-Family (210)	104	77	19	58	103	65	38
The Summit	Single-Family (210)	99	74	19	55	99	62	37
Tangle Ridge	Single-Family (210)	45	34	8	26	45	28	17
Wheatland Estates	Single-Family (210)	200	148	37	111	198	125	73
Total			333	83	250	445	280	165



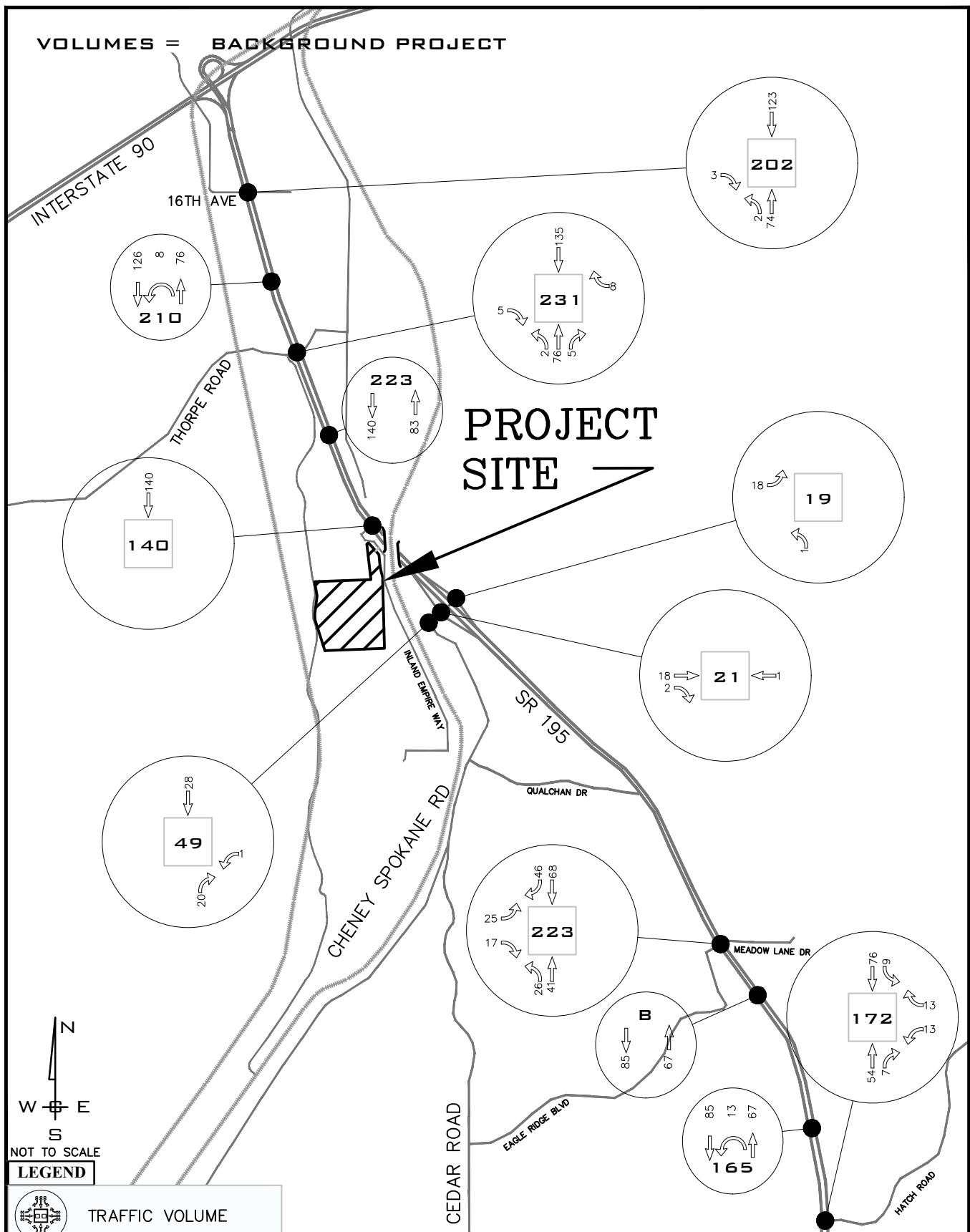
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FIGURE 7

AM BACKGROUND TRIPS

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FIGURE 8

PM BACKGROUND TRIPS

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Year 2026 with the Background Projects and without the Project

This scenario assumes that the development has not moved forward. The traffic volumes for this condition include the traffic volumes shown on Figures 5 & 6 and adds the traffic from the background projects as shown on Figures 7 & 8. Please see Figures 9 & 10 for the traffic volumes used for this scenario. A summary of the Level of Service results is shown in the following table.

Table 6 – Year 2026 LOS, with the Background Projects and without the Project (Fig. 9&10)

INTERSECTION	(S)ignalized (U)nsignalized	AM Peak Hour		PM Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS
SR 195 & 16th Avenue	U	59.9	F	93.1	F
• RO only on EB Approach	(U)	(26.1)	(D)	(15.7)	(C)
SR 195 & Thorpe Avenue	U	24.8	C	23.2	C
• SR 195 & North J-Turn	U	10.8	B	20.7	C
• SR 195 & South J-Turn	U	32.6	D	12.3	B
SR 195 & Inland Empire Way	U	11.0	B	17.0	C
Ch-Sp Road & SR 195 NB on/off Ramps	U	9.1	A	9.1	A
Ch-Sp Road & SR 195 SB on/off Ramps (1)	U	24.1	C	14.5	B
Ch-Sp Road & SR 195 SB on/off Ramps (2)	U	11.1	B	17.4	C
SR 195 & Meadowlane Drive	U	65.2*	F*	59.8*	F*
• WSDOT ½ J-Turn	(U)	(14.3)	(B)	(14.6)	(B)
• WSDOT ½ J-Turn – South J-Turn	(U)	(17.6)	(C)	(11.4)	(B)
SR 195 & Hatch Road	U	25.2**	D**	88.4**	F**
• RO only on WB Approach	(U)	(21.5)***	(C)***	(13.1)***	(B)***
○ SR 195 & North J-Turn	(U)	(10.4)	(B)	(14.2)	(B)

*Left-Turn Movement on EB Approach

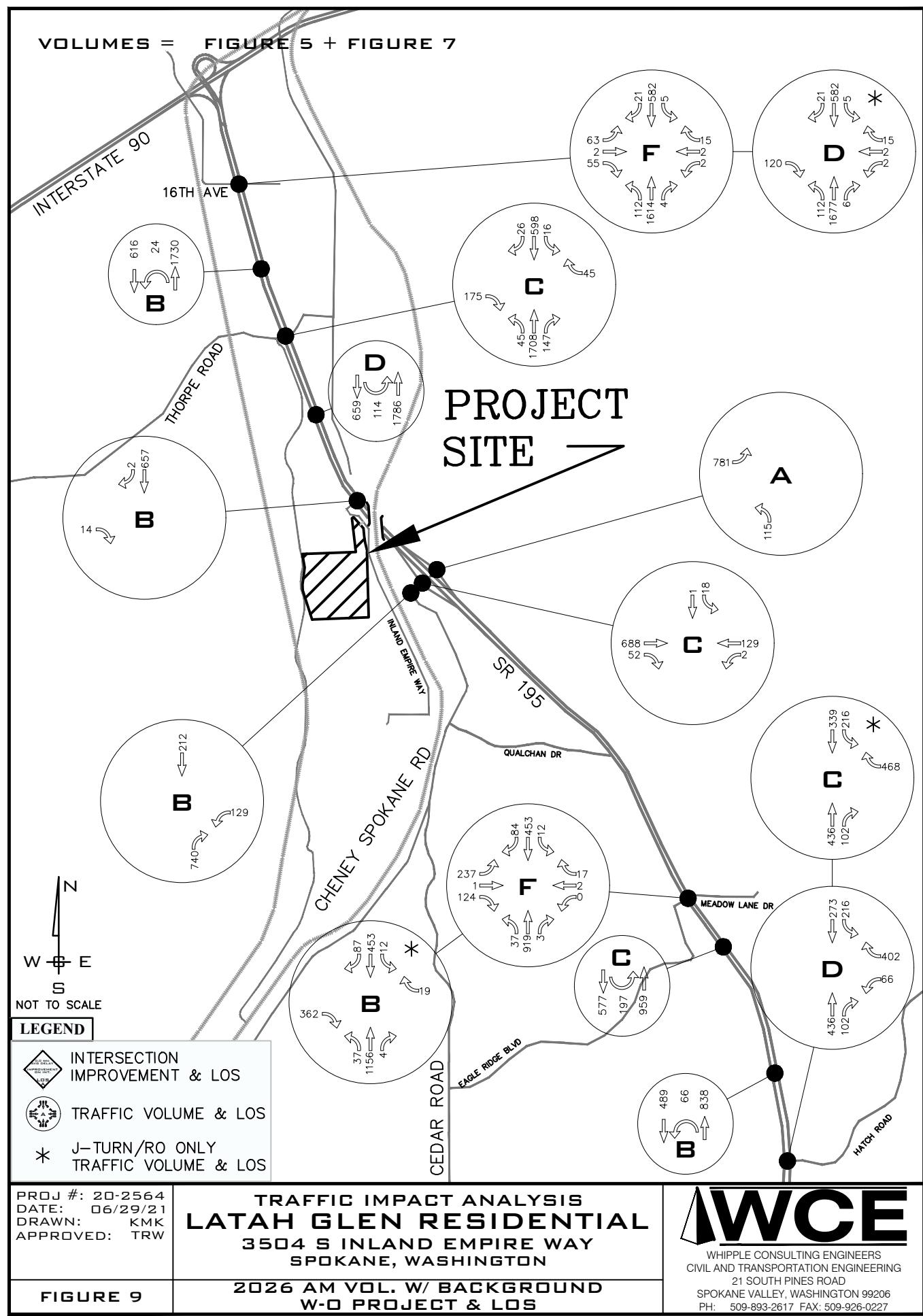
**Left-Turn Movement on WB Approach: 95th %tile Q on WB – AM: 4.4 veh(110ft), PM: 4.8 veh(120ft)

***95th %tile Q on WB – AM: 6.4 veh(160ft), PM: 2.8 veh(70ft)

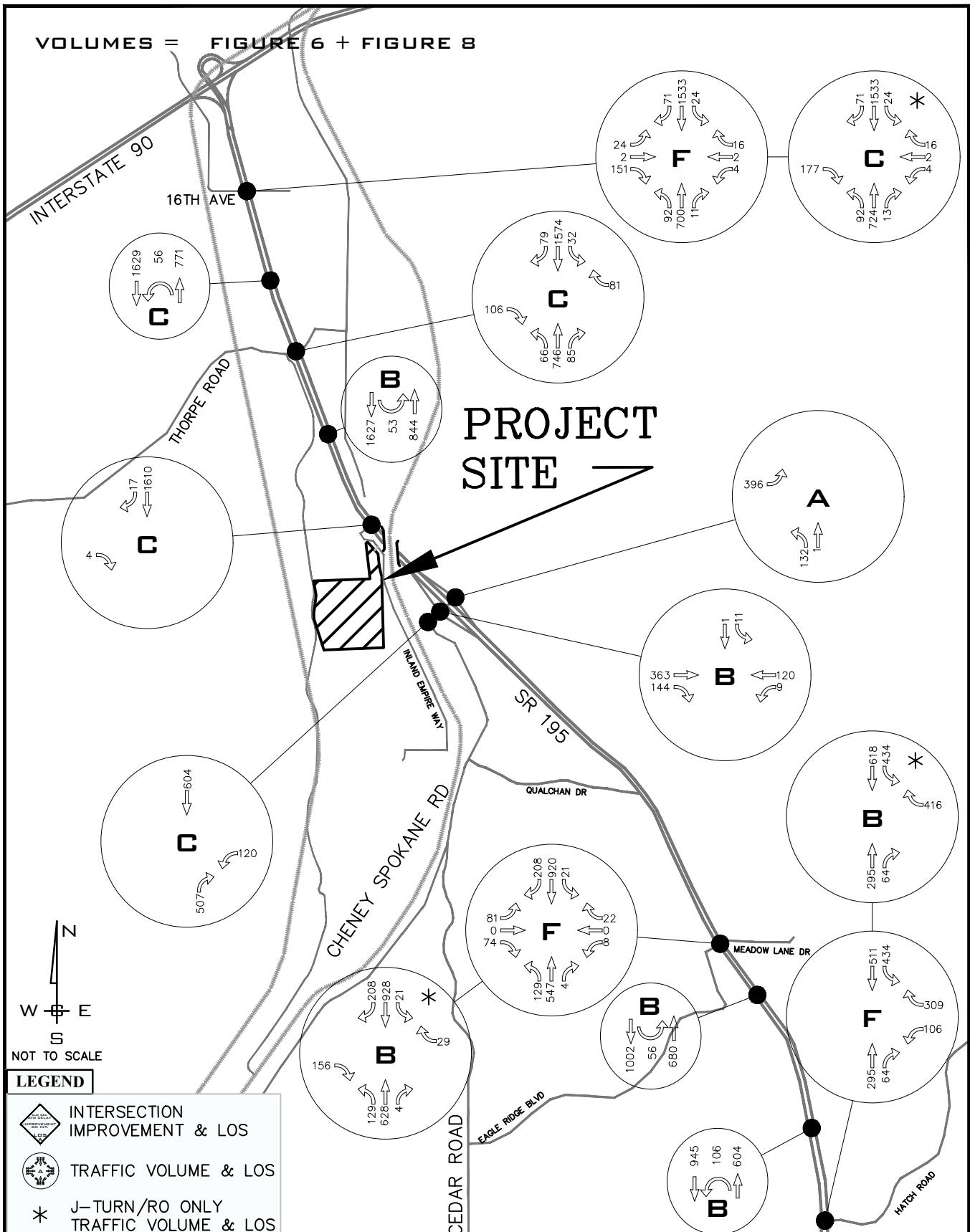
The City of Spokane and WSDOT have adopted level of service D as the minimum acceptable level for signalized intersections and level of service E as the minimum acceptable level for unsignalized intersections.

As shown in Table 6, all intersections are anticipated to operate at an acceptable level of service except the intersections of SR 195 & 16th Avenue, SR 195 & Meadowlane Drive, and SR 195 & Hatch Road. As discussed in the with background traffic growth scenario, with the improvements, the intersections of SR 195 & 16th Avenue and SR 195 & Hatch Road are anticipated to operate at an acceptable level of service. With WSDOT ½ J-Turn, the intersection of SR 195 & Meadowlane Drive is anticipated to operate at an acceptable level of service.

At Meadowlane Road a ½ J turn is proposed that would redirect the eastbound left turns to turn right and travel a distance before crossing over the median into an acceleration lane located to the far right. These trips would then accelerate and travel north through the intersection, similar to the J turns installed at Thorpe Road & SR 195.



VOLUMES = FIGURE 6 + FIGURE 8



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DATE: 06/29/21
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APPROVED: TRW

TRAFFIC IMPACT ANALYSIS
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SPOKANE, WASHINGTON

FIGURE 10

2026 PM VOL. W/ BACKGROUND
W-O PROJECT & LOS

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FUTURE ANALYSIS WITH BACKGROUND PROJECTS & THE PROJECT

Trip Generation and Distribution

As noted earlier, trip generation rates for the AM and PM peak hours are determined by the use of the *Trip Generation Manual, 10th Edition* published by the Institute of Transportation Engineers (ITE). The purpose of the *Trip Generation Manual* is to compile and quantify empirical data into trip generation rates for specific land uses within the US, UK and Canada.

Existing Land Use

For the existing former salvage yard, a recommended average rate by the City of Spokane was used to establish the number of potential trips generated by the existing land use. The trip generation rates and the anticipated number of AM and PM peak hour trips for the existing land use are shown on Table 7.

Table 7 -Trip Generation Rates – Former Salvage Yard

KSF	AM Peak Hour Trips			PM Peak Hour Trips				
	Vol. @ 1.00 trips per Unit	Directional Distribution		Vol. @ 1.00 trips per Unit	Directional Distribution			
		50% In	50% Out		50% In	50% Out		
2.0	2	1	1	2	1	1		
Average Daily Trip Ends (ADT)					Per the TIA Comments Dated April 6, 2021, the Average Rate Was Recommended by the City of Spokane			
Units	Average Rate	ADT						
2.0	-	-						

Proposed Land Use

For the proposed 157 units of a manufactured housing development, Land Use Code (LUC) #240, Mobile Home Park was used to establish the number of potential trips generated by the proposed land use. The trip generation rates and the anticipated number of AM and PM peak hour trips for the land use are shown on Table 8.

Table 8 -Trip Generation Rates for LUC # 240 – Mobile Home Park

Dwelling Units	AM Peak Hour Trips			PM Peak Hour Trips				
	Vol. @ 0.26 trips/units	Directional Distribution		Vol. @ 0.46 trips / Units	Directional Distribution			
		31% In	69% Out		62% In	38% Out		
157	41	13	28	73	45	28		
Average Daily Trip Ends (ADT)								
Units	Rate	ADT						
157	5.00	785						

Trip Generation Summary

Since the existing automobile care center use is proposed to be replaced by the proposed project, the existing land use subtracted from the proposed land use with the difference in trips generated is shown on Table 9.

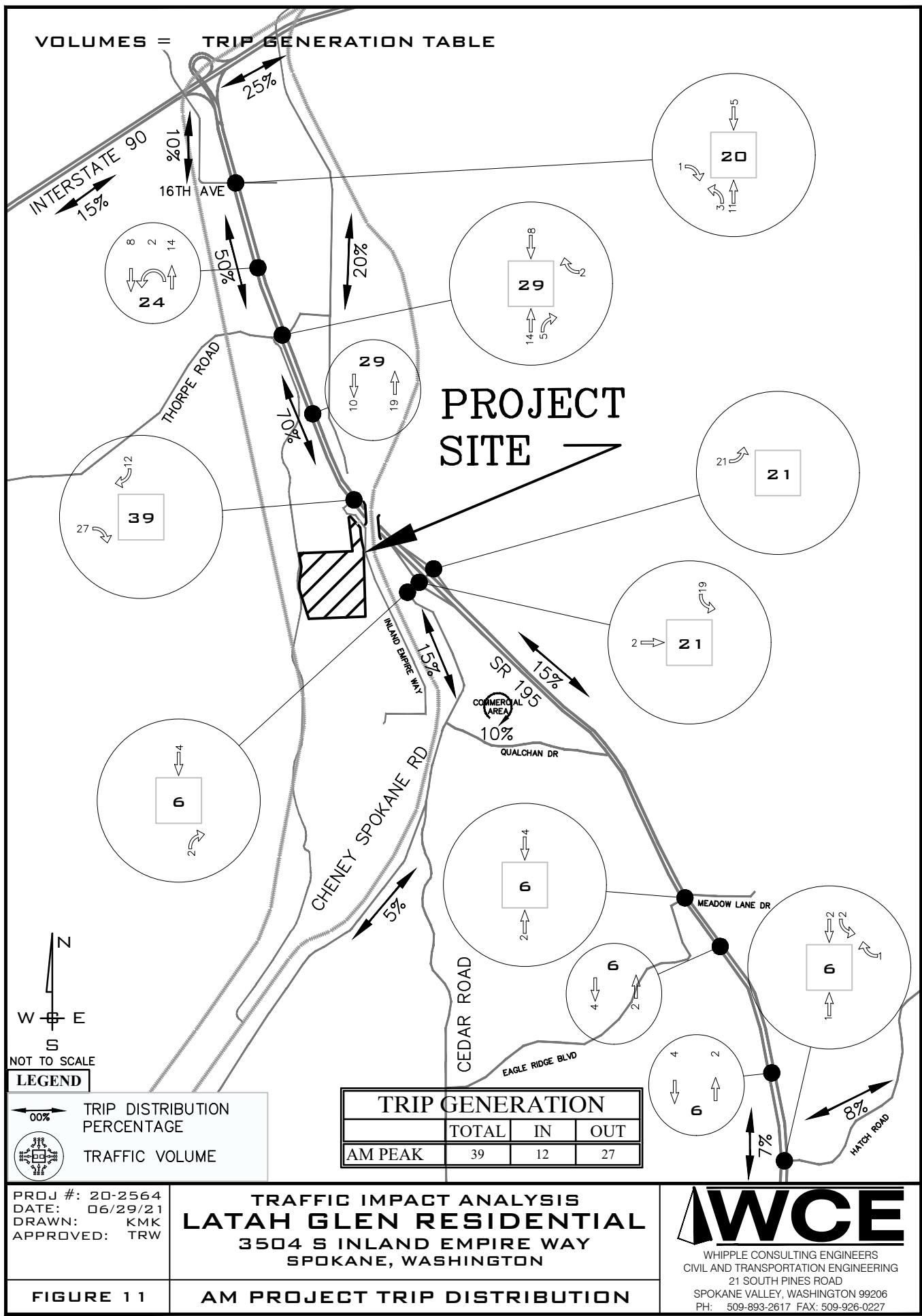
Table 9 - Trip Generation Summary (Figure 11 & 12)

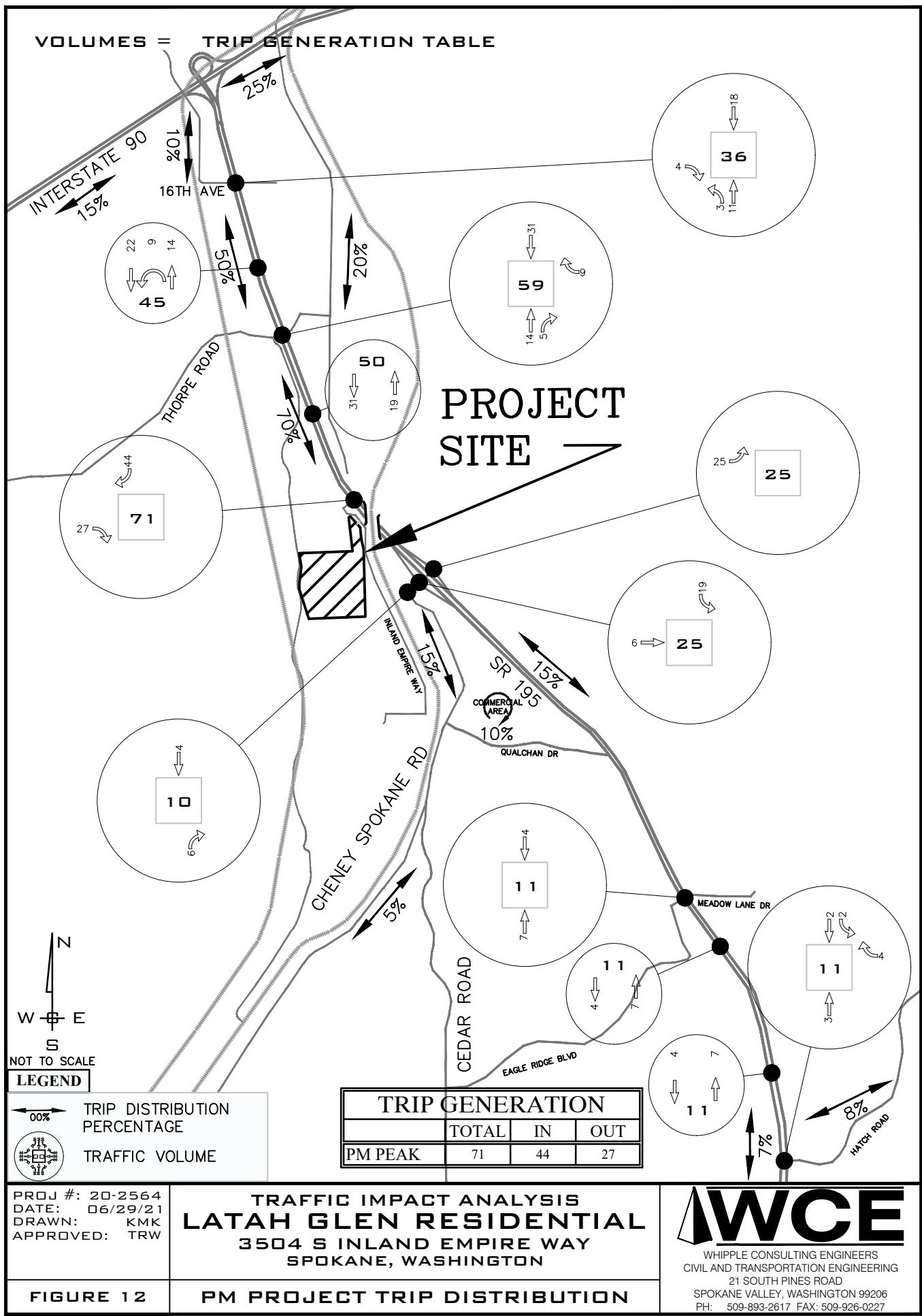
Land Use Code (LUC)	AM Peak Hour			PM Peak Hour		
	Vol. per LUC	Directional Distribution		Vol. per LUC	Directional Distribution	
		In	Out		In	Out
LUC 240 Mobile Home Park (Proposed)	41	13	28	73	45	28
LUC 942 Automobile Care Center (Existing)	<2>	<1>	<1>	<2>	<1>	<1>
New Trips	39	12	27	71	44	27
Average Daily Trip Ends (ADT)			< > indicates Subtraction of number			
Land Use Code (LUC)	Rate	ADT				
LUC 240 Mobile Home Park (Proposed)		785				
LUC 942 Automobile Care Center (Existing)		-				
New Trips		-				

As shown in Table 9, the proposed land use is anticipated to generate 36 additional trips in the AM peak hour with 10 additional trips entering the site and 26 additional trips exiting the site. In the PM peak hour, the proposed land use is anticipated to generate a total of 66 additional trips, with 42 additional trips entering the site and 24 additional trips exiting the site. Please see Figure 11 & 12 for Trip Distribution.

Trip Distribution Characteristics of the Proposed Project

Considering many factors such as the surrounding transportation facilities, typical commuting patterns, existing development in the area, and Average Daily Traffic counts, traffic for the proposed development is anticipated as follows: 70% of trips will go to/from the north via SR 195, 15% of trips will go to/from the south via SR 195, and 15% of trips will go to/from the southwest via Cheney Spokane Road. Of the 70% trips to/from the north via SR 195, 20% of these trips will go to/from the east and north via Thorpe Road, 10% of these trips will go to/from the west and north via 16th Avenue, 15% of these trips will go to/from the west via I-90 and 25% of these trips will go to/from the east via I-90. Of the 15% of trips to/from the south via SR 195, 8% of trips will travel to/from the east via Hatch Road and 7% of trips will travel to/from the south via SR 195. Of the 15% to/from the southwest on Cheney-Spokane Road, 10% of trips will get captured by the shopping areas along Cheney-Spokane Road and 5% of trips will continue to/from the southwest via Cheney-Spokane Road.





Year 2026 with the Background Projects and the Project

This scenario assumes that the project has moved forward and is added to the previously established baseline. The traffic volume for this condition includes the traffic volumes shown on Figures 9 & 10 and adds the project trips as shown on Figures 11 & 12. Please see Figures 13 & 14 for the traffic volumes used for this scenario. A summary of the Level of Service results is shown in the following table.

Table 10 – Year 2026 LOS, with the Background Projects and with the Project (Fig. 13&14)

INTERSECTION	(S)ignalized (U)nsignalized	AM Peak Hour		PM Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS
SR 195 & 16th Avenue • RO only on EB Approach	U (U)	64.5 (26.3)	F (D)	102.3 (15.9)	F (C)
SR 195 & Thorpe Avenue • SR 195 & North J-Turn • SR 195 & South J-Turn	U U U	25.4 10.8 33.4	D B D	24.0 21.8 12.4	C C B
SR 195 & Inland Empire Way	U	11.4	B	18.2	C
Spring Creek Lane & Inland Empire Way	U	9.3	A	8.8	A
Access & Inland Empire Way	U	8.7	A	8.7	A
Ch-Sp Road & SR 195 NB on/off Ramps	U	9.1	A	9.1	A
Ch-Sp Road & SR 195 SB on/off Ramps (1)	U	26.9	D	15.2	C
Ch-Sp Road & SR 195 SB on/off Ramps (2)	U	11.1	B	17.5	C
SR 195 & Meadowlane Drive • WSDOT ½ J-Turn • WSDOT ½ J-Turn – South J-Turn	U (U) (U)	65.9* (14.3) (17.5)	F* (B) (C)	60.6* (14.7) (11.3)	F* (B) (B)
SR 195 & Hatch Road • RO only on WB Approach • SR 195 & North J-Turn	U (U) (U)	25.5** (21.6)*** (10.4)	D** (C)*** (B)	91.4** (13.2)*** (14.2)	F** (B)*** (B)

*Left-Turn Movement on EB Approach

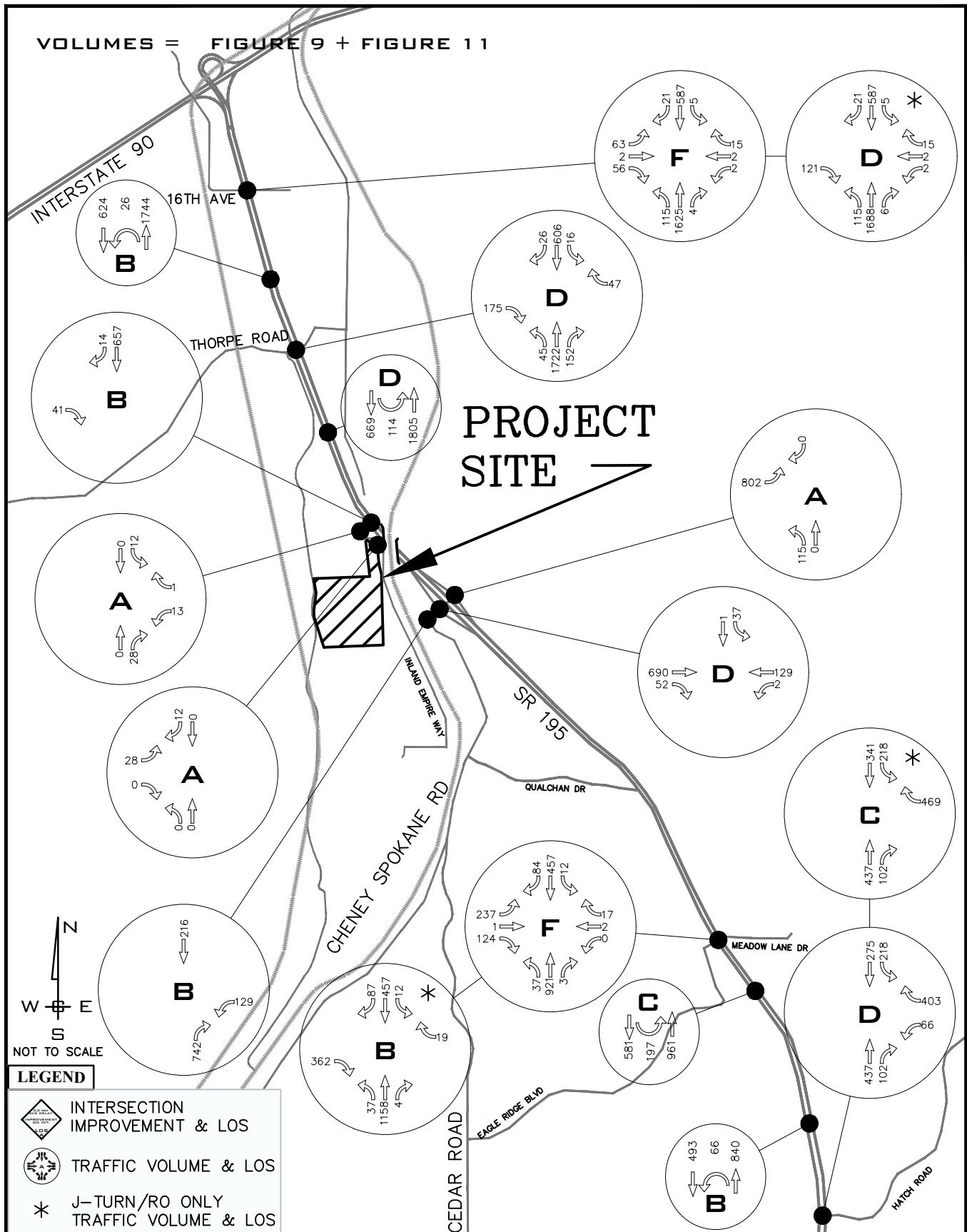
**Left-Turn Movement on WB Approach: 95th %tile Q on WB – AM: 4.5 veh(113ft), PM: 4.9 veh(123ft)

***95th %tile Q on WB – AM: 6.4 veh(160ft), PM: 2.8 veh(70ft)

The City of Spokane and WSDOT have adopted level of service D as the minimum acceptable level for signalized intersections and level of service E as the minimum acceptable level for unsignalized intersections.

As shown in Table 10, with the improvements at SR 195 & 16th Avenue, SR 195 & Meadowlane Drive, and SR 195 & Hatch Road, all intersections are anticipated to operate at an acceptable level of service.

VOLUMES = FIGURE 9 + FIGURE 11



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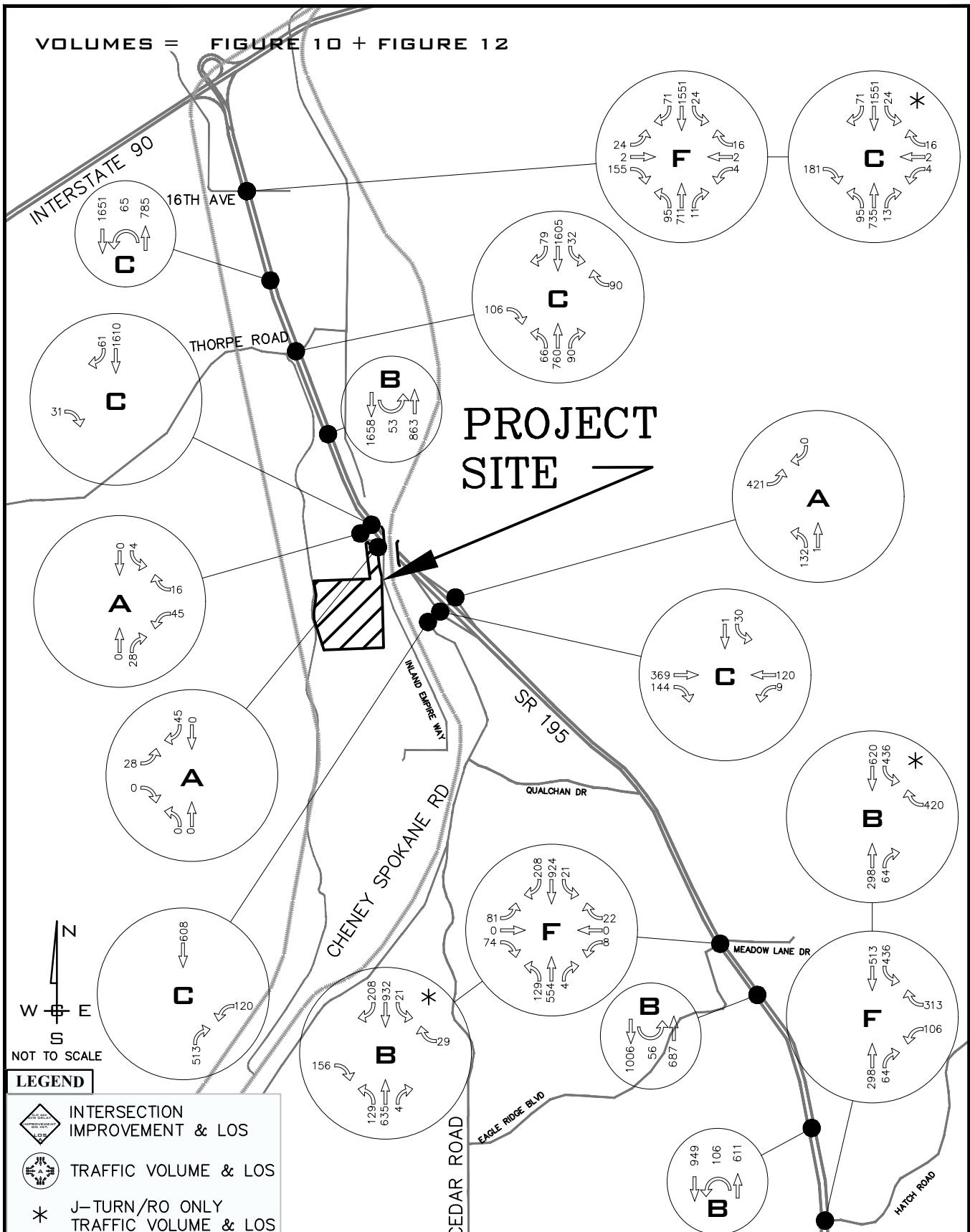
**TRAFFIC IMPACT ANALYSIS
LATAH GLEN RESIDENTIAL
3504 S INLAND EMPIRE WAY
SPOKANE, WASHINGTON**

FIGURE 13

**2026 AM VOL. W/ BACKGROUND
W/ PROJECT & LOS**

The logo for WCE (Whipple Consulting Engineers) features the letters "WCE" in a large, bold, black sans-serif font. A dark gray equilateral triangle is positioned to the left of the "W". Below the main title, the company name "WHIPPLE CONSULTING ENGINEERS" is written in a smaller, all-caps, black sans-serif font. Underneath that, "CIVIL AND TRANSPORTATION ENGINEERING" is also in a smaller, all-caps, black sans-serif font. At the bottom, the address "21 SOUTH PINES ROAD" and "SPOKANE VALLEY, WASHINGTON 99206" are listed in a medium-sized, all-caps, black sans-serif font. A phone number "PH: 509-893-2617" and a fax number "FAX: 509-926-0227" are at the very bottom in a small, all-caps, black sans-serif font.

VOLUMES = FIGURE 10 + FIGURE 12



PROJ #: 20-2564
DATE: 06/29/21
DRAWN: KMK
APPROVED: TRW

TRAFFIC IMPACT ANALYSIS
LATAH GLEN RESIDENTIAL
3504 S INLAND EMPIRE WAY
SPOKANE, WASHINGTON

FIGURE 14

2026 PM VOL. W/ BACKGROUND
W/ PROJECT & LOS

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ADDITIONAL ANALYSIS

Right-Turn Lane Warrant Analysis

Per the request of WSDOT, we have analyzed the intersection of Inland Empire Way & SR 195 to determine if a right turn is warranted based upon the WSDOT design manual Exhibit 1310-7a and Exhibit 1310-11. The results are summarized here and the exhibits are shown in the appendix:

Future Traffic Volumes with the Project

For right-turn lane warrant analysis, the traffic volumes for 2026 with background projects and project scenario as shown in Figure 13 & 14 have been used. The summary of traffic volumes for 2021 & 2026 scenarios are shown in following tables.

Table 11 - Existing Traffic Volumes on SR 195 Southbound

Time	Southbound (Veh/hour)		
	Through	Right-Turn	Right-lane (Through + Right) *
AM Peak Hour	492	2	-
PM Peak Hour	1038	12	774

*Per 1310.03 Right-Turn Lanes in WSDOT Design Manual, for multilane, high-speed highways (posted speed 45 mph or above), it is noted to use the right-lane peak hour approach volume (through + right-turn). Since the traffic volumes in PM peak hour for the project trips and existing traffic volumes are the most critical, only traffic volumes for right-lane in PM peak hour have been counted.

Table 12 - Summary of 2026 Southbound Traffic Volumes at Inland Empire Way & SR 195

Time	Southbound (Veh/hour)		
	Through	Right-Turn	Right-lane (Through + Right) *
AM Peak Hour	657	14	-
PM Peak Hour	1610	61	1,232

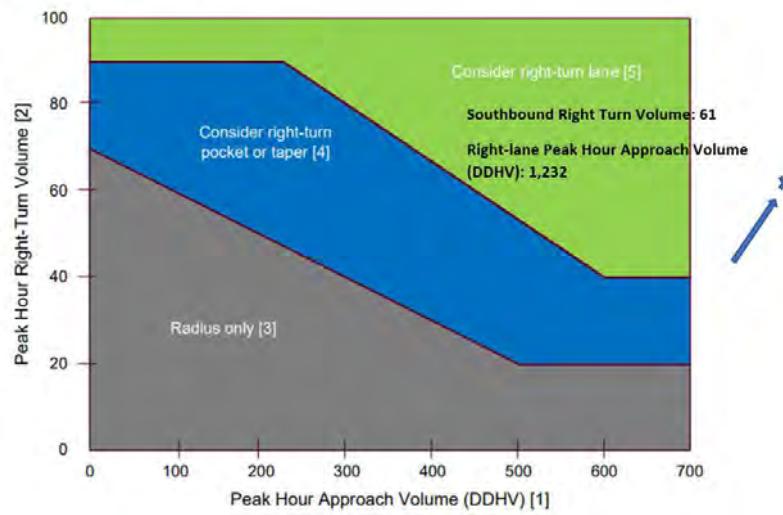
*Based upon the 2021 ratio between the total SB volumes and right-lane volumes ($774 / (1,038+12) = 0.737$), 2026 right-lane volume has been calculated ($(1,610+61) \times 0.737 = 1,232$).

Right-Turn Lane Warrant Analysis

Per 1310.03 Right-Turn Lanes in WSDOT Design Manual, the intersection of Inland Empire Way & SR 195 has been analyzed to determine if a right turn lane is warranted. The result and exhibit are shown below:

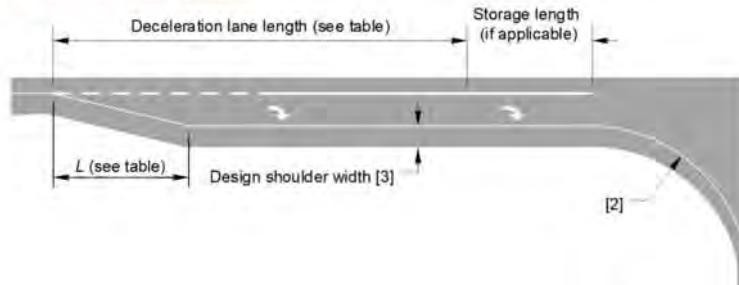
Intersection:	Results
SR 195 & Inland Empire Way • Right Turn Lane Warrant Analysis	Plots above the line – The right-turn lane warrant is met

Exhibit 1310-11 Right-Turn Lane Guidelines



[5] For right-turn lane design, see Exhibit 1310-13.

Exhibit 1310-13 Right-Turn Lane



Highway Design Speed (mph)	Deceleration Lane Length (ft)
30	160 [1]
35	220
40	275
45	350
50	425
55	515
60	605
65	715
70	820

Posted Speed Limit	L
Below 40 mph	40 ft
40 mph or above	100 ft

Grade	Upgrade	Downgrade
3% to less than 5%	0.9	1.2
5% or more	0.8	1.35

Adjustment Multiplier for Grades
3% or Greater

Minimum Deceleration Lane Length (ft)

Notes:

[1] When adjusting for grade, do not reduce the deceleration lane to less than 150 ft.

[2] For right-turn corner design, see Exhibit 1310-6.

[3] See 1310.03(6) and Chapter 1230.

Conclusion

Based upon the right-turn lane warrant analysis provided, it is concluded that the intersection meets the WSDOT right turn lane warrant. However, the intersection level of service remains at an acceptable level through the buildout period. Additionally, there is also a sight distance concern associated with a dedicated right turn lane, as a vehicle within the turn lane blocks the view of oncoming traffic. We propose additional consultation with the WSDOT that this be reevaluated after the 100th homesite.

SR 195 Corridor Improvement Projects.

Within the SR 195 Corridor for the past two years development projects have been conditioned by WSDOT to construct an improvement project(s) along the corridor with the goal to achieve a net zero balance in trips at the I-90/SR 195 Eastbound on ramp. The projects would essentially redirect existing and future traffic from the mainline, or as in the case of 16th Avenue redirect trips before they even get onto SR 195. This redirection of trips would reduce traffic volumes so that there would be room for the future I-90 Eastbound trips. Typically, those trips that have a destination to the east of the City of Spokane, and is truly an intra state trip.

As shown in the previous analysis section the Northbound SR 195 to Eastbound I-90 Ramp it was concluded that the project trips would have a minimal impact on the ramp as the capacity of the ramp, with the ramp meter has been reached. So, these improvement projects would have an additional improvement to the operation of the corridor as a whole. The following are descriptions of the improvement projects:

16th Avenue – EB Turn restrictions. The improvement project places a raised island, that channelizes all eastbound trips as a right turn, southbound movement onto SR 195. The project also includes an acceleration lane before a merge section. By restricting the eastbound left turn movement, a portion of the trips that originate from the intersection of Sunset Highway & Government Way and 14th Avenue & Lindke Street, would by an increase in time and effort would be redirected toward sunset highway or seek I-90 connections outside of the downtown core. This improvement project has currently been included as a condition in the Wheatland Estates project.

Thorpe Road Exit – Flashing Beacon and Sign. The improvement project places a directional sign before the Thorpe Road Northbound Exit. The Sign provides direction toward the City Center and the South Hill via Inland Empire Way. There is also a flashing beacon sign that is activated when the ramp meter signal is operating. The flashing beacon provides drivers with advance warning of additional delay. It is believed that with advance warning, drivers bound for the City Center or the South Hill would opt to exit at Thorpe Road and take this alternate route to their destination. It is anticipated that the presence and operation of this improvement would redirect **5%** of traffic volumes from the mainline volumes. This improvement project is a condition of the Summit and Tangle Ridge Projects, the project has been privately funded, with an approved WSDOT design. The improvement is scheduled to be completed in the spring of 2021.

Cheney-Spokane Road Ramp – Connection to Inland Empire Way. This improvement project proposes to extend the northbound ramp further north along SR 195, underneath the existing railroad bridge to the original Inland Empire Way & Sr 195 intersection. From the original intersection the northbound on ramp will begin. For the extension SR 195 and the ramp will be separated by a WSDOT approved barrier wall. At the old intersection the connection to Inland Empire Way would be reestablished, providing an alternate route for traffic. It is anticipated that the presence of the route with appropriate signage would redirect **20%** of traffic volumes from the on-ramp volumes.

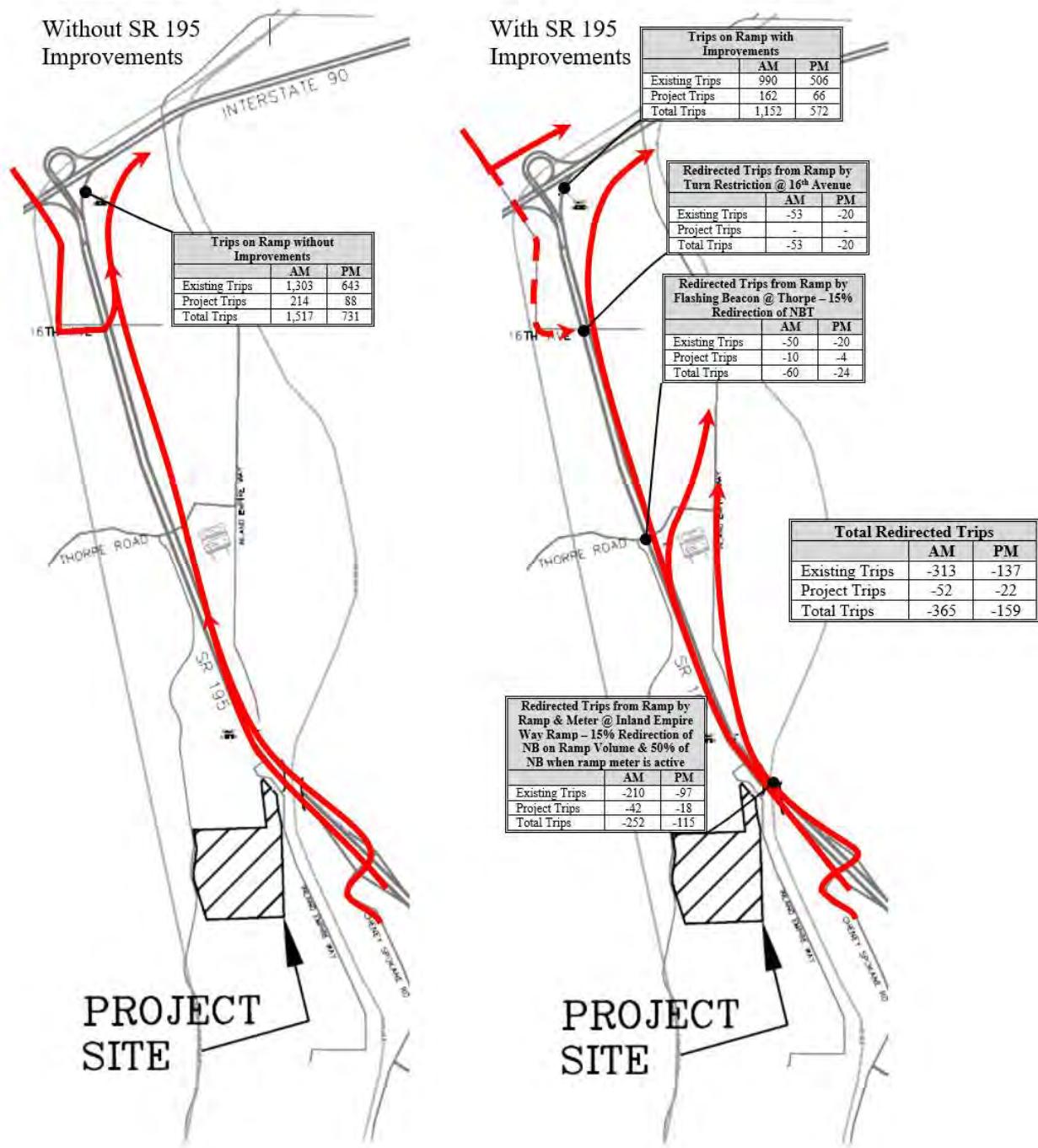
In addition to the connection, it is proposed that a ramp meter signal be installed at the ramp with an appropriate queue length. Like the ramp meter at I-90, the additional time delay would redirect drivers bound for the City Center or the South Hill to the alternative route of Inland Empire Way. The improvement is anticipated to create better local connections and preserve the state facilities for intra City travel (City to City) as opposed to inter City travel (travel within the City). It is anticipated that the presence and operation of the ramp meter redirect **50%** of traffic volumes from the on-ramp volumes when in operation. It is anticipated that the ramp meter would operate at similar times as the ramp meter at I-90, thus preserving the capacity of both. As the Thorpe Road Sign project establishes a virtual link for operations, the two meters could be tied together to provide drivers with additional advance warning.

There has also been discussion of utilizing the WSDOT reader board to provide additional driver information. The sign is currently north of the Cheney Spokane Road Interchange. Its relocation south of the interchange may redirect trips bound for the City Center and the South Hill to exit at Cheney Spokane Road.

The following is an Exhibit of the anticipated trips that would be redirected by these improvement projects.

Exhibit 1 – Redirected Trips

1 – Redirected Trips



As shown in the Exhibit based upon the anticipated percentages of redistribution, the three improvement projects have the potential to remove 363 existing AM peak hour and 157 PM peak hour trips from the I-90/ SR 195 Northbound to Eastbound Ramp. This redirection of trips forms the basis for no additional trips on the ramp. For convenience the anticipated trips from this project (Latah Glen Residential) that may be redirected is highlighted in yellow.

Table 13 – Corridor Project Trip Summary – With Improvement Credit

	Original Trips on Ramp		Redirected Trips from Ramp by SR 195 Projects								Trips on Ramp after Redirection	
			Turn Restriction @ 16th		Flashing Beacon @ Thorpe		Inland Empire Way Ramp & Meter		Total			
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Existing Trips on Ramp	1,303	643	-53	-20	-50	-20	-210	-97	-313	-137	990	506
Summit	22	17	-	-	-1	-1	-4	-3	-5	-4	17	13
Wheatland	50	9	-	-	-2	0	-10	-2	-12	-2	38	7
Tangle Ridge	10	7	-	-	-1	0	-2	-1	-3	-1	7	6
Latah Glen	13	5	-	-	-1	0	-3	-1	-4	-1	9	4
Qualchan View	42	14	-	-	-2	-1	-8	-3	-10	-4	32	10
Greens @ Meadowlane	5	3	-	-	0	0	-1	-1	-1	-1	4	2
Marshall Creek	72	33	-	-	-3	-2	-14	-7	-17	-9	55	24
Project Total	214	88	0	0	-10	-4	-42	-18	-52	-22	162	66
Total	1,517	731	-53	-20	-60	-24	-252	-115	-365	-159	1,152	572
Difference between Redirected Existing Trips & Total Project Trips on Ramp after Redirection											-151	-71

As shown in Table 13 the corridor projects after redirection from the improvement projects are anticipated to total 162 AM Trips and 66 PM peak hour trips. With the credit from the improvement projects there would no additional trips on the ramps and also still be additional capacity for future projects within the corridor.

Improvement Project Timing

In regard to the timing of each improvement project a separate report is anticipated to be completed. This report would consider the corridor projects buildout schedule by year, the anticipated credit of each improvement, and when each improvement project would need to be implemented to maintain no additional trips on the ramp.

Conclusion

It is concluded that with the improvement projects that a significant number of trips would be redirected away from the NB US 195 to EB I-90 ramp, and that the net result would be no additional trips to the ramp.

Highway Segment LOS and Queue Analysis

WSDOT has requested within the scope that an analysis of the SR 195 NB Ramp and I-90 Interchange be included. For a highway interchange there is not a single level of service model like a standard intersection but the analysis of multiple elements, and then the review by a transportation professional to determine acceptance and/or impact. These elements include the ramp queue length, the ramp merge area, and the I-90 freeway segment. These elements have been analyzed for the current condition, the future year 2026 without the project with the 1.0% background growth rate and the background projects, and the future year 2026 with the project, with the 1.0% background growth rate and the background projects.

NB SR 195 Ramp Configurations

NB SR 195 Ramp has 2-lanes, each with 500 ft (20 vehicles per lane) of storage. The vehicle release method is alternating green phases. The WSDOT recommended maximum hourly rate and minimum hourly rate to avoid ramp queuing on NB SR 195 Ramp are maximum of 1200 vph (AM) & 800 vhp (PM) and minimum of 800 vph (AM) & 300 vph (PM).

Traffic Volumes Statement

With WSDOT's Open Bid to install Ramp Meters along I-90 at Hwy 2 as well as other ramps within the downtown core. These projected volumes are subject to change, to an unpredictable value. Also, with the change in volumes all analysis that utilizes these volumes will also be subject to change.

Traffic volumes for the year 2019 conditions were provided by WSDOT. Traffic volumes for the year 2021 existing conditions assumed that the 2019 traffic volumes experience an increase above the 2019 traffic volumes at the established background rate. Two scenarios were examined for the year 2026 analysis. The first scenario assumes that the development has not moved forward and analyzes the scoped intersections with the background growth rate & background projects (Amazon, The Summit, Tangle Ridge, Latah Glen, Greens at Meadowlane, Qualchan View, & Wheatland Estates). The second scenario assumes the same, but adds the project trips. These scenarios will allow a determination to be made as to what the future conditions may be both with and without the project. The redirection of traffic volumes from SR 195 EB ramp by SR 195 Corridor Improvement projects were also included for the with project and the without project scenarios. The volumes used for this analysis are shown on the following Tables.

Table 14 – AM Traffic Volumes (vehicles per hour)

	2021 Existing*		2026 W/ Background Projects**		Latah Glen Project	2026 W/ Background Projects & This Project**	
	W/O SR 195 Corridor IMP	W/ SR 195 Corridor IMP	W/O SR 195 Corridor IMP	W/ SR 195 Corridor IMP		W/O SR 195 Corridor IMP	W/ SR 195 Corridor IMP
I-90 Main	3,627	3,627	3,821	3,821	-	3,821	3,821
SR 195 EB	1,303	990	1,570	1,193	13	1,583	1,202

Table 15 – PM Traffic Volumes (vehicles per hour)

	2021 Existing*		2026 W/ Background Projects**		Latah Glen Project	2026 W/ Background Projects & This Project**	
	W/O SR 195 Corridor IMP	W/ SR 195 Corridor IMP	W/O SR 195 Corridor IMP	W/ SR 195 Corridor IMP		W/O SR 195 Corridor IMP	W/ SR 195 Corridor IMP
I-90 Main	4,409	4,409	5,353	5,353	-	5,353	5,353
SR 195 EB	643	506	758	594	5	763	598

* Please see Table 9 for 2021 existing volumes on SR 195 EB

** 2026 traffic volumes adjusted from year 2021 to year 2026 via establish background growth rate(1.051)

NB SR 195 Ramp Queue Length Analysis without SR 195 Corridor Improvement Projects

Based upon the spreadsheet provided by WSDOT, the queue length analysis on NB SR 195 Ramp for the without SR 195 Corridor Improvement Projects scenario has been updated. The summary of this scenario is shown in Table 16.

Table 16 - EB SR 195 Ramps-Queue length analysis without SR 195 IMP

Scenario		A	B	C	C - B
		2021 Existing	2026 without Project	2026 with Project	
Traffic Volumes* (VPH)	AM	1,303	1,570	1,583	13
	PM	643	758	763	5
WSDOT Ramp Existing Metering Rate (VPH) {Future Meter Rate}	AM	1,200	1,200	1,200	-
	PM	800	800 {500}	800 {500}	-
Vehicles in the Queue / Max. Queue Length/ Queue Exceedance/ Times of Exceedance	AM	Max. Vehicles in Queue (Veh)	135	446	466
		Max. Queue Length (ft)	3,377	11,146	11,646
		Queue Length Available (ft)	1,000	1,000	1,000
		Excess Queue Length (ft)	2,377	10,146	10,646
		Time of Day 1,000 ft Queue Length is Exceeded (Max. Time of Exceedance)	7:35 AM – 8:29 AM (7:54 AM)	6:46 AM – 8:59 AM (8:18 AM)	6:46 AM – 8:59 AM (8:18 AM)
	PM (Meter ing Rate: 800 VPH)	Max. Vehicles in Queue (Veh)	12	24	24
		Max. Queue Length (ft)	304	600	611
		Queue Length Available (ft)	1,000	1,000	1,000
		Excess Queue Length (ft)	0	0	0
		Time of Day 1,000 ft Queue Length is Exceeded (Max. Time of Exceedance))	-	-	-
	PM (Meter ing Rate: 500 VPH)	Max. Vehicles in Queue (Veh)	-	661	675
		Max. Queue Length (ft)	-	16,520	16,887
		Queue Length Available (ft)	1,000	1,000	1,000
		Excess Queue Length (ft)	-	15,520	15,887
		Time of Day 1,000 ft Queue Length is Exceeded (Max. Time of Exceedance)	-	3:12 PM – 5:59 PM (5:59 PM or After)	3:11 PM – 5:59 PM (5:59 PM or After)

*Traffic volumes without SR 195 IMP from Table 14 & 15

As shown in Table 16, the maximum queue length for all scenarios without SR 195 Improvement Project in AM peak are anticipated to exceed the current storage space (1,000 ft) and the durations with queue beyond the storage for all scenarios are anticipated to continue to after AM peak hour. In PM peak, maximum queue length for all scenarios are anticipated to stay within the current storage space (1,000 ft), however, with 500 vph metering rate (to improve LOS on I-90 segment), the maximum queue length for all future scenarios in PM peak are anticipated to exceed the current storage space and the durations with queue beyond the storage for all future scenarios in PM peak are anticipated to continue to after PM peak hour, as the demand volumes used for the future year are only a projection of future traffic volumes, we recommend that the volumes and the queue length be monitored over time.

NB SR 195 Ramp Queue Length Analysis with SR 195 Corridor Improvement Projects

Based upon the spreadsheet provided by WSDOT, the queue length analysis on NB SR 195 Ramp for the with SR 195 Corridor Improvement Projects scenario has been updated. The summary of this scenario is shown in Table 17.

Table 17 - EB SR 195 Ramps-Queue length analysis with SR 195 IMP

Scenario		A	B	C	C - B
		2021 Existing	2026 without Project	2026 with Project	
Traffic Volumes* (VPH)	AM	990	1,193	1,202	9
	PM	506	594	598	4
WSDOT Ramp Existing Metering Rate (VPH) {Future Meter Rate}	AM	1,200	1,200	1,200	-
	PM	800	800 {500}	800 {500}	-
Vehicles in the Queue / Max. Queue Length/ Queue Exceedance/ Times of Exceedance	AM	Max. Vehicles in Queue (Veh)	8	76	80
		Max. Queue Length (ft)	196	1,903	2,010
		Queue Length Available (ft)	1,000	1,000	1,000
		Excess Queue Length (ft)	-	903	1,010
		Time of Day 1,000 ft Queue Length is Exceeded (Max. Time of Exceedance)	-	7:47 AM – 8:02 AM (7:53 AM)	7:43 AM – 8:05 AM (7:53 AM)
	PM (Meter ing Rate: 800 VPH)	Max. Vehicles in Queue (Veh)	8	11	11
		Max. Queue Length (ft)	190	281	287
		Queue Length Available (ft)	1,000	1,000	1,000
		Excess Queue Length (ft)	-	0	0
		Time of Day 1,000 ft Queue Length is Exceeded (Max. Time of Exceedance))	-	-	-
	PM (Meter ing Rate: 500 VPH)	Max. Vehicles in Queue (Veh)	-	193	206
		Max. Queue Length (ft)	-	4,826	5,147
		Queue Length Available (ft)	1,000	1,000	1,000
		Excess Queue Length (ft)	-	3,826	4,147
		Time of Day 1,000 ft Queue Length is Exceeded (Max. Time of Exceedance)	-	3:36 PM – 5:59 PM (5:59 PM or After)	3:36 PM – 5:59 PM (5:59 PM or After)

*Traffic volumes with SR 195 IMP from Table 14 & 15

As shown in Table 17, the maximum queue length for the 2026 with & without project scenarios with SR 195 Improvement Project in AM peak are anticipated to exceed the current storage space (1,000 ft) and the durations with queue beyond the storage are anticipated to be 15 minutes (7:47 AM – 8:02 AM) for the 2026 without project scenario and 22 minutes (7:43 AM – 8:05 AM) for the 2026 with project scenario. In PM peak, maximum queue length for all scenarios are anticipated to stay within the current storage space (1,000 ft), however, with 500 vph metering rate (to improve LOS on I-90 segment), the maximum queue length for all future scenarios in PM peak are anticipated to exceed the current storage space and the durations with queue beyond the storage for all future scenarios in PM peak are anticipated to continue to after PM peak hour, as the demand volumes used for the future year are only a projection of future traffic volumes, we recommend that the volumes and the queue length be monitored over time.

Based upon the analysis provided in Tables 16 and 17, it is anticipated that the SR 195 Corridor Improvement Project will improve NB SR 195 Ramp metering operation, by reducing 386 vehicles (466 vehicles – 80 vehicles) in maximum queue for AM and 13 vehicles (24 vehicles – 11 vehicles) in maximum queue for PM peak.

I-90 Segments LOS Analysis

The future Levels of Service at the freeway segments were calculated using the methods from the *Highway Capacity Manual 6th Edition* as implemented in HCS7, version 7.7. The Levels of Service for I-90 segments within the study area for both the with and without SR 195 Corridor Improvement Projects scenario are summarized on the following tables.

Table 18- I-90 Freeway Levels of Service without SR 195 IMP (AM: 1,200 vph, PM: 800 vph)

I-90 SEGMENT		2021 Existing		2026 W/O Project		2026 W/ Project	
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
Ramp Merge Area (NB SR 195 to EB I-90) • With 500 vph metering rate at PM	AM	37.4	E	39.8	E	39.8	E
	PM	37.1	E	Exceed 50.0 (47.3)	F (E)	Exceed 50.0 (47.3)	F (E)
Basic Area (NB SR 195 to Walnut St.) • With 500 vph metering rate at PM	AM	34.7	D	36.8	E	36.8	E
	PM	34.5	D	Exceed 45.0 (44.0)	F (E)	Exceed 45.0 (44.0)	F (E)
Ramp Diverge Area (EB I-90 to Walnut St.)	AM	25.3	C	26.4	C	26.4	C
	PM	24.3	C	29.8	C	29.8	C

Table 19- I-90 Freeway Levels of Service with SR 195 IMP (AM: 1,200 vph, PM: 800 vph)

I-90 SEGMENT		2021 Existing		2026 W/O Project		2026 W/ Project	
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
Ramp Merge Area (NB SR 195 to EB I-90) • With 500 vph metering rate at PM	AM	34.9	E	39.8	E	39.8	E
	PM	35.6	E	Exceed 50.0 (47.3)	F (E)	Exceed 50.0 (47.3)	F (E)
Basic Area (NB SR 195 to Walnut St.) • With 500 vph metering rate at PM	AM	32.7	D	36.7	E	36.8	E
	PM	33.3	D	Exceed 45.0 (44.0)	F (E)	Exceed 45.0 (44.0)	F (E)
Ramp Diverge Area (EB I-90 to Walnut St.)	AM	24.1	C	26.3	C	26.4	C
	PM	23.6	B	28.9	C	29.0	C

As shown in Table 18 & 19, the change of the density & level of Service on I-90 segments by adding new trips of the project were minimal considering. For 2026 PM peak hour at current metering rates, the level of service at Ramp Merge area and Basic area is anticipated to operate at “F”. With 500 vph ramp metering rates in PM peak hour, it is anticipated to operate at level of service “E”.

Conclusion

Based upon the analysis provided it is concluded that the addition of the project trips will have an impact upon the SR 195 & I-90 Interchange, by adding 4 vehicles (107 ft) in queue for AM and 1 vehicle (6 ft) in queue for PM.

LOS Analysis on the Intersection of 23rd Avenue (Thorpe Road) & Inland Empire Way

Per the WSDOT comments dated on May 28, 2021, the additional analysis at the intersection of 23rd Avenue (Thorpe Road) & Inland Empire Way has been performed. Seven scenarios were considered for this analysis;

1. 2021 existing
2. 2026 with background growth rate and without SR 195 IMP projects
3. 2026 with background growth rate and with SR 195 IMP projects
4. 2026 with background projects, without this project (Qualchan View Estates), and without SR 195 IMP projects
5. 2026 with background projects, without this project, and with SR 195 IMP
6. 2026 with background projects, with this project, and without SR 195 IMP
7. 2026 with background projects, with this project, and with SR 195 IMP

A summary of the Level of Service results is shown in the following table.

Table 20 – LOS on the Intersection of 23rd Avenue (Thorpe Road) & Inland Empire Way

Scenario	(A)ll way stop control (T)wo way stop control	AM Peak Hour		PM Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS
2021 Existing Condition	A	8.0	A	7.5	A
2026 w/ Growth Rate w/o SR 195 IMP Projects	A	8.1	A	7.5	A
2026 w/ Growth Rate w/ SR 195 IMP Projects • Stop Control on 23 rd Avenue (Thorpe Road)*	A (T)	10.1 (12.8)	B (B)	8.1 (10.4)	A (B)
2026 w/o Project w/o SR 195 IMP Projects	A	8.1	A	7.5	A
2026 w/o Project w/ SR 195 IMP Projects • Stop Control on 23rd Avenue (Thorpe Road)*	A (T)	10.6 (13.6)	B (B)	8.1 (10.5)	A (B)
2026 w/ Project w/o SR 195 IMP Projects	A	8.2	A	7.6	A
2026 w/ Project w/ SR 195 IMP Projects • Stop Control on 23rd Avenue (Thorpe Road)*	A (T)	10.7 (13.8)	B (B)	8.3 (10.7)	A (B)

*In case of the predomination of traffic volume on Inland Empire Way, the intersection has been analyzed based upon the stop control on 23rd Avenue only.

As shown Table 20, the intersection of Thorpe Road (23rd Avenue) & SR 195 is anticipated to operate at an acceptable level of service with all scenarios.

Conclusion

Based upon the analysis provided, it is concluded that the addition of the project trips will have a minimal impact upon the intersection of 23rd Avenue (Thorpe Road) & Inland Empire Way, by increasing 0.1 seconds in delay for AM and 0.2 seconds in delay for PM.

Queue Analysis on the Intersection of 16th Avenue & SR 195

Per the WSDOT comments dated on May 28, 2021, the Northbound Left-Turn queue length at the intersection of 16th Avenue & SR 195 has been analyzed. The methodology for this analysis is as shown below:

1. Using WSDOT Ramp Queuing Analysis spreadsheet, evaluate the maximum volumes on SR 195 NB Ramp with the current storage length (2-lanes, each with 500 ft (20 vehicle per lane – total of 40 vehicle)).
2. Calculate the overflow traffic volumes (2026 Projected traffic volumes on SR 195 NB Ramp – the Maximum volumes on SR 195 NB Ramp)
3. Based upon the calculated overflow traffic volumes, modify the 2026 projected traffic volumes on the intersection of 16th Avenue & SR 195 (NB Thru Traffic Volume: 2026 projected traffic volume – the overflow traffic volume, NB Left-Turn Traffic Volume: 2026 projected traffic volume + the overflow traffic volume).
4. Evaluate the queue length (NB Left-Turn) and LOS at the intersection.

The summary of this analysis is shown below tables.

Table 21 – 2026 Diverted Traffic Volume from SR 195 NB Ramp to 16th NB LT by Queuing

Scenario	Peak Hour	Metering Rate (Veh/hr)	Storage Capacity (ft)	A. Maximum Supportable Traffic Volume (Veh/hr)**	B. 2026 Traffic Volume (Veh/hr)***		C. Overflow Traffic B-A (Veh/hr)	
					WO Project	W Project	WO Project	W Project
WO SR 195 IMP	AM	1,200	1,000 (40 veh)	1,108	1,570	1,583	462	475
	PM	500*	1,000 (40 veh)	521	758	763	237	242
W SR 195 IMP	AM	1,200	1,000 (40 veh)	1,108	1,193	1,202	85	94
	PM	500*	1,000 (40 veh)	521	594	598	73	77

*500 vph Metering (to improve LOS on I-90 segment)

**Evaluated by WSDOT Ramp Queuing Analysis Spreadsheet

***2026 Traffic Volumes with SR 195 IMP Projects (Tables 14 & 15)

Table 22 – Queue & LOS Analysis for NB Left-turn for 2026 without Project Scenario

Scen ario	Pe ak	Movem ent	2026 without Diversion				2026 with Diversion			
			D. Vol. (Veh/hr)	95 th Queue (ft)	LOS - Delay (s)	Int. LOS&D elay (s)	Vol. (Veh/ hr)*	95 th Queue(ft)	LOS - Delay (s)	Int.LOS &Delay (s) **
WO SR 195 IMP	A M	NB LT	112	13 (1veh)	A-9.5	D-26.1	574	143(6veh)	C-16.9	F-67.5
		NB TH	1,677	-	-		1,215	-	-	
	P M	NB LT	92	25 (1veh)	C-17.6	C-17.6	329	233 (10veh)	F-58.3	F-140.7
		NB TH	724	-	-		487	-	-	
W SR 195 IMP	A M	NB LT	112	13 (1veh)	A-9.5	D-26.1	197	23(1veh)	B-10.1	D-27.5
		NB TH	1,677	-	-		1,592	-	-	
	P M	NB LT	92	25 (1veh)	C-17.6	C-17.6	165	58(3veh)	C-22.0	C-18.2
		NB TH	724	-	-		651	-	-	

*NB LT: D (Table 22: NB LT) + C (Table 21), NB TH: D (Table 22: NB TH) – C (Table 21)

**Intersection LOS & Delay based upon Critical Movement

Table 23 – Queue & LOS Analysis for NB Left-turn for 2026 with Project Scenario

Scen ario	Pe ak	Movem ent	2026 without Diversion				2026 with Diversion			
			D. Vol. (Veh/hr)	95 th Queue (ft)	LOS - Delay (s)	Int. LOS&D elay (s)	Vol. (Veh/ hr)*	95 th Queue(ft)	LOS - Delay (s)	Int.LOS &Delay (s)**
WO SR 195 IMP	A M	NB LT	115	13 (1veh)	A-9.5	D-26.3	590	155(7veh)	C-17.7	F-83.3
		NB TH	1,688	-	-		1,213	-	-	
	P M	NB LT	95	28 (2veh)	C-18.0	C-18.0	337	255 (11veh)	F-66.2	F-66.2
		NB TH	735	-	-		493	-	-	
W SR 195 IMP	A M	NB LT	115	13 (1veh)	A-9.5	D-26.3	209	25(1veh)	B-10.2	D-28.1
		NB TH	1,688	-	-		1,594	-	-	
	P M	NB LT	95	28 (2veh)	C-18	C-18.0	172	63(3veh)	D-23.1	D-23.1
		NB TH	735	-	-		658	-	-	

*NB LT: D (Table 19: NB LT) + C (Table 17), NB TH: D (Table 19: NB TH) – C (Table 17)

**Intersection LOS & Delay based upon Critical Movement

As shown in Table 22 & 23, with the diversion traffic volume caused by queueing on SR 195 NB Ramp, it is anticipated that the NB left-turn queue length will exceed the available storage (240 ft) for PM peak hour and the intersection will operate at an unacceptable level of service for both AM & PM peak hours. With the SR 195 Improvements projects, it is anticipated that the NB left-turn queue length will stay within the available storage and the intersection will operate at an acceptable level of service.

Conclusion

Based upon the analysis provided, it is concluded that the diverted trips will have a minimal impact upon the northbound left-turn lane at the intersection of 16th Avenue and SR 195, by adding 1 vehicle (2 ft) in queue for AM and 1 vehicle (5 ft) in queue for PM.

CONCLUSIONS & RECOMMENDATIONS

Conclusions

This Traffic Impact Analysis (TIA) has reviewed and analyzed the study area per the scope established by the City of Spokane and WSDOT. Based upon the analysis, field observations, assumptions, methodologies and results which are provided in the body of this report, it is concluded that the development of the proposed project will generate new trips on the existing transportation system and that those trips will have an impact on the transportation system. This conclusion was reached and has been documented within the body of this report.

- Under the **existing** conditions, all intersections are currently operating at an acceptable level of service.
- For the **year 2026 with background growth rate** scenario, all intersections are anticipated to continue to operate at an acceptable level of service except the intersections of SR 195 & 16th Avenue and SR 195 & Hatch Road. With the mitigation provided by the Spangle-Wheatland project at SR 195 & 16th Avenue (Right Out only on eastbound approach) and ½ J-Turn improvement at SR 195 & Hatch Road, all intersections are anticipated to operate at an acceptable level of service.
- For the **year 2026 with background growth rate plus background projects and without this project** scenario, with the mitigation provided by the Spangle-Wheatland project (Right Out only on eastbound approach) at SR 195 & 16th Avenue, and ½ J-Turn improvement at SR 195 & Hatch Road, all intersections are anticipated to continue to operate at an acceptable level of service except the intersection of SR 195 & Meadowlane Drive. With WSDOT ½ J-Turn at SR 195 & Meadowlane Drive, all intersections are anticipated to operate at an acceptable level of service.
- For the **year 2026 with background growth rate plus background projects and with this project** scenario, with the mitigation provided by the Spangle-Wheatland project (Right Out only on eastbound approach) at SR 195 & 16th Avenue, ½ J-Turn improvement at SR 195 & Hatch Road, and WSDOT ½ J-Turn at SR 195 & Meadowlane Drive, all intersections are anticipated to continue to operate at an acceptable level of service. (Please see Wheatland Estates Proposed Traffic/Transportation Conditions of Approval letter in Background Project section of Appendix).

As shown in the Additional Analysis - Right Turn Lane Warrant Analysis section, it is concluded that the intersection of Inland Empire Way & SR 195 meets the WSDOT right turn lane warrant. However, the intersection level of service remains at an acceptable level through the buildout period. Additionally, there is also a sight distance concern associated with a dedicated right turn lane, as a vehicle within the turn lane blocks the view of oncoming traffic. We propose additional

consultation with the WSDOT that this be reevaluated after the 100th home site has received an occupancy permit.

As shown in the additional analysis section – SR 195 Corridor Improvement Projects, it was concluded that with the EB Turn Restrictions at 16th Avenue, Flashing Beacon and Sign at Thorpe Road Exit, and Connection to Inland Empire Way at Cheney-Spokane Road Ramp projects (by other projects, yet to be approved but in the pipeline) that a significant number of trips would be redirected away the NB US 195 to EB I-90 ramp, and that the net result would be no additional trips to the I-90 Ramps.

As shown in the additional analysis Highway Segment LOS and Queue Analysis section, based upon the analysis provided it is concluded that the addition of the 13 AM and the 5 PM project trips will have an impact upon the SR 195 & I-90 Interchange, by adding 4 vehicles with a calculated 107 ft addition at queue for AM and 1 vehicle with a calculated 6 ft addition at queue for PM with SR 195 Corridor Improvement Projects.

As shown in the additional analysis, based upon the LOS Analysis on the intersection of 23rd Avenue & Inland Empire Way, it is concluded that the addition of the project trips will have a minimal impact upon the intersection of 23rd Avenue (Thorpe Road) & Inland Empire Way, by increasing 0.1 seconds in delay for AM and 0.2 seconds in delay for PM.

As shown in the additional analysis, based upon the Queue Analysis on the intersection of 16th Avenue & SR 195, it is concluded that the diverted trips will have a minimal impact upon the northbound left-turn lane at the intersection of 16th Avenue and SR 195, by adding 1 vehicle (2 ft) in queue for AM and 1 vehicle (5 ft) in queue for PM.

Recommendations

It is recommended that the project be conditioned to participate in the Corridor Improvement projects as described within this document. The proposed conditions are as follows.

- A. *Vehicular traffic from this project is expected to add 13 AM trips and 5 PM trips to the NB US 195 to EB I-90 ramp. WSDOT has commented that no additional peak hour trips may be added to the ramp due to safety concerns. Latah Glen is therefore required to contribute funds to complete an improvement to the US 195 corridor that will reduce the impact of its traffic on NB US 195 to EB I-90 ramp (“Mitigation Project”). Latah Glen may receive plan approval after a financial commitment is in place (secured by a letter of credit or bond), which has been approved by the City, providing for the funding of the design and the construction for the Mitigation Project(s), which shall be under contract for construction within one year from issuance of the plan approval. The details of the mitigation project(s) will be agreed upon by the developers, City and WSDOT. The applicant’s contributions to funding the design and construction of the mitigation project(s) will qualify for a credit against transportation impact fees per SMC 17D.075.070*
- B. *Latah Glenn may receive plan approval once a financial commitment is in place (secured by a letter of credit or bond), which has been approved by the City,*

providing for a.) the construction of the 16th Avenue improvements with SR 195, and b.) Cheney-Spokane Road Ramp – Connection to Inland Empire Way Improvement. This commitment may be defined as an agreement between several developers to fund and construct the 16th Avenue, and the Cheney-Spokane Road Ramp – Connection to Inland Empire Way Improvement projects within a specified time frame, not to exceed six years, as agreed upon by city staff and WSDOT. The applicant's contributions to funding the design and construction of the Improvement projects will qualify for a credit against transportation impact fees per SMC 17D.075.070.

i. The 16th Avenue and SR 195, improvement project will consist of the the following:

- Install a raised curb island*
- Channelize the turn lane*
- Add a southbound acceleration lane.*

ii. The Cheney-Spokane Road Ramp – Connection to Inland Empire Way Improvement project will consist of the following:

- Extend the northbound ramp to Inland Empire Way,*
- One or Two-way connection to Inland Empire Way,*
- Install ramp with acceleration lane*
- Install ramp meter signal*
- Relocate existing sign bridge*

iii. Latah Glen Financial Commitment

*The financial commitment for Latah Glen development based upon the rate of participation is as follows for the Cheney-Spokane Road Ramp improvement with 157 PM peak hour trips at \$1,910.64 per PM peak hour trip. The participation percentage is anticipated to total \$299,970.48(157 trips * \$1,910.64). In summary the total financial commitment due is \$299,970.48 or greater depending upon final cost, less a 25% contribution to the construction of improvements at 16th and SR-195 as proposed in the Spangle-Wheatland Estate mitigation proposal.*

iv. The applicant's contributions to funding the design and construction of the Improvement projects will qualify for a credit against transportation impact fees per SMC 17D.075.070.

v. It should be noted that the Latah Glen Community commitment to this improvement has been set tentatively at \$299,970.48 this commitment along with the value of \$776,630.48 from Marshall Creek would result in a beginning commitment of \$1,076,600± to the Inland Empire Way access, Phase 1. It is understood that this is an approximated commitment may increase due to actual construction costs for the improvements proposed.

vi. Lastly, the current impact fee credit of \$1160.64 would occur at time of building permit which results in an effective developer contribution of \$750/unit (\$1910.64-\$1160.64).

Based upon the conclusions within this study, the proposed project is recommended to complete all required conditions of approval and should be allowed to move forward without further traffic analysis, or offsite mitigation.

TECHNICAL APPENDIX

METHODS AND CRITERIA

**Unsignalized Intersection
Level of Service Criteria**

Level of Service	Delay Range (sec)	Expected Delay to Minor Street Traffic
A	≤ 10	Little to No Delay
B	$> 10 \text{ and } \leq 15$	Short Traffic Delays
C	$> 15 \text{ and } \leq 25$	Average Traffic Delays
D	$> 25 \text{ and } \leq 35$	Long Traffic Delays
E	$> 35 \text{ and } \leq 50$	Very Long Traffic Delays
F	> 50	Stop-and-Go Condition Delays Generally Longer than Acceptable

**Unsignalized Intersections
Level of Service Descriptions**

LOS	General Description
A	<ul style="list-style-type: none"> • Nearly all drivers find freedom of operation. • Very seldom is there more than one vehicle in the queue.
B	<ul style="list-style-type: none"> • Some drivers begin to consider the delay an inconvenience • Occasionally there is more than one vehicle in the queue.
C	<ul style="list-style-type: none"> • Many times there is more than one vehicle in the queue. • Most drivers feel restricted, but not objectionably so.
D	<ul style="list-style-type: none"> • Often there is more than one vehicle in the queue. • Drivers feel quite restricted.
E	<ul style="list-style-type: none"> • Represents conditions in which the demand is near or equal to the probable maximum number of vehicles that can be accommodated by the movement. • There is almost always more than one vehicle in the queue. • Drivers find the delays approaching intolerable levels.
F	<ul style="list-style-type: none"> • Forced flow. • Represents an intersection failure condition that is caused by geometric and/or operational constraints external to the intersection

Signalized Intersection Level of Service Criteria

Level of Service	Delay Range (sec)
A	≤ 10
B	> 10 and ≤ 20
C	>20 and ≤ 35
D	>35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

Signalized Intersections Level of Service Descriptions

LOS	General Description
A	<ul style="list-style-type: none"> Very low delay at intersection. All signal cycles clear. No vehicles wait through more than one signal cycle.
B	<ul style="list-style-type: none"> Operating speeds beginning to be affected by other traffic. Short traffic delays at intersections. Higher average intersections delays resulting from more vehicles stopping.
C	<ul style="list-style-type: none"> Operating speeds and maneuverability closely controlled by other traffic. Higher delays at intersections than for LOS B due to a significant number of vehicles stopping. Not all signal cycles clear the waiting vehicles.
D	<ul style="list-style-type: none"> Tolerable operating speeds, but long traffic delays occur at intersections The influence of congestion is noticeable. Many vehicles stop and the proportion of vehicles not stopping declines. The number of signal cycle failures, for which vehicles must wait through more than one signal cycle are noticeable.
E	<ul style="list-style-type: none"> Speeds are restricted, very long traffic delays are experienced and traffic volumes are near capacity. Traffic flow is unstable so that any interruption, no matter how minor, will cause queues to form and service to deteriorate. Traffic signal cycle failures are frequent occurrences.
F	<ul style="list-style-type: none"> Extreme delays resulting in long queues which may interfere with other traffic movements Stoppages of long duration and speeds may drop to zero. There may be frequent signal failures. Vehicle arrival rates are greater than capacity. Considered unacceptable by most drivers.

ACCIDENT DATA

OFFICER REPORTED CRASHES THAT OCCURRED at OR in the vicinity of MULTIPLE INTERSECTIONS IN THE CITY OF SPOKANE

01/01/2015 - 12/31/2019 See 2nd tab below for road information & interchange drawing for reference

Under 23 U.S. Code § 148 and 23 U.S. Code § 409, 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.

Intersection	JURISDICTION	COUNTY	CITY	PRIMARY TRAFFICWAY	MILEPOST	REPORT NUMBER	DATE	TIME	MOST SEVERE INJURY TYPE	# P I # F V E K N A E D E J T H S S	VEHICLE 1 TYPE	VEHICLE 2 TYPE	WEATHER	ROADWAY SURFACE CONDITION	LIGHTING CONDITION	Number of Accidents
SR 195 & Hatch Rd	State Route	Spokane	Spokane	195	91.17	E648027	02/25/2017	16:12	No Apparent Injury	0 0 2 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	Clear or Partly Cloudy	Dry	Daylight	9
	State Route	Spokane	Spokane	195	91.17	E672913	05/19/2017	16:45	Suspected Minor Injury	4 0 2 0 0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000 lb	Clear or Partly Cloudy	Dry	Daylight	
	State Route	Spokane	Spokane	195	91.17	E718548	09/29/2017	07:12	Possible Injury	2 0 3 0 0	Passenger Car	Passenger Car	Clear or Partly Cloudy	Dry	Daylight	
	State Route	Spokane	Spokane	195	91.17	E725396	10/19/2017	15:17	Possible Injury	1 0 2 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	Overcast	Dry	Daylight	
	State Route	Spokane	Spokane	195	91.17	E812465	06/27/2018	13:32	No Apparent Injury	0 0 2 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Motorcycle	Clear or Partly Cloudy	Dry	Daylight	
	State Route	Spokane	Spokane	195	91.17	E823891	07/30/2018	17:51	Suspected Minor Injury	3 0 5 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Passenger Car	Clear or Partly Cloudy	Dry	Daylight	
	State Route	Spokane	Spokane	195	91.17	E840198	09/20/2018	14:45	No Apparent Injury	0 0 2 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Passenger Car	Clear or Partly Cloudy	Dry	Daylight	
SR 195 & Meadowlane Dr	State Route	Spokane	Spokane	195	91.17	E955333	08/30/2019	17:15	Suspected Minor Injury	2 0 2 0 0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000 lb	Clear or Partly Cloudy	Dry	Daylight	11
	State Route	Spokane	Spokane	195	91.17	E979570	10/16/2019	17:36	No Apparent Injury	0 0 3 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	Clear or Partly Cloudy	Dry	Daylight	
	State Route	Spokane	Spokane	195	92.28	E631701	01/05/2017	20:47	Suspected Minor Injury	3 0 2 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Passenger Car	Clear or Partly Cloudy	Ice	Dark-Street Lights On	
	State Route	Spokane	Spokane	195	92.28	E692060	07/11/2017	14:43	Suspected Serious Injury	2 0 2 0 0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000 lb	Clear or Partly Cloudy	Dry	Daylight	
	State Route	Spokane	Spokane	195	92.28	E697430	08/01/2017	10:37	Possible Injury	1 0 2 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	Clear or Partly Cloudy	Dry	Daylight	
	State Route	Spokane	Spokane	195	92.28	E725216	10/18/2017	12:50	Possible Injury	1 0 2 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Passenger Car	Raining	Dry	Daylight	
	State Route	Spokane	Spokane	195	92.28	E780063	03/17/2018	14:58	No Apparent Injury	0 0 2 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	Overcast	Dry	Daylight	
	State Route	Spokane	Spokane	195	92.28	E844772	10/03/2018	13:15	No Apparent Injury	0 0 2 0 0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000 lb	Clear or Partly Cloudy	Dry	Daylight	
	State Route	Spokane	Spokane	195	92.28	E849944	10/16/2018	09:30	No Apparent Injury	0 0 2 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	Clear or Partly Cloudy	Dry	Daylight	
	State Route	Spokane	Spokane	195	92.28	E911809	04/15/2019	23:35	No Apparent Injury	0 0 1 0 0	Pickup,Panel Truck or Vanette under 10,000 lb		Clear or Partly Cloudy	Dry	Dark-Street Lights On	
SR 195 & Inland Empire Way	State Route	Spokane	Spokane	195	92.28	E971806	10/08/2019	16:37	Possible Injury	1 0 2 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	Clear or Partly Cloudy	Dry	Daylight	3
	State Route	Spokane	Spokane	195	92.28	E974717	10/22/2019	17:41	Suspected Serious Injury	1 0 2 0 0	Passenger Car	Passenger Car	Overcast	Dry	Dusk	
	State Route	Spokane	Spokane	195	92.28	E994081	12/10/2019	21:22	Possible Injury	1 0 2 0 0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000 lb	Overcast	Dry	Dark-Street Lights On	
SR 195 & Thorpe Ave	State Route	Spokane	Spokane	195	94.31	E751907	12/22/2017	17:20	No Apparent Injury	0 0 2 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Passenger Car	Snowing	Ice	Dark-Street Lights On	20
	State Route	Spokane	Spokane	195	94.32	E640490	02/08/2017	15:54	Possible Injury	1 0 2 0 0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000 lb	Snowing	Snow/Slush	Daylight	
	State Route	Spokane	Spokane	195	94.32	E889961	02/05/2019	12:32	Suspected Minor Injury	1 0 1 0 0	Pickup,Panel Truck or Vanette under 10,000 lb		Overcast	Ice	Daylight	
	State Route	Spokane	Spokane	195	94.90	E667717	04/28/2017	20:35	No Apparent Injury	0 0 2 0 0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000 lb	Overcast	Dry	Dark-Street Lights On	
	State Route	Spokane	Spokane	195	94.94	E635511	01/24/2017	17:57	No Apparent Injury	0 0 2 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Passenger Car	Snowing	Wet	Dark-Street Lights On	
	State Route	Spokane	Spokane	195	94.94	E644072	02/17/2017	07:02	No Apparent Injury	0 0 1 0 0	Passenger Car		Overcast	Wet	Dawn	
	State Route	Spokane	Spokane	195	94.94	E648023	03/02/2017	15:21	No Apparent Injury	0 0 2 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	Clear or Partly Cloudy	Dry	Daylight	
	State Route	Spokane	Spokane	195	94.94	E676257	05/30/2017	16:00	No Apparent Injury	0 0 2 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Truck Tractor & Semi-Trailer	Clear or Partly Cloudy	Dry	Daylight	
	State Route	Spokane	Spokane	195	94.94	E676966	05/23/2017	17:22	Possible Injury	1 0 2 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Passenger Car	Clear or Partly Cloudy	Dry	Daylight	
	State Route	Spokane	Spokane	195	94.94	E679258	06/07/2017	19:17	No Apparent Injury	0 0 2 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	Clear or Partly Cloudy	Dry	Daylight	
	State Route	Spokane	Spokane	195	94.94	E715006	09/23/2017	08:49	Possible Injury	2 0 2 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	Clear or Partly Cloudy	Dry	Daylight	
	State Route	Spokane	Spokane	195	94.94	E724463	10/18/2017	18:52	No Apparent Injury	0 0 2 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Passenger Car	Raining	Wet	Dark-Street Lights On	
	State Route	Spokane	Spokane	195	94.94	E772528	02/23/2018	07:41	Possible Injury	1 0 2 0 0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000 lb	Clear or Partly Cloudy	Dry	Daylight	
	State Route	Spokane	Spokane	195	94.94	E783182	03/20/2018	11:45	Possible Injury	2 0 3 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	Clear or Partly Cloudy	Dry	Daylight	
	State Route	Spokane	Spokane	195	94.94	E788069	04/13/2018	06:20	Possible Injury	2 0 2 0 0	Passenger Car	Passenger Car	Overcast	Dry	Daylight	
	State Route	Spokane	Spokane	195	94.94	E795597	05/01/2018	11:45	No Apparent Injury	0 0 3 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Passenger Car	Clear or Partly Cloudy	Dry	Daylight	
	State Route	Spokane	Spokane	195	94.94	E803124	05/17/2018	20:42	Possible Injury	2 0 2 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	Overcast	Wet	Dark-No Street Lights	
	State Route	Spokane	Spokane													

OFFICER REPORTED CRASHES THAT OCCURRED ON STATE ROUTE 195 (MP 94.90 - 94.98) @ THORPE AVE IN THE CITY OF SPOKANE

01/01/2016 - 12/31/2020

Under 23 U.S. Code § 148 and 23 U.S. Code § 409, 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.

JURISDICTION	COUNTY	CITY	PRIMARY TRAFFICWAY	MILEPOST	DATE	TIME	MOST SEVERE INJURY TYPE	# B I P E K D E S J T H S N A E D E I F V E K #	VEHICLE 1 TYPE	VEHICLE 2 TYPE	WEATHER	ROADWAY SURFACE CONDITION	LIGHTING CONDITION
									#	#	#	#	
State Route	Spokane	Spokane	195	94.94	01/24/2017	17:57	No Apparent Injury	0 0 2 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Passenger Car	Snowing	Wet	Dark-Street Lights On
State Route	Spokane	Spokane	195	94.94	02/17/2017	07:02	No Apparent Injury	0 0 1 0 0	Passenger Car		Overcast	Wet	Dawn
State Route	Spokane	Spokane	195	94.94	03/02/2017	15:21	No Apparent Injury	0 0 2 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	Clear or Partly Cloudy	Dry	Daylight
State Route	Spokane	Spokane	195	94.90	04/28/2017	20:35	No Apparent Injury	0 0 2 0 0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000 lb	Overcast	Dry	Dark-Street Lights On
State Route	Spokane	Spokane	195	94.94	05/23/2017	17:22	Possible Injury	1 0 2 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Passenger Car	Clear or Partly Cloudy	Dry	Daylight
State Route	Spokane	Spokane	195	94.94	05/30/2017	16:00	No Apparent Injury	0 0 2 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Truck Tractor & Semi-Trailer	Clear or Partly Cloudy	Dry	Daylight
State Route	Spokane	Spokane	195	94.94	06/07/2017	19:17	No Apparent Injury	0 0 2 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	Clear or Partly Cloudy	Dry	Daylight
State Route	Spokane	Spokane	195	94.94	09/23/2017	08:49	Possible Injury	2 0 2 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	Clear or Partly Cloudy	Dry	Daylight
State Route	Spokane	Spokane	195	94.94	10/18/2017	18:52	No Apparent Injury	0 0 2 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Passenger Car	Raining	Wet	Dark-Street Lights On
State Route	Spokane	Spokane	195	94.94	02/23/2018	07:41	Possible Injury	1 0 2 0 0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000 lb	Clear or Partly Cloudy	Dry	Daylight
State Route	Spokane	Spokane	195	94.94	03/20/2018	11:45	Possible Injury	2 0 3 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	Clear or Partly Cloudy	Dry	Daylight
State Route	Spokane	Spokane	195	94.94	04/13/2018	06:20	Possible Injury	2 0 2 0 0	Passenger Car	Passenger Car	Overcast	Dry	Daylight
State Route	Spokane	Spokane	195	94.94	05/01/2018	11:45	No Apparent Injury	0 0 3 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Passenger Car	Clear or Partly Cloudy	Dry	Daylight
State Route	Spokane	Spokane	195	94.94	05/17/2018	20:42	Possible Injury	2 0 2 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	Overcast	Wet	Dark-No Street Lights
State Route	Spokane	Spokane	195	94.94	11/27/2018	11:30	Possible Injury	2 0 2 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	Raining	Wet	Daylight
State Route	Spokane	Spokane	195	94.94	12/14/2018	16:22	No Apparent Injury	0 0 2 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Not Stated	Overcast	Dry	Dark-Street Lights On
State Route	Spokane	Spokane	195	94.94	12/16/2018	15:12	No Apparent Injury	0 0 2 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	Raining	Wet	Daylight
State Route	Spokane	Spokane	195	94.94	06/30/2019	13:53	Suspected Minor Injury	1 0 2 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	Clear or Partly Cloudy	Dry	Daylight
State Route	Spokane	Spokane	195	94.94	07/08/2019	09:02	Suspected Minor Injury	1 0 2 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	Clear or Partly Cloudy	Dry	Daylight
State Route	Spokane	Spokane	195	94.94	11/01/2019	03:17	No Apparent Injury	0 0 1 0 0	Pickup,Panel Truck or Vanette under 10,000 lb		Clear or Partly Cloudy	Dry	Dark-Street Lights On
State Route	Spokane	Spokane	195	94.98	01/16/2020	23:28	No Apparent Injury	0 0 1 0 0	Passenger Car		Overcast	Snow/Slush	Dark-No Street Lights
State Route	Spokane	Spokane	195	94.94	09/08/2020	12:39	No Apparent Injury	0 0 2 0 0	Pickup,Panel Truck or Vanette under 10,000 lb	Passenger Car	Clear or Partly Cloudy	Dry	Daylight

HSM ANALYSIS

PROJECT SAFETY PERFORMANCE SUMMARY REPORT

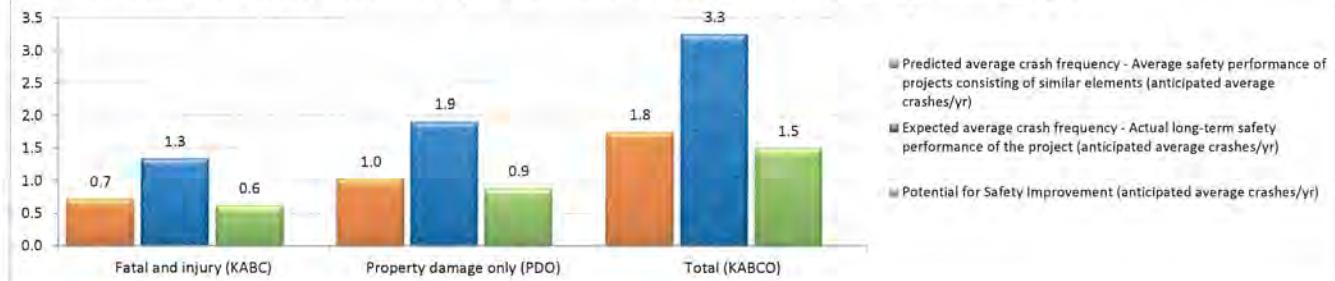
General Information

Project Name	20-2564 Latah Glen Residential
Project Description	Residential Development
Reference Number	SR 195 & 16th Avenue
Analyst	Whipple Consulting Engineer
Agency/Company	WSDOT
Contact Email	kkim@WhippleCE.com
Contact Phone	(509) 893-2617
Date Completed	05/12/11

Years of crash data incorporated into the analysis: 3

PROJECT SUMMARY

Summary of Anticipated Safety Performance of the Project (average crashes/yr)



Project Element	Total Crashes/yr (KABCO)			Fatal and Injury Crashes/yr (KABC)			Property Damage Only Crashes/yr (PDO)		
	Predicted average crash frequency $N_{predicted}$ (KABC)	Expected average crash frequency $N_{expected}$ (KABC)	Potential for Improvement	Predicted average crash frequency $N_{predicted}$ (KABC)	Expected average crash frequency $N_{expected}$ (KABC)	Potential for Improvement	Predicted average crash frequency $N_{predicted}$ (O)	Expected average crash frequency $N_{expected}$ (O)	Potential for Improvement
INDIVIDUAL INTERSECTIONS									
Intersection 1	1.8	3.3	1.5	0.7	1.3	0.6	1.0	1.9	0.9
COMBINED (sum of column)	1.8	3.3	1.5	0.7	1.3	0.6	1.0	1.9	0.9

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)	0.7	1.3	0.6
Property damage only (PDO)	1.0	1.9	0.9
Total (KABCO)	1.8	3.3	1.5

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 3.3 crashes per year (1.3 fatal and injury crashes per year; and 1.9 property damage only crashes per year).
2. A similar project is anticipated, on average, to experience 1.8 crashes per year (0.7 fatal and injury crashes per year; and 1 property damage only crashes per year).
3. It is anticipated the project has, on average, a potential for safety improvement of 1.5 crashes per year (0.6 fatal and injury crashes per year; and 0.9 property damage only crashes per year).

WORKSHEET 2A .. GENERAL INFORMATION AND INPUT DATA FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

General Information		Location Information	
Analyst:	Whipple Consulting Engineer	Roadway	SR 195
Agency or Company	WSDOT	Location Information	16th Avenue
Date Performed	1/29/2021	Jurisdiction	WSDOT
Intersection	Intersection 1	Analysis Year	2021
Signalized/Unsignalized	Unsignalized		
Input Data		Site Conditions	
Intersection type (3ST, 3SG, 4ST, 4SG)	AADT _{MAX} = 46,800 (veh/day)	4ST	Base Conditions
AADT _{major} (veh/day) (total entering on major approaches)*	21,220		--
AADT _{minor} (veh/day) (total entering on minor approaches)*	1,860		--
Intersection lighting (present/not present)	Present		Not Present
Calibration factor, C_1	1.00		1.00
Data for unsignalized intersections only:			
Number of major-road approaches with left-turn lanes [0,1,2]	2		0
Number of major-road approaches with right-turn lanes [0,1,2]	0		0
Data for signalized intersections only:			
Number of approaches with left-turn lanes [0,1,2,3,4] for 3SG, use maximum value of 3]	0		0
Number of approaches with right-turn lanes for 4SG, use maximum value of 4, all other max 2]	0		0
Number of approaches with left-turn signal phasing for 3SG, use maximum value of 2]	0		-
Type of left-turn signal phasing for Leg #1			Permissive
Type of left-turn signal phasing for Leg #2			-
Type of left-turn signal phasing for Leg #3			-
Type of left-turn signal phasing for Leg #4 (if applicable)			-
Number of approaches with right-turn-on-red prohibited for 3SG, use maximum value of 3]	0		0
Intersection red-light cameras (present/not present)			Not Present
Sum of all pedestrian crossing volumes (ped/hour) — Signalized intersections only			-
Maximum number of lanes crossed by a pedestrian (n _{crossed})			-
Number of bus stops within 300 m (1,000 ft) of the intersection	0		0
Schools within 300 m (1,000 ft) of the intersection (present/not present)			Not Present
Number of alethel-sales establishments within 300 m (1,000 ft) of the intersection	0		0
Average Annual Crash History (3 or 5-yr average)			
Multiple vehicle crashes	KABC PDO	Fatal and Injury Only Property Damage Only	1.7 2.0
Single-vehicle crashes	KABC PDO	Fatal and Injury Only Property Damage Only	0.0 0.7

NOTES: * AADT: It is important to remember that the AADT(major) = AADT(major approach1) + AADT(minor approach2) (refer to p.12-8 in Part C of the HSM)

WORKSHEET 2B .. CRASH MODIFICATION FACTORS FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1 <i>i</i>	CMF 2 <i>i</i>	CMF 3 <i>i</i>	CMF 4 <i>i</i>	CMF 5 <i>i</i>	CMF 6 <i>i</i>	CMF COMB
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1) [*] (2) [*] (3) [*] (4) [*] (5) [*] (6)
0.5300	1.0000	1.0000	1.0000	0.9130	1.0000	0.4839

WORKSHEET 2C -- MULTIPLE-VEHICLE COLLISIONS BY SEVERITY LEVEL FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	SPF Coefficients from Table 12-10	Overdispersion Parameter, k from Table 12-10	Initial N _{bimv} from Equation 12-21	Proportion of Total Crashes (4) _{total} * (5)	Adjusted N _{bimv} (4) _{total} * (5)	Combined CMFs (7) from Worksheet 2B	Predicted N _{bimv} (6)* (7)* (8)
Total	a -8.90	b 0.82	c 0.25	0.40 3.163	1.000 3.163	0.48 1.00	1.00 1.530
Fatal and Injury (FI)	-11.13	0.93	0.28	0.48 $(4)_F/(4)_F + (4)_PDO$	1.275 0.397	0.48 1.254	1.00 0.607
Property Damage Only (PDO)	-8.74	0.77	0.23	0.40 $(5)_{total} - (5)_FI$	1.940 0.603	0.48 1.908	1.00 0.923

WORKSHEET 2D -- MULTIPLE-VEHICLE COLLISIONS BY COLLISION TYPE FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Collision Type	Proportion of Collision Type _{FI}	Predicted N _{bimv} _{FI} (crashes/year)	Proportion of Collision Type _{PDO}	Predicted N _{bimv} _{PDO} (crashes/year)	Predicted N _{bimv} _{total} (crashes/year)	Predicted N _{bimv} _{total} (crashes/year)	Predicted N _{bimv} _{total} (crashes/year)
from Table 12-11	(9) _{FI} from Worksheet 2C	from Table 12-11	(9) _{PDO} from Worksheet 2C	(9) _{total} from Worksheet 2C	(9) _{total} from Worksheet 2C	(9) _{total} from Worksheet 2C	(9) _{total} from Worksheet 2C
Total	1.000	0.607 $(2)^*(3)_FI$	1.000 $(4)^*(5)_PDO$	0.923 $(4)^*(5)_total$	0.923 $(3)^*(5)$	0.923 $(3)^*(5)$	0.923 $(3)^*(5)$
Rear-end collision	0.338	0.205	0.374	0.345	0.345	0.345	0.345
Head-on collision	0.041	0.025	0.030	0.028	0.028	0.028	0.028
Angle collision	0.440	0.267	0.335	0.309	0.309	0.309	0.309
Sideswipe	0.121	0.073	0.044	0.041	0.041	0.041	0.041
Other multiple-vehicle collision	0.060	0.036	0.217	0.200	0.200	0.200	0.200

WORKSHEET 2E -- SINGLE-VEHICLE COLLISIONS BY SEVERITY LEVEL FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	SPF Coefficients from Table 12-12	Overdispersion Parameter, k from Table 12-12	Initial N _{bimv} from Eqn. 12-24; (F)	Proportion of Total Crashes (4) _{total} * (5)	Adjusted N _{bimv} (4) _{total} * (5)	Combined CMFs (7) from Worksheet 2B	Calibration Factor, C _i	Predicted N _{bimv} (6)* (7)* (8)
Total	a -5.33	b 0.33	c 0.12	0.65 0.320	1.000 $(4)_F/(4)_F + (4)_PDO$	0.320 0.301	0.48 0.48	1.00 0.155
Fatal and Injury (FI)	--	--	--	0.090 $(5)_{total} - (5)_FI$	0.097 0.224	0.48 0.48	1.00 1.00	0.047 0.108
Property Damage Only (PDO)	-7.04	0.36	0.25	0.54 $(5)_{total} - (5)_FI$	0.208 0.659	0.224 0.224	0.48 0.48	1.00 1.00

WORKSHEET 2F -- SINGLE-VEHICLE COLLISIONS BY COLLISION TYPE FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	Proportion of Collision Type (f _i)	Predicted N _{bav} (f _i) (crashes/year)	Proportion of Collision Type (p _{DDO})	Predicted N _{bav} (p _{DDO}) (crashes/year)	Predicted N _{bav} (TOTAL) (crashes/year)
Total	from Table 12-13	(9) _H from Worksheet 2E	from Table 12-13	(9) ₀₀ from Worksheet 2E	(9) ₀₀ from Worksheet 2E
Total	1.000	0.047	1.000	0.108	0.155
Collision with parked vehicle		(2)* (3) _H		(4)* (5) _{H00}	(3)* (5)
Collision with animal	0.001	0.000	0.001	0.000	0.000
Collision with fixed object	0.001	0.000	0.026	0.003	0.003
Collision with other object	0.679	0.032	0.847	0.052	0.123
Other single-vehicle collision	0.089	0.004	0.070	0.008	0.012
Single-vehicle noncollision	0.051	0.002	0.007	0.001	0.003
Single-vehicle noncollision	0.179	0.008	0.049	0.005	0.014

WORKSHEET 2G -- VEHICLE-PEDESTRIAN COLLISIONS FOR URBAN AND SUBURBAN ARTERIAL STOP-CONTROLLED INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	Predicted N _{bav}	Predicted N _{bav}	Predicted N _{bav}	f _{pedi}	Calibration factor, C _i	Predicted N _{pedi}
Total	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)* (5)* (6)	(4)* (5)* (6)
Total	1.530	0.155	1.685	0.022	1.00	0.037
Fatal and injury (FI)	--	--	--	--	1.00	0.037

WORKSHEET 2H -- CRASH MODIFICATION FACTORS FOR VEHICLE-PEDESTRIAN COLLISIONS FOR URBAN AND SUBURBAN ARTERIAL SIGNALIZED INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF	Combined CMF	
Total	CMF _{bp}	CMF _{2a}	CMF _{1b}	from Table 12-29	from Table 12-30	(1)* (2)* (3)
Fatal and injury (FI)	--	--	--	--	--	--

WORKSHEET 2I -- VEHICLE-PEDESTRIAN COLLISIONS FOR URBAN AND SUBURBAN ARTERIAL SIGNALIZED INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	SPI Coefficients	N _{pedbuse}	Combined CMF	Calibration factor, C _i	Predicted N _{bikei}	Predicted N _{bikei}
Total	from Table 12-14	Overdispersion Parameter, k	from Equation 12-29	(4) from Worksheet 2H	(4)* (5)* (6)	(4)* (5)* (6)
Total	a	c	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--	--

WORKSHEET 2J -- VEHICLE-BICYCLE COLLISIONS FOR URBAN AND SUBURBAN ARTERIAL SIGNALIZED INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	Predicted N _{bav}	Predicted N _{bav}	Predicted N _{bav}	f _{bikei}	Calibration factor, C _i	Predicted N _{bikei}
Total	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)* (5)* (6)	(4)* (5)* (6)
Total	1.530	0.155	1.685	0.018	1.00	0.030
Fatal and injury (FI)	--	--	--	--	1.00	0.030

Federal law 23 USC § 409 prohibits the discovery or admission into evidence of "reports, surveys, schedules, lists, or data" compiled or collected for the purpose of highway safety improvement projects that might qualify for federal safety improvement funding.

WORKSHEET 2K -- CRASH SEVERITY DISTRIBUTION FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)	(3) Fatal and injury (FI)	(4) Property damage only (PDO)
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	Total (6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.205	0.345	0.551
Head-on collisions (from Worksheet 2D)	0.025	0.028	0.053
Angle collisions (from Worksheet 2D)	0.267	0.309	0.576
Sideswipe (from Worksheet 2D)	0.073	0.041	0.114
Other multiple-vehicle collision (from Worksheet 2D)	0.036	0.200	0.237
Subtotal	0.607	0.923	1.530
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.003	0.003
Collision with fixed object (from Worksheet 2F)	0.032	0.092	0.123
Collision with other object (from Worksheet 2F)	0.004	0.008	0.012
Other single-vehicle collision (from Worksheet 2F)	0.002	0.001	0.003
Single-vehicle noncollision (from Worksheet 2F)	0.008	0.005	0.014
Collision with pedestrian (from Worksheet 2G or 2I)	0.037	0.000	0.037
Collision with bicycle (from Worksheet 2J)	0.030	0.000	0.030
Subtotal	0.114	0.108	0.222
Total	0.721	1.032	1.753

WORKSHEET 2L -- SUMMARY RESULTS FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)	Predicted average crash frequency, $N_{predicted}$ (crashes/year)
Crash severity level		
Total		{Total} from Worksheet 2K 1.753
Fatal and injury (FI)		0.721
Property damage only (PDO)		1.032

PROJECT ELEMENT RESULTS SUMMARY¹

Summary for the project element	Total Crashes/yr (KABC)		Fatal and Injury Crashes/yr (KABC)		Property Damage Only Crashes/yr (PDO)	
	Predicted average crash frequency $N_{predicted}$ (KABC)	Expected average crash frequency $N_{predicted}$ (KABC)	Predicted average crash frequency $N_{predicted}$ (KABC)	Expected average crash frequency $N_{predicted}$ (KABC)	Predicted average crash frequency $N_{predicted}$ (KABC)	Expected average crash frequency $N_{predicted}$ (KABC)
	1.753	3.255	1.502	0.721	1.359	0.518

Special Note: When the project element is not included in the analysis the results will all be zero. In addition if only the analysis only includes determining the predicted average crash frequency (i.e.: EB analysis is not carried out), the results will show zero values where EB results are usually displayed.

PROJECT SAFETY PERFORMANCE SUMMARY REPORT

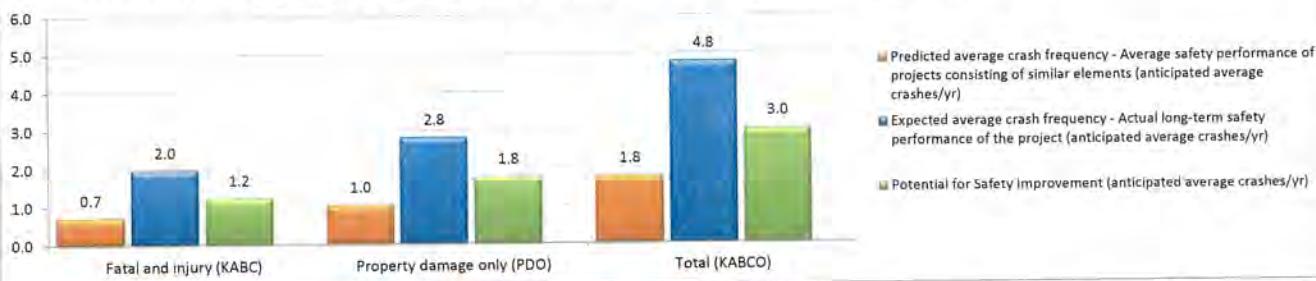
General Information

Project Name	20-2564 Latah Glen Residential
Project Description	Residential Development
Reference Number	SR 195 & Thorpe Avenue
Analyst	Whipple Consulting Engineer
Agency/Company	WSDOT
Contact Email	kkim@WhippleCE.com
Contact Phone	(509) 893-2617
Date Completed	05/12/11

Years of crash data incorporated into the analysis: 3

PROJECT SUMMARY

Summary of Anticipated Safety Performance of the Project (average crashes/yr)



Project Element	Total Crashes/yr (KABCO)			Fatal and Injury Crashes/yr (KABC)			Property Damage Only Crashes/yr (PDO)		
	Predicted average crash frequency N _{predicted} (KABCO)	Expected average crash frequency N _{expected} (KABCO)	Potential for Improvement	Predicted average crash frequency N _{predicted} (KABC)	Expected average crash frequency N _{expected} (KABC)	Potential for Improvement	Predicted average crash frequency N _{predicted} (O)	Expected average crash frequency N _{expected} (O)	Potential for Improvement
	Intersection 1	1.8	4.8	3.0	0.7	2.0	1.2	1.0	2.8
INDIVIDUAL INTERSECTIONS	COMBINED (sum of column)	1.8	4.8	3.0	0.7	2.0	1.2	1.0	2.8
									1.8

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)	0.7	2.0	1.2
Property damage only (PDO)	1.0	2.8	1.8
Total (KABCO)	1.8	4.8	3.0

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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 4.8 crashes per year (2 fatal and injury crashes per year; and 2.8 property damage only crashes per year).
2. A similar project is anticipated, on average, to experience 1.8 crashes per year (0.7 fatal and injury crashes per year; and 1 property damage only crashes per year).
3. It is anticipated the project has, on average, a potential for safety improvement of 3 crashes per year (1.2 fatal and injury crashes per year; and 1.8 property damage only crashes per year).

WORKSHEET 2A -- GENERAL INFORMATION AND INPUT DATA FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

General Information		Location Information	
Analyst:	Whipple Consulting Engineer	Roadway	SR 195
Agency or Company	WSDOT	Location Information	Thorpe Avenue
Date Performed	1/29/2021	Jurisdiction	WSDOT
Intersection	Intersection 1	Analysis Year	2021
Signalized/Unsignalized	Unsignalized		
Input Data		Site Conditions	
Intersection type (3ST, 3SG, 4ST, 4SG)		Base Conditions	
AADT major (veh/day) (total entering on major approaches)*	AADT _{MAX} = 46,800 (veh/day)	4ST	--
AADT minor (veh/day) (total entering on minor approaches)*	AADT _{MIN} = 5,900 (veh/day)	22,500	--
Intersection lighting (present/not present)		1,650	--
Calibration factor, C _i		Present	Not Present
Data for unsignalized intersections only:		1.00	1.00
Number of major-road approaches with left-turn lanes (0,1,2)		2	0
Number of major-road approaches with right-turn lanes (0,1,2)		0	0
Data for signalized intersections only:			
Number of approaches with left-turn-lanes-(0,1,2-3,4){for-3SG,-use-maximum-value-of-3}		9	9
Number of approaches with right-turn-lanes-for-3SG,-use-maximum-value-of-4, all-other,-max-2)		9	9
Number of approaches with left-turn-signal-phasing-(for-3SG,-use-maximum-value-of-3)		9	9
Type of left-turn-signal-phasing-for-leg #1			-
Type of left-turn-signal-phasing-for-leg #2			-
Type of left-turn-signal-phasing-for-leg #3			-
Type of left-turn-signal-phasing-for-leg #4{if-applicable}			-
Number of approaches with right-turn-on-red-prohibited-[for-3SG,-use-maximum-value-of-3]		9	9
Intersection red-light-camera-(present/not-present)		Net Present	Not Present
Sum of all pedestrian-crossing-volumes-(pedVol)- Signalized-intersections-only			-
Maximum-number-of-lanes-crossed-by-a-pedestrian-(pedLanes)			-
Number of bus stops-within-300-m-(1,000-ft)-of-the-intersection		0	0
Schools-within-200-m-(1,000-ft)-of-the-intersection-(present/not-present)		Net Present	Not Present
Number-of-alcohol-sales-establishments-within-300-m-(1,000-ft)-of-the-intersection		0	0
Average Annual Crash History (3 or 5 yr average)			
Multiple vehicle crashes	KABC PDO	Fatal and Injury Only Property Damage Only	3.0 3.0
Single-vehicle crashes	KABC PDO	Fatal and Injury Only Property Damage Only	0.0 0.7

NOTES: * AADT: It is important to remember that the AADT(major) = AADT(minor approach1) + AADT(minor approach2) (refer to p.12-8 in Part C of the HSM)

WORKSHEET 2B -- CRASH MODIFICATION FACTORS FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	CMF 2i	CMF 3i	CMF 4i	CMF 5i	CMF 6i	CMF comb
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.5300	1.0000	1.0000	1.0000	0.9130	1.0000	0.4839

WORKSHEET 2C -- MULTIPLE-VEHICLE COLLISIONS BY SEVERITY LEVEL FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	SPF Coefficients from Table 12-10	Overdispersion Parameter, k from Table 12-10	Initial N _{bmv} from Equation 12-21	Proportion of Total Crashes (4) _{total} * (5)	Adjusted N _{bmv} (4) _{total} * (5)	Combined CMFs (7) from Worksheet 2B	Predicted N _{bmv} (6)*(7)*(8)
Total	a -8.90	b 0.82	c 0.25	0.40 from Table 12-10	3.221 from Equation 12-21	1.000 (4) _{total} * (4) _{bmv}	3.221 0.48 1.00 1.558
Fatal and Injury (FI)	-11.13	0.93	0.28	0.48	1.302	0.397 (4) _{total} * (4) _{bmv}	1.280 0.48 1.00 0.619
Property Damage Only (PDO)	-8.74	0.77	0.23	0.40	1.975 (5) _{total} * (5) _{bmv}	0.603 (5) _{total} * (5) _{bmv}	1.941 0.48 1.00 0.939

WORKSHEET 2D -- MULTIPLE-VEHICLE COLLISIONS BY COLLISION TYPE FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	Proportion of Collision Type from Table 12-11	Predicted N _{bmv} (FI) (crashes/year) (9) _{FI} from Worksheet 2C	Proportion of Collision Type (FI) from Table 12-11	Predicted N _{bmv} (FI) (crashes/year) (9) _{FI} from Worksheet 2C	Predicted N _{bmv} (FI) (crashes/year) (9) _{FI} from Worksheet 2C
Total	1.000	0.619 (2) [*] (3) _{bmv}	1.000 (4) [*] (5) _{bmv}	0.939 (4) [*] (5) _{bmv}	1.558 (3) [*] (5)
Rear-end collision	0.338	0.209	0.374	0.351	0.561
Head-on collision	0.041	0.025	0.030	0.028	0.054
Angle collision	0.440	0.273	0.335	0.315	0.587
Sideswipe	0.121	0.075	0.044	0.041	0.116
Other multiple-vehicle collision	0.060	0.037	0.217	0.204	0.241

WORKSHEET 2E -- SINGLE-VEHICLE COLLISIONS BY SEVERITY LEVEL FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	SPF Coefficients from Table 12-12	Overdispersion Parameter, k from Table 12-12	Initial N _{bsv} from Eqn. 12-24 or 12-27	Proportion of Total Crashes (4) _{total} * (5)	Adjusted N _{bsv} (4) _{total} * (5)	Combined CMFs (7) from Worksheet 2B	Predicted N _{bsv} (6)*(7)*(8)
Total	a -5.33	b 0.33	c 0.12	0.65 --	-- 0.322 0.090	1.000 (4) _{total} * (4) _{bsv}	0.322 0.48 1.00 0.156
Fatal and Injury (FI)	--	--	--	--	0.304 (5) _{total} * (5) _{bsv}	0.098 0.48	1.00 0.047
Property Damage Only (PDO)	-7.04	0.36	0.25	0.54	0.206 0.696	0.224 0.48	1.00 0.108

WORKSHEET 2F -- SINGLE-VEHICLE COLLISIONS BY COLLISION TYPE FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	Proportion of Collision Type (F1)	Predicted N _{biv(F1)} (crashes/year)	Proportion of Collision Type (F20)	Predicted N _{biv(F20)} (crashes/year)	Predicted N _{biv (total)} (crashes/year)
Total	from Table 12-13	(9) _{F1} from Worksheet 2E	from Table 12-13	(9) _{F20} from Worksheet 2E	(9) _{total} from Worksheet 2E
	1.000	0.047	1.000	0.108	0.156
Collision with parked vehicle		(2)*(3) _{F1}		(4)*5 _{F20}	(3)*5 _{total}
Collision with animal	0.001	0.000	0.001	0.000	0.000
Collision with fixed object	0.001	0.000	0.026	0.003	0.003
Collision with other object	0.679	0.032	0.847	0.092	0.124
Other single-vehicle collision	0.089	0.004	0.070	0.008	0.012
Single-vehicle noncollision	0.051	0.002	0.007	0.001	0.003
	0.179	0.008	0.049	0.005	0.014

WORKSHEET 2G -- VEHICLE-PEDESTRIAN COLLISIONS FOR URBAN AND SUBURBAN ARTERIAL STOP-CONTROLLED INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	Predicted N _{biv}	Predicted N _{biv}	Predicted N _{biv}	f _{biv}	Calibration factor, C _i	Predicted N _{biv}
		(9) from Worksheet 2C	(2) + (3)	from Table 12-16		(4)*5*(6)
Total	1.558	0.156	1.714	0.072	1.00	0.038
Fatal and injury (F1)	--	--	--	--	1.00	0.038

WORKSHEET 2H -- CRASH MODIFICATION FACTORS FOR VEHICLE-PEDESTRIAN COLLISIONS FOR URBAN AND SUBURBAN ARTERIAL SIGNALIZED INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	CMF for Bus Stops CMF _{In}	CMF for Schools CMF _{2n}	CMF for Alcohol Sales Establishments CMF _{3n}	Combined CMF	Combined CMF	
from Table 12-28		from Table 12-29		from Table 12-30		(1)*2*(3)
--	--	--	--	--	--	--

WORKSHEET 2I -- VEHICLE-PEDESTRIAN COLLISIONS FOR URBAN AND SUBURBAN ARTERIAL SIGNALIZED INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	SP Coefficients	Overspread Parameter, k	N _{pedest}	Combined CMF	Calibration factor, C _i	Predicted N _{biv}
	from Table 12-14	d				
a	b	c	--	--	--	--
--	--	--	--	--	--	--
Total	--	--	--	--	--	--
Fatal and Injury (F1)	--	--	--	--	--	--

WORKSHEET 2J -- VEHICLE-BICYCLE COLLISIONS FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	Predicted N _{biv}	Predicted N _{biv}	Predicted N _{biv}	f _{bike}	Calibration factor, C _i	Predicted N _{biv}
		(9) from Worksheet 2C	(2) + (3)	from Table 12-17		(4)*5*(6)
Total	1.558	0.156	1.714	0.018	1.00	0.031
Fatal and Injury (F1)	--	--	--	--	1.00	0.031

WORKSHEET 2K -- CRASH SEVERITY DISTRIBUTION FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

Collision type	(1)		(2)		(3)		(4)	
	Fatal and injury (F)	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	Fatal and injury (F)	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	Property damage only (PDO)	(5) from Worksheet 2D and 2F	Property damage only (PDO)	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE								
Rear-end collisions (from Worksheet 2D)	0.209		0.351		0.561		0.561	
Head-on collisions (from Worksheet 2D)	0.025		0.028		0.054		0.054	
Angle collisions (from Worksheet 2D)	0.273		0.315		0.587		0.587	
Sideswipe (from Worksheet 2D)	0.075		0.041		0.116		0.116	
Other multiple-vehicle collision (from Worksheet 2D)	0.037		0.204		0.241		0.241	
Subtotal	0.619		0.939		1.558		1.558	
SINGLE-VEHICLE								
Collision with parked vehicle (from Worksheet 2F)	0.000		0.000		0.000		0.000	
Collision with animal (from Worksheet 2F)	0.000		0.003		0.003		0.003	
Collision with fixed object (from Worksheet 2F)	0.032		0.092		0.124		0.124	
Collision with other object (from Worksheet 2F)	0.004		0.008		0.012		0.012	
Other single-vehicle collision (from Worksheet 2F)	0.002		0.001		0.003		0.003	
Single-vehicle noncollision (from Worksheet 2F)	0.008		0.005		0.014		0.014	
Collision with pedestrian (from Worksheet 2G or 2I)	0.038		0.000		0.038		0.038	
Collision with bicycle (from Worksheet 2I)	0.031		0.000		0.031		0.031	
Subtotal	0.116		0.108		0.224		0.224	
Total	0.735		1.047		1.783		1.783	

WORKSHEET 21 -- SUMMARY RESULTS FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

Crash severity level	Predicted average crash frequency, $N_{predicted,m}$ [crashes/year]	
	(1)	(2)
Total		[Total] from Worksheet 2K
Fatal and injury (F)		
Drowsy, drowsiness only	0.735	0.735
Drowsy, alcohol only	0.047	0.047

1

PROJECT ELEMENT: PROJECT ELEMENT SUMMARY						Property Damage Only Crashes/yr (PDO)			
	Total Crashes/yr (KABC0)			Fatal and Injury Crashes/yr (KABC)			Property Damage Only Crashes/yr (PDO)		
	Predicted average crash frequency N_p predicted (KABC0)	Expected average crash frequency N_e predicted (KABC0)	Potential for Improvement N_{p+e} predicted (KABC0)	Predicted average crash frequency N_p predicted (KABC)	Expected average crash frequency N_e predicted (KABC)	Potential for Improvement N_{p+e} predicted (KABC)	Predicted average crash frequency N_p predicted (KABC)	Expected average crash frequency N_e predicted (KABC)	Potential for Improvement N_{p+e} predicted (KABC)
Summary for the project element	1.783	4.796	3.013	0.735	1.978	1.243	1.047	2.818	1.770

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PROJECT SAFETY PERFORMANCE SUMMARY REPORT

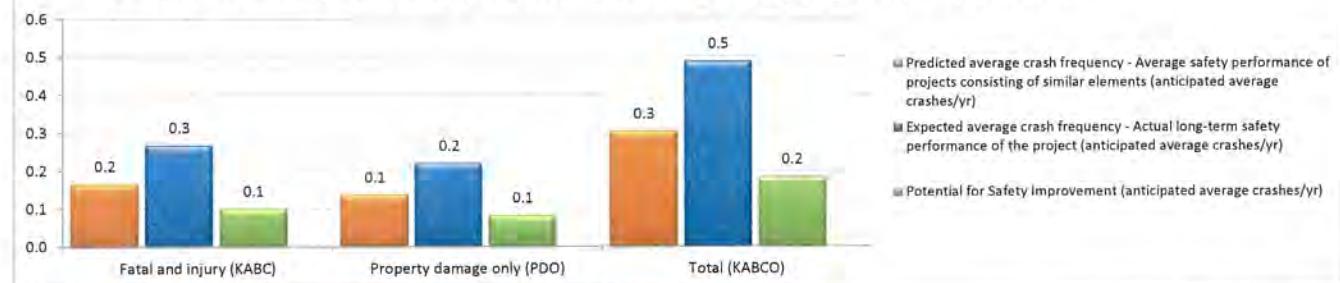
General Information

Project Name	20-2564 Latah Glen Residential
Project Description	Residential Development
Reference Number	SR 195 & Inland Empire Way
Analyst	Whipple Consulting Engineer
Agency/Company	WSDOT
Contact Email	kkim@WhippleCE.com
Contact Phone	(509) 893-2617
Date Completed	05/12/11

Years of crash data incorporated into the analysis: 3

PROJECT SUMMARY

Summary of Anticipated Safety Performance of the Project (average crashes/yr)



Project Element	Total Crashes/yr (KABCO)			Fatal and Injury Crashes/yr (KABC)			Property Damage Only Crashes/yr (PDO)		
	Predicted average crash frequency N _{predicted} (KABCO)	Expected average crash frequency N _{expected} (KABCO)	Potential for Improvement	Predicted average crash frequency N _{predicted} (KABC)	Expected average crash frequency N _{expected} (KABC)	Potential for Improvement	Predicted average crash frequency N _{predicted} (O)	Expected average crash frequency N _{expected} (O)	Potential for Improvement
INDIVIDUAL INTERSECTIONS									
Intersection 1	0.3	0.5	0.2	0.2	0.3	0.1	0.1	0.2	0.1
COMBINED (sum of column)	0.3	0.5	0.2	0.2	0.3	0.1	0.1	0.2	0.1

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)	0.2	0.3	0.1
Property damage only (PDO)	0.1	0.2	0.1
Total (KABCO)	0.3	0.5	0.2

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 0.5 crashes per year (0.3 fatal and injury crashes per year; and 0.2 property damage only crashes per year).
2. A similar project is anticipated, on average, to experience 0.3 crashes per year (0.2 fatal and injury crashes per year; and 0.1 property damage only crashes per year).
3. It is anticipated the project has, on average, a potential for safety improvement of 0.2 crashes per year (0.1 fatal and injury crashes per year; and 0.1 property damage only crashes per year).

WORKSHEET 2A -- GENERAL INFORMATION AND INPUT DATA FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

General Information		Location Information	
Analyst	Whipple Consulting Engineer	Roadway	SR 195
Agency or Company	WSDOT	Location Information	Inland Empire Way
Date Performed	1/29/2021	Jurisdiction	WSDOT
Intersection	Intersection 1	Analysis Year	2021
Signalized/Unsignalized	Unsignalized		
Input Data		Site Conditions	
Intersection type (3ST; 3SG, 4ST, 4SG)		3ST	Base Conditions
AADT _{major} (veh/day) (total entering on major approaches)*	AADT _{max} = 45,700 (veh/day)	14,140	**
AADT _{minor} (veh/day) (total entering on minor approaches)*	AADT _{max} = 9,300 (veh/day)	40	**
Intersection lighting (present/not present)	Present	Not Present	Not Present
Calibration factor, C _i	1.00		1.00
Data for unsignalized intersections only:			
Number of major road approaches with left-turn lanes (0,1,2)		0	0
Number of major road approaches with right-turn lanes (0,1,2)		0	0
Data for signalized intersections only:			
Number of approaches with left-turn-lanes-(0,1,2,3,4) [for-3SG-use-maximum-value-of-3]		0	0
Number of approaches with right-turn-lanes-for-3SG-use-maximum-value-of-1, all-other-max-2)		0	0
Number of approaches with left-turn-signal-phasing-[for-3SG-use-maximum-value-of-3]		0	-
Type-of-left-turn-signal-phasing-for-leg#1			Regressive
Type-of-left-turn-signal-phasing-for-leg#2			-
Type-of-left-turn-signal-phasing-for-leg#3			-
Type-of-left-turn-signal-phasing-for-leg#4 [if applicable]			-
Number-of-approaches-with-right-turn-on-red-prohibited-[for-3SG-use-maximum-value-of-3]		0	0
Intersection-red-light-camera-(present/not-present)		Net Present	Net Present
Sum-of-all-pedestrian-crossing-volumes-(ped/af) - Signalized-intersections-only			-
Maximum-number-of-lanes-crossed-by-a-pedestrian-(ped/af)			-
Number-of-bus-stops-within-300-m-(1,000-ft) of-the-intersection		0	0
Schools-within-300-m-(1,000-ft) of-the-intersection-(present/not-present)		Net Present	Net Present
Number-of-alcohol-sales-establishments-within-300-m-(1,000-ft) of-the-intersection		0	0
Average Annual Crash History (3 or 5 year average)			
Multiple vehicle crashes	KABC PDO	Fatal and Injury Only Property Damage Only	0.3 0.3
Single-vehicle crashes	KABC PDO	Fatal and Injury Only Property Damage Only	0.3 0.0

NOTES: * AADT: It is important to remember that the AADT(major) = AADT(major approach1) + AADT(minor approach2) (refer to p.12-8 in Part C of the ISM)

WORKSHEET 2B -- CRASH MODIFICATION FACTORS FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	CMF 2i	CMF 3i	CMF 4i	CMF 5i	CMF 6i	CMF combined
From Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
1.0000	1.0000	1.0000	1.0000	0.9056	1.0000	0.9096

WORKSHEET 2C -- MULTIPLE-VEHICLE COLLISIONS BY SEVERITY LEVEL FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(6)*(7)*(8)
Crash Severity Level	SPF Coefficients from Table 12-10	Overdispersion Parameter, k from Table 12-10	Initial N _{bimv} from Equation 12-21	Proportion of Total Crashes	Adjusted N _{bimv} (4) _{total} *{5}	Combined CMFs (7) from Worksheet 2B	Calibration Factor, C _i	Predicted N _{bimv}
Total	a -13.36	b 1.11	c 0.41	0.80 0.290	1.000 $(4)_F/(4)_F + (4)_PDO$	0.290 0.160	0.91 0.91	1.00 0.263
Fatal and Injury (FI)	-14.01	1.16	0.30	0.69 0.553				1.00 0.146
Property Damage Only (PDO)	-15.38	1.20	0.51	0.77 0.447	0.131 (5) _{total} *(5) _H	0.129	0.91	1.00 0.118

WORKSHEET 2D -- MULTIPLE-VEHICLE COLLISIONS BY COLLISION TYPE FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	Proportion of Collision Type _(F) from Table 12-11	Predicted N _{bimv} _(F) (crashes/year)	Proportion of Collision Type _(PDO) from Table 12-11	Predicted N _{bimv} _(PDO) (crashes/year)	Predicted N _{bimv} (total) (crashes/year)
Total		(9) _H from Worksheet 2C		(9) _{PO} from Worksheet 2C	(9) _{TOT} from Worksheet 2C
	1.000	0.146	1.000	0.118	0.263
Rear-end collision	0.421	(2)*{3} _H	0.061	0.052	(3)*{5}
Head-on collision	0.045	0.007	0.023	0.003	0.113
Angle collision	0.343	0.050	0.262	0.031	0.081
Sideswipe	0.126	0.018	0.040	0.005	0.023
Other multiple-vehicle collision	0.065	0.009	0.235	0.028	0.037

WORKSHEET 2E -- SINGLE-VEHICLE COLLISIONS BY SEVERITY LEVEL FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	SPF Coefficients from Table 12-12	Overdispersion Parameter, k from Table 12-12	Initial N _{bisv} from Eqn. 12-24; {F1}	Proportion of Total Crashes	Adjusted N _{bisv} (4) _{total} *{5}	Combined CMFs (7) from Worksheet 2B	Calibration Factor, C _i	Predicted N _{bisv} (6)*(7)*(8)
Total	a -5.81	b 0.16	c 0.51	1.14 0.093	1.000 $(4)_F/(4)_F + (4)_PDO$	0.033 0.010	0.91 0.012	1.00 0.030
Fatal and Injury (FI)	--	--	--	--	0.010 0.348		0.91	1.00 0.011
Property Damage Only (PDO)	-8.36	0.25	0.55	1.29 (5) _{total} *(5) _H	0.019 0.652	0.022	0.91	1.00 0.020

WORKSHEET 2F -- SINGLE-VEHICLE COLLISIONS BY COLLISION TYPE FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

Collision Type	(1)	(2)	(3)	(4)	(5)	(6)
	Proportion of Collision Type (n)	Predicted N _{biv} (n) (crashes/year)	Proportion of Collision Type (p ₀₀)	Predicted N _{biv} (p ₀₀) (crashes/year)	Predicted N _{biv} (total) (crashes/year)	
Total	from Table 12-13	(9) _b from Worksheet 2E	from Table 12-13	(9) _{b0} from Worksheet 2E	(9) _{b00} from Worksheet 2E	(9) _{b00} from Worksheet 2E
	1.000	0.011	1.000	0.020	0.030	
Collision with parked vehicle		(2)*(3) _{f₁}		(4)*(5) _{f₁₀₀}		(3)+5
Collision with animal		0.000	0.003	0.000	0.000	0.000
Collision with fixed object		0.000	0.018	0.000	0.000	0.000
Collision with other object		0.762	0.008	0.017	0.025	
Other single-vehicle collision		0.050	0.001	0.002	0.003	
Single-vehicle noncollision		0.039	0.000	0.000	0.001	
	0.105	0.001	0.030	0.001	0.002	

WORKSHEET 2G -- VEHICLE-PEDESTRIAN COLLISIONS FOR URBAN AND SUBURBAN ARTERIAL STOP-CONTROLLED INTERSECTIONS

Crash Severity Level	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Predicted N _{biv}	Predicted N _{biv}	Predicted N _{biv}	f _{pedi}	Calibration factor, C _i	Predicted N _{biv}	
(9) from Worksheet 2C		(9) from Worksheet 2E	(2)+(3)			(4)*(5)*(6)	
Total	0.263	0.030	0.294	0.021	1.00	0.006	
Fatal and Injury (FI)	--	--	--	--	1.00	0.006	
	--	--	--	--	--	--	

WORKSHEET 2H -- CRASH MODIFICATION FACTORS FOR VEHICLE-PEDESTRIAN COLLISIONS FOR URBAN AND SUBURBAN ARTERIAL SIGNALIZED INTERSECTIONS

CMF _{bp}	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	CMF _{bp}	Combined CMF	Combined CMF	
from Table 12-28		from Table 12-29	from Table 12-30		(1)*(2)*(3)	--	
	--	--	--	--	--	--	

WORKSHEET 2I -- VEHICLE-PEDESTRIAN COLLISIONS FOR URBAN AND SUBURBAN ARTERIAL SIGNALIZED INTERSECTIONS

Crash Severity Level	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	SPF Coefficients	N _{pedest}	Overdispersion Parameter, k	Combined CMF	Calibration factor, C _i	Predicted N _{biv}	
a	b	c	d	e			
--	--	--	--	--	--	--	
Total	--	--	--	--	--	--	
Fatal and Injury (FI)	--	--	--	--	--	--	

WORKSHEET 2J -- VEHICLE-BICYCLE COLLISIONS FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

Crash Severity Level	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Predicted N _{biv}	Predicted N _{biv}	Predicted N _{biv}	f _{bike}	Calibration factor, C _i	Predicted N _{biv}	
(9) from Worksheet 2C		(9) from Worksheet 2E	(2)+(3)			(4)*(5)*(6)	
Total	0.263	0.030	0.294	0.016	1.00	0.005	
Fatal and Injury (FI)	--	--	--	--	1.00	0.005	

WORKSHEET 2K -- CRASH SEVERITY DISTRIBUTION FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

Collision type	(1)	(2)	(3)	(4)
	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(3) from Worksheet 2D and 2F;	Property damage only (PDO)	Total
Rear-end collisions (from Worksheet 2D)			0.052	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
Head-on collisions (from Worksheet 2D)			0.003	
Angle collisions (from Worksheet 2D)			0.031	0.009
Sideswipe (from Worksheet 2D)			0.005	0.081
Other multiple-vehicle collision (from Worksheet 2D)			0.028	0.023
Subtotal			0.118	0.037
Collision with parked vehicle (from Worksheet 2F)		0.000	0.000	0.263
Collision with animal (from Worksheet 2F)			0.000	
Collision with fixed object (from Worksheet 2F)		0.008	0.000	0.025
Collision with other object (from Worksheet 2F)		0.001	0.002	0.003
Other single-vehicle collision (from Worksheet 2F)		0.000	0.000	0.001
Single-vehicle noncollision (from Worksheet 2F)		0.001	0.001	0.002
Collision with pedestrian (from Worksheet 2G or 2I)		0.006	0.000	0.006
Collision with bicycle (from Worksheet 2I)		0.005	0.000	0.005
Subtotal		0.021	0.020	0.041
Total		0.167	0.137	0.305

WORKSHEET 2L -- SUMMARY RESULTS FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

Crash severity level	(1)	(2)	Predicted average crash frequency, $N_{predicted,int}$ (crashes/year)
	Total	(Total) from Worksheet 2K	
Fatal and injury (F)	0.305	0.305	
Property damage only (PDO)	0.167	0.167	
Total	0.137	0.137	

PROJECT ELEMENT RESULTS SUMMARY¹

Summary for the project element	Total Crashes/yr (KABC)		Fatal and Injury Crashes/yr (KABC)		Property Damage Only Crashes/yr (PDO)	
	Predicted average crash frequency $N_{predicted,KABC}$	Expected average crash frequency $N_{expected,KABC}$	Predicted average crash frequency $N_{predicted,KABC}$	Expected average crash frequency $N_{predicted,KABC}$	Predicted average crash frequency $N_{predicted,O}$	Potential for Improvement $N_{predicted,KABC}$
	0.305	0.459	0.185	0.167	0.101	0.137

Special Note: When the project element is not included in the analysis the results will all be zeros; in addition if only the analysis only includes determining the predicted average crash frequency (i.e.: EB analysis is not carried out), the results will show zero values where EB results are usually displayed.

PROJECT SAFETY PERFORMANCE SUMMARY REPORT

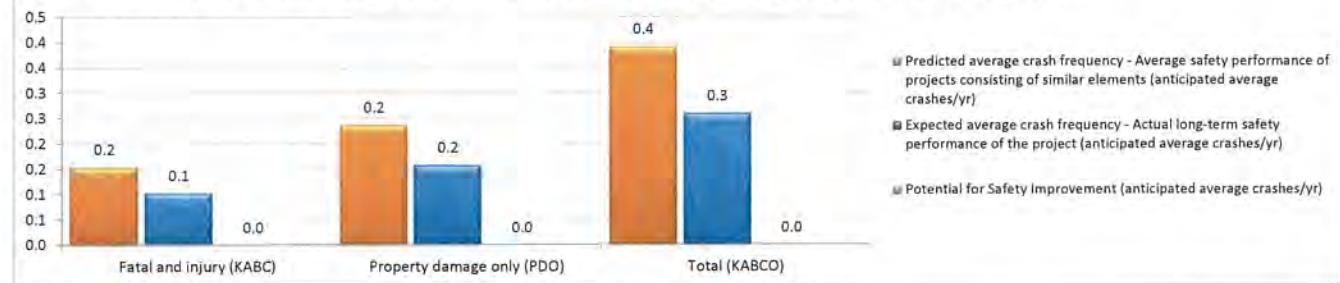
General Information

Project Name	20-2564 Latah Glen Residential
Project Description	Residential Development
Reference Number	SR 195 NB & Cheney-Spokane Road
Analyst	Whipple Consulting Engineer
Agency/Company	WSDOT
Contact Email	kkim@WhippleCE.com
Contact Phone	(509) 893-2617
Date Completed	05/12/11

Years of crash data incorporated into the analysis: 3

PROJECT SUMMARY

Summary of Anticipated Safety Performance of the Project (average crashes/yr)



Project Element	Total Crashes/yr (KABCO)			Fatal and Injury Crashes/yr (KABC)			Property Damage Only Crashes/yr (PDO)		
	Predicted average crash frequency N _{predicted} (KABCO)	Expected average crash frequency N _{expected} (KABCO)	Potential for Improvement	Predicted average crash frequency N _{predicted} (KABC)	Expected average crash frequency N _{expected} (KABC)	Potential for Improvement	Predicted average crash frequency N _{predicted} (O)	Expected average crash frequency N _{expected} (O)	Potential for Improvement
INDIVIDUAL INTERSECTIONS									
Intersection 1	0.4	0.3	0.0	0.2	0.1	0.0	0.2	0.2	0.0
COMBINED (sum of column)	0.4	0.3	0.0	0.2	0.1	0.0	0.2	0.2	0.0

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)	0.2	0.1	N/A
Property damage only (PDO)	0.2	0.2	N/A
Total (KABCO)	0.4	0.3	N/A

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:

- It is anticipated that the project will, on average, experience 0.3 crashes per year (0.1 fatal and injury crashes per year; and 0.2 property damage only crashes per year).
- A similar project is anticipated, on average, to experience 0.4 crashes per year (0.2 fatal and injury crashes per year; and 0.2 property damage only crashes per year).

#VALUE!

WORKSHEET 2A .. GENERAL INFORMATION AND INPUT DATA FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

General Information		Location Information	
Analyst:	Whipple Consulting Engineer	Roadway	SR 195
Agency or Company	WSDOT	Location Information	Cheney-Spokane Road & SR 195 NB Ramp
Date Performed	1/29/2021	Jurisdiction	WSDOT
Intersection	Intersection 1	Analysis Year	2021
Signalized/Unsignalized	Unsignalized		
Input Data		Site Conditions	
Intersection type (3ST, 3SG, 4ST, 4SG)		3ST	---
AADT _{major} (veh/day) (total entering on major approaches)*	AADT _{MAX} = 45,700 (veh/day)	3,600	---
AADT _{minor} (veh/day) (total entering on minor approaches)*	AADT _{MAX} = 9,300 (veh/day)	1,250	---
Intersection lighting (present/not present)		Present	Not Present
Calibration factor, C _i		1.00	1.00
Data for unsignalized intersections only:			
Number of major-road approaches with left-turn lanes (0,1,2)		0	0
Number of major-road approaches with right-turn lanes (0,1,2)		0	0
Data for signalized intersections only:			
Number of approaches with left-turn lanes (0,1,2,3,4) [for -3SG, use maximum value of 3]		0	0
Number of approaches with right-turn lanes: for -4SG, use maximum value of 4, all other max=2		0	0
Number of approaches with left-turn signal phasing [for -3SG, use maximum value of 2]		0	0
Type of left-turn signal phasing for Leg #1			permissive
Type of left-turn signal phasing for Leg #2			-
Type of left-turn signal phasing for Leg #3			-
Type of left-turn signal phasing for Leg #4			-
Number of approaches with right-turn on-red prohibited [for -3SG, use maximum value of 3]		0	0
Intersection red-light cameras: (present/not present)		Net Present	Net Present
Sum of all pedestrian crossing volumes (ped/vol) — Signalized intersections only			-
Maximum number of lanes crossed by a pedestrian (n _{pedmax})		0	0
Number of bus stops within 300 m (1,000 ft) of the intersection		0	0
Schools within 300 m (1,000 ft) of the intersection (present/not present)		Net Present	Net Present
Number of elevated sales establishments within 300 m (1,000 ft) of the intersection		0	0
Average Annual Crash History (3 or 5 yr average)			
Multiple vehicle crashes	KABC PDO	Fatal and Injury Only Property Damage Only	0.0 0.0
Single-vehicle crashes	KABC PDO	Fatal and Injury Only Property Damage Only	0.0 0.0

NOTES: * AADT: It is important to remember that the AADT(major) = AADT(major approach1) + AADT(minor approach2) (refer to p.12-8 in Part C of the HSM)

WORKSHEET 2B .. CRASH MODIFICATION FACTORS FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1 <i>i</i>	CMF 2 <i>i</i>	CMF 3 <i>i</i>	CMF 4 <i>i</i>	CMF 5 <i>i</i>	CMF 6 <i>i</i>	CMF comm.
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)* (2)* (3)* (4)* (5)* (6)
1.0000	1.0000	1.0000	1.0000	0.9096	1.0000	0.9096

WORKSHEET 2C -- MULTIPLE-VEHICLE COLLISIONS BY SEVERITY LEVEL FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	SPF Coefficients from Table 12-10	Overdispersion Parameter, k from Table 12-10	Initial N_{bimv} from Equation 12-21	Proportion of Total Crashes from Equation 12-21	Adjusted N_{bimv} (4)* N_{bimv}	Combined CMFs (7) from Worksheet 2B	Calibration Factor, C_i	Predicted N_{bimv} (6)* $(7)*N_{bimv}$
Total	-13.36	b c	0.41	0.80	0.260	0.260	0.91	1.00
Fatal and Injury (FI)	-14.01	1.16	0.30	0.69	0.093	(4) $N_{fi}/[(4)N_{fi} + (4)N_{pdo}]$	0.101	0.91
Property Damage Only (PDO)	-15.38	1.20	0.51	0.77	0.147	(5) $N_{pdo}/(5)N_{fi}$	0.159	0.91
					0.612			1.00
							0.145	

WORKSHEET 2D -- MULTIPLE-VEHICLE COLLISIONS BY COLLISION TYPE FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	Proportion of Collision Type (9) N_{bimv}	Predicted N_{bimv} (crashes/year)	Proportion of Collision Type (pdo) (9) N_{pdo}	Predicted N_{bimv} (pdo) (crashes/year)	Predicted N_{bimv} (crashes/year)
from Table 12-11	(9) N_{bimv} from Worksheet 2C	from Table 12-11	(9) N_{pdo} from Worksheet 2C	(9) N_{pdo} from Worksheet 2C	(9) N_{pdo} from Worksheet 2C
Total	1.000	0.092	1.000	0.145	0.237
Rear-end collision	0.421	(2)* $(3)N_{fi}$	0.440	(4)* $(5)N_{pdo}$	(3)* (5)
Head-on collision	0.045	0.039	0.023	0.064	0.102
Angle collision	0.343	0.031	0.262	0.003	0.007
Sideswipe	0.126	0.012	0.040	0.038	0.069
Other multiple-vehicle collision	0.055	0.006	0.235	0.006	0.017
				0.034	0.040

WORKSHEET 2E -- SINGLE-VEHICLE COLLISIONS BY SEVERITY LEVEL FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	SPF Coefficients from Table 12-12	Overdispersion Parameter, k from Table 12-12	Initial N_{biv} from Eqn. 12-24 or 12-27	Proportion of Total Crashes from Eqn. 12-24 or 12-27	Adjusted N_{biv} (4)* N_{biv}	Combined CMFs (7) from Worksheet 2B	Calibration Factor, C_i	Predicted N_{biv} (6)* $(7)*N_{biv}$
Total	-5.81	0.16	0.51	1.14	0.155	0.155	0.91	1.00
Fatal and Injury (FI)	--	--	--	--	0.048	(4) $N_{fi}/[(4)N_{fi} + (4)N_{pdo}]$	0.053	0.91
Property Damage Only (PDO)	-8.36	0.25	0.55	1.29	0.092	(5) $N_{pdo}/(5)N_{fi}$	0.102	0.91
					0.656			1.00
							0.093	

WORKSHEET 2F -- SINGLE-VEHICLE COLLISIONS BY COLLISION TYPE FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	Proportion of Collision Type(FI)	Predicted N _{bisw} (FI) [crashes/year]	Proportion of Collision Type (FI)	Predicted N _{bisw} (FI) [crashes/year]	Predicted N _{bisw} (total) [crashes/year]
Total	from Table 12-13	(9) from Worksheet 2E	from Table 12-13	(9) from Worksheet 2E	(9) from Worksheet 2E
Total	1.000	0.049	1.000	0.093	0.141
Collision with parked vehicle		(2)* (3) _{FI}		(4)* (5) _{FI}	(3)* (5)
Collision with animal	0.001	0.000	0.003	0.000	0.000
Collision with fixed object	0.003	0.000	0.018	0.002	0.002
Collision with other object	0.762	0.037	0.834	0.077	0.114
Other single-vehicle collision	0.090	0.004	0.092	0.009	0.013
Single-vehicle noncollision	0.039	0.002	0.023	0.002	0.004
	0.105	0.005	0.030	0.003	0.008

WORKSHEET 2G -- VEHICLE-PEDESTRIAN COLLISIONS FOR URBAN AND SUBURBAN ARTERIAL STOP-CONTROLLED INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	Predicted N _{bisw}	Predicted N _{bisw}	Predicted N _{bis}	f _{predi}	Calibration factor, C _i	Predicted N _{predi}
(9) from Worksheet 2C						
Total	0.237	0.141	(2) + (3)	from Table 12-16		
Fatal and injury (FI)	--	--	0.378	0.021	1.00	0.008
	--	--	--	--	1.00	0.008

WORKSHEET 2H -- CRASH MODIFICATION FACTORS FOR VEHICLE-PEDESTRIAN COLLISIONS FOR URBAN AND SUBURBAN ARTERIAL SIGNALIZED INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF	Combined CMF	
CMF _{in}		CMF _{2a}	CMF _{1b}			
from Table 12-28		from Table 12-29	from Table 12-30	(1)*(2)*(3)	--	--
	--	--	--	--	--	--

WORKSHEET 2I -- VEHICLE-PEDESTRIAN COLLISIONS FOR VEHICLE-PEDESTRIAN SIGNALIZED INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	SPF Coefficients	N _{pedest}	Overdispersion Parameter, k	Combined CMF	Calibration factor, C _i	Predicted N _{bisw}
Total	a b c d e	(2) + (3)	from Table 12-14	(4) from Worksheet 2H	--	1.00
Fatal and injury (FI)	-- -- -- --	-- -- -- --	-- -- -- --	-- -- -- --	--	1.00

WORKSHEET 2J -- VEHICLE-BICYCLE COLLISIONS FOR URBAN AND SUBURBAN ARTERIAL SIGNALIZED INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	Predicted N _{bisw}	Predicted N _{bisw}	Predicted N _{bis}	f _{biket}	Calibration factor, C _i	Predicted N _{biket}
(9) from Worksheet 2C						
Total	0.237	0.141	(2) + (3)	from Table 12-17		
Fatal and injury (FI)	--	--	0.378	0.016	1.00	0.006
	--	--	--	--	1.00	0.006

WORKSHEET 2K -- CRASH SEVERITY DISTRIBUTION FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

Collision type	(1)	(2)	(3)	(4)
	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	Total
Rear-end collisions (from Worksheet 2D)	0.039	0.064	0.102	
Head-on collisions (from Worksheet 2D)	0.004	0.003	0.007	
Angle collisions (from Worksheet 2D)	0.031	0.038	0.069	
Sideswipe (from Worksheet 2D)	0.012	0.006	0.017	
Other multiple-vehicle collision (from Worksheet 2D)	0.006	0.034	0.040	
Subtotal	0.092	0.145	0.237	
MULTIPLE-VEHICLE				
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000	
Collision with animal (from Worksheet 2F)	0.000	0.002	0.002	
Collision with fixed object (from Worksheet 2F)	0.037	0.077	0.114	
Collision with other object (from Worksheet 2F)	0.004	0.009	0.013	
Other single-vehicle collision (from Worksheet 2F)	0.002	0.002	0.004	
Single-vehicle noncollision (from Worksheet 2F)	0.005	0.003	0.008	
Collision with pedestrian (from Worksheet 2G or 2I)	0.008	0.000	0.008	
Collision with bicycle (from Worksheet 2I)	0.006	0.000	0.006	
Subtotal	0.063	0.093	0.155	
Total	0.154	0.237	0.392	

WORKSHEET 2L -- SUMMARY RESULTS FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)
Crash severity level	Predicted average crash frequency, $N_{predicted}$ (crashes/year)
Total	(Total) from Worksheet 2K 0.392
Fatal and injury (FI)	0.154
Property damage only (PDO)	0.237

PROJECT ELEMENT RESULTS SUMMARY¹

Summary for the project element	Fatal and Injury Crashes/yr (KABC)			Property Damage Only Crashes/yr (PDO)		
	Predicted average crash frequency $N_{predicted}$ (KABC)	Expected average crash frequency $N_{expected}$ (KABC)	Potential for Improvement $N_{predicted} - N_{expected}$ (KABC)	Expected average crash frequency $N_{predicted}$ (KABC)	Potential for Improvement $N_{predicted} - N_{expected}$ (KABC)	Potential for Improvement $N_{expected}$ (O)
Total	0.392	0.260	0.132	0.103	0.000	0.158

Special Note: When the project element is not included in the analysis the results will all be zero; in addition if only the analysis only includes determining the predicted average crash frequency (i.e., EB analysis is not carried out), the results will show zero values where EB results are usually displayed.

PROJECT SAFETY PERFORMANCE SUMMARY REPORT

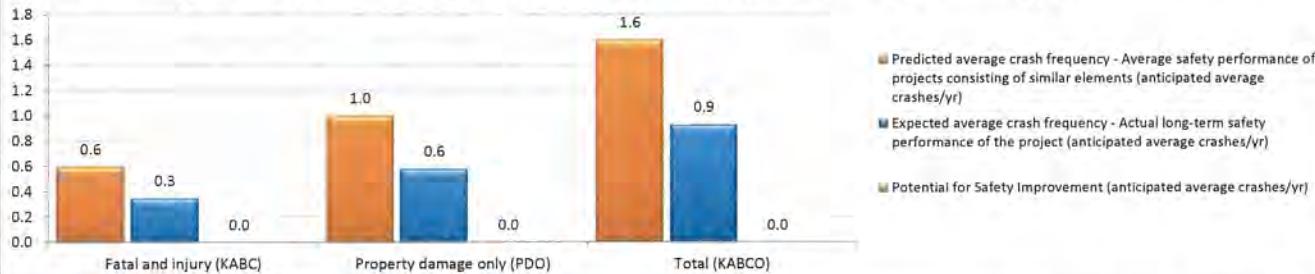
General Information

Project Name	20-2564 Latah Glen Residential
Project Description	Residential Development
Reference Number	SR 195 SB & Cheney-Spokane Road
Analyst	Whipple Consulting Engineer
Agency/Company	WSDOT
Contact Email	kkim@WhippleCE.com
Contact Phone	(509) 893-2617
Date Completed	05/12/11

Years of crash data incorporated into the analysis: 3

PROJECT SUMMARY

Summary of Anticipated Safety Performance of the Project (average crashes/yr)



Project Element	Total Crashes/yr (KABC)			Fatal and Injury Crashes/yr (KABC)			Property Damage Only Crashes/yr (PDO)		
	Predicted average crash frequency N _{predicted} (KABC)	Expected average crash frequency N _{expected} (KABC)	Potential for Improvement	Predicted average crash frequency N _{predicted} (KABC)	Expected average crash frequency N _{expected} (KABC)	Potential for Improvement	Predicted average crash frequency N _{predicted} (O)	Expected average crash frequency N _{expected} (O)	Potential for Improvement
INDIVIDUAL INTERSECTIONS									
Intersection 1	1.6	0.9	0.0	0.6	0.3	0.0	1.0	0.6	0.0
COMBINED (sum of column)	1.6	0.9	0.0	0.6	0.3	0.0	1.0	0.6	0.0

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)	0.6	0.3	N/A
Property damage only (PDO)	1.0	0.6	N/A
Total (KABC)	1.6	0.9	N/A

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 0.9 crashes per year (0.3 fatal and injury crashes per year; and 0.6 property damage only crashes per year).
2. A similar project is anticipated, on average, to experience 1.6 crashes per year (0.6 fatal and injury crashes per year; and 1 property damage only crashes per year).

#VALUE!

WORKSHEET 2A - GENERAL INFORMATION AND INPUT DATA FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

General Information		Location Information		Base Conditions	
Analyst	Whipple Consulting Engineer	Roadway	SR 195	---	---
Agency or Company	WSDOT	Location Information	Cheney-Spokane Road & SR 195 SB Ramps	---	---
Date Performed	1/29/2021	Jurisdiction	WSDOT	---	---
Intersection	Intersection 1	Analysis Year	2021	---	---
Signalized/Unsignalized	Unsignalized				
Input Data		Site Conditions		Base Conditions	
Intersection type (3ST, 3SG, 4ST, 4SG)		4ST		---	---
AADT major (veh/day) (total entering on major approaches)*	AADT _{MAX} = 46,800 (veh/day)	5,840		---	---
AADT minor (veh/day) (total entering on minor approaches)*	AADT _{MAX} = 5,900 (veh/day)	5,590		---	---
Intersection lighting (present/not present)		Present		Not Present	
Calibration factor, C _i		1.00		1.00	
Data for unsignalized intersections only:					
Number of major road approaches with left-turn lanes (0,1,2)		0		0	
Number of major road approaches with right-turn lanes (0,1,2)		0		0	
Data for signalized intersections only:					
Number of approaches with left-turn-lanes {0,1,2,3,4} [for 3SG, use maximum value of 2]		0		0	
Number of approaches with right-turn-lanes {0,1,2,3,4} [for 4SG, use maximum value of 4, all other, max=2]		0		0	
Number of approaches with left-turn-signal-phasing [for 3SG, use maximum value of 2]		0		-	
Type of left-turn-signal-phasing for leg #1				Definitive	
Type of left-turn-signal-phasing for leg #2				-	
Type of left-turn-signal-phasing for leg #3 [if applicable]				-	
Number of approaches with right-turn-on-red-prohibited [for 3SG, use maximum value of 2]		0		0	
Intersection red-light-camera(s) (present/not present)				Not Present	
Sum of all pedestrian-crossing-vehicles (pedVeh) — Signalized intersections only				-	
Maximum number of lanes crossed by a pedestrian (n _{max})				-	
Number of bus stops within 300-m (1,000-ft) of the intersection		0		0	
Schools within 300-m (1,000-ft) of the intersection (present/not present)				Not Present	
Number of alcohol sales-establishments within 300-m (1,000-ft) of the intersection		0		0	
Average Annual Crash History (3 or 5-yr average)					
Multiple vehicle crashes	KABC PDO	Fatal and Injury Only Property Damage Only	0.3 0.0		
Single-vehicle crashes	KABC PDO	Fatal and Injury Only Property Damage Only	0.0 0.0		
NOTES: * AADT: It is important to remember that the AADT(major) = AADT(major approach1) + AADT(minor approach2) (refer to p.12-8 in Part C of the HSM)					

WORKSHEET 2B - CRASH MODIFICATION FACTORS FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1 <i>i</i>	CMF 2 <i>i</i>	CMF 3 <i>i</i>	CMF 4 <i>i</i>	CMF 5 <i>i</i>	CMF 6 <i>i</i>	CMF com ⁶

from Table 12-24 from Table 12-25 1,0000 1,0000 0,9130 0,9130

WORKSHEET 2C -- MULTIPLE-VEHICLE COLLISIONS BY SEVERITY LEVEL FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	SPF Coefficients from Table 12-10	Overdispersion Parameter, k from Table 12-10	Initial N _{bimv} from Equation 12-21	Proportion of Total Crashes (4)/(total * (5))	Adjusted N _{bimv} (4)/(total * (5))	Combined CMFs (7) from Worksheet 2B	Predicted N _{bimv} (6)*(7)*8
Total	a -8.90	b 0.82	c 0.25	0.40	1.446	1.446	1.320
Fatal and Injury (FI)	-11.13	0.93	0.28	0.48	0.523	0.522	0.477
Property Damage Only (PDO)	-8.74	0.77	0.23	0.40	0.925	0.924	0.843

WORKSHEET 2D -- MULTIPLE-VEHICLE COLLISIONS BY COLLISION TYPE FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	Proportion of Collision Type(m) from Table 12-11	Predicted N _{bimv} * (m) [crashes/year] (9) _m from Worksheet 2C	Proportion of Collision Type (pdo) from Table 12-11	Predicted N _{bimv} (pdo) [crashes/year] (9) _{pdo} from Worksheet 2C	Predicted N _{bimv} (total) [crashes/year] (9) _{total} from Worksheet 2C
Total	1.000	0.477	1.000	0.843	1.320
Rear-end collision	0.338	(2)*(3) _h 0.161	0.374	(4)*(5) _{pdo} 0.315	(3)+(5) 0.477
Head-on collision	0.041	0.020	0.030	0.015	0.045
Angle collision	0.440	0.210	0.335	0.283	0.492
Sideswipe	0.121	0.058	0.044	0.037	0.085
Other multiple-vehicle collision	0.060	0.029	0.217	0.183	0.212

WORKSHEET 2E -- SINGLE-VEHICLE COLLISIONS BY SEVERITY LEVEL FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	SPF Coefficients from Table 12-12	Overdispersion Parameter, k from Table 12-12	Initial N _{bimv} from Eqn. 12-24; (F)	Proportion of Total Crashes (4)/(total * (5))	Adjusted N _{bimv} (4)/(total * (5))	Combined CMFs (7) from Worksheet 2B	Predicted N _{bimv} (6)*(7)*8	
Total	-5.33	0.33	0.12	0.65	0.239	1.000	0.239	0.218
Fatal and Injury (FI)	--	--	--	--	0.067	(4) _h /(4) _h +(4) _{pdo} 0.280	0.067	0.061
Property Damage Only (PDO)	-7.04	0.36	0.25	0.54	0.172	(5) _{total} -(5) _h 0.720	0.172	0.157

WORKSHEET 2F -- SINGLE-VEHICLE COLLISIONS BY COLLISION TYPE FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	Proportion of Collision Type ⁽¹⁾	Predicted N _{biv} (m) [crashes/year]	Proportion of Collision Type ⁽¹⁰⁰⁾	Predicted N _{biv} [p(00) (crashes/year)]	Predicted N _{biv} (total) [crashes/year]
Total	1.000	(9) _b from Worksheet 2E	from Table 12-13	(9) _b from Worksheet 2E	(9) _b from Worksheet 2E
Collision with parked vehicle	0.061	(2)*(3) _H	1.000	0.157	0.218
Collision with animal	0.001	0.000	0.001	(4)*(5) _{H00}	(3)+[5]
Collision with fixed object	0.001	0.000	0.026	0.004	0.004
Collision with other object	0.679	0.041	0.847	0.133	0.174
Other single-vehicle collision	0.089	0.005	0.070	0.011	0.016
Single-vehicle noncollision	0.051	0.003	0.007	0.001	0.004
	0.179	0.011	0.049	0.008	0.019

WORKSHEET 2G -- VEHICLE-PEDESTRIAN COLLISIONS FOR URBAN AND SUBURBAN ARTERIAL STOP-CONTROLLED INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	Predicted N _{bimv}	Predicted N _{biv}	Predicted N _{hi}	f _{pedi}	Calibration factor, C _i	Predicted N _{pedi}
Total	(9) from Worksheet 2C	(9) from Worksheet 2E	(2)+(3)	from Table 12-16		(4)*(5)*(6)
Fatal and injury (FI)	--	0.218	1.538	0.022	1.00	0.034
	--	--	--	--	1.00	0.034

WORKSHEET 2H -- CRASH MODIFICATION FACTORS FOR VEHICLE-PEDESTRIAN COLLISIONS FOR URBAN AND SUBURBAN ARTERIAL SIGNALIZED INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	CMF for Bus Stops CMF _{lp}	CMF for Schools CMF _{2p}	CMF for Alcohol Sales Establishments CMF _{3p}	Combined CMF	Combined CMF	
Total	from Table 12-28	from Table 12-29	from Table 12-30	--	--	--
Fatal and injury (FI)	--	--	--	--	--	--

WORKSHEET 2I -- VEHICLE-PEDESTRIAN COLLISIONS FOR URBAN AND SUBURBAN ARTERIAL SIGNALIZED INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	SIF Coefficients from Table 12-14	Overdispersion Parameter, k	N _{pedest}	Combined CMF	Calibration factor, C _i	Predicted N _{pedet}
Total	a	b	c	d	e	
Fatal and injury (FI)	--	--	--	--	--	--

WORKSHEET 2J -- VEHICLE-BICYCLE COLLISIONS FOR URBAN AND SUBURBAN ARTERIAL SIGNALIZED INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	Predicted N _{bimv}	Predicted N _{biv}	Predicted N _{hi}	f _{biker}	Calibration factor, C _i	Predicted N _{biker}
Total	(9) from Worksheet 2C	(9) from Worksheet 2E	(2)+(3)	from Table 12-17		(4)*(5)*(6)
Fatal and injury (FI)	--	0.218	1.538	0.018	1.00	0.028
	--	--	--	--	1.00	0.028

WORKSHEET 2K -- CRASH SEVERITY DISTRIBUTION FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

Collision type	(1)	(2)	Fatal and injury (FI)	(3) Property damage only (PDO)	(4) Total
			(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J		
MULTIPLE-VEHICLE					
Rear-end collisions (from Worksheet 2D)	0.161		0.315		0.477
Head-on collisions (from Worksheet 2D)	0.020		0.025		0.045
Angle collisions (from Worksheet 2D)	0.210		0.283		0.492
Sideswipe (from Worksheet 2D)	0.058		0.057		0.055
Other multiple-vehicle collision (from Worksheet 2D)	0.029		0.183		0.212
Subtotal	0.477		0.843		1.320
SINGLE-VEHICLE					
Collision with parked vehicle (from Worksheet 2F)	0.000		0.000		0.000
Collision with animal (from Worksheet 2F)	0.000		0.004		0.004
Collision with fixed object (from Worksheet 2F)	0.041		0.133		0.174
Collision with other object (from Worksheet 2F)	0.005		0.011		0.016
Other single-vehicle collision (from Worksheet 2F)	0.003		0.001		0.004
Single-vehicle noncollision (from Worksheet 2F)	0.011		0.008		0.019
Collision with pedestrian (from Worksheet 2G or 2I)	0.034		0.000		0.034
Collision with bicycle (from Worksheet 2J)	0.028		0.000		0.028
Subtotal	0.123		0.157		0.279
Total	0.599		1.000		1.599

WORKSHEET 2L -- SUMMARY RESULTS FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)	Predicted average crash frequency, $N_{predicted, int}$ (crashes/year)
		(Total) from Worksheet 2K
Total		1.599
Fatal and injury (FI)		0.599
Property damage only (PDO)		1.000

PROJECT ELEMENT RESULTS SUMMARY¹

Summary for the project element	Total Crashes/yr (KABC0)		Fatal and Injury Crashes/yr (KABC)		Property Damage Only Crashes/yr (PDO)	
	Predicted average crash frequency $N_{predicted}(KABC0)$	Expected average crash frequency $N_{predicted}(KABC0)$	Predicted average crash frequency $N_{predicted}(KABC)$	Expected average crash frequency $N_{predicted}(KABC)$	Predicted average crash frequency $N_{predicted}(0)$	Potential for improvement Nepected(0)
	1.599	0.530	0.000	0.599	0.348	0.000

Special Note: When the project element is not included in the analysis the results will all be zeros. In addition if only the analysis only includes determining the predicted average crash frequency (i.e. EB analysis is not carried out), the results will show zero values where EB results are usually displayed.

PROJECT SAFETY PERFORMANCE SUMMARY REPORT

General Information

Project Name	20-2564 Latah Glen Residential
Project Description	Residential Development
Reference Number	SR 195 & Meadowlane Road
Analyst	Whipple Consulting Engineer
Agency/Company	WSDOT
Contact Email	kkim@WhippleCE.com
Contact Phone	(509) 893-2617
Date Completed	05/12/11

Years of crash data incorporated into the analysis: 3

PROJECT SUMMARY

Summary of Anticipated Safety Performance of the Project (average crashes/yr)



Project Element	Total Crashes/yr (KABCO)			Fatal and Injury Crashes/yr (KABC)			Property Damage Only Crashes/yr (PDO)		
	Predicted average crash frequency $N_{predicted}$ (KABC)	Expected average crash frequency $N_{expected}$ (KABC)	Potential for Improvement	Predicted average crash frequency $N_{predicted}$ (KABC)	Expected average crash frequency $N_{expected}$ (KABC)	Potential for Improvement	Predicted average crash frequency $N_{predicted}$ (D)	Expected average crash frequency $N_{expected}$ (D)	Potential for Improvement
INDIVIDUAL INTERSECTIONS									
Intersection 1	2.4	3.4	0.9	1.0	1.3	0.4	1.5	2.0	0.6
COMBINED (sum of column)	2.4	3.4	0.9	1.0	1.3	0.4	1.5	2.0	0.6

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)	1.0	1.3	0.4
Property damage only (PDO)	1.5	2.0	0.6
Total (KABCO)	2.4	3.4	0.9

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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 3.4 crashes per year (1.3 fatal and injury crashes per year; and 2 property damage only crashes per year).
2. A similar project is anticipated, on average, to experience 2.4 crashes per year (1 fatal and injury crashes per year; and 1.5 property damage only crashes per year).
3. It is anticipated the project has, on average, a potential for safety improvement of 0.9 crashes per year (0.4 fatal and injury crashes per year; and 0.6 property damage only crashes per year).

WORKSHEET 2A .. GENERAL INFORMATION AND INPUT DATA FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

General Information		Location Information	
Analyst	Whipple Consulting Engineer	Roadway	SR 195
Agency or Company	WSDOT	Location Information	Meadowlane Road
Date Performed	1/29/2021	Jurisdiction	WSDOT
Intersection	Intersection 1	Analysis Year	2021
Signalized/Unsignalized	Unsignalized		
Input Data		Site Conditions	
Intersection type (3ST, 3SG, 4ST, 4SG)		4ST	Base Conditions
AADT _{major} (veh/day) (total entering on major approaches)*	AADT _{MAX} = 46,800 (veh/day)	15,690	---
AADT _{minor} (veh/day) (total entering on minor approaches)*	AADT _{MAX} = 5,900 (veh/day)	1,370	---
Intersection lighting (present/not present)		Present	Not Present
Calibration factor, C _i		1.00	1.00
Data for unsignalized intersections only:			
Number of major-road approaches with left-turn lanes (0,1,2)		0	0
Number of major-road approaches with right-turn lanes (0,1,2)		0	0
Data for signalized intersections only:			
Number of approaches with left-turn-lanes-(0,1,2,3,4) [for 3SG, use maximum value of 3]		0	0
Number of approaches with right-turn-lanes-for 4SG, use maximum value of 4, all other, max 2)		0	0
Number of approaches with left-turn-signal-phasing-[for 3SG, use maximum value of 3]		0	-
Type of left-turn-signal-phasing-for Leg #1			Permissive
Type of left-turn-signal-phasing-for Leg #2			-
Type of left-turn-signal-phasing-for Leg #3			-
Type of left-turn-signal-phasing-for Leg #4 (if applicable)			-
Number of approaches with right-turn-on-red-prohibited-[for 3SG, use maximum value of 3]		0	0
Intersection red-light cameras (present/not present)		Net Present	Net Present
Sum of all pedestrian-crossing-volumes (ped/vol) — Signalized intersections only			-
Maximum number of lanes crossed by a pedestrian (ped_max)			-
Number of bus stops within 300-m (1,000-ft) of the intersection		0	0
Schools within 300-m (1,000-ft) of the intersection (present/not present)		Net Present	Net Present
Number of alleys established within 300-m (1,000-ft) of the intersection		0	0
Average Annual Crash History (3 or 5-yr average)			
Multiple vehicle crashes	KABC PDO	Fatal and Injury Only Property Damage Only	2.3 1.0
Single-vehicle crashes	KABC PDO	Fatal and Injury Only Property Damage Only	0.0 0.3

NOTES: * AADT: It is important to remember that the AADT(major) = AADT(major approach1) + AADT(minor approach2) (refer to p.12-8 in Part C of the HSM)

WORKSHEET 2B .. CRASH MODIFICATION FACTORS FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1 <i>i</i>	CMF 2 <i>i</i>	CMF 3 <i>i</i>	CMF 4 <i>i</i>	CMF 5 <i>i</i>	CMF 6 <i>i</i>	CMF comb <i>i</i>
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1) ^Y (2) ^Y (3) ^Y (4) ^Y (5) ^Y (6)
1.0000	1.0000	1.0000	1.0000	0.9130	1.0000	0.9130

WORKSHEET 2C -- MULTIPLE-VEHICLE COLLISIONS BY SEVERITY LEVEL FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	SPF Coefficients from Table 12-10	Overdispersion Parameter, k from Table 12-10	Initial N _{bimv} from Equation 12-21	Proportion of Total Crashes (4) _{total} * (5)	Adjusted N _{bimv} (4) _{total} * (5)	Combined CMFs (7) from Worksheet 2B	Predicted N _{bimv}
Total	a	b	c	0.40	2.288	2.288	0.91
Fatal and Injury (FI)	-8.90	0.82	0.25	0.884	$\frac{(4)_H}{(4)_H + (4)_{non-H}}$	0.873	0.91
Property Damage Only (PDO)	-11.13	0.93	0.28	0.48	0.382	0.312	0.797
					$(5)_{total} - (5)_H$	0.618	1.292

WORKSHEET 2D -- MULTIPLE-VEHICLE COLLISIONS BY COLLISION TYPE FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	Proportion of Collision Type _(H)	Predicted N _{bimv} (H) [crashes/year]	Proportion of Collision Type (non-H)	Predicted N _{bimv} (non-H) [crashes/year]	Predicted N _{bimv} (total) [crashes/year]
from Table 12-11	(9) _H from Worksheet 2C	from Table 12-11	(9) _{non-H} from Worksheet 2C	(9) _{non-H} from Worksheet 2C	(9) _{non-H} from Worksheet 2C
Total	1.000	0.797	1.000	1.292	2.058
Rear-end collision	0.338	(2)* (3) _H	0.269	0.374	0.483
Head-on collision	0.041	0.033	0.030	0.039	0.071
Angle collision	0.440	0.351	0.335	0.433	0.783
Sideswipe	0.121	0.096	0.044	0.057	0.153
Other multiple-vehicle collision	0.060	0.048	0.217	0.280	0.328

WORKSHEET 2E -- SINGLE-VEHICLE COLLISIONS BY SEVERITY LEVEL FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	SPF Coefficients from Table 12-12	Overdispersion Parameter, k from Table 12-12	Initial N _{bimv} from Eqn. 12-24 or Eqn. 12-24; (F)	Proportion of Total Crashes (4) _{total} * (5)	Adjusted N _{bimv} (4) _{total} * (5)	Combined CMFs (7) from Worksheet 2B	Predicted N _{bimv}	
Total	-5.33	0.33	0.12	0.65	0.279	1.000	0.279	0.91
Fatal and Injury (FI)	--	--	--	0.078	$\frac{(4)_H}{(4)_H + (4)_{non-H}}$	0.087	0.91	1.00
Property Damage Only (PDO)	-7.04	0.36	0.25	0.54	$(5)_{total} - (5)_H$	0.688	0.192	0.91
							0.176	

WORKSHEET 2F -- SINGLE-VEHICLE COLLISIONS BY COLLISION TYPE FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

Collision Type	(1)	(2)	(3)	(4)	(5)	(6)
	Proportion of Collision Type[n]	Predicted N _{bias} [n] (crashes/year)	Proportion of Collision Type [p ₀₀₀]	Predicted N _{bias} [p ₀₀₀] (crashes/year)	Predicted N _{bias} [total] (crashes/year)	Predicted N _{bias} [total] (crashes/year)
Total	1.000	(9) from Worksheet 2E	from Table 12-13	1.000	(9) from Worksheet 2E	(9) from Worksheet 2E
Collision with parked vehicle	0.080	(2)*(3) _h	0.001	0.176	(4)*(5) _{h00}	(9) from Worksheet 2E
Collision with animal	0.001	0.000	0.001	0.000	(3)*5	0.000
Collision with fixed object	0.001	0.000	0.026	0.005		0.005
Collision with other object	0.679	0.054	0.847	0.149		0.203
Other single-vehicle collision	0.089	0.007	0.070	0.012		0.019
Single-vehicle noncollision	0.051	0.004	0.007	0.001		0.005
	0.179	0.014	0.049	0.009		0.023

WORKSHEET 2G -- VEHICLE-PEDESTRIAN COLLISIONS FOR URBAN AND SUBURBAN ARTERIAL STOP-CONTROLLED INTERSECTIONS

Crash Severity Level	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Predicted N _{bias}	Predicted N _{bias}	Predicted N _{bias}	f _{pedestrian}	Calibration factor, C _i	Predicted N _{bias}	
Total	(9) from Worksheet 2C	(9) from Worksheet 2E	(2)+(3)	from Table 12-16	(4)*(5)*6		
Fatal and injury (FI)	2.088	0.255	2.344	0.022	1.00	0.052	
	--	--	--	--	1.00	0.052	

WORKSHEET 2H -- CRASH MODIFICATION FACTORS FOR VEHICLE-PEDESTRIAN COLLISIONS FOR URBAN AND SUBURBAN ARTERIAL SIGNALIZED INTERSECTIONS

Crash Severity Level	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	CMF _{1p}	Combined CMF	Combined CMF	
Total	CMF _{1p}	CMF _{2p}	CMF _{3p}	from Table 12-29	from Table 12-30	(1)*(2)*(3)	--
Fatal and Injury (FI)	--	--	--	--	--	--	--

WORKSHEET 2I -- VEHICLE-PEDESTRIAN COLLISIONS FOR URBAN AND SUBURBAN ARTERIAL SIGNALIZED INTERSECTIONS

Crash Severity Level	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	SPF Coefficients	N _{bias}	Overdispersion Parameter, k	Combined CMF	Calibration factor, C _i	Predicted N _{bias}	
Total	from Table 12-14	c	d	from Equation 12-29	(4) from Worksheet 2H	--	--
Fatal and Injury (FI)	a	--	e	--	--	--	--
	--	--	--	--	--	--	--

WORKSHEET 2J -- VEHICLE-BICYCLE COLLISIONS FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

Crash Severity Level	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Predicted N _{bias}	Predicted N _{bias}	Predicted N _{bias}	f _{bike}	Calibration factor, C _i	Predicted N _{bias}	
Total	(9) from Worksheet 2C	(9) from Worksheet 2E	(2)+(3)	from Table 12-17	(4)*(5)*6		
Fatal and Injury (FI)	2.088	0.255	2.344	0.018	1.00	0.042	
	--	--	--	--	1.00	0.042	

WORKSHEET 2K -- CRASH SEVERITY DISTRIBUTION FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

Collision type	(1)	(2)	Fatal and Injury (F)	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(4) Total (6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
			Property damage only (PDO)		
MULTIPLE-VEHICLE					
Rear-end collisions (from Worksheet 2D)		0.269		0.483	0.752
Head-on collisions (from Worksheet 2D)		0.033		0.039	0.071
Angle collisions (from Worksheet 2D)		0.351		0.433	0.783
Sideswipe (from Worksheet 2D)		0.096		0.057	0.153
Other multiple-vehicle collision (from Worksheet 2D)		0.048		0.280	0.328
Subtotal		0.797		1.292	2.088
SINGLE-VEHICLE					
Collision with parked vehicle (from Worksheet 2F)		0.000		0.000	0.000
Collision with animal (from Worksheet 2F)		0.000		0.005	0.005
Collision with fixed object (from Worksheet 2F)		0.054		0.149	0.203
Collision with other object (from Worksheet 2F)		0.007		0.012	0.019
Other single-vehicle collision (from Worksheet 2F)		0.004		0.001	0.005
Single-vehicle noncollision (from Worksheet 2F)		0.014		0.009	0.023
Collision with pedestrian (from Worksheet 2G or 2I)		0.052		0.000	0.052
Collision with bicycle (from Worksheet 2J)		0.042		0.000	0.042
Subtotal		0.173		0.176	0.349
Total		0.970		1.467	2.437

WORKSHEET 2L -- SUMMARY RESULTS FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

Crash severity level	(1)	Predicted average crash frequency, $N_{predicted,nt}$ [crashes/year]	(2)
		[Total] from Worksheet 2K	
Total		2.437	
Fatal and injury (F)		0.970	
Property damage only (PDO)		1.467	

PROJECT ELEMENT RESULTS SUMMARY¹

Summary for the project element	Total Crashes/yr (KABC)		Fatal and Injury Crashes/yr (KABC)		Property Damage Only Crashes/yr (PDO)	
	Predicted average crash frequency $N_{predicted,KABC}$	Expected average crash frequency $N_{expected,KABC}$	Predicted average crash frequency $N_{predicted,KABC}$	Expected average crash frequency $N_{expected,KABC}$	Predicted average crash frequency $N_{predicted,0}$	Potential for improvement $N_{expected,0}$
	2.437	3.353	0.916	0.970	1.335	0.364

Special Note: When the project element is not included in the analysis the results will all be zeros. In addition if only the analysis only includes determining the predicted average crash frequency (i.e., EB analysis is not carried out), the results will show zero value where EB results are usually displayed.

PROJECT SAFETY PERFORMANCE SUMMARY REPORT

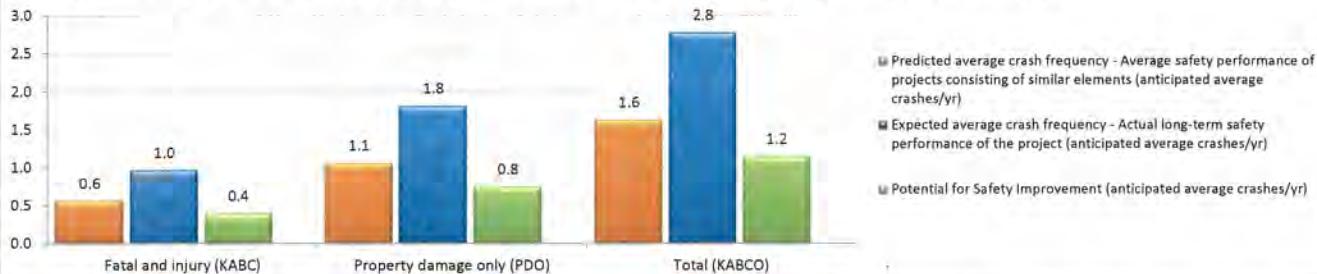
General Information

Project Name	20-2564 Latah Glen Residential
Project Description	Residential Development
Reference Number	SR 195 & Hatch Road
Analyst	Whipple Consulting Engineer
Agency/Company	WSDOT
Contact Email	kkim@WhippleCE.com
Contact Phone	(509) 893-2617
Date Completed	05/12/11

Years of crash data incorporated into the analysis: 3

PROJECT SUMMARY

Summary of Anticipated Safety Performance of the Project (average crashes/yr)



Project Element	Total Crashes/yr (KABCO)			Fatal and Injury Crashes/yr (KABC)			Property Damage Only Crashes/yr (PDO)		
	Predicted average crash frequency N _{predicted} (KABC)	Expected average crash frequency N _{expected} (KABC)	Potential for Improvement	Predicted average crash frequency N _{predicted} (KABC)	Expected average crash frequency N _{expected} (KABC)	Potential for Improvement	Predicted average crash frequency N _{predicted} (O)	Expected average crash frequency N _{expected} (O)	Potential for Improvement
INDIVIDUAL INTERSECTIONS									
Intersection 1	1.6	2.8	1.2	0.6	1.0	0.4	1.1	1.8	0.8
COMBINED (sum of column)	1.6	2.8	1.2	0.6	1.0	0.4	1.1	1.8	0.8

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)	0.6	1.0	0.4
Property damage only (PDO)	1.1	1.8	0.8
Total (KABC)	1.6	2.8	1.2

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 2.8 crashes per year (1 fatal and injury crashes per year; and 1.8 property damage only crashes per year).
2. A similar project is anticipated, on average, to experience 1.6 crashes per year (0.6 fatal and injury crashes per year; and 1.1 property damage only crashes per year).
3. It is anticipated the project has, on average, a potential for safety improvement of 1.2 crashes per year (0.4 fatal and injury crashes per year; and 0.8 property damage only crashes per year).

WORKSHEET 2A -- GENERAL INFORMATION AND INPUT DATA FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

General Information		Location Information	
Analyst	Whipple Consulting Engineer	Roadway	SR 195
Agency or Company	WSDOT	Location Information	Hatch Road
Date Performed	1/29/2021	Jurisdiction	WSDOT
Intersection	Intersection 1	Analysis Year	2021
Signalized/Unsignalized	Unsignalized		
Input Data		Site Conditions	
Intersection type [3ST], [3G, 4ST, 4SG]		3ST	Base Conditions
AADT _{major} (veh/day) (total entering on major approaches)*	AADT _{max} = 45,700 (veh/day)	11,020	--
AADT _{minor} (veh/day) (total entering on minor approaches)*	AADT _{max} = 9,300 (veh/day)	3,710	--
Intersection lighting (present/not present)	Present	Not Present	
Calibration factor: C _i	1.00	1.00	
Data for unsignalized intersections only:			
Number of major-road approaches with left-turn lanes [0,1,2]		0	0
Number of major-road approaches with right-turn lanes [0,1,2]		0	0
Data for signalized intersections only:			
Number of approaches with left-turn-lanes {0,1,2,3,4} [for -3SG, use maximum value of 3]		0	0
Number of approaches with right-turn-lanes: for -1SG, use maximum value of 4; all others, max 2		0	0
Number of approaches with left-turn-signal-phasing [for -3SG, use maximum value of 3]		0	--
Type of left-turn-signal-phasing: for Leg #1		Permissive	--
Type of left-turn-signal-phasing: for Leg #2		Permissive	--
Type of left-turn-signal-phasing: for Leg #3		Permissive	--
Type of left-turn-signal-phasing: for Leg #4 (if applicable)		Permissive	--
Number of approaches with right-turn-on-red-prohibited [for -3G, use maximum value of 3]		0	0
Intersection red-light-camera (present/not present)		Not Present	--
Sum of all pedestrian-crossing-volumes [pedVol] - Signalized-intersections-only		0	0
Maximum number of lanes crossed by a pedestrian [pedLanes]		0	0
Number of bus stops within 300 m [1,000 ft] of the intersection		0	0
Schools within 300 m [1,000 ft] of the intersection (present/not present)		Not Present	
Number of alcohol-sale-establishments within 300 m [1,000 ft] of the intersection		0	0
Average Annual Crash History (3 or 5-yr average)			
Multiple vehicle crashes	KABC PDO	Fatal and Injury Only Property Damage Only	1.7 1.3
Single-vehicle crashes	KABC PDO	Fatal and Injury Only Property Damage Only	0.0 0.0

NOTES: * AADT: It is important to remember that the AADT(major) = AADT(major approach1) + AADT(minor approach2) (refer to p.12-8 in Part C of the HSM)

WORKSHEET 2B -- CRASH MODIFICATION FACTORS FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	CMF 2i	CMF 3i	CMF 4i	CMF 5i	CMF 6i	CMF COMB
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
1,0000		1,0000		1,0000	1,0000	0.9096

WORKSHEET 2C -- MULTIPLE-VEHICLE COLLISIONS BY SEVERITY LEVEL FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	SPF Coefficients from Table 12-10	Overdispersion Parameter, k from Table 12-10	Initial N _{bimv} from Equation 12-21	Proportion of Total Crashes (4)/(4) _{F1} + (4) _{PDO})	Adjusted N _{bimv} (4) _{H1} * (5)	Combined CMFs (7) from Worksheet 2B	Predicted N _{bimv} (6)*(7)*(8)
Total	a -13.36	b 1.11	c 0.41	0.80	1.406	1.406	0.91 1.279
Fatal and Injury (F1)	-14.01	1.16	0.30	0.69	0.473	(4) _{F1} / ((4) _{H1} + (4) _{PDO}) 0.326	0.458 0.91 1.00 0.416
Property Damage Only (PDO)	-15.38	1.20	0.51	0.77	0.981	(5) _{H1} * (5) _{H1} 0.674	0.948 0.91 1.00 0.863

WORKSHEET 2D -- MULTIPLE-VEHICLE COLLISIONS BY COLLISION TYPE FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Collision Type	Proportion of Collision Type (F1)	Predicted N _{bimv} (F1) (crashes/year)	Proportion of Collision Type (PDO)	Predicted N _{bimv} (F1) (crashes/year)	Predicted N _{bimv} (F1) (crashes/year)	Predicted N _{bimv} (TOTAL) (crashes/year)
from Table 12-11	(9) _{H1} from Worksheet 2C	from Table 12-11	from Table 12-11	(9) _{H10} from Worksheet 2C	(9) _{H10} from Worksheet 2C	(9) _{H10} from Worksheet 2C
Total	1.000	0.416	1.000	0.863	0.863	1.279
Rear-end collision	0.421	(2)*(3) _{H1}	0.440	(4)*(5) _{PDO}	(4)*(5) _{PDO}	(3)+(5) 0.555
Head-on collision	0.045	0.175	0.033	0.380	0.380	0.020 0.039
Angle collision	0.343	0.143	0.262	0.226	0.226	0.369
Sideswipe	0.126	0.052	0.040	0.035	0.035	0.087
Other multiple-vehicle collision	0.065	0.027	0.235	0.203	0.203	0.230

WORKSHEET 2E -- SINGLE-VEHICLE COLLISIONS BY SEVERITY LEVEL FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	SPF Coefficients from Table 12-12	Overdispersion Parameter, k from Table 12-12	Initial N _{bisv} from Eqn. 12-24 or 12-27	Proportion of Total Crashes (4)/(4) _{F1} + (4) _{PDO})	Adjusted N _{bisv} (4) _{H1} * (5)	Combined CMFs (7) from Worksheet 2B	Predicted N _{bisv} (6)*(7)*(8)	
Total	-6.81	0.16	0.51	1.14	0.333	1.000	0.323	0.294
Fatal and Injury (F1)	--	--	--	--	0.100	(4) _{F1} / ((4) _{H1} + (4) _{PDO}) 0.313	0.101 0.91 1.00 0.092	
Property Damage Only (PDO)	-8.36	0.25	0.55	1.29	0.220	(5) _{H1} * (5) _{H1} 0.687	0.222 0.91 1.00 0.202	

WORKSHEET 2F -- SINGLE-VEHICLE COLLISIONS BY COLLISION TYPE FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	Proportion of Collision Type(FI)	Predicted N _{bav} [FI] (crashes/year)	Proportion of Collision Type (FI)	Predicted N _{bav} [000] (crashes/year)	Predicted N _{bav} (total) (crashes/year)
Total	1.000	(9) from Worksheet 2E	from Table 12-13	(9) from Worksheet 2E	(9) from Worksheet 2E
Collision with parked vehicle	0.092	(2)*(3) _{II}	1.000	0.202	0.294
Collision with animal	0.001	0.000	0.003	(4)*(5) _{PD}	(3)+(5)
Collision with fixed object	0.003	0.000	0.018	0.001	0.001
Collision with other object	0.762	0.070	0.834	0.004	0.004
Other single-vehicle collision	0.092	0.008	0.092	0.169	0.239
Single-vehicle noncollision	0.039	0.004	0.023	0.005	0.027
	0.105	0.010	0.030	0.006	0.008
					0.016

WORKSHEET 2G -- VEHICLE-PEDESTRIAN COLLISIONS FOR URBAN AND SUBURBAN ARTERIAL STOP-CONTROLLED INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	Predicted N _{bav}	Predicted N _{bav}	Predicted N _{bav}	f _{pred}	Calibration factor, C _I	Predicted N _{bav}
Total	(9) from Worksheet 2C	(9) from Worksheet 2E	(2)+(3)	from Table 12-16	(4)*(5)*(6)	(4)*(5)*(6)
Fatal and injury (FI)	--	0.254	1.573	0.021	--	0.033
	--	--	--	--	--	0.033

WORKSHEET 2H -- CRASH MODIFICATION FACTORS FOR VEHICLE-PEDESTRIAN COLLISIONS FOR URBAN AND SUBURBAN ARTERIAL SIGNALIZED INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	CMF for Bus Stops CMF _{bp} from Table 12-28	CMF for Schools CMF _{sp} from Table 12-29	CMF for Alcohol Sales Establishments CMF _{3p} from Table 12-30	Combined CMF (1)*(2)*(3)	Combined CMF (1)*2*(3)	Combined CMF --
Total	--	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--	--

WORKSHEET 2I -- VEHICLE-PEDESTRIAN COLLISIONS FOR URBAN AND SUBURBAN ARTERIAL SIGNALIZED INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	SPF Coefficients from Table 12-14	Overdispersion Parameter, k	N _{pedest}	Combined CMF	Calibration factor, C _I	Predicted N _{bav}
Total	a	b	c	d	e	(4) from Worksheet 2H
Fatal and injury (FI)	--	--	--	--	--	--
	--	--	--	--	--	--

WORKSHEET 2J -- VEHICLE-BICYCLE COLLISIONS FOR URBAN AND SUBURBAN ARTERIAL SIGNALIZED INTERSECTIONS

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	Predicted N _{bav}	Predicted N _{bav}	Predicted N _{bav}	f _{biker}	Calibration factor, C _I	Predicted N _{bav}
Total	(9) from Worksheet 2C	(9) from Worksheet 2E	(2)+(3)	from Table 12-17	(4)*(5)*(6)	(4)*(5)*(6)
Fatal and injury (FI)	--	0.254	1.573	0.016	--	0.035
	--	--	--	--	--	0.035

WORKSHEET 2K -- CRASH SEVERITY DISTRIBUTION FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

Collision type	(1)		(2)		(3)		(4)	
			Fatal and injury (FI)	Property damage only (PDO)				Total
			(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2L	(5) from Worksheet 2D and 2F		(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2L		Total
MULTIPLE-VEHICLE								
Rear-end collisions (from Worksheet 2D)	0.175			0.380			0.555	
Head-on collisions (from Worksheet 2D)	0.019			0.020			0.039	
Angle collisions (from Worksheet 2D)	0.143			0.226			0.369	
Sideswipe (from Worksheet 2D)	0.052			0.035			0.087	
Other multiple-vehicle collision (from Worksheet 2D)	0.027			0.203			0.230	
Subtotal	0.416			0.863			1.279	
SINGLE-VEHICLE								
Collision with parked vehicle (from Worksheet 2F)	0.000			0.001			0.001	
Collision with animal (from Worksheet 2F)	0.000			0.004			0.004	
Collision with fixed object (from Worksheet 2F)	0.070			0.169			0.239	
Collision with other object (from Worksheet 2F)	0.008			0.019			0.027	
Other single-vehicle collision (from Worksheet 2F)	0.004			0.005			0.008	
Single-vehicle noncollision (from Worksheet 2F)	0.010			0.006			0.016	
Collision with pedestrian (from Worksheet 2G or 2I)	0.033			0.000			0.033	
Collision with bicycle (from Worksheet 2I)	0.025			0.000			0.025	
Subtotal	0.150			0.202			0.352	
Total	0.567			1.065			1.631	

WORKSHEET 2L -- SUMMARY RESULTS FOR URBAN AND SUBURBAN ARTERIAL INTERSECTIONS

Crash severity level	(1)		(2)		Predicted average crash frequency, $N_{predicted,int}$ (crashes/year)	(Total) from Worksheet 2K
	Total	Fatal and injury (FI)	Property damage only (PDO)	Total		
Total	1.631	0.567	0.065	1.631		
Fatal and injury (FI)						
Property damage only (PDO)						

PROJECT ELEMENT RESULTS SUMMARY¹

Summary for the project element	Total Crashes/yr (KABC)		Fatal and Injury Crashes/yr (KABC)		Property Damage Only Crashes/yr (PDO)	
	Predicted average crash frequency $N_{predicted}(KABC)$	Expected average crash frequency $N_{expected}(KABC)$	Predicted average crash frequency $N_{predicted}(KABC)$	Expected average crash frequency $N_{expected}(KABC)$	Predicted average crash frequency $N_{predicted}(O)$	Potential for Improvement $N_{expected}(O)$
Total	1.631	2.782	1.151	0.567	0.400	1.065
Fatal and injury (FI)						
Property damage only (PDO)						

Special Note: When the project element is not included in the analysis the results will all be zeros. In addition if only the analysis only includes determining the predicted average crash frequency (i.e. EB analysis is not carried out), the results will show zero values where EB results are usually displayed.

RAW TRAFFIC COUNTS

PROJECT: WCE Wheatland
JOB NO.: 19-19
INTERSECTION: 16th Avenue & US 195

DATE OF COUNT: 8/13/2019
Counter Analyst
BNG Miovision

TRAFFIC COUNT REDUCTION WORKSHEET



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

AM PEAK HOURS

15 Minute Period Beginning @													
APPROACH	MOVEMENT	6:30 AM			6:45 AM			7:00 AM			7:15 AM		
		pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk
Eastbound	Left	14	0	34	0	14	0	18	0	16	0	10	0
	Through	0	0	0	0	0	0	0	1	0	0	15	0
	Right	12	0	6	0	7	0	8	0	10	0	1	0
	App. Total	26	0	40	0	21	0	26	0	30	0	28	1
	Pct Trucks	0	0	0	0	0	0	0	0	0	0	0.034	0
Westbound	Left	1	0	0	0	0	0	2	0	0	0	0	1
	Through	0	0	0	0	0	0	0	1	0	0	0	0
	Right	4	0	2	0	4	0	0	6	0	2	0	0
	App. Total	5	0	2	0	6	0	2	0	7	0	5	0
	Pct Trucks	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	Left	19	0	9	0	16	0	16	0	23	0	22	0
	Through	227	5	224	1	263	2	286	1	296	8	244	5
	Right	0	0	0	0	0	0	0	2	0	0	1	0
	App. Total	246	5	233	1	279	2	302	1	314	8	267	5
	Pct Trucks	0.02	0.004	0.007	0.003	0.007	0.0025	0.018	0.013	0.013	0.013	0.042	0.042
Southbound	Left	2	0	1	0	0	0	1	0	2	0	5	0
	Through	75	8	92	14	83	10	118	15	124	12	116	17
	Right	6	0	5	0	3	0	3	0	9	4	4	0
	App. Total	83	8	98	14	87	10	121	15	134	12	101	11
	Pct Trucks	0.088	0.125	0.103	0.11	0.082	0.098	0.122	0.122	0.122	0.122	0.099	0.099
Total Intersection Volume		360	13	373	15	393	12	451	16	481	20	400	16
Intersection Pct Trucks		3.5%	3.9%	3.0%	3.4%	3.0%	3.4%	4.0%	3.8%	4.0%	3.8%	5.1%	5.1%

Pedestrian Volumes

15 Minute Period Beginning @													
APPROACH	MOVEMENT	6:30			6:45			7:00			7:15		
		Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped
Eastbound	Crosswalk	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
	Crosswalk	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
Bicycle Volumes		15 Minute Period Beginning @											
APPROACH	MOVEMENT	6:30			6:45			7:00			7:15		
		bike	bike	bike	bike	bike	bike	bike	bike	bike	bike	bike	bike
Eastbound	Through	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
	Through	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

15 Minute Period Beginning @													
APPROACH	MOVEMENT	6:30 AM			6:45 AM			7:00 AM			7:15 AM		
		pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk
Westbound	Left	1	0	0	0	0	0	0	0	0	0	0	0
	Through	0	0	0	0	0	0	0	0	0	0	0	0
	Right	0	0	0	0	0	0	0	0	0	0	0	0
	App. Total	1	0	0	0	0	0	0	0	0	0	0	0
	Pct Trucks	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	Left	0	0	0	0	0	0	0	0	0	0	0	0
	Through	0	0	0	0	0	0	0	0	0	0	0	0
	Right	0	0	0	0	0	0	0	0	0	0	0	0
	App. Total	0	0	0	0	0	0	0	0	0	0	0	0
	Pct Trucks	0	0	0	0	0	0	0	0	0	0	0	0
Southbound		15 Minute Period Beginning @											
APPROACH	MOVEMENT	6:30 AM			6:45 AM			7:00 AM			7:15 AM		
		bike	bike	bike	bike	bike	bike	bike	bike	bike	bike	bike	bike
Eastbound	Through	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
	Through	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

PROJECT:
WCE Wheatland
JOB NO.
INTERSECTION: 19-19
16th Avenue &
US 195

Data Transfer
Intersection No.
1

DATE OF COUNT: 8/13/2019
Counter Analyst
Miovision BNG

TRAFFIC COUNT REDUCTION WORKSHEET
AM PEAK HOUR BREAKDOWN

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



APPROACH	MOVEMENT	7:15 AM			7:30 AM			7:45 AM			8:00 AM		
		pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	P.H.F.	TOTAL
Eastbound	Left	18	0	16	0	15	0	10	0	59	0.82	0%	53.15%
	Through	0	0	0	0	1	0	0	1	2	0.50	50%	1.80%
	Right	8	0	10	0	14	0	18	0	50	0.69	0%	45.05%
	App. Total	26	0	26	0	30	0	28	1	111	0.93		
	Pct Trucks	0	0	0	0	0	0	0	0	0.034483			
Westbound	Left	2	0	0	0	0	0	0	0	0	0	0%	11.11%
	Through	0	0	1	0	0	0	1	0	2	0.50	0%	11.11%
	Right	0	0	6	0	2	0	6	0	14	0.58	0%	77.78%
	App. Total	2	0	7	0	2	0	7	0	18	0.64		
	Pct Trucks	0	0	0	0	0	0	0	0	0			
Northbound	Left	16	0	16	0	23	0	22	0	77	0.84	0%	6.77%
	Through	286	1	296	8	244	5	214	3	1057	0.87	2%	92.96%
	Right	0	0	2	0	0	0	1	0	3	0.38	0%	0.26%
	App. Total	302	1	314	8	267	5	237	3	1137	0.88		
	Pct Trucks	0.0033	0.024845	0.024845	0.018382	0.018382	0.0125						
Southbound	Left	0	0	1	0	2	0	2	0	5	0.63	0%	0.94%
	Through	118	15	124	12	95	11	116	17	508	0.93	11%	95.31%
	Right	3	0	9	0	4	0	4	0	20	0.56	0%	3.75%
	App. Total	121	15	134	12	101	11	122	17	533	0.91		
	Pct Trucks	0.110294	0.082192	0.082192	0.098214	0.098214	0.122302						
Total Intersection Volume		451	16	481	20	400	16	394	21	1799	0.90	4%	
Intersection Pct Trucks		3.4%		4.0%		3.8%		5.1%					

Pedestrian Volumes

APPROACH	MOVEMENT	7:15			7:30			7:45			8:00		
		Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	TOTAL
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

Bicycles Volumes

APPROACH	MOVEMENT	7:15			7:30			7:45			8:00		
		Bike	TOTAL										
Eastbound	Through	0	0	0	0	0	0	0	0	0	0	0	0
Westbound	Through	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	Through	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	Through	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

Notes

Confli.	
APPRAOCH	MOVEMENT
Eastbound	Crosswalk
Westbound	Crosswalk
Northbound	Crosswalk
Southbound	Crosswalk
Total	

Miovision Vehicle classification

Passenger Vehicle	Truck Vehicle
Confli.	
APPRAOCH	MOVEMENT
Eastbound	Through
Westbound	Through
Northbound	Through
Southbound	Through
Total	



PROJECT: WCE Wheatland
JOB NO. 19-19
INTERSECTION: 16th Avenue & US 195

Data Transfer
Intersection No.
1

DATE OF COUNT: 8/13/2019
Counter Analyst
Miovision BNG

TRAFFIC COUNT REDUCTION WORKSHEET
PM PEAK HOUR BREAKDOWN

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



Traffic Counts
& Surveys Inc.

APPROACH	MOVEMENT	4:15 PM			4:30 PM			4:45 PM			5:00 PM		
		pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	P.H.F.	TOTAL
Eastbound	Left	10	0	4	0	4	0	4	0	22	0	0.55	0%
	Through	1	0	0	0	0	0	1	0	2	0	0.50	0%
	Right	32	0	33	0	41	0	32	0	138	0	0.84	0%
	App. Total	43	0	37	0	45	0	37	0	162	0	0.90	0%
Westbound	Pct Trucks	0	0	0	0	0	0	0	0	0	0	0	0%
	Left	0	0	1	0	1	0	2	0	4	0	0.50	0%
	Through	0	0	0	1	0	1	0	1	2	0	0.50	0%
	Right	1	0	5	1	3	0	5	0	15	0	0.63	7%
Northbound	App. Total	1	0	6	1	5	0	8	0	21	0	0.66	0%
	Pct Trucks	0	0	0.142857	0	0	0	0	0	0	0	0	0%
	Left	13	0	20	0	31	0	20	0	84	0	0.68	0%
	Through	143	11	146	16	137	9	117	5	584	0	0.90	7%
Southbound	Right	2	0	3	0	3	0	2	0	10	0	0.83	0%
	App. Total	158	11	169	16	171	9	139	5	678	0	0.92	0%
	Pct Trucks	0.065089	0	0.086486	0	0.05	0	0.034722	0	0	0	0	0%
	Left	8	0	3	1	5	0	5	0	22	0	0.69	5%
Pedestrian Volumes	Through	316	0	333	8	341	2	314	1	1315	0	0.96	1%
	Right	14	0	19	0	13	0	20	0	66	0	0.83	0%
	App. Total	338	0	355	9	359	0	339	1	1403	0	0.96	0%
	Total Intersection Volume	540	11	567	26	580	11	523	6	2264	0	0.95	2%
Intersection Pct Trucks		2.0%	0	4.4%	0	1.9%	0	1.1%	0	0	0	0	0%

Pedestrian Volumes

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

Notes

Confli.		Passenger Vehicle		Truck Vehicle	
0	0	0	0	0	0

Bicycles Volumes

APPROACH	MOVEMENT	5:00			5:15			5:30			5:45		
		bike	TOTAL										
Eastbound	Through	0	0	0	0	0	0	0	0	0	0	0	
Westbound	Through	0	0	0	0	0	0	0	0	0	0	0	
Northbound	Through	0	0	0	0	0	0	0	0	0	0	0	
Southbound	Through	0	0	0	0	0	0	0	0	0	0	0	
Total		0	0	0	0	0	0	0	0	0	0	0	

Movision Vehicle classification

Confli.		Passenger Vehicle		Truck Vehicle	
0	0	0	0	0	0

Confli.		Passenger Vehicle		Truck Vehicle	
0	0	0	0	0	0



PROJECT: WCE The Summit
JOB NO. 18-02
INTERSECTION: Thorpe Road & SR 195

TRAFFIC COUNT REDUCTION WORKSHEET

DATE OF COUNT: 11/6/2018

Counter Analyst

BNG

SR 195

Counter

Micovision

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

Traffic Counts
& Surveys Inc.

AM PEAK HOURS

		15 Minute Period Beginning @																																			
		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		
APPROACH	MOVEMENT	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass					
Eastbound	Left	25	0	38	0	22	0	21	0	29	0	21	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
	Through	3	0	4	0	0	0	2	0	5	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
	Right	5	0	7	0	19	2	9	1	13	1	10	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
	App. Total	33	0	49	0	41	2	32	1	47	1	35	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
	Pct Trucks	0	0	0	0	0.047	0	0.03	0	0.021	0	0.028	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
Westbound	Left	0	0	4	0	2	0	5	1	3	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	Through	3	0	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	Right	8	0	4	0	8	0	1	0	5	0	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	App. Total	11	0	8	0	11	0	7	1	8	0	12	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	Pct Trucks	0	0	0	0	0	0	0.125	0	0.077	0	0.026	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Northbound	Left	4	1	13	0	7	1	11	1	5	0	12	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	Through	244	1	263	4	278	3	355	6	434	2	295	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
	Right	11	0	14	0	14	0	24	1	42	0	34	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
	App. Total	259	2	290	4	299	4	390	8	481	2	341	9	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
	Pct Trucks	0.008	0.014	0.013	0.02	0.004	0.026	0	0.004	0.026	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Southbound	Left	1	0	3	1	1	0	2	1	4	1	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	Through	67	16	90	16	83	16	111	14	105	15	141	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
	Right	3	0	5	0	3	0	5	1	7	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	App. Total	71	16	98	17	87	16	118	16	116	16	152	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
	Pct Trucks	0.184	0.148	0.155	0.119	0.121	0.119	0.119	0.121	0.121	0.121	0.121	0.121	0.079	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Total Intersection Volume		374	18	445	21	438	22	547	26	652	19	540	24	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Intersection Pct Trucks		4.6%	4.5%	4.8%	4.5%	4.5%	4.8%	4.5%	4.5%	4.5%	4.5%	4.3%	4.0%	0.0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			

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	One Hour Volumes	Trucks	
Eastbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	6:30 AM	1891	4.6%
Westbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	6:45 AM	2170	4.1%
Northbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	7:00 AM	2268	4.0%
Southbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	7:15 AM	1811	3.8%
Total	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	7:30 AM	1238	3.5%
		0	0	0	0	0	0	0	0	0	0	0	0	7:45 AM	567	4.2%
		0	0	0	0	0	0	0	0	0	0	0	0	8:00 AM	3	0.0%

Bicycle Volumes

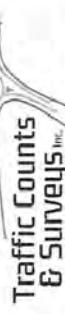
		15 Minute Period Beginning @														
APPROACH	MOVEMENT	6:30	6:45	7:00	7:15	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15	One Hour Volumes	Trucks	
Eastbound	bike	bike	bike	bike	bike	bike	bike	bike	bike	bike	bike	bike	bike	8:30 AM	0	0
Westbound	Through															
Northbound	Through															
Southbound	Through															
Total		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PROJECT: WCE The Summit
JOB NO. 18-02
INTERSECTION: Thorpe Road & SR 195

Data Transfer
Intersection No.
1

DATE OF COUNT: 11/6/2018
Counter Analyst
Miovision BNQG

TRAFFIC COUNT REDUCTION WORKSHEET
AM PEAK HOUR BREAKDOWN



Traffic Counts
G Surveys Inc.

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

APPROACH	MOVEMENT	7:00 AM			7:15 AM			7:30 AM			7:45 AM			TOTAL	P.H.F.	Pct Trucks	App Dist
		pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk				
Eastbound	Left	22	0	21	0	29	0	21	1	94	0.81	1%	58.75%				
	Through	0	0	2	0	5	0	4	0	11	0.55	0%	6.88%				
	Right	19	2	9	1	13	1	10	0	55	0.65	7%	34.38%				
	App. Total	41	2	32	1	47	1	35	1	160	0.83						
	Pct Trucks	0.046512		0.030303		0.020833		0.027778									
Westbound	Left	2	0	5	1	3	0	6	0	17	0.71	6%	42.50%				
	Through	1	0	1	0	0	0	1	0	3	0.75	0%	7.50%				
	Right	8	0	1	0	5	0	5	1	20	0.63	5%	50.00%				
	App. Total	11	0	7	1	8	0	12	1	40	0.77						
	Pct Trucks	0		0.125		0		0		0.076923							
Northbound	Left	7	1	11	1	5	0	12	1	38	0.73	8%	2.48%				
	Through	278	3	355	6	434	2	295	6	1379	0.79	1%	89.90%				
	Right	14	0	24	1	42	0	34	2	117	0.70	3%	7.62%				
	App. Total	299	4	390	8	481	2	341	9	1534	0.79						
	Pct Trucks	0.013201		0.020101		0.004141		0.025714									
Southbound	Left	1	0	2	1	4	1	6	0	15	0.63	13%	2.87%				
	Through	83	16	111	14	105	15	141	13	498	0.81	12%	93.26%				
	Right	3	0	5	1	7	0	5	0	21	0.75	5%	3.93%				
	App. Total	87	16	118	16	116	16	152	13	534	0.81						
	Pct Trucks	0.15534		0.119403		0.121212		0.078788									
Total Intersection Volume		438	22	547	26	652	19	540	24	2268	0.85	4%					
Intersection Pct Trucks		4.8%		4.5%		2.8%		4.3%									

Pedestrian Volumes

APPROACH	MOVEMENT	7:00			7:15			7:30			7:45			TOTAL	Ped	Confli...
		Ped	Ped	Ped												
Eastbound	Crosswalk	1	1	1	1	1	1	1	1	1	1	1	1	4		
Westbound	Crosswalk	1	1	1	1	1	1	1	1	1	1	1	1	4		
Northbound	Crosswalk	1	1	1	1	1	1	1	1	1	1	1	1	4		
Southbound	Crosswalk	1	1	1	1	1	1	1	1	1	1	1	1	4		
Total		4	4	4	4	4	4	4	4	4	4	4	4	16		

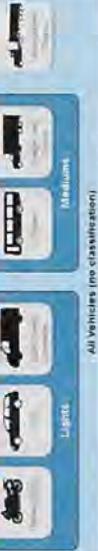
Bicycles Volumes

APPROACH	MOVEMENT	7:00			7:15			7:30			7:45			TOTAL	Bike	Confli...
		bike														
Eastbound	Through	0	0	0	0	0	0	0	0	0	0	0	0	0		
Westbound	Through	0	0	0	0	0	0	0	0	0	0	0	0	0		
Northbound	Through	0	0	0	0	0	0	0	0	0	0	0	0	0		
Southbound	Through	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		

Motion Picture Vehicle classification

Passenger Vehicle	Truck Vehicle
0	0

APPROACH	MOVEMENT	7:00			7:15			7:30			7:45			TOTAL	Light	Medium
		Ped	Ped	Ped												
Eastbound	Through	0	0	0	0	0	0	0	0	0	0	0	0	0		
Westbound	Through	0	0	0	0	0	0	0	0	0	0	0	0	0		
Northbound	Through	0	0	0	0	0	0	0	0	0	0	0	0	0		
Southbound	Through	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		



All Vehicles (no classification)

PROJECT: WCE The Summit
JOB NO.: 18-02
INTERSECTION: Thorpe Road & SR 195

DATE OF COUNT: 11/13/2018
Counter: MiEVision
Analyst: BNG

TRAFFIC COUNT REDUCTION WORKSHEET

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



Traffic Counts & Surveys Inc.

15 Minute Period Beginning @

PM PEAK HOURS

5:00 PM

4:45 PM

4:30 PM

4:15 PM

3:45 PM

3:30 PM

Left

Through

Right

App. Total

Pct Trucks

PROJECT: WCE The Summit
JOB NO. 18-02
INTERSECTION: Thorpe Road

Data Transfer
Intersection No.
1

DATE OF COUNT: 11/13/2018
Counter Analyst

TRAFFIC COUNT REDUCTION WORKSHEET
PM PEAK HOUR BREAKDOWN

Mitigation BNG

APPROACH MOVEMENT

	4:30 PM	4:45 PM	5:00 PM	5:15 PM
	pass	trk	pass	trk
Eastbound				
Left	11	0	12	0
Through	0	0	2	0
Right	10	0	13	0
App. Total	21	0	27	0
Pct Trucks				
Westbound				
Left	11	0	7	0
Through	6	0	3	0
Right	10	0	3	0
App. Total	27	0	13	0
Pct Trucks				
Northbound				
Left	11	0	20	0
Through	122	10	143	8
Right	14	0	16	0
App. Total	147	10	179	8
Pct Trucks	0.063694		0.042781	0.045918
Southbound				
Left	7	0	8	0
Through	298	5	317	2
Right	13	0	12	0
App. Total	318	5	337	2
Pct Trucks	0.01548		0.0059	0.002703
Total Intersection Volume	513	15	556	10
Intersection Pct Trucks		2.8%		1.8%

APPROACH MOVEMENT

	4:30	4:45	5:00	5:15	Ped	TOTAL
	Ped	Ped	Ped	Ped		
Eastbound	0	0	0	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

Pedestrian Volumes

	4:30	4:45	5:00	5:15	Ped	TOTAL
	Ped	Ped	Ped	Ped		
Eastbound	0	0	0	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

Bicycles Volumes

	5:00	5:15	5:30	5:45	Bike	TOTAL
	bike	bike	bike	bike		
Eastbound	0	0	0	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

APPROACH MOVEMENT

	5:00	5:15	5:30	5:45	Bike	TOTAL
	bike	bike	bike	bike		
Through	0	0	0	0	0	0
Through	0	0	0	0	0	0
Through	0	0	0	0	0	0
Total	0	0	0	0	0	0

Traffic Counts & Surveys Inc.

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

	MOVEMENT	4:30 PM	4:45 PM	5:00 PM	5:15 PM	TOTAL	P.H.F.	Pct Trucks	App Dist
		pass	trk	pass	trk				
Approach	Left	11	0	12	0	5	0	41	0.79
Approach	Through	0	0	2	0	3	0	8	0.67
Approach	Right	10	0	13	0	9	0	44	0.85
Approach	Total	21	0	27	0	25	0	93	0.86
Pct Trucks	Left	0	0	0	0	0	0	0	0
Pct Trucks	Through	0	0	0	0	0	0	0	0
Pct Trucks	Right	0	0	0	0	0	0	0	0
Pct Trucks	Total	0	0	0	0	0	0	0	0
Approach	Left	11	0	7	0	5	0	30	0.68
Approach	Through	6	0	3	0	4	0	14	0.58
Approach	Right	10	0	3	0	6	1	23	0.58
Approach	Total	27	0	13	0	14	1	67	0.62
Pct Trucks	Left	0	0	0	0	0	0	0	0
Pct Trucks	Through	0	0	0	0	0	0	0	0
Pct Trucks	Right	0	0	0	0	0	0	0	0
Pct Trucks	Total	0	0	0	0	0	0	0	0
Approach	Left	11	0	20	0	16	0	59	0.74
Approach	Through	122	10	143	8	152	9	132	2
Approach	Right	14	0	16	0	19	0	17	0
Approach	Total	147	10	179	8	187	9	161	2
Pct Trucks	Left	0.063694		0.042781	0.045918	0.012217		0.012217	
Approach	Left	7	0	8	0	8	0	7	0
Approach	Through	298	5	317	2	350	1	325	1
Approach	Right	13	0	12	0	11	0	22	1
Approach	Total	318	5	337	2	369	1	354	2
Pct Trucks	Left	0.01548		0.0059	0.002703	0.005618		0.005618	
Total Intersection Volume	513	15	556	10	595	11	547	4	2251
Intersection Pct Trucks		2.8%		1.8%		1.8%		0.7%	2%

Pedestrian Volumes

	MOVEMENT	4:30	4:45	5:00	5:15	Ped	TOTAL
		Ped	Ped	Ped	Ped		
Approach	Crosswalk	0	0	0	0	0	0
Approach	Crosswalk	0	0	0	0	0	0
Approach	Crosswalk	0	0	0	0	0	0
Approach	Crosswalk	0	0	0	0	0	0
Approach	Total	0	0	0	0	0	0

Approach MOVEMENT

	MOVEMENT	5:00	5:15	5:30	5:45	Bike	TOTAL
		bike	bike	bike	bike		
Approach	Through	0	0	0	0	0	0
Approach	Through	0	0	0	0	0	0
Approach	Through	0	0	0	0	0	0
Approach	Total	0	0	0	0	0	0

Approach MOVEMENT

	MOVEMENT	5:00	5:15	5:30	5:45	Bike	TOTAL
		bike	bike	bike	bike		
Approach	Through	0	0	0	0	0	0
Approach	Through	0	0	0	0	0	0
Approach	Through	0	0	0	0	0	0
Approach	Total	0	0	0	0	0	0

Approach MOVEMENT

	MOVEMENT	5:00	5:15	5:30	5:45	Bike	TOTAL
		bike	bike	bike	bike		
Approach	Through	0	0	0	0	0	0
Approach	Through	0	0	0	0	0	0
Approach	Through	0	0	0	0	0	0
Approach	Total	0	0	0	0	0	0

Approach MOVEMENT

	MOVEMENT	5:00	5:15	5:30	5:45	Bike	TOTAL
		bike	bike	bike	bike		
Approach	Through	0	0	0	0	0	0
Approach	Through	0	0	0	0	0	0
Approach	Through	0	0	0	0	0	0
Approach	Total	0	0	0	0	0	0

Approach MOVEMENT

	MOVEMENT	5:00	5:15	5:30	5:45	Bike	TOTAL
		bike	bike	bike	bike		
Approach	Through	0	0	0	0	0	0
Approach	Through	0	0	0	0	0	0
Approach	Through	0	0	0	0	0	0
Approach	Total	0	0	0	0	0	0

Approach MOVEMENT

	MOVEMENT	5:00	5:15	5:30	5:45	Bike	TOTAL
		bike	bike	bike	bike		

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INTERSECTION

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

PROJECT: WCE Latah Glenn
JOB NO. 21-45
DATE OF COUNT: 1/6/2021
Counter Analyst BNG
Minivision

Inland Empire Way
AM PI
SR 195 SB
15 Minute P

Approach		Intersection Total												9:15 AM						
		One Hour Volumes						9:00 AM						8:45 AM						
		Bike (BK)			Passenger Car (PC)			Heavy Vehicle (HV)			Bike (BK)			Passenger Car (PC)			Heavy Vehicle (HV)			
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	6:30 AM	6:45 AM	7:00 AM	7:15 AM	8:00 AM	8:15 AM	
APPROACH	Type	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	
	U-Turn	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	
	Right	0	5	0	4	0	1	0	2	0	0	3	1	0	4	0	1	0	0	
	App. Total	0	5	0	4	0	1	0	2	0	0	3	1	0	4	0	1	0	0	
	Pct HV	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Northbound	Type	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	
	U-Turn	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	
	Through	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	
	Pct HV	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	
Southbound	Type	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	
	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Through	0	61	6	0	84	16	0	62	10	0	73	7	0	98	11	0	113	10	0
	Right	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	
	App. Total	0	61	6	0	85	16	0	62	10	0	73	7	0	98	11	0	113	10	0
	Pct HV	9%	16%	14%	9%	10%	9%	10%	9%	10%	9%	10%	9%	10%	9%	10%	8%	5%	12%	
	Total Class Volume	0	66	6	0	89	16	0	63	10	0	75	7	0	100	11	0	114	12	0
Pedestrian Volumes	Total Interval Volume	72	105	73	82	111	128	140	126	11	128	140	126	11	129	124	129	124	128	
	Intersection Pct HV	8%	15%	14%	9%	10%	9%	10%	9%	10%	9%	10%	9%	10%	9%	10%	5%	5%	12%	
	15 Minute Period Beginning @	9:15	9:30	9:45	7:30	7:45	8:00	8:15	8:30	8:45	7:30	7:45	8:00	8:15	8:30	8:45	7:30	7:45	8:00	
APPROACH		Intersection Total						One Hour Volumes						9:15 AM						
APPROACH		One Hour Volumes						9:00 AM						8:45 AM						
APPROACH		Bike (BK)			Passenger Car (PC)			Heavy Vehicle (HV)			Bike (BK)			Passenger Car (PC)			Heavy Vehicle (HV)			
APPROACH	Movement	Eastbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH	Movement	Westbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH	Movement	Northbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH	Movement	Southbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH	Movement	Total	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH		Intersection Total						One Hour Volumes						9:15 AM						
APPROACH		Bike (BK)			Passenger Car (PC)			Heavy Vehicle (HV)			Bike (BK)			Passenger Car (PC)			Heavy Vehicle (HV)			
APPROACH	Movement	Eastbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH	Movement	Westbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH	Movement	Northbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH	Movement	Southbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH	Movement	Total	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH		Intersection Total						One Hour Volumes						9:15 AM						
APPROACH		Bike (BK)			Passenger Car (PC)			Heavy Vehicle (HV)			Bike (BK)			Passenger Car (PC)			Heavy Vehicle (HV)			
APPROACH	Movement	Eastbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH	Movement	Westbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH	Movement	Northbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH	Movement	Southbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH	Movement	Total	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH		Intersection Total						One Hour Volumes						9:15 AM						
APPROACH		Bike (BK)			Passenger Car (PC)			Heavy Vehicle (HV)			Bike (BK)			Passenger Car (PC)			Heavy Vehicle (HV)			
APPROACH	Movement	Eastbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH	Movement	Westbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH	Movement	Northbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH	Movement	Southbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH	Movement	Total	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH		Intersection Total						One Hour Volumes						9:15 AM						
APPROACH		Bike (BK)			Passenger Car (PC)			Heavy Vehicle (HV)			Bike (BK)			Passenger Car (PC)			Heavy Vehicle (HV)			
APPROACH	Movement	Eastbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH	Movement	Westbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH	Movement	Northbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH	Movement	Southbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH	Movement	Total	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH		Intersection Total						One Hour Volumes						9:15 AM						
APPROACH		Bike (BK)			Passenger Car (PC)			Heavy Vehicle (HV)			Bike (BK)			Passenger Car (PC)			Heavy Vehicle (HV)			
APPROACH	Movement	Eastbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH	Movement	Westbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH	Movement	Northbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH	Movement	Southbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH	Movement	Total	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH		Intersection Total						One Hour Volumes						9:15 AM						
APPROACH		Bike (BK)			Passenger Car (PC)			Heavy Vehicle (HV)			Bike (BK)			Passenger Car (PC)			Heavy Vehicle (HV)			
APPROACH	Movement	Eastbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH	Movement	Westbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH	Movement	Northbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH	Movement	Southbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH	Movement	Total	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH		Intersection Total																		

App.= Approach
Pct= Percent

INTERSECTION

PROJECT: WCE Latah Glenn
JOB NO. 2145
DATE OF COUNT: 1/6/2021

Inland Empire Way

&

SR 195 SB

Counter Analyst
Miovision BNG

AM PEAK HOURS

7:30 AM

7:45 AM

8:00 AM

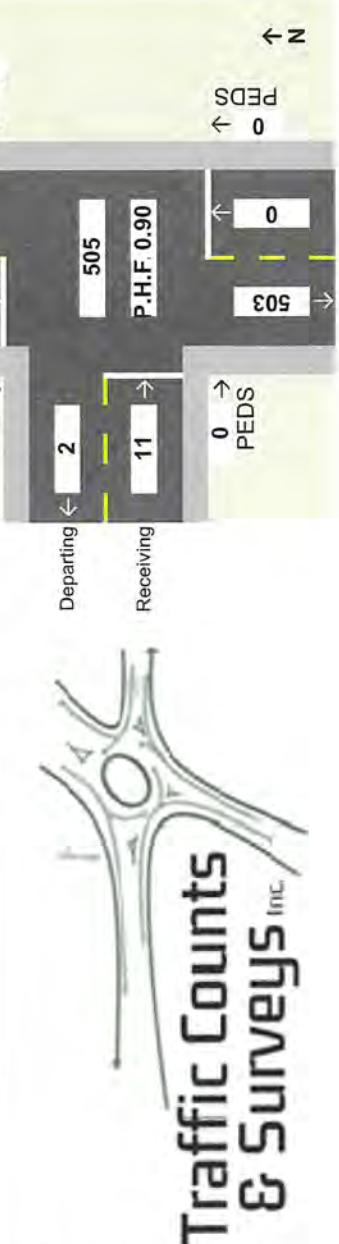
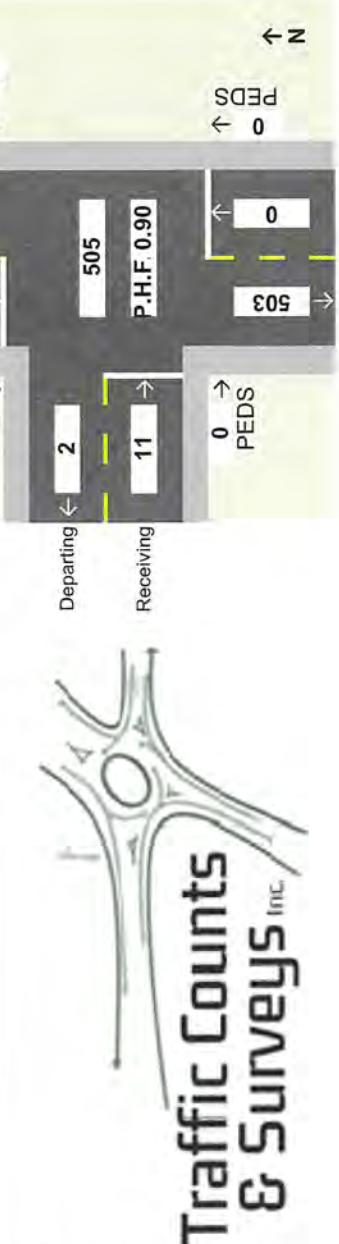
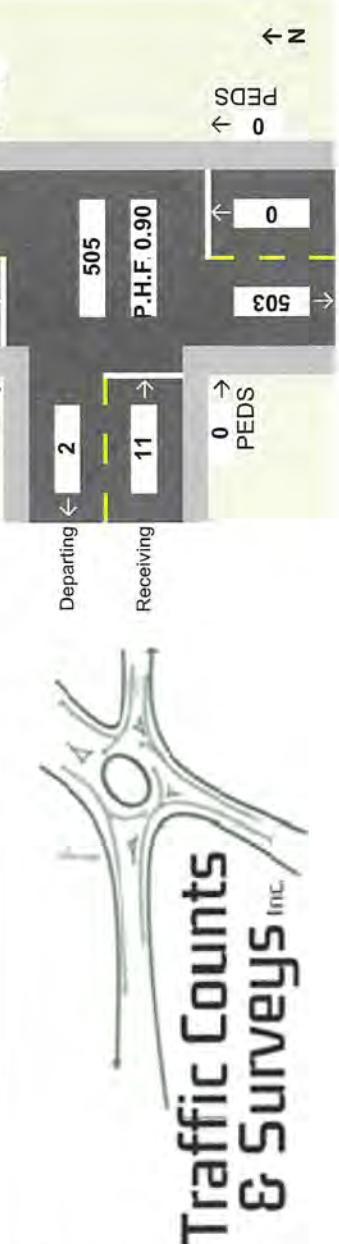
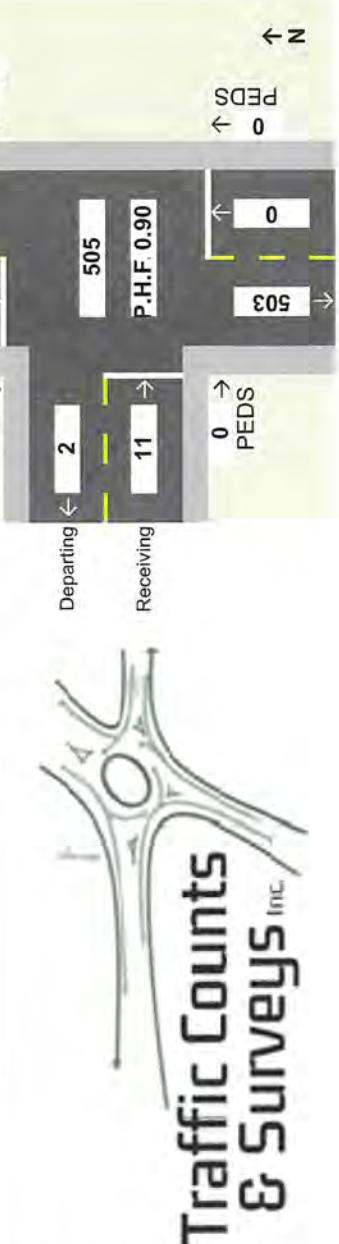
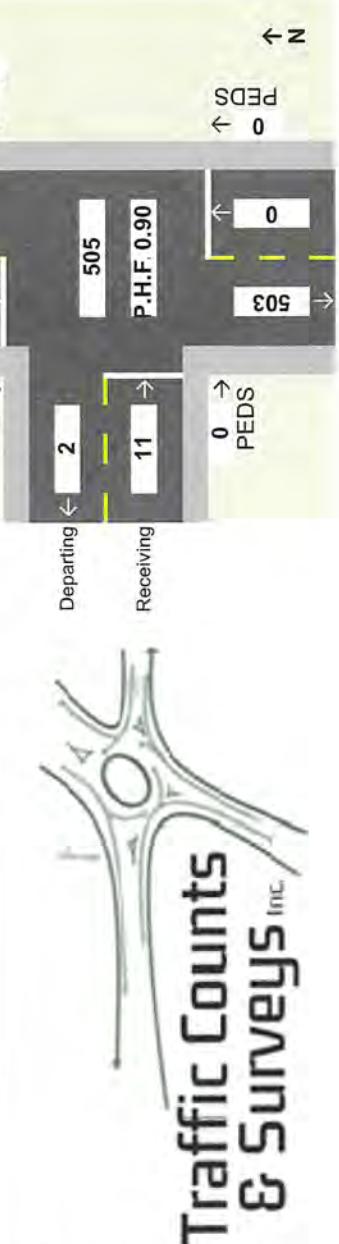
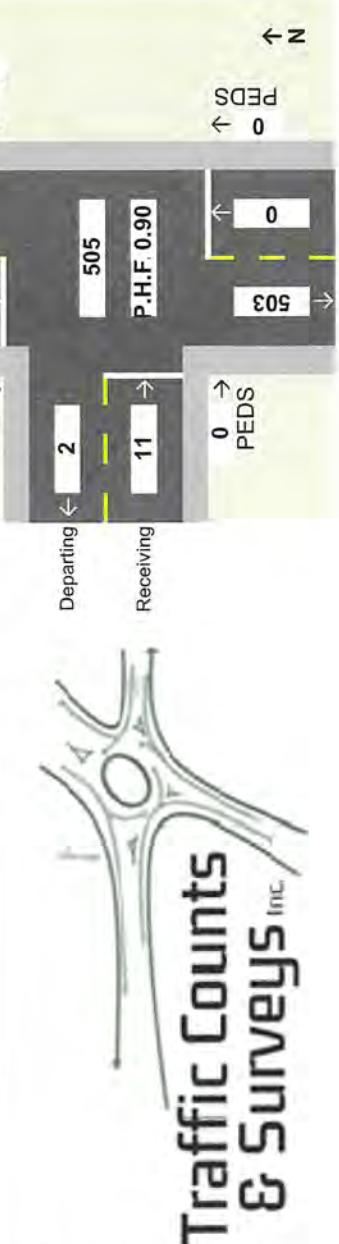
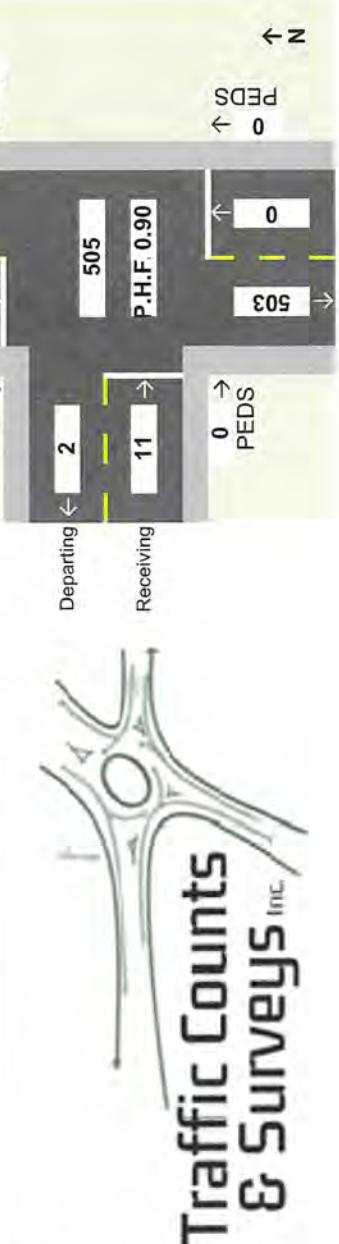
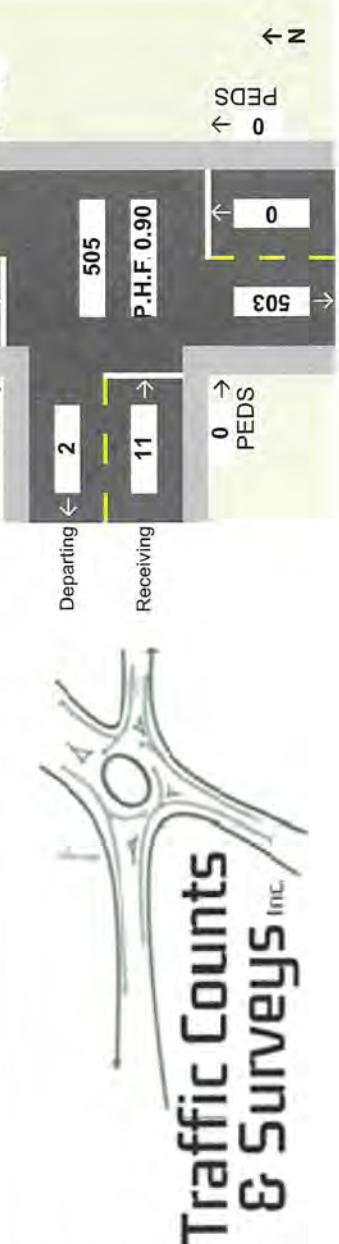
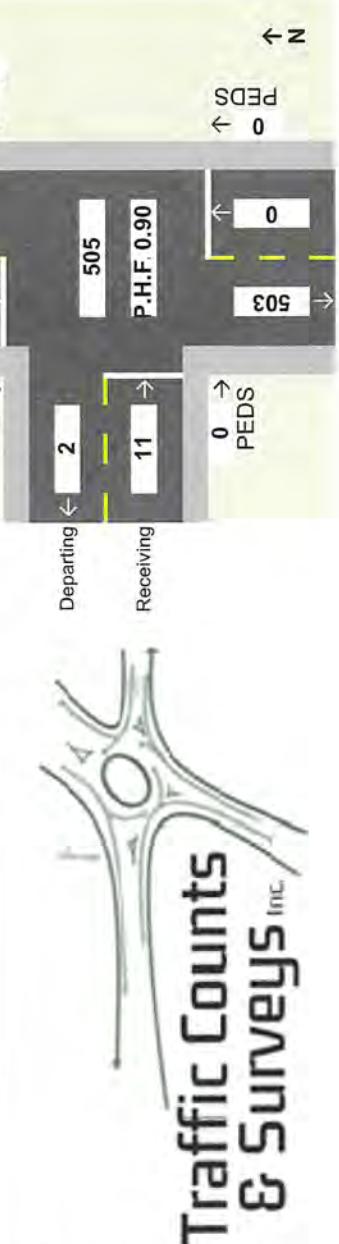
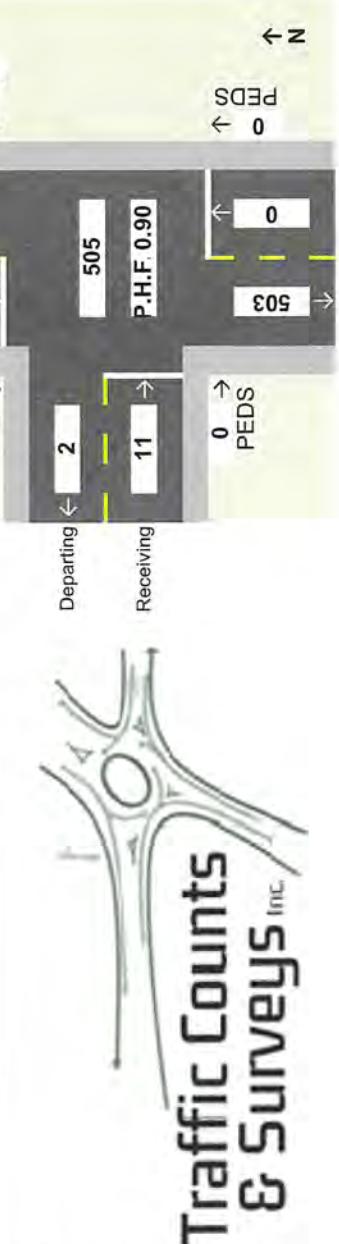
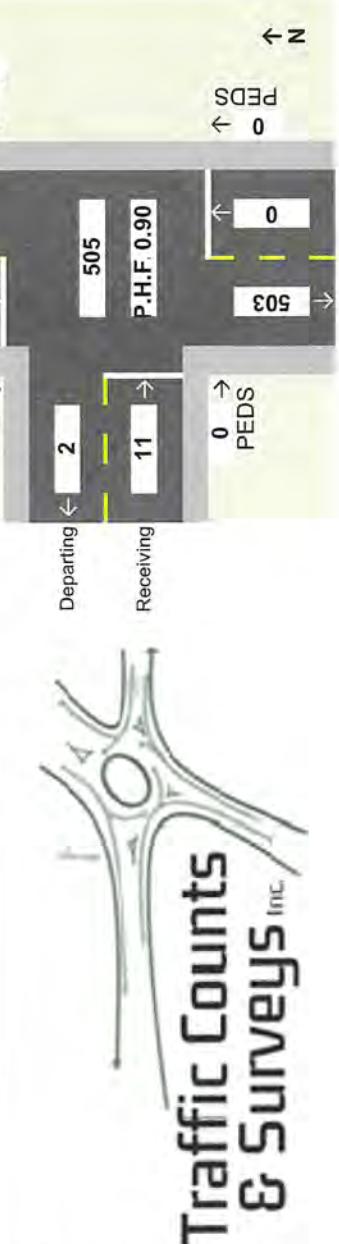
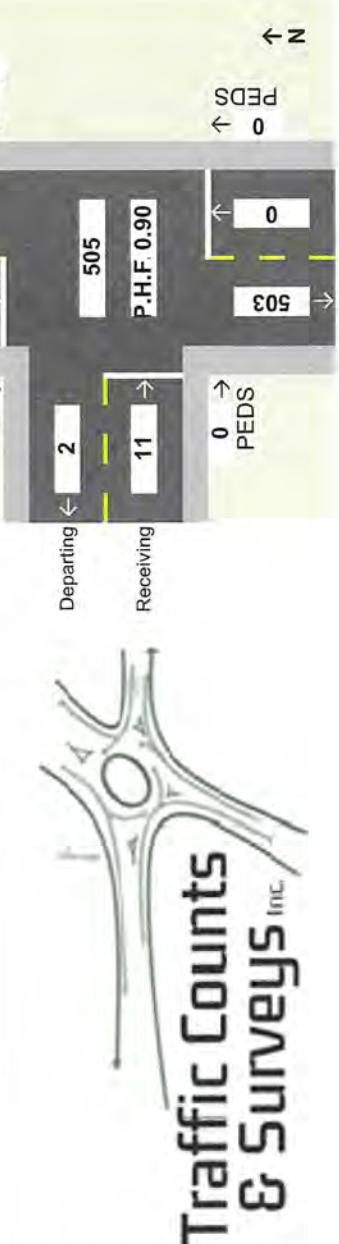
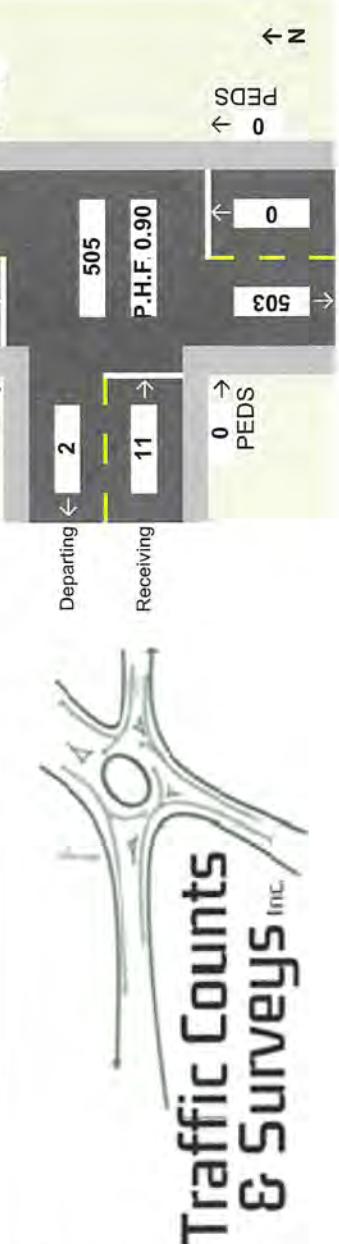
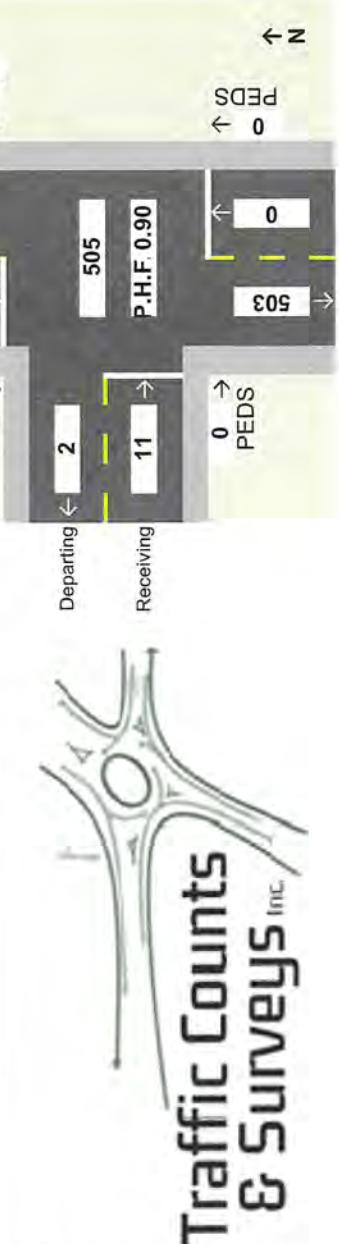
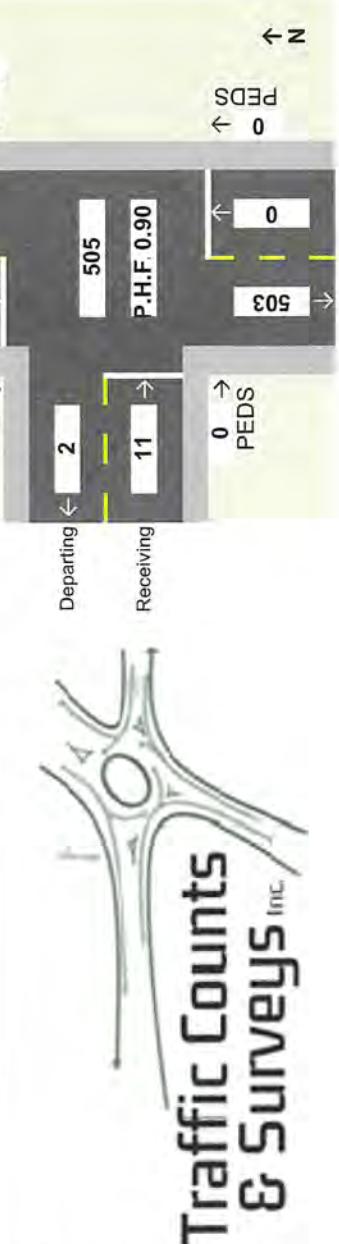
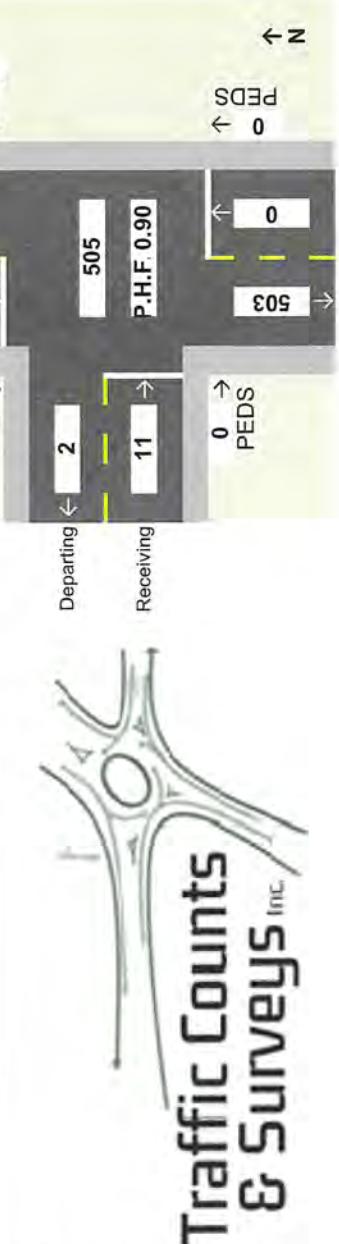
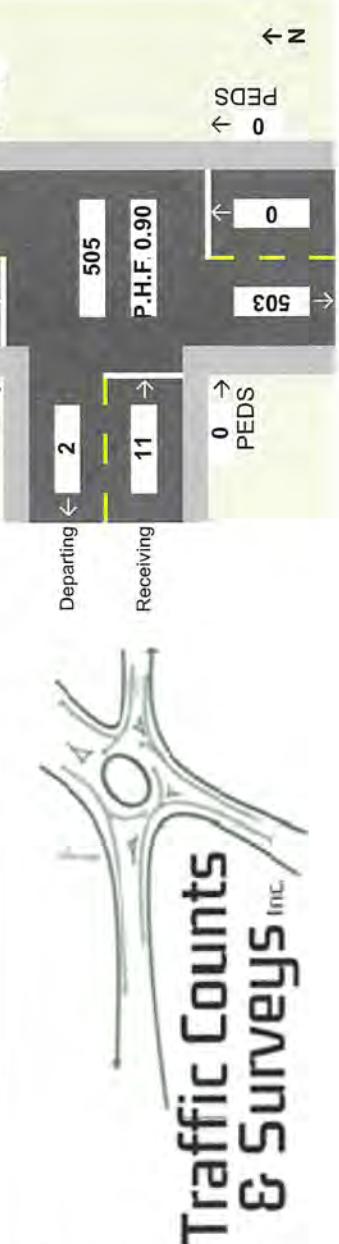
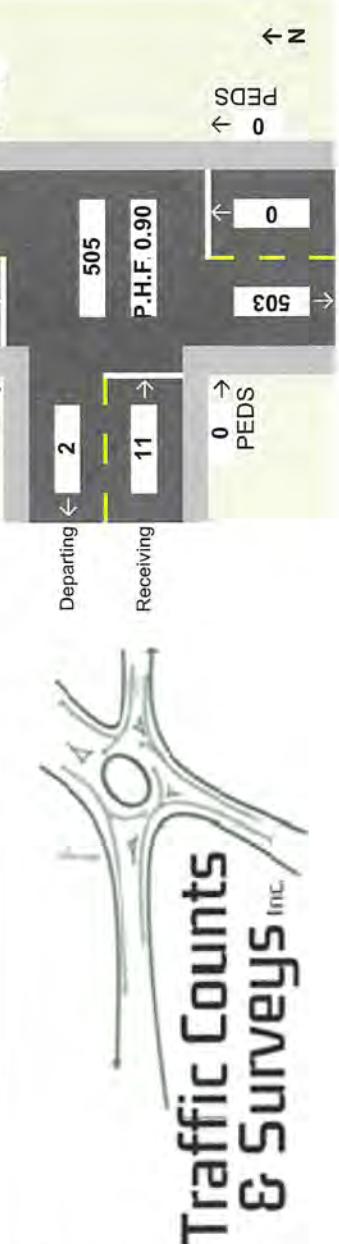
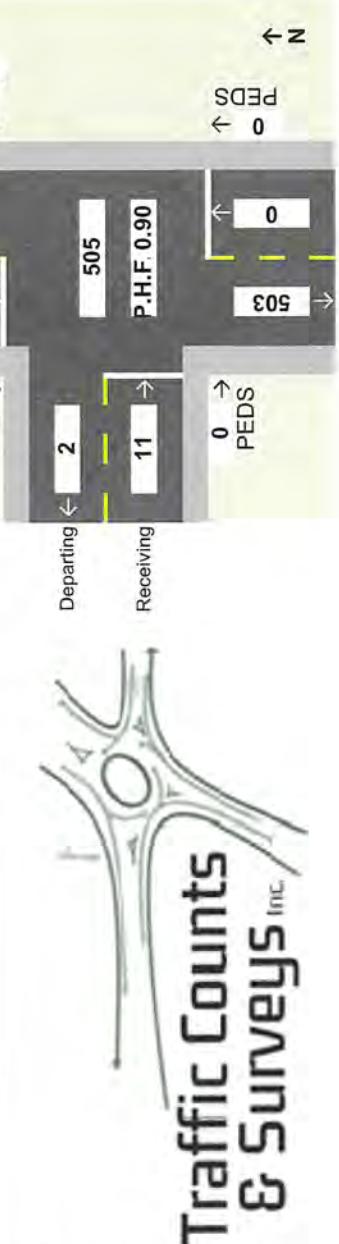
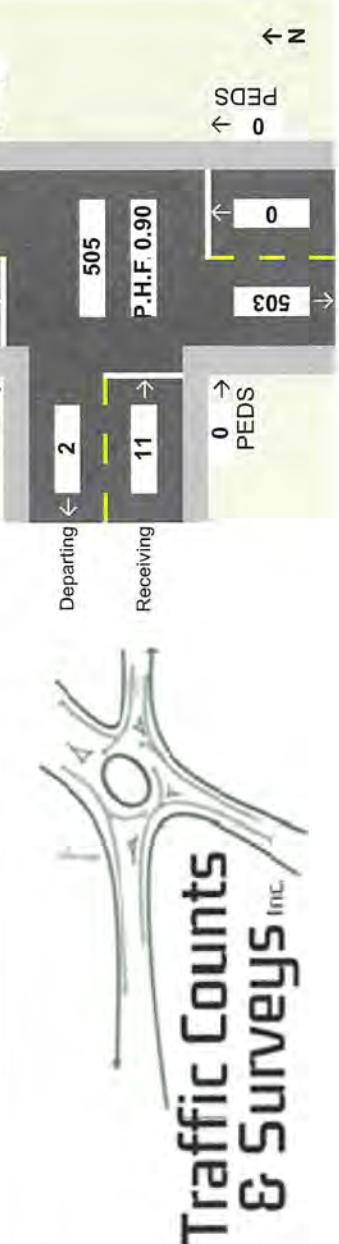
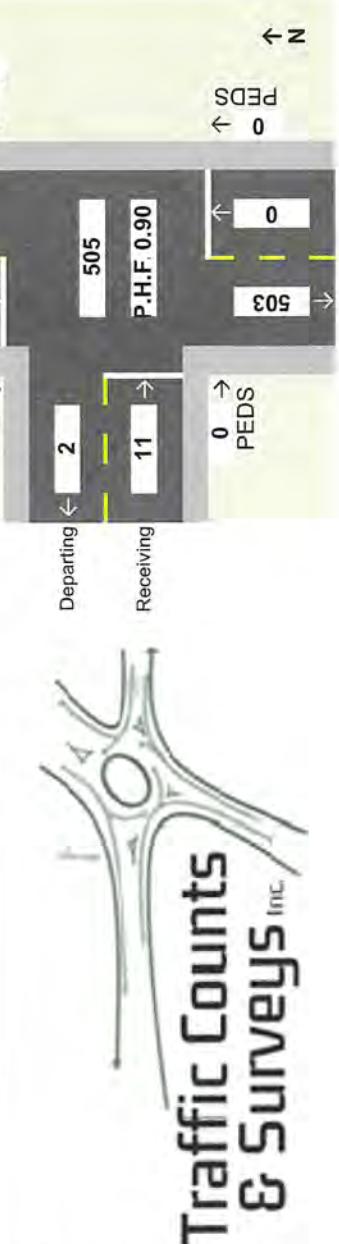
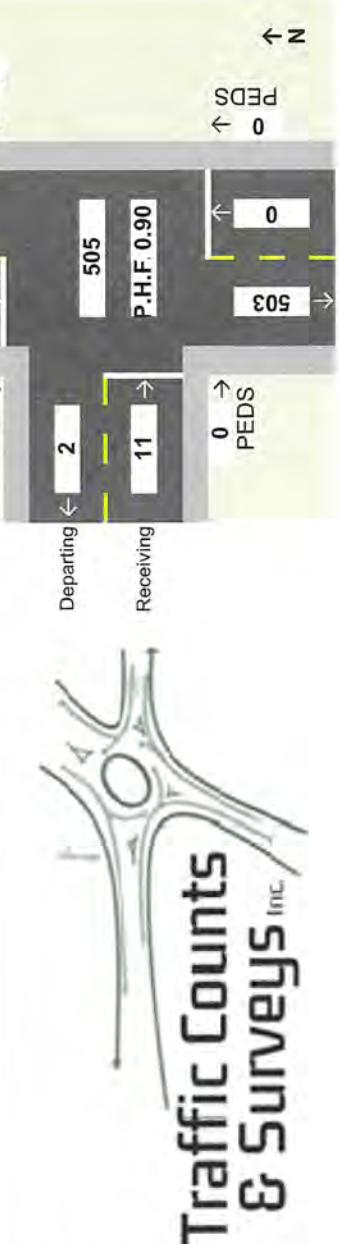
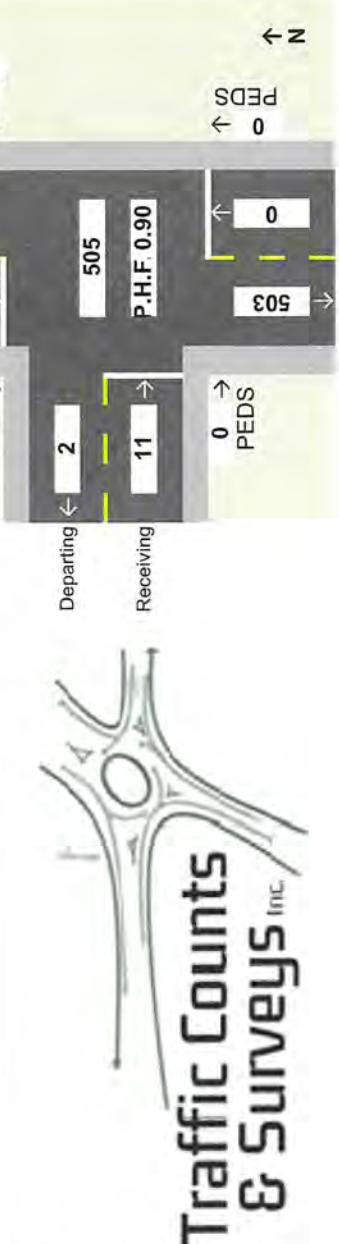
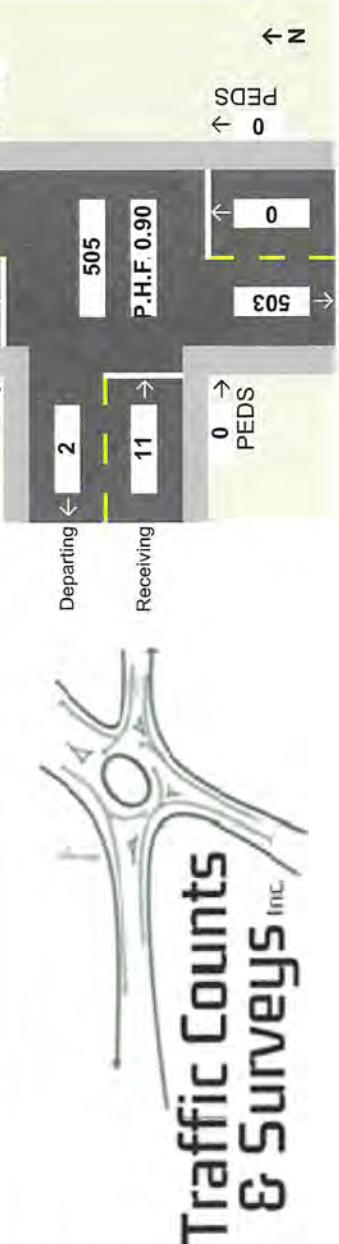
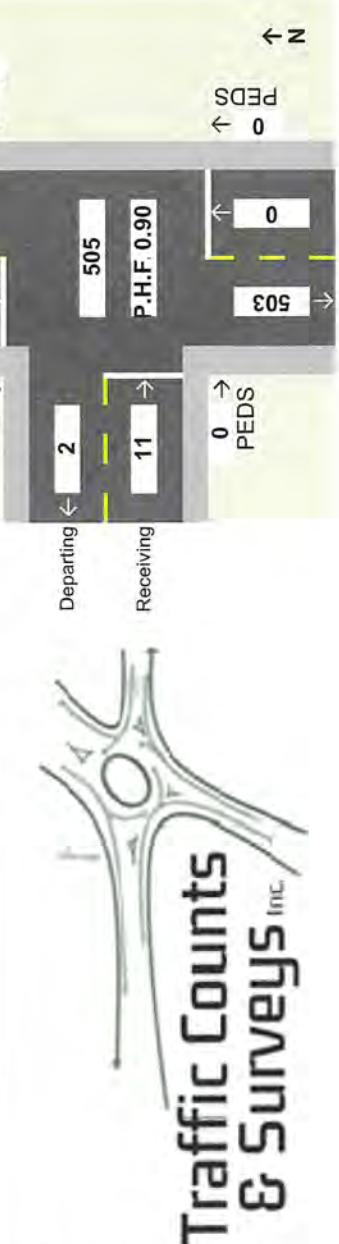
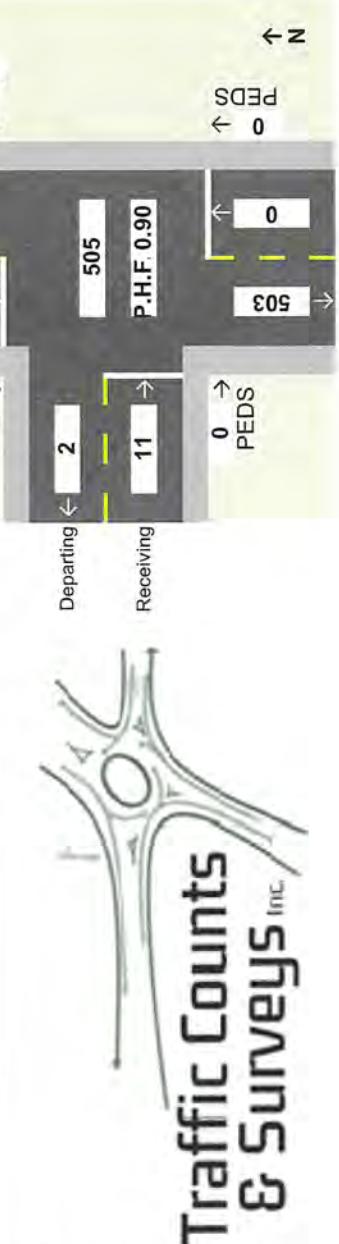
8:15 AM

APPROACH	MOVEMENT	7:30 AM				7:45 AM				8:00 AM				8:15 AM			
		BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	Mvmt	TOTAL	PHF	Percentage of HV Approach
Eastbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	EBU	0	0	0.00%
	Left	0	0	0	0	0	0	0	0	0	0	0	0	EBL	0	0	0.00%
	Right	0	2	0	0	3	1	0	4	0	0	1	0	EBR	1	11	9%
	App. Total	0	2	0	0	3	1	0	4	0	0	1	0	Total	1	11	0.69
Pct HV		0%			25%			0%									100.00%
Northbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	NBU	0	0	0.00%
	Left	0	0	0	0	0	0	0	0	0	0	0	0	EBR	11	100	2.19%
	Through	0	0	0	0	0	0	0	0	0	0	0	0	SBT	492	###	97.81%
	App. Total	0	0	0	0	0	0	0	0	0	0	0	0	Total	503	10	100.00%
Pct HV																	
Southbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	SBU	0	0	0.00%
	Through	0	98	11	0	113	10	0	121	14	0	113	12	SBT	47	492	10%
	Right	0	0	0	0	0	1	0	1	0	0	0	0	SBR	1	2	50%
	App. Total	0	98	11	0	113	11	0	122	14	0	113	12	Total	48	494	0.91
Pct HV		10%			9%			10%						Total	49	505	0.90
Total Class Volume		0	100	11	0	116	12	0	126	14	0	114	12				
Total Interval Volume		111			128			140			126		505				
Intersection Pct Trucks		10%			9%			10%			10%		10%				

APPROACH	MOVEMENT	Confli.		
		Ped	TOT	8:30-8:45
Eastbound	Crosswalk	0	0	0
Westbound	Crosswalk	0	0	0
Northbound	Crosswalk	0	0	0
Southbound	Crosswalk	0	0	0
Total		0	0	0

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

Movement = Mvmt
Pedestrian = Ped



INTERSECTION

SR 195 SB

Inland Empire Way

WCE Latah Glenn

21:45

1/7/2020

PROJECT:

JOB NO.

DATE OF COUNT:

Counter Analyst

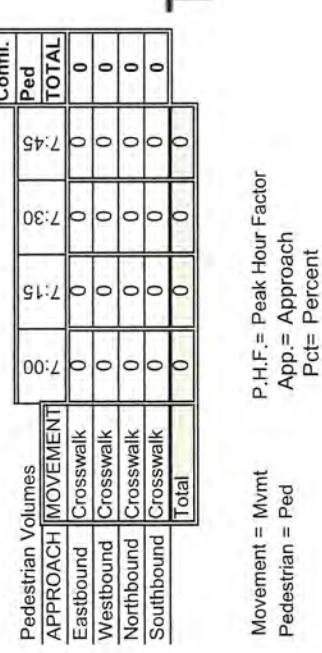
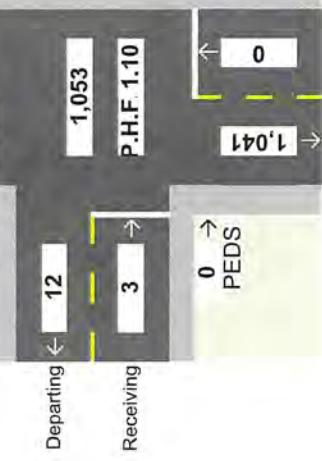
Miovision

BNG

APPROACH	MOVEMENT	PM PEAK HOURS						4:45 PM						Approach											
		4:00 PM		4:15 PM		4:30 PM		BK		PC		HV		BK		PC		HV		Mvmt		TOTAL		Receiving	
		BK	PC	HV			BK	PC	HV			BK	PC	HV			HV	Veh	PHF	HV	App.	Mvmt	Total	HV	Approach
Eastbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	EBU	0	0	0	0.00%	
	Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NBL	0	0	0	0.00%	
	Right	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	EBR	0	3	0	100.00%	
	App. Total	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	Total	0	3	0.75	100.00%	
Pct HV		0%			0%																				
Northbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NBU	0	0	0	0.00%	
	Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	EBR	3	0	0	0.29%	
	Through	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SBT	1038	###	99.71%	100.00%	
	App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Total	1041	1	0	100.00%	
Pct HV																									
Southbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SBU	0	0	0	0.00%	
	Through	0	251	3	0	264	0	0	273	5	0	240	2	0	0	0	0	0	0	NBT	0	0	0	0.00%	
	Right	0	4	0	0	1	0	0	1	0	0	6	0	0	0	0	0	0	0	EBL	0	12	0	1.14%	
	App. Total	0	255	3	0	265	0	0	274	5	0	246	2	0	0	0	0	0	0	Total	10	1050	0.94	100.00%	
Pct HV		1%			0%				2%			1%								Total	10	1,053	1.00		
Total Class Volume		0	234	5	0	234	5	0	234	5	0	234	5	0	234	5	0	0	0	SBT	10	1,038	1.00	98.86%	
Total Interval Volume		0	259		0	266		0	280		0	248		0	248		0	0	0	SBR	0	12	0	1.14%	
Intersection Pct Trucks		1%			0%				2%			1%								Total	10	1050	0.94	100.00%	

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

APPROACH	Mvmt	Total	HV	Percentage of:	
				HV	Approach
Fastbound	EBU	0	0	0.00%	
Fastbound	EBL	0	0	0.00%	
Fastbound	EBR	3	0	100.00%	
Fastbound	Total	12	0	100.00%	
Southbound	EBU	0	0	0.00%	
Southbound	EBL	0	0	0.00%	
Southbound	EBR	0	0	0.00%	
Southbound	Total	0	0	100.00%	
Northbound	EBU	0	0	0.00%	
Northbound	EBL	0	0	0.00%	
Northbound	EBR	0	0	0.00%	
Northbound	Total	0	0	100.00%	
Eastbound	EBU	0	0	0.00%	
Eastbound	EBL	0	0	0.00%	
Eastbound	EBR	0	0	0.00%	
Eastbound	Total	0	0	100.00%	



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

P.H.F. 1.10

PED 0

PEDS 0

PEDS < 0

PEDS ↑ 0

INTERSECTION

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



App.= Approach
Pct= Percent

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

INTERSECTION

PROJECT:
WCE Marshal CreekJOB NO.:
21-46
DATE OF COUNT:
5/8/2019Counter Analyst
BNG
Miovision

Cheney-Spokane Road

&
SR 195 NB Ramps

PM PEAK HOURS

15 Minute Period Beginning @

APPROACH Movement	Type	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					
		BK	PC	HV																																	
Eastbound	U-Turn	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	Left	0	73	3	0	76	1	0	78	2	0	81	0	0	84	1	0	91	2	0	93	1	0	81	1	0	69	1	0	72	0	0	68	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			
Northbound	App. Total	0	73	3	0	77	1	0	78	2	0	81	0	0	84	1	0	91	2	0	93	1	0	81	1	0	69	1	0	72	0	0	68	0			
	Pct HV	4%			1%			3%			0%			0%			1%			2%			1%			1%			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			
Southbound	Left	0	30	0	29	1	0	23	1	0	16	0	34	0	0	28	0	0	34	0	0	26	0	0	30	0	0	25	1	0	24	0	0	20	0		
	Through	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0			
	App. Total	0	31	0	30	1	0	23	1	0	16	0	34	0	0	28	0	0	34	0	0	27	0	0	30	0	0	25	1	0	24	0	0	20	0		
Total Class Volume	Pct HV	0%			3%			4%			0%			0%			0%			0%			0%			0%			4%			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		
	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		
Total Interval Volume	Right	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	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	0	0	0	0	0	0	0	0	0	0	0		
	Total Class Pct HV	3%			2%			2%			0%			0%			0%			0%			1%			1%			2%			0%			0%		

Pedestrian Volumes

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

App.= Approach
Pct= Percent

Intersection Total One Hour Volumes	Miovision Vehicle Classification		
	Bike (BK)	Passenger Car (PC)	Heavy Vehicle (HV)
3:30 AM	0	415	2.2%
3:45 AM	422	1.4%	
4:00 AM	426	1.2%	
4:15 AM	452	1.1%	
4:30 AM	476	0.8%	
4:45 AM	443	1.1%	
5:00 AM	426	1.4%	
5:30 AM	362	0.8%	



INTERSECTION

SR 195 NB Ramps

Cheney-Spokane Road

WCE Marshal Creek

21-46

5/8/2019

DATE OF COUNT:

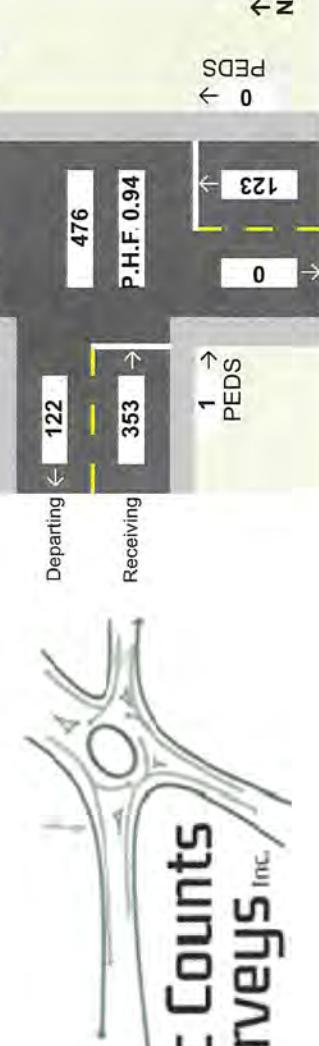
Counter Analyst

Miovision BNG

APPROACH	MOVEMENT	PM PEAK HOURS						5:15 PM						Receiving						Departing							
		4:30 PM		4:45 PM		5:00 PM		BK	PC	HV	BK	PC	HV	Mvmt	TOTAL	HV	Veh	PHF	Mvmt	Total	HV	Approach					
Eastbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	EBU	0	0	0	0.00%	EBU	0	0	0.00%	App.				
	Left	0	81	0	0	0	84	1	0	91	2	0	93	1	EBL	4	353	1%	100.00%	NBL	122	0%	100.00%				
	Right	0	0	0	0	0	0	0	0	0	0	0	0	EBC	0	0	0	0.00%	SBR	0	0%	0.00%					
	App. Total	0	81	0	0	0	84	1	0	91	2	0	93	1	Total	4	353	0.94	1%	Total	122	0%	100.00%				
Pct HV		0%				1%				2%																	
Northbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	NBU	0	0	0	0.00%	NBU	0	0	0.00%					
	Left	0	34	0	0	28	0	0	34	0	0	26	0	NBL	0	122	0%	99.19%	NBT	1	0%	0.28%					
	Through	0	0	0	0	0	0	0	0	0	0	1	0	NBT	0	1	0%	0.81%	SBT	0	0%	0%					
	App. Total	0	34	0	0	28	0	0	34	0	0	27	0	Total	0	123	0.90	0%	Total	0	0	100.00%					
Pct HV		0%				0%				0%																	
Southbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	SBU	0	0	0	0.00%	NBT	1	0%	0.28%					
	Through	0	0	0	0	0	0	0	0	0	0	0	0	SBT	0	0	0	0.00%	EBI	353	40.00%	99.72%					
	Right	0	0	0	0	0	0	0	0	0	0	0	0	SBR	0	0	0	0.00%	Total	354	1%	100.00%					
	App. Total	0	0	0	0	0	0	0	0	0	0	0	0	Total	4	476	0.94	1%									
Pct HV		0%				0%				0%																	
Total Class Volume		0	115	0	0	112	1	0	125	2	0	120	1														
Total Interval Volume		0	115	0	0	113	1	0	127	1	0	121	1														
Intersection Pct Trucks		0%				1%				2%																	

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

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



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

TRAFFIC COUNT REDUCTION WORKSHEET

PROJECT: WCE Marshal Creek
 JOB NO. 2146
 DATE OF COUNT: 5/7/2019

Counter Analyst

Miovision BNG

INTERSECTION

Cheney-Spokane Rd &

SR 195 SB Ramps

AM PEAK HOURS

15 Minute Period Beginning @



Traffic Counts & Surveys Inc.

APPROACH	Movement	AM PEAK HOURS																																					
		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							
Type	BK	PC	IHV	BK	PC	IHV	BK	PC	IHV	BK	PC	IHV	BK	PC	IHV	BK	PC	IHV	BK	PC	IHV	BK	PC	IHV	BK	PC	IHV	BK	PC	IHV									
Eastbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
	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						
	Through	0	101	0	0	116	1	0	125	4	0	151	4	0	206	1	0	125	2	0	98	3	0	111	2	0	103	3	0	99	3	0	80	5	0	75	4		
	Right	0	9	0	0	5	0	0	11	2	0	8	1	0	11	0	0	15	0	0	11	0	0	13	0	0	15	1	0	15	1	0	8	0					
	App. Total	0	110	0	0	121	1	0	136	6	0	159	5	0	217	1	0	140	2	0	109	3	0	124	2	0	118	4	0	114	4	0	95	5	0	83	4		
	Pct HV	0%			1%			4%		3%		0%			1%			3%			2%			3%			3%			5%			5%						
Westbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
	Left	0	0	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0					
	Through	0	10	1	0	21	2	0	25	1	0	26	1	0	38	0	0	27	0	0	30	1	0	22	1	0	32	1	0	24	0	0	21	0	0	22	1		
	Right	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
	App. Total	0	10	1	0	23	2	0	26	1	0	26	1	0	39	0	0	27	0	0	31	1	0	23	1	0	33	1	0	24	0	0	22	0	0	23	1		
	Pct HV	9%			8%			4%		4%		0%			0%			0%			3%			4%			3%			0%			0%			4%			
Northbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
	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					
	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					
	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					
	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					
	Pct HV	0%																																					
Southbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
	Left	0	3	0	0	2	0	0	5	0	0	4	2	0	4	0	0	1	0	3	0	0	5	0	0	1	0	4	0	0	0	0	0	3	0				
	Through	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
	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					
	App. Total	0	3	0	0	2	1	0	5	0	0	4	2	0	4	1	0	1	0	3	0	0	5	0	0	1	0	4	0	0	0	0	0	3	0				
	Pct HV	0%			33%			0%		33%		20%		50%		0%		50%		0%		50%		0%		50%		0%		50%		0%		0%		0%			
Total Class Volume	0	123	1	0	146	4	0	167	7	0	189	8	0	260	2	0	168	3	0	143	4	0	152	3	0	152	6	0	142	5	0	121	5	0	109	5			
Total Interval Volume	124				150			174		197		262		171		147		155		158		147		126		114													
Intersection Pct HV	1%				3%			4%		4%		1%		2%		2%		2%		2%		2%		2%		2%		2%		2%		2%		2%		2%		4%	

App.= Approach
 Pct= Percent

Pedestrian Volumes

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

Intersection Total			Pct
One Hour Volumes	HV		
6:30 AM	645		3.1%
6:45 AM	783		2.7%
7:00 AM	804		2.5%
7:15 AM	777		2.2%
7:30 AM	735		1.6%
7:45 AM	631		2.5%
8:00 AM	607		3.0%
8:15 AM	586		3.2%
8:30 AM	545		3.9%



INTERSECTION

PROJECT: WCE Marshal Creek
JOB NO. 21-46
DATE OF COUNT: 7/17/2020 5/1/2019

SR 195 SB Rams

Cheney-Snookane Rd

JOB NO.
DATE OF COUNT:

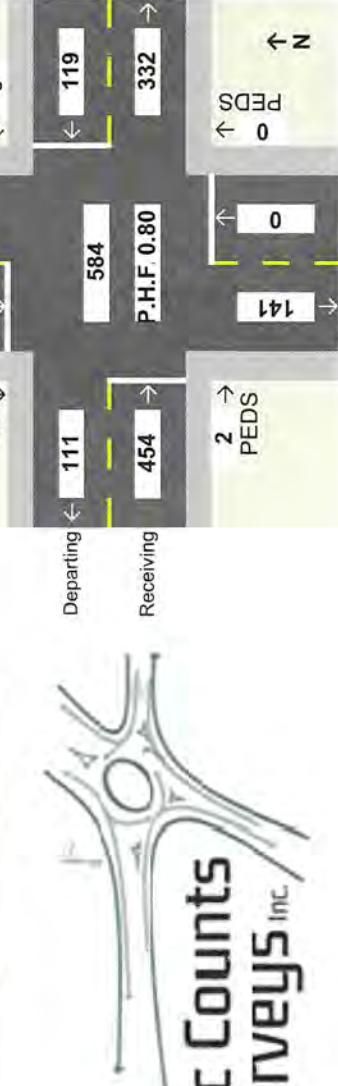
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Analyst		BNG		PM PEAK HOURS																
				4:30 PM			4:45 PM			5:00 PM			5:15 PM			Approach				
Counter	Miovision	APPROACH		BK	PC	HV	BK	PC	HV	BK	PC	HV	Mvmt	TOTAL	PHF	Percentage of:	App.			
		Eastbound	U-Turn	0	0	0	0	0	0	0	0	0	EPU	0	0	0.00%				
		Left	0	0	0	0	0	0	0	0	0	0	EPL	0	0	0.00%				
		Through	0	69	5	0	76	1	0	92	0	0	EPT	8	322	2%				
		Right	0	26	0	0	36	0	0	25	0	0	EPR	1	132	1%				
		App. Total	0	95	5	0	112	1	0	102	2	0	EPA	136	1	Total	111	3%	100.00%	
		Pct HV	5%			1%							Total	9	454	0.83	Total	111	3%	100.00%
		Westbound	U-Turn	0	0	0	0	0	0	0	0	0	WBU	0	0	0.00%				
		Left	0	1	0	0	1	0	0	1	0	0	WBL	0	8	0%				
		Through	0	31	2	0	26	0	0	14	0	0	WBT	3	111	3%	WBTbound	10	0%	3.01%
		Right	0	0	0	0	0	0	0	0	0	0	WBR	0	0	0.00%	WBRbound	322	2%	96.99%
		App. Total	0	32	2	0	27	0	0	15	0	0	Total	3	119	0.69	Total	332	2%	100.00%
		Pct HV	6%			0%							NBU	0	0	0.00%				
		Northbound	U-Turn	0	0	0	0	0	0	0	0	0	NBL	0	0	0%				
		Left	0	0	0	0	0	0	0	0	0	0	NBT	0	0	0%				
		Through	0	0	0	0	0	0	0	0	0	0	NBR	0	0	0%				
		Right	0	0	0	0	0	0	0	0	0	0	Total	0	0	0%	Northbound	132	1%	93.62%
		App. Total	0	0	0	0	0	0	0	0	0	0	Total	0	0	0%	Total	141	1%	100.00%
		Pct HV											WBU	0	0	0.00%				
		Southbound	U-Turn	0	0	0	0	0	0	0	0	0	SBU	0	0	0%				
		Left	0	1	0	0	0	0	0	6	0	0	SBL	0	10	0%				
		Through	0	0	0	0	0	0	0	1	0	0	SBT	0	1	0%				
		Right	0	0	0	0	0	0	0	0	0	0	SBR	0	0	0%				
		App. Total	0	1	0	0	0	0	0	7	0	0	Total	0	11	0.39	Total	12	584	0.80
		Pct HV	0%										Total	0	181	2	Total	135	1%	2%
		Total Class Volume	0	128	7	0	139	1	0	124	2	0	SBU	0	0	0.00%				
		Total Interval Volume											SBL	0	10	0%				
		Intersection Pct Trucks											SBT	0	1	0%				
		0	5%										SBR	0	0	0%				
		0	2%										Total	0	183	1%	Total	584	2%	0
		0	0										WBU	0	0	0%				
		0	0										WBL	0	8	0%				
		0	0										WBT	0	3	0%				
		0	0										WBR	0	0	0%				
		0	0										Total	0	0	0%				
		0	0										WBU	0	0	0%				
		0	0										WBL	0	0	0%				
		0	0										WBT	0	0	0%				
		0	0										WBR	0	0	0%				
		0	0										Total	0	0	0%				
		0	0										WBU	0	0	0%				
		0	0										WBL	0	0	0%				
		0	0										WBT	0	0	0%				
		0	0										WBR	0	0	0%				
		0	0										Total	0	0	0%				
		0	0										WBU	0	0	0%				
		0	0										WBL	0	0	0%				
		0	0										WBT	0	0	0%				
		0	0										WBR	0	0	0%				
		0	0										Total	0	0	0%				
		0	0										WBU	0	0	0%				
		0	0										WBL	0	0	0%				
		0	0										WBT	0	0	0%				
		0	0										WBR	0	0	0%				
		0	0										Total	0	0	0%				
		0	0										WBU	0	0	0%				
		0	0										WBL	0	0	0%				
		0	0										WBT	0	0	0%				
		0	0										WBR	0	0	0%				
		0	0										Total	0	0	0%				
		0	0										WBU	0	0	0%				
		0	0										WBL	0	0	0%				
		0	0										WBT	0	0	0%				
		0	0										WBR	0	0	0%				
		0	0										Total	0	0	0%				
		0	0										WBU	0	0	0%				
		0	0										WBL	0	0	0%				
		0	0										WBT	0	0	0%				
		0	0										WBR	0	0	0%				
		0	0										Total	0	0	0%				
		0	0										WBU	0	0	0%				
		0	0										WBL	0	0	0%				
		0	0										WBT	0	0	0%				
		0	0										WBR	0	0	0%				
		0	0										Total	0	0	0%				
		0	0										WBU	0	0	0%				
		0	0										WBL	0	0	0%				
		0	0										WBT	0	0	0%				
		0	0										WBR	0	0	0%				
		0	0										Total	0	0	0%				
		0	0										WBU	0	0	0%				
		0	0										WBL	0	0	0%				
		0	0										WBT	0	0	0%				
		0	0										WBR	0	0	0%				
		0	0										Total	0	0	0%				
		0	0										WBU	0	0	0%				
		0	0										WBL	0	0	0%				
		0	0										WBT	0	0	0%				
		0	0										WBR	0	0	0%				
		0	0										Total	0	0	0%				
		0	0										WBU	0	0	0%				
		0	0										WBL	0	0	0%				
		0	0										WBT	0	0	0%				
		0	0										WBR	0	0	0%				
		0	0										Total	0	0	0%				
		0	0										WBU	0	0	0%				
		0	0										WBL	0	0	0%				
		0	0										WBT	0	0	0%				
		0	0										WBR	0	0	0%				
		0	0										Total	0	0	0%				
		0	0										WBU	0	0	0%				
		0	0										WBL	0	0	0%				
		0	0										WBT	0	0	0%				
		0	0										WBR	0	0	0%				
		0	0										Total	0	0	0%				
		0	0										WBU	0	0	0%				
		0	0										WBL	0	0	0%				

Pedestrian Volumes	APPROACH	MOVEMENT	4:30	4:45	5:00
	Eastbound	Crosswalk	0	0	1
	Westbound	Crosswalk	0	0	0
	Northbound	Crosswalk	0	0	0
	Southbound	Crosswalk	0	0	0
		Total	0	0	1

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

Traffic Counts
& Surveys Inc.

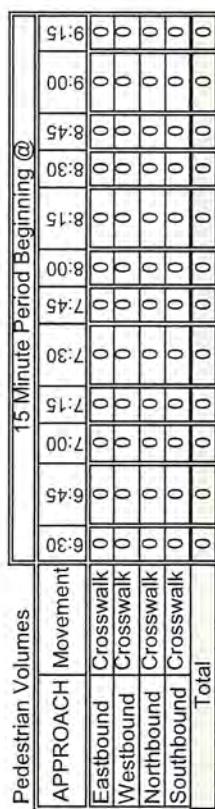


INTERSECTION

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

PROJECT: WCE Marshal Creek
JOB NO. 21-46
DATE OF COUNT: 5/7/2019

Cheney Spokane Rd
SR 195 SB Slip Ramp
&



App.= Approach
Pct= Percent

Cheaney-Spokane Rd & SR 195 SB Slip Ramp TMC



Intersection Total	Pct
One Hour Volumes	HV
6:30 AM	250
6:45 AM	295
7:00 AM	307
7:15 AM	325
7:30 AM	339
7:45 AM	338
8:00 AM	348
8:15 AM	319
8:30 AM	317

TRAFFIC COUNT REDUCTION WORKSHEET

INTERSECTION

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

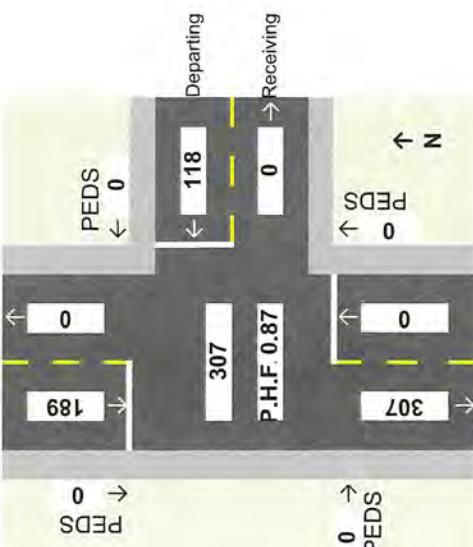
PROJECT: WCE Marshal Creek
JOB NO. 21-46
DATE OF COUNT: 5/7/2019
Counter Analyst

Cheney Spokane Rd & SR 195 SB Slip Ramp

Movement	BNG	AM PEAK HOURS												Approach		Receiving	
		7:00 AM		7:15 AM		7:30 AM		7:45 AM		Departing		Mvmt	Total	Percentage of HV Approach			
Approach	Movement	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	
Westbound	U-Turn	0	0	0	0	0	0	0	0	0	WBU	0	0	WBU	0	0.00%	
	Left	0	25	1	0	26	1	0	38	0	WBL	3	118	NBR	0	0.00%	
	Right	0	0	0	0	0	0	0	0	0	WBR	0	0	WBL	0	0.00%	
	App. Total	0	25	1	0	26	1	0	38	0	Total	3	118	Total	0	100.00%	
	Pct HV	4%						0%									
	Northbound																
Northbound	U-Turn	0	0	0	0	0	0	0	0	0	NBU	0	0	NBU	0	0.00%	
	Through	0	0	0	0	0	0	0	0	0	NBT	0	0	SBT	189	8%	
	Right	0	0	0	0	0	0	0	0	0	NBR	0	0	WBL	118	3%	
	App. Total	0	0	0	0	0	0	0	0	0	Total	0	0	Total	307	6%	
Southbound	Pct HV																
	Southbound																
	U-Turn	0	0	0	0	0	0	0	0	0	SBU	0	0	SBU	0	0.00%	
	Left	0	0	0	0	0	0	0	0	0	SBL	0	0	WBR	0	0.00%	
	Through	0	37	5	0	47	2	0	47	3	SBT	15	189	NBT	0	0.00%	
	App. Total	0	37	5	0	47	2	0	47	3	Total	15	189	Total	0	100.00%	
Southbound	Pct HV	12%						4%									
	Total Class Volume	0	62	6	0	73	3	0	85	3	Total	18	307	Total	0	100.00%	
	Total Interval Volume	68			76			88									
	Intersection Pct Trucks	9%			4%			3%									

Pedestrian Volumes	Approach	Movement			Confli. Ped	TOTAL
		Eastbound	Crosswalk	Westbound		
	Eastbound	0	0	0	0	0
	Crosswalk	0	0	0	0	0
	Westbound	0	0	0	0	0
	Northbound	0	0	0	0	0
	Crosswalk	0	0	0	0	0
	Southbound	0	0	0	0	0
	Crosswalk	0	0	0	0	0
	Total	0	0	0	0	0

Pedestrian Volumes	Approach	Movement			Confli. Ped	TOTAL
		Eastbound	Crosswalk	Westbound		
	Eastbound	0	0	0	0	0
	Crosswalk	0	0	0	0	0
	Westbound	0	0	0	0	0
	Northbound	0	0	0	0	0
	Crosswalk	0	0	0	0	0
	Southbound	0	0	0	0	0
	Crosswalk	0	0	0	0	0
	Total	0	0	0	0	0



Pedestrian Volumes	Approach	Movement			Confli. Ped	TOTAL
		Eastbound	Crosswalk	Westbound		
	Eastbound	0	0	0	0	0
	Crosswalk	0	0	0	0	0
	Westbound	0	0	0	0	0
	Northbound	0	0	0	0	0
	Crosswalk	0	0	0	0	0
	Southbound	0	0	0	0	0
	Crosswalk	0	0	0	0	0
	Total	0	0	0	0	0

Pedestrian Volumes	Approach	Movement			Confli. Ped	TOTAL
		Eastbound	Crosswalk	Westbound		
	Eastbound	0	0	0	0	0
	Crosswalk	0	0	0	0	0
	Westbound	0	0	0	0	0
	Northbound	0	0	0	0	0
	Crosswalk	0	0	0	0	0
	Southbound	0	0	0	0	0
	Crosswalk	0	0	0	0	0
	Total	0	0	0	0	0

Pedestrian Volumes	Approach	Movement			Confli. Ped	TOTAL
		Eastbound	Crosswalk	Westbound		
	Eastbound	0	0	0	0	0
	Crosswalk	0	0	0	0	0
	Westbound	0	0	0	0	0
	Northbound	0	0	0	0	0
	Crosswalk	0	0	0	0	0
	Southbound	0	0	0	0	0
	Crosswalk	0	0	0	0	0
	Total	0	0	0	0	0

Pedestrian Volumes	Approach	Movement			Confli. Ped	TOTAL
		Eastbound	Crosswalk	Westbound		
	Eastbound	0	0	0	0	0
	Crosswalk	0	0	0	0	0
	Westbound	0	0	0	0	0
	Northbound	0	0	0	0	0
	Crosswalk	0	0	0	0	0
	Southbound	0	0	0	0	0
	Crosswalk	0	0	0	0	0
	Total	0	0	0	0	0

Pedestrian Volumes	Approach	Movement			Confli. Ped	TOTAL
		Eastbound	Crosswalk	Westbound		
	Eastbound	0	0	0	0	0
	Crosswalk	0	0	0	0	0
	Westbound	0	0	0	0	0
	Northbound	0	0	0	0	0
	Crosswalk	0	0	0	0	0
	Southbound	0	0	0	0	0
	Crosswalk	0	0	0	0	0
	Total	0	0	0	0	0

Pedestrian Volumes	Approach	Movement			Confli. Ped	TOTAL
		Eastbound	Crosswalk	Westbound		
	Eastbound	0	0	0	0	0
	Crosswalk	0	0	0	0	0
	Westbound	0	0	0	0	0
	Northbound	0	0	0	0	0
	Crosswalk	0	0	0	0	0
	Southbound	0	0	0	0	0
	Crosswalk	0	0	0	0	0
	Total	0	0	0	0	0

Pedestrian Volumes	Approach	Movement			Confli. Ped	TOTAL
		Eastbound	Crosswalk	Westbound		
	Eastbound	0	0	0	0	0
	Crosswalk	0	0	0	0	0
	Westbound	0	0	0	0	0
	Northbound	0	0	0	0	0
	Crosswalk	0	0	0	0	0
	Southbound	0	0	0	0	0
	Crosswalk	0	0	0	0	0
	Total	0	0	0	0	0

Pedestrian Volumes	Approach	Movement			Confli. Ped	TOTAL
Eastbound	Crosswalk	Westbound				

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TRAFFIC COUNT REDUCTION WORKSHEET

INTERSECTION

PROJECT: WCE Marshal Creek
 JOB NO. 21-46
 DATE OF COUNT: 5/7/2019
 Counter Analyst:



Cheney Spokane Rd &
 SR 195 SB Slip Ramp

PM PEAK HOURS
 15 Minute Period Beginning @

APPROACH Movement	Bk	Pc	Hv	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						
				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				
U-Turn	0	28	0	0	27	1	0	19	1	0	14	0	0	28	1	0	29	0	0	28	0	0	25	0	0	26	0	0	22	0	0	21	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			
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			
App. Total	0	28	0	0	27	1	0	19	1	0	14	0	0	28	1	0	29	0	0	28	0	0	25	0	0	26	0	0	22	0	0	21	0	0			
Pct HV	0%	4%	5%	0%	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%	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			
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			
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			
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			
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			
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	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	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			
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			
Through	0	106	3	0	122	1	0	126	1	0	141	0	0	150	2	0	136	3	0	115	0	0	128	3	0	115	0	0	112	4	0	85	1	0			
App. Total	0	106	3	0	122	1	0	126	1	0	141	0	0	150	2	0	136	3	0	115	0	0	128	3	0	115	0	0	112	4	0	85	1	0			
Pct HV	3%	1%	1%	0%	1%	1%	0%	1%	1%	0%	1%	0%	0%	1%	2%	0%	2%	0%	0%	2%	0%	0%	2%	0%	0%	3%	1%	0%	3%	1%	0%	3%	1%	0%			
Total Class Volume	0	134	3	0	149	2	0	145	2	0	155	0	0	178	3	0	165	3	0	143	0	0	153	3	0	141	0	0	134	4	0	106	1	0			
Total Interval Volume	137	151	147	155	155	181	168	178	178	178	181	181	181	181	181	181	181	181	181	181	181	181	181	181	181	181	181	181	181	181	181	181	181	181	181	181	181
Intersection Pct HV	2%	1%	1%	0%	1%	0%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%		

Pedestrian Volumes

15 Minute Period Beginning @

APPROACH Movement	3:40 AM			3:45 AM			4:00 AM			4:15 AM			4:30 AM			4:45 AM			5:00 AM			5:15 AM			5:30 AM									
	Bike (BK)	Passenger Car (PC)	Heavy Vehicle (HV)	Bike (BK)	Passenger Car (PC)	Heavy Vehicle (HV)	Bike (BK)	Passenger Car (PC)	Heavy Vehicle (HV)	Bike (BK)	Passenger Car (PC)	Heavy Vehicle (HV)	Bike (BK)	Passenger Car (PC)	Heavy Vehicle (HV)	Bike (BK)	Passenger Car (PC)	Heavy Vehicle (HV)	Bike (BK)	Passenger Car (PC)	Heavy Vehicle (HV)	Bike (BK)	Passenger Car (PC)	Heavy Vehicle (HV)	Bike (BK)	Passenger Car (PC)	Heavy Vehicle (HV)							
Eastbound Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0	0	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	0	0	0	0	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	0	0	0	0	0	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

App.= Approach
 Pct= Percent

Intersection Total		One Hour Volumes		Pct	
3:30 AM	590	3:45 AM	634	4:00 AM	651
3:45 AM	634	4:00 AM	651	4:15 AM	647
4:00 AM	651	4:15 AM	647	4:30 AM	648
4:15 AM	647	4:30 AM	648	4:45 AM	608
4:45 AM	608	4:45 AM	608	5:00 AM	578
5:00 AM	578	5:00 AM	578	5:15 AM	542
5:15 AM	542	5:15 AM	542	5:30 AM	478
5:30 AM	478	5:30 AM	478	5:45 AM	478
5:45 AM	478	5:45 AM	478	6:00 AM	478
6:00 AM	478	6:00 AM	478	6:15 AM	478

All Vehicles (no classification)



INTERSECTION

PROJECT: WCE Marshal Creek
 JOB NO. 21-46
 DATE OF COUNT: 5/7/2019

Cheney Spokane Rd

& SR 195 SB Slip Ramp

Counter Analyst

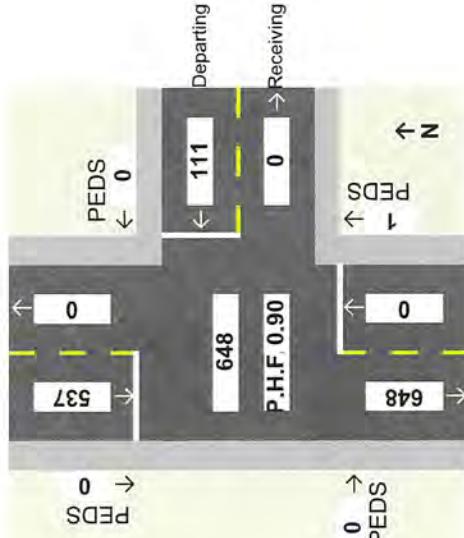
Mvision

BNG

APPROACH	MOVEMENT	PM PEAK HOURS						5:15 PM						Departing						Receiving								
		BK	PC	HV	BK	PC	HV	BK	PC	HV	Mvmt	TOTAL	Veh	PHF	HV	Approach	Mvmt	Total	HV	Approach								
Westbound	U-Turn	0	0	0	0	0	0	0	0	0	WBU	0	0	0.00%	0.00%	App.	WBU	0	0	0.00%	App.							
Left	0	28	1	0	0	29	0	0	28	0	WBL	1	111	1	100.00%	SBL	0	0	0	0.00%	NBR	0	0	0.00%	WBL			
Right	0	0	0	0	0	0	0	0	0	0	WBR	0	0	0	0.00%	NBR	0	0	0	0.00%	Total	0	0	0.00%	Total			
App. Total	0	28	1	0	29	0	0	28	0	0	Total	1	111	0.96	1%	100.00%												
Pct HV	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%																		
Northbound	U-Turn	0	0	0	0	0	0	0	0	0	NBU	0	0	0	0.00%	0.00%	SBU	0	0	0	0.00%	0.00%	0	0	0.00%	0.00%		
Through	0	0	0	0	0	0	0	0	0	0	NBT	0	0	0	0.00%	0.00%	SBT	537	1%	82.87%	1%	82.87%	0	0	0.00%	0.00%		
Right	0	0	0	0	0	0	0	0	0	0	NBR	0	0	0	0.00%	0.00%	WBL	111	1%	17.13%	1%	17.13%	0	0	0.00%	0.00%		
App. Total	0	0	0	0	0	0	0	0	0	0	Total	0	0	0	0.00%	0.00%	Total	648	1%	100.00%								
Pct HV	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%																		
Southbound	U-Turn	0	0	0	0	0	0	0	0	0	SBU	0	0	0	0.00%	0.00%	SBU	0	0	0	0.00%	0.00%	0	0	0.00%	0.00%		
Left	0	0	0	0	0	0	0	0	0	0	SBL	0	0	0	0.00%	0.00%	WBR	0	0	0	0.00%	0.00%	0	0	0.00%	0.00%		
Through	0	150	2	0	136	3	0	115	0	0	128	3	537	1%	100.00%	1%	100.00%	NBT	0	0	0	0.00%	0.00%	0	0	0.00%	0.00%	
App. Total	0	150	2	0	136	3	0	115	0	0	128	3	537	1%	100.00%	1%	100.00%	Total	0	0	0	0.00%	0.00%	0	0	0.00%	0.00%	
Pct HV	1%	2%	0%	0%	3%	0%	0%	0%	0%	0%	Total	8	537	0.88	1%	100.00%												
Total Class Volume	0	178	3	0	165	3	0	143	0	0	153	3	648	0.90	1%	100.00%												
Total Interval Volume	181	0	168	0	143	0	0	156	0	0	153	3	648	1%	100.00%													
Intersection Pct Trucks	2%	2%	0%	0%	2%	0%	0%	2%	0%	0%																		

APPROACH	MOVEMENT	Confli.				TOTAL
		Ped	Car	Truck	Ped	
Eastbound	Crosswalk	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0
Northbound	Crosswalk	0	0	1	0	1
Southbound	Crosswalk	0	0	0	0	0
Total		0	0	1	0	1

Movement = Mvmt
 Pedestrian = Ped
 APP= Approach
 Pct= Percent



Traffic Counts & Surveys Inc.



PROJECT: WCE The Summit
JOB NO. 18-02
INTERSECTION: Meadowlane & SR 195

SR 195

JOB NO. 18-U2 SECTION: Meadowlane

TBAEIC COUNT REDUCTION WORKSHEET

DATE OF COUNT: 11/7/2018

DATE OF COUNT: 11/7/2018

Phone: (509)

Traffic Counts

AM PEAK HOURS

email: heng@itfcnts.com

Sullivan et al.

email: heng@itfcnts.com

Movement		15 Minute Period Beginning @ 9:15 AM																							
Approach	BNG	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	
		pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	
Eastbound	Left	37	0	66	0	33	0	56	1	53	0	38	0	33	0	25	0	27	0	27	1	0	0	0	0
	Through	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
	Right	12	0	8	1	17	1	18	1	19	1	17	3	32	1	24	1	26	0	19	1	0	0	0	0
	App. Total	49	0	74	0	50	1	74	2	72	1	55	3	66	1	49	1	53	0	47	3	0	0	0	0
	Pct Trucks	0	0	0.013	0	0.02	0	0.026	0.014	0.052	0.015	0.015	0.02	0	0.02	0	0.02	0	0.06	0	0.06	0	0	0	0
	Left	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Westbound	Through	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0
	Right	7	0	6	0	2	0	6	0	4	1	2	0	3	0	7	0	3	0	0	0	0	0	0	0
	App. Total	8	0	7	0	3	0	6	0	4	2	2	1	3	0	9	0	3	0	1	0	1	0	0	0
	Pct Trucks	0	0	0	0	0	0	0	0	0.333	0.333	0	0	0	0	0	0	0	0	0	0	1	0	0	0
	Left	3	0	3	0	2	1	5	0	6	1	6	0	9	0	16	1	15	2	16	1	0	0	0	0
	Through	145	5	160	0	167	0	209	3	204	5	175	5	186	5	175	4	157	9	142	5	0	1	0	0
Northbound	Right	1	0	3	0	2	0	0	0	1	1	0	0	1	0	0	0	1	0	2	0	0	0	0	0
	App. Total	149	5	166	0	171	1	214	3	211	7	181	5	196	5	191	5	173	11	160	6	0	1	0	0
	Pct Trucks	0.032	0	0.006	0	0.014	0.032	0.027	0.025	0.027	0.025	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.036	1	0	0	0	0	0
	Left	0	0	4	0	1	4	0	0	0	3	1	3	0	5	0	1	0	3	0	0	0	0	0	0
	Through	55	11	61	8	74	9	87	11	94	7	93	4	91	13	91	12	87	16	102	11	0	1	0	0
	Right	3	1	9	3	5	2	10	1	16	1	11	1	24	1	22	0	22	2	11	0	0	0	0	0
Southbound	App. Total	58	12	74	11	80	12	101	12	110	8	107	6	118	14	118	12	110	18	116	11	0	1	0	0
	Pct Trucks	0.171	0	0.129	0.13	0.106	0.068	0.053	0.106	0.092	0.106	0.092	0.106	0.106	0.106	0.106	0.106	0.106	0.141	0.087	1	0	0	0	0
	Total Intersection Volume	264	17	321	12	304	14	395	17	397	18	345	15	383	20	367	18	339	29	324	20	0	3	0	0
	Intersection Pct Trucks	6.0%	3.6%	4.4%	4.1%	4.3%	4.2%	5.0%	4.7%	5.0%	4.7%	5.0%	4.7%	5.0%	4.7%	5.0%	4.7%	5.0%	4.7%	5.0%	5.8%	100.0%	100.0%	100.0%	100.0%

Pedestrian Volumes

Bicycle Volumes

PROJECT: WCE The Summit
JOB NO. 18-02
INTERSECTION: Meadowlane & SR 195

Data Transfer
Intersection No.
1

DATE OF COUNT: 11/7/2018
Counter Analyst
Miovision BNIG

TRAFFIC COUNT REDUCTION WORKSHEET
AM PEAK HOUR BREAKDOWN

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



APPROACH	MOVEMENT	7:15 AM			7:30 AM			7:45 AM			8:00 AM		
		pass	trk	pass	trk	pass	trk	pass	trk	pass	TOTAL	P.H.F.	Pct Trucks
Eastbound	Left	56	1	53	0	38	0	33	0	181	0.79	1%	66.06%
	Through	0	0	0	0	0	0	1	0	1	0.25	0%	0.36%
	Right	18	1	19	1	17	3	32	1	92	0.70	7%	33.58%
	App. Total	74	2	72	1	55	3	66	1	274	0.90		
Westbound	Pct Trucks	0.026316		0.013699		0.051724		0.014925					
	Left	0	0	0	0	0	0	0	0	0	0	0	0.00%
	Through	0	0	0	1	0	1	0	0	2	0.50	100%	11.11%
	Right	6	0	4	1	2	0	3	0	16	0.67	6%	88.89%
Northbound	App. Total	6	0	4	2	2	1	3	0	18	0.75		
	Pct Trucks	0		0.333333		0.333333		0					
	Left	5	0	6	1	6	0	9	0	27	0.75	4%	3.28%
	Through	209	3	204	5	175	5	186	5	792	0.93	2%	96.35%
Southbound	Right	0	0	1	1	0	0	1	0	3	0.38	33%	0.36%
	App. Total	214	3	211	7	181	5	196	5	822	0.94		
	Pct Trucks	0.013825		0.03211		0.026882		0.024876					
	Left	4	0	0	0	3	1	3	0	11	0.69	9%	2.31%
Total Intersection Volume	Through	87	11	94	7	93	4	91	13	400	0.96	9%	84.03%
	Right	10	1	16	1	11	1	24	1	65	0.65	6%	13.66%
	App. Total	101	12	110	8	107	6	118	14	476	0.90		
	Total Pct Trucks	0.106195		0.067797		0.053097		0.106061					
Intersection Pct Trucks		395	17	397	18	345	15	383	20	1590	0.96	4%	

Pedestrian Volumes

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

Notes

Miovision Vehicle classification		
Passenger Vehicle	Truck Vehicle	

Bicycles Volumes

APPROACH	MOVEMENT	7:15			7:30			7:45			8:00		
		bike	TOTAL	bike	Contil.								
Eastbound	Through	0	0	0	0	0	0	0	0	0	0		
Westbound	Through	0	0	0	0	0	0	0	0	0	0		
Northbound	Through	0	0	0	0	0	0	0	0	0	0		
Southbound	Through	0	0	0	0	0	0	0	0	0	0		
Total	Total	0	0	0	0	0	0	0	0	0	0		



PROJECT: WCE The Summit
JOB NO. 18-02
INTERSECTION: Meadowlane & SR 195

TRAFFIC COUNT REDUCTION WORKSHEET

DATE OF COUNT: 11/7/2018

Counter Analyst

Micovision BNG

PM PEAK HOURS

15 Minute Period Beginning @

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

Phone: (509) 951-1851

email: beng@trfcnts.com

Traffic Counts
& Surveys Inc.



APPROACH	MOVEMENT	15 Minute Period Beginning @											
		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
Eastbound	Left	14	1	34	0	16	3	10	0	12	1	16	0
	Through	1	0	0	1	0	0	0	0	0	0	0	0
	Right	16	1	18	1	17	0	11	0	12	0	18	0
	App. Total	31	2	52	2	33	3	21	0	24	1	34	0
	Pct Trucks	0.061	0.037	0.083	0	0.04	0	0	0	0.05	0	0.143	0
Westbound	Left	3	0	3	0	5	0	2	0	2	1	2	0
	Through	2	0	1	1	0	0	0	0	0	0	0	0
	Right	5	0	1	0	4	0	5	0	11	0	6	0
	App. Total	10	0	5	1	9	0	7	0	13	1	8	0
	Pct Trucks	0	0	0.167	0	0	0	0	0.071	0	0	0	0
Northbound	Left	25	2	26	0	28	0	16	2	13	0	31	0
	Through	117	12	104	16	125	11	104	10	105	7	117	4
	Right	1	0	1	1	1	0	0	0	0	0	1	0
	App. Total	143	14	131	17	154	11	121	12	118	7	148	4
	Pct Trucks	0.089	0.115	0.067	0.09	0.056	0.026	0.021	0.041	0.035	0.013	0.035	0.047
Southbound	Left	1	0	8	0	1	0	4	0	1	0	4	0
	Through	169	0	191	3	161	4	185	3	192	5	194	2
	Right	15	1	20	1	32	0	32	0	40	0	28	0
	App. Total	185	1	219	4	194	4	221	3	233	5	226	2
	Pct Trucks	0.005	0.018	0.02	0.013	0.021	0.009	0.013	0.008	0.013	0.008	0.004	0.005
Total Intersection Volume		369	17	407	24	390	18	370	15	388	14	416	6
Intersection Pct Trucks		4.4%	5.6%	4.4%	3.9%	3.5%	3.5%	1.4%	2.2%	1.4%	2.2%	1.9%	1.8%

Pedestrian Volumes

APPROACH	MOVEMENT	15 Minute Period Beginning @											
		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
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

Bicycle Volumes

APPROACH	MOVEMENT	15 Minute Period Beginning @											
		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
Eastbound	Bike	0	0	0	0	0	0	0	0	0	0	0	0
Westbound	Bike	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	Bike	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	Bike	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

Intersection Total		Pct
One Hour Volumes	Trucks	
3:30 PM	1610	4.6%
3:45 PM	1626	4.4%
4:00 PM	1617	3.3%
4:15 PM	1611	2.7%
4:30 PM	1654	2.2%
4:45 PM	1622	1.8%
5:00 PM	1536	2.0%
5:15 PM	1423	2.3%
5:30 PM	1264	2.5%

PROJECT: WCE The Summit
JOB NO. 18-02
INTERSECTION: Meadowlane

Data Transfer
Intersection No.

DATE OF COUNT: 11/7/2018
Counter Analyst
MiVision BNG

TRAFFIC COUNT REDUCTION WORKSHEET PM PEAK HOUR BREAKDOWN

Traffic Counts
& Surveys Inc.

APPROACH	MOVEMENT	4:30 PM		4:45 PM		5:00 PM		5:15 PM		TOTAL	Pct H.F.	Pct Trucks	App Dist
		pass	trk	pass	trk	pass	trk	pass	trk				
Eastbound	Left	12	1	16	0	13	0	9	1	52	0.81	4%	49.52%
	Through	0	0	0	0	0	0	0	0	0			0.00%
	Right	12	0	18	0	13	0	10	0	53	0.74	0%	50.48%
	App. Total	24	1	34	0	26	0	19	1	105	0.77		
	Pct Trucks		0.04		0		0		0.05				
Westbound	Left	2	1	2	0	0	0	2	0	7	0.58	14%	25.93%
	Through	0	0	0	0	0	0	0	0	0			0.00%
	Right	11	0	6	0	2	0	1	0	20	0.45	0%	74.07%
	App. Total	13	1	8	0	2	0	3	0	27	0.48		
	Pct Trucks		0.071429		0		0		0				
Northbound	Left	13	0	31	0	27	0	24	0	95	0.77	0%	16.78%
	Through	105	7	117	4	111	6	112	5	467	0.96	5%	82.51%
	Right	0	0	0	0	1	0	3	0	4	0.33	0%	0.71%
	App. Total	118	7	148	4	139	6	139	5	566	0.93		
	Pct Trucks		0.056		0.026316		0.041379		0.034722				
Southbound	Left	1	0	4	0	7	0	7	0	19	0.68	0%	1.99%
	Through	192	5	194	2	183	3	207	1	787	0.95	1%	82.32%
	Right	40	0	28	0	36	0	45	1	150	0.82	1%	15.69%
	App. Total	233	5	226	2	226	3	259	2	956	0.92		
	Pct Trucks		0.021008		0.008772		0.0131		0.007663				
Total Intersection Volume		388	14	416	6	393	9	420	8	1654	0.97	2%	
Intersection Pct Trucks			3.5%		1.4%			2.2%					

Pedestrian Volumes

Notes

1000

Bicycles Volumes

APPROACH	MOVEMENT	Bike			TOTAL
		5:00 bike	5:15 bike	5:30 bike	
Eastbound	Through				0
Westbound	Through				0
Northbound	Through				0
Southbound	Through				0
Total		0	0	0	0

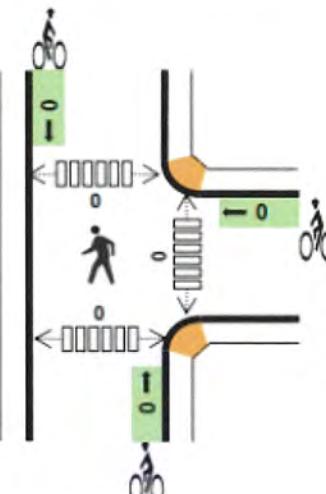
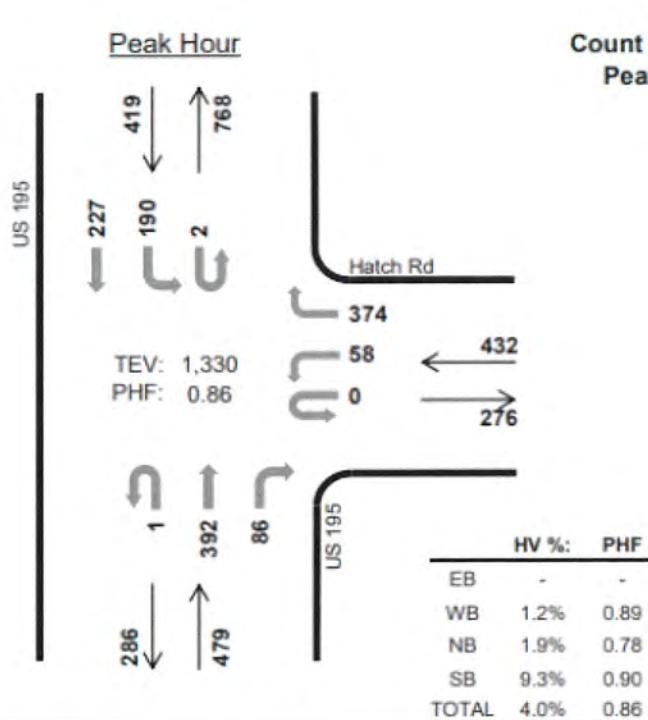
1

US 195
Hatch Rd



Date: Tue, Feb 11, 2020

Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00 AM to 8:00 AM



Two-Hour Count Summaries

Interval Start	0				Hatch Rd				US 195				US 195				15-min Total	Rolling One Hour		
	Eastbound				Westbound				Northbound				Southbound							
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT				
7:00 AM	0	0	0	0	0	16	0	75	0	0	91	13	1	35	54	0	285	0		
7:15 AM	0	0	0	0	0	17	0	99	1	0	102	26	0	59	58	0	362	0		
7:30 AM	0	0	0	0	0	13	0	109	0	0	130	23	0	49	61	0	385	0		
7:45 AM	0	0	0	0	0	12	0	91	0	0	69	24	1	47	54	0	298	1,330		
8:00 AM	0	0	0	0	0	7	0	79	0	0	64	16	0	63	48	0	277	1,322		
8:15 AM	0	0	0	0	0	6	0	57	0	0	72	25	0	64	57	0	281	1,241		
8:30 AM	0	0	0	0	0	12	0	85	2	0	78	17	0	70	56	0	320	1,176		
8:45 AM	0	0	0	0	0	7	0	64	0	0	73	10	0	54	60	0	268	1,146		
Count Total	0	0	0	0	0	90	0	659	3	0	679	154	2	441	448	0	2,476	0		
Peak Hour	0	0	0	0	0	58	0	374	1	0	392	86	2	190	227	0	1,330	0		

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

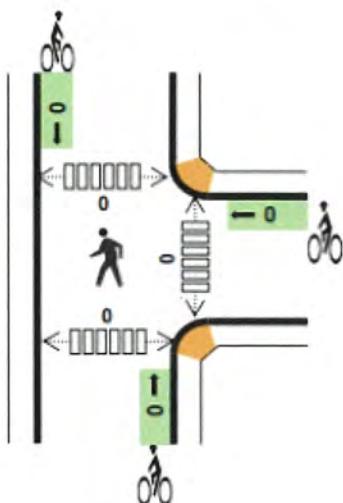
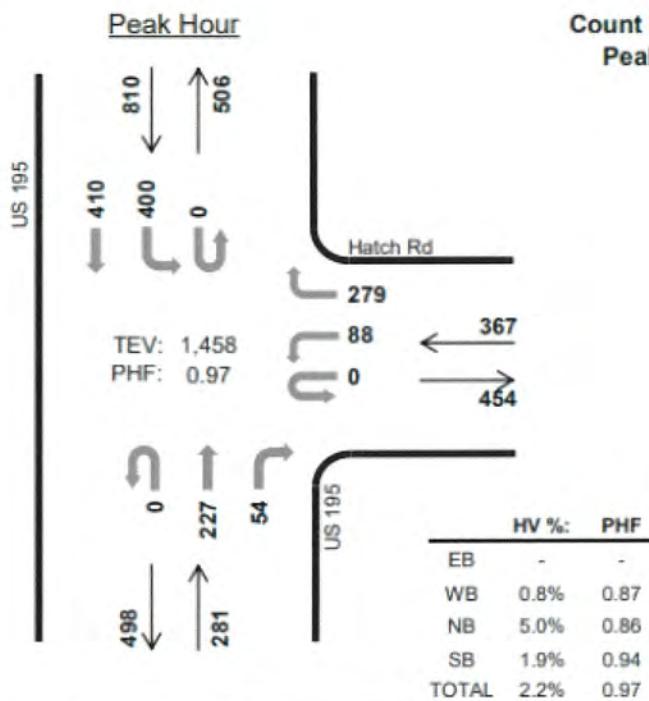
US 195
Hatch Rd



Date: Tue, Feb 11, 2020

Count Period: 4:00 PM to 6:00 PM

Peak Hour: 4:30 PM to 5:30 PM



Two-Hour Count Summaries

Interval Start	0				Hatch Rd				US 195				US 195				15-min Total	Rolling One Hour		
	Eastbound				Westbound				Northbound				Southbound							
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT				
4:00 PM	0	0	0	0	0	26	0	60	0	0	57	29	1	78	99	0	350	0		
4:15 PM	0	0	0	0	0	16	0	65	0	0	48	25	0	99	98	0	351	0		
4:30 PM	0	0	0	0	0	25	0	81	0	0	54	16	0	89	87	0	352	0		
4:45 PM	0	0	0	0	0	18	0	57	0	0	66	16	0	112	104	0	373	1,426		
5:00 PM	0	0	0	0	0	27	0	66	0	0	47	10	0	104	103	0	357	1,433		
5:15 PM	0	0	0	0	0	18	0	75	0	0	60	12	0	95	116	0	376	1,458		
5:30 PM	0	0	0	0	0	20	0	64	0	0	57	19	0	101	85	0	346	1,452		
5:45 PM	0	0	0	0	0	23	0	65	0	0	47	18	0	85	95	0	333	1,412		
Count Total	0	0	0	0	0	173	0	533	0	0	436	145	1	763	787	0	2,838	0		
Peak Hour	0	0	0	0	0	88	0	279	0	0	227	54	0	400	410	0	1,458	0		

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

INTERSECTION

PROJECT: WCE The Summit
JOB NO. 21-52
DATE OF COUNT: 3/23/2021

23rd Avenue
&
Inland Empire Way

AM PEAK HOURS

15 Minute Period Beginning @



Approach	Movement	6:30 AM			6:45 AM			7:00 AM			7:15 AM			7:30 AM			7:45 AM			8:00 AM			8:15 AM			8:30 AM			8:45 AM			9:00 AM			9:15 AM		
		Type		BK	PC	HV	BKT		PC	HV	BKT		PC	HV	BKT		PC	HV	BKT		PC	HV	BKT		PC	HV	BKT		PC	HV	BKT		PC	HV			
Eastbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	Left	0	12	0	0	11	0	0	11	0	0	19	0	0	38	0	0	28	0	0	18	1	0	24	0	0	12	0	0	10	0	0	16	0	0	14	0
	Right	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	1	0	1	1	0		
	App. Total	0	12	0	0	11	0	0	11	0	0	19	0	0	38	0	0	28	0	0	18	2	0	24	0	0	13	0	0	11	1	0	17	0	0	15	1
	Pct HV	0%		0%		0%		0%		0%		0%		0%		10%		0%		0%		8%		0%		6%											
Northbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	Left	0	3	0	0	0	1	0	3	0	0	2	1	0	1	0	0	3	1	0	5	0	0	0	1	0	1	0	0	1	0	0	3	1	0	3	0
	Through	0	0	0	0	3	0	0	6	1	0	4	1	0	3	0	0	5	1	0	6	1	0	4	0	0	2	0	0	2	1	0	4	0	0	2	0
	App. Total	0	3	0	0	3	1	0	9	1	0	6	2	0	4	0	0	8	2	0	11	1	0	4	1	0	3	0	0	3	1	0	7	1	0	5	0
	Pct HV	0%		25%		10%		25%		0%		20%		8%		20%		0%		25%		13%		0%		0%		0%		0%		0%					
Southbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Through	0	1	0	0	0	0	0	1	0	0	2	1	0	0	0	0	3	1	0	0	0	0	1	0	0	2	0	0	2	1	0	2	0	0	1	0
	Right	0	1	0	0	1	0	0	2	0	0	0	0	0	2	0	0	1	2	0	3	0	0	4	1	0	2	2	0	3	0	0	3	0	0	7	0
	App. Total	0	2	0	0	1	0	0	3	0	0	2	1	0	2	0	0	4	3	0	3	0	0	5	1	0	4	2	0	5	1	0	5	0	0	8	0
	Pct HV	0%		0%		0%		33%		0%		43%		0%		17%		33%		17%		0%		0%		0%		0%		0%		0%					
Total Class Volume		0	17	0	0	15	1	0	23	1	0	27	3	0	44	0	0	40	5	0	32	3	0	33	2	0	20	2	0	19	3	0	29	1	0	28	1
Total Interval Volume		17		16		24		30		44		45		35		35		22		22		30		29													
Intersection Pct HV		0%		6%		4%		10%		0%		11%		9%		6%		9%		14%		3%		3%													



Intersection Total One Hour Volumes		Pct HV
6:30 AM	87	5.7%
6:45 AM	114	4.4%
7:00 AM	143	6.3%
7:15 AM	154	7.1%
7:30 AM	159	6.3%
7:45 AM	137	8.8%
8:00 AM	114	8.8%
8:15 AM	109	7.3%
8:30 AM	103	6.8%

App.= Approach
Pct= Percent

INTERSECTION

PROJECT: WCE The Summit
 JOB NO. 21-52
 DATE OF COUNT: 3/23/2021

23rd Avenue & Inland Empire Way

Counter Analyst
 Miovision BNG

Approach	Movement	AM PEAK HOURS												Receiving				Departing			
		7:30 AM			7:45 AM			8:00 AM			8:15 AM			Mvmt	TOTAL	P.H.F	Percentage of:	Mvmt	Total	Percentage of:	App.
		BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	HV	Veh		HV	Approach			
Eastbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	E BU	0	0			0.00%		
	Left	0	38	0	0	28	0	0	18	1	0	24	0	E BL	1	109			1%	99.09%	
	Right	0	0	0	0	0	0	0	0	1	0	0	0	E BR	1	1			100%	0.91%	
	App. Total	0	38	0	0	28	0	0	18	2	0	24	0	Total	2	110	0.72	2%	100.00%		
	Pct HV	0%			0%			10%			0%										
Northbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	N BU	0	0			0.00%		
	Left	0	1	0	0	3	1	0	5	0	0	0	1	N BL	2	11			18%	35.48%	
	Through	0	3	0	0	5	1	0	6	1	0	4	0	N BT	2	20			10%	64.52%	
	App. Total	0	4	0	0	8	2	0	11	1	0	4	1	Total	4	31	0.65	13%	100.00%		
	Pct HV	0%			20%			8%			20%										
Southbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	S BU	0	0			0.00%		
	Through	0	0	0	0	3	1	0	0	0	0	1	0	S BT	1	5			20%	27.78%	
	Right	0	2	0	0	1	2	0	3	0	0	4	1	S BR	3	13			23%	72.22%	
	App. Total	0	2	0	0	4	3	0	3	0	0	5	1	Total	4	18	0.64	22%	100.00%		
	Pct HV	0%			43%			0%			17%			Total	10	159	0.88				
Total Class Volume		0	44	0	0	40	5	0	32	3	0	33	2								
Total Interval Volume		44			45			35			35			Total	159						
Intersection Pct Trucks		0%			11%			9%			6%			Total	6%						

Pedestrian Volumes

APPROACH	MOVEMENT	Confli.				TOTAL
		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		0	0	0	0	0

Movement = Mvmt

P.H.F.= Peak Hour Factor

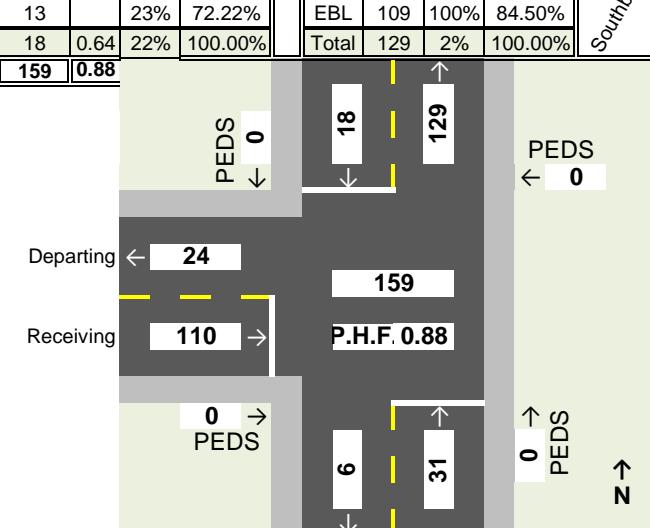
Pedestrian = Ped

App.= Approach

Pct= Percent



**Traffic Counts
& Surveys Inc.**



INTERSECTION

PROJECT: WCE The Summit
 JOB NO. 21-52
 DATE OF COUNT: 3/23/2021

Counter Analyst
 Miovision BNG

23rd Avenue
 &
 Inland Empire Way

PM PEAK HOURS

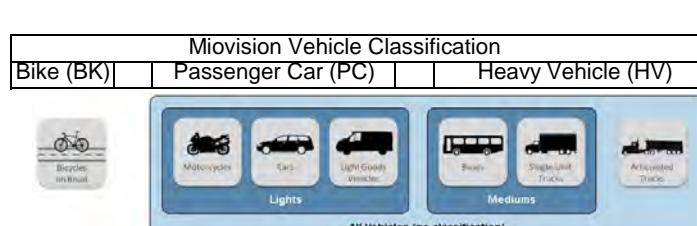
15 Minute Period Beginning @



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																																		
Eastbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	Left	0	11	0	0	16	0	0	14	0	0	5	0	0	10	0	0	6	0	0	15	0	0	11	0	0	13	0	0	7	0	0	5	0	0	5	0	
	Right	0	2	0	0	3	0	0	1	0	0	5	0	0	2	0	0	5	0	0	0	0	0	3	0	0	1	0	0	2	0	0	1	0	0	0	0	0
	App. Total	0	13	0	0	19	0	0	15	0	0	10	0	0	12	0	0	11	0	0	15	0	0	14	0	0	14	0	0	9	0	0	6	0	0	5	0	
	Pct HV	0%			0%			0%			0%			0%			0%			0%			0%			0%			0%			0%						
Northbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Left	0	4	0	0	2	0	0	2	0	0	3	0	0	1	0	0	0	0	0	0	0	0	4	0	0	2	0	0	1	0	0	2	0	0	2	0	
	Through	0	2	1	0	3	0	0	5	0	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0	3	0	0	1	0	0	5	0		
	App. Total	0	6	1	0	5	0	0	7	0	0	5	0	0	1	0	0	2	0	0	0	0	4	0	0	4	0	0	4	0	0	3	0	0	7	0		
	Pct HV	14%			0%			0%			0%			0%			0%			0%			0%			0%			0%			0%						
Southbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Through	0	7	0	0	8	0	0	5	0	0	4	0	0	6	0	0	2	0	0	1	0	0	2	0	0	5	0	0	2	0	0	2	0	0	5	0	
	Right	0	7	0	0	6	0	0	12	0	0	5	0	0	13	0	0	10	0	0	4	0	0	4	0	0	9	0	0	5	0	0	2	0	0	7	0	
	App. Total	0	14	0	0	14	0	0	17	0	0	9	0	0	19	0	0	12	0	0	5	0	0	6	0	0	14	0	0	7	0	0	4	0	0	12	0	
	Pct HV	0%			0%			0%			0%			0%			0%			0%			0%			0%			0%			0%						
Total Class Volume		0	33	1	0	38	0	0	39	0	0	24	0	0	32	0	0	25	0	0	20	0	0	24	0	0	32	0	0	20	0	0	13	0	0	24	0	
Total Interval Volume		34			38			39			24			32			25			20			24			32			20			13			24			
Intersection Pct HV		3%			0%			0%			0%			0%			0%			0%			0%			0%			0%			0%						

Pedestrian Volumes												
APPROACH		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
Westbound	Crosswalk	2	0	0	0	0	0	1	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0	0	2	0	0	0	0
Southbound	Crosswalk	0	2	2	0	0	0	0	1	0	0	0
Total		2	2	2	0	0	0	3	1	0	0	0

App.= Approach
 Pct= Percent



Intersection Total One Hour Volumes	Pct
HV	
3:30 AM	135
	0.7%
3:45 AM	133
	0.0%
4:00 AM	120
	0.0%
4:15 AM	101
	0.0%
4:30 AM	101
	0.0%
4:45 AM	101
	0.0%
5:00 AM	96
	0.0%
5:15 AM	89
	0.0%
5:30 AM	89
	0.0%

INTERSECTION

PROJECT: WCE The Summit
 JOB NO. 21-52
 DATE OF COUNT: 3/23/2021

23rd Avenue & Inland Empire Way

Counter Analyst
 Miovision BNG

APPROACH	MOVEMENT	PM PEAK HOURS												Approach									
		3:30 PM			3:45 PM			4:00 PM			4:15 PM			Receiving		Departing							
		BK	PC	HV	BK	PC	HV	BK	PC	HV	BK	PC	HV	Mvmt	TOTAL Veh	PHF	Percentage of: HV Approach	Mvmt	Total	Percentage of: HV Approach	App.		
Eastbound	U-Turn	0	0	0	0	0	0	0	0	0	0	0	0	EBU	0	0	0.00%	Eastbound					
	Left	0	11	0	0	16	0	0	14	0	0	5	0	EBL	0	46	0%						
	Right	0	2	0	0	3	0	0	1	0	0	5	0	EBR	0	11	0%						
	App. Total	0	13	0	0	19	0	0	15	0	0	10	0	Total	0	57	0.75						
	Pct HV	0%			0%			0%			0%												
	Northbound	0	0	0	0	0	0	0	0	0	0	0	0	NBU	0	0	0.00%						
Northbound	U-Turn	0	4	0	0	2	0	0	2	0	0	3	0	NBL	0	11	0%	Northbound					
	Left	0	2	1	0	3	0	0	5	0	0	2	0	NBT	1	13	8%						
	Through	0	6	1	0	5	0	0	7	0	0	5	0	Total	1	24	0.86						
	App. Total	0	6	1	0	5	0	0	7	0	0	5	0										
	Pct HV	14%			0%			0%			0%												
	Southbound	0	0	0	0	0	0	0	0	0	0	0	0	SBU	0	0	0.00%						
Southbound	U-Turn	0	7	0	0	8	0	0	5	0	0	4	0	SBT	0	24	0%	Southbound					
	Through	0	7	0	0	6	0	0	12	0	0	5	0	SBR	0	30	0%						
	Right	0	14	0	0	14	0	0	17	0	0	9	0	Total	0	54	0.79						
	App. Total	0	14	0	0	14	0	0	17	0	0	9	0										
	Pct HV	0%			0%			0%			0%												
	Total Class Volume	0	33	1	0	38	0	0	39	0	0	24	0	Total	1	135	0.87						
Total Interval Volume		34			38			39			24												
Intersection Pct Trucks		3%			0%			0%			0%												

Pedestrian Volumes

APPROACH	MOVEMENT	Confli. Ped				TOTAL
		3:30	3:45	4:00	4:15	
Eastbound	Crosswalk	0	0	0	0	0
Westbound	Crosswalk	2	0	0	0	2
Northbound	Crosswalk	0	0	0	0	0
Southbound	Crosswalk	0	2	2	0	4
Total		2	2	2	0	

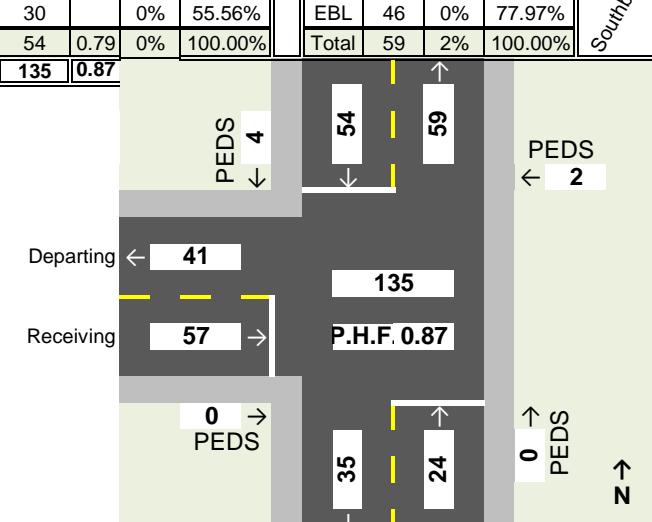
Movement = Mvmt

P.H.F.= Peak Hour Factor

Pedestrian = Ped

App.= Approach

Pct= Percent



ADJUSTMENT TRAFFIC FACTOR CALCULATION

2021 Traffic Factor For Covid Pandemic

AM

PROJECT NUMBER: Project Na Latah Glen Residential
 2 INTERSEC SR 195 & Thorpe Avenue

TRK %	INITIAL COUNT	MOVEMENT	AM PEAK HOUR				Project Trips	Project Trips	W/ BKGRD W/ BKGRD			
			2021 Adjustment Factor									
			EB	WB	NB	SB						
			1.030	1.030	1.030	1.030						
			1.030	1.030	1.030	1.030						
			1.030	1.030	1.030	1.030						
3%	94	EB LT	97	102	97	0	0	102	97			
3%	11	EB THRU	11	12	11	0	0	12	11			
3%	55	EB RT	57	60	57	2	2	62	59			
5%	17	WB LT	18	18	18	0	0	18	18			
5%	3	WB THRU	3	3	3	0	0	3	3			
5%	20	WB RT	21	22	21	2	2	24	23	2		
8%	38	NB LT	39	41	39	0	0	41	39			
1%	1379	NB THRU	1421	1493	1421	117	123	1610	1544	12		
1%	117	NB RT	121	127	121	8	8	135	129	4		
13%	15	SB LT	15	16	15	0	0	16	15			
12%	498	SB THRU	513	539	513	40	42	579	555	7		
12%	21	SB RT	22	23	22	4	4	27	26			
	2268		2337	2456	2337	173	182	2629	2519	25		
										0		
										2654		
										2519		
		SB										
		EB RT + WB LT + SB Thru =										
			587									

Existing LOS=

LOS with IMP =

TRK %	INITIAL COUNT	MOVEMENT	AM PEAK HOUR				Project Trips	Project Trips	W/ BKGRD W/ BKGRD			
			2021 Adjustment Factor									
			EB	WB	NB	SB						
			1.000	1.000	1.000	1.000						
			1.000	1.000	1.000	1.000						
			1.000	1.000	1.000	1.000						
9%	0	EB LT	0	0	0	0	0	0	0	0		
9%	0	EB THRU	0	0	0	0	0	0	0	0		
9%	11	EB RT	11	12	11	0	0	12	11	23		
9%	0	WB LT	0	0	0	0	0	0	0	0		
9%	0	WB THRU	0	0	0	0	0	0	0	0		
9%	0	WB RT	0	0	0	0	0	0	0	0		
9%	0	NB LT	0	0	0	0	0	0	0	0		
9%	0	NB THRU	0	0	0	0	0	0	0	19		
9%	0	NB RT	0	0	0	0	0	0	0	0		
10%	0	SB LT	0	0	0	0	0	0	0	0		
10%	492	SB THRU	492	517	492	42	44	559	536	19		
10%	2	SB RT	2	2	2	0	0	2	2	10		
	505		505	531	505	42	44	573	549	52		
										0		
		SB								625		
		SB LT + SB Thru + SB RT =								549		
			494									

Covid Factor for 2021 at SR 195 & Inland Empire Way

587/494 = 1.188809

2021 Traffic Factor For Covid Pandemic

PM

PROJECT NUMBER: Project Nam Latah Glen Residential
 2 INTERSEC SR 195 & Thorpe Avenue

TRK %	INITIAL COUNT	MOVEMENT	CURRENT TRAFFIC VOL	BACKGROU NTH GROWTH	CK GROUP	CK GROUP	N/ BKGRN	W/ BKGRN	PM PEAK HOUR		YRS TO EXISTING	YRS TO PHZ 1	YRS TO PHZ 2	3	
									EB	WB	NB	SB	2021 Adjustment Factor	Horizon Year	
0%	41	EB LT	42	44	42	0	0	44	42						
0%	8	EB THRU	8	9	8	0	0	9	8						
0%	44	EB RT	45	48	45	5	5	53	51						
1%	30	WB LT	31	32	31	0	0	32	31						
1%	14	WB THRU	14	15	14	0	0	15	14						
1%	23	WB RT	24	25	24	8	8	33	32	5					
0%	59	NB LT	61	64	61	0	0	64	61						
4%	578	NB THRU	596	626	596	78	82	704	677	7					
4%	66	NB RT	68	71	68	5	5	76	73	3					
0%	30	SB LT	31	32	31	0	0	32	31						
1%	1299	SB THRU	1338	1407	1338	135	142	1542	1480	18					
1%	59	SB RT	61	64	61	2	2	66	63						
	2251		2319	2438	2319	233	245	2671	2564	33	0	2704	2564		
		Existing LOS=													
		LOS with IMP =													
		SB													

EB RT + WB LT + SB Thru =

1415

PROJECT NUMBER: Project Nam Latah Glen Residential
 3 INTERSEC SR 195 & Inland Empire Way

TRK %	INITIAL COUNT	MOVEMENT	CURRENT TRAFFIC VOL	BACKGROU NTH GROWTH	CK GROUP	CK GROUP	N/ BKGRN	W/ BKGRN	PM PEAK HOUR		YRS TO EXISTING	YRS TO PHZ 1	YRS TO PHZ 2	0	
									EB	WB	NB	SB	2021 Adjustment Factor	Horizon Year	
0%	3	EB LT	0	0	0	0	0	0							
0%	3	EB THRU	0	0	0	0	0	0							
0%	3	EB RT	3	3	3	0	0	3	3	14					
0%	3	WB LT	0	0	0	0	0	0							
0%	3	WB THRU	0	0	0	0	0	0							
0%	3	WB RT	0	0	0	0	0	0							
0%	3	NB LT	0	0	0	0	0	0							
0%	3	NB THRU	0	0	0	91	96	91	96	18					
0%	3	NB RT	0	0	0	0	0	0							
1%	1038	SB LT	0	0	0	0	0	0							
1%	1038	SB THRU	1038	1091	1038	132	139	1223	1177						
1%	12	SB RT	12	13	12	0	0	13	12	26					
	1053		1053	1107	1053	223	234	1330	1287	58	0	1388	1287		
		Existing LOS=													
		LOS with IMP =													
		SB													

SB LT + SB Thru + SB RT =

1050

Covid Factor for 2021 at SR 195 & Inland Empire Way

1415/1050 = 1.347241

BACKGROUND PROJECTS

Original Background Projects

1 INTERSECTION:
AM PEAK HOUR

Background Trips	Eagle Ridge 13th Addition	The Summit	Tangle Ridge	Wheatland Estates	Total
EB LT					0
EB THRU					0
EB RT		1			1
WB LT					0
WB THRU					0
WB RT					0
NB LT			3		3
NB THRU	29	22	9	50	110
NB RT					0
SB LT					0
SB THRU	10	8	3	16	37
SB RT					0

Original Background Projects

2 INTERSECTION: SR 195 & Thorpe Avenue
AM PEAK HOUR

Background Trips	Eagle Ridge 13th Addition	The Summit	Tangle Ridge	Wheatland Estates	Total
EB LT					0
EB THRU					0
EB RT		1		1	2
WB LT					0
WB THRU					0
WB RT			2		2
NB LT					0
NB THRU	29	22	14	52	117
NB RT		1		7	8
SB LT					0
SB THRU	10	8	4	18	40
SB RT		2		2	4

Original Background Projects

3 INTERSECTION: SR 195 & Inland Empire Way
AM PEAK HOUR

Background Trips	Eagle Ridge 13th Addition	The Summit	Tangle Ridge	Wheatland Estates	Total
EB LT					0
EB THRU					0
EB RT					0
					0
WB LT					0
WB THRU					0
WB RT					0
					0
NB LT					0
NB THRU					0
NB RT					0
					0
SB LT					0
SB THRU	10	8	5	19	42
SB RT					0

Original Background Projects

4 INTERSECTION: Cheney-Spokane Road & SR 195 NB on/off Ramps
AM PEAK HOUR

Background	Eagle Ridge 13th Addition	The Summit	Tangle Ridge	Wheatland Estates	Total
Trips					
EB LT	6	16	3		25
EB THRU					0
EB RT					0
					0
WB LT					0
WB THRU					0
WB RT					0
					0
NB LT				2	2
NB THRU					0
NB RT					0
					0
SB LT					0
SB THRU					0
SB RT					0

Original Background Projects

**5 INTERSECTION: Cheney-Spokane Road & SR 195 SB on/off Ramps 1
AM PEAK HOUR**

Background Trips	Eagle Ridge 13th Addition	The Summit	Tangle Ridge	Wheatland Estates	Total
EB LT					0
EB THRU	6	16	3		25
EB RT			1		1
WB LT					0
WB THRU			2		2
WB RT				0	0
NB LT					0
NB THRU					0
NB RT					0
SB LT					0
SB THRU					0
SB RT					0

Original Background Projects

6 INTERSECTION: Cheney-Spokane Road & SR 195 SB on/off Ramps 2

AM PEAK HOUR

Background

Trips	Eagle Ridge 13th Addition	The Summit	Tangle Ridge	Wheatland Estates	Total
EB LT					0
EB THRU					0
EB RT					0
WB LT			2		2
WB THRU					0
WB RT					0
NB LT					0
NB THRU					0
NB RT	6	16	3	1	26
SB LT					0
SB THRU	2	6	1		9
SB RT					0

Original Background Projects

INTERSECTION: SR 195 & Meadowlane Drive
 AM PEAK HOUR
 Background

Trips	Eagle Ridge 13th Addition	The Summit	Tangle Ridge	Wheatland Estates	Total
EB LT	23	6	12		41
EB THRU					0
EB RT	12	8	4		24
WB LT					0
WB THRU					0
WB RT					0
NB LT	4	3	1		8
NB THRU	23	6	12	61	102
NB RT					0
SB LT					0
SB THRU				20	20
SB RT	8	2	4		14

Original Background Projects

8 INTERSECTION: SR 195 & Hatch Road
AM PEAK HOUR
Background

Trips	Eagle Ridge 13th Addition	The Summit	Tangle Ridge	Wheatland Estates	Total
EB LT					0
EB THRU					0
EB RT					0
					0
WB LT				4	4
WB THRU					0
WB RT	2	2	1		5
					0
NB LT					0
NB THRU	2	1	0	16	19
NB RT				11	11
					0
SB LT	6	4	2		12
SB THRU	6	4	2	20	32
SB RT					0

Original Background Projects

1 INTERSECTION: SR 195 & 16th Avenue
PM PEAK HOUR

Trips	Eagle Ridge	13th Addition	The Summit	Tangle Ridge	Wheatland Estates	Total
EB LT					0	0
EB THRU					0	0
EB RT			3		3	3
WB LT					0	0
WB THRU					0	0
WB RT					0	0
NB LT				2		0
NB THRU	17	17		6	34	74
NB RT						0
SB LT						0
SB THRU	29	28		10	56	123
SB RT						0

Original Background Projects

2

INTERSECTION: SR 195 & Thorpe Avenue
PM PEAK HOUR

Trips	Eagle Ridge	13th Addition	The Summit	Tangle Ridge	Wheatland Estates	Total
EB LT						0
EB THRU						0
EB RT			3		2	5
WB LT						0
WB THRU						0
WB RT					8	8
NB LT						0
NB THRU	17	17	9		35	78
NB RT					5	5
SB LT						0
SB THRU	29	28	14		64	135
SB RT			1		1	2

Original Background Projects

3

INTERSECTION: SR 195 & Inland Empire Way
PM PEAK HOUR

Background Trips	Eagle Ridge 13th Addition	The Summit	Tangle Ridge	Wheatland Estates	Total
EB LT					0
EB THRU					0
EB RT					0
WB LT					0
WB THRU					0
WB RT					0
NB LT					0
NB THRU	17	17	17	40	91
NB RT					0
SB LT					0
SB THRU	29	28	9	66	132
SB RT					0

Original Background Projects

4 INTERSECTION: Cheney-Spokane Road & SR 195 NB on/off Ramps
PM PEAK HOUR

Background Trips	Eagle Ridge	13th Addition	The Summit	Tangle Ridge	Wheatland Estates	Total
EB LT	4		12	2		18
EB THRU						0
EB RT						0
WB LT						0
WB THRU						0
WB RT						0
NB LT						0
NB THRU						0
NB RT						0
SB LT						0
SB THRU						0
SB RT						0

Original Background Projects

INTERSECTION: Cheney-Spokane Road & SR 195 SB on/off Ramps 1
PM PEAK HOUR

Trips	Eagle Ridge 13th Addition	The Summit	Tangle Ridge	Wheatland Estates	Total
EB LT					0
EB THRU	4	12	2		18
EB RT			2		2
WB LT					0
WB THRU			1		1
WB RT				0	0
NB LT					0
NB THRU					0
NB RT					0
SB LT					0
SB THRU					0
SB RT					0

Original Background Projects

INTERSECTION: Cheney-Spokane Road & SR 195 SB on/off Ramps 2
PM PEAK HOUR

Background Trips	Eagle Ridge 13th Addition	The Summit	Tangle Ridge	Wheatland Estates	Total
EB LT					0
EB THRU					0
EB RT					0
					0
WB LT				1	1
WB THRU					0
WB RT					0
					0
NB LT					0
NB THRU					0
NB RT	4	12	2	2	20
					0
SB LT					0
SB THRU	6	18	4		28
SB RT					0

Original Background Projects

INTERSECTION: SR 195 & Meadowlane Drive
 PM PEAK HOUR
 Background

Trips	Eagle Ridge	13th Addition	The Summit	Tangle Ridge	Wheatland Estates	Total
EB LT	13		5	7		25
EB THRU						0
EB RT	10		4	3		17
WB LT						0
WB THRU						0
WB RT						0
NB LT	16		6	4		26
NB THRU	13		5	7	41	66
NB RT						0
SB LT						0
SB THRU	23		10	13	68	68
SB RT						46

Original Background Projects

**INTERSECTION: SR 195 & Hatch Road
PM PEAK HOUR**

Background Trips	Eagle Ridge	13th Addition	The Summit	Tangle Ridge	Wheatland Estates	Total
EB LT						0
EB THRU						0
EB RT						0
WB LT				13		13
WB THRU						0
WB RT	8	3	2	2		13
NB LT						0
NB THRU	8	3	2	2	41	54
NB RT					7	7
SB LT	5	2	2			0
SB THRU	5	2	1		9	9
SB RT				68	76	0

2021 Traffic Factor For Covid Pandemic

AM

PROJECT NUMBER: Project Nai Latah Glen Residential
2 INTERSEC SR 195 & Thorpe Avenue

TRK %	INITIAL COUNT DATE	MOVEMENT	CURRENT TRAFFIC VOLUME	BACKGROUNDS GROWTH	BACKGROUNDS GROWTH	BACKGROUNDS GROWTH	BACKGROUNDS GROWTH	W/ BKGRN	W/ BKGRN	Project Trips	Project Trips	AM PEAK HOUR		YRS TO EXISTING	YRS TO PHZ 1	YRS TO PHZ 2	Horizon Year	
												EB	WB	NB	SB	2021 Adjustment Factor	1.030	3
3%	94	EB LT	97	102	97	0	0	102	97								102	97
3%	11	EB THRU	11	12	11	0	0	12	11								12	11
3%	55	EB RT	57	60	57	2	2	62	59								62	59
5%	17	WB LT	18	18	18	0	0	18	18								18	18
5%	3	WB THRU	3	3	3	0	0	3	3								3	3
5%	20	WB RT	21	22	21	2	2	24	23		2						26	23
8%	38	NB LT	39	41	39	0	0	41	39								41	39
1%	1379	NB THRU	1421	1493	1421	117	123	1610	1544		12						1622	1544
1%	117	NB RT	121	127	121	8	8	135	129		4						139	129
13%	15	SB LT	15	16	15	0	0	16	15								16	15
12%	498	SB THRU	513	539	513	40	42	579	555		7						586	555
12%	21	SB RT	22	23	22	4	4	27	26								27	26
	2268		2337	2456	2337	173	182	2629	2519		25	0	2654	2519				
		Existing LOS=																
		LOS with IMP=																
		SB																

EB RT + WB LT + SB Thru = 587

PROJECT NUMBER: Project Nai Latah Glen Residential
3 INTERSEC SR 195 & Inland Empire Way

TRK %	INITIAL COUNT DATE	MOVEMENT	CURRENT TRAFFIC VOLUME	BACKGROUNDS GROWTH	BACKGROUNDS GROWTH	BACKGROUNDS GROWTH	BACKGROUNDS GROWTH	W/ BKGRN	W/ BKGRN	Project Trips	Project Trips	AM PEAK HOUR		YRS TO EXISTING	YRS TO PHZ 1	YRS TO PHZ 2	Horizon Year	
												EB	WB	NB	SB	2021 Adjustment Factor	1.000	0
9%	0	EB LT	0	0	0	0	0	0	0			0	0				0	0
9%	0	EB THRU	0	0	0	0	0	0	0			0	0				0	0
9%	11	EB RT	11	12	11	0	0	12	11		23						35	11
	0	WB LT	0	0	0	0	0	0	0			0	0				0	0
	0	WB THRU	0	0	0	0	0	0	0			0	0				0	0
	0	WB RT	0	0	0	0	0	0	0			0	0				0	0
	0	NB LT	0	0	0	0	0	0	0			0	0				0	0
	0	NB THRU	0	0	0	0	0	0	0		19						19	0
	0	NB RT	0	0	0	0	0	0	0			0	0				0	0
10%	0	SB LT	0	0	0	0	0	0	0			0	0				0	0
10%	492	SB THRU	492	517	492	42	44	559	536								559	536
10%	2	SB RT	2	2	2	0	0	2	2		10						12	2
	505		505	531	505	42	44	573	549		52	0	625	549				
		Existing LOS=																
		LOS with IMP=																
		SB																

SB LT + SB Thru + SB RT = 494

Covid Factor for 2021 at SR 195 & Inland Empire Way

587/494 = 1.188809

2021 Traffic Factor For Covid Pandemic

PM

PROJECT NUMBER: Project Nam Latah Glen Residential
2 INTERSEC SR 195 & Thorpe Avenue

SB 1415

PROJECT NUMBER: Project Nam Latah Glen Residential
3 INTERSEC SR 195 & Inland Empire Way

SB 1055

Covid Foster care 2021 at SB 195 & Inland Empire Way

1415/1050 =

Original Background Projects

INTERSECTION:
AM PEAK HOUR
Background

Trips	Amazon	The Summit	Eagle Ridge	Tangle Ridge	Wheatland Estates	Total
I-90 Main	8		0			8
US 195 EB		17	23	6	35	40

ramp

Original Background Projects

ramp

INTERSECTION: PM PEAK HOUR						Total
Background	Trips	Amazon	The Summit	Eagle Ridge	Tangle Ridge	Wheatland Estates
I-90 Main	719			0		719
US 195 EB		13		13	4	26
					24	

BACKGROUND TRAFFIC GROWTH & BACKGROUND PROJECTS

Background Traffic Growth

Background traffic growth is an anticipated increase in traffic volume from year to year. As the existing land uses that surround a transportation facility mature, an increase in traffic results and may be due to either an increase in drivers per household or a household's purchase of an additional vehicle. Many things can cause an increase in the traffic volumes of a facility. The objective of the background traffic growth rate is to anticipate what the traffic volumes may be in the future. The background traffic growth rate for an area or street is determined by means of physical counts collected by local governmental agencies. The counts are compared on a yearly basis and a rate of increase is calculated from the data.

The background growth rate was determined to be 1.0% per year. Based on a seven-year build out, compounded annually, the total increase in traffic rate for the year 2025 is anticipated to be 1.072.

Background Project Traffic

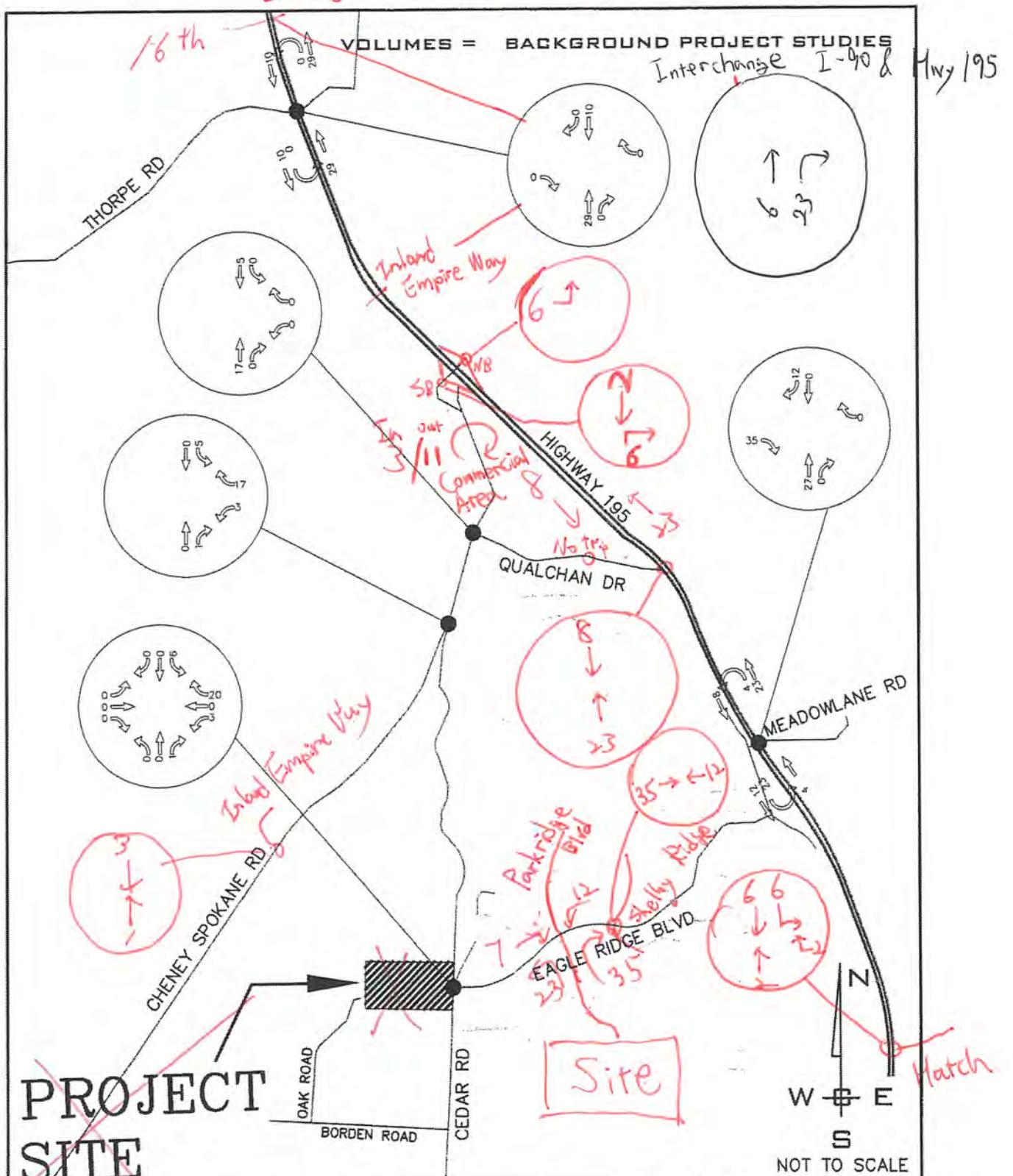
In addition to the natural increase in background growth, background projects that have already been approved or have made application and have been vested before this project have been included. The background projects scoped for this analysis are shown in Table 3. The background project traffic volumes used for this report are shown on Figure 5 and Figure 6.

Table 3 – Background Projects and Vested AM & PM Trips

Background Project	Remaining Lots/ units	AM Peak Hour Trips			PM Peak Hour Trips		
		Total	In	Out	Total	In	Out
Eagle Ridge	104	77	19	58	103	65	38
Total Vested	104	77	19	58	103	65	38

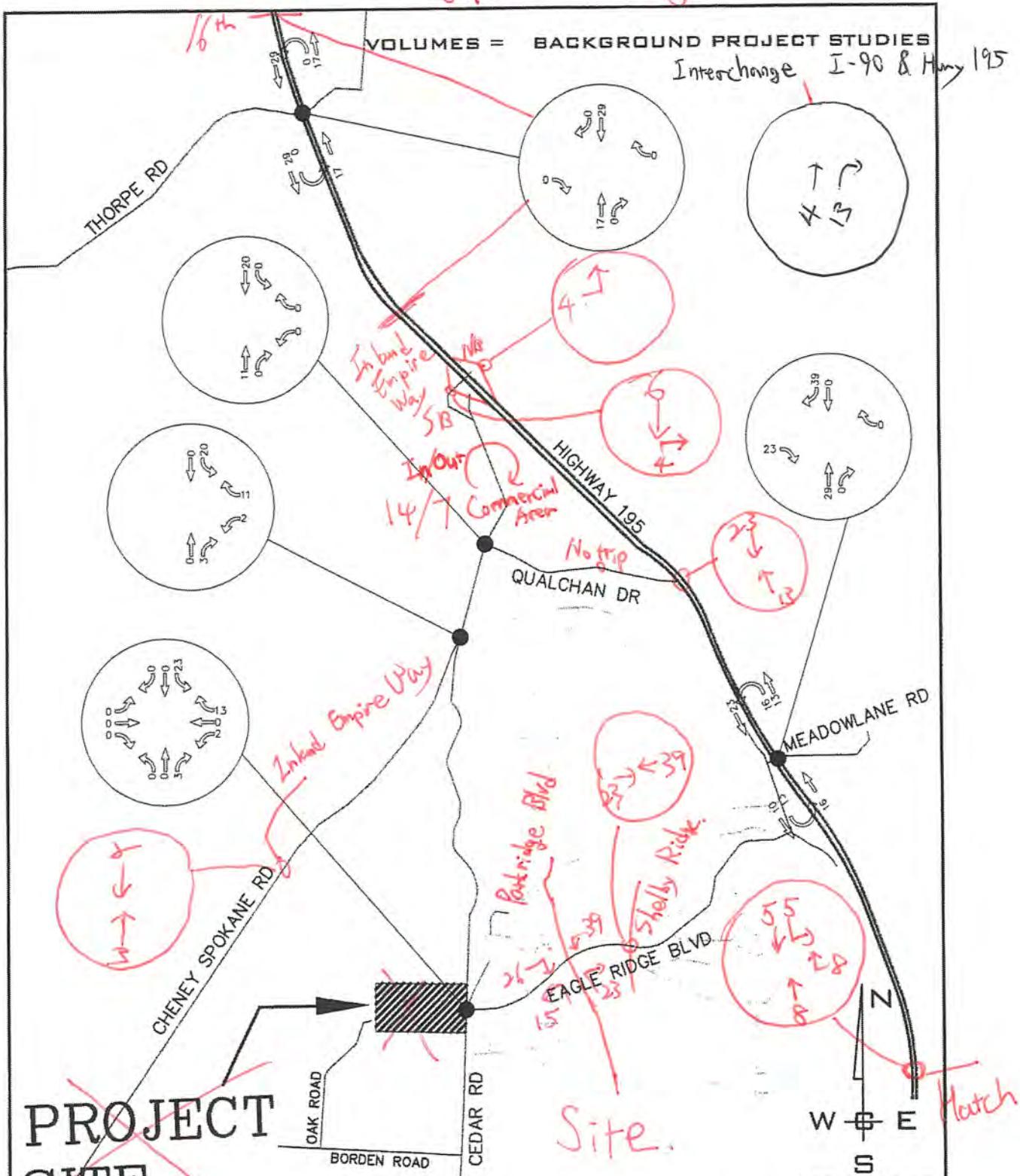
Note: all of the trips shown are not anticipated to travel through the scoped intersections.

Eagle Ridge 13th Edition



WCE
WHIPPLE CONSULTING ENGINEERS
CIVIL AND TRANSPORTATION ENGINEERING
21 S. PINES ROAD
SPOKANE VALLEY, WASHINGTON 99206
PH: 509-893-2617 FAX: 509-926-0227

Eagle Ridge 13th Edition



TRIP GENERATION AND DISTRIBUTION

As noted earlier, trip generation rates for the AM and PM peak hours are determined by the use of the *Trip Generation Manual, 10th Edition* published by the Institute of Transportation Engineers (ITE). The purpose of the *Trip Generation Manual* is to compile and quantify empirical data into trip generation rates for specific land uses within the US, UK and Canada.

For the proposed plat, the 99 Single Family lots, Land Use Code (LUC) # 210 Single Family Detached Housing was used to establish the number of potential trips generated by the land use. The trip generation rates and the anticipated number of AM and PM peak hour trips for the land use of the proposed project are shown on Table 4.

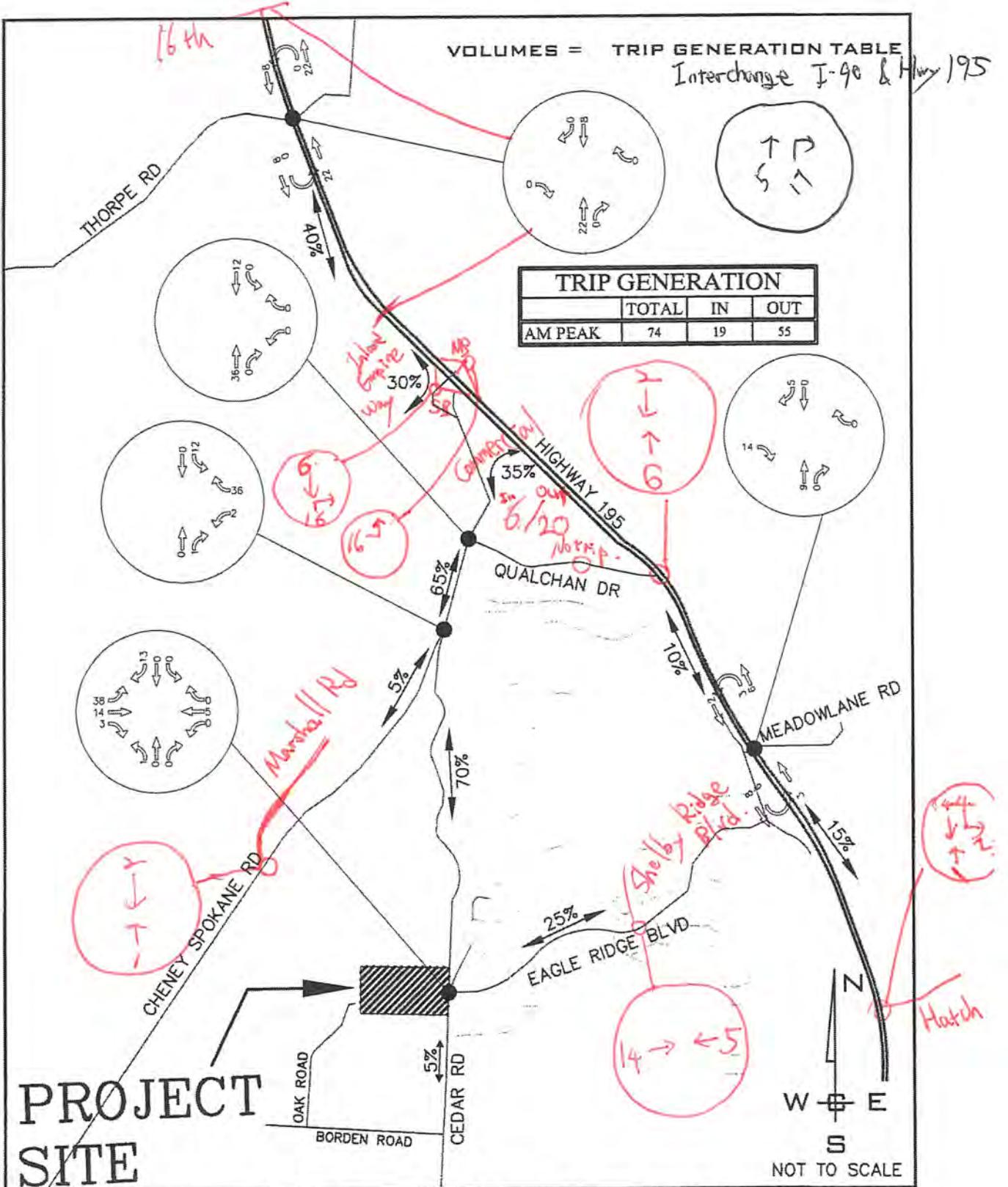
Table 4-Trip Generation Rates for LUC # 210 – Single Family Detached Housing

Dwelling Units	AM Peak Hour			PM Peak Hour		
	Vol. @ 0.74 trips per Unit	Directional Distribution		Vol. @ 0.99 trips per Unit	Directional Distribution	
		25% In	75% Out		63% In	37% Out
99	74	19	55	99	62	37
Average Daily Trip Ends (ADT)						
Units	Rate	ADT				
99	9.44	935				

As shown in Table 4, the proposed residential development is anticipated to generate 74 trips in the AM peak hour with 19 trips entering the site and 55 trips exiting the site. In the PM peak hour, the land use of the development is anticipated to generate 99 trips with 62 trips entering the site and 37 trips exiting the site. The land use of the development is anticipated to generate 935 average daily trips to/from the project over a 24-hour period.

Trip Distribution Characteristics of the Proposed Project

Considering many factors such as the surrounding transportation facilities, typical commuting patterns, existing development in the area, and Average Daily Traffic counts, traffic for the proposed development is anticipated as follows: 70% of trips are anticipated to travel to/from the north via Cedar Road, 5% of trips are anticipated to travel to/from the south via Cedar Road and 25% of trips are anticipated to travel to/from the east via Eagle Ridge Boulevard. Please see Figures 3 & 4 to see a graphical representation of these distribution.



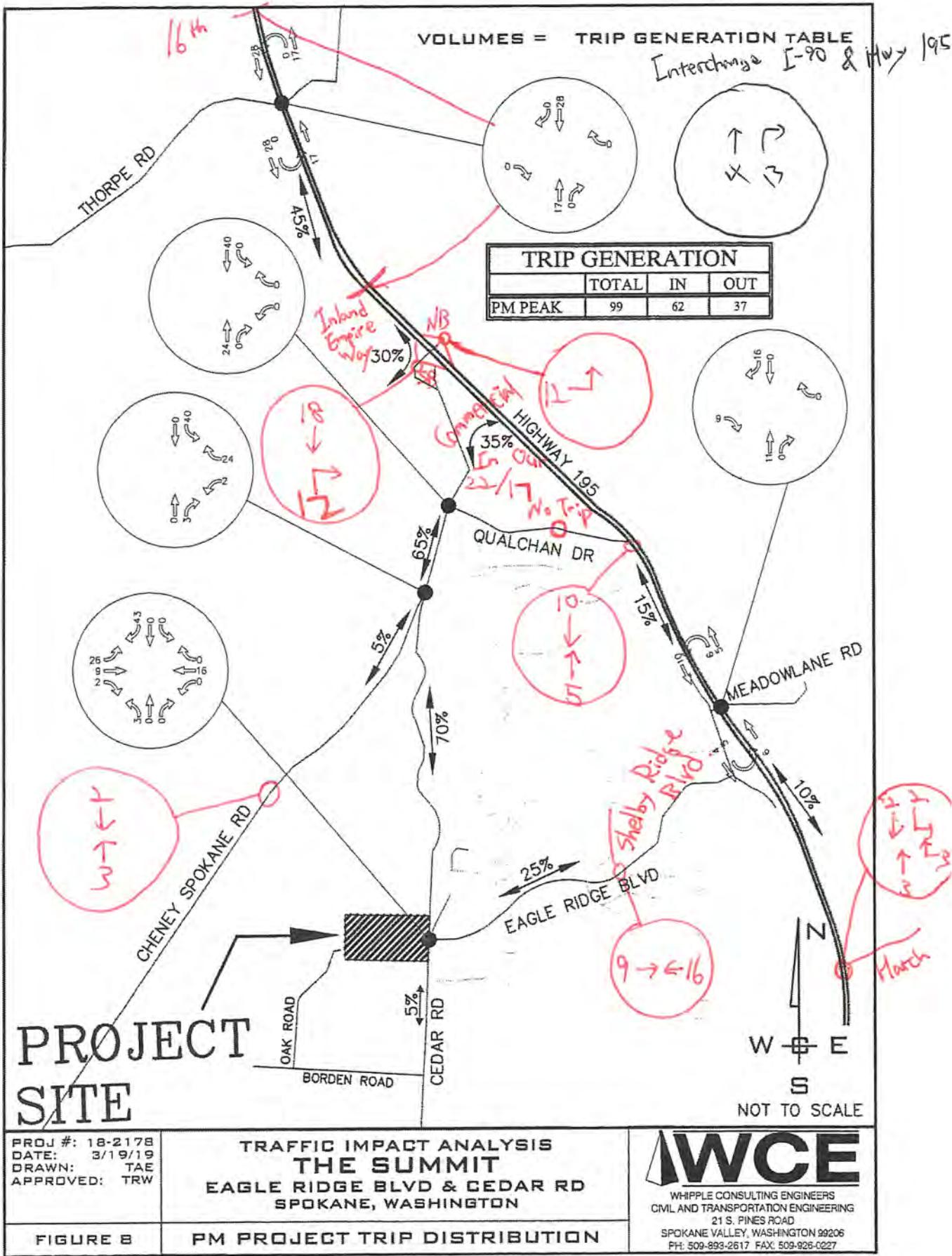
PROJ #: 1B-2178
DATE: 3/19/19
DRAWN: TAE
APPROVED: TRW

TRAFFIC IMPACT ANALYSIS
THE SUMMIT
EAGLE RIDGE BLVD & CEDAR RD
SPOKANE, WASHINGTON

FIGURE 7

AM PROJECT TRIP DISTRIBUTION

WCE
WHIPPLE CONSULTING ENGINEERS
CIVIL AND TRANSPORTATION ENGINEERING
21 S. PINES ROAD
SPOKANE VALLEY, WASHINGTON 99206
PH: 509-893-2617 FAX: 509-926-0227



Trip Generation Characteristics for the Proposed Project

As noted earlier, trip generation rates are determined by use of the *Trip Generation Manual, 10th Edition* published by the Institute of Transportation Engineers (ITE) to determine the number of trips generated during the AM & PM Peak Hour. The purpose of the *Trip Generation Manual* is to compile and quantify empirical trip generation rates for specific land uses within the US, UK and Canada.

Proposed Land Use

For the proposed 45 lot development, Land Use Code LUC#210, Single Family Detached Housing was used to establish the number of additional potential trips generated by the proposed land use. The trip generation rates and the anticipated number of AM & PM peak hour trips for the proposed land use are shown on Table 1.

Table 1 - Trip Generation Rates for LUC # 210 – Single Family Detached Housing

No. of Dwelling Units	AM Peak Hour			PM Peak Hour		
	Vol. @ 0.74 trips per Unit	Directional Distribution		Vol. @ 0.99 trips per Unit	Directional Distribution	
		25% In	75% Out		63% In	37% Out
45	34	8	26	45	28	17
Average Daily Trip Ends (ADT)						
Units	Rate	ADT				
45	9.44	425				

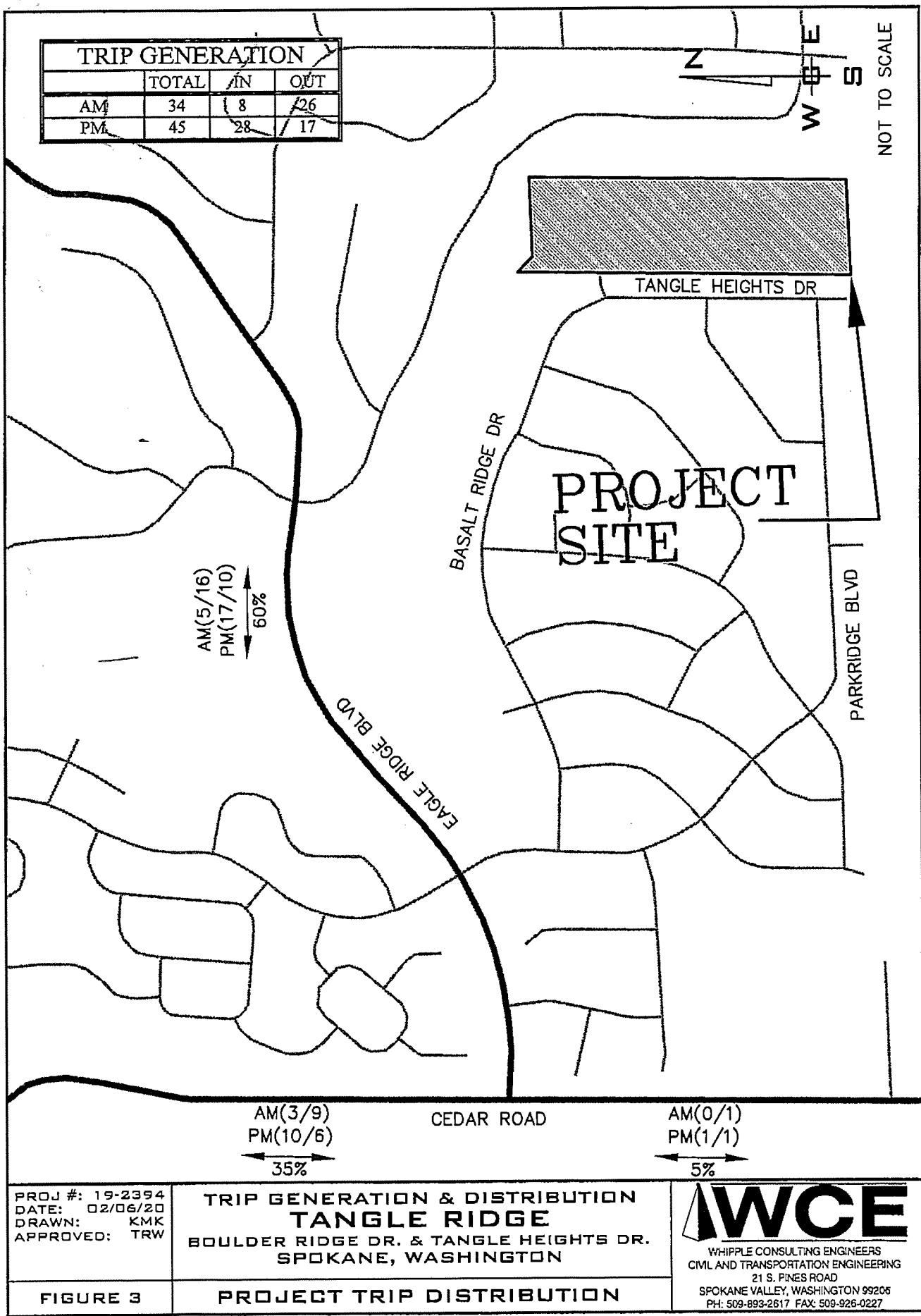
As shown in Table 1, the land use of the development is anticipated to generate 34 trips in the AM peak hour with 8 trips entering the site and 26 trips exiting the site. In the PM peak hour, the land use of the development is anticipated to generate 45 trips with 28 trips entering the site and 17 trips exiting the site. The land use of the development is anticipated to generate 425 average daily trips to/from the project.

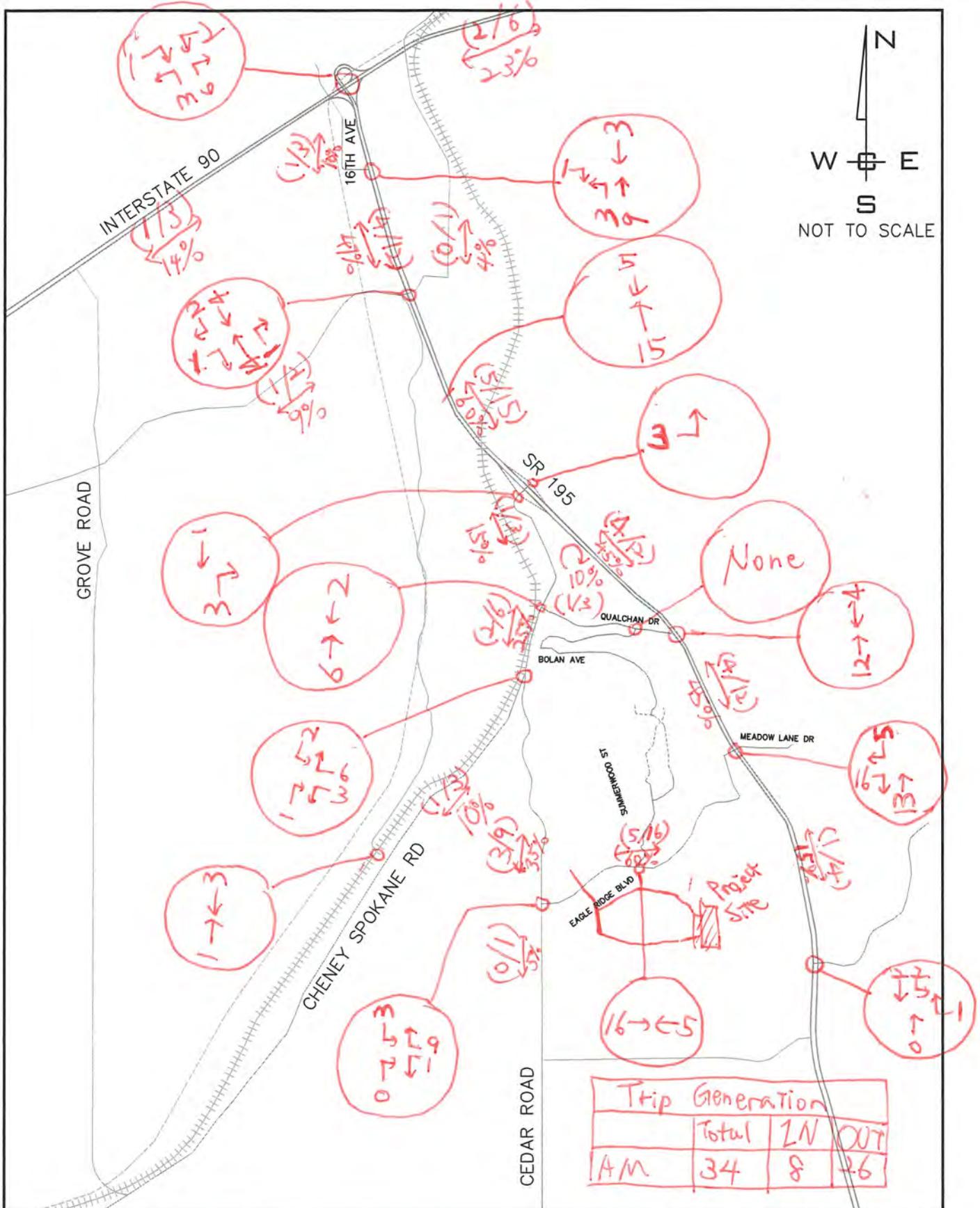
TRIP DISTRIBUTION

As shown on the site plan, the site will be accessed by Boulder Ridge Drive (please see Figure 2, Site Plan). It is anticipated that the residents of the site will generally use the following roadways:

Parkridge Boulevard is generally a north-south, two-way, 2-lane local access road that extends south from Eagle Ridge Boulevard through Basalt Ridge Drive, Pheasant Ridge Drive Woodhaven Drive, and Siena Peak Drive before curving east and intersecting with Tangle Heights Drive. Parkridge Boulevard primarily serves residential land uses. The speed limit on Parkridge Boulevard is 25 MPH

Basalt Ridge Drive is an east-west, two-way, 2-lane local access road that extends east from Parkridge Boulevard through Pheasant Ridge Drive, Woodhaven Drive, Siena Peak Drive, and Forest Ridge Drive before curving south, going through Boulder Ridge Drive and transitioning into Tangle Heights Drive. Basalt Ridge Drive primarily serves residential land uses. The speed limit on Basalt Ridge Drive is 25 MPH.





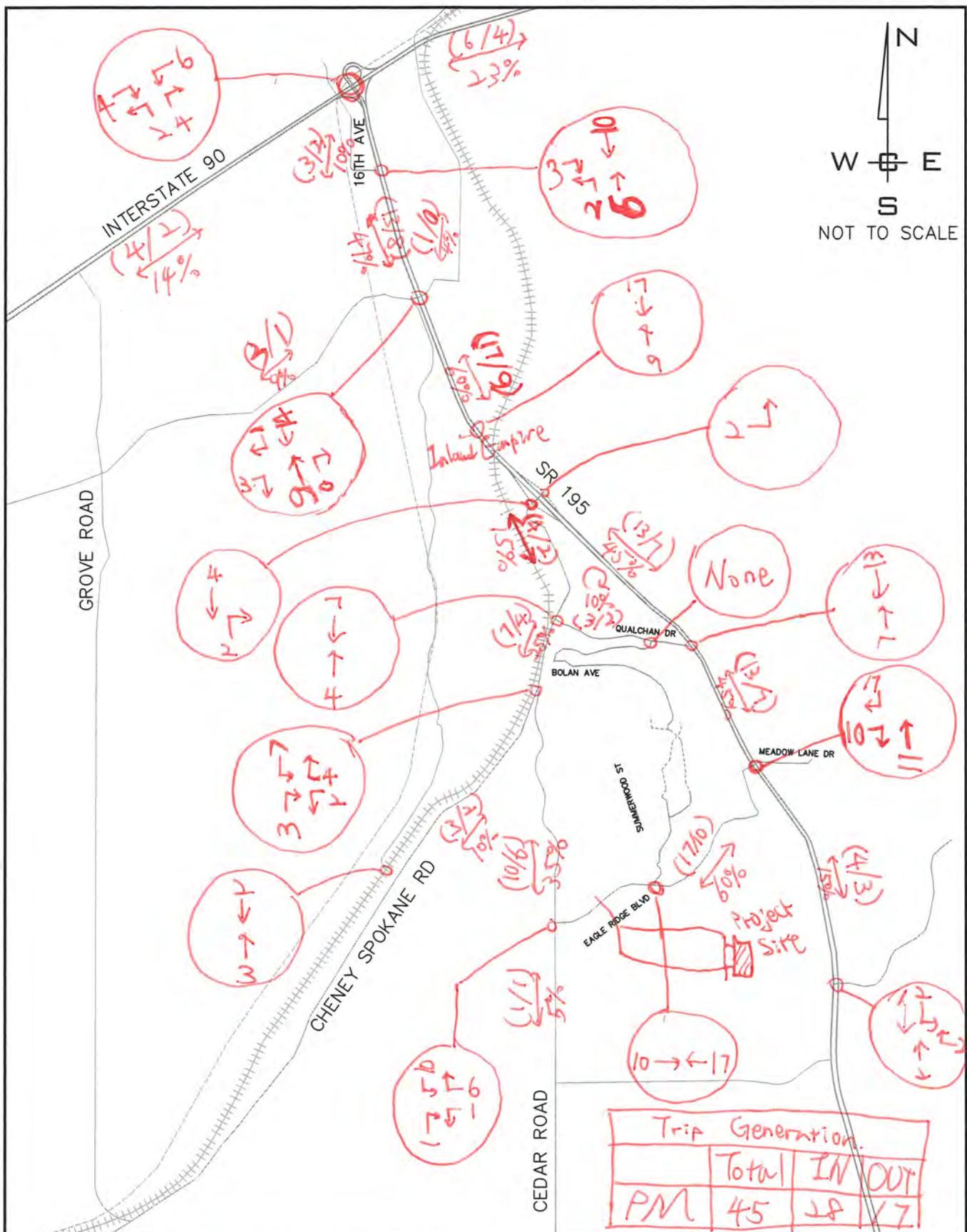
PROJ #:
DATE:
DRAWN:
APPROVED:

Tangle Ridge

AM Background Project

WCE

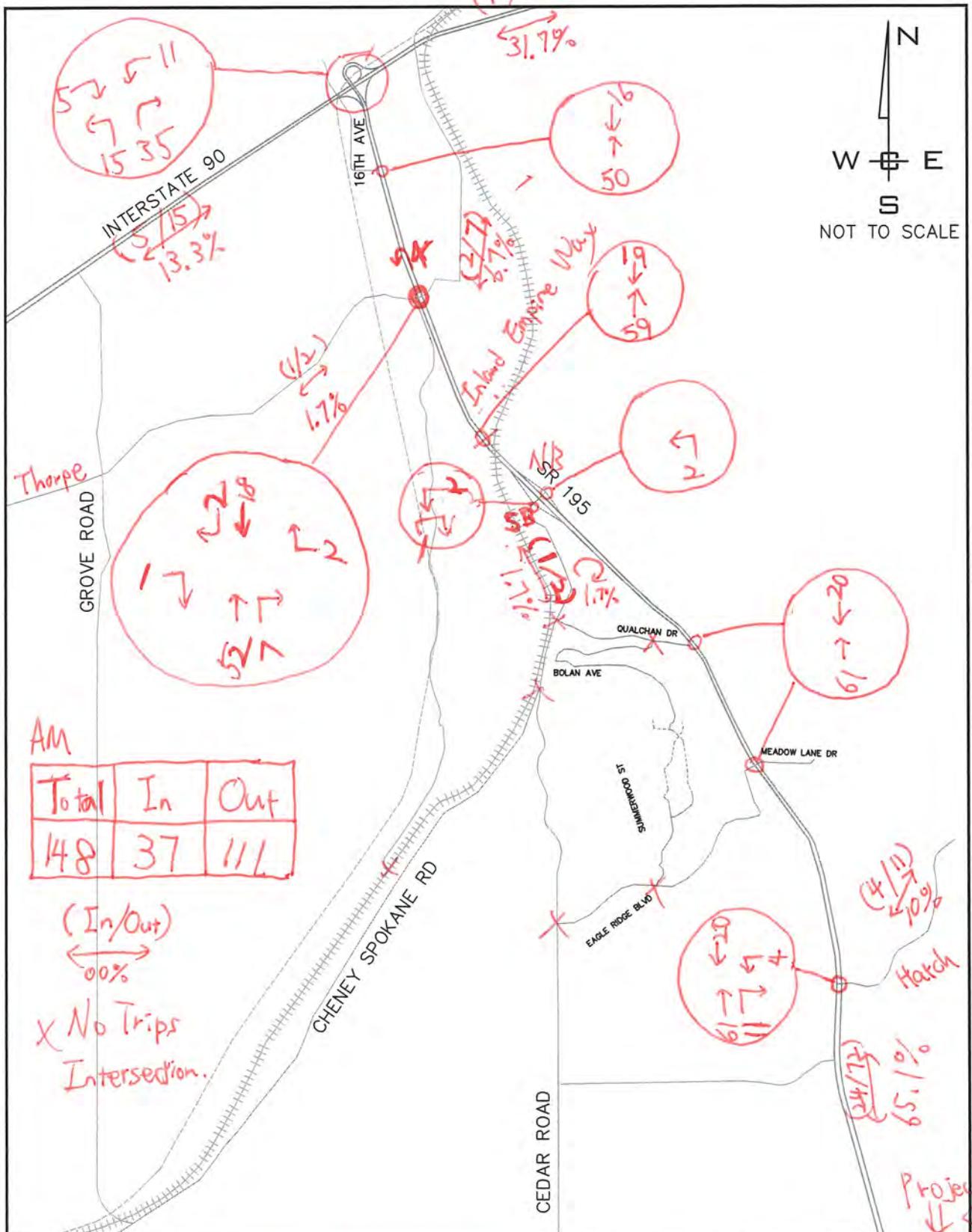
WHIPPLE CONSULTING ENGINEERS
CIVIL AND TRANSPORTATION ENGINEERING
21 SOUTH PINES ROAD
SPOKANE VALLEY, WASHINGTON 99206
PH: 509-893-2617 FAX: 509-926-0227



PROJ #:
DATE:
DRAWN:
APPROVED:

Tangle Ridge

PM Background Project



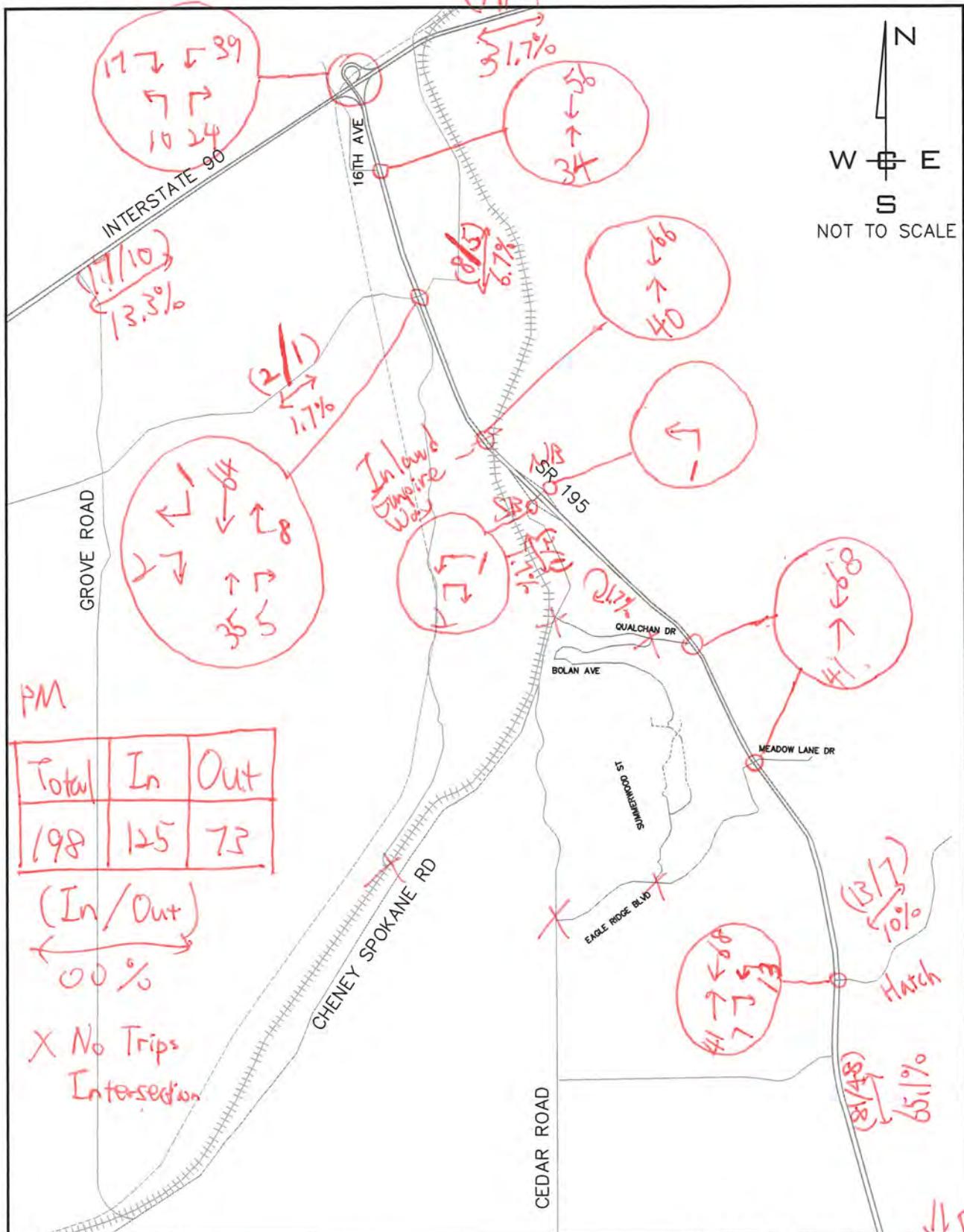
PROJ #:
DATE:
DRAWN:
APPROVED:

Wheatland Estates

AM Background Project

WCE

WHIPPLE CONSULTING ENGINEERS
CIVIL AND TRANSPORTATION ENGINEERING
21 SOUTH PINES ROAD
SPOKANE VALLEY, WASHINGTON 99206
PH: 509-893-2617 FAX: 509-926-0227



PROJ #:
DATE:
DRAWN:
APPROVED:

Whetland Estates

PM Background Project

WCE

WHIPPLE CONSULTING ENGINEERS
CIVIL AND TRANSPORTATION ENGINEERING
21 SOUTH PINES ROAD
SPOKANE VALLEY, WASHINGTON 99206
PH: 509-893-2617 FAX: 509-926-0227

Project Site



WCE No. 18-2224
March 2, 2021

Washington State Department of Transportation
2714 N Mayfair
Spokane WA 99207

Attn: Greg Figg, WSDOT Planner

Re: Wheatland Estates Proposed Traffic / Transportation Conditions of Approval.

Dear Greg

We understand that WSDOT is looking for a net value of no new trips at the eastbound on ramp of the I-90/SR 195 interchange, due to level of service concerns on I-90. Attached to this letter is a trip distribution for the anticipated PM Peak hour trips to/from the Wheatland Estates Development. The distribution is based upon the Street Light analysis for the town of Spangle to/from the corridor that was established within TIA Addendum.

As shown in the expanded distribution figures of the 110 AM and 73 PM outbound trips, it is anticipated that 35 AM trips and 24 PM trips have the potential to use the I-90/SR195 interchange.

In order to achieve a net value of zero trips at the interchange ramp. We propose that the project construct the 16th Avenue island project and participate in the Meadowlane Road ½ J-turn project. Given the small number of trips that need to be redirected we believe that these two projects will redirect more trips than the Spangle - Wheatland Estates project will need to meet its net zero requirement.

We propose that the following conditions be accepted by WSDOT, the Town of Spangle and Spokane County:

That the proposed land development project is outside of the City of Spokane and in the Town of Spangle, WA. While not in the City of Spokane, like most projects in a joint planning area, it is estimated that most if not all the 196 PM Peak hour generated trips will go to and from the City of Spokane for commerce, employment, culture or recreation. As has been the case in joint planning areas within Spokane County that have a direct impact to City of Spokane facilities, it has been demonstrated that this project will have a direct impact to the SR-195 and Meadowlane Intersection, which is currently at Level of Service F. In order to pay a proportionate share of the impacts within this corridor to the SR-195 and I-90 Interchange and the SR-195 and Meadowlane Intersection, the following conditions are proposed to adequately mitigate the impacts from this development.

WSDOT

Wheatland Estates Proposed Condition Letter

March 2, 2021

Page 2 of 4

1. Within the City of Spokane South Service Area, the current transportation impact fee is \$1,160.64 / PM Peak trip paid at time of building permit. As this project is in the Town of Spangle and there exists no inter-local agreement between the City and the Town, respectively the Spangle-Wheatland project shall participate in the Meadowlane ½ J-turn project for a value of $\$1,160.64 \times 197 \text{ lots} = \$228,646.08$ less the cost of the 16th Avenue Improvements.
2. The Spangle-Wheatland project will construct the 16th Avenue and SR-195 Island Project at the noted intersection. The cost of this improvement has been estimated at \$50,000.
3. Based on the cost of the 16th Avenue and SR-195 Island Project, it is anticipated that the Spangle-Wheatland project would contribute $\$228,646.08 - \$50,000 = \$178,646.08$ toward the Meadowlane and SR-195 ½ J-Turn project.
4. Based on previous projects within this corridor it would be expected that the Spangle-Wheatland project would post two bonds, one for the 16th Avenue Island Project and one for the Meadowlane ½ J-Turn project at the time of final plat of the first phase in addition to any bonds required to the Town of Spangle for said phase. These bonds would be in the name of both the Town of Spangle and the City of Spokane, these bonds can be released upon acceptance of the constructed projects by the WSDOT.
5. That the Spangle-Wheatland project accepts a condition to be a member of the LLC or other entity that will be created to construct the Meadowlane ½ J-Turn and that the project agrees to be responsible for its proportionate share even in the event that the value exceeds the \$178,646.08, conversely, if the project is constructed and the value is less no additional payments to any public corporation would be required.
6. It would be the intent that the bond could be in effect for as many as 5 years from the time of preliminary plat approval, with the element being constructed prior to any plat extensions.

A follow-up assessment of the effectiveness of the 16th Avenue improvement or lack of increase in traffic at the SR-195 and I-90 Interchange, is required 120 days after final platting of the last lot. That assessment will include a pre- vs post-improvement analysis prepared by the applicant's traffic engineer. The purpose of the analysis is to determine to what extent, the proposed improvement results in the diversion of traffic from the SR 195 and I-90 Interchange northbound to eastbound ramp as a result of changes at the 16th Avenue Island project. The Meadowlane ½ J-turn would be exempt from any future analysis as this was an impact and LOS mitigatory contribution.

The effective analysis shall be based upon traffic data collected between 14 to 30 days prior (pre) to and after (post) the installation of the improvement, and opening of 16th Avenue.

During the period that data is being collected for the Pre- to Post-improvement analysis WSDOT will not change its ramp metering protocol for the I-90/SR 195 ramp interchange, in order to ensure that the results of the post-improvement analysis are not

WSDOT

Wheatland Estates Proposed Condition Letter

March 2, 2021

Page 3 of 4

affected by such changes. The applicant's traffic engineer is responsible for notifying WSDOT of the study dates. Notification is to be by email as well as by phone.

The Pre- vs Post- improvement assessment, will be submitted to WSDOT for information only, the development of the project is not conditioned upon the effectiveness of the improvement projects, given that match funds will have been spent, and that mitigation is consistent with the project impacts.

We believe that these proposed changes, along with other changes in the corridor, will reduce trips to the NB to EB ramp thereby positively impacting the ramp metered facility. Additionally, the improvements and participation at the Meadowlane ½ J-Turn will significantly improve Level of Service and Safety within the SR-195 Corridor by continuing to minimize conflicting movements. We would accept these as appropriate conditions to mitigate the peak hour trip impacts from this proposal.

For reference related to the Meadowlane ½ J-Turn, LLC or constructed entity the following should apply.

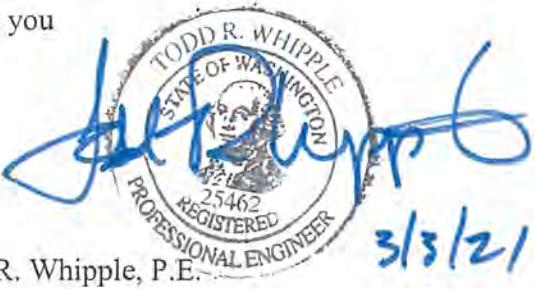
TABLE 1 – MEADOW LANE ½ J-TURN INTIAL CONTRIBUTION BY PROJECT

SR-195 DEVELOPMENT IMPACTING MEADOWLANE	NUMBER OF LOTS	CITY IMPACT FEE CONTRIBUTION AT \$1,160.64 / LOT	CONTRIBUTION BY PROJECT AT \$1,802.38
Spangle – Wheatland Estates (less \$50k for 16 th Avenue)	197	\$228,646.08 -\$50,000.00 \$178,646.08	\$178,646.08
Tangle Ridge	45	\$52,228.80	\$81,107.10
Paras – Short Course	32	\$37,140.48	\$57,676.16
Talon / Qualchan View	160	\$185,702.40	\$288,380.80
Summit	80	\$95,851.20	\$144,190.40
Total	514	\$546,568.96	\$750,000.54
Estimated Improvement Cost		\$750,000.00	
Estimated Short Fall		\$203,431.04	~
Difference from Standard Impact Fee (Spangle does not have a waiver available)	317	\$641.74 / lot extra	
Total Fee per lot (\$1,160.64 + 641.74)		\$1,802.38/lot	

WSDOT
Wheatland Estates Proposed Condition Letter
March 2, 2021
Page 4 of 4

We would accept this as mitigation for the Wheatland Estates project and will incorporate this into an updated and final TIA as this would then allow this project to proceed to hearing.
If you have any questions or comments in regard to this letter please feel free to contact us at (509) 893-2617.

Thank you



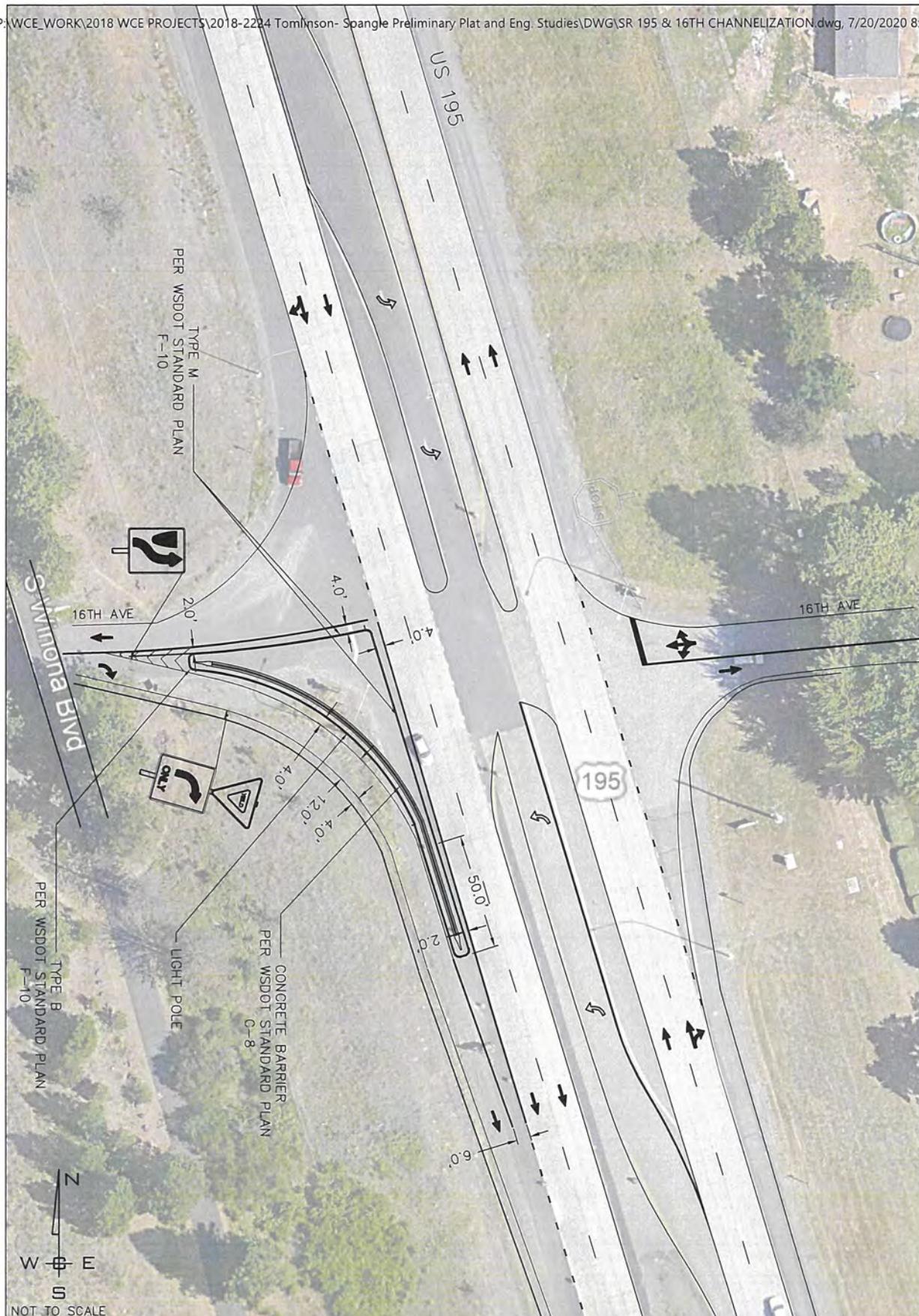
The image shows a handwritten signature "Todd R. Whipple" written over a circular official seal. The seal is for the State of Washington Professional Engineer registration. It features the text "TODD R. WHIPPLE" at the top, "STATE OF WASHINGTON" around the perimeter, "PROFESSIONAL ENGINEER" at the bottom, and the number "25462" in the center. To the right of the seal, there is a handwritten date "3/3/21".

Todd R. Whipple, P.E.

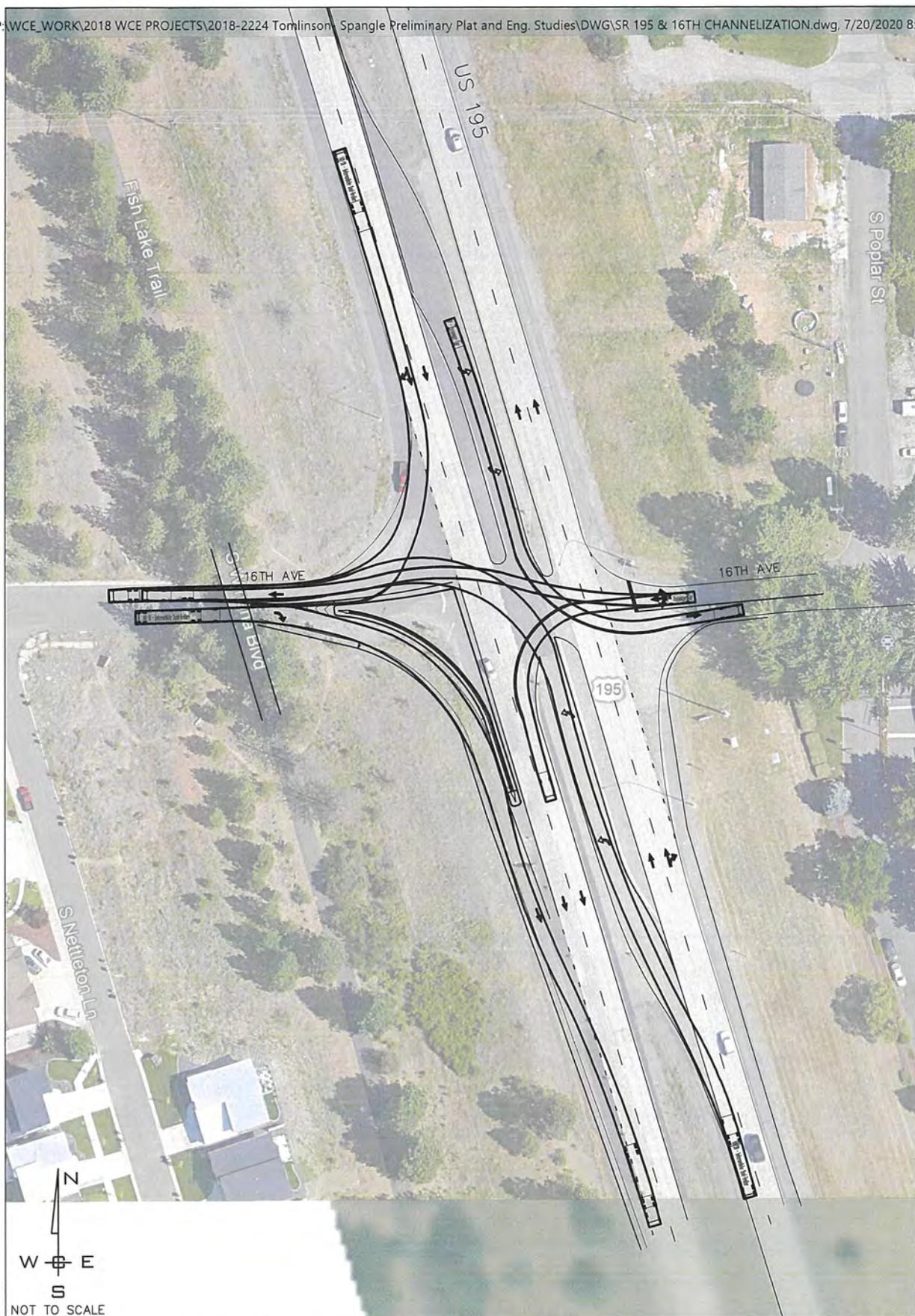
TRW/bng

Encl: 16th Avenue Concept Raised Island and Barrier Figure A, B & C,
Meadowlane ½ J-turn Draft Intersection Plan for Approval (IPA)

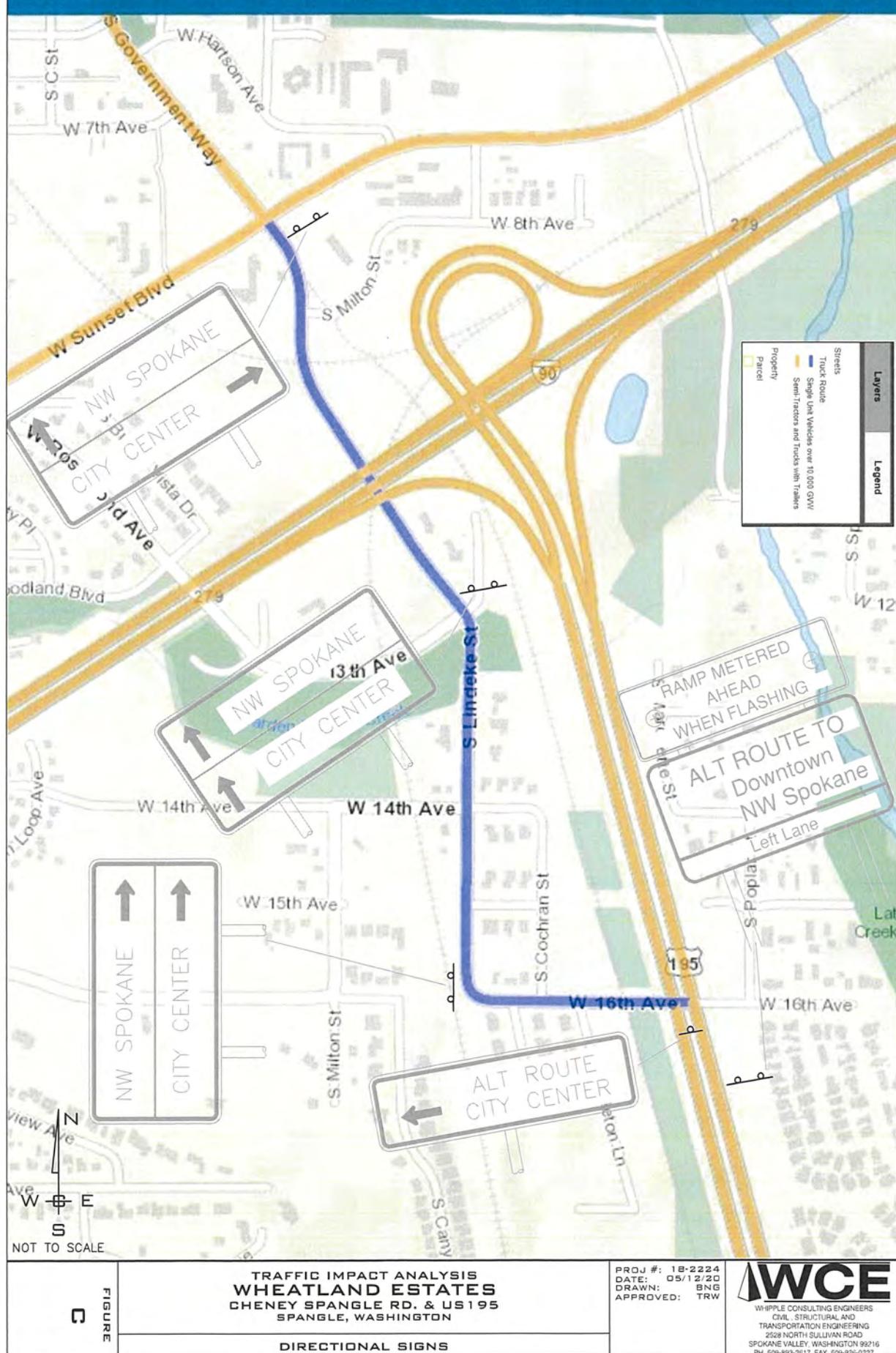
CC: Barry Greene, P.E. Spokane County, Engineering and Roads
Inga Note, P.E. City of Spokane, Transportation Engineer

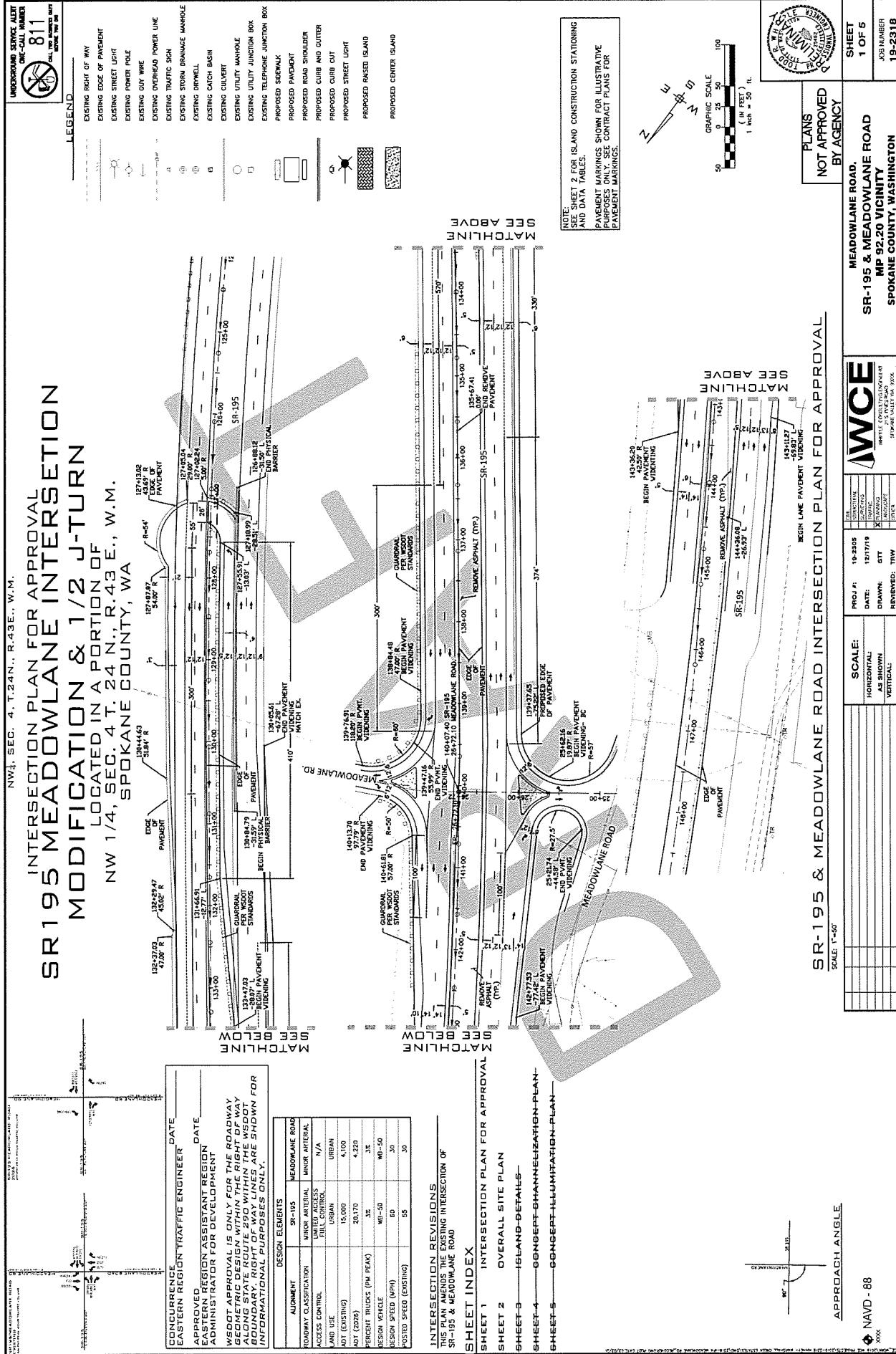


A FIGURE	TRAFFIC IMPACT ANALYSIS WHEATLAND ESTATES CHEYENNE SPANGLE RD. & US 195 SPANGLE, WASHINGTON	PROJ #: 18-2224 DATE: 05/12/20 DRAWN: BNG APPROVED: TRW	WCE <small>WHIPPLE CONSULTING ENGINEERS CIVL, STRUCTURAL AND TRANSPORTATION ENGINEERING 2258 NORTH SULLIVAN ROAD SPOKANE VALLEY, WASHINGTON 99216 PH: 509-923-2617 FAX: 509-926-0227</small>
ISLAND & BARRIER EXHIBIT			



B FIGURE	TRAFFIC IMPACT ANALYSIS WHEATLAND ESTATES CHENY SPANGLE RD. & US 195 SPANGLE, WASHINGTON VEHICLE TURNS EXHIBIT	PROJ #: 18-2224 DATE: 05/12/20 DRAWN: BNG APPROVED: TRW	WCE WHIPPLE CONSULTING ENGINEERS CIVL. STRUCTURAL. TRANSPORTATION ENGINEERING 2209 NORTH SULLIVAN ROAD SPOKANE VALLEY, WASHINGTON 99216 Ph. 509-925-2617 FAX. 509-925-0227
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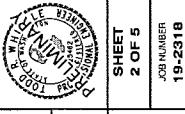
NW SEC 4 T 24N R 43E W M

**SR 195 MEADOWLANE INTERSECTION
MODIFICATION & 1/2 J-TURN**
INTERSECTION PLAN FOR APPROVAL
LOCATED IN A PORTION OF
NW 1/4, SEC. 4 T. 24 N., R. 43 E., W.M.
SPOKANE COUNTY, WA

PROJECT
LIMITS

END PROJECT:
SR195 STA 144+36

BEGIN PROJECT:
SR195 STA 127+00



NOT APPROVE
BY AGENT

**MEADOWLANE ROAD,
OVERALL SITE PLAN
SPOKANE COUNTY, WASHINGTON**

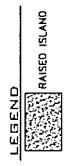
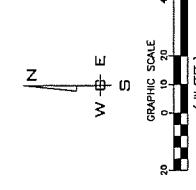
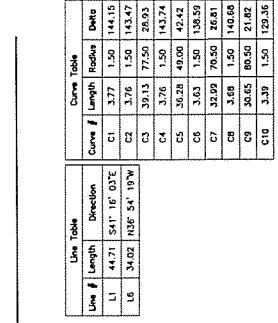
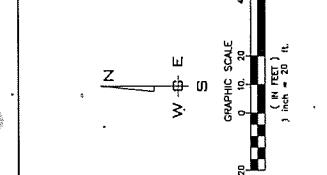
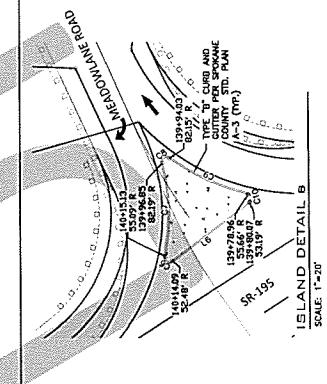
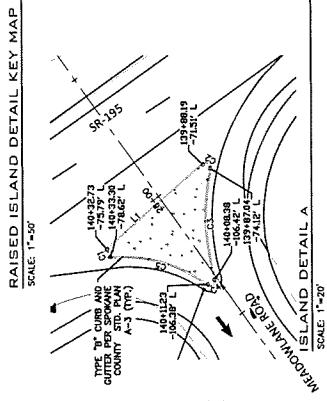
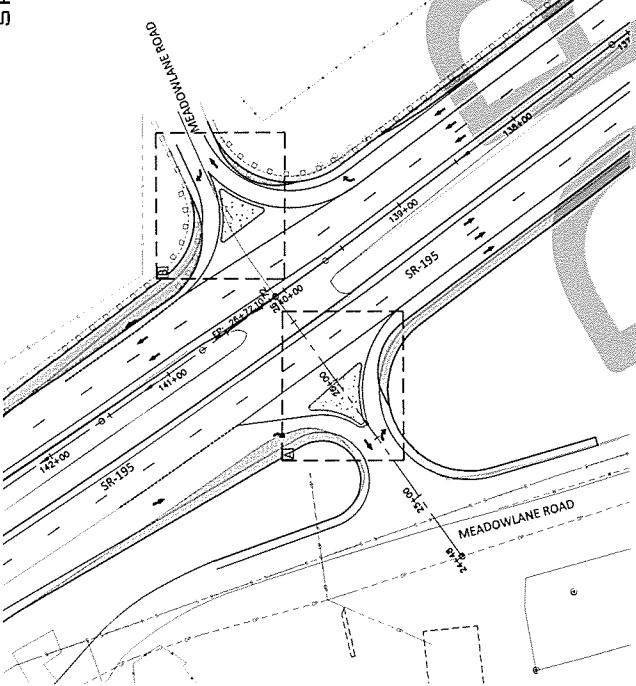
NAVD - 88



NW_{1/4}, SEC. 4, T. 24 N., R. 43 E., W.M.

SR 195 MEADOWLANE INTERSECTION MODIFICATION & 1/2 J-TURN

LOCATED IN A PORTION OF
NW 1/4, SEC. 4, T. 24 N., R. 43 E., W.M.
SPOKANE COUNTY, WA



RAISED ISLAND

IWCE

WELL CONSTRUCTED AND
SAFE HIGHWAY DESIGN
STANDARDS FOR
INTERSTATE HIGHWAYS

SCALE:	FIGURE #:	SECTION:
HORIZONTAL:	10-2005	SURVEYING
AS SHOWN	12-17118	ROUTE
VERTICAL:	6TT	TRANSITION
NA	REVIEWED: TRW	ACCIDENT
NO DATE BY	REMOVED	DATA

SCALE: 1"-50'

NAVD - 88
X

MEADOWLANE ROAD.
ISLAND DETAILS

SHEET 3 OF 5

JOB NUMBER
19-2318

PLANS
NOT APPROVED
BY AGENCY



WASHINGTON STATE
DEPARTMENT OF TRANSPORTATION
HIGHWAY DESIGN SECTION

YEAR 2021

LEVEL OF SERVICE CALCULATIONS

AM & PM EXISTING CONDITIONS

Intersection																
Int Delay, s/veh	2.7															
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR				
Lane Configurations	↔			↔			↑	↑↑	↑	↑	↑↑	↑				
Traffic Vol, veh/h	60	2	51	2	2	14	104	1431	4	5	518	20				
Future Vol, veh/h	60	2	51	2	2	14	104	1431	4	5	518	20				
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	-	-	-	-	-	-	300	-	25	300	-	25				
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-				
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-				
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90				
Heavy Vehicles, %	0	0	0	0	0	0	0	2	2	0	11	11				
Mvmt Flow	67	2	57	2	2	16	116	1590	4	6	576	22				
Major/Minor																
Minor2		Minor1			Major1			Major2								
Conflicting Flow All	1616	2414	288	2123	2432	795	598	0	0	1594	0	0				
Stage 1	588	588	-	1822	1822	-	-	-	-	-	-	-				
Stage 2	1028	1826	-	301	610	-	-	-	-	-	-	-				
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-				
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	2.2	-	-	2.2	-	-				
Pot Cap-1 Maneuver	70	33	715	29	32	335	989	-	-	417	-	-				
Stage 1	467	499	-	82	130	-	-	-	-	-	-	-				
Stage 2	254	129	-	689	488	-	-	-	-	-	-	-				
Platoon blocked, %								-	-	-	-	-				
Mov Cap-1 Maneuver	~ 59	29	715	24	28	335	989	-	-	417	-	-				
Mov Cap-2 Maneuver	148	88	-	62	89	-	-	-	-	-	-	-				
Stage 1	412	492	-	72	115	-	-	-	-	-	-	-				
Stage 2	210	114	-	622	481	-	-	-	-	-	-	-				
Approach																
EB			WB			NB			SB							
HCM Control Delay, s	39.2		26.7			0.6			0.1							
HCM LOS	E		D													
Minor Lane/Major Mvmt			NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR						
Capacity (veh/h)	989		-	-	226	186	417	-	-	-						
HCM Lane V/C Ratio	0.117		-	-	0.556	0.108	0.013	-	-	-						
HCM Control Delay (s)	9.1		-	-	39.2	26.7	13.8	-	-	-						
HCM Lane LOS	A		-	-	E	D	B	-	-	-						
HCM 95th %tile Q(veh)	0.4		-	-	3	0.4	0	-	-	-						
Notes																
~: Volume exceeds capacity			\$: Delay exceeds 300s			+: Computation Not Defined			*: All major volume in platoon							

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↑			↑	↑	↑↑	↑	↑	↑↑	↑
Traffic Vol, veh/h	0	0	165	0	0	41	39	1518	132	15	531	25
Future Vol, veh/h	0	0	165	0	0	41	39	1518	132	15	531	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	-	-	Stop	-	-	None	-	-	Yield
Storage Length	-	-	0	-	-	0	217	-	25	217	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	3	3	3	5	5	5	8	1	1	13	12	12
Mvmt Flow	0	0	194	0	0	48	46	1786	155	18	625	29
Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	-	-	313	-	-	893	625	0	0	1941	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	7	4.26	-	-	4.36	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.35	2.28	-	-	2.33	-	-
Pot Cap-1 Maneuver	0	0	680	0	0	279	913	-	-	259	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	680	-	-	279	913	-	-	259	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	12.4		20.6			0.2			0.5			
HCM LOS	B		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	913	-	-	680	279	259	-	-				
HCM Lane V/C Ratio	0.05	-	-	0.285	0.173	0.068	-	-				
HCM Control Delay (s)	9.2	-	-	12.4	20.6	19.9	-	-				
HCM Lane LOS	A	-	-	B	C	C	-	-				
HCM 95th %tile Q(veh)	0.2	-	-	1.2	0.6	0.2	-	-				

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations			↑	↑↑	↑↑	
Traffic Vol, veh/h	0	21	21	1538	550	0
Future Vol, veh/h	0	21	21	1538	550	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	600	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	5	5	1	12	2
Mvmt Flow	0	23	23	1672	598	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	-	299	598	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7	4.2	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.35	2.25	-	-	-
Pot Cap-1 Maneuver	0	688	954	-	-	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	-	-	0
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	688	954	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.4	0.1		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT		
Capacity (veh/h)	954	-	688	-		
HCM Lane V/C Ratio	0.024	-	0.033	-		
HCM Control Delay (s)	8.9	-	10.4	-		
HCM Lane LOS	A	-	B	-		
HCM 95th %tile Q(veh)	0.1	-	0.1	-		

Intersection						
Int Delay, s/veh	2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↑	↑	↑	↑↑
Traffic Vol, veh/h	0	108	1580	0	108	587
Future Vol, veh/h	0	108	1580	0	108	587
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	-	-	600	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	3	1	0	3	12
Mvmt Flow	0	117	1717	0	117	638
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	-	859	0	-	1717	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	4.16	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	2.23	-
Pot Cap-1 Maneuver	0	298	-	0	361	-
Stage 1	0	-	-	0	-	-
Stage 2	0	-	-	0	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	298	-	-	361	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	24.7	0		3.1		
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	WBL	Ln1	SBL	SBT	
Capacity (veh/h)	-	298	361	-	-	
HCM Lane V/C Ratio	-	0.394	0.325	-	-	
HCM Control Delay (s)	-	24.7	19.7	-	-	
HCM Lane LOS	-	C	C	-	-	
HCM 95th %tile Q(veh)	-	1.8	1.4	-	-	

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↑		↑↑		↑
Traffic Vol, veh/h	0	13	0	0	585	2
Future Vol, veh/h	0	13	0	0	585	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	25
Veh in Median Storage, #	0	-	-	16974	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	9	9	0	0	10	10
Mvmt Flow	0	14	0	0	650	2
Major/Minor		Minor2		Major2		
Conflicting Flow All	-	325		-	0	
Stage 1	-	-		-	-	
Stage 2	-	-		-	-	
Critical Hdwy	-	7.08		-	-	
Critical Hdwy Stg 1	-	-		-	-	
Critical Hdwy Stg 2	-	-		-	-	
Follow-up Hdwy	-	3.39		-	-	
Pot Cap-1 Maneuver	0	651		-	-	
Stage 1	0	-		-	-	
Stage 2	0	-		-	-	
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	651		-	-	
Mov Cap-2 Maneuver	-	-		-	-	
Stage 1	-	-		-	-	
Stage 2	-	-		-	-	
Approach		EB		SB		
HCM Control Delay, s	10.7			0		
HCM LOS	B					
Minor Lane/Major Mvmt		EBLn1	SBT	SBR		
Capacity (veh/h)	651	-	-			
HCM Lane V/C Ratio	0.022	-	-			
HCM Control Delay (s)	10.7	-	-			
HCM Lane LOS	B	-	-			
HCM 95th %tile Q(veh)	0.1	-	-			

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	719	0	0	0	0	0	107	0	0	0	0	0
Future Vol, veh/h	719	0	0	0	0	0	107	0	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, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	0	0	2	2	0	0
Mvmt Flow	922	0	0	0	0	0	137	0	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				-	-	-	7.1	6.5	-	-	-	6.2
Critical Hdwy Stg 1				-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2				-	-	-	6.1	5.5	-	-	-	-
Follow-up Hdwy				-	-	-	3.5	4	-	-	-	3.3
Pot Cap-1 Maneuver				0	-	0	1027	899	0	0	0	1090
Stage 1				0	-	0	-	-	0	0	0	-
Stage 2				0	-	0	1027	899	0	0	0	-
Platoon blocked, %				-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver				-	-	-	1027	899	-	-	-	1090
Mov Cap-2 Maneuver				-	-	-	1027	899	-	-	-	-
Stage 1				-	-	-	-	-	-	-	-	-
Stage 2				-	-	-	1027	899	-	-	-	-
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)			1027	-	-							
HCM Lane V/C Ratio			0.134	-	-							
HCM Control Delay (s)			9	-	0							
HCM Lane LOS			A	-	A							
HCM 95th %tile Q(veh)			0.5	-	-							

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	630	49	2	120	0	0	0	0	17	1	0
Future Vol, veh/h	0	630	49	2	120	0	0	0	0	17	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	16974	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2	0	0	0	22	22	22
Mvmt Flow	0	818	64	3	156	0	0	0	0	22	1	0
Major/Minor												
Major1		Major2					Minor2					
Conflicting Flow All	-	0	0	882	0	0				1012	1044	-
Stage 1	-	-	-	-	-	-				162	162	-
Stage 2	-	-	-	-	-	-				850	882	-
Critical Hdwy	-	-	-	4.12	-	-				6.62	6.72	-
Critical Hdwy Stg 1	-	-	-	-	-	-				5.62	5.72	-
Critical Hdwy Stg 2	-	-	-	-	-	-				5.62	5.72	-
Follow-up Hdwy	-	-	-	2.218	-	-				3.698	4.198	-
Pot Cap-1 Maneuver	0	-	-	767	-	0				243	211	0
Stage 1	0	-	-	-	-	0				821	728	0
Stage 2	0	-	-	-	-	0				387	338	0
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	-	-	-	767	-	-				242	0	-
Mov Cap-2 Maneuver	-	-	-	-	-	-				242	0	-
Stage 1	-	-	-	-	-	-				821	0	-
Stage 2	-	-	-	-	-	-				385	0	-
Approach												
EB		WB					SB					
HCM Control Delay, s	0			0.2						21.5		
HCM LOS										C		
Minor Lane/Major Mvmt												
EBT		EBR	WBL	WBT	SBLn1							
Capacity (veh/h)	-	-	767	-	242							
HCM Lane V/C Ratio	-	-	0.003	-	0.097							
HCM Control Delay (s)	-	-	9.7	0	21.5							
HCM Lane LOS	-	-	A	A	C							
HCM 95th %tile Q(veh)	-	-	0	-	0.3							

Intersection

Int Delay, s/veh 4.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖			↗		↑
Traffic Vol, veh/h	120	0	0	679	0	193
Future Vol, veh/h	120	0	0	679	0	193
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	-	16974	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	3	3	0	0	8	8
Mvmt Flow	138	0	0	780	0	222

Major/Minor Minor1 Major2

Conflicting Flow All	222	-	-	-
Stage 1	0	-	-	-
Stage 2	222	-	-	-
Critical Hdwy	6.43	-	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-
Follow-up Hdwy	3.527	-	-	-
Pot Cap-1 Maneuver	764	0	0	-
Stage 1	-	0	0	-
Stage 2	813	0	0	-
Platoon blocked, %			-	
Mov Cap-1 Maneuver	764	-	-	-
Mov Cap-2 Maneuver	764	-	-	-
Stage 1	-	-	-	-
Stage 2	813	-	-	-

Approach WB SB

HCM Control Delay, s	10.7	0
HCM LOS	B	

Minor Lane/Major Mvmt WBLn1 SBT

Capacity (veh/h)	764	-
HCM Lane V/C Ratio	0.181	-
HCM Control Delay (s)	10.7	-
HCM Lane LOS	B	-
HCM 95th %tile Q(veh)	0.7	-

Intersection													
Int Delay, s/veh	4.5												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↔	↑	↔	↔	↔	↑	↑	↑↑	↑	↑	↑↑	↑	
Traffic Vol, veh/h	186	1	95	0	2	16	28	816	3	11	412	67	
Future Vol, veh/h	186	1	95	0	2	16	28	816	3	11	412	67	
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	-	-	25	-	-	-	200	-	25	200	-	525	
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96	
Heavy Vehicles, %	3	3	3	17	17	17	4	2	2	9	9	6	
Mvmt Flow	194	1	99	0	2	17	29	850	3	11	429	70	
Major/Minor	Minor2		Minor1		Major1		Major2						
Conflicting Flow All	935	1362	215	1145	1429	425	499	0	0	853	0	0	
Stage 1	451	451	-	908	908	-	-	-	-	-	-	-	
Stage 2	484	911	-	237	521	-	-	-	-	-	-	-	
Critical Hdwy	7.56	6.56	6.96	7.84	6.84	7.24	4.18	-	-	4.28	-	-	
Critical Hdwy Stg 1	6.56	5.56	-	6.84	5.84	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	6.56	5.56	-	6.84	5.84	-	-	-	-	-	-	-	
Follow-up Hdwy	3.53	4.03	3.33	3.67	4.17	3.47	2.24	-	-	2.29	-	-	
Pot Cap-1 Maneuver	219	146	787	137	117	538	1047	-	-	739	-	-	
Stage 1	555	567	-	268	320	-	-	-	-	-	-	-	
Stage 2	530	349	-	704	494	-	-	-	-	-	-	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	204	140	787	115	112	538	1047	-	-	739	-	-	
Mov Cap-2 Maneuver	326	246	-	206	218	-	-	-	-	-	-	-	
Stage 1	539	558	-	260	311	-	-	-	-	-	-	-	
Stage 2	496	339	-	605	487	-	-	-	-	-	-	-	
Approach	EB		WB		NB		SB						
HCM Control Delay, s	24.3			13.1			0.3			0.2			
HCM LOS	C			B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1047	-	-	325	787	463	739	-	-				
HCM Lane V/C Ratio	0.028	-	-	0.599	0.126	0.04	0.016	-	-				
HCM Control Delay (s)	8.5	-	-	31.4	10.2	13.1	9.9	-	-				
HCM Lane LOS	A	-	-	D	B	B	A	-	-				
HCM 95th %tile Q(veh)	0.1	-	-	3.7	0.4	0.1	0	-	-				

Intersection						
Int Delay, s/veh	6.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↑	↑	↑↑	↑	↑	↑↑
Traffic Vol, veh/h	59	378	397	87	194	229
Future Vol, veh/h	59	378	397	87	194	229
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	25	-	25	350	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	1	1	2	2	9	9
Mvmt Flow	69	440	462	101	226	266
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1047	231	0	0	563	0
Stage 1	462	-	-	-	-	-
Stage 2	585	-	-	-	-	-
Critical Hdwy	6.82	6.92	-	-	4.28	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.51	3.31	-	-	2.29	-
Pot Cap-1 Maneuver	225	774	-	-	958	-
Stage 1	604	-	-	-	-	-
Stage 2	523	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	172	774	-	-	958	-
Mov Cap-2 Maneuver	293	-	-	-	-	-
Stage 1	604	-	-	-	-	-
Stage 2	400	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	16.3	0	4.5			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	293	774	958	-
HCM Lane V/C Ratio	-	-	0.234	0.568	0.235	-
HCM Control Delay (s)	-	-	21	15.6	9.9	-
HCM Lane LOS	-	-	C	C	A	-
HCM 95th %tile Q(veh)	-	-	0.9	3.6	0.9	-

Intersection												
Int Delay, s/veh	3.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↖		↘	↑↑	↗	↘	↑↑	↗
Traffic Vol, veh/h	22	2	141	4	2	15	86	596	10	22	1341	67
Future Vol, veh/h	22	2	141	4	2	15	86	596	10	22	1341	67
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	-	-	-	-	-	-	300	-	25	300	-	25
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	5	5	5	0	7	7	5	1	1
Mvmt Flow	23	2	148	4	2	16	91	627	11	23	1412	71
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	1955	2278	706	1562	2338	314	1483	0	0	638	0	0
Stage 1	1458	1458	-	809	809	-	-	-	-	-	-	-
Stage 2	497	820	-	753	1529	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.6	6.6	7	4.1	-	-	4.2	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.6	5.6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.6	5.6	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.55	4.05	3.35	2.2	-	-	2.25	-	-
Pot Cap-1 Maneuver	39	40	383	74	35	673	460	-	-	922	-	-
Stage 1	138	196	-	334	385	-	-	-	-	-	-	-
Stage 2	529	392	-	361	173	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	31	31	383	37	27	673	460	-	-	922	-	-
Mov Cap-2 Maneuver	88	119	-	90	64	-	-	-	-	-	-	-
Stage 1	111	191	-	268	309	-	-	-	-	-	-	-
Stage 2	412	314	-	213	169	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	42.9			23.8			1.8			0.1		
HCM LOS	E			C								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	460	-	-	260	214	922	-	-				
HCM Lane V/C Ratio	0.197	-	-	0.668	0.103	0.025	-	-				
HCM Control Delay (s)	14.7	-	-	42.9	23.8	9	-	-				
HCM Lane LOS	B	-	-	E	C	A	-	-				
HCM 95th %tile Q(veh)	0.7	-	-	4.3	0.3	0.1	-	-				

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↑			↑	↑	↑↑	↑	↑	↑↑	↑
Traffic Vol, veh/h	0	0	96	0	0	69	61	638	76	31	1369	75
Future Vol, veh/h	0	0	96	0	0	69	61	638	76	31	1369	75
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	-	-	Yield
Storage Length	-	-	0	-	-	0	217	-	25	217	-	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, %	0	0	0	1	1	1	0	4	4	0	1	1
Mvmt Flow	0	0	103	0	0	74	66	686	82	33	1472	81
Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	-	-	736	-	-	343	1472	0	0	768	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.92	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.31	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	366	0	0	656	464	-	-	855	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	366	-	-	656	464	-	-	855	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	18.7		11.2			1.1			0.2			
HCM LOS	C		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	464	-	-	366	656	855	-	-				
HCM Lane V/C Ratio	0.141	-	-	0.282	0.113	0.039	-	-				
HCM Control Delay (s)	14	-	-	18.7	11.2	9.4	-	-				
HCM Lane LOS	B	-	-	C	B	A	-	-				
HCM 95th %tile Q(veh)	0.5	-	-	1.1	0.4	0.1	-	-				

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	45	45	661	1430	0
Future Vol, veh/h	0	45	45	661	1430	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	600	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	1	1	4	1	0
Mvmt Flow	0	49	49	718	1554	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	-	777	1554	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.92	4.12	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.31	2.21	-	-	-
Pot Cap-1 Maneuver	0	342	427	-	-	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	-	-	0
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	342	427	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	17.3	0.9		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT		
Capacity (veh/h)	427	-	342	-		
HCM Lane V/C Ratio	0.115	-	0.143	-		
HCM Control Delay (s)	14.5	-	17.3	-		
HCM Lane LOS	B	-	C	-		
HCM 95th %tile Q(veh)	0.4	-	0.5	-		

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↑↑		↑↑	
Traffic Vol, veh/h	0	50	724	0	50	1415
Future Vol, veh/h	0	50	724	0	50	1415
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	-	-	600	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	4	0	0	1
Mvmt Flow	0	54	787	0	54	1538
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	-	394	0	-	787	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	4.1	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	0	611	-	0	841	-
Stage 1	0	-	-	0	-	-
Stage 2	0	-	-	0	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	611	-	-	841	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	11.5	0	0.3			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	WBL	Ln1	SBL	SBT	
Capacity (veh/h)	-	611	841	-	-	
HCM Lane V/C Ratio	-	0.089	0.065	-	-	
HCM Control Delay (s)	-	11.5	9.6	-	-	
HCM Lane LOS	-	B	A	-	-	
HCM 95th %tile Q(veh)	-	0.3	0.2	-	-	

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↑		↑↑		↑
Traffic Vol, veh/h	0	4	0	0	1398	16
Future Vol, veh/h	0	4	0	0	1398	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	25
Veh in Median Storage, #	0	-	-	16974	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	1	1
Mvmt Flow	0	4	0	0	1487	17
Major/Minor		Minor2		Major2		
Conflicting Flow All	-	744		-	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	362		-	-	
Stage 1	0	-		-	-	
Stage 2	0	-		-	-	
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	362		-	-	
Mov Cap-2 Maneuver	-	-		-	-	
Stage 1	-	-		-	-	
Stage 2	-	-		-	-	
Approach		EB		SB		
HCM Control Delay, s	15.1			0		
HCM LOS	C					
Minor Lane/Major Mvmt		EBLn1	SBT	SBR		
Capacity (veh/h)	362	-	-			
HCM Lane V/C Ratio	0.012	-	-			
HCM Control Delay (s)	15.1	-	-			
HCM Lane LOS	C	-	-			
HCM 95th %tile Q(veh)	0	-	-			

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	360	0	0	0	0	0	124	1	0	0	0	0
Future Vol, veh/h	360	0	0	0	0	0	124	1	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	-	-	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, %	1	1	1	0	0	0	0	0	0	0	0	0
Mvmt Flow	383	0	0	0	0	0	132	1	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			-	-	-	7.1	6.5	-	-	-	-	6.2
Critical Hdwy Stg 1			-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2			-	-	-	6.1	5.5	-	-	-	-	-
Follow-up Hdwy			-	-	-	3.5	4	-	-	-	-	3.3
Pot Cap-1 Maneuver			0	-	0	1027	899	0	0	0	0	1090
Stage 1			0	-	0	-	-	0	0	0	0	-
Stage 2			0	-	0	1027	899	0	0	0	0	-
Platoon blocked, %			-									
Mov Cap-1 Maneuver			-	-	-	1027	899	-	-	-	-	1090
Mov Cap-2 Maneuver			-	-	-	1027	899	-	-	-	-	-
Stage 1			-	-	-	-	-	-	-	-	-	-
Stage 2			-	-	-	1027	899	-	-	-	-	-
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)	1026	-	-									
HCM Lane V/C Ratio	0.13	-	-									
HCM Control Delay (s)	9	-	0									
HCM Lane LOS	A	-	A									
HCM 95th %tile Q(veh)	0.4	-	-									

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	328	135	8	113	0	0	0	0	10	1	0
Future Vol, veh/h	0	328	135	8	113	0	0	0	0	10	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	16974	-	-	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	3	3	3	0	0	0	0	0	0
Mvmt Flow	0	410	169	10	141	0	0	0	0	13	1	0
Major/Minor												
Major1		Major2				Minor2						
Conflicting Flow All	-	0	0	579	0	0				656	740	-
Stage 1	-	-	-	-	-	-				161	161	-
Stage 2	-	-	-	-	-	-				495	579	-
Critical Hdwy	-	-	-	4.13	-	-				6.4	6.5	-
Critical Hdwy Stg 1	-	-	-	-	-	-				5.4	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-				5.4	5.5	-
Follow-up Hdwy	-	-	-	2.227	-	-				3.5	4	-
Pot Cap-1 Maneuver	0	-	-	990	-	0				433	347	0
Stage 1	0	-	-	-	-	0				873	769	0
Stage 2	0	-	-	-	-	0				617	504	0
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	-	-	-	990	-	-				428	0	-
Mov Cap-2 Maneuver	-	-	-	-	-	-				428	0	-
Stage 1	-	-	-	-	-	-				873	0	-
Stage 2	-	-	-	-	-	-				610	0	-
Approach												
EB		WB				SB						
HCM Control Delay, s	0			0.6						13.7		
HCM LOS										B		
Minor Lane/Major Mvmt												
EBT		EBR	WBL	WBT	SBLn1							
Capacity (veh/h)	-	-	990	-	428							
HCM Lane V/C Ratio	-	-	0.01	-	0.032							
HCM Control Delay (s)	-	-	8.7	0	13.7							
HCM Lane LOS	-	-	A	A	B							
HCM 95th %tile Q(veh)	-	-	0	-	0.1							

Intersection						
Int Delay, s/veh	2.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↑			↑		↑
Traffic Vol, veh/h	113	0	0	463	0	548
Future Vol, veh/h	113	0	0	463	0	548
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	-	16974	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	0	0	1	1
Mvmt Flow	126	0	0	514	0	609
Major/Minor	Minor1		Major2			
Conflicting Flow All	609	-	-	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	609	-	-	-	-	-
Critical Hdwy	6.41	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	-	-	-	-	-
Pot Cap-1 Maneuver	460	0	0	-	-	-
Stage 1	-	0	0	-	-	-
Stage 2	545	0	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	460	-	-	-	-	-
Mov Cap-2 Maneuver	460	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	545	-	-	-	-	-
Approach	WB		SB			
HCM Control Delay, s	15.7			0		
HCM LOS	C					
Minor Lane/Major Mvmt	WBLn1	SBT				
Capacity (veh/h)	460	-				
HCM Lane V/C Ratio	0.273	-				
HCM Control Delay (s)	15.7	-				
HCM Lane LOS	C	-				
HCM 95th %tile Q(veh)	1.1	-				

Intersection													
Int Delay, s/veh	2.3												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖ ↗ ↗ ↗ ↗ ↗ ↗ ↗ ↗ ↗ ↗ ↗ ↗												
Traffic Vol, veh/h	54	0	55	7	0	21	98	481	4	20	811	155	
Future Vol, veh/h	54	0	55	7	0	21	98	481	4	20	811	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	-	-	25	-	-	-	200	-	25	200	-	525	
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97	
Heavy Vehicles, %	2	2	2	4	4	4	0	5	5	0	1	1	
Mvmt Flow	56	0	57	7	0	22	101	496	4	21	836	160	
Major/Minor	Minor2		Minor1			Major1			Major2				
Conflicting Flow All	1328	1580	418	1158	1736	248	996	0	0	500	0	0	
Stage 1	878	878	-	698	698	-	-	-	-	-	-	-	
Stage 2	450	702	-	460	1038	-	-	-	-	-	-	-	
Critical Hdwy	7.54	6.54	6.94	7.58	6.58	6.98	4.1	-	-	4.1	-	-	
Critical Hdwy Stg 1	6.54	5.54	-	6.58	5.58	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	6.54	5.54	-	6.58	5.58	-	-	-	-	-	-	-	
Follow-up Hdwy	3.52	4.02	3.32	3.54	4.04	3.34	2.2	-	-	2.2	-	-	
Pot Cap-1 Maneuver	113	108	584	149	85	746	703	-	-	1075	-	-	
Stage 1	309	364	-	392	436	-	-	-	-	-	-	-	
Stage 2	558	439	-	545	302	-	-	-	-	-	-	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	96	91	584	118	71	746	703	-	-	1075	-	-	
Mov Cap-2 Maneuver	191	204	-	217	145	-	-	-	-	-	-	-	
Stage 1	265	357	-	336	373	-	-	-	-	-	-	-	
Stage 2	464	376	-	482	296	-	-	-	-	-	-	-	
Approach	EB		WB			NB			SB				
HCM Control Delay, s	21.5		13.3			1.8			0.2				
HCM LOS	C		B										
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WB Ln1	SBL	SBT	SBR				
Capacity (veh/h)	703	-	-	191	584	464	1075	-	-				
HCM Lane V/C Ratio	0.144	-	-	0.291	0.097	0.062	0.019	-	-				
HCM Control Delay (s)	11	-	-	31.4	11.8	13.3	8.4	-	-				
HCM Lane LOS	B	-	-	D	B	B	A	-	-				
HCM 95th %tile Q(veh)	0.5	-	-	1.2	0.3	0.2	0.1	-	-				

Intersection						
Int Delay, s/veh	7.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↑	↑	↑↑	↑	↑	↑↑
Traffic Vol, veh/h	89	282	229	55	404	414
Future Vol, veh/h	89	282	229	55	404	414
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	25	-	25	350	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	5	5	2	2
Mvmt Flow	92	291	236	57	416	427
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1282	118	0	0	293	0
Stage 1	236	-	-	-	-	-
Stage 2	1046	-	-	-	-	-
Critical Hdwy	6.82	6.92	-	-	4.14	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.51	3.31	-	-	2.22	-
Pot Cap-1 Maneuver	158	915	-	-	1265	-
Stage 1	784	-	-	-	-	-
Stage 2	302	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	106	915	-	-	1265	-
Mov Cap-2 Maneuver	174	-	-	-	-	-
Stage 1	784	-	-	-	-	-
Stage 2	203	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	19.4	-	0	-	4.6	-
HCM LOS	-	C	-	-	-	-
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	174	915	1265	-
HCM Lane V/C Ratio	-	-	0.527	0.318	0.329	-
HCM Control Delay (s)	-	-	46.7	10.8	9.2	-
HCM Lane LOS	-	-	E	B	A	-
HCM 95th %tile Q(veh)	-	-	2.7	1.4	1.5	-

YEAR 2026

LEVEL OF SERVICE CALCULATIONS

AM & PM WITH BACKGROUND GROWTH RATE

Intersection

Int Delay, s/veh 3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	63	2	54	2	2	15	109	1504	4	5	545	21
Future Vol, veh/h	63	2	54	2	2	15	109	1504	4	5	545	21
Conflicting Peds, #/hr	1	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									
Storage Length	-	-	-	-	-	-	300	-	25	300	-	25
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	2	2	0	11	11
Mvmt Flow	70	2	60	2	2	17	121	1671	4	6	606	23

Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	1698	2535	303	2229	2554	837	629	0	0	1675	0	0
Stage 1	618	618	-	1913	1913	-	-	-	-	-	-	-
Stage 2	1080	1917	-	316	641	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.5	6.9	4.1	-	-	4.1	-
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	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	~ 61	28	699	24	27	314	963	-	-	388	-	-
Stage 1	448	484	-	72	117	-	-	-	-	-	-	-
Stage 2	236	116	-	675	473	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 50	24	699	19	23	314	963	-	-	388	-	-
Mov Cap-2 Maneuver	134	78	-	54	79	-	-	-	-	-	-	-
Stage 1	392	477	-	63	102	-	-	-	-	-	-	-
Stage 2	191	101	-	605	466	-	-	-	-	-	-	-

Approach	EB	WB			NB			SB		
HCM Control Delay, s	48.4	28.7			0.6			0.1		
HCM LOS	E	D								
<hr/>										
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR		
Capacity (veh/h)	963	-	-	208	173	388	-	-		
HCM Lane V/C Ratio	0.126	-	-	0.636	0.122	0.014	-	-		
HCM Control Delay (s)	9.3	-	-	48.4	28.7	14.4	-	-		
HCM Lane LOS	A	-	-	E	D	B	-	-		
HCM 95th %tile Q(veh)	0.4	-	-	3.8	0.4	0	-	-		

Notes

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

Intersection													
Int Delay, s/veh 0.7													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations				↑	↔		↑	↑↑	↑	↑	↑↑	↑	
Traffic Vol, veh/h	0	0	119	2	2	15	109	1567	6	5	545	21	
Future Vol, veh/h	0	0	119	2	2	15	109	1567	6	5	545	21	
Conflicting Peds, #/hr	1	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Yield	Yield	Yield	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	0	-	-	-	300	-	25	300	-	25	
Veh in Median Storage, #	-	0	-	-	1	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90	
Heavy Vehicles, %	0	0	0	0	0	0	0	2	2	0	11	11	
Mvmt Flow	0	0	132	2	2	17	121	1741	7	6	606	23	
Major/Minor			Minor1		Major1		Major2						
Conflicting Flow All			2298	2624	871	629	0	0	1748	0	0		
Stage 1			1983	1983	-	-	-	-	-	-	-		
Stage 2			315	641	-	-	-	-	-	-	-		
Critical Hdwy			6.8	6.5	6.9	4.1	-	-	4.1	-	-		
Critical Hdwy Stg 1			5.8	5.5	-	-	-	-	-	-	-		
Critical Hdwy Stg 2			5.8	5.5	-	-	-	-	-	-	-		
Follow-up Hdwy			3.5	4	3.3	2.2	-	-	2.2	-	-		
Pot Cap-1 Maneuver			34	24	298	963	-	-	364	-	-		
Stage 1			95	108	-	-	-	-	-	-	-		
Stage 2			719	473	-	-	-	-	-	-	-		
Platoon blocked, %			-	-	-	-	-	-	-	-	-		
Mov Cap-1 Maneuver			29	0	298	963	-	-	364	-	-		
Mov Cap-2 Maneuver			71	0	-	-	-	-	-	-	-		
Stage 1			83	0	-	-	-	-	-	-	-		
Stage 2			707	0	-	-	-	-	-	-	-		
Approach			WB		NB		SB						
HCM Control Delay, s			23.4		0.6		0.1						
HCM LOS			C										
Minor Lane/Major Mvmt			NBL	NBT	NBR	WB Ln1	SBL	SBT	SBR				
Capacity (veh/h)	963	-	-	217	364	-	-	-	-				
HCM Lane V/C Ratio	0.126	-	-	0.097	0.015	-	-	-	-				
HCM Control Delay (s)	9.3	-	-	23.4	15	-	-	-	-				
HCM Lane LOS	A	-	-	C	C	-	-	-	-				
HCM 95th %tile Q(veh)	0.4	-	-	0.3	0	-	-	-	-				

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↑			↑	↑	↑↑	↑	↑	↑↑	↑
Traffic Vol, veh/h	0	0	173	0	0	43	41	1595	139	16	558	26
Future Vol, veh/h	0	0	173	0	0	43	41	1595	139	16	558	26
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	-	-	Yield
Storage Length	-	-	0	-	-	0	217	-	25	217	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	3	3	3	5	5	5	8	1	1	13	12	12
Mvmt Flow	0	0	204	0	0	51	48	1876	164	19	656	31
Major/Minor												
Minor2		Minor1			Major1			Major2				
Conflicting Flow All	-	-	328	-	-	938	656	0	0	2040	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	7	4.26	-	-	4.36	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.35	2.28	-	-	2.33	-	-
Pot Cap-1 Maneuver	0	0	665	0	0	260	888	-	-	235	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	665	-	-	260	888	-	-	235	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Approach												
EB			WB			NB			SB			
HCM Control Delay, s	12.8		22.2			0.2			0.6			
HCM LOS	B		C									
Minor Lane/Major Mvmt			NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR		
Capacity (veh/h)	888		-	-	665	260	235	-	-	-		
HCM Lane V/C Ratio	0.054		-	-	0.306	0.195	0.08	-	-	-		
HCM Control Delay (s)	9.3		-	-	12.8	22.2	21.6	-	-	-		
HCM Lane LOS	A		-	-	B	C	C	-	-	-		
HCM 95th %tile Q(veh)	0.2		-	-	1.3	0.7	0.3	-	-	-		

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations			↑	↑↑	↑↑	
Traffic Vol, veh/h	0	22	22	1617	578	0
Future Vol, veh/h	0	22	22	1617	578	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	600	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	5	5	1	12	2
Mvmt Flow	0	24	24	1758	628	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	-	314	628	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7	4.2	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.35	2.25	-	-	-
Pot Cap-1 Maneuver	0	673	930	-	-	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	-	-	0
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	673	930	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	10.5	0.1	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT		
Capacity (veh/h)	930	-	673	-		
HCM Lane V/C Ratio	0.026	-	0.036	-		
HCM Control Delay (s)	9	-	10.5	-		
HCM Lane LOS	A	-	B	-		
HCM 95th %tile Q(veh)	0.1	-	0.1	-		

Intersection						
Int Delay, s/veh	2.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↑ ↗	↑ ↗	↑ ↗	↑ ↗
Traffic Vol, veh/h	0	114	1661	0	114	617
Future Vol, veh/h	0	114	1661	0	114	617
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	-	-	600	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	3	1	0	3	12
Mvmt Flow	0	124	1805	0	124	671
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	-	903	0	-	1805	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	4.16	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	2.23	-
Pot Cap-1 Maneuver	0	278	-	0	333	-
Stage 1	0	-	-	0	-	-
Stage 2	0	-	-	0	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	278	-	-	333	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	28	0	3.4			
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	WBL	Ln1	SBL	SBT	
Capacity (veh/h)	-	278	333	-	-	
HCM Lane V/C Ratio	-	0.446	0.372	-	-	
HCM Control Delay (s)	-	28	22.1	-	-	
HCM Lane LOS	-	D	C	-	-	
HCM 95th %tile Q(veh)	-	2.2	1.7	-	-	

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↑			↑↑	↑
Traffic Vol, veh/h	0	14	0	0	615	2
Future Vol, veh/h	0	14	0	0	615	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	25
Veh in Median Storage, #	0	-	-	16974	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	9	9	0	0	10	10
Mvmt Flow	0	16	0	0	683	2
Major/Minor	Minor2		Major2			
Conflicting Flow All	-	342			-	0
Stage 1	-	-			-	-
Stage 2	-	-			-	-
Critical Hdwy	-	7.08			-	-
Critical Hdwy Stg 1	-	-			-	-
Critical Hdwy Stg 2	-	-			-	-
Follow-up Hdwy	-	3.39			-	-
Pot Cap-1 Maneuver	0	634			-	-
Stage 1	0	-			-	-
Stage 2	0	-			-	-
Platoon blocked, %					-	-
Mov Cap-1 Maneuver	-	634			-	-
Mov Cap-2 Maneuver	-	-			-	-
Stage 1	-	-			-	-
Stage 2	-	-			-	-
Approach	EB		SB			
HCM Control Delay, s	10.8				0	
HCM LOS	B					
Minor Lane/Major Mvmt	EBLn1	SBT	SBR			
Capacity (veh/h)	634	-	-			
HCM Lane V/C Ratio	0.025	-	-			
HCM Control Delay (s)	10.8	-	-			
HCM Lane LOS	B	-	-			
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	756	0	0	0	0	0	113	0	0	0	0	0
Future Vol, veh/h	756	0	0	0	0	0	113	0	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, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	0	0	0	0	0	0	0	0	0
Mvmt Flow	969	0	0	0	0	0	145	0	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			-	-	-	7.1	6.5	-	-	-	-	6.2
Critical Hdwy Stg 1			-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2			-	-	-	6.1	5.5	-	-	-	-	-
Follow-up Hdwy			-	-	-	3.5	4	-	-	-	-	3.3
Pot Cap-1 Maneuver			0	-	0	1027	899	0	0	0	0	1090
Stage 1			0	-	0	-	-	0	0	0	0	-
Stage 2			0	-	0	1027	899	0	0	0	0	-
Platoon blocked, %			-									
Mov Cap-1 Maneuver			-	-	-	1027	899	-	-	-	-	1090
Mov Cap-2 Maneuver			-	-	-	1027	899	-	-	-	-	-
Stage 1			-	-	-	-	-	-	-	-	-	-
Stage 2			-	-	-	1027	899	-	-	-	-	-
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)			1027	-	-							
HCM Lane V/C Ratio			0.141	-	-							
HCM Control Delay (s)			9.1	-	0							
HCM Lane LOS			A	-	A							
HCM 95th %tile Q(veh)			0.5	-	-							

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	663	51	2	127	0	0	0	0	18	1	0
Future Vol, veh/h	0	663	51	2	127	0	0	0	0	18	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	16974	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2	0	0	0	22	22	22
Mvmt Flow	0	861	66	3	165	0	0	0	0	23	1	0

Major/Minor	Major1	Major2				Minor2		
Conflicting Flow All	-	0	0	927	0	0	1065	1098
Stage 1	-	-	-	-	-	-	171	171
Stage 2	-	-	-	-	-	-	894	927
Critical Hdwy	-	-	-	4.12	-	-	6.62	6.72
Critical Hdwy Stg 1	-	-	-	-	-	-	5.62	5.72
Critical Hdwy Stg 2	-	-	-	-	-	-	5.62	5.72
Follow-up Hdwy	-	-	-	2.218	-	-	3.698	4.198
Pot Cap-1 Maneuver	0	-	-	737	-	0	226	196
Stage 1	0	-	-	-	-	0	813	721
Stage 2	0	-	-	-	-	0	369	322
Platoon blocked, %	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	737	-	-	225	0
Mov Cap-2 Maneuver	-	-	-	-	-	-	225	0
Stage 1	-	-	-	-	-	-	813	0
Stage 2	-	-	-	-	-	-	368	0

Approach	EB	WB			SB
HCM Control Delay, s	0	0.2			23
HCM LOS					C

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	737	-	225
HCM Lane V/C Ratio	-	-	0.004	-	0.11
HCM Control Delay (s)	-	-	9.9	0	23
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q(veh)	-	-	0	-	0.4

Intersection

Int Delay, s/veh 4.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↑			↑		↑
Traffic Vol, veh/h	127	0	0	714	0	203
Future Vol, veh/h	127	0	0	714	0	203
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	-	16974	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	3	3	0	0	8	8
Mvmt Flow	146	0	0	821	0	233

Major/Minor Minor1 Major2

Conflicting Flow All	233	-	-	-
Stage 1	0	-	-	-
Stage 2	233	-	-	-
Critical Hdwy	6.43	-	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-
Follow-up Hdwy	3.527	-	-	-
Pot Cap-1 Maneuver	753	0	0	-
Stage 1	-	0	0	-
Stage 2	803	0	0	-
Platoon blocked, %			-	
Mov Cap-1 Maneuver	753	-	-	-
Mov Cap-2 Maneuver	753	-	-	-
Stage 1	-	-	-	-
Stage 2	803	-	-	-

Approach WB SB

HCM Control Delay, s	10.9	0
HCM LOS	B	

Minor Lane/Major Mvmt WBLn1 SBT

Capacity (veh/h)	753	-
HCM Lane V/C Ratio	0.194	-
HCM Control Delay (s)	10.9	-
HCM Lane LOS	B	-
HCM 95th %tile Q(veh)	0.7	-

Intersection												
Int Delay, s/veh	5.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	196	1	100	0	2	17	29	858	3	12	433	70
Future Vol, veh/h	196	1	100	0	2	17	29	858	3	12	433	70
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	25	-	-	-	200	-	25	200	-	525
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	3	3	3	17	17	17	4	2	2	9	9	6
Mvmt Flow	204	1	104	0	2	18	30	894	3	13	451	73
Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	985	1434	226	1206	1504	447	524	0	0	897	0	0
Stage 1	477	477	-	954	954	-	-	-	-	-	-	-
Stage 2	508	957	-	252	550	-	-	-	-	-	-	-
Critical Hdwy	7.56	6.56	6.96	7.84	6.84	7.24	4.18	-	-	4.28	-	-
Critical Hdwy Stg 1	6.56	5.56	-	6.84	5.84	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	5.56	-	6.84	5.84	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	4.03	3.33	3.67	4.17	3.47	2.24	-	-	2.29	-	-
Pot Cap-1 Maneuver	~ 201	132	774	123	105	520	1025	-	-	710	-	-
Stage 1	535	552	-	250	303	-	-	-	-	-	-	-
Stage 2	513	332	-	689	478	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 186	126	774	102	100	520	1025	-	-	710	-	-
Mov Cap-2 Maneuver	308	231	-	191	204	-	-	-	-	-	-	-
Stage 1	519	542	-	243	294	-	-	-	-	-	-	-
Stage 2	478	322	-	584	469	-	-	-	-	-	-	-
Approach	EB	WB			NB			SB				
HCM Control Delay, s	28.4	13.4			0.3			0.2				
HCM LOS	D	B										
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR			
Capacity (veh/h)	1025	-	-	307	774	447	710	-	-			
HCM Lane V/C Ratio	0.029	-	-	0.668	0.135	0.044	0.018	-	-			
HCM Control Delay (s)	8.6	-	-	37.5	10.4	13.4	10.2	-	-			
HCM Lane LOS	A	-	-	E	B	B	B	-	-			
HCM 95th %tile Q(veh)	0.1	-	-	4.5	0.5	0.1	0.1	-	-			
Notes												
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon									

Intersection						
Int Delay, s/veh	7.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↑	↑	↑↑	↑	↑	↑↑
Traffic Vol, veh/h	62	397	417	91	204	241
Future Vol, veh/h	62	397	417	91	204	241
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	25	-	25	350	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	1	1	2	2	9	9
Mvmt Flow	72	462	485	106	237	280
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1099	243	0	0	591	0
Stage 1	485	-	-	-	-	-
Stage 2	614	-	-	-	-	-
Critical Hdwy	6.82	6.92	-	-	4.28	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.51	3.31	-	-	2.29	-
Pot Cap-1 Maneuver	208	761	-	-	934	-
Stage 1	588	-	-	-	-	-
Stage 2	505	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	155	761	-	-	934	-
Mov Cap-2 Maneuver	275	-	-	-	-	-
Stage 1	588	-	-	-	-	-
Stage 2	377	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	17.5	0	4.7			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	275	761	934	-
HCM Lane V/C Ratio	-	-	0.262	0.607	0.254	-
HCM Control Delay (s)	-	-	22.7	16.7	10.2	-
HCM Lane LOS	-	-	C	C	B	-
HCM 95th %tile Q(veh)	-	-	1	4.2	1	-

Intersection						
Int Delay, s/veh	7.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↑ ↗	↑ ↗	↑ ↗	↑ ↗
Traffic Vol, veh/h	0	459	417	91	204	303
Future Vol, veh/h	0	459	417	91	204	303
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	25	350	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	1	1	2	2	9	9
Mvmt Flow	0	534	485	106	237	352
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	-	243	0	0	591	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.92	-	-	4.28	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.31	-	-	2.29	-
Pot Cap-1 Maneuver	0	761	-	-	934	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	761	-	-	934	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	20	0		4.1		
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	
Capacity (veh/h)	-	-	761	934	-	
HCM Lane V/C Ratio	-	-	0.701	0.254	-	
HCM Control Delay (s)	-	-	20	10.2	-	
HCM Lane LOS	-	-	C	B	-	
HCM 95th %tile Q(veh)	-	-	5.8	1	-	

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations			↑↑	↑↑	↑↑	↑↑
Traffic Vol, veh/h	0	62	62	814	445	0
Future Vol, veh/h	0	62	62	814	445	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	600	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	1	1	2	9	0
Mvmt Flow	0	67	67	885	484	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	-	242	484	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.92	4.12	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.31	2.21	-	-	-
Pot Cap-1 Maneuver	0	762	1082	-	-	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	-	-	0
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	762	1082	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.2	0.6		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT		
Capacity (veh/h)	1082	-	762	-		
HCM Lane V/C Ratio	0.062	-	0.088	-		
HCM Control Delay (s)	8.5	-	10.2	-		
HCM Lane LOS	A	-	B	-		
HCM 95th %tile Q(veh)	0.2	-	0.3	-		

Intersection																			
Int Delay, s/veh	5.1																		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR							
Lane Configurations																			
Traffic Vol, veh/h	24	2	148	4	2	16	90	626	11	24	1410	71							
Future Vol, veh/h	24	2	148	4	2	16	90	626	11	24	1410	71							
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	-	-	-	-	-	-	300	-	25	300	-	25							
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-							
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-							
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95							
Heavy Vehicles, %	0	0	0	5	5	5	0	7	7	5	1	1							
Mvmt Flow	25	2	156	4	2	17	95	659	12	25	1484	75							
Major/Minor	Minor2		Minor1			Major1			Major2										
Conflicting Flow All	2055	2395	742	1642	2458	330	1559	0	0	671	0	0							
Stage 1	1534	1534	-	849	849	-	-	-	-	-	-	-							
Stage 2	521	861	-	793	1609	-	-	-	-	-	-	-							
Critical Hdwy	7.5	6.5	6.9	7.6	6.6	7	4.1	-	-	4.2	-	-							
Critical Hdwy Stg 1	6.5	5.5	-	6.6	5.6	-	-	-	-	-	-	-							
Critical Hdwy Stg 2	6.5	5.5	-	6.6	5.6	-	-	-	-	-	-	-							
Follow-up Hdwy	3.5	4	3.3	3.55	4.05	3.35	2.2	-	-	2.25	-	-							
Pot Cap-1 Maneuver	33	34	363	64	29	657	430	-	-	895	-	-							
Stage 1	124	180	-	316	368	-	-	-	-	-	-	-							
Stage 2	512	375	-	342	157	-	-	-	-	-	-	-							
Platoon blocked, %																			
Mov Cap-1 Maneuver	~ 25	26	363	29	22	657	430	-	-	895	-	-							
Mov Cap-2 Maneuver	77	108	-	71	49	-	-	-	-	-	-	-							
Stage 1	97	175	-	246	287	-	-	-	-	-	-	-							
Stage 2	386	292	-	187	153	-	-	-	-	-	-	-							
Approach	EB			WB			NB			SB									
HCM Control Delay, s	58.6			27.8			1.9			0.1									
HCM LOS	F			D															
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR											
Capacity (veh/h)	430	-	-	236	181	895	-	-											
HCM Lane V/C Ratio	0.22	-	-	0.776	0.128	0.028	-	-											
HCM Control Delay (s)	15.7	-	-	58.6	27.8	9.1	-	-											
HCM Lane LOS	C	-	-	F	D	A	-	-											
HCM 95th %tile Q(veh)	0.8	-	-	5.6	0.4	0.1	-	-											
Notes																			
~: Volume exceeds capacity	\$: Delay exceeds 300s			+: Computation Not Defined			*: All major volume in platoon												

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	174	4	2	16	90	650	13	24	1410	71	
Future Vol, veh/h	0	0	174	4	2	16	90	650	13	24	1410	71	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Yield	Yield	Yield	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	0	-	-	-	300	-	25	300	-	25	
Veh in Median Storage, #	-	0	-	-	1	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95	
Heavy Vehicles, %	0	0	0	5	5	5	0	7	7	5	1	1	
Mvmt Flow	0	0	183	4	2	17	95	684	14	25	1484	75	
Major/Minor			Minor1		Major1		Major2						
Conflicting Flow All			1666	2483	342	1559	0	0	698	0	0		
Stage 1			874	874	-	-	-	-	-	-	-		
Stage 2			792	1609	-	-	-	-	-	-	-		
Critical Hdwy	6.9	6.6	7	4.1	-	-	-	-	4.2	-	-		
Critical Hdwy Stg 1	5.9	5.6	-	-	-	-	-	-	-	-	-		
Critical Hdwy Stg 2	5.9	5.6	-	-	-	-	-	-	-	-	-		
Follow-up Hdwy	3.55	4.05	3.35	2.2	-	-	-	-	2.25	-	-		
Pot Cap-1 Maneuver	85	28	645	430	-	-	874	-	-	-	-		
Stage 1	361	359	-	-	-	-	-	-	-	-	-		
Stage 2	399	157	-	-	-	-	-	-	-	-	-		
Platoon blocked, %							-	-	-	-	-		
Mov Cap-1 Maneuver	64	0	645	430	-	-	874	-	-	-	-		
Mov Cap-2 Maneuver	160	0	-	-	-	-	-	-	-	-	-		
Stage 1	281	0	-	-	-	-	-	-	-	-	-		
Stage 2	387	0	-	-	-	-	-	-	-	-	-		
Approach			WB		NB		SB						
HCM Control Delay, s			14.5			1.9			0.1				
HCM LOS			B										
Minor Lane/Major Mvmt			NBL	NBT	NBR	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	430	-	-	402	874	-	-	-	-				
HCM Lane V/C Ratio	0.22	-	-	0.058	0.029	-	-	-	-				
HCM Control Delay (s)	15.7	-	-	14.5	9.2	-	-	-	-				
HCM Lane LOS	C	-	-	B	A	-	-	-	-				
HCM 95th %tile Q(veh)	0.8	-	-	0.2	0.1	-	-	-	-				

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↑			↑	↑	↑↑	↑	↑	↑↑	↑
Traffic Vol, veh/h	0	0	101	0	0	73	64	670	80	32	1439	79
Future Vol, veh/h	0	0	101	0	0	73	64	670	80	32	1439	79
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	-	-	Yield
Storage Length	-	-	0	-	-	0	217	-	25	217	-	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, %	0	0	0	1	1	1	0	4	4	0	1	1
Mvmt Flow	0	0	109	0	0	78	69	720	86	34	1547	85
Major/Minor												
Major/Minor	Minor2		Minor1			Major1			Major2			
	-	-	774	-	-	360	1547	0	0	806	0	0
Conflicting Flow All	-	-	774	-	-	360	1547	0	0	806	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.92	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.31	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	346	0	0	639	434	-	-	828	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	346	-	-	639	434	-	-	828	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Approach												
Approach	EB			WB			NB			SB		
	HCM Control Delay, s	20.1		11.4			1.2			0.2		
HCM LOS	C			B								
Minor Lane/Major Mvmt			NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR		
Capacity (veh/h)	434	-	-	346	639	828	-	-	-	-		
HCM Lane V/C Ratio	0.159	-	-	0.314	0.123	0.042	-	-	-	-		
HCM Control Delay (s)	14.9	-	-	20.1	11.4	9.5	-	-	-	-		
HCM Lane LOS	B	-	-	C	B	A	-	-	-	-		
HCM 95th %tile Q(veh)	0.6	-	-	1.3	0.4	0.1	-	-	-	-		

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations			↑	↑↑	↑↑	
Traffic Vol, veh/h	0	48	48	695	1503	0
Future Vol, veh/h	0	48	48	695	1503	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	600	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	1	1	4	1	0
Mvmt Flow	0	52	52	755	1634	0
Major/Minor						
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	-	817	1634	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.92	4.12	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.31	2.21	-	-	-
Pot Cap-1 Maneuver	0	322	398	-	-	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	-	-	0
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	322	398	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach						
Approach	EB	NB	SB			
HCM Control Delay, s	18.3	1	0			
HCM LOS	C					
Minor Lane/Major Mvmt		NBL	NBT	EBLn1	SBT	
Capacity (veh/h)		398	-	322	-	
HCM Lane V/C Ratio	0.131	-	0.162	-	-	
HCM Control Delay (s)	15.4	-	18.3	-	-	
HCM Lane LOS	C	-	C	-	-	
HCM 95th %tile Q(veh)	0.4	-	0.6	-	-	

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↑↑		↑↑	
Traffic Vol, veh/h	0	53	761	0	53	1487
Future Vol, veh/h	0	53	761	0	53	1487
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	-	-	600	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	4	0	0	1
Mvmt Flow	0	58	827	0	58	1616
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	-	414	0	-	827	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	4.1	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	0	593	-	0	813	-
Stage 1	0	-	-	0	-	-
Stage 2	0	-	-	0	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	593	-	-	813	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	11.7	0		0.3		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	WBL	Ln1	SBL	SBT	
Capacity (veh/h)	-	593	813	-		
HCM Lane V/C Ratio	-	0.097	0.071	-		
HCM Control Delay (s)	-	11.7	9.8	-		
HCM Lane LOS	-	B	A	-		
HCM 95th %tile Q(veh)	-	0.3	0.2	-		

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↑			↑↑	↑
Traffic Vol, veh/h	0	4	0	0	1470	17
Future Vol, veh/h	0	4	0	0	1470	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	25
Veh in Median Storage, #	0	-	-	16974	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	1	1
Mvmt Flow	0	4	0	0	1564	18
Major/Minor	Minor2		Major2			
Conflicting Flow All	-	782			-	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	341			-	-
Stage 1	0	-			-	-
Stage 2	0	-			-	-
Platoon blocked, %					-	-
Mov Cap-1 Maneuver	-	341			-	-
Mov Cap-2 Maneuver	-	-			-	-
Stage 1	-	-			-	-
Stage 2	-	-			-	-
Approach	EB			SB		
HCM Control Delay, s	15.7			0		
HCM LOS	C					
Minor Lane/Major Mvmt	EBLn1	SBT	SBR			
Capacity (veh/h)	341	-	-			
HCM Lane V/C Ratio	0.012	-	-			
HCM Control Delay (s)	15.7	-	-			
HCM Lane LOS	C	-	-			
HCM 95th %tile Q(veh)	0	-	-			

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	378	0	0	0	0	0	131	1	0	0	0	0
Future Vol, veh/h	378	0	0	0	0	0	131	1	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	0	-	-	-	-	-	-	-	-	-	-	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, %	1	1	1	0	0	0	0	0	0	0	0	0
Mvmt Flow	402	0	0	0	0	0	139	1	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	-	7.1 6.5	- - - 6.2
Critical Hdwy Stg 1	-	- -	- - -
Critical Hdwy Stg 2	-	6.1 5.5	- - -
Follow-up Hdwy	-	3.5 4	- - - 3.3
Pot Cap-1 Maneuver	0 - 0 1027 899	0 0 0 1090	
Stage 1	0 - 0 - -	0 0 0 0	-
Stage 2	0 - 0 1027 899	0 0 0 0	-
Platoon blocked, %	-		
Mov Cap-1 Maneuver	- - - 1027 899	- - -	1090
Mov Cap-2 Maneuver	- - - 1027 899	- - -	
Stage 1	- - - - -	- - -	
Stage 2	- - - 1027 899	- - -	

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)	1026	-	-
HCM Lane V/C Ratio	0.137	-	-
HCM Control Delay (s)	9.1	-	0
HCM Lane LOS	A	-	A
HCM 95th %tile Q(veh)	0.5	-	-

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	345	142	9	119	0	0	0	0	11	1	0
Future Vol, veh/h	0	345	142	9	119	0	0	0	0	11	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	16974	-	-	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	3	3	3	0	0	0	0	0	0
Mvmt Flow	0	431	178	11	149	0	0	0	0	14	1	0

Major/Minor	Major1	Major2				Minor2		
Conflicting Flow All	-	0	0	609	0	0	691	780
Stage 1	-	-	-	-	-	-	171	171
Stage 2	-	-	-	-	-	-	520	609
Critical Hdwy	-	-	-	4.13	-	-	6.4	6.5
Critical Hdwy Stg 1	-	-	-	-	-	-	5.4	5.5
Critical Hdwy Stg 2	-	-	-	-	-	-	5.4	5.5
Follow-up Hdwy	-	-	-	2.227	-	-	3.5	4
Pot Cap-1 Maneuver	0	-	-	965	-	0	413	329
Stage 1	0	-	-	-	-	0	864	761
Stage 2	0	-	-	-	-	0	601	488
Platoon blocked, %	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	965	-	-	408	0
Mov Cap-2 Maneuver	-	-	-	-	-	-	408	0
Stage 1	-	-	-	-	-	-	864	0
Stage 2	-	-	-	-	-	-	594	0

Approach	EB	WB	SB
HCM Control Delay, s	0	0.6	14.2
HCM LOS			B

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	965	-	408
HCM Lane V/C Ratio	-	-	0.012	-	0.037
HCM Control Delay (s)	-	-	8.8	0	14.2
HCM Lane LOS	-	-	A	A	B
HCM 95th %tile Q(veh)	-	-	0	-	0.1

Intersection							
Int Delay, s/veh	2.8	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑		↑		↑	
Traffic Vol, veh/h	119	0	0	487	0	576	
Future Vol, veh/h	119	0	0	487	0	576	
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	-	16974	-	-	0	
Grade, %	0	-	0	-	-	0	
Peak Hour Factor	90	90	90	90	90	90	
Heavy Vehicles, %	1	1	0	0	1	1	
Mvmt Flow	132	0	0	541	0	640	
Major/Minor	Minor1	Major2					
Conflicting Flow All	640	-	-	-	-	-	
Stage 1	0	-	-	-	-	-	
Stage 2	640	-	-	-	-	-	
Critical Hdwy	6.41	-	-	-	-	-	
Critical Hdwy Stg 1	-	-	-	-	-	-	
Critical Hdwy Stg 2	5.41	-	-	-	-	-	
Follow-up Hdwy	3.509	-	-	-	-	-	
Pot Cap-1 Maneuver	441	0	0	0	-	-	
Stage 1	-	0	0	0	-	-	
Stage 2	527	0	0	0	-	-	
Platoon blocked, %		-	-	-	-	-	
Mov Cap-1 Maneuver	441	-	-	-	-	-	
Mov Cap-2 Maneuver	441	-	-	-	-	-	
Stage 1	-	-	-	-	-	-	
Stage 2	527	-	-	-	-	-	
Approach	WB	SB					
HCM Control Delay, s	16.6		0				
HCM LOS	C						
Minor Lane/Major Mvmt	WBLn1	SBT					
Capacity (veh/h)	441	-					
HCM Lane V/C Ratio	0.3	-					
HCM Control Delay (s)	16.6	-					
HCM Lane LOS	C	-					
HCM 95th %tile Q(veh)	1.2	-					

Intersection													
Int Delay, s/veh	2.5												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Vol, veh/h	56	0	57	8	0	22	103	506	4	21	852	162	
Future Vol, veh/h	56	0	57	8	0	22	103	506	4	21	852	162	
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	-	-	25	-	-	-	200	-	25	200	-	525	
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97	
Heavy Vehicles, %	2	2	2	4	4	4	0	5	5	0	1	1	
Mvmt Flow	58	0	59	8	0	23	106	522	4	22	878	167	
Major/Minor	Minor2	Minor1			Major1			Major2					
Conflicting Flow All	1395	1660	439	1217	1823	261	1045	0	0	526	0	0	
Stage 1	922	922	-	734	734	-	-	-	-	-	-	-	
Stage 2	473	738	-	483	1089	-	-	-	-	-	-	-	
Critical Hdwy	7.54	6.54	6.94	7.58	6.58	6.98	4.1	-	-	4.1	-	-	
Critical Hdwy Stg 1	6.54	5.54	-	6.58	5.58	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	6.54	5.54	-	6.58	5.58	-	-	-	-	-	-	-	
Follow-up Hdwy	3.52	4.02	3.32	3.54	4.04	3.34	2.2	-	-	2.2	-	-	
Pot Cap-1 Maneuver	101	96	566	134	75	732	673	-	-	1051	-	-	
Stage 1	291	347	-	373	419	-	-	-	-	-	-	-	
Stage 2	541	422	-	528	285	-	-	-	-	-	-	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	85	79	566	104	62	732	673	-	-	1051	-	-	
Mov Cap-2 Maneuver	176	190	-	200	130	-	-	-	-	-	-	-	
Stage 1	245	340	-	314	353	-	-	-	-	-	-	-	
Stage 2	442	355	-	463	279	-	-	-	-	-	-	-	
Approach	EB		WB			NB			SB				
HCM Control Delay, s	23.5		14.1			1.9			0.2				
HCM LOS	C		B										
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	673	-	-	176	566	428	1051	-	-				
HCM Lane V/C Ratio	0.158	-	-	0.328	0.104	0.072	0.021	-	-				
HCM Control Delay (s)	11.3	-	-	35.1	12.1	14.1	8.5	-	-				
HCM Lane LOS	B	-	-	E	B	B	A	-	-				
HCM 95th %tile Q(veh)	0.6	-	-	1.3	0.3	0.2	0.1	-	-				

Intersection						
Int Delay, s/veh	8.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖ ↗ ↘ ↗ ↘ ↗ ↘					
Traffic Vol, veh/h	93	296	241	57	425	435
Future Vol, veh/h	93	296	241	57	425	435
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	25	-	25	350	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	5	5	2	2
Mvmt Flow	96	305	248	59	438	448
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1348	124	0	0	307	0
Stage 1	248	-	-	-	-	-
Stage 2	1100	-	-	-	-	-
Critical Hdwy	6.82	6.92	-	-	4.14	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.51	3.31	-	-	2.22	-
Pot Cap-1 Maneuver	143	907	-	-	1250	-
Stage 1	773	-	-	-	-	-
Stage 2	282	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	~ 93	907	-	-	1250	-
Mov Cap-2 Maneuver	157	-	-	-	-	-
Stage 1	773	-	-	-	-	-
Stage 2	183	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	22.4	0	4.7			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	157	907	1250	-
HCM Lane V/C Ratio	-	-	0.611	0.336	0.351	-
HCM Control Delay (s)	-	-	58.5	11	9.4	-
HCM Lane LOS	-	-	F	B	A	-
HCM 95th %tile Q(veh)	-	-	3.3	1.5	1.6	-
Notes						
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon			

Intersection						
Int Delay, s/veh	5.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↑ ↗	↑ ↗	↑ ↗	↑ ↗
Traffic Vol, veh/h	0	390	241	57	425	529
Future Vol, veh/h	0	390	241	57	425	529
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	25	350	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	5	5	2	2
Mvmt Flow	0	402	248	59	438	545
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	-	124	0	0	307	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.92	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.31	-	-	2.22	-
Pot Cap-1 Maneuver	0	907	-	-	1250	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	907	-	-	1250	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	12.1	0		4.2		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	
Capacity (veh/h)	-	-	907	1250	-	
HCM Lane V/C Ratio	-	-	0.443	0.351	-	
HCM Control Delay (s)	-	-	12.1	9.4	-	
HCM Lane LOS	-	-	B	A	-	
HCM 95th %tile Q(veh)	-	-	2.3	1.6	-	

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations			↑↑	↑↑	↑↑	↑↑
Traffic Vol, veh/h	0	93	93	537	860	0
Future Vol, veh/h	0	93	93	537	860	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	600	-	-	-
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	2	2	2
Mvmt Flow	0	101	101	584	935	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	-	468	935	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.92	4.12	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.31	2.21	-	-	-
Pot Cap-1 Maneuver	0	544	734	-	-	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	-	-	0
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	544	734	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	13.1	1.6		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT		
Capacity (veh/h)	734	-	544	-		
HCM Lane V/C Ratio	0.138	-	0.186	-		
HCM Control Delay (s)	10.7	-	13.1	-		
HCM Lane LOS	B	-	B	-		
HCM 95th %tile Q(veh)	0.5	-	0.7	-		

YEAR 2026

LEVEL OF SERVICE CALCULATIONS

AM & PM WITHOUT PROJECT, WITH BACKGROUND

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	63	2	55	2	2	15	112	1614	4	5	582	21
Future Vol, veh/h	63	2	55	2	2	15	112	1614	4	5	582	21
Conflicting Peds, #/hr	1	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									
Storage Length	-	-	-	-	-	-	300	-	25	300	-	25
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	2	2	0	11	11
Mvmt Flow	70	2	61	2	2	17	124	1793	4	6	647	23

Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	1806	2704	324	2378	2723	898	670	0	0	1797	0	0
Stage 1	659	659	-	2041	2041	-	-	-	-	-	-	-
Stage 2	1147	2045	-	337	682	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
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	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	~ 51	22	678	19	21	286	930	-	-	348	-	-
Stage 1	424	464	-	59	101	-	-	-	-	-	-	-
Stage 2	215	100	-	656	453	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 42	19	678	15	18	286	930	-	-	348	-	-
Mov Cap-2 Maneuver	120	67	-	44	68	-	-	-	-	-	-	-
Stage 1	368	456	-	51	88	-	-	-	-	-	-	-
Stage 2	171	87	-	584	445	-	-	-	-	-	-	-

Approach	EB	WB			NB			SB				
HCM Control Delay, s	59.9	33.1			0.6			0.1				
HCM LOS	F	D										
<hr/>												
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	930	-	-	189	149	348	-	-				
HCM Lane V/C Ratio	0.134	-	-	0.705	0.142	0.016	-	-				
HCM Control Delay (s)	9.5	-	-	59.9	33.1	15.5	-	-				
HCM Lane LOS	A	-	-	F	D	C	-	-				
HCM 95th %tile Q(veh)	0.5	-	-	4.4	0.5	0	-	-				

Notes

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

Intersection													
Int Delay, s/veh	0.7												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations				↑	↔		↑	↑↑	↑	↑	↑↑	↑	
Traffic Vol, veh/h	0	0	120	2	2	15	112	1677	6	5	582	21	
Future Vol, veh/h	0	0	120	2	2	15	112	1677	6	5	582	21	
Conflicting Peds, #/hr	1	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Yield	Yield	Yield	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	0	-	-	-	300	-	25	300	-	25	
Veh in Median Storage, #	-	0	-	-	1	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90	
Heavy Vehicles, %	0	0	0	0	0	0	0	2	2	0	11	11	
Mvmt Flow	0	0	133	2	2	17	124	1863	7	6	647	23	
Major/Minor			Minor1		Major1		Major2						
Conflicting Flow All			2447	2793	932	670	0	0	1870	0	0		
Stage 1			2111	2111	-	-	-	-	-	-	-		
Stage 2			336	682	-	-	-	-	-	-	-		
Critical Hdwy	6.8	6.5	6.9	4.1	-	-	-	-	4.1	-	-		
Critical Hdwy Stg 1	5.8	5.5	-	-	-	-	-	-	-	-	-		
Critical Hdwy Stg 2	5.8	5.5	-	-	-	-	-	-	-	-	-		
Follow-up Hdwy	3.5	4	3.3	2.2	-	-	-	-	2.2	-	-		
Pot Cap-1 Maneuver	27	19	272	930	-	-	326	-	-	-	-		
Stage 1	81	93	-	-	-	-	-	-	-	-	-		
Stage 2	702	453	-	-	-	-	-	-	-	-	-		
Platoon blocked, %							-	-	-	-	-		
Mov Cap-1 Maneuver	23	0	272	930	-	-	326	-	-	-	-		
Mov Cap-2 Maneuver	60	0	-	-	-	-	-	-	-	-	-		
Stage 1	70	0	-	-	-	-	-	-	-	-	-		
Stage 2	689	0	-	-	-	-	-	-	-	-	-		
Approach			WB		NB		SB						
HCM Control Delay, s			26.1			0.6			0.1				
HCM LOS			D										
Minor Lane/Major Mvmt			NBL	NBT	NBR	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	930	-	-	192	326	-	-	-	-				
HCM Lane V/C Ratio	0.134	-	-	0.11	0.017	-	-	-	-				
HCM Control Delay (s)	9.5	-	-	26.1	16.2	-	-	-	-				
HCM Lane LOS	A	-	-	D	C	-	-	-	-				
HCM 95th %tile Q(veh)	0.5	-	-	0.4	0.1	-	-	-	-				

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↑			↑	↑	↑↑	↑	↑	↑↑	↑
Traffic Vol, veh/h	0	0	175	0	0	45	45	1708	147	16	598	26
Future Vol, veh/h	0	0	175	0	0	45	45	1708	147	16	598	26
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	-	-	Yield
Storage Length	-	-	0	-	-	0	217	-	25	217	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	3	3	3	5	5	5	8	1	1	13	12	12
Mvmt Flow	0	0	206	0	0	53	53	2009	173	19	704	31
Major/Minor												
Minor2		Minor1			Major1			Major2				
Conflicting Flow All	-	-	352	-	-	1005	704	0	0	2182	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	7	4.26	-	-	4.36	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.35	2.28	-	-	2.33	-	-
Pot Cap-1 Maneuver	0	0	641	0	0	234	851	-	-	205	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	641	-	-	234	851	-	-	205	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Approach												
EB			WB			NB			SB			
HCM Control Delay, s	13.3			24.8			0.2			0.6		
HCM LOS	B			C								
Minor Lane/Major Mvmt			NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR		
Capacity (veh/h)	851	-	-	641	234	205	-	-	-	-		
HCM Lane V/C Ratio	0.062	-	-	0.321	0.226	0.092	-	-	-	-		
HCM Control Delay (s)	9.5	-	-	13.3	24.8	24.3	-	-	-	-		
HCM Lane LOS	A	-	-	B	C	C	-	-	-	-		
HCM 95th %tile Q(veh)	0.2	-	-	1.4	0.8	0.3	-	-	-	-		

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations			↑	↑↑	↑↑	
Traffic Vol, veh/h	0	24	24	1730	616	0
Future Vol, veh/h	0	24	24	1730	616	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	600	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	5	5	1	12	2
Mvmt Flow	0	26	26	1880	670	0
Major/Minor						
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	-	335	670	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7	4.2	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.35	2.25	-	-	-
Pot Cap-1 Maneuver	0	652	896	-	-	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	-	-	0
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	652	896	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach						
Approach	EB	NB		SB		
HCM Control Delay, s	10.8	0.1		0		
HCM LOS	B					
Minor Lane/Major Mvmt		NBL	NBT	EBLn1	SBT	
Capacity (veh/h)		896	-	652	-	
HCM Lane V/C Ratio		0.029	-	0.04	-	
HCM Control Delay (s)		9.1	-	10.8	-	
HCM Lane LOS		A	-	B	-	
HCM 95th %tile Q(veh)		0.1	-	0.1	-	

Intersection						
Int Delay, s/veh	2.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	114	1786	0	114	659
Future Vol, veh/h	0	114	1786	0	114	659
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	-	-	600	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	3	1	0	3	12
Mvmt Flow	0	124	1941	0	124	716
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	-	971	0	-	1941	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	4.16	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	2.23	-
Pot Cap-1 Maneuver	0	251	-	0	295	-
Stage 1	0	-	-	0	-	-
Stage 2	0	-	-	0	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	251	-	-	295	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	32.6	0		3.8		
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	WBL	Ln1	SBL	SBT	
Capacity (veh/h)	-	251	295	-		
HCM Lane V/C Ratio	-	0.494	0.42	-		
HCM Control Delay (s)	-	32.6	25.8	-		
HCM Lane LOS	-	D	D	-		
HCM 95th %tile Q(veh)	-	2.5	2	-		

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↑		↑↑		↑
Traffic Vol, veh/h	0	14	0	0	657	2
Future Vol, veh/h	0	14	0	0	657	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	25
Veh in Median Storage, #	0	-	-	16974	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	9	9	0	0	10	10
Mvmt Flow	0	16	0	0	730	2
Major/Minor	Minor2	Major2				
Conflicting Flow All	-	365		-	0	
Stage 1	-	-		-	-	
Stage 2	-	-		-	-	
Critical Hdwy	-	7.08		-	-	
Critical Hdwy Stg 1	-	-		-	-	
Critical Hdwy Stg 2	-	-		-	-	
Follow-up Hdwy	-	3.39		-	-	
Pot Cap-1 Maneuver	0	612		-	-	
Stage 1	0	-		-	-	
Stage 2	0	-		-	-	
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	612		-	-	
Mov Cap-2 Maneuver	-	-		-	-	
Stage 1	-	-		-	-	
Stage 2	-	-		-	-	
Approach	EB	SB				
HCM Control Delay, s	11		0			
HCM LOS	B					
Minor Lane/Major Mvmt	EBLn1	SBT	SBR			
Capacity (veh/h)	612	-	-			
HCM Lane V/C Ratio	0.025	-	-			
HCM Control Delay (s)	11	-	-			
HCM Lane LOS	B	-	-			
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	781	0	0	0	0	0	115	0	0	0	0	0
Future Vol, veh/h	781	0	0	0	0	0	115	0	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, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	0	0	0	0	0	0	0	0	0
Mvmt Flow	1001	0	0	0	0	0	147	0	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	-	-	-	-	7.1	6.5	-	-	-	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	6.1	5.5	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.5	4	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	0	1027	899	0	0	0	0	0	0	1090
Stage 1	0	-	0	-	-	0	0	0	0	0	0	-
Stage 2	0	-	0	1027	899	0	0	0	0	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	1027	899	-	-	-	-	-	-	1090
Mov Cap-2 Maneuver	-	-	-	1027	899	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	1027	899	-	-	-	-	-	-	-
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)	1027	-	-									
HCM Lane V/C Ratio	0.144	-	-									
HCM Control Delay (s)	9.1	-	0									
HCM Lane LOS	A	-	A									
HCM 95th %tile Q(veh)	0.5	-	-									

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	688	52	2	129	0	0	0	0	18	1	0
Future Vol, veh/h	0	688	52	2	129	0	0	0	0	18	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	16974	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2	0	0	0	22	22	22
Mvmt Flow	0	894	68	3	168	0	0	0	0	23	1	0
Major/Minor												
Major1		Major2					Minor2					
Conflicting Flow All	-	0	0	962	0	0	1102	1136	-			
Stage 1	-	-	-	-	-	-	174	174	-			
Stage 2	-	-	-	-	-	-	928	962	-			
Critical Hdwy	-	-	-	4.12	-	-	6.62	6.72	-			
Critical Hdwy Stg 1	-	-	-	-	-	-	5.62	5.72	-			
Critical Hdwy Stg 2	-	-	-	-	-	-	5.62	5.72	-			
Follow-up Hdwy	-	-	-	2.218	-	-	3.698	4.198	-			
Pot Cap-1 Maneuver	0	-	-	715	-	0	214	186	0			
Stage 1	0	-	-	-	-	0	810	719	0			
Stage 2	0	-	-	-	-	0	355	309	0			
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	-	-	-	715	-	-	213	0	-			
Mov Cap-2 Maneuver	-	-	-	-	-	-	213	0	-			
Stage 1	-	-	-	-	-	-	810	0	-			
Stage 2	-	-	-	-	-	-	353	0	-			
Approach												
EB			WB				SB					
HCM Control Delay, s	0			0.2			24.1					
HCM LOS							C					
Minor Lane/Major Mvmt												
EBT		EBR	WBL	WBT	SBLn1							
Capacity (veh/h)	-	-	715	-	213							
HCM Lane V/C Ratio	-	-	0.004	-	0.116							
HCM Control Delay (s)	-	-	10.1	0	24.1							
HCM Lane LOS	-	-	B	A	C							
HCM 95th %tile Q(veh)	-	-	0	-	0.4							

Intersection						
Int Delay, s/veh	4.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖		↗		↑	
Traffic Vol, veh/h	129	0	0	740	0	212
Future Vol, veh/h	129	0	0	740	0	212
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	-	16974	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	3	3	0	0	8	8
Mvmt Flow	148	0	0	851	0	244
Major/Minor	Minor1	Major2				
Conflicting Flow All	244	-	-	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	244	-	-	-	-	-
Critical Hdwy	6.43	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	-	-	-	-	-
Pot Cap-1 Maneuver	742	0	0	0	-	-
Stage 1	-	0	0	0	-	-
Stage 2	794	0	0	0	-	-
Platoon blocked, %		-	-	-	-	-
Mov Cap-1 Maneuver	742	-	-	-	-	-
Mov Cap-2 Maneuver	742	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	794	-	-	-	-	-
Approach	WB	SB				
HCM Control Delay, s	11.1	0				
HCM LOS	B					
Minor Lane/Major Mvmt	WBLn1	SBT				
Capacity (veh/h)	742	-				
HCM Lane V/C Ratio	0.2	-				
HCM Control Delay (s)	11.1	-				
HCM Lane LOS	B	-				
HCM 95th %tile Q(veh)	0.7	-				

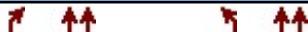
Intersection														
Int Delay, s/veh	9.3													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Vol, veh/h	237	1	124	0	2	17	37	919	3	12	453	84		
Future Vol, veh/h	237	1	124	0	2	17	37	919	3	12	453	84		
Conflicting Peds, #/hr	0	0	0	0	0	0	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	-	-	25	-	-	-	200	-	25	200	-	525		
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-		
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-		
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96		
Heavy Vehicles, %	3	3	3	17	17	17	4	2	2	9	9	6		
Mvmt Flow	247	1	129	0	2	18	39	957	3	13	472	88		
Major/Minor														
Minor2		Minor1			Major1			Major2						
Conflicting Flow All	1056	1536	236	1298	1621	479	560	0	0	960	0	0		
Stage 1	498	498	-	1035	1035	-	-	-	-	-	-	-		
Stage 2	558	1038	-	263	586	-	-	-	-	-	-	-		
Critical Hdwy	7.56	6.56	6.96	7.84	6.84	7.24	4.18	-	-	4.28	-	-		
Critical Hdwy Stg 1	6.56	5.56	-	6.84	5.84	-	-	-	-	-	-	-		
Critical Hdwy Stg 2	6.56	5.56	-	6.84	5.84	-	-	-	-	-	-	-		
Follow-up Hdwy	3.53	4.03	3.33	3.67	4.17	3.47	2.24	-	-	2.29	-	-		
Pot Cap-1 Maneuver	~ 178	114	763	105	88	494	993	-	-	671	-	-		
Stage 1	520	540	-	222	276	-	-	-	-	-	-	-		
Stage 2	479	304	-	678	460	-	-	-	-	-	-	-		
Platoon blocked, %								-	-	-	-	-		
Mov Cap-1 Maneuver	~ 163	108	763	83	83	494	993	-	-	671	-	-		
Mov Cap-2 Maneuver	284	210	-	167	183	-	-	-	-	-	-	-		
Stage 1	500	530	-	213	265	-	-	-	-	-	-	-		
Stage 2	440	292	-	551	451	-	-	-	-	-	-	-		
Approach														
EB			WB			NB			SB					
HCM Control Delay, s	46.5		14			0.3			0.2					
HCM LOS	E		B											
Minor Lane/Major Mvmt		NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	993		-	-	284	763	419	671	-	-				
HCM Lane V/C Ratio	0.039		-	-	0.873	0.169	0.047	0.019	-	-				
HCM Control Delay (s)	8.8		-	-	65.2	10.7	14	10.5	-	-				
HCM Lane LOS	A		-	-	F	B	B	B	-	-				
HCM 95th %tile Q(veh)	0.1		-	-	7.6	0.6	0.1	0.1	-	-				
Notes														
~: Volume exceeds capacity			\$: Delay exceeds 300s			+: Computation Not Defined			*: All major volume in platoon					

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	362	0	0	19	37	1156	4	12	453	87
Future Vol, veh/h	0	0	362	0	0	19	37	1156	4	12	453	87
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	-	25	200	-	525
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	3	3	3	17	17	17	4	2	2	9	9	6
Mvmt Flow	0	0	377	0	0	20	39	1204	4	13	472	91
Major/Minor												
Minor2		Minor1			Major1			Major2				
Conflicting Flow All	-	-	236	1544	1871	602	563	0	0	1208	0	0
Stage 1	-	-	-	1282	1282	-	-	-	-	-	-	-
Stage 2	-	-	-	262	589	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	7.84	6.84	7.24	4.18	-	-	4.28	-	-
Critical Hdwy Stg 1	-	-	-	6.84	5.84	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.84	5.84	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	3.67	4.17	3.47	2.24	-	-	2.29	-	-
Pot Cap-1 Maneuver	0	0	763	67	60	407	991	-	-	536	-	-
Stage 1	0	0	-	154	207	-	-	-	-	-	-	-
Stage 2	0	0	-	679	458	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	763	32	56	407	991	-	-	536	-	-
Mov Cap-2 Maneuver	-	-	-	103	144	-	-	-	-	-	-	-
Stage 1	-	-	-	148	199	-	-	-	-	-	-	-
Stage 2	-	-	-	335	447	-	-	-	-	-	-	-
Approach												
EB				WB				NB			SB	
HCM Control Delay, s	14.2			14.3				0.3			0.3	
HCM LOS	B			B				B			B	
Minor Lane/Major Mvmt			NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR		
Capacity (veh/h)	991			-	-	763	407	536	-	-		
HCM Lane V/C Ratio	0.039			-	-	0.494	0.049	0.023	-	-		
HCM Control Delay (s)	8.8			-	-	14.2	14.3	11.9	-	-		
HCM Lane LOS	A			-	-	B	B	B	-	-		
HCM 95th %tile Q(veh)	0.1			-	-	2.8	0.2	0.1	-	-		

Intersection

Int Delay, s/veh 3.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
----------	-----	-----	-----	-----	-----	-----

Lane Configurations 

Traffic Vol, veh/h 0 197 959 0 197 577

Future Vol, veh/h 0 197 959 0 197 577

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 - - 0 -

Veh in Median Storage, # 0 - 0 - - 0

Grade, % 0 - 0 - - 0

Peak Hour Factor 92 92 92 92 92 92

Heavy Vehicles, % 0 3 2 0 3 9

Mvmt Flow 0 214 1042 0 214 627

Major/Minor	Minor1	Major1	Major2
-------------	--------	--------	--------

Conflicting Flow All - 521 0 - 1042 0

Stage 1 - - - - - -

Stage 2 - - - - - -

Critical Hdwy - 6.96 - - 4.16 -

Critical Hdwy Stg 1 - - - - - -

Critical Hdwy Stg 2 - - - - - -

Follow-up Hdwy - 3.33 - - 2.23 -

Pot Cap-1 Maneuver 0 498 - 0 657 -

Stage 1 0 - - 0 - -

Stage 2 0 - - 0 - -

Platoon blocked, % - -

Mov Cap-1 Maneuver - 498 - - 657 -

Mov Cap-2 Maneuver - - - - - -

Stage 1 - - - - - -

Stage 2 - - - - - -

Approach	WB	NB	SB
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HCM Control Delay, s 17.6 0 3.3

HCM LOS C

Minor Lane/Major Mvmt	NBT	WBL	Ln1	SBL	SBT
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Capacity (veh/h) - 498 657 -

HCM Lane V/C Ratio - 0.43 0.326 -

HCM Control Delay (s) - 17.6 13.1 -

HCM Lane LOS - C B -

HCM 95th %tile Q(veh) - 2.1 1.4 -

Intersection						
Int Delay, s/veh	7.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↑	↑	↑↑	↑	↑	↑↑
Traffic Vol, veh/h	66	402	436	102	216	273
Future Vol, veh/h	66	402	436	102	216	273
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	25	-	25	350	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	1	1	2	2	9	9
Mvmt Flow	77	467	507	119	251	317
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1168	254	0	0	626	0
Stage 1	507	-	-	-	-	-
Stage 2	661	-	-	-	-	-
Critical Hdwy	6.82	6.92	-	-	4.28	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.51	3.31	-	-	2.29	-
Pot Cap-1 Maneuver	188	748	-	-	905	-
Stage 1	573	-	-	-	-	-
Stage 2	478	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	136	748	-	-	905	-
Mov Cap-2 Maneuver	254	-	-	-	-	-
Stage 1	573	-	-	-	-	-
Stage 2	346	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	18.6	0		4.6		
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	254	748	905	-
HCM Lane V/C Ratio	-	-	0.302	0.625	0.278	-
HCM Control Delay (s)	-	-	25.2	17.5	10.5	-
HCM Lane LOS	-	-	D	C	B	-
HCM 95th %tile Q(veh)	-	-	1.2	4.4	1.1	-

Intersection						
Int Delay, s/veh	7.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↑ ↗	↑ ↗	↑ ↗	↑ ↗
Traffic Vol, veh/h	0	468	436	102	216	339
Future Vol, veh/h	0	468	436	102	216	339
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	25	350	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	1	1	2	2	9	9
Mvmt Flow	0	544	507	119	251	394
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	-	254	0	0	626	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.92	-	-	4.28	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.31	-	-	2.29	-
Pot Cap-1 Maneuver	0	748	-	-	905	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	748	-	-	905	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	21.5	0		4.1		
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	
Capacity (veh/h)	-	-	748	905	-	
HCM Lane V/C Ratio	-	-	0.728	0.278	-	
HCM Control Delay (s)	-	-	21.5	10.5	-	
HCM Lane LOS	-	-	C	B	-	
HCM 95th %tile Q(veh)	-	-	6.4	1.1	-	

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	66	66	838	489	0
Future Vol, veh/h	0	66	66	838	489	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	600	-	-	-
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	2	9	0
Mvmt Flow	0	72	72	911	532	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	-	266	532	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.92	4.12	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.31	2.21	-	-	-
Pot Cap-1 Maneuver	0	735	1039	-	-	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	-	-	0
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	735	1039	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.4	0.6		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT		
Capacity (veh/h)	1039	-	735	-		
HCM Lane V/C Ratio	0.069	-	0.098	-		
HCM Control Delay (s)	8.7	-	10.4	-		
HCM Lane LOS	A	-	B	-		
HCM 95th %tile Q(veh)	0.2	-	0.3	-		

Intersection												
Int Delay, s/veh	7.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔			↔			↑	↑↑	↑	↑	↑↑	↑
Traffic Vol, veh/h	24	2	151	4	2	16	92	700	11	24	1533	71
Future Vol, veh/h	24	2	151	4	2	16	92	700	11	24	1533	71
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	-	-	-	-	-	-	300	-	25	300	-	25
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	5	5	5	0	7	7	5	1	1
Mvmt Flow	25	2	159	4	2	17	97	737	12	25	1614	75
Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	2228	2607	807	1789	2670	369	1689	0	0	749	0	0
Stage 1	1664	1664	-	931	931	-	-	-	-	-	-	-
Stage 2	564	943	-	858	1739	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.6	6.6	7	4.1	-	-	4.2	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.6	5.6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.6	5.6	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.55	4.05	3.35	2.2	-	-	2.25	-	-
Pot Cap-1 Maneuver	~ 24	25	329	49	21	620	383	-	-	836	-	-
Stage 1	103	155	-	281	337	-	-	-	-	-	-	-
Stage 2	483	344	-	312	135	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 17	18	329	20	15	620	383	-	-	836	-	-
Mov Cap-2 Maneuver	61	91	-	47	30	-	-	-	-	-	-	-
Stage 1	77	150	-	210	252	-	-	-	-	-	-	-
Stage 2	348	257	-	154	131	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	93.1			40.6			2			0.1		
HCM LOS	F			E								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1		SBL	SBT	SBR			
Capacity (veh/h)	383	-	-	202	124	836	-	-				
HCM Lane V/C Ratio	0.253	-	-	0.922	0.187	0.03	-	-				
HCM Control Delay (s)	17.6	-	-	93.1	40.6	9.4	-	-				
HCM Lane LOS	C	-	-	F	E	A	-	-				
HCM 95th %tile Q(veh)	1	-	-	7.4	0.7	0.1	-	-				
Notes												
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*	All major volume in platoon								

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	177	4	2	16	92	724	13	24	1533	71	
Future Vol, veh/h	0	0	177	4	2	16	92	724	13	24	1533	71	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Yield	Yield	Yield	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	0	-	-	-	300	-	25	300	-	25	
Veh in Median Storage, #	-	0	-	-	1	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95	
Heavy Vehicles, %	0	0	0	5	5	5	0	7	7	5	1	1	
Mvmt Flow	0	0	186	4	2	17	97	762	14	25	1614	75	
Major/Minor			Minor1		Major1		Major2						
Conflicting Flow All			1813	2695	381	1689	0	0	776	0	0		
Stage 1			956	956	-	-	-	-	-	-	-		
Stage 2			857	1739	-	-	-	-	-	-	-		
Critical Hdwy	6.9	6.6	7	4.1	-	-	-	-	4.2	-	-		
Critical Hdwy Stg 1	5.9	5.6	-	-	-	-	-	-	-	-	-		
Critical Hdwy Stg 2	5.9	5.6	-	-	-	-	-	-	-	-	-		
Follow-up Hdwy	3.55	4.05	3.35	2.2	-	-	-	2.25	-	-	-		
Pot Cap-1 Maneuver	67	20	608	383	-	-	817	-	-	-	-		
Stage 1	327	328	-	-	-	-	-	-	-	-	-		
Stage 2	369	135	-	-	-	-	-	-	-	-	-		
Platoon blocked, %							-	-	-	-	-		
Mov Cap-1 Maneuver	49	0	608	383	-	-	817	-	-	-	-		
Mov Cap-2 Maneuver	137	0	-	-	-	-	-	-	-	-	-		
Stage 1	244	0	-	-	-	-	-	-	-	-	-		
Stage 2	358	0	-	-	-	-	-	-	-	-	-		
Approach			WB		NB		SB						
HCM Control Delay, s			15.7			1.9			0.1				
HCM LOS			C										
Minor Lane/Major Mvmt			NBL	NBT	NBR	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	383	-	-	360	817	-	-	-	-				
HCM Lane V/C Ratio	0.253	-	-	0.064	0.031	-	-	-	-				
HCM Control Delay (s)	17.6	-	-	15.7	9.5	-	-	-	-				
HCM Lane LOS	C	-	-	C	A	-	-	-	-				
HCM 95th %tile Q(veh)	1	-	-	0.2	0.1	-	-	-	-				

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	106	0	0	81	66	746	85	32	1574	79
Future Vol, veh/h	0	0	106	0	0	81	66	746	85	32	1574	79
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	-	-	Yield
Storage Length	-	-	0	-	-	0	217	-	25	217	-	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, %	0	0	0	1	1	1	0	4	4	0	1	1
Mvmt Flow	0	0	114	0	0	87	71	802	91	34	1692	85
Major/Minor												
Minor2		Minor1			Major1			Major2				
Conflicting Flow All	-	-	846	-	-	401	1692	0	0	893	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.92	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.31	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	310	0	0	602	382	-	-	768	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	310	-	-	602	382	-	-	768	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Approach												
EB			WB			NB			SB			
HCM Control Delay, s	23.2		12			1.2			0.2			
HCM LOS	C		B									
Minor Lane/Major Mvmt			NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR		
Capacity (veh/h)	382		-	-	310	602	768	-	-	-		
HCM Lane V/C Ratio	0.186		-	-	0.368	0.145	0.045	-	-	-		
HCM Control Delay (s)	16.6		-	-	23.2	12	9.9	-	-	-		
HCM Lane LOS	C		-	-	C	B	A	-	-	-		
HCM 95th %tile Q(veh)	0.7		-	-	1.6	0.5	0.1	-	-	-		

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	56	56	771	1629	0
Future Vol, veh/h	0	56	56	771	1629	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	600	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	1	1	4	1	0
Mvmt Flow	0	61	61	838	1771	0
Major/Minor						
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	-	886	1771	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.92	4.12	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.31	2.21	-	-	-
Pot Cap-1 Maneuver	0	290	352	-	-	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	-	-	0
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	290	352	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach						
Approach	EB	NB	SB			
HCM Control Delay, s	20.7	1.2	0			
HCM LOS	C					
Minor Lane/Major Mvmt		NBL	NBT	EBLn1	SBT	
Capacity (veh/h)		352	-	290	-	
HCM Lane V/C Ratio		0.173	-	0.21	-	
HCM Control Delay (s)		17.4	-	20.7	-	
HCM Lane LOS		C	-	C	-	
HCM 95th %tile Q(veh)		0.6	-	0.8	-	

Intersection						
Int Delay, s/veh	0.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↑↑		↑↑	
Traffic Vol, veh/h	0	53	844	0	53	1627
Future Vol, veh/h	0	53	844	0	53	1627
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	-	-	600	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	4	0	0	1
Mvmt Flow	0	58	917	0	58	1768
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	-	459	0	-	917	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	4.1	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	0	554	-	0	752	-
Stage 1	0	-	-	0	-	-
Stage 2	0	-	-	0	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	554	-	-	752	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	12.3	0		0.3		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	WBL	Ln1	SBL	SBT	
Capacity (veh/h)	-	554	752	-		
HCM Lane V/C Ratio	-	0.104	0.077	-		
HCM Control Delay (s)	-	12.3	10.2	-		
HCM Lane LOS	-	B	B	-		
HCM 95th %tile Q(veh)	-	0.3	0.2	-		

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	4	0	0	1610	17
Future Vol, veh/h	0	4	0	0	1610	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	25
Veh in Median Storage, #	0	-	-	16974	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	1	1
Mvmt Flow	0	4	0	0	1713	18
Major/Minor	Minor2		Major2			
Conflicting Flow All	-	857	-	-	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	305	-	-	-	
Stage 1	0	-	-	-	-	
Stage 2	0	-	-	-	-	
Platoon blocked, %	-	-	-	-	-	
Mov Cap-1 Maneuver	-	305	-	-	-	
Mov Cap-2 Maneuver	-	-	-	-	-	
Stage 1	-	-	-	-	-	
Stage 2	-	-	-	-	-	
Approach	EB		SB			
HCM Control Delay, s	17		0			
HCM LOS	C					
Minor Lane/Major Mvmt	EBLn1	SBT	SBR			
Capacity (veh/h)	305	-	-			
HCM Lane V/C Ratio	0.014	-	-			
HCM Control Delay (s)	17	-	-			
HCM Lane LOS	C	-	-			
HCM 95th %tile Q(veh)	0	-	-			

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	396	0	0	0	0	0	132	1	0	0	0	0
Future Vol, veh/h	396	0	0	0	0	0	132	1	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	-	-	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, %	1	1	1	0	0	0	0	0	0	0	0	0
Mvmt Flow	421	0	0	0	0	0	140	1	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	-	-	-	-	7.1	6.5	-	-	-	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	6.1	5.5	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.5	4	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	0	1027	899	0	0	0	0	0	0	1090
Stage 1	0	-	0	-	-	0	0	0	0	0	0	-
Stage 2	0	-	0	1027	899	0	0	0	0	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	1027	899	-	-	-	-	-	-	1090
Mov Cap-2 Maneuver	-	-	-	1027	899	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	1027	899	-	-	-	-	-	-	-
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)	1026	-	-									
HCM Lane V/C Ratio	0.138	-	-									
HCM Control Delay (s)	9.1	-	0									
HCM Lane LOS	A	-	A									
HCM 95th %tile Q(veh)	0.5	-	-									

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	363	144	9	120	0	0	0	0	11	1	0
Future Vol, veh/h	0	363	144	9	120	0	0	0	0	11	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	16974	-	-	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	3	3	3	0	0	0	0	0	0
Mvmt Flow	0	454	180	11	150	0	0	0	0	14	1	0

Major/Minor	Major1	Major2				Minor2		
Conflicting Flow All	-	0	0	634	0	0	716 806	
Stage 1	-	-	-	-	-	-	172 172	
Stage 2	-	-	-	-	-	-	544 634	
Critical Hdwy	-	-	-	4.13	-	-	6.4 6.5	
Critical Hdwy Stg 1	-	-	-	-	-	-	5.4 5.5	
Critical Hdwy Stg 2	-	-	-	-	-	-	5.4 5.5	
Follow-up Hdwy	-	-	-	2.227	-	-	3.5 4	
Pot Cap-1 Maneuver	0	-	-	944	-	0	400 318	
Stage 1	0	-	-	-	-	0	863 760	
Stage 2	0	-	-	-	-	0	586 476	
Platoon blocked, %	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	-	-	-	944	-	-	395 0	
Mov Cap-2 Maneuver	-	-	-	-	-	-	395 0	
Stage 1	-	-	-	-	-	-	863 0	
Stage 2	-	-	-	-	-	-	578 0	

Approach	EB	WB	SB
HCM Control Delay, s	0	0.6	14.5
HCM LOS			B

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	944	-	395
HCM Lane V/C Ratio	-	-	0.012	-	0.038
HCM Control Delay (s)	-	-	8.9	0	14.5
HCM Lane LOS	-	-	A	A	B
HCM 95th %tile Q(veh)	-	-	0	-	0.1

Intersection

Int Delay, s/veh 2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
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Lane Configurations						
Traffic Vol, veh/h	120	0	0	507	0	604
Future Vol, veh/h	120	0	0	507	0	604
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	-	16974	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	0	0	1	1
Mvmt Flow	133	0	0	563	0	671

Major/Minor	Minor1	Major2
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Conflicting Flow All	671	-	-	-
Stage 1	0	-	-	-
Stage 2	671	-	-	-
Critical Hdwy	6.41	-	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-
Follow-up Hdwy	3.509	-	-	-
Pot Cap-1 Maneuver	423	0	0	-
Stage 1	-	0	0	-
Stage 2	510	0	0	-
Platoon blocked, %			-	
Mov Cap-1 Maneuver	423	-	-	-
Mov Cap-2 Maneuver	423	-	-	-
Stage 1	-	-	-	-
Stage 2	510	-	-	-

Approach	WB	SB
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HCM Control Delay, s	17.4	0
HCM LOS	C	

Minor Lane/Major Mvmt	WBLn1	SBT
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Capacity (veh/h)	423	-
HCM Lane V/C Ratio	0.315	-
HCM Control Delay (s)	17.4	-
HCM Lane LOS	C	-
HCM 95th %tile Q(veh)	1.3	-

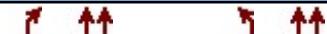
Intersection												
Int Delay, s/veh	4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖ ↗ ↗ ↗ ↗ ↗ ↗ ↗ ↗ ↗ ↗ ↗ ↗											
Traffic Vol, veh/h	81	0	74	8	0	22	129	547	4	21	920	208
Future Vol, veh/h	81	0	74	8	0	22	129	547	4	21	920	208
Conflicting Peds, #/hr	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	-	-	25	-	-	-	200	-	25	200	-	525
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	4	4	4	0	5	5	0	1	1
Mvmt Flow	84	0	76	8	0	23	133	564	4	22	948	214
Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	1540	1826	474	1348	2036	282	1162	0	0	568	0	0
Stage 1	992	992	-	830	830	-	-	-	-	-	-	-
Stage 2	548	834	-	518	1206	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.58	6.58	6.98	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.58	5.58	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.58	5.58	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.54	4.04	3.34	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	~79	76	537	107	55	709	608	-	-	1014	-	-
Stage 1	264	322	-	326	378	-	-	-	-	-	-	-
Stage 2	488	381	-	504	251	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~63	58	537	75	42	709	608	-	-	1014	-	-
Mov Cap-2 Maneuver	144	161	-	158	88	-	-	-	-	-	-	-
Stage 1	206	315	-	255	295	-	-	-	-	-	-	-
Stage 2	369	298	-	423	245	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	37.4			15.7			2.4			0.2		
HCM LOS	E			C								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR			
Capacity (veh/h)	608	-	-	144	537	367	1014	-	-			
HCM Lane V/C Ratio	0.219	-	-	0.58	0.142	0.084	0.021	-	-			
HCM Control Delay (s)	12.6	-	-	59.8	12.8	15.7	8.6	-	-			
HCM Lane LOS	B	-	-	F	B	C	A	-	-			
HCM 95th %tile Q(veh)	0.8	-	-	3	0.5	0.3	0.1	-	-			
Notes												
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon									

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	156	0	0	29	129	628	4	21	928	208
Future Vol, veh/h	0	0	156	0	0	29	129	628	4	21	928	208
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	-	25	200	-	525
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	4	4	4	0	5	5	0	1	1
Mvmt Flow	0	0	161	0	0	30	133	647	4	22	957	214
Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	-	-	479	1436	2128	324	1171	0	0	651	0	0
Stage 1	-	-	-	913	913	-	-	-	-	-	-	-
Stage 2	-	-	-	523	1215	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	7.58	6.58	6.98	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-	6.58	5.58	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.58	5.58	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	3.54	4.04	3.34	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	533	92	48	666	604	-	-	945	-	-
Stage 1	0	0	-	290	346	-	-	-	-	-	-	-
Stage 2	0	0	-	500	248	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	-	-	533	52	37	666	604	-	-	945	-	-
Mov Cap-2 Maneuver	-	-	-	123	84	-	-	-	-	-	-	-
Stage 1	-	-	-	226	270	-	-	-	-	-	-	-
Stage 2	-	-	-	341	242	-	-	-	-	-	-	-
Approach	EB	WB			NB			SB				
HCM Control Delay, s	14.6	10.7			2.1			0.2				
HCM LOS	B	B										
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	604	-	-	533	666	945	-	-				
HCM Lane V/C Ratio	0.22	-	-	0.302	0.045	0.023	-	-				
HCM Control Delay (s)	12.6	-	-	14.6	10.7	8.9	-	-				
HCM Lane LOS	B	-	-	B	B	A	-	-				
HCM 95th %tile Q(veh)	0.8	-	-	1.3	0.1	0.1	-	-				

Intersection

Int Delay, s/veh 0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
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Lane Configurations 

Traffic Vol, veh/h 0 56 680 0 56 1002

Future Vol, veh/h 0 56 680 0 56 1002

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 - - 600 -

Veh in Median Storage, # 0 - 0 - - 0

Grade, % 0 - 0 - - 0

Peak Hour Factor 92 92 92 92 92 92

Heavy Vehicles, % 0 2 5 0 2 1

Mvmt Flow 0 61 739 0 61 1089

Major/Minor	Minor1	Major1	Major2
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Conflicting Flow All - 370 0 - 739 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 0 627 - 0 863 -

Stage 1 0 - - 0 - -

Stage 2 0 - - 0 - -

Platoon blocked, % - -

Mov Cap-1 Maneuver - 627 - - 863 -

Mov Cap-2 Maneuver - - - - - -

Stage 1 - - - - - -

Stage 2 - - - - - -

Approach	WB	NB	SB
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HCM Control Delay, s 11.4 0 0.5

HCM LOS B

Minor Lane/Major Mvmt	NBT	WBL	Ln1	SBL	SBT
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Capacity (veh/h) - 627 863 -

HCM Lane V/C Ratio - 0.097 0.071 -

HCM Control Delay (s) - 11.4 9.5 -

HCM Lane LOS - B A -

HCM 95th %tile Q(veh) - 0.3 0.2 -

Intersection

Int Delay, s/veh 10

Movement	WBL	WBR	NBT	NBR	SBL	SBT
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Lane Configurations						
Traffic Vol, veh/h	106	309	295	64	434	511
Future Vol, veh/h	106	309	295	64	434	511
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	25	-	25	350	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	5	5	2	2
Mvmt Flow	109	319	304	66	447	527

Major/Minor	Minor1	Major1	Major2
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Conflicting Flow All	1462	152	0	0	370	0
Stage 1	304	-	-	-	-	-
Stage 2	1158	-	-	-	-	-
Critical Hdwy	6.82	6.92	-	-	4.14	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.51	3.31	-	-	2.22	-
Pot Cap-1 Maneuver	121	870	-	-	1185	-
Stage 1	725	-	-	-	-	-
Stage 2	263	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	~ 75	870	-	-	1185	-
Mov Cap-2 Maneuver	140	-	-	-	-	-
Stage 1	725	-	-	-	-	-
Stage 2	164	-	-	-	-	-

Approach	WB	NB	SB
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HCM Control Delay, s	31.1	0	4.5
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
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Capacity (veh/h)	-	-	140	870	1185	-
HCM Lane V/C Ratio	-	-	0.781	0.366	0.378	-
HCM Control Delay (s)	-	-	88.4	11.5	9.9	-
HCM Lane LOS	-	-	F	B	A	-
HCM 95th %tile Q(veh)	-	-	4.8	1.7	1.8	-

Notes

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

Intersection						
Int Delay, s/veh	5.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↑ ↗	↑ ↗	↑ ↗	↑ ↗
Traffic Vol, veh/h	0	416	295	64	434	618
Future Vol, veh/h	0	416	295	64	434	618
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	25	350	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	5	5	2	2
Mvmt Flow	0	429	304	66	447	637
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	-	152	0	0	370	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.92	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.31	-	-	2.22	-
Pot Cap-1 Maneuver	0	870	-	-	1185	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	870	-	-	1185	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	13.1	0		4.1		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	
Capacity (veh/h)	-	-	870	1185	-	
HCM Lane V/C Ratio	-	-	0.493	0.378	-	
HCM Control Delay (s)	-	-	13.1	9.9	-	
HCM Lane LOS	-	-	B	A	-	
HCM 95th %tile Q(veh)	-	-	2.8	1.8	-	

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations			↑	↑↑	↑↑	
Traffic Vol, veh/h	0	106	106	604	945	0
Future Vol, veh/h	0	106	106	604	945	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	600	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	1	1	2	2	2
Mvmt Flow	0	115	115	657	1027	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	-	514	1027	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.92	4.12	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.31	2.21	-	-	-
Pot Cap-1 Maneuver	0	508	678	-	-	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	-	-	0
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	508	678	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	14.2	1.7		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT		
Capacity (veh/h)	678	-	508	-		
HCM Lane V/C Ratio	0.17	-	0.227	-		
HCM Control Delay (s)	11.4	-	14.2	-		
HCM Lane LOS	B	-	B	-		
HCM 95th %tile Q(veh)	0.6	-	0.9	-		

YEAR 2026

LEVEL OF SERVICE CALCULATIONS

AM & PM WITH PROJECT, WITH BACKGROUND

Intersection

Int Delay, s/veh 3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	63	2	56	2	2	15	115	1625	4	5	587	21
Future Vol, veh/h	63	2	56	2	2	15	115	1625	4	5	587	21
Conflicting Peds, #/hr	1	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									
Storage Length	-	-	-	-	-	-	300	-	25	300	-	25
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	2	2	0	11	11
Mvmt Flow	70	2	62	2	2	17	128	1806	4	6	652	23

Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	1825	2730	326	2401	2749	904	675	0	0	1810	0	0
Stage 1	664	664	-	2062	2062	-	-	-	-	-	-	-
Stage 2	1161	2066	-	339	687	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
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	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	~ 49	21	676	18	20	284	926	-	-	344	-	-
Stage 1	421	461	-	58	98	-	-	-	-	-	-	-
Stage 2	211	98	-	655	450	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 40	18	676	14	17	284	926	-	-	344	-	-
Mov Cap-2 Maneuver	116	65	-	43	65	-	-	-	-	-	-	-
Stage 1	363	453	-	50	84	-	-	-	-	-	-	-
Stage 2	166	84	-	581	442	-	-	-	-	-	-	-

Approach	EB	WB			NB			SB			
HCM Control Delay, s	64.5	33.8			0.6			0.1			
HCM LOS	F	D									
<hr/>											
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR			
Capacity (veh/h)	926	-	-	184	146	344	-	-			
HCM Lane V/C Ratio	0.138	-	-	0.731	0.145	0.016	-	-			
HCM Control Delay (s)	9.5	-	-	64.5	33.8	15.6	-	-			
HCM Lane LOS	A	-	-	F	D	C	-	-			
HCM 95th %tile Q(veh)	0.5	-	-	4.6	0.5	0	-	-			

Notes

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

Intersection													
Int Delay, s/veh 0.7													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations				↑	↔		↑	↑↑	↑	↑	↑↑	↑	
Traffic Vol, veh/h	0	0	121	2	2	15	115	1688	6	5	587	21	
Future Vol, veh/h	0	0	121	2	2	15	115	1688	6	5	587	21	
Conflicting Peds, #/hr	1	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Yield	Yield	Yield	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	0	-	-	-	300	-	25	300	-	25	
Veh in Median Storage, #	-	0	-	-	1	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90	
Heavy Vehicles, %	0	0	0	0	0	0	0	2	2	0	11	11	
Mvmt Flow	0	0	134	2	2	17	128	1876	7	6	652	23	
Major/Minor			Minor1		Major1		Major2						
Conflicting Flow All			2470	2819	938	675	0	0	1883	0	0		
Stage 1			2132	2132	-	-	-	-	-	-	-		
Stage 2			338	687	-	-	-	-	-	-	-		
Critical Hdwy			6.8	6.5	6.9	4.1	-	-	4.1	-	-		
Critical Hdwy Stg 1			5.8	5.5	-	-	-	-	-	-	-		
Critical Hdwy Stg 2			5.8	5.5	-	-	-	-	-	-	-		
Follow-up Hdwy			3.5	4	3.3	2.2	-	-	2.2	-	-		
Pot Cap-1 Maneuver			26	18	269	926	-	-	323	-	-		
Stage 1			79	91	-	-	-	-	-	-	-		
Stage 2			700	450	-	-	-	-	-	-	-		
Platoon blocked, %			-	-	-	-	-	-	-	-	-		
Mov Cap-1 Maneuver			22	0	269	926	-	-	323	-	-		
Mov Cap-2 Maneuver			59	0	-	-	-	-	-	-	-		
Stage 1			68	0	-	-	-	-	-	-	-		
Stage 2			687	0	-	-	-	-	-	-	-		
Approach			WB		NB		SB						
HCM Control Delay, s			26.3		0.6		0.1						
HCM LOS			D										
Minor Lane/Major Mvmt			NBL	NBT	NBR	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)			926	-	-	190	323	-	-				
HCM Lane V/C Ratio			0.138	-	-	0.111	0.017	-	-				
HCM Control Delay (s)			9.5	-	-	26.3	16.3	-	-				
HCM Lane LOS			A	-	-	D	C	-	-				
HCM 95th %tile Q(veh)			0.5	-	-	0.4	0.1	-	-				

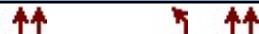
Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↑			↑	↑	↑↑	↑	↑	↑↑	↑
Traffic Vol, veh/h	0	0	175	0	0	47	45	1722	152	16	606	26
Future Vol, veh/h	0	0	175	0	0	47	45	1722	152	16	606	26
Conflicting Peds, #/hr	0	0	0	0	0	0	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	-	-	Yield
Storage Length	-	-	0	-	-	0	217	-	25	217	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	3	3	3	5	5	5	8	1	1	13	12	12
Mvmt Flow	0	0	206	0	0	55	53	2026	179	19	713	31
Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	-	-	357	-	-	1013	713	0	0	2205	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	7	4.26	-	-	4.36	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.35	2.28	-	-	2.33	-	-
Pot Cap-1 Maneuver	0	0	637	0	0	231	844	-	-	201	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	637	-	-	231	844	-	-	201	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	13.3		25.4			0.2			0.6			
HCM LOS	B		D			-			-			
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	844	-	-	637	231	201	-	-				
HCM Lane V/C Ratio	0.063	-	-	0.323	0.239	0.094	-	-				
HCM Control Delay (s)	9.6	-	-	13.3	25.4	24.8	-	-				
HCM Lane LOS	A	-	-	B	D	C	-	-				
HCM 95th %tile Q(veh)	0.2	-	-	1.4	0.9	0.3	-	-				

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	26	26	1744	624	0
Future Vol, veh/h	0	26	26	1744	624	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	600	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	5	5	1	12	2
Mvmt Flow	0	28	28	1896	678	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	-	339	678	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7	4.2	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.35	2.25	-	-	-
Pot Cap-1 Maneuver	0	648	890	-	-	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	-	-	0
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	648	890	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.8	0.1		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT		
Capacity (veh/h)	890	-	648	-		
HCM Lane V/C Ratio	0.032	-	0.044	-		
HCM Control Delay (s)	9.2	-	10.8	-		
HCM Lane LOS	A	-	B	-		
HCM 95th %tile Q(veh)	0.1	-	0.1	-		

Intersection

Int Delay, s/veh 2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
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Lane Configurations 

Traffic Vol, veh/h 0 114 1805 0 114 669

Future Vol, veh/h 0 114 1805 0 114 669

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 - - 600 -

Veh in Median Storage, # 0 - 0 - - 0

Grade, % 0 - 0 - - 0

Peak Hour Factor 92 92 92 92 92 92

Heavy Vehicles, % 0 3 1 0 3 12

Mvmt Flow 0 124 1962 0 124 727

Major/Minor	Minor1	Major1	Major2
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Conflicting Flow All - 981 0 - 1962 0

Stage 1 - - - - - -

Stage 2 - - - - - -

Critical Hdwy - 6.96 - - 4.16 -

Critical Hdwy Stg 1 - - - - - -

Critical Hdwy Stg 2 - - - - - -

Follow-up Hdwy - 3.33 - - 2.23 -

Pot Cap-1 Maneuver 0 247 - 0 289 -

Stage 1 0 - - 0 - -

Stage 2 0 - - 0 - -

Platoon blocked, % - -

Mov Cap-1 Maneuver - 247 - - 289 -

Mov Cap-2 Maneuver - - - - - -

Stage 1 - - - - - -

Stage 2 - - - - - -

Approach	WB	NB	SB
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HCM Control Delay, s 33.4 0 3.9

HCM LOS D

Minor Lane/Major Mvmt	NBT	WBL	Ln1	SBL	SBT
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Capacity (veh/h) - 247 289 -

HCM Lane V/C Ratio - 0.502 0.429 -

HCM Control Delay (s) - 33.4 26.5 -

HCM Lane LOS - D D -

HCM 95th %tile Q(veh) - 2.6 2 -

Intersection

Int Delay, s/veh 0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
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Lane Configurations						
Traffic Vol, veh/h	0	41	0	0	657	14
Future Vol, veh/h	0	41	0	0	657	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	25
Veh in Median Storage, #	0	-	-	16974	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	9	9	0	0	10	10
Mvmt Flow	0	46	0	0	730	16

Major/Minor	Minor2	Major2
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Conflicting Flow All	-	365	-	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	7.08	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.39	-	-
Pot Cap-1 Maneuver	0	612	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	612	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	SB
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HCM Control Delay, s	11.4	0
HCM LOS	B	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
-----------------------	-------	-----	-----

Capacity (veh/h)	612	-	-
HCM Lane V/C Ratio	0.074	-	-
HCM Control Delay (s)	11.4	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.2	-	-

Intersection

Int Delay, s/veh 4.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	B	B		A	
Traffic Vol, veh/h	13	1	0	28	12	0
Future Vol, veh/h	13	1	0	28	12	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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	50	50	0	9	9	0
Mvmt Flow	14	1	0	30	13	0

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	41	15	0	0	30
Stage 1	15	-	-	-	-
Stage 2	26	-	-	-	-
Critical Hdwy	6.9	6.7	-	-	4.19
Critical Hdwy Stg 1	5.9	-	-	-	-
Critical Hdwy Stg 2	5.9	-	-	-	-
Follow-up Hdwy	3.95	3.75	-	-	2.281
Pot Cap-1 Maneuver	862	941	-	-	1539
Stage 1	897	-	-	-	-
Stage 2	886	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	855	941	-	-	1539
Mov Cap-2 Maneuver	855	-	-	-	-
Stage 1	897	-	-	-	-
Stage 2	879	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.3	0	7.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	861	1539	-
HCM Lane V/C Ratio	-	-	0.018	0.008	-
HCM Control Delay (s)	-	-	9.3	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection

Int Delay, s/veh 5.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
----------	-----	-----	-----	-----	-----	-----

Lane Configurations



Traffic Vol, veh/h 28 0 0 0 0 13

Future Vol, veh/h 28 0 0 0 0 13

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Stop Stop Free Free Free Free

RT Channelized - None - None - None

Storage Length 0 - - - - -

Veh in Median Storage, # 0 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 92 92 92 92 92 92

Heavy Vehicles, % 9 0 0 0 0 50

Mvmt Flow 30 0 0 0 0 14

Major/Minor	Minor2	Major1	Major2
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Conflicting Flow All 7 7 14 0 - 0

Stage 1 7 - - - - -

Stage 2 0 - - - - -

Critical Hdwy 6.49 6.2 4.1 - - -

Critical Hdwy Stg 1 5.49 - - - - -

Critical Hdwy Stg 2 5.49 - - - - -

Follow-up Hdwy 3.581 3.3 2.2 - - -

Pot Cap-1 Maneuver 996 1081 1617 - - -

Stage 1 998 - - - - -

Stage 2 - - - - - -

Platoon blocked, % - - - - - -

Mov Cap-1 Maneuver 996 1081 1617 - - -

Mov Cap-2 Maneuver 996 - - - - -

Stage 1 998 - - - - -

Stage 2 - - - - - -

Approach	EB	NB	SB
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HCM Control Delay, s 8.7 0 0

HCM LOS A

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
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Capacity (veh/h) 1617 - 996 - -

HCM Lane V/C Ratio - - 0.031 - -

HCM Control Delay (s) 0 - 8.7 - -

HCM Lane LOS A - A - -

HCM 95th %tile Q(veh) 0 - 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	802	0	0	0	0	0	115	0	0	0	0	0
Future Vol, veh/h	802	0	0	0	0	0	115	0	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									
Storage Length	0	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	0	0	0	0	0	0	0	0	0
Mvmt Flow	1028	0	0	0	0	0	147	0	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	-	7.1 6.5	- - - 6.2
Critical Hdwy Stg 1	-	- -	- - -
Critical Hdwy Stg 2	-	6.1 5.5	- - -
Follow-up Hdwy	-	3.5 4	- - - 3.3
Pot Cap-1 Maneuver	0 - 0 1027 899	0 0 0 1090	
Stage 1	0 - 0 -	0 0 0 -	
Stage 2	0 - 0 1027 899	0 0 0 -	
Platoon blocked, %	-		
Mov Cap-1 Maneuver	- - - 1027 899	- - - 1090	
Mov Cap-2 Maneuver	- - - 1027 899	- - -	
Stage 1	- - - -	- - -	
Stage 2	- - - 1027 899	- - -	

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)	1027	- -	
HCM Lane V/C Ratio	0.144	- -	
HCM Control Delay (s)	9.1	- 0	
HCM Lane LOS	A	- A	
HCM 95th %tile Q(veh)	0.5	- -	

Intersection

Int Delay, s/veh 1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	690	52	2	129	0	0	0	0	37	1	0
Future Vol, veh/h	0	690	52	2	129	0	0	0	0	37	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	16974	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2	0	0	0	22	22	22
Mvmt Flow	0	896	68	3	168	0	0	0	0	48	1	0

Major/Minor	Major1	Major2				Minor2		
Conflicting Flow All	-	0	0	964	0	0	1104 1138	
Stage 1	-	-	-	-	-	-	174 174	
Stage 2	-	-	-	-	-	-	930 964	
Critical Hdwy	-	-	-	4.12	-	-	6.62 6.72	
Critical Hdwy Stg 1	-	-	-	-	-	-	5.62 5.72	
Critical Hdwy Stg 2	-	-	-	-	-	-	5.62 5.72	
Follow-up Hdwy	-	-	-	2.218	-	-	3.698 4.198	
Pot Cap-1 Maneuver	0	-	-	714	-	0	214 185	
Stage 1	0	-	-	-	-	0	810 719	
Stage 2	0	-	-	-	-	0	354 309	
Platoon blocked, %	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	-	-	-	714	-	-	213 0	
Mov Cap-2 Maneuver	-	-	-	-	-	-	213 0	
Stage 1	-	-	-	-	-	-	810 0	
Stage 2	-	-	-	-	-	-	352 0	

Approach	EB	WB	SB
HCM Control Delay, s	0	0.2	26.9
HCM LOS			D

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	714	-	213
HCM Lane V/C Ratio	-	-	0.004	-	0.232
HCM Control Delay (s)	-	-	10.1	0	26.9
HCM Lane LOS	-	-	B	A	D
HCM 95th %tile Q(veh)	-	-	0	-	0.9

Intersection

Int Delay, s/veh 4.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖		↗		↑	
Traffic Vol, veh/h	129	0	0	742	0	216
Future Vol, veh/h	129	0	0	742	0	216
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	-	16974	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	3	3	0	0	8	8
Mvmt Flow	148	0	0	853	0	248

Major/Minor **Minor1** **Major2**

Conflicting Flow All	248	-	-	-
Stage 1	0	-	-	-
Stage 2	248	-	-	-
Critical Hdwy	6.43	-	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-
Follow-up Hdwy	3.527	-	-	-
Pot Cap-1 Maneuver	738	0	0	-
Stage 1	-	0	0	-
Stage 2	791	0	0	-
Platoon blocked, %		-		
Mov Cap-1 Maneuver	738	-	-	-
Mov Cap-2 Maneuver	738	-	-	-
Stage 1	-	-	-	-
Stage 2	791	-	-	-

Approach **WB** **SB**

HCM Control Delay, s	11.1	0
HCM LOS	B	

Minor Lane/Major Mvmt	WBLn1	SBT
Capacity (veh/h)	738	-
HCM Lane V/C Ratio	0.201	-
HCM Control Delay (s)	11.1	-
HCM Lane LOS	B	-
HCM 95th %tile Q(veh)	0.7	-

Intersection

Int Delay, s/veh 9.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	237	1	124	0	2	17	37	921	3	12	457	84
Future Vol, veh/h	237	1	124	0	2	17	37	921	3	12	457	84
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									
Storage Length	-	-	25	-	-	-	200	-	25	200	-	525
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	3	3	3	17	17	17	4	2	2	9	9	6
Mvmt Flow	247	1	129	0	2	18	39	959	3	13	476	88

Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	1061	1542	238	1302	1627	480	564	0	0	962	0	0
Stage 1	502	502	-	1037	1037	-	-	-	-	-	-	-
Stage 2	559	1040	-	265	590	-	-	-	-	-	-	-
Critical Hdwy	7.56	6.56	6.96	7.84	6.84	7.24	4.18	-	-	4.28	-	-
Critical Hdwy Stg 1	6.56	5.56	-	6.84	5.84	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	5.56	-	6.84	5.84	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	4.03	3.33	3.67	4.17	3.47	2.24	-	-	2.29	-	-
Pot Cap-1 Maneuver	~ 177	113	760	104	87	494	990	-	-	670	-	-
Stage 1	517	538	-	222	276	-	-	-	-	-	-	-
Stage 2	478	303	-	677	458	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 162	107	760	82	82	494	990	-	-	670	-	-
Mov Cap-2 Maneuver	283	209	-	166	182	-	-	-	-	-	-	-
Stage 1	497	528	-	213	265	-	-	-	-	-	-	-
Stage 2	439	291	-	550	449	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	47	14	0.3	0.2
HCM LOS	E	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	990	-	-	283	760	418	670	-	-
HCM Lane V/C Ratio	0.039	-	-	0.876	0.17	0.047	0.019	-	-
HCM Control Delay (s)	8.8	-	-	65.9	10.7	14	10.5	-	-
HCM Lane LOS	A	-	-	F	B	B	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	7.7	0.6	0.1	0.1	-	-

Notes

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

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↑	↔		↑	↑↑	↑	↑	↑↑	↑
Traffic Vol, veh/h	0	0	362	0	0	19	37	1158	4	12	457	87
Future Vol, veh/h	0	0	362	0	0	19	37	1158	4	12	457	87
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	-	25	200	-	525
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	3	3	3	17	17	17	4	2	2	9	9	6
Mvmt Flow	0	0	377	0	0	20	39	1206	4	13	476	91
Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	-	-	238	1548	1877	603	567	0	0	1210	0	0
Stage 1	-	-	-	1284	1284	-	-	-	-	-	-	-
Stage 2	-	-	-	264	593	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	7.84	6.84	7.24	4.18	-	-	4.28	-	-
Critical Hdwy Stg 1	-	-	-	6.84	5.84	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.84	5.84	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	3.67	4.17	3.47	2.24	-	-	2.29	-	-
Pot Cap-1 Maneuver	0	0	760	67	60	407	987	-	-	535	-	-
Stage 1	0	0	-	153	207	-	-	-	-	-	-	-
Stage 2	0	0	-	678	456	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	760	32	56	407	987	-	-	535	-	-
Mov Cap-2 Maneuver	-	-	-	102	144	-	-	-	-	-	-	-
Stage 1	-	-	-	147	199	-	-	-	-	-	-	-
Stage 2	-	-	-	333	445	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	14.3			14.3			0.3			0.3		
HCM LOS	B			B			B			B		
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1		SBL	SBT	SBR			
Capacity (veh/h)	987	-	-	760	407	535	-	-	-			
HCM Lane V/C Ratio	0.039	-	-	0.496	0.049	0.023	-	-	-			
HCM Control Delay (s)	8.8	-	-	14.3	14.3	11.9	-	-	-			
HCM Lane LOS	A	-	-	B	B	B	-	-	-			
HCM 95th %tile Q(veh)	0.1	-	-	2.8	0.2	0.1	-	-	-			

Intersection						
Int Delay, s/veh	3.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑↑		↑↑		
Traffic Vol, veh/h	0	197	961	0	197	581
Future Vol, veh/h	0	197	961	0	197	581
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	-	-	600	-
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	0	214	1045	0	214	632
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	-	523	0	-	1045	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	499	-	0	661	-
Stage 1	0	-	-	0	-	-
Stage 2	0	-	-	0	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	499	-	-	661	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	17.5	0		3.3		
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	WBL	Ln1	SBL	SBT	
Capacity (veh/h)	-	499	661	-		
HCM Lane V/C Ratio	-	0.429	0.324	-		
HCM Control Delay (s)	-	17.5	13	-		
HCM Lane LOS	-	C	B	-		
HCM 95th %tile Q(veh)	-	2.1	1.4	-		

Intersection						
Int Delay, s/veh	7.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↑	↑	↑↑	↑	↑	↑↑
Traffic Vol, veh/h	66	403	437	102	218	275
Future Vol, veh/h	66	403	437	102	218	275
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	25	-	25	350	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	1	1	2	2	9	9
Mvmt Flow	77	469	508	119	253	320
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1174	254	0	0	627	0
Stage 1	508	-	-	-	-	-
Stage 2	666	-	-	-	-	-
Critical Hdwy	6.82	6.92	-	-	4.28	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.51	3.31	-	-	2.29	-
Pot Cap-1 Maneuver	186	748	-	-	905	-
Stage 1	572	-	-	-	-	-
Stage 2	475	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	134	748	-	-	905	-
Mov Cap-2 Maneuver	251	-	-	-	-	-
Stage 1	572	-	-	-	-	-
Stage 2	342	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	18.6	0	4.7			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	251	748	905	-
HCM Lane V/C Ratio	-	-	0.306	0.626	0.28	-
HCM Control Delay (s)	-	-	25.5	17.5	10.5	-
HCM Lane LOS	-	-	D	C	B	-
HCM 95th %tile Q(veh)	-	-	1.2	4.5	1.2	-

Intersection						
Int Delay, s/veh	7.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↑ ↗	↑ ↗	↑ ↗	↑ ↗
Traffic Vol, veh/h	0	469	437	102	218	341
Future Vol, veh/h	0	469	437	102	218	341
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	25	350	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	1	1	2	2	9	9
Mvmt Flow	0	545	508	119	253	397
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	-	254	0	0	627	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.92	-	-	4.28	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.31	-	-	2.29	-
Pot Cap-1 Maneuver	0	748	-	-	905	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	748	-	-	905	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	21.6	0		4.1		
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	
Capacity (veh/h)	-	-	748	905	-	
HCM Lane V/C Ratio	-	-	0.729	0.28	-	
HCM Control Delay (s)	-	-	21.6	10.5	-	
HCM Lane LOS	-	-	C	B	-	
HCM 95th %tile Q(veh)	-	-	6.4	1.2	-	

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations			↑↑	↑↑	↑↑	↑↑
Traffic Vol, veh/h	0	66	66	840	493	0
Future Vol, veh/h	0	66	66	840	493	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	600	-	-	-
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	2	9	0
Mvmt Flow	0	72	72	913	536	0
Major/Minor						
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	-	268	536	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.92	4.12	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.31	2.21	-	-	-
Pot Cap-1 Maneuver	0	733	1035	-	-	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	-	-	0
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	733	1035	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach						
Approach	EB	NB		SB		
HCM Control Delay, s	10.4	0.6		0		
HCM LOS	B					
Minor Lane/Major Mvmt		NBL	NBT	EBLn1	SBT	
Capacity (veh/h)	1035	-	733	-	-	
HCM Lane V/C Ratio	0.069	-	0.098	-	-	
HCM Control Delay (s)	8.7	-	10.4	-	-	
HCM Lane LOS	A	-	B	-	-	
HCM 95th %tile Q(veh)	0.2	-	0.3	-	-	

Intersection

Int Delay, s/veh 8.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	2	155	4	2	16	95	711	11	24	1551	71
Future Vol, veh/h	24	2	155	4	2	16	95	711	11	24	1551	71
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									
Storage Length	-	-	-	-	-	-	300	-	25	300	-	25
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	5	5	5	0	7	7	5	1	1
Mvmt Flow	25	2	163	4	2	17	100	748	12	25	1633	75

Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	2258	2643	817	1816	2706	374	1708	0	0	760	0	0
Stage 1	1683	1683	-	948	948	-	-	-	-	-	-	-
Stage 2	575	960	-	868	1758	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.6	6.6	7	4.1	-	-	4.2	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.6	5.6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.6	5.6	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.55	4.05	3.35	2.2	-	-	2.25	-	-
Pot Cap-1 Maneuver	~ 23	24	324	47	20	615	377	-	-	828	-	-
Stage 1	100	152	-	275	331	-	-	-	-	-	-	-
Stage 2	475	338	-	307	132	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 16	17	324	18	14	615	377	-	-	828	-	-
Mov Cap-2 Maneuver	59	88	-	39	25	-	-	-	-	-	-	-
Stage 1	74	147	-	202	243	-	-	-	-	-	-	-
Stage 2	337	248	-	146	128	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	102.3	48.7	2.1	0.1
HCM LOS	F	E		
<hr/>				
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1
Capacity (veh/h)	377	-	-	199 105
HCM Lane V/C Ratio	0.265	-	-	0.957 0.221
HCM Control Delay (s)	18	-	-	102.3 48.7
HCM Lane LOS	C	-	-	F E A
HCM 95th %tile Q(veh)	1.1	-	-	7.9 0.8 0.1

Notes

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

Intersection													
Int Delay, s/veh	0.9												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations				↑	↔		↑	↑↑	↑	↑	↑↑	↑	
Traffic Vol, veh/h	0	0	181	4	2	16	95	735	13	24	1551	71	
Future Vol, veh/h	0	0	181	4	2	16	95	735	13	24	1551	71	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Yield	Yield	Yield	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	0	-	-	-	300	-	25	300	-	25	
Veh in Median Storage, #	-	0	-	-	1	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95	
Heavy Vehicles, %	0	0	0	5	5	5	0	7	7	5	1	1	
Mvmt Flow	0	0	191	4	2	17	100	774	14	25	1633	75	
Major/Minor			Minor1		Major1		Major2						
Conflicting Flow All			1841	2732	387	1708	0	0	788	0	0		
Stage 1			974	974	-	-	-	-	-	-	-		
Stage 2			867	1758	-	-	-	-	-	-	-		
Critical Hdwy	6.9	6.6	7	4.1	-	-	-	-	4.2	-	-		
Critical Hdwy Stg 1	5.9	5.6	-	-	-	-	-	-	-	-	-		
Critical Hdwy Stg 2	5.9	5.6	-	-	-	-	-	-	-	-	-		
Follow-up Hdwy	3.55	4.05	3.35	2.2	-	-	-	2.25	-	-	-		
Pot Cap-1 Maneuver	65	19	603	377	-	-	808	-	-	-	-		
Stage 1	320	322	-	-	-	-	-	-	-	-	-		
Stage 2	364	132	-	-	-	-	-	-	-	-	-		
Platoon blocked, %							-	-	-	-	-		
Mov Cap-1 Maneuver	46	0	603	377	-	-	808	-	-	-	-		
Mov Cap-2 Maneuver	132	0	-	-	-	-	-	-	-	-	-		
Stage 1	235	0	-	-	-	-	-	-	-	-	-		
Stage 2	353	0	-	-	-	-	-	-	-	-	-		
Approach			WB		NB		SB						
HCM Control Delay, s			15.9			2			0.1				
HCM LOS			C										
Minor Lane/Major Mvmt			NBL	NBT	NBR	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	377	-	-	352	808	-	-	-	-				
HCM Lane V/C Ratio	0.265	-	-	0.066	0.031	-	-	-	-				
HCM Control Delay (s)	18	-	-	15.9	9.6	-	-	-	-				
HCM Lane LOS	C	-	-	C	A	-	-	-	-				
HCM 95th %tile Q(veh)	1.1	-	-	0.2	0.1	-	-	-	-				

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	106	0	0	90	66	760	90	32	1605	79
Future Vol, veh/h	0	0	106	0	0	90	66	760	90	32	1605	79
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	-	-	Yield
Storage Length	-	-	0	-	-	0	217	-	25	217	-	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, %	0	0	0	1	1	1	0	4	4	0	1	1
Mvmt Flow	0	0	114	0	0	97	71	817	97	34	1726	85
Major/Minor												
Minor2		Minor1			Major1			Major2				
Conflicting Flow All	-	-	863	-	-	409	1726	0	0	914	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.92	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.31	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	302	0	0	594	371	-	-	754	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	302	-	-	594	371	-	-	754	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Approach												
EB			WB			NB			SB			
HCM Control Delay, s	24		12.2			1.2			0.2			
HCM LOS	C		B									
Minor Lane/Major Mvmt			NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR		
Capacity (veh/h)	371		-	-	302	594	754	-	-	-		
HCM Lane V/C Ratio	0.191		-	-	0.377	0.163	0.046	-	-	-		
HCM Control Delay (s)	17		-	-	24	12.2	10	-	-	-		
HCM Lane LOS	C		-	-	C	B	B	-	-	-		
HCM 95th %tile Q(veh)	0.7		-	-	1.7	0.6	0.1	-	-	-		

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	65	65	785	1651	0
Future Vol, veh/h	0	65	65	785	1651	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	600	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	1	1	4	1	0
Mvmt Flow	0	71	71	853	1795	0
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	-	898	1795	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.92	4.12	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.31	2.21	-	-	-
Pot Cap-1 Maneuver	0	284	345	-	-	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	-	-	0
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	284	345	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	21.8	1.4	0			
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT		
Capacity (veh/h)	345	-	284	-		
HCM Lane V/C Ratio	0.205	-	0.249	-		
HCM Control Delay (s)	18.1	-	21.8	-		
HCM Lane LOS	C	-	C	-		
HCM 95th %tile Q(veh)	0.8	-	1	-		

Intersection

Int Delay, s/veh 0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
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Lane Configurations						
Traffic Vol, veh/h	0	53	863	0	53	1658
Future Vol, veh/h	0	53	863	0	53	1658
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	-	-	600	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	4	0	0	1
Mvmt Flow	0	58	938	0	58	1802

Major/Minor	Minor1	Major1	Major2
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Conflicting Flow All	-	469	0	-	938	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	4.1	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	0	546	-	0	739	-
Stage 1	0	-	-	0	-	-
Stage 2	0	-	-	0	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	546	-	-	739	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
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HCM Control Delay, s	12.4	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	SBL	SBT
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Capacity (veh/h)	-	546	739	-
HCM Lane V/C Ratio	-	0.106	0.078	-
HCM Control Delay (s)	-	12.4	10.3	-
HCM Lane LOS	-	B	B	-
HCM 95th %tile Q(veh)	-	0.4	0.3	-

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	31	0	0	1610	61
Future Vol, veh/h	0	31	0	0	1610	61
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	25
Veh in Median Storage, #	0	-	-	16974	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	1	1
Mvmt Flow	0	33	0	0	1713	65
Major/Minor	Minor2		Major2			
Conflicting Flow All	-	857	-	-	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	305	-	-	-	
Stage 1	0	-	-	-	-	
Stage 2	0	-	-	-	-	
Platoon blocked, %	-	-	-	-	-	
Mov Cap-1 Maneuver	-	305	-	-	-	
Mov Cap-2 Maneuver	-	-	-	-	-	
Stage 1	-	-	-	-	-	
Stage 2	-	-	-	-	-	
Approach	EB		SB			
HCM Control Delay, s	18.2		0			
HCM LOS	C					
Minor Lane/Major Mvmt	EBLn1	SBT	SBR			
Capacity (veh/h)	305	-	-			
HCM Lane V/C Ratio	0.108	-	-			
HCM Control Delay (s)	18.2	-	-			
HCM Lane LOS	C	-	-			
HCM 95th %tile Q(veh)	0.4	-	-			

Intersection

Int Delay, s/veh 6.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	B	B		A	
Traffic Vol, veh/h	45	16	0	28	4	0
Future Vol, veh/h	45	16	0	28	4	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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	49	17	0	30	4	0

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	23	15	0	0	30
Stage 1	15	-	-	-	-
Stage 2	8	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	998	1070	-	-	1596
Stage 1	1013	-	-	-	-
Stage 2	1020	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	995	1070	-	-	1596
Mov Cap-2 Maneuver	995	-	-	-	-
Stage 1	1013	-	-	-	-
Stage 2	1017	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	7.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1014	1596	-
HCM Lane V/C Ratio	-	-	0.065	0.003	-
HCM Control Delay (s)	-	-	8.8	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection						
Int Delay, s/veh	3.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			A	B	
Traffic Vol, veh/h	28	0	0	0	0	45
Future Vol, veh/h	28	0	0	0	0	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	30	0	0	0	0	49
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	25	25	49	0	-	0
Stage 1	25	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	996	1057	1571	-	-	-
Stage 1	1003	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	996	1057	1571	-	-	-
Mov Cap-2 Maneuver	996	-	-	-	-	-
Stage 1	1003	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	8.7	0	0			
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1571	-	996	-	-	
HCM Lane V/C Ratio	-	-	0.031	-	-	
HCM Control Delay (s)	0	-	8.7	-	-	
HCM Lane LOS	A	-	A	-	-	
HCM 95th %tile Q(veh)	0	-	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	421	0	0	0	0	0	132	1	0	0	0	0
Future Vol, veh/h	421	0	0	0	0	0	132	1	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	0	-	-	-	-	-	-	-	-	-	-	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, %	1	1	1	0	0	0	0	0	0	0	0	0
Mvmt Flow	448	0	0	0	0	0	140	1	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	-	7.1 6.5 - - - 6.2	
Critical Hdwy Stg 1	-	- - - - - - -	
Critical Hdwy Stg 2	-	6.1 5.5 - - - -	
Follow-up Hdwy	-	3.5 4 - - - 3.3	
Pot Cap-1 Maneuver	0 - 0 1027 899 0 0 0 1090		
Stage 1	0 - 0 - - 0 0 0 -		
Stage 2	0 - 0 1027 899 0 0 0 -		
Platoon blocked, %	-		
Mov Cap-1 Maneuver	- - - 1027 899 - - - 1090		
Mov Cap-2 Maneuver	- - - 1027 899 - - - -		
Stage 1	- - - - - - - - -		
Stage 2	- - - 1027 899 - - - -		

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)	1026	- -	
HCM Lane V/C Ratio	0.138	- -	
HCM Control Delay (s)	9.1	- 0	
HCM Lane LOS	A	- A	
HCM 95th %tile Q(veh)	0.5	- -	

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	369	144	9	120	0	0	0	0	30	1	0
Future Vol, veh/h	0	369	144	9	120	0	0	0	0	30	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	16974	-	-	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	3	3	3	0	0	0	0	0	0
Mvmt Flow	0	461	180	11	150	0	0	0	0	38	1	0

Major/Minor	Major1	Major2				Minor2		
Conflicting Flow All	-	0	0	641	0	0	723	
Stage 1	-	-	-	-	-	-	172	
Stage 2	-	-	-	-	-	-	551	
Critical Hdwy	-	-	-	4.13	-	-	6.4	
Critical Hdwy Stg 1	-	-	-	-	-	-	5.4	
Critical Hdwy Stg 2	-	-	-	-	-	-	5.4	
Follow-up Hdwy	-	-	-	2.227	-	-	3.5	
Pot Cap-1 Maneuver	0	-	-	939	-	0	396	315
Stage 1	0	-	-	-	-	0	863	760
Stage 2	0	-	-	-	-	0	581	473
Platoon blocked, %	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	939	-	-	391	0
Mov Cap-2 Maneuver	-	-	-	-	-	-	391	0
Stage 1	-	-	-	-	-	-	863	0
Stage 2	-	-	-	-	-	-	573	0

Approach	EB	WB	SB
HCM Control Delay, s	0	0.6	15.2
HCM LOS			C

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	939	-	391
HCM Lane V/C Ratio	-	-	0.012	-	0.099
HCM Control Delay (s)	-	-	8.9	0	15.2
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q(veh)	-	-	0	-	0.3

Intersection

Int Delay, s/veh 2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
----------	-----	-----	-----	-----	-----	-----

Lane Configurations						
Traffic Vol, veh/h	120	0	0	513	0	608
Future Vol, veh/h	120	0	0	513	0	608
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	-	16974	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	0	0	1	1
Mvmt Flow	133	0	0	570	0	676

Major/Minor	Minor1	Major2
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Conflicting Flow All	676	-	-	-
Stage 1	0	-	-	-
Stage 2	676	-	-	-
Critical Hdwy	6.41	-	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-
Follow-up Hdwy	3.509	-	-	-
Pot Cap-1 Maneuver	420	0	0	-
Stage 1	-	0	0	-
Stage 2	507	0	0	-
Platoon blocked, %			-	
Mov Cap-1 Maneuver	420	-	-	-
Mov Cap-2 Maneuver	420	-	-	-
Stage 1	-	-	-	-
Stage 2	507	-	-	-

Approach	WB	SB
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HCM Control Delay, s	17.5	0
HCM LOS	C	

Minor Lane/Major Mvmt	WBLn1	SBT
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Capacity (veh/h)	420	-
HCM Lane V/C Ratio	0.317	-
HCM Control Delay (s)	17.5	-
HCM Lane LOS	C	-
HCM 95th %tile Q(veh)	1.3	-

Intersection

Int Delay, s/veh 4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	81	0	74	8	0	22	129	554	4	21	924	208
Future Vol, veh/h	81	0	74	8	0	22	129	554	4	21	924	208
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									
Storage Length	-	-	25	-	-	-	200	-	25	200	-	525
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	4	4	4	0	5	5	0	1	1
Mvmt Flow	84	0	76	8	0	23	133	571	4	22	953	214

Major/Minor	Minor2	Minor1			Major1			Major2			
Conflicting Flow All	1549	1838	477	1358	2048	286	1167	0	0	575	0
Stage 1	997	997	-	837	837	-	-	-	-	-	-
Stage 2	552	841	-	521	1211	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.58	6.58	6.98	4.1	-	-	4.1	-
Critical Hdwy Stg 1	6.54	5.54	-	6.58	5.58	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.58	5.58	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.54	4.04	3.34	2.2	-	-	2.2	-
Pot Cap-1 Maneuver	~ 77	75	534	106	54	705	606	-	-	1008	-
Stage 1	262	320	-	323	375	-	-	-	-	-	-
Stage 2	486	379	-	501	249	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-
Mov Cap-1 Maneuver	~ 61	57	534	74	41	705	606	-	-	1008	-
Mov Cap-2 Maneuver	143	159	-	156	87	-	-	-	-	-	-
Stage 1	205	313	-	252	293	-	-	-	-	-	-
Stage 2	367	296	-	420	244	-	-	-	-	-	-

Approach	EB	WB			NB			SB		
HCM Control Delay, s	37.8	15.8			2.4			0.2		
HCM LOS	E	C								

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	606	-	-	143	534	364	1008	-	-
HCM Lane V/C Ratio	0.219	-	-	0.584	0.143	0.085	0.021	-	-
HCM Control Delay (s)	12.6	-	-	60.6	12.9	15.8	8.7	-	-
HCM Lane LOS	B	-	-	F	B	C	A	-	-
HCM 95th %tile Q(veh)	0.8	-	-	3	0.5	0.3	0.1	-	-

Notes

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

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	156	0	0	29	129	635	4	21	932	208
Future Vol, veh/h	0	0	156	0	0	29	129	635	4	21	932	208
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	-	25	200	-	525
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	4	4	4	0	5	5	0	1	1
Mvmt Flow	0	0	161	0	0	30	133	655	4	22	961	214
Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	-	-	481	1446	2140	328	1175	0	0	659	0	0
Stage 1	-	-	-	921	921	-	-	-	-	-	-	-
Stage 2	-	-	-	525	1219	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	7.58	6.58	6.98	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-	6.58	5.58	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.58	5.58	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	3.54	4.04	3.34	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	531	91	47	662	602	-	-	939	-	-
Stage 1	0	0	-	287	343	-	-	-	-	-	-	-
Stage 2	0	0	-	499	247	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	-	-	531	52	36	662	602	-	-	939	-	-
Mov Cap-2 Maneuver	-	-	-	122	83	-	-	-	-	-	-	-
Stage 1	-	-	-	224	267	-	-	-	-	-	-	-
Stage 2	-	-	-	340	241	-	-	-	-	-	-	-
Approach	EB	WB			NB			SB				
HCM Control Delay, s	14.7	10.7			2.1			0.2				
HCM LOS	B	B										
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	602	-	-	531	662	939	-	-				
HCM Lane V/C Ratio	0.221	-	-	0.303	0.045	0.023	-	-				
HCM Control Delay (s)	12.7	-	-	14.7	10.7	8.9	-	-				
HCM Lane LOS	B	-	-	B	B	A	-	-				
HCM 95th %tile Q(veh)	0.8	-	-	1.3	0.1	0.1	-	-				

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↑↑		↑↑	
Traffic Vol, veh/h	0	56	687	0	56	1006
Future Vol, veh/h	0	56	687	0	56	1006
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	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	5	0	2	1
Mvmt Flow	0	61	747	0	61	1093
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	-	374	0	-	747	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	2.22	-
Pot Cap-1 Maneuver	0	629	-	0	857	-
Stage 1	0	-	-	0	-	-
Stage 2	0	-	-	0	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	629	-	-	857	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	11.3	0		0.5		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	WBL	Ln1	SBL	SBT	
Capacity (veh/h)	-	629	857	-	-	
HCM Lane V/C Ratio	-	0.097	0.071	-	-	
HCM Control Delay (s)	-	11.3	9.5	-	-	
HCM Lane LOS	-	B	A	-	-	
HCM 95th %tile Q(veh)	-	0.3	0.2	-	-	

Intersection

Int Delay, s/veh 10.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
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Lane Configurations 

Traffic Vol, veh/h 106 313 298 64 436 513

Future Vol, veh/h 106 313 298 64 436 513

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 25 - 25 350 -

Veh in Median Storage, # 1 - 0 - - 0

Grade, % 0 - 0 - - 0

Peak Hour Factor 97 97 97 97 97 97

Heavy Vehicles, % 1 1 5 5 2 2

Mvmt Flow 109 323 307 66 449 529

Major/Minor	Minor1	Major1	Major2
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Conflicting Flow All 1470 154 0 0 373 0

Stage 1 307 - - - - -

Stage 2 1163 - - - - -

Critical Hdwy 6.82 6.92 - - 4.14 -

Critical Hdwy Stg 1 5.82 - - - - -

Critical Hdwy Stg 2 5.82 - - - - -

Follow-up Hdwy 3.51 3.31 - - 2.22 -

Pot Cap-1 Maneuver 119 868 - - 1182 -

Stage 1 722 - - - - -

Stage 2 262 - - - - -

Platoon blocked, % - - - - -

Mov Cap-1 Maneuver ~ 74 868 - - 1182 -

Mov Cap-2 Maneuver 138 - - - - -

Stage 1 722 - - - - -

Stage 2 162 - - - - -

Approach	WB	NB	SB
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HCM Control Delay, s 31.8 0 4.5

HCM LOS D

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
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Capacity (veh/h) - - 138 868 1182 -

HCM Lane V/C Ratio - - 0.792 0.372 0.38 -

HCM Control Delay (s) - - 91.4 11.6 9.9 -

HCM Lane LOS - - F B A -

HCM 95th %tile Q(veh) - - 4.9 1.7 1.8 -

Notes

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

Intersection						
Int Delay, s/veh	5.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↑↑	↑↑	↑↑	↑↑
Traffic Vol, veh/h	0	420	298	64	436	620
Future Vol, veh/h	0	420	298	64	436	620
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	25	350	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	5	5	2	2
Mvmt Flow	0	433	307	66	449	639
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	-	154	0	0	373	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.92	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.31	-	-	2.22	-
Pot Cap-1 Maneuver	0	868	-	-	1182	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	868	-	-	1182	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	13.2	0		4.1		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	
Capacity (veh/h)	-	-	868	1182	-	
HCM Lane V/C Ratio	-	-	0.499	0.38	-	
HCM Control Delay (s)	-	-	13.2	9.9	-	
HCM Lane LOS	-	-	B	A	-	
HCM 95th %tile Q(veh)	-	-	2.8	1.8	-	

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations			↑	↑↑	↑↑	
Traffic Vol, veh/h	0	106	106	611	949	0
Future Vol, veh/h	0	106	106	611	949	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	600	-	-	-
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	2	2	2
Mvmt Flow	0	115	115	664	1032	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	-	516	1032	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.92	4.12	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.31	2.21	-	-	-
Pot Cap-1 Maneuver	0	507	675	-	-	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	-	-	0
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	507	675	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	14.2	1.7		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT		
Capacity (veh/h)	675	-	507	-		
HCM Lane V/C Ratio	0.171	-	0.227	-		
HCM Control Delay (s)	11.4	-	14.2	-		
HCM Lane LOS	B	-	B	-		
HCM 95th %tile Q(veh)	0.6	-	0.9	-		

I-90 SEGMENT LOS & QUEUE ANALYSIS

HCS7 Freeway Merge Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2021 existing
Jurisdiction	WSDOT	Time Period Analyzed	AM
Project Description	20-2564 Latah Glen		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	64.0	45.0
Segment Length (L) / Acceleration Length (LA),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

Demand Volume (Vi)	3627	1200
Peak Hour Factor (PHF)	0.88	0.89
Total Trucks, %	8.93	1.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.918	0.983
Flow Rate (vi),pc/h	4490	1372
Capacity (c), pc/h	6900	2100
Volume-to-Capacity Ratio (v/c)	0.85	0.65

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	1412.3	Number of Outer Lanes on Freeway (No)	1
Distance to Upstream Ramp (LUP), ft	1250	Speed Index (MS)	0.632
Downstream Equilibrium Distance (LEQ), ft	8799.9	Flow Outer Lanes (vOA), pc/mi/ln	1356
Distance to Downstream Ramp (LDOWN), ft	2470	On-Ramp Influence Area Speed (SR), mi/h	50.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.698	Outer Lanes Freeway Speed (SO), mi/h	60.9
Flow in Lanes 1 and 2 (v12), pc/h	3134	Ramp Junction Speed (S), mi/h	52.2
Flow Entering Ramp-Infl. Area (vr12), pc/h	4506	Average Density (D), pc/mi/ln	37.4
Level of Service (LOS)	E	Density in Ramp Influence Area (DR), pc/mi/ln	37.1

HCS7 Basic Freeway Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2021 Existing
Jurisdiction	WSDOT	Time Period Analyzed	AM
Project Description	20-2564 Latah Glen		

Geometric Data

Number of Lanes, 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	64.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.8
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

Demand Volume veh/h	4827	Heavy Vehicle Adjustment Factor (fHV)	0.935
Peak Hour Factor	0.88	Flow Rate (Vp), pc/h/ln	1956
Total Trucks, %	6.90	Capacity (c), pc/h/ln	2278
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2278
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.86
Passenger Car Equivalent (ET)	2.000		

Speed and Density

Lane Width Adjustment (flw)	0.0	Average Speed (S), mi/h	56.3
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	34.7
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFSadj), mi/h	57.8		

HCS7 Freeway Diverge Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2021 Existing
Jurisdiction	WSDOT	Time Period Analyzed	AM
Project Description	20-2564 Latah Glen		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	2
Free-Flow Speed (FFS), mi/h	64.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	970	790
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

Demand Volume (Vi)	3572	1255
Peak Hour Factor (PHF)	0.91	0.78
Total Trucks, %	8.30	2.40
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.923	0.977
Flow Rate (vi),pc/h	4253	1647
Capacity (c), pc/h	6900	4000
Volume-to-Capacity Ratio (v/c)	0.62	0.41

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	18237.3	Number of Outer Lanes on Freeway (No)	1
Distance to Upstream Ramp (LUP), ft	2470	Speed Index (DS)	0.576
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	1433
Distance to Downstream Ramp (LDOWN), ft	2700	Off-Ramp Influence Area Speed (SR), mi/h	51.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.450	Outer Lanes Freeway Speed (SO), mi/h	68.5
Flow in Lanes 1 and 2 (v12), pc/h	2820	Ramp Junction Speed (S), mi/h	56.0
Flow Entering Ramp-Infl. Area (vr12), pc/h	-	Average Density (D), pc/mi/ln	25.3
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	21.4

HCS7 Freeway Merge Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2021 Existing
Jurisdiction	WSDOT	Time Period Analyzed	PM
Project Description	20-2564 Latah Glen		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	64.0	45.0
Segment Length (L) / Acceleration Length (LA),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

Demand Volume (Vi)	4409	643
Peak Hour Factor (PHF)	0.92	0.96
Total Trucks, %	8.61	8.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.921	0.920
Flow Rate (vi),pc/h	5203	728
Capacity (c), pc/h	6900	2100
Volume-to-Capacity Ratio (v/c)	0.86	0.35

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	1427.1	Number of Outer Lanes on Freeway (No)	1
Distance to Upstream Ramp (LUP), ft	1250	Speed Index (MS)	0.584
Downstream Equilibrium Distance (LEQ), ft	8799.9	Flow Outer Lanes (vOA), pc/mi/ln	1571
Distance to Downstream Ramp (LDOWN), ft	2470	On-Ramp Influence Area Speed (SR), mi/h	51.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.698	Outer Lanes Freeway Speed (SO), mi/h	60.1
Flow in Lanes 1 and 2 (v12), pc/h	3632	Ramp Junction Speed (S), mi/h	53.3
Flow Entering Ramp-Infl. Area (vr12), pc/h	4360	Average Density (D), pc/mi/ln	37.1
Level of Service (LOS)	E	Density in Ramp Influence Area (DR), pc/mi/ln	36.3

HCS7 Basic Freeway Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2021 Existing
Jurisdiction	WSDOT	Time Period Analyzed	PM
Project Description	20-2564 Latah Glen		

Geometric Data

Number of Lanes, 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	64.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.8
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

Demand Volume veh/h	5052	Heavy Vehicle Adjustment Factor (fHV)	0.921
Peak Hour Factor	0.94	Flow Rate (Vp), pc/h/ln	1945
Total Trucks, %	8.60	Capacity (c), pc/h/ln	2278
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2278
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.85
Passenger Car Equivalent (ET)	2.000		

Speed and Density

Lane Width Adjustment (flw)	0.0	Average Speed (S), mi/h	56.4
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	34.5
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFSadj), mi/h	57.8		

HCS7 Freeway Diverge Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2021 Existing
Jurisdiction	WSDOT	Time Period Analyzed	PM
Project Description	20-2564 Latah Glen		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	2
Free-Flow Speed (FFS), mi/h	64.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	970	790
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

Demand Volume (Vi)	3587	1465
Peak Hour Factor (PHF)	0.94	0.93
Total Trucks, %	7.20	2.50
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.933	0.976
Flow Rate (vi),pc/h	4090	1614
Capacity (c), pc/h	6900	4000
Volume-to-Capacity Ratio (v/c)	0.59	0.40

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	18771.0	Number of Outer Lanes on Freeway (No)	1
Distance to Upstream Ramp (LUP), ft	2470	Speed Index (DS)	0.573
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	1362
Distance to Downstream Ramp (LDOWN), ft	2700	Off-Ramp Influence Area Speed (SR), mi/h	51.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.450	Outer Lanes Freeway Speed (SO), mi/h	68.8
Flow in Lanes 1 and 2 (v12), pc/h	2728	Ramp Junction Speed (S), mi/h	56.1
Flow Entering Ramp-Infl. Area (vr12), pc/h	-	Average Density (D), pc/mi/ln	24.3
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	20.6

HCS7 Freeway Merge Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2026 W/ BK Projects
Jurisdiction	WSDOT	Time Period Analyzed	AM
Project Description	20-2564 Latah Glen		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	64.0	45.0
Segment Length (L) / Acceleration Length (LA),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

Demand Volume (Vi)	3821	1200
Peak Hour Factor (PHF)	0.88	0.89
Total Trucks, %	8.93	1.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.918	0.983
Flow Rate (vi),pc/h	4730	1372
Capacity (c), pc/h	6900	2100
Volume-to-Capacity Ratio (v/c)	0.88	0.65

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	1463.7	Number of Outer Lanes on Freeway (No)	1
Distance to Upstream Ramp (LUP), ft	1250	Speed Index (MS)	0.697
Downstream Equilibrium Distance (LEQ), ft	8799.9	Flow Outer Lanes (vOA), pc/mi/ln	1428
Distance to Downstream Ramp (LDOWN), ft	2470	On-Ramp Influence Area Speed (SR), mi/h	48.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.698	Outer Lanes Freeway Speed (SO), mi/h	60.7
Flow in Lanes 1 and 2 (v12), pc/h	3302	Ramp Junction Speed (S), mi/h	51.1
Flow Entering Ramp-Infl. Area (vr12), pc/h	4674	Average Density (D), pc/mi/ln	39.8
Level of Service (LOS)	E	Density in Ramp Influence Area (DR), pc/mi/ln	38.5

HCS7 Basic Freeway Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2026 W/ BK Projects
Jurisdiction	WSDOT	Time Period Analyzed	AM
Project Description	20-2564 Latah Glen		

Geometric Data

Number of Lanes, 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	64.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.8
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

Demand Volume veh/h	5021	Heavy Vehicle Adjustment Factor (fHV)	0.935
Peak Hour Factor	0.88	Flow Rate (Vp), pc/h/ln	2034
Total Trucks, %	6.90	Capacity (c), pc/h/ln	2278
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2278
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.89
Passenger Car Equivalent (ET)	2.000		

Speed and Density

Lane Width Adjustment (flw)	0.0	Average Speed (S), mi/h	55.3
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	36.8
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFSadj), mi/h	57.8		

HCS7 Freeway Diverge Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2026 AM W BK Projects
Jurisdiction	WSDOT	Time Period Analyzed	AM
Project Description	20-2564 Latah Glen		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	2
Free-Flow Speed (FFS), mi/h	64.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	970	790
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

Demand Volume (Vi)	3715	1306
Peak Hour Factor (PHF)	0.91	0.78
Total Trucks, %	8.30	2.40
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.923	0.977
Flow Rate (vi),pc/h	4423	1714
Capacity (c), pc/h	6900	4000
Volume-to-Capacity Ratio (v/c)	0.64	0.43

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	18744.9	Number of Outer Lanes on Freeway (No)	1
Distance to Upstream Ramp (LUP), ft	2470	Speed Index (DS)	0.582
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	1490
Distance to Downstream Ramp (LDOWN), ft	2700	Off-Ramp Influence Area Speed (SR), mi/h	51.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.450	Outer Lanes Freeway Speed (SO), mi/h	68.3
Flow in Lanes 1 and 2 (v12), pc/h	2933	Ramp Junction Speed (S), mi/h	55.9
Flow Entering Ramp-Infl. Area (vr12), pc/h	-	Average Density (D), pc/mi/ln	26.4
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	22.4

HCS7 Freeway Merge Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2026 PM W/ BK Projects
Jurisdiction	WSDOT	Time Period Analyzed	PM
Project Description	20-2564 Latah Glen		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	64.0	45.0
Segment Length (L) / Acceleration Length (LA),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

Demand Volume (Vi)	5353	758
Peak Hour Factor (PHF)	0.92	0.96
Total Trucks, %	8.61	8.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.921	0.920
Flow Rate (vi),pc/h	6318	858
Capacity (c), pc/h	6900	2100
Volume-to-Capacity Ratio (v/c)	1.04	0.41

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	1693.5	Number of Outer Lanes on Freeway (No)	1
Distance to Upstream Ramp (LUP), ft	1250	Speed Index (MS)	-
Downstream Equilibrium Distance (LEQ), ft	8799.9	Flow Outer Lanes (vOA), pc/mi/ln	1908
Distance to Downstream Ramp (LDOWN), ft	2470	On-Ramp Influence Area Speed (SR), mi/h	41.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.698	Outer Lanes Freeway Speed (SO), mi/h	58.9
Flow in Lanes 1 and 2 (v12), pc/h	4410	Ramp Junction Speed (S), mi/h	-
Flow Entering Ramp-Infl. Area (vr12), pc/h	5268	Average Density (D), pc/mi/ln	-
Level of Service (LOS)	F	Density in Ramp Influence Area (DR), pc/mi/ln	43.3

HCS7 Freeway Merge Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2026 PM W/ BK Growth Rate (500vph)
Jurisdiction	WSDOT	Time Period Analyzed	PM
Project Description	20-2564 Latah Glen		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	64.0	45.0
Segment Length (L) / Acceleration Length (LA),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

Demand Volume (Vi)	5353	500
Peak Hour Factor (PHF)	0.92	0.96
Total Trucks, %	8.61	8.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.921	0.920
Flow Rate (vi),pc/h	6318	566
Capacity (c), pc/h	6900	2100
Volume-to-Capacity Ratio (v/c)	1.00	0.27

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	1631.0	Number of Outer Lanes on Freeway (No)	1
Distance to Upstream Ramp (LUP), ft	1250	Speed Index (MS)	0.844
Downstream Equilibrium Distance (LEQ), ft	8799.9	Flow Outer Lanes (vOA), pc/mi/ln	1908
Distance to Downstream Ramp (LDOWN), ft	2470	On-Ramp Influence Area Speed (SR), mi/h	45.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.698	Outer Lanes Freeway Speed (SO), mi/h	58.9
Flow in Lanes 1 and 2 (v12), pc/h	4410	Ramp Junction Speed (S), mi/h	48.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	4976	Average Density (D), pc/mi/ln	47.3
Level of Service (LOS)	E	Density in Ramp Influence Area (DR), pc/mi/ln	41.2

HCS7 Basic Freeway Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2026 PM W BK Projects
Jurisdiction	WSDOT	Time Period Analyzed	PM
Project Description	20-2564 Latah Glen		

Geometric Data

Number of Lanes, 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	64.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.8
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

Demand Volume veh/h	6111	Heavy Vehicle Adjustment Factor (fHV)	0.921
Peak Hour Factor	0.94	Flow Rate (Vp), pc/h/ln	2353
Total Trucks, %	8.60	Capacity (c), pc/h/ln	2278
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2278
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.03
Passenger Car Equivalent (ET)	2.000		

Speed and Density

Lane Width Adjustment (flw)	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFSadj), mi/h	57.8		

HCS7 Basic Freeway Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2026 PM W BK Projects (500 vph)
Jurisdiction	WSDOT	Time Period Analyzed	PM
Project Description	20-2564 Latah Glen		

Geometric Data

Number of Lanes, 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	64.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.8
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

Demand Volume veh/h	5853	Heavy Vehicle Adjustment Factor (fHV)	0.921
Peak Hour Factor	0.94	Flow Rate (Vp), pc/h/ln	2254
Total Trucks, %	8.60	Capacity (c), pc/h/ln	2278
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2278
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.99
Passenger Car Equivalent (ET)	2.000		

Speed and Density

Lane Width Adjustment (fLW)	0.0	Average Speed (S), mi/h	51.2
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	44.0
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFSadj), mi/h	57.8		

HCS7 Freeway Diverge Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2026 PM W BK Projects
Jurisdiction	WSDOT	Time Period Analyzed	PM
Project Description	20-2564 Latah Glen		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	2
Free-Flow Speed (FFS), mi/h	64.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	970	790
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

Demand Volume (Vi)	4339	1772
Peak Hour Factor (PHF)	0.94	0.93
Total Trucks, %	7.20	2.50
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.933	0.976
Flow Rate (vi),pc/h	4947	1952
Capacity (c), pc/h	6900	4000
Volume-to-Capacity Ratio (v/c)	0.72	0.49

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	21850.8	Number of Outer Lanes on Freeway (No)	1
Distance to Upstream Ramp (LUP), ft	2470	Speed Index (DS)	0.604
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	1647
Distance to Downstream Ramp (LDOWN), ft	2700	Off-Ramp Influence Area Speed (SR), mi/h	50.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.450	Outer Lanes Freeway Speed (SO), mi/h	67.7
Flow in Lanes 1 and 2 (v12), pc/h	3300	Ramp Junction Speed (S), mi/h	55.3
Flow Entering Ramp-Infl. Area (vr12), pc/h	-	Average Density (D), pc/mi/ln	29.8
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	25.5

HCS7 Freeway Merge Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2026 W/ BK Projects W/ IMP
Jurisdiction	WSDOT	Time Period Analyzed	AM
Project Description	20-2564 Latah Glen		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	64.0	45.0
Segment Length (L) / Acceleration Length (LA),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

Demand Volume (Vi)	3821	1133
Peak Hour Factor (PHF)	0.88	0.89
Total Trucks, %	8.93	1.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.918	0.983
Flow Rate (vi),pc/h	4730	1295
Capacity (c), pc/h	6900	2100
Volume-to-Capacity Ratio (v/c)	0.87	0.62

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	1447.2	Number of Outer Lanes on Freeway (No)	1
Distance to Upstream Ramp (LUP), ft	1250	Speed Index (MS)	0.666
Downstream Equilibrium Distance (LEQ), ft	8799.9	Flow Outer Lanes (vOA), pc/mi/ln	1428
Distance to Downstream Ramp (LDOWN), ft	2470	On-Ramp Influence Area Speed (SR), mi/h	49.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.698	Outer Lanes Freeway Speed (SO), mi/h	60.7
Flow in Lanes 1 and 2 (v12), pc/h	3302	Ramp Junction Speed (S), mi/h	51.6
Flow Entering Ramp-Infl. Area (vr12), pc/h	4597	Average Density (D), pc/mi/ln	38.9
Level of Service (LOS)	E	Density in Ramp Influence Area (DR), pc/mi/ln	37.9

HCS7 Freeway Merge Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2026 W/ BK Projects & Project
Jurisdiction	WSDOT	Time Period Analyzed	AM
Project Description	20-2564 Latah Glen		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	64.0	45.0
Segment Length (L) / Acceleration Length (LA),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

Demand Volume (Vi)	3821	1200
Peak Hour Factor (PHF)	0.88	0.89
Total Trucks, %	8.93	1.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.918	0.983
Flow Rate (vi),pc/h	4730	1372
Capacity (c), pc/h	6900	2100
Volume-to-Capacity Ratio (v/c)	0.88	0.65

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	1463.7	Number of Outer Lanes on Freeway (No)	1
Distance to Upstream Ramp (LUP), ft	1250	Speed Index (MS)	0.697
Downstream Equilibrium Distance (LEQ), ft	8799.9	Flow Outer Lanes (vOA), pc/mi/ln	1428
Distance to Downstream Ramp (LDOWN), ft	2470	On-Ramp Influence Area Speed (SR), mi/h	48.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.698	Outer Lanes Freeway Speed (SO), mi/h	60.7
Flow in Lanes 1 and 2 (v12), pc/h	3302	Ramp Junction Speed (S), mi/h	51.1
Flow Entering Ramp-Infl. Area (vr12), pc/h	4674	Average Density (D), pc/mi/ln	39.8
Level of Service (LOS)	E	Density in Ramp Influence Area (DR), pc/mi/ln	38.5

HCS7 Basic Freeway Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2026 W/ BK Projects & Project
Jurisdiction	WSDOT	Time Period Analyzed	AM
Project Description	20-2564 Latah Glen		

Geometric Data

Number of Lanes, 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	64.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.8
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

Demand Volume veh/h	5021	Heavy Vehicle Adjustment Factor (fHV)	0.935
Peak Hour Factor	0.88	Flow Rate (Vp), pc/h/ln	2034
Total Trucks, %	6.90	Capacity (c), pc/h/ln	2278
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2278
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.89
Passenger Car Equivalent (ET)	2.000		

Speed and Density

Lane Width Adjustment (fLW)	0.0	Average Speed (S), mi/h	55.3
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	36.8
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFSadj), mi/h	57.8		

HCS7 Freeway Diverge Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2026 AM W BK Projects & Project
Jurisdiction	WSDOT	Time Period Analyzed	AM
Project Description	20-2564 Latah Glen		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	2
Free-Flow Speed (FFS), mi/h	64.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	970	790
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

Demand Volume (Vi)	3715	1306
Peak Hour Factor (PHF)	0.91	0.78
Total Trucks, %	8.30	2.40
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.923	0.977
Flow Rate (vi), pc/h	4423	1714
Capacity (c), pc/h	6900	4000
Volume-to-Capacity Ratio (v/c)	0.64	0.43

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	18744.9	Number of Outer Lanes on Freeway (No)	1
Distance to Upstream Ramp (LUP), ft	2470	Speed Index (DS)	0.582
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	1490
Distance to Downstream Ramp (LDOWN), ft	2700	Off-Ramp Influence Area Speed (SR), mi/h	51.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.450	Outer Lanes Freeway Speed (SO), mi/h	68.3
Flow in Lanes 1 and 2 (v12), pc/h	2933	Ramp Junction Speed (S), mi/h	55.9
Flow Entering Ramp-Infl. Area (vr12), pc/h	-	Average Density (D), pc/mi/ln	26.4
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	22.4

HCS7 Freeway Merge Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2026 PM W/ BK Projects & Project
Jurisdiction	WSDOT	Time Period Analyzed	PM
Project Description	20-2564 Latah Glen		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	64.0	45.0
Segment Length (L) / Acceleration Length (LA), 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

Demand Volume (Vi)	5353	763
Peak Hour Factor (PHF)	0.92	0.96
Total Trucks, %	8.61	8.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.921	0.920
Flow Rate (vi), pc/h	6318	864
Capacity (c), pc/h	6900	2100
Volume-to-Capacity Ratio (v/c)	1.04	0.41

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	1694.8	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	1250	Speed Index (MS)	-
Downstream Equilibrium Distance (LEQ), ft	8799.9	Flow Outer Lanes (vOA), pc/mi/ln	1908
Distance to Downstream Ramp (LDOWN), ft	2470	On-Ramp Influence Area Speed (SR), mi/h	41.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.698	Outer Lanes Freeway Speed (SO), mi/h	58.9
Flow in Lanes 1 and 2 (v12), pc/h	4410	Ramp Junction Speed (S), mi/h	-
Flow Entering Ramp-Infl. Area (vr12), pc/h	5274	Average Density (D), pc/mi/ln	-
Level of Service (LOS)	F	Density in Ramp Influence Area (DR), pc/mi/ln	43.4

HCS7 Freeway Merge Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2026 PM W/ BK Projects & Project(500vph)
Jurisdiction	WSDOT	Time Period Analyzed	PM
Project Description	20-2564 Latah Glen		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	64.0	45.0
Segment Length (L) / Acceleration Length (LA),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

Demand Volume (Vi)	5353	500
Peak Hour Factor (PHF)	0.92	0.96
Total Trucks, %	8.61	8.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.921	0.920
Flow Rate (vi),pc/h	6318	566
Capacity (c), pc/h	6900	2100
Volume-to-Capacity Ratio (v/c)	1.00	0.27

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	1631.0	Number of Outer Lanes on Freeway (No)	1
Distance to Upstream Ramp (LUP), ft	1250	Speed Index (MS)	0.844
Downstream Equilibrium Distance (LEQ), ft	8799.9	Flow Outer Lanes (vOA), pc/mi/ln	1908
Distance to Downstream Ramp (LDOWN), ft	2470	On-Ramp Influence Area Speed (SR), mi/h	45.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.698	Outer Lanes Freeway Speed (SO), mi/h	58.9
Flow in Lanes 1 and 2 (v12), pc/h	4410	Ramp Junction Speed (S), mi/h	48.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	4976	Average Density (D), pc/mi/ln	47.3
Level of Service (LOS)	E	Density in Ramp Influence Area (DR), pc/mi/ln	41.2

HCS7 Basic Freeway Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2026 PM W BK Projects & Project
Jurisdiction	WSDOT	Time Period Analyzed	PM
Project Description	20-2564 Latah Glen		

Geometric Data

Number of Lanes, 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	64.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.8
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

Demand Volume veh/h	6116	Heavy Vehicle Adjustment Factor (fHV)	0.921
Peak Hour Factor	0.94	Flow Rate (Vp), pc/h/ln	2355
Total Trucks, %	8.60	Capacity (c), pc/h/ln	2278
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2278
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.03
Passenger Car Equivalent (ET)	2.000		

Speed and Density

Lane Width Adjustment (fLW)	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFSadj), mi/h	57.8		

HCS7 Basic Freeway Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2026 PM W BK Projects & Project(500 vph)
Jurisdiction	WSDOT	Time Period Analyzed	PM
Project Description	20-2564 Latah Glen		

Geometric Data

Number of Lanes, 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	64.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.8
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

Demand Volume veh/h	5853	Heavy Vehicle Adjustment Factor (fHV)	0.921
Peak Hour Factor	0.94	Flow Rate (Vp), pc/h/ln	2254
Total Trucks, %	8.60	Capacity (c), pc/h/ln	2278
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2278
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.99
Passenger Car Equivalent (ET)	2.000		

Speed and Density

Lane Width Adjustment (fLW)	0.0	Average Speed (S), mi/h	51.2
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	44.0
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFSadj), mi/h	57.8		

HCS7 Freeway Diverge Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2026 PM W BK Projects & Project
Jurisdiction	WSDOT	Time Period Analyzed	PM
Project Description	20-2564 Latah Glen		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	2
Free-Flow Speed (FFS), mi/h	64.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	970	790
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

Demand Volume (Vi)	4343	1773
Peak Hour Factor (PHF)	0.94	0.93
Total Trucks, %	7.20	2.50
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.933	0.976
Flow Rate (vi), pc/h	4952	1953
Capacity (c), pc/h	6900	4000
Volume-to-Capacity Ratio (v/c)	0.72	0.49

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	21827.4	Number of Outer Lanes on Freeway (No)	1
Distance to Upstream Ramp (LUP), ft	2470	Speed Index (DS)	0.604
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	1649
Distance to Downstream Ramp (LDOWN), ft	2700	Off-Ramp Influence Area Speed (SR), mi/h	50.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.450	Outer Lanes Freeway Speed (SO), mi/h	67.7
Flow in Lanes 1 and 2 (v12), pc/h	3303	Ramp Junction Speed (S), mi/h	55.3
Flow Entering Ramp-Infl. Area (vr12), pc/h	-	Average Density (D), pc/mi/ln	29.8
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	25.5

Ramp Merge Area LOS - NB 195 to EB 90

Ramp Meter in Operation Starting Tuesday, April 9, 2019

HCS7 Version 7.4

Date	AM Peak Hour	Mainline Volume	Ramp Volume	Density	LOS
Wednesday, August 23, 2017	7:15 AM	2644	1078	28.9	D
Thursday, August 16, 2018	7:15 AM	2676	1040	29.0	D
Friday, August 17, 2018	7:15 AM	2509	924	26.8	C
Tuesday, September 25, 2018	7:15 AM	2897	1270	32.4	D
Wednesday, September 26, 2018	7:15 AM	3056	1227	33.2	D
9/26/2018 +500/50	7:15 AM	3556	1277	37.9	E
Wednesday, December 5, 2018	7:15 AM	2718	1130	29.6	D
Tuesday, April 16, 2019	7:15 AM	2964	1059	30.5	D
4/16/2019 +500/0	AM	3464	1059	34.7	D
4/16/2019 +500/50	AM	3964	1109	35.2	E
4/16/2019 +1000/0	AM	3964	1059	39.1	E
4/16/2019 +1000/50	AM	3964	1109	39.6	E
4/16/2019 +1500/0	AM	4464	1059	43.7	E
4/16/2019 +1500/50	AM	4464	1109	44.2	E
Date	PM Peak Hour	Mainline Volume	Ramp Volume	Density	LOS
Tuesday, August 22, 2017	3:15 PM	3659	642	29.8	D
Thursday, August 16, 2018	3:30 PM	3862	617	30.9	D
Friday, August 17, 2018	3:15 PM	3930	655	31.2	D
Tuesday, September 25, 2018	3:15 PM	3914	593	30.9	D
Wednesday, September 26, 2018	3:15 PM	3822	580	31.1	D
9/26/2018 +500/50	3:15 PM	4322	630	35.6	E
Wednesday, December 5, 2018	2:45 PM	3372	582	27.9	C
Tuesday, April 16, 2019	3:45 PM	3664	570	30.7	D
4/16/2019 +500/0	PM	4164	570	34.7	D
4/16/2019 +500/50	PM	4164	620	35.2	E
4/16/2019 +1000/0	PM	4664	570	38.9	E
4/16/2019 +1000/50	PM	4664	620	39.5	E
4/16/2019 +1500/0	PM	5164	570	43.3	E
4/16/2019 +1500/50	PM	5164	620	43.9	E

Notes

1. 500/50 indicates that for this scenario 500 vehicles were added to mainline and 50 vehicles were added to ramp volumes (*mainline add/ramp add*).

2. HCS7 Diverge analysis of the adjacent Walnut EB off-ramp showed a better LOS than this ramp (LOS B for AM and PM using 2017 counts). See G:\TSM&O\12_I-90\090-280 Walnut\090 EB Walnut On-ramp Ramp Meter_2018\5_Analysis for details. Therefore, further analysis was not done for this ramp.

LOS	Density (pc/mi/in)
A	≤10
B	>10–20
C	>20–28
D	>28–35
E	>35
F	Demand exceeds capacity

Exhibit 14-3
LOS Criteria for Freeway
Merge and Diverge Segments

HCS7 Freeway Merge Report

DRAFT

Project Information

Analyst	ER Traffic	Date	TBD
Agency	WSDOT	Analysis Year	TBD
Jurisdiction	WSDOT	Time Period Analyzed	9/26/2018 AM Peak Hour +500/50
Project Description	NB US 195 to EB I-90 On-ramp, 9/26/2018 AM Peak Hour with 500/50 Additional Mainline/Ramp Vehicles		

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 (LA), 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

Demand Volume (V_i), veh/h	3556	1277
Peak Hour Factor (PHF)	0.88	0.89
Total Trucks, %	8.93	1.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{hv})	0.918	0.983
Flow Rate (v_i), pc/h	4402	1460
Capacity (c), pc/h	6900	2100
Volume-to-Capacity Ratio (v/c)	0.85	0.70

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	1412.3	Density in Ramp Influence Area (D_R), pc/mi/ln	37.9
Distance to Upstream Ramp (L_{UP}), ft	1250	Speed Index (M_s)	0.672
Downstream Equilibrium Distance (L_{EQ}), ft	9877.8	Flow Outer Lanes (v_{OA}), pc/h/ln	1250
Distance to Downstream Ramp (L_{DOWN}), ft	2470	On-Ramp Influence Area Speed (S_R), mi/h	49.2
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.716	Outer Lanes Freeway Speed (S_O), mi/h	61.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	3152	Ramp Junction Speed (S), mi/h	51.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4612	Average Density (D), pc/mi/ln	38.0
Level of Service (LOS)	E		

HCS7 Freeway Merge Report

DRAFT

Project Information

Analyst	ER Traffic	Date	TBD
Agency	WSDOT	Analysis Year	TBD
Jurisdiction	WSDOT	Time Period Analyzed	9/26/2018 PM Peak Hour +500/50
Project Description	NB US 195 to EB I-90 On-ramp, 9/26/2018 PM Peak Hour with 500/50 Additional Mainline/Ramp Vehicles		

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 (LA), 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

Demand Volume (V_i), veh/h	4322	630
Peak Hour Factor (PHF)	0.92	0.96
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	5101	713
Capacity (c), pc/h	6900	2100
Volume-to-Capacity Ratio (v/c)	0.84	0.34

Speed and Density

Upstream Equilibrium Distance (L_{Eq}), ft	1402.1	Density in Ramp Influence Area (D_R), pc/mi/ln	35.6
Distance to Upstream Ramp (L_{Up}), ft	1250	Speed Index (M_s)	0.558
Downstream Equilibrium Distance (L_{Eq}), ft	8718.9	Flow Outer Lanes (v_{OA}), pc/h/ln	1546
Distance to Downstream Ramp (L_{Down}), ft	2470	On-Ramp Influence Area Speed (S_R), mi/h	51.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.697	Outer Lanes Freeway Speed (S_o), mi/h	60.2
Flow in Lanes 1 and 2 (v_{12}), pc/h	3555	Ramp Junction Speed (S), mi/h	53.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4268	Average Density (D), pc/mi/ln	36.1
Level of Service (LOS)	E		

HCS7 Basic Freeway Report

DRAFT

Project Information

Analyst	ER Traffic	Date	TBD
Agency	WSDOT	Analysis Year	TBD
Jurisdiction	WSDOT	Time Period Analyzed	9/26/2018 AM Peak Hour +550
Project Description	EB Section Between 195 and Walnut, 9/26/2018 AM Peak Hour with 550 Additional Mainline Vehicles		

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	64.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.8
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

Demand Volume (V), veh/h	4833	Heavy Vehicle Adjustment Factor (f_{HV})	0.935
Peak Hour Factor (PHF)	0.88	Flow Rate (v_p), pc/h/ln	1958
Total Trucks, %	6.90	Capacity (c), pc/h/ln	2278
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2278
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.86
Passenger Car Equivalent (Et)	2.000		

Speed and Density

Lane Width Adjustment (f_{lw})	0.0	Average Speed (S), mi/h	56.3
Right-Side Lateral Clearance Adj. (f_{rlc})	0.0	Density (D), pc/mi/ln	34.8
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS _{adj}), mi/h	57.8		

HCS7 Basic Freeway Report

DRAFT

Project Information

Analyst	ER Traffic	Date	TBD
Agency	WSDOT	Analysis Year	TBD
Jurisdiction	WSDOT	Time Period Analyzed	9/26/2018 PM Peak Hour +550
Project Description	Basice EB Section Between 195 and Walnut		

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	64.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.8
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

Demand Volume (V), veh/h	4952	Heavy Vehicle Adjustment Factor (f_{HV})	0.921
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1907
Total Trucks, %	8.60	Capacity (c), pc/h/ln	2278
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2278
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.84
Passenger Car Equivalent (Et)	2.000		

Speed and Density

Lane Width Adjustment (f_{lw})	0.0	Average Speed (S), mi/h	56.8
Right-Side Lateral Clearance Adj. (f_{rlc})	0.0	Density (D), pc/mi/ln	33.6
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS _{adj}), mi/h	57.8		

HCS7 Freeway Diverge Report

DRAFT

Project Information

Analyst	ER Traffic	Date	7/18/2017
Agency	WSDOT	Analysis Year	2017
Jurisdiction	WSDOT	Time Period Analyzed	AM Peak Hour 0715-0815
Project Description	EB Walnut Off-ramp		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	2
Free-Flow Speed (FFS), mi/h	64.0	35.0
Segment Length (L) / Deceleration Length (L_D), ft	970	790
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

Demand Volume (V_i), veh/h	2739 <i>74%</i>	983 <i>26%</i>
Peak Hour Factor (PHF)	0.91	0.78
Total Trucks, %	8.30	2.40
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.923	0.977
Flow Rate (v_i), pc/h	3261	1290
Capacity (c), pc/h	6900	4000
Volume-to-Capacity Ratio (v/c)	0.47	0.32

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	25921.9	Density in Ramp Influence Area (D_R), pc/mi/ln	15.9
Distance to Upstream Ramp (L_{UP}), ft	2470	Speed Index (D_s)	0.544
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1084
Distance to Downstream Ramp (L_{DOWN}), ft	2700	Off-Ramp Influence Area Speed (S_R), mi/h	52.0
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.450	Outer Lanes Freeway Speed (S_o), mi/h	69.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	2177	Ramp Junction Speed (S), mi/h	56.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	19.1
Level of Service (LOS)	B		

HCS7 Freeway Diverge Report

DRAFT

Project Information

Analyst	ER Traffic	Date	7/18/2017
Agency	WSDOT	Analysis Year	2017
Jurisdiction	WSDOT	Time Period Analyzed	PM Peak Hour 1615-1715
Project Description	EB Walnut Off-ramp		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	2
Free-Flow Speed (FFS), mi/h	64.0	35.0
Segment Length (L) / Deceleration Length (LD), ft	970	790
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

Demand Volume (Vi), veh/h	2921 <i>71%</i>	1182 <i>29%</i>
Peak Hour Factor (PHF)	0.94	0.93
Total Trucks, %	7.20	2.50
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.933	0.976
Flow Rate (vi), pc/h	3331	1302
Capacity (c), pc/h	6900	4000
Volume-to-Capacity Ratio (v/c)	0.48	0.33

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	13119.3	Density in Ramp Influence Area (DR), pc/mi/ln	16.2
Distance to Upstream Ramp (LU _P), ft	2470	Speed Index (Ds)	0.545
Downstream Equilibrium Distance (LD _{EQ}), ft	-	Flow Outer Lanes (vo _A), pc/h/ln	1116
Distance to Downstream Ramp (LD _{DOWN}), ft	2700	Off-Ramp Influence Area Speed (Sr), mi/h	52.0
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.450	Outer Lanes Freeway Speed (So), mi/h	69.8
Flow in Lanes 1 and 2 (v ₁₂), pc/h	2215	Ramp Junction Speed (S), mi/h	56.9
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	19.5
Level of Service (LOS)	B		

HCS7 Freeway Merge Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2021 existing - SR 195 IMP
Jurisdiction	WSDOT	Time Period Analyzed	AM
Project Description	20-2564 Latah Glen		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	64.0	45.0
Segment Length (L) / Acceleration Length (LA),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

Demand Volume (Vi)	3627	990
Peak Hour Factor (PHF)	0.88	0.89
Total Trucks, %	8.93	1.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.918	0.983
Flow Rate (vi),pc/h	4490	1132
Capacity (c), pc/h	6900	2100
Volume-to-Capacity Ratio (v/c)	0.81	0.54

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	1361.0	Number of Outer Lanes on Freeway (No)	1
Distance to Upstream Ramp (LUP), ft	1250	Speed Index (MS)	0.557
Downstream Equilibrium Distance (LEQ), ft	8799.9	Flow Outer Lanes (vOA), pc/mi/ln	1356
Distance to Downstream Ramp (LDOWN), ft	2470	On-Ramp Influence Area Speed (SR), mi/h	51.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.698	Outer Lanes Freeway Speed (SO), mi/h	60.9
Flow in Lanes 1 and 2 (v12), pc/h	3134	Ramp Junction Speed (S), mi/h	53.7
Flow Entering Ramp-Infl. Area (vr12), pc/h	4266	Average Density (D), pc/mi/ln	34.9
Level of Service (LOS)	E	Density in Ramp Influence Area (DR), pc/mi/ln	35.4

HCS7 Freeway Merge Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2021 Existing - SR 195 IMP
Jurisdiction	WSDOT	Time Period Analyzed	PM
Project Description	20-2564 Latah Glen		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	64.0	45.0
Segment Length (L) / Acceleration Length (LA),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

Demand Volume (Vi)	4409	506
Peak Hour Factor (PHF)	0.92	0.96
Total Trucks, %	8.61	8.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.921	0.920
Flow Rate (vi),pc/h	5203	573
Capacity (c), pc/h	6900	2100
Volume-to-Capacity Ratio (v/c)	0.84	0.27

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	1393.9	Number of Outer Lanes on Freeway (No)	1
Distance to Upstream Ramp (LUP), ft	1250	Speed Index (MS)	0.541
Downstream Equilibrium Distance (LEQ), ft	8799.9	Flow Outer Lanes (vOA), pc/mi/ln	1571
Distance to Downstream Ramp (LDOWN), ft	2470	On-Ramp Influence Area Speed (SR), mi/h	52.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.698	Outer Lanes Freeway Speed (SO), mi/h	60.1
Flow in Lanes 1 and 2 (v12), pc/h	3632	Ramp Junction Speed (S), mi/h	54.1
Flow Entering Ramp-Infl. Area (vr12), pc/h	4205	Average Density (D), pc/mi/ln	35.6
Level of Service (LOS)	E	Density in Ramp Influence Area (DR), pc/mi/ln	35.2

HCS7 Basic Freeway Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2021 Existing - SR 195 IMP
Jurisdiction	WSDOT	Time Period Analyzed	AM
Project Description	20-2564 Latah Glen		

Geometric Data

Number of Lanes, 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	64.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.8
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

Demand Volume veh/h	4617	Heavy Vehicle Adjustment Factor (fHV)	0.935
Peak Hour Factor	0.88	Flow Rate (Vp), pc/h/ln	1870
Total Trucks, %	6.90	Capacity (c), pc/h/ln	2278
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2278
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.82
Passenger Car Equivalent (ET)	2.000		

Speed and Density

Lane Width Adjustment (flw)	0.0	Average Speed (S), mi/h	57.1
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	32.7
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFSadj), mi/h	57.8		

HCS7 Basic Freeway Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2021 Existing - SR 195 IMP
Jurisdiction	WSDOT	Time Period Analyzed	PM
Project Description	20-2564 Latah Glen		

Geometric Data

Number of Lanes, 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	64.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.8
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

Demand Volume veh/h	4915	Heavy Vehicle Adjustment Factor (fHV)	0.921
Peak Hour Factor	0.94	Flow Rate (Vp), pc/h/ln	1892
Total Trucks, %	8.60	Capacity (c), pc/h/ln	2278
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2278
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.83
Passenger Car Equivalent (ET)	2.000		

Speed and Density

Lane Width Adjustment (flw)	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	33.3
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFSadj), mi/h	57.8		

HCS7 Freeway Diverge Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2021 Existing - SR 195 IMP
Jurisdiction	WSDOT	Time Period Analyzed	AM
Project Description	20-2564 Latah Glen		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	2
Free-Flow Speed (FFS), mi/h	64.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	970	790
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

Demand Volume (Vi)	3417	1200
Peak Hour Factor (PHF)	0.91	0.78
Total Trucks, %	8.30	2.40
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.923	0.977
Flow Rate (vi), pc/h	4068	1575
Capacity (c), pc/h	6900	4000
Volume-to-Capacity Ratio (v/c)	0.59	0.39

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	17742.5	Number of Outer Lanes on Freeway (No)	1
Distance to Upstream Ramp (LUP), ft	2470	Speed Index (DS)	0.570
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	1371
Distance to Downstream Ramp (LDOWN), ft	2700	Off-Ramp Influence Area Speed (SR), mi/h	51.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.450	Outer Lanes Freeway Speed (SO), mi/h	68.8
Flow in Lanes 1 and 2 (v12), pc/h	2697	Ramp Junction Speed (S), mi/h	56.3
Flow Entering Ramp-Infl. Area (vr12), pc/h	-	Average Density (D), pc/mi/ln	24.1
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	20.3

HCS7 Freeway Diverge Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2021 Existing - SR 195 IMP
Jurisdiction	WSDOT	Time Period Analyzed	PM
Project Description	20-2564 Latah Glen		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	2
Free-Flow Speed (FFS), mi/h	64.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	970	790
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

Demand Volume (Vi)	3490	1425
Peak Hour Factor (PHF)	0.94	0.93
Total Trucks, %	7.20	2.50
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.933	0.976
Flow Rate (vi), pc/h	3979	1570
Capacity (c), pc/h	6900	4000
Volume-to-Capacity Ratio (v/c)	0.58	0.39

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	18427.2	Number of Outer Lanes on Freeway (No)	1
Distance to Upstream Ramp (LUP), ft	2470	Speed Index (DS)	0.569
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (voA), pc/mi/ln	1325
Distance to Downstream Ramp (LDOWN), ft	2700	Off-Ramp Influence Area Speed (SR), mi/h	51.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.450	Outer Lanes Freeway Speed (SO), mi/h	68.9
Flow in Lanes 1 and 2 (v12), pc/h	2654	Ramp Junction Speed (S), mi/h	56.2
Flow Entering Ramp-Infl. Area (vr12), pc/h	-	Average Density (D), pc/mi/ln	23.6
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	20.0

HCS7 Freeway Merge Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2026 W/ BK Projects W/ IMP
Jurisdiction	WSDOT	Time Period Analyzed	AM
Project Description	20-2564 Latah Glen		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	64.0	45.0
Segment Length (L) / Acceleration Length (LA),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

Demand Volume (Vi)	3821	1193
Peak Hour Factor (PHF)	0.88	0.89
Total Trucks, %	8.93	1.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.918	0.983
Flow Rate (vi),pc/h	4730	1364
Capacity (c), pc/h	6900	2100
Volume-to-Capacity Ratio (v/c)	0.88	0.65

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	1462.0	Number of Outer Lanes on Freeway (No)	1
Distance to Upstream Ramp (LUP), ft	1250	Speed Index (MS)	0.694
Downstream Equilibrium Distance (LEQ), ft	8799.9	Flow Outer Lanes (vOA), pc/mi/ln	1428
Distance to Downstream Ramp (LDOWN), ft	2470	On-Ramp Influence Area Speed (SR), mi/h	48.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.698	Outer Lanes Freeway Speed (SO), mi/h	60.7
Flow in Lanes 1 and 2 (v12), pc/h	3302	Ramp Junction Speed (S), mi/h	51.1
Flow Entering Ramp-Infl. Area (vr12), pc/h	4666	Average Density (D), pc/mi/ln	39.8
Level of Service (LOS)	E	Density in Ramp Influence Area (DR), pc/mi/ln	38.4

HCS7 Freeway Merge Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2026 PM W/ BK Projects W/ SR195 IMP
Jurisdiction	WSDOT	Time Period Analyzed	PM
Project Description	20-2564 Latah Glen		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	64.0	45.0
Segment Length (L) / Acceleration Length (LA), 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

Demand Volume (Vi)	5353	594
Peak Hour Factor (PHF)	0.92	0.96
Total Trucks, %	8.61	8.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.921	0.920
Flow Rate (vi), pc/h	6318	673
Capacity (c), pc/h	6900	2100
Volume-to-Capacity Ratio (v/c)	1.01	0.32

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	1653.9	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	1250	Speed Index (MS)	-
Downstream Equilibrium Distance (LEQ), ft	8799.9	Flow Outer Lanes (vOA), pc/mi/ln	1908
Distance to Downstream Ramp (LDOWN), ft	2470	On-Ramp Influence Area Speed (SR), mi/h	44.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.698	Outer Lanes Freeway Speed (SO), mi/h	58.9
Flow in Lanes 1 and 2 (v12), pc/h	4410	Ramp Junction Speed (S), mi/h	-
Flow Entering Ramp-Infl. Area (vr12), pc/h	5083	Average Density (D), pc/mi/ln	-
Level of Service (LOS)	F	Density in Ramp Influence Area (DR), pc/mi/ln	42.0

HCS7 Freeway Merge Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2026 PM W/ BK Projects W/ SR195 IMP (500vph)
Jurisdiction	WSDOT	Time Period Analyzed	PM
Project Description	20-2564 Latah Glen		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	64.0	45.0
Segment Length (L) / Acceleration Length (LA),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

Demand Volume (Vi)	5353	500
Peak Hour Factor (PHF)	0.92	0.96
Total Trucks, %	8.61	8.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.921	0.920
Flow Rate (vi),pc/h	6318	566
Capacity (c), pc/h	6900	2100
Volume-to-Capacity Ratio (v/c)	1.00	0.27

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	1631.0	Number of Outer Lanes on Freeway (No)	1
Distance to Upstream Ramp (LUP), ft	1250	Speed Index (MS)	0.844
Downstream Equilibrium Distance (LEQ), ft	8799.9	Flow Outer Lanes (vOA), pc/mi/ln	1908
Distance to Downstream Ramp (LDOWN), ft	2470	On-Ramp Influence Area Speed (SR), mi/h	45.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.698	Outer Lanes Freeway Speed (SO), mi/h	58.9
Flow in Lanes 1 and 2 (v12), pc/h	4410	Ramp Junction Speed (S), mi/h	48.5
Flow Entering Ramp-Infl. Area (vr12), pc/h	4976	Average Density (D), pc/mi/ln	47.3
Level of Service (LOS)	E	Density in Ramp Influence Area (DR), pc/mi/ln	41.2

HCS7 Basic Freeway Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2026 W/ BK Projects W/ SR195 IMP
Jurisdiction	WSDOT	Time Period Analyzed	AM
Project Description	20-2564 Latah Glen		

Geometric Data

Number of Lanes, 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	64.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.8
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

Demand Volume veh/h	5014	Heavy Vehicle Adjustment Factor (fHV)	0.935
Peak Hour Factor	0.88	Flow Rate (Vp), pc/h/ln	2031
Total Trucks, %	6.90	Capacity (c), pc/h/ln	2278
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2278
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.89
Passenger Car Equivalent (ET)	2.000		

Speed and Density

Lane Width Adjustment (fLW)	0.0	Average Speed (S), mi/h	55.4
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	36.7
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFSadj), mi/h	57.8		

HCS7 Basic Freeway Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2026 PM W BK Projects W SR195 IMP
Jurisdiction	WSDOT	Time Period Analyzed	PM
Project Description	20-2564 Latah Glen		

Geometric Data

Number of Lanes, 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	64.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.8
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

Demand Volume veh/h	5947	Heavy Vehicle Adjustment Factor (fHV)	0.921
Peak Hour Factor	0.94	Flow Rate (Vp), pc/h/ln	2290
Total Trucks, %	8.60	Capacity (c), pc/h/ln	2278
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2278
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.01
Passenger Car Equivalent (ET)	2.000		

Speed and Density

Lane Width Adjustment (fLW)	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFSadj), mi/h	57.8		

HCS7 Basic Freeway Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2026 PM W BK Projects W SR195 IMP(500 vph)
Jurisdiction	WSDOT	Time Period Analyzed	PM
Project Description	20-2564 Latah Glen		

Geometric Data

Number of Lanes, 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	64.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.8
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

Demand Volume veh/h	5853	Heavy Vehicle Adjustment Factor (fHV)	0.921
Peak Hour Factor	0.94	Flow Rate (Vp), pc/h/ln	2254
Total Trucks, %	8.60	Capacity (c), pc/h/ln	2278
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2278
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.99
Passenger Car Equivalent (ET)	2.000		

Speed and Density

Lane Width Adjustment (fLW)	0.0	Average Speed (S), mi/h	51.2
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	44.0
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFSadj), mi/h	57.8		

HCS7 Freeway Diverge Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2026 AM W BK Projects W SR195 IMP
Jurisdiction	WSDOT	Time Period Analyzed	AM
Project Description	20-2564 Latah Glen		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	2
Free-Flow Speed (FFS), mi/h	64.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	970	790
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

Demand Volume (Vi)	3710	1304
Peak Hour Factor (PHF)	0.91	0.78
Total Trucks, %	8.30	2.40
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.923	0.977
Flow Rate (vi),pc/h	4417	1711
Capacity (c), pc/h	6900	4000
Volume-to-Capacity Ratio (v/c)	0.64	0.43

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	18705.2	Number of Outer Lanes on Freeway (No)	1
Distance to Upstream Ramp (LUP), ft	2470	Speed Index (Ds)	0.582
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	1488
Distance to Downstream Ramp (LDOWN), ft	2700	Off-Ramp Influence Area Speed (SR), mi/h	51.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.450	Outer Lanes Freeway Speed (SO), mi/h	68.3
Flow in Lanes 1 and 2 (v12), pc/h	2929	Ramp Junction Speed (S), mi/h	55.9
Flow Entering Ramp-Infl. Area (vr12), pc/h	-	Average Density (D), pc/mi/ln	26.3
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	22.3

HCS7 Freeway Diverge Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2026 PM W BK Projects W SR195 IMP
Jurisdiction	WSDOT	Time Period Analyzed	PM
Project Description	20-2564 Latah Glen		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	2
Free-Flow Speed (FFS), mi/h	64.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	970	790
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

Demand Volume (Vi)	4222	1725
Peak Hour Factor (PHF)	0.94	0.93
Total Trucks, %	7.20	2.50
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.933	0.976
Flow Rate (vi),pc/h	4814	1900
Capacity (c), pc/h	6900	4000
Volume-to-Capacity Ratio (v/c)	0.70	0.48

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	21327.9	Number of Outer Lanes on Freeway (No)	1
Distance to Upstream Ramp (LUP), ft	2470	Speed Index (Ds)	0.599
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	1603
Distance to Downstream Ramp (LDOWN), ft	2700	Off-Ramp Influence Area Speed (SR), mi/h	50.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.450	Outer Lanes Freeway Speed (SO), mi/h	67.9
Flow in Lanes 1 and 2 (v12), pc/h	3211	Ramp Junction Speed (S), mi/h	55.5
Flow Entering Ramp-Infl. Area (vr12), pc/h	-	Average Density (D), pc/mi/ln	28.9
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	24.8

HCS7 Freeway Merge Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2026 W/ BK Projects & Project W SR195 IMP
Jurisdiction	WSDOT	Time Period Analyzed	AM
Project Description	20-2564 Latah Glen		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	64.0	45.0
Segment Length (L) / Acceleration Length (LA),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

Demand Volume (Vi)	3821	1200
Peak Hour Factor (PHF)	0.88	0.89
Total Trucks, %	8.93	1.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.918	0.983
Flow Rate (vi),pc/h	4730	1372
Capacity (c), pc/h	6900	2100
Volume-to-Capacity Ratio (v/c)	0.88	0.65

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	1463.7	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	1250	Speed Index (MS)	0.697
Downstream Equilibrium Distance (LEQ), ft	8799.9	Flow Outer Lanes (vOA), pc/mi/ln	1428
Distance to Downstream Ramp (LDOWN), ft	2470	On-Ramp Influence Area Speed (SR), mi/h	48.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.698	Outer Lanes Freeway Speed (SO), mi/h	60.7
Flow in Lanes 1 and 2 (v12), pc/h	3302	Ramp Junction Speed (S), mi/h	51.1
Flow Entering Ramp-Infl. Area (vr12), pc/h	4674	Average Density (D), pc/mi/ln	39.8
Level of Service (LOS)	E	Density in Ramp Influence Area (DR), pc/mi/ln	38.5

HCS7 Freeway Merge Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2026 PM W/ BK Projects & Project W/ SR195 IMP
Jurisdiction	WSDOT	Time Period Analyzed	PM
Project Description	20-2564 Latah Glen		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	64.0	45.0
Segment Length (L) / Acceleration Length (LA),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

Demand Volume (Vi)	5353	598
Peak Hour Factor (PHF)	0.92	0.96
Total Trucks, %	8.61	8.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.921	0.920
Flow Rate (vi),pc/h	6318	677
Capacity (c), pc/h	6900	2100
Volume-to-Capacity Ratio (v/c)	1.01	0.32

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	1654.8	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	1250	Speed Index (MS)	-
Downstream Equilibrium Distance (LEQ), ft	8799.9	Flow Outer Lanes (vOA), pc/mi/ln	1908
Distance to Downstream Ramp (LDOWN), ft	2470	On-Ramp Influence Area Speed (SR), mi/h	44.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.698	Outer Lanes Freeway Speed (SO), mi/h	58.9
Flow in Lanes 1 and 2 (v12), pc/h	4410	Ramp Junction Speed (S), mi/h	-
Flow Entering Ramp-Infl. Area (vr12), pc/h	5087	Average Density (D), pc/mi/ln	-
Level of Service (LOS)	F	Density in Ramp Influence Area (DR), pc/mi/ln	42.0

HCS7 Freeway Merge Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2026 PM W/ BK Projects & Project W/ SR195 IMP(500vph)
Jurisdiction	WSDOT	Time Period Analyzed	PM
Project Description	20-2564 Latah Glen		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	64.0	45.0
Segment Length (L) / Acceleration Length (LA),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

Demand Volume (Vi)	5353	500
Peak Hour Factor (PHF)	0.92	0.96
Total Trucks, %	8.61	8.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.921	0.920
Flow Rate (vi),pc/h	6318	566
Capacity (c), pc/h	6900	2100
Volume-to-Capacity Ratio (v/c)	1.00	0.27

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	1631.0	Number of Outer Lanes on Freeway (No)	1
Distance to Upstream Ramp (LUP), ft	1250	Speed Index (MS)	0.844
Downstream Equilibrium Distance (LEQ), ft	8799.9	Flow Outer Lanes (vOA), pc/mi/ln	1908
Distance to Downstream Ramp (LDOWN), ft	2470	On-Ramp Influence Area Speed (SR), mi/h	45.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.698	Outer Lanes Freeway Speed (SO), mi/h	58.9
Flow in Lanes 1 and 2 (v12), pc/h	4410	Ramp Junction Speed (S), mi/h	48.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	4976	Average Density (D), pc/mi/ln	47.3
Level of Service (LOS)	E	Density in Ramp Influence Area (DR), pc/mi/ln	41.2

HCS7 Basic Freeway Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2026 W/ BK Projects & Project W/ SR195 IMP
Jurisdiction	WSDOT	Time Period Analyzed	AM
Project Description	20-2564 Latah Glen		

Geometric Data

Number of Lanes, 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	64.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.8
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

Demand Volume veh/h	5021	Heavy Vehicle Adjustment Factor (fHV)	0.935
Peak Hour Factor	0.88	Flow Rate (Vp), pc/h/ln	2034
Total Trucks, %	6.90	Capacity (c), pc/h/ln	2278
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2278
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.89
Passenger Car Equivalent (ET)	2.000		

Speed and Density

Lane Width Adjustment (fLW)	0.0	Average Speed (S), mi/h	55.3
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	36.8
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFSadj), mi/h	57.8		

HCS7 Basic Freeway Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2026 PM W BK Projects & Project W SR195 IMP
Jurisdiction	WSDOT	Time Period Analyzed	PM
Project Description	20-2564 Latah Glen		

Geometric Data

Number of Lanes, 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	64.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.8
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

Demand Volume veh/h	5951	Heavy Vehicle Adjustment Factor (fHV)	0.921
Peak Hour Factor	0.94	Flow Rate (Vp), pc/h/ln	2291
Total Trucks, %	8.60	Capacity (c), pc/h/ln	2278
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2278
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.01
Passenger Car Equivalent (ET)	2.000		

Speed and Density

Lane Width Adjustment (fLW)	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFSadj), mi/h	57.8		

HCS7 Basic Freeway Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2026 PM W BK Projects & Project W SR195 IMP(500 vph)
Jurisdiction	WSDOT	Time Period Analyzed	PM
Project Description	20-2564 Latah Glen		

Geometric Data

Number of Lanes, 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	64.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.8
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

Demand Volume veh/h	5853	Heavy Vehicle Adjustment Factor (fHV)	0.921
Peak Hour Factor	0.94	Flow Rate (Vp), pc/h/ln	2254
Total Trucks, %	8.60	Capacity (c), pc/h/ln	2278
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2278
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.99
Passenger Car Equivalent (ET)	2.000		

Speed and Density

Lane Width Adjustment (fLW)	0.0	Average Speed (S), mi/h	51.2
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	44.0
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFSadj), mi/h	57.8		

HCS7 Freeway Diverge Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2026 AM W BK Projects & Project W SR195 IMP
Jurisdiction	WSDOT	Time Period Analyzed	AM
Project Description	20-2564 Latah Glen		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	2
Free-Flow Speed (FFS), mi/h	64.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	970	790
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

Demand Volume (Vi)	3715	1306
Peak Hour Factor (PHF)	0.91	0.78
Total Trucks, %	8.30	2.40
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.923	0.977
Flow Rate (vi),pc/h	4423	1714
Capacity (c), pc/h	6900	4000
Volume-to-Capacity Ratio (v/c)	0.64	0.43

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	18744.9	Number of Outer Lanes on Freeway (No)	1
Distance to Upstream Ramp (LUP), ft	2470	Speed Index (Ds)	0.582
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	1490
Distance to Downstream Ramp (LDOWN), ft	2700	Off-Ramp Influence Area Speed (SR), mi/h	51.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.450	Outer Lanes Freeway Speed (SO), mi/h	68.3
Flow in Lanes 1 and 2 (v12), pc/h	2933	Ramp Junction Speed (S), mi/h	55.9
Flow Entering Ramp-Infl. Area (vr12), pc/h	-	Average Density (D), pc/mi/ln	26.4
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	22.4

HCS7 Freeway Diverge Report

Project Information

Analyst	Whipple Consulting Engineers	Date	03/05/2021
Agency	WSDOT	Analysis Year	2026 PM W BK Projects & Project W SR195 IMP
Jurisdiction	WSDOT	Time Period Analyzed	PM
Project Description	20-2564 Latah Glen		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	2
Free-Flow Speed (FFS), mi/h	64.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	970	790
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

Demand Volume (Vi)	4225	1726
Peak Hour Factor (PHF)	0.94	0.93
Total Trucks, %	7.20	2.50
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.933	0.976
Flow Rate (vi),pc/h	4817	1902
Capacity (c), pc/h	6900	4000
Volume-to-Capacity Ratio (v/c)	0.70	0.48

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	21375.5	Number of Outer Lanes on Freeway (No)	1
Distance to Upstream Ramp (LUP), ft	2470	Speed Index (Ds)	0.599
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	1603
Distance to Downstream Ramp (LDOWN), ft	2700	Off-Ramp Influence Area Speed (SR), mi/h	50.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.450	Outer Lanes Freeway Speed (SO), mi/h	67.9
Flow in Lanes 1 and 2 (v12), pc/h	3214	Ramp Junction Speed (S), mi/h	55.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	29.0
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	24.8

EB 195		2021 AM Existing	AM Adjustment factor	AM k30 factor (R103)	1.15			
Storage Length	No. of Storage Lanes	1000	Ramp Meter Rate	1200	2-lane retrofit (use shoulder) alternate release Max rate = 1400			
Time	2018 AM Volume	Adjusted Volume	Vehicles released	Vehicles in queue	Queue length	Exceed Storage		
6:00 AM	4	4	4	0	0	0		
6:01 AM	5	5	5	0	0	0		
6:02 AM	1	1	1	0	0	0		
6:03 AM	2	2	2	0	0	0		
6:04 AM	5	5	5	0	0	0		
6:05 AM	4	4	4	0	0	0		
6:06 AM	7	7	7	0	0	0		
6:07 AM	5	5	5	0	0	0		
6:08 AM	4	4	4	0	0	0		
6:09 AM	5	5	5	0	0	0		
6:10 AM	7	7	7	0	0	0		
6:11 AM	6	6	6	0	0	0		
6:12 AM	9	10	10	0	0	0		
6:13 AM	6	6	6	0	0	0		
6:14 AM	5	5	5	0	0	0		
6:15 AM	6	6	6	0	0	0		
6:16 AM	5	5	5	0	0	0		
6:17 AM	6	6	6	0	0	0		
6:18 AM	4	4	4	0	0	0		
6:19 AM	10	11	11	0	0	0		
6:20 AM	12	13	13	0	0	0		
6:21 AM	13	14	14	0	0	0		
6:22 AM	8	8	8	0	0	0		
6:23 AM	12	13	13	0	0	0		
6:24 AM	15	16	16	0	0	0		
6:25 AM	17	18	18	0	0	0		
6:26 AM	6	6	6	0	0	0		
6:27 AM	11	12	12	0	0	0		
6:28 AM	7	7	7	0	0	0		
6:29 AM	12	13	13	0	0	0		
6:30 AM	9	10	10	0	0	0		
6:31 AM	15	16	16	0	0	0		
6:32 AM	15	16	16	0	0	0		
6:33 AM	6	6	6	0	0	0		
6:34 AM	11	12	12	0	0	0		
6:35 AM	11	12	12	0	0	0		
6:36 AM	10	11	11	0	0	0		
6:37 AM	12	13	13	0	0	0		
6:38 AM	12	13	13	0	0	0		
6:39 AM	14	15	15	0	0	0		
6:40 AM	8	8	8	0	0	0		
6:41 AM	21	22	20	2	58	0		
6:42 AM	16	17	19	0	0	0		
6:43 AM	21	22	20	2	58	0		
6:44 AM	26	28	20	10	248	0		
6:45 AM	21	22	20	12	305	0		
6:46 AM	23	24	20	17	416	0		
6:47 AM	19	20	20	17	421	0		
6:48 AM	20	21	20	18	452	0		
6:49 AM	23	24	20	22	562	0		
6:50 AM	16	17	20	19	487	0		
6:51 AM	22	23	20	23	571	0		
6:52 AM	21	22	20	25	629	0		
6:53 AM	17	18	20	23	580	0		
6:54 AM	13	14	20	17	425	0		
6:55 AM	16	17	20	14	350	0		
6:56 AM	18	19	20	13	328	0		
6:57 AM	12	13	20	6	146	0		
6:58 AM	12	13	19	0	0	0		
6:59 AM	16	17	17	0	0	0		
7:00 AM	15	16	16	0	0	0		
7:01 AM	15	16	16	0	0	0		
7:02 AM	7	7	7	0	0	0		
7:03 AM	22	23	20	3	84	0		
7:04 AM	11	12	15	0	0	0		
7:05 AM	16	17	17	0	0	0		
7:06 AM	6	6	6	0	0	0		
7:07 AM	18	19	19	0	0	0		
7:08 AM	20	21	20	1	31	0		
7:09 AM	14	15	16	0	0	0		
7:10 AM	11	12	12	0	0	0		
7:11 AM	16	17	17	0	0	0		
7:12 AM	23	24	20	4	111	0		
7:13 AM	22	23	20	8	195	0		
7:14 AM	18	19	20	7	173	0		
7:15 AM	20	21	20	8	204	0		
7:16 AM	14	15	20	3	75	0		
7:17 AM	22	23	20	6	159	0		
7:18 AM	16	17	20	3	84	0		
7:19 AM	22	23	20	7	168	0		
7:20 AM	22	23	20	10	252	0		
7:21 AM	24	25	20	16	390	0		
7:22 AM	22	23	20	19	474	0		
7:23 AM	17	18	20	17	425	0		
7:24 AM	19	20	20	17	430	0		
7:25 AM	15	16	20	13	328	0		
7:26 AM	15	16	20	9	226	0		
7:27 AM	24	25	20	15	363	0		
7:28 AM	16	17	20	12	288	0		
7:29 AM	14	15	20	6	160	0		
7:30 AM	28	30	20	16	403	36		
7:31 AM	22	23	20	19	487	0		
7:32 AM	21	22	20	22	545	0		
7:33 AM	22	23	20	25	629	0		
7:34 AM	25	27	20	32	793	0		
7:35 AM	28	30	20	41	1036	36		
7:36 AM	26	28	20	49	1226	226		
7:37 AM	21	22	20	51	1284	284		
7:38 AM	24	25	20	57	1421	421		
7:39 AM	19	20	20	57	1426	426		
7:40 AM	15	16	20	53	1324	324		
7:41 AM	23	24	20	57	1434	434		
7:42 AM	23	24	20	62	1545	545		
7:43 AM	30	32	20	74	1842	842		
7:44 AM	18	19	20	73	1820	820		
7:45 AM	19	20	20	73	1824	824		
7:46 AM	26	28	20	81	2014	1014		
7:47 AM	24	25	20	86	2151	1151		
7:48 AM	26	28	20	94	2342	1342		
7:49 AM	27	29	20	102	2559	1559		
7:50 AM	28	30	20	112	2802	1802		
7:51 AM	24	25	20	118	2939	1939		
7:52 AM	26	28	20	125	3130	2130		
7:53 AM	27	29	20	134				

EB 195		2021 PM Existing	PM Adjustment factor	PM k30 factor (R103)	1.14	
Storage Length	No. of Storage Lanes	Ramp Meter Rate	Vehicles in queue	Queue length	Exceed Storage	2-lane retrofit (use shoulder) alternate release Max rate = 1400
Time	2018 PM Volume	Adjusted Volume	Vehicles released	Queue length	Exceed Storage	
3:00 PM	12	13	13	0	0	0
3:01 PM	6	7	7	0	0	0
3:02 PM	12	13	13	0	0	0
3:03 PM	8	9	9	0	0	0
3:04 PM	10	11	11	0	0	0
3:05 PM	8	9	9	0	0	0
3:06 PM	11	12	12	0	0	0
3:07 PM	5	6	6	0	0	0
3:08 PM	5	6	6	0	0	0
3:09 PM	16	18	13	4	110	0
3:10 PM	5	6	10	0	0	0
3:11 PM	9	10	10	0	0	0
3:12 PM	7	8	8	0	0	0
3:13 PM	4	4	4	0	0	0
3:14 PM	10	11	11	0	0	0
3:15 PM	11	12	12	0	0	0
3:16 PM	7	8	8	0	0	0
3:17 PM	10	11	11	0	0	0
3:18 PM	13	14	13	1	27	0
3:19 PM	14	16	13	3	82	0
3:20 PM	10	11	13	1	26	0
3:21 PM	5	6	7	0	0	0
3:22 PM	9	10	10	0	0	0
3:23 PM	7	8	8	0	0	0
3:24 PM	7	8	8	0	0	0
3:25 PM	12	13	13	0	0	0
3:26 PM	4	4	4	0	0	0
3:27 PM	4	4	4	0	0	0
3:28 PM	14	16	13	2	55	0
3:29 PM	13	14	13	3	82	0
3:30 PM	9	10	13	0	0	0
3:31 PM	9	10	10	0	0	0
3:32 PM	8	9	9	0	0	0
3:33 PM	10	11	11	0	0	0
3:34 PM	8	9	9	0	0	0
3:35 PM	16	18	13	4	110	0
3:36 PM	15	17	13	8	193	0
3:37 PM	14	16	13	10	248	0
3:38 PM	6	7	13	3	81	0
3:39 PM	11	12	13	2	52	0
3:40 PM	9	10	12	0	0	0
3:41 PM	6	7	7	0	0	0
3:42 PM	8	9	9	0	0	0
3:43 PM	7	8	8	0	0	0
3:44 PM	12	13	13	0	0	0
3:45 PM	9	10	10	0	0	0
3:46 PM	8	9	9	0	0	0
3:47 PM	14	16	13	2	55	0
3:48 PM	21	23	13	12	304	0
3:49 PM	8	9	13	8	192	0
3:50 PM	12	13	13	8	192	0
3:51 PM	9	10	13	4	108	0
3:52 PM	10	11	13	2	52	0
3:53 PM	6	7	9	0	0	0
3:54 PM	2	2	2	0	0	0
3:55 PM	9	10	10	0	0	0
3:56 PM	12	13	13	0	0	0
3:57 PM	6	7	7	0	0	0
3:58 PM	16	18	13	4	110	0
3:59 PM	9	10	13	1	26	0
4:00 PM	8	9	10	0	0	0
4:01 PM	10	11	11	0	0	0
4:02 PM	12	13	13	0	0	0
4:03 PM	10	11	11	0	0	0
4:04 PM	11	12	12	0	0	0
4:05 PM	13	14	13	1	27	0
4:06 PM	9	10	11	0	0	0
4:07 PM	12	13	13	0	0	0
4:08 PM	5	6	6	0	0	0
4:09 PM	8	9	9	0	0	0
4:10 PM	7	8	8	0	0	0
4:11 PM	10	11	11	0	0	0
4:12 PM	8	9	9	0	0	0
4:13 PM	9	10	10	0	0	0
4:14 PM	9	10	10	0	0	0
4:15 PM	11	12	12	0	0	0
4:16 PM	13	14	13	1	27	0
4:17 PM	7	8	9	0	0	0
4:18 PM	10	11	11	0	0	0
4:19 PM	7	8	8	0	0	0
4:20 PM	12	13	13	0	0	0
4:21 PM	4	4	4	0	0	0
4:22 PM	10	11	11	0	0	0
4:23 PM	6	7	7	0	0	0
4:24 PM	9	10	10	0	0	0
4:25 PM	5	6	6	0	0	0
4:26 PM	3	3	3	0	0	0
4:27 PM	13	14	13	1	27	0
4:28 PM	3	3	4	0	0	0
4:29 PM	11	12	12	0	0	0
4:30 PM	8	9	9	0	0	0
4:31 PM	8	9	9	0	0	0
4:32 PM	7	8	8	0	0	0
4:33 PM	7	8	8	0	0	0
4:34 PM	6	7	7	0	0	0
4:35 PM	8	9	9	0	0	0
4:36 PM	5	6	6	0	0	0
4:37 PM	11	12	12	0	0	0
4:38 PM	10	11	11	0	0	0
4:39 PM	16	18	13	4	110	0
4:40 PM	7	8	12	0	0	0
4:41 PM	10	11	11	0	0	0
4:42 PM	13	14	13	1	27	0
4:43 PM	3	3	4	0	0	0
4:44 PM	10	11	11	0	0	0
4:45 PM	5	6	6	0	0	0
4:46 PM	5	6	6	0	0	0
4:47 PM	9	10	10	0	0	0
4:48 PM	12	13	13	0	0	0
4:49 PM	13	14	13	1	27	0
4:50 PM	24	27	13	14	359	0
4:51 PM	10	11	13	12	303	0
4:52 PM	10	11	13	10	247	0
4:53 PM	7	8	13	4	108	0
4:54 PM	6	7	11	0	0	0
4:55 PM	1	1	1	0	0	0
4:56 PM	7	8	8	0	0	0
4:57 PM	9	10	10	0	0	0
4:58 PM	7	8	8	0	0	0
4:59 PM	9	10	10	0	0	0
5:00 PM	11	12	12	0	0	0
5:01 PM	19	21	13	8	193	0
5:02 PM	12	13	13	8	193	0
5:03 PM	7	8	13	2	54	0
5:04 PM	6	7	9	0	0	0
5:05 PM	6	7	7	0	0	0
5:06 PM	5	6	6	0	0	0
5:07 PM	8	9	9	0	0	0
5:08 PM	6	7	7	0	0	0
5:09 PM	7	8	8	0	0	0
5:10 PM	12	13	13	0	0	0
5:11 PM	18	20	13	7	166	0
5:12 PM	10	11	13	4	110	0
5:13 PM	11	12	13	3	81	0
5:14 PM	10	11	13	1	25	0
5:15 PM	7	8	9	0	0	0
5:16 PM	10	11	11	0	0	0

EB 195		2021 AM Existing W SR 195 IMP	AM Adjustment factor 0.807	AM k30 factor (R103) 1.15	2-lane retrofit (use shoulder) alternate release Max rate = 1400		
Storage Length	No. of Storage Lanes	Ramp Meter Rate	1200				
Time	2018 AM Volume	Adjusted Volume	Vehicles released	Vehicles in queue	Queue length	Exceed Storage	
6:00 AM	4	3	3	0	0	0	
6:01 AM	5	4	4	0	0	0	
6:02 AM	1	1	1	0	0	0	
6:03 AM	2	2	2	0	0	0	
6:04 AM	5	4	4	0	0	0	
6:05 AM	4	3	3	0	0	0	
6:06 AM	7	6	6	0	0	0	
6:07 AM	5	4	4	0	0	0	
6:08 AM	4	3	3	0	0	0	
6:09 AM	5	4	4	0	0	0	
6:10 AM	7	6	6	0	0	0	
6:11 AM	6	5	5	0	0	0	
6:12 AM	9	7	7	0	0	0	
6:13 AM	6	5	5	0	0	0	
6:14 AM	5	4	4	0	0	0	
6:15 AM	6	5	5	0	0	0	
6:16 AM	5	4	4	0	0	0	
6:17 AM	6	5	5	0	0	0	
6:18 AM	4	3	3	0	0	0	
6:19 AM	10	8	8	0	0	0	
6:20 AM	12	10	10	0	0	0	
6:21 AM	13	10	10	0	0	0	
6:22 AM	8	6	6	0	0	0	
6:23 AM	12	10	10	0	0	0	
6:24 AM	15	12	12	0	0	0	
6:25 AM	17	14	14	0	0	0	
6:26 AM	6	5	5	0	0	0	
6:27 AM	11	9	9	0	0	0	
6:28 AM	7	6	6	0	0	0	
6:29 AM	12	10	10	0	0	0	
6:30 AM	9	7	7	0	0	0	
6:31 AM	15	12	12	0	0	0	
6:32 AM	15	12	12	0	0	0	
6:33 AM	6	5	5	0	0	0	
6:34 AM	11	9	9	0	0	0	
6:35 AM	11	9	9	0	0	0	
6:36 AM	10	8	8	0	0	0	
6:37 AM	12	10	10	0	0	0	
6:38 AM	12	10	10	0	0	0	
6:39 AM	14	11	11	0	0	0	
6:40 AM	8	6	6	0	0	0	
6:41 AM	21	17	17	0	0	0	
6:42 AM	16	13	13	0	0	0	
6:43 AM	21	17	17	0	0	0	
6:44 AM	26	21	20	1	25	0	
6:45 AM	21	17	18	0	0	0	
6:46 AM	23	19	19	0	0	0	
6:47 AM	19	15	15	0	0	0	
6:48 AM	20	16	16	0	0	0	
6:49 AM	23	19	19	0	0	0	
6:50 AM	16	13	13	0	0	0	
6:51 AM	22	18	18	0	0	0	
6:52 AM	21	17	17	0	0	0	
6:53 AM	17	14	14	0	0	0	
6:54 AM	13	10	10	0	0	0	
6:55 AM	16	13	13	0	0	0	
6:56 AM	18	15	15	0	0	0	
6:57 AM	12	10	10	0	0	0	
6:58 AM	12	10	10	0	0	0	
6:59 AM	16	13	13	0	0	0	
7:00 AM	15	12	12	0	0	0	
7:01 AM	15	12	12	0	0	0	
7:02 AM	7	6	6	0	0	0	
7:03 AM	22	18	18	0	0	0	
7:04 AM	11	9	9	0	0	0	
7:05 AM	16	13	13	0	0	0	
7:06 AM	6	5	5	0	0	0	
7:07 AM	18	15	15	0	0	0	
7:08 AM	20	16	16	0	0	0	
7:09 AM	14	11	11	0	0	0	
7:10 AM	11	9	9	0	0	0	
7:11 AM	16	13	13	0	0	0	
7:12 AM	23	19	19	0	0	0	
7:13 AM	22	18	18	0	0	0	
7:14 AM	18	15	15	0	0	0	
7:15 AM	20	16	16	0	0	0	
7:16 AM	14	11	11	0	0	0	
7:17 AM	22	18	18	0	0	0	
7:18 AM	16	13	13	0	0	0	
7:19 AM	22	18	18	0	0	0	
7:20 AM	22	18	18	0	0	0	
7:21 AM	24	19	19	0	0	0	
7:22 AM	22	18	18	0	0	0	
7:23 AM	17	14	14	0	0	0	
7:24 AM	19	15	15	0	0	0	
7:25 AM	15	12	12	0	0	0	
7:26 AM	15	12	12	0	0	0	
7:27 AM	24	19	19	0	0	0	
7:28 AM	16	13	13	0	0	0	
7:29 AM	14	11	11	0	0	0	
7:30 AM	28	23	20	3	65	0	
7:31 AM	22	18	20	0	9	0	
7:32 AM	21	17	17	0	0	0	
7:33 AM	22	18	18	0	0	0	
7:34 AM	25	20	20	0	4	0	
7:35 AM	28	23	20	3	69	0	
7:36 AM	26	21	20	4	94	0	
7:37 AM	21	17	20	1	18	0	
7:38 AM	24	19	20	0	2	0	
7:39 AM	19	15	15	0	0	0	
7:40 AM	15	12	12	0	0	0	
7:41 AM	23	19	19	0	0	0	
7:42 AM	23	19	19	0	0	0	
7:43 AM	30	24	20	4	105	0	
7:44 AM	18	15	19	0	0	0	
7:45 AM	19	15	15	0	0	0	
7:46 AM	26	21	20	1	25	0	
7:47 AM	24	19	20	0	9	0	
7:48 AM	26	21	20	1	33	0	
7:49 AM	27	22	20	3	78	0	
7:50 AM	28	23	20	6	143	0	
7:51 AM	24	19	20	5	127	0	
7:52 AM	26	21	20	6	152	0	
7:53 AM	27	22	20	8	196	0	
7:54 AM	20	16	20	4	100	0	
7:55 AM	16	13	17	0	0	0	
7:56 AM	21	17	17	0	0	0	
7:57 AM	16	13	13	0	0	0	
7:58 AM	19	15	15	0	0	0	
7:59 AM	9	7	7	0	0	0	
8:00 AM	24	19	19	0	0	0	
8:01 AM	15	12	12	0	0	0	
8:02 AM	15	12	12	0	0	0	
8:03 AM	13	10	10	0	0	0	
8:04 AM	15	12	12	0	0	0	
8:05 AM	25						

EB 195		2021 PM Existing W SR 195 IMP	PM Adjustment factor 0.872	PM k30 factor (R103) 1.14	2-lane retrofit (use shoulder) alternate release Max rate = 1400	
Storage Length	No. of Storage Lanes	Ramp Meter Rate	800			
Time	2018 PM Volume	Adjusted Volume	Vehicles released	Vehicles in queue	Queue length	Exceed Storage
3:00 PM	12	10	10	0	0	0
3:01 PM	6	5	5	0	0	0
3:02 PM	12	10	10	0	0	0
3:03 PM	8	7	7	0	0	0
3:04 PM	10	9	9	0	0	0
3:05 PM	8	7	7	0	0	0
3:06 PM	11	10	10	0	0	0
3:07 PM	5	4	4	0	0	0
3:08 PM	5	4	4	0	0	0
3:09 PM	16	14	13	1	15	0
3:10 PM	5	4	5	0	0	0
3:11 PM	9	8	8	0	0	0
3:12 PM	7	6	6	0	0	0
3:13 PM	4	3	3	0	0	0
3:14 PM	10	9	9	0	0	0
3:15 PM	11	10	10	0	0	0
3:16 PM	7	6	6	0	0	0
3:17 PM	10	9	9	0	0	0
3:18 PM	13	11	11	0	0	0
3:19 PM	14	12	12	0	0	0
3:20 PM	10	9	9	0	0	0
3:21 PM	5	4	4	0	0	0
3:22 PM	9	8	8	0	0	0
3:23 PM	7	6	6	0	0	0
3:24 PM	7	6	6	0	0	0
3:25 PM	12	10	10	0	0	0
3:26 PM	4	3	3	0	0	0
3:27 PM	4	3	3	0	0	0
3:28 PM	14	12	12	0	0	0
3:29 PM	13	11	11	0	0	0
3:30 PM	9	8	8	0	0	0
3:31 PM	9	8	8	0	0	0
3:32 PM	8	7	7	0	0	0
3:33 PM	10	9	9	0	0	0
3:34 PM	8	7	7	0	0	0
3:35 PM	16	14	13	1	15	0
3:36 PM	15	13	13	0	9	0
3:37 PM	14	12	13	0	0	0
3:38 PM	6	5	5	0	0	0
3:39 PM	11	10	10	0	0	0
3:40 PM	9	8	8	0	0	0
3:41 PM	6	5	5	0	0	0
3:42 PM	8	7	7	0	0	0
3:43 PM	7	6	6	0	0	0
3:44 PM	12	10	10	0	0	0
3:45 PM	9	8	8	0	0	0
3:46 PM	8	7	7	0	0	0
3:47 PM	14	12	12	0	0	0
3:48 PM	21	18	13	5	124	0
3:49 PM	8	7	12	0	0	0
3:50 PM	12	10	10	0	0	0
3:51 PM	9	8	8	0	0	0
3:52 PM	10	9	9	0	0	0
3:53 PM	6	5	5	0	0	0
3:54 PM	2	2	2	0	0	0
3:55 PM	9	8	8	0	0	0
3:56 PM	12	10	10	0	0	0
3:57 PM	6	5	5	0	0	0
3:58 PM	16	14	13	1	15	0
3:59 PM	9	8	8	0	0	0
4:00 PM	8	7	7	0	0	0
4:01 PM	10	9	9	0	0	0
4:02 PM	12	10	10	0	0	0
4:03 PM	10	9	9	0	0	0
4:04 PM	11	10	10	0	0	0
4:05 PM	13	11	11	0	0	0
4:06 PM	9	8	8	0	0	0
4:07 PM	12	10	10	0	0	0
4:08 PM	5	4	4	0	0	0
4:09 PM	8	7	7	0	0	0
4:10 PM	7	6	6	0	0	0
4:11 PM	10	9	9	0	0	0
4:12 PM	8	7	7	0	0	0
4:13 PM	9	8	8	0	0	0
4:14 PM	9	8	8	0	0	0
4:15 PM	11	10	10	0	0	0
4:16 PM	13	11	11	0	0	0
4:17 PM	7	6	6	0	0	0
4:18 PM	10	9	9	0	0	0
4:19 PM	7	6	6	0	0	0
4:20 PM	12	10	10	0	0	0
4:21 PM	4	3	3	0	0	0
4:22 PM	10	9	9	0	0	0
4:23 PM	6	5	5	0	0	0
4:24 PM	9	8	8	0	0	0
4:25 PM	5	4	4	0	0	0
4:26 PM	3	3	3	0	0	0
4:27 PM	13	11	11	0	0	0
4:28 PM	3	3	3	0	0	0
4:29 PM	11	10	10	0	0	0
4:30 PM	8	7	7	0	0	0
4:31 PM	8	7	7	0	0	0
4:32 PM	7	6	6	0	0	0
4:33 PM	7	6	6	0	0	0
4:34 PM	6	5	5	0	0	0
4:35 PM	8	7	7	0	0	0
4:36 PM	5	4	4	0	0	0
4:37 PM	11	10	10	0	0	0
4:38 PM	10	9	9	0	0	0
4:39 PM	16	14	13	1	15	0
4:40 PM	7	6	7	0	0	0
4:41 PM	10	9	9	0	0	0
4:42 PM	13	11	11	0	0	0
4:43 PM	3	3	3	0	0	0
4:44 PM	10	9	9	0	0	0
4:45 PM	5	4	4	0	0	0
4:46 PM	5	4	4	0	0	0
4:47 PM	9	8	8	0	0	0
4:48 PM	12	10	10	0	0	0
4:49 PM	13	11	11	0	0	0
4:50 PM	24	21	13	8	190	0
4:51 PM	10	9	13	3	75	0
4:52 PM	10	9	12	0	0	0
4:53 PM	7	6	6	0	0	0
4:54 PM	6	5	5	0	0	0
4:55 PM	1	1	1	0	0	0
4:56 PM	7	6	6	0	0	0
4:57 PM	9	8	8	0	0	0
4:58 PM	7	6	6	0	0	0
4:59 PM	9	8	8	0	0	0
5:00 PM	11	10	10	0	0	0
5:01 PM	19	17	13	3	81	0
5:02 PM	12	10	13	0	9	0
5:03 PM	7	6	6	0	0	0
5:04 PM	6	5	5	0	0	0
5:05 PM	6	5	5	0	0	0
5:06 PM	5	4	4	0	0	0
5:07 PM	8	7	7	0	0	0
5:08 PM	6	5	5	0	0	0
5:09 PM	7	6	6	0	0	0
5:10 PM	12	10	10	0	0	0
5:11 PM	18	16	13	2	59	0
5:12 PM	10	9	11	0	0	0
5:13 PM	11	10	10	0	0	0
5:14 PM	10	9	9	0	0	0
5:15 PM	7	6	6	0	0	0
5:16 PM	10	9	9	0	0	0
5:17 PM	6	5	5	0	0	0
5:18 PM	14	12	12	0		

EB 195		2026 AM w/ BK Project	AM Adjustment factor	AM k30 factor (R103)	1.15		
Storage Length	No. of Storage Lanes	Ramp Meter Rate	1.205	1.200	2-lane retrofit (use shoulder) alternate release Max rate = 1400		EB 195
Time	2021 AM Volume	Adjusted Volume	Vehicles released	Vehicles in queue	Queue length	Exceed Storage	Time
6:00 AM	4	5	5	0	0	0	6:00 AM
6:01 AM	5	6	6	0	0	0	6:01 AM
6:02 AM	1	1	1	0	0	0	6:02 AM
6:03 AM	2	3	3	0	0	0	6:03 AM
6:04 AM	5	6	6	0	0	0	6:04 AM
6:05 AM	4	5	5	0	0	0	6:05 AM
6:06 AM	7	9	9	0	0	0	6:06 AM
6:07 AM	5	6	6	0	0	0	6:07 AM
6:08 AM	4	5	5	0	0	0	6:08 AM
6:09 AM	5	6	6	0	0	0	6:09 AM
6:10 AM	7	9	9	0	0	0	6:10 AM
6:11 AM	6	8	8	0	0	0	6:11 AM
6:12 AM	10	12	12	0	0	0	6:12 AM
6:13 AM	6	8	8	0	0	0	6:13 AM
6:14 AM	5	6	6	0	0	0	6:14 AM
6:15 AM	6	8	8	0	0	0	6:15 AM
6:16 AM	5	6	6	0	0	0	6:16 AM
6:17 AM	6	8	8	0	0	0	6:17 AM
6:18 AM	4	5	5	0	0	0	6:18 AM
6:19 AM	11	13	13	0	0	0	6:19 AM
6:20 AM	13	15	15	0	0	0	6:20 AM
6:21 AM	14	17	17	0	0	0	6:21 AM
6:22 AM	8	10	10	0	0	0	6:22 AM
6:23 AM	13	15	15	0	0	0	6:23 AM
6:24 AM	16	19	19	0	0	0	6:24 AM
6:25 AM	18	22	20	2	44	0	6:25 AM
6:26 AM	6	8	9	0	0	0	6:26 AM
6:27 AM	12	14	14	0	0	0	6:27 AM
6:28 AM	7	9	9	0	0	0	6:28 AM
6:29 AM	13	15	15	0	0	0	6:29 AM
6:30 AM	10	12	12	0	0	0	6:30 AM
6:31 AM	16	19	19	0	0	0	6:31 AM
6:32 AM	16	19	19	0	0	0	6:32 AM
6:33 AM	6	8	8	0	0	0	6:33 AM
6:34 AM	12	14	14	0	0	0	6:34 AM
6:35 AM	12	14	14	0	0	0	6:35 AM
6:36 AM	11	13	13	0	0	0	6:36 AM
6:37 AM	13	15	15	0	0	0	6:37 AM
6:38 AM	13	15	15	0	0	0	6:38 AM
6:39 AM	15	18	18	0	0	0	6:39 AM
6:40 AM	8	10	10	0	0	0	6:40 AM
6:41 AM	22	27	20	7	172	0	6:41 AM
6:42 AM	17	20	20	7	184	0	6:42 AM
6:43 AM	22	27	20	14	356	0	6:43 AM
6:44 AM	28	33	20	27	687	0	6:44 AM
6:45 AM	22	27	20	34	859	0	6:45 AM
6:46 AM	24	29	20	44	1095	95	6:46 AM
6:47 AM	20	24	20	48	1203	203	6:47 AM
6:48 AM	21	26	20	54	1343	343	6:48 AM
6:49 AM	24	29	20	63	1579	579	6:49 AM
6:50 AM	17	20	20	64	1591	591	6:50 AM
6:51 AM	23	28	20	72	1794	794	6:51 AM
6:52 AM	22	27	20	79	1966	966	6:52 AM
6:53 AM	18	22	20	80	2010	1010	6:53 AM
6:54 AM	14	17	20	77	1926	926	6:54 AM
6:55 AM	17	20	20	78	1938	938	6:55 AM
6:56 AM	19	23	20	81	2014	1014	6:56 AM
6:57 AM	13	15	20	76	1898	898	6:57 AM
6:58 AM	13	15	20	71	1782	782	6:58 AM
6:59 AM	17	20	20	72	1793	793	6:59 AM
7:00 AM	16	19	20	71	1773	773	7:00 AM
7:01 AM	16	19	20	70	1753	753	7:01 AM
7:02 AM	7	9	20	59	1477	477	7:02 AM
7:03 AM	23	28	20	67	1681	681	7:03 AM
7:04 AM	12	14	20	61	1533	533	7:04 AM
7:05 AM	17	20	20	62	1545	545	7:05 AM
7:06 AM	6	8	20	49	1237	237	7:06 AM
7:07 AM	19	23	20	53	1313	313	7:07 AM
7:08 AM	21	26	20	58	1452	452	7:08 AM
7:09 AM	15	18	20	56	1400	400	7:09 AM
7:10 AM	12	14	20	50	1252	252	7:10 AM
7:11 AM	17	20	20	51	1264	264	7:11 AM
7:12 AM	24	29	20	60	1500	500	7:12 AM
7:13 AM	23	28	20	68	1704	704	7:13 AM
7:14 AM	19	23	20	71	1780	780	7:14 AM
7:15 AM	21	26	20	77	1920	920	7:15 AM
7:16 AM	15	18	20	75	1867	867	7:16 AM
7:17 AM	23	28	20	83	2071	1071	7:17 AM
7:18 AM	17	20	20	83	2083	1083	7:18 AM
7:19 AM	23	28	20	91	2287	1287	7:19 AM
7:20 AM	23	28	20	100	2491	1491	7:20 AM
7:21 AM	25	31	20	110	2759	1759	7:21 AM
7:22 AM	23	28	20	119	2963	1963	7:22 AM
7:23 AM	18	22	20	120	3006	2006	7:23 AM
7:24 AM	20	24	20	125	3114	2114	7:24 AM
7:25 AM	16	19	20	124	3094	2094	7:25 AM
7:26 AM	16	19	20	123	3074	2074	7:26 AM
7:27 AM	25	31	20	134	3342	2342	7:27 AM
7:28 AM	17	20	20	124	3254	2254	7:28 AM
7:29 AM	15	18	20	132	3302	2302	7:29 AM
7:30 AM	30	36	20	148	3697	2697	7:30 AM
7:31 AM	23	28	20	156	3901	2901	7:31 AM
7:32 AM	22	27	20	163	4073	3073	7:32 AM
7:33 AM	23	28	20	171	4277	3277	7:33 AM
7:34 AM	27	32	20	183	4577	3577	7:34 AM
7:35 AM	30	36	20	199	4973	3973	7:35 AM
7:36 AM	28	33	20	212	5304	4304	7:36 AM
7:37 AM	22	27	20	219	5476	4476	7:37 AM
7:38 AM	25	31	20	230	5744	4744	7:38 AM
7:39 AM	20	24	20	234	5852	4852	7:39 AM
7:40 AM	16	19	20	233	5832	4832	7:40 AM
7:41 AM	24	29	20	243	6068	5068	7:41 AM
7:42 AM	24	29	20	252	6304	5304	7:42 AM
7:43 AM	32	38	20	271	6763	5763	7:43 AM
7:44 AM	19	23	20	274	6839	5839	7:44 AM
7:45 AM	20	24	20	278	6947	5947	7:45 AM
7:46 AM	28	33	20	291	7279	6279	7:46 AM
7:47 AM	25	31					

Storage Length	No. of Storage Lanes	PM Adjustment factor	PM k30 factor (R103)		1.14	2-lane retrofit (use shoulder) alternate release Max rate = 1400
			Ramp Meter Rate	Vehicles in queue		
3:00 PM	13	16	13	2	59	0
3:01 PM	7	8	10	0	0	0
3:02 PM	13	16	13	2	59	0
3:03 PM	9	10	13	0	0	0
3:04 PM	11	13	13	0	0	0
3:05 PM	9	10	10	0	0	0
3:06 PM	12	14	13	1	26	0
3:07 PM	6	7	8	0	0	0
3:08 PM	6	7	7	0	0	0
3:09 PM	18	21	13	8	189	0
3:10 PM	6	7	13	1	19	0
3:11 PM	10	12	13	0	0	0
3:12 PM	8	9	9	0	0	0
3:13 PM	4	5	5	0	0	0
3:14 PM	11	13	13	0	0	0
3:15 PM	12	14	13	1	26	0
3:16 PM	8	9	10	0	0	0
3:17 PM	11	13	13	0	0	0
3:18 PM	14	17	13	4	91	0
3:19 PM	16	18	13	9	215	0
3:20 PM	11	13	13	8	208	0
3:21 PM	6	7	13	2	38	0
3:22 PM	10	12	13	0	0	0
3:23 PM	8	9	9	0	0	0
3:24 PM	8	9	9	0	0	0
3:25 PM	13	16	13	2	59	0
3:26 PM	4	5	8	0	0	0
3:27 PM	4	5	5	0	0	0
3:28 PM	16	18	13	5	124	0
3:29 PM	14	17	13	9	215	0
3:30 PM	10	12	13	7	176	0
3:31 PM	10	12	13	5	136	0
3:32 PM	9	10	13	3	64	0
3:33 PM	11	13	13	2	58	0
3:34 PM	9	10	13	0	0	0
3:35 PM	18	21	13	8	189	0
3:36 PM	17	20	13	14	346	0
3:37 PM	16	18	13	19	470	0
3:38 PM	7	8	13	13	332	0
3:39 PM	12	14	13	14	358	0
3:40 PM	10	12	13	13	319	0
3:41 PM	7	8	13	7	181	0
3:42 PM	9	10	13	4	109	0
3:43 PM	8	9	13	0	5	0
3:44 PM	13	16	13	3	63	0
3:45 PM	10	12	13	1	24	0
3:46 PM	9	10	11	0	0	0
3:47 PM	16	18	13	5	124	0
3:48 PM	23	27	13	19	476	0
3:49 PM	9	10	13	16	404	0
3:50 PM	13	16	13	19	463	0
3:51 PM	10	12	13	17	424	0
3:52 PM	11	13	13	17	417	0
3:53 PM	7	8	13	11	279	0
3:54 PM	2	3	13	0	11	0
3:55 PM	10	12	12	0	0	0
3:56 PM	13	16	13	2	59	0
3:57 PM	7	8	10	0	0	0
3:58 PM	18	21	13	8	189	0
3:59 PM	10	12	13	6	150	0
4:00 PM	9	10	13	3	78	0
4:01 PM	11	13	13	3	71	0
4:02 PM	13	16	13	5	130	0
4:03 PM	11	13	13	5	123	0
4:04 PM	12	14	13	6	149	0
4:05 PM	14	17	13	10	240	0
4:06 PM	10	12	13	8	201	0
4:07 PM	13	16	13	10	259	0
4:08 PM	6	7	13	4	89	0
4:09 PM	9	10	10	0	0	0
4:10 PM	8	9	10	0	0	0
4:11 PM	11	13	13	0	0	0
4:12 PM	9	10	10	0	0	0
4:13 PM	10	12	12	0	0	0
4:14 PM	10	12	12	0	0	0
4:15 PM	12	14	13	1	26	0
4:16 PM	14	17	13	5	117	0
4:17 PM	8	9	13	0	12	0
4:18 PM	11	13	13	0	6	0
4:19 PM	8	9	9	0	0	0
4:20 PM	13	16	13	2	59	0
4:21 PM	4	5	8	0	0	0
4:22 PM	11	13	13	0	0	0
4:23 PM	7	8	8	0	0	0
4:24 PM	10	12	12	0	0	0
4:25 PM	6	7	7	0	0	0
4:26 PM	3	4	4	0	0	0
4:27 PM	14	17	13	4	91	0
4:28 PM	3	4	8	0	0	0
4:29 PM	12	14	13	1	26	0
4:30 PM	9	10	11	0	0	0
4:31 PM	9	10	10	0	0	0
4:32 PM	8	9	9	0	0	0
4:33 PM	8	9	9	0	0	0
4:34 PM	7	8	8	0	0	0
4:35 PM	9	10	10	0	0	0
4:36 PM	6	7	7	0	0	0
4:37 PM	12	14	13	1	26	0
4:38 PM	11	13	13	1	19	0
4:39 PM	18	21	13	8	208	0
4:40 PM	8	9	13	4	104	0
4:41 PM	11	13	13	4	97	0
4:42 PM	14	17	13	8	188	0
4:43 PM	3	4	11	0	0	0
4:44 PM	11	13	13	0	0	0
4:45 PM	6	7	7	0	0	0
4:46 PM	6	7	7	0	0	0
4:47 PM	10	12	12	0	0	0
4:48 PM	13	16	13	2	59	0
4:49 PM	14	17	13	6	150	0
4:50 PM	27	31	13	24	600	0
4:51 PM	11	13	13	24	594	0
4:52 PM	11	13	13	23	587	0
4:53 PM	8	9	13	19	482	0
4:54 PM	7	8	13	14	345	0
4:55 PM	1	1	13	2	44	0
4:56 PM	8	9	11	0	0	0
4:57 PM	10	12	12	0	0	0
4:58 PM	8	9	9	0	0	0
4:59 PM	10	12	12	0	0	0
5:00 PM	12	14	13	1	26	0
5:01 PM	21	25	13	13	313	0
5:02 PM	13	16	13	15	372	0
5:03 PM	8	9	13	11	267	0
5:04 PM	7	8	13	5	130	0
5:05 PM	7	8	13	0	0	0
5:06 PM	6	7	7	0	0	0
5:07 PM	9	10	10	0	0	0
5:08 PM	7	8	8	0	0	0
5:09 PM	8	9	9	0	0	0
5:10 PM	13	16	13	2	59	0
5:11 PM	20	24	13	13	313	0
5:12 PM	11	13	13	12	306	0
5:13 PM	12	14	13	13	332	0
5:14 PM	11	13	13	13	326	0
5:15 PM	8	9	13	9</td		

**PEAK
HOUR
I-90 EB**

**THE TIME
PERIOD
WITH
QUEUE
BEYOND
THE
STORAGE
AFTER I-90
EB PEAK
HOUR**

Storage Length	Project (500ph)	2026 PM w/ BK		PM Adjustment factor	PM k30 factor (R103)	1.14	2-lane retrofit (use shoulder) alternate release Max rate = 1400
		No. of Storage Lanes	Rate				
Time	2021 PM Volume	Adjusted Volume	Vehicles released	Queue length	Exceed Storage		
3:00 PM	13	16	8	7	184	0	
3:01 PM	7	8	8	7	171	0	
3:02 PM	13	16	8	14	355	0	
3:03 PM	9	10	8	16	408	0	
3:04 PM	11	13	8	21	526	0	
3:05 PM	9	10	8	23	579	0	
3:06 PM	12	14	8	29	730	0	
3:07 PM	6	7	8	27	685	0	
3:08 PM	6	7	8	26	640	0	
3:09 PM	18	21	8	38	954	0	
3:10 PM	6	7	8	36	909	0	
3:11 PM	10	12	8	40	995	0	
3:12 PM	8	9	8	41	1015	15	
3:13 PM	4	5	8	37	937	0	
3:14 PM	11	13	8	42	1055	55	
3:15 PM	12	14	8	48	1206	206	
3:16 PM	8	9	8	49	1227	227	
3:17 PM	11	13	8	54	1345	345	
3:18 PM	14	17	8	62	1561	561	
3:19 PM	16	18	8	72	1810	810	
3:20 PM	11	13	8	77	1928	928	
3:21 PM	6	7	8	75	1883	883	
3:22 PM	10	12	8	79	1969	969	
3:23 PM	8	9	8	80	1989	989	
3:24 PM	8	9	8	80	2010	1010	
3:25 PM	13	16	8	88	2193	1193	
3:26 PM	4	5	8	85	2115	1115	
3:27 PM	4	5	8	82	2038	1038	
3:28 PM	16	18	8	91	2287	1287	
3:29 PM	14	17	8	100	2503	1503	
3:30 PM	10	12	8	104	2589	1589	
3:31 PM	10	12	8	107	2674	1674	
3:32 PM	9	10	8	109	2727	1727	
3:33 PM	11	13	8	114	2845	1845	
3:34 PM	9	10	8	116	2898	1898	
3:35 PM	18	21	8	128	3212	2212	
3:36 PM	17	20	8	140	3494	2494	
3:37 PM	16	18	8	150	3743	2743	
3:38 PM	7	8	8	149	3731	2731	
3:39 PM	12	14	8	155	3882	2882	
3:40 PM	10	12	8	159	3967	2967	
3:41 PM	7	8	8	158	3955	2955	
3:42 PM	9	10	8	160	4008	3008	
3:43 PM	8	9	8	161	4028	3028	
3:44 PM	13	16	8	168	4212	3212	
3:45 PM	10	12	8	172	4297	3297	
3:46 PM	9	10	8	174	4350	3350	
3:47 PM	16	18	8	184	4599	3599	
3:48 PM	23	27	8	203	5077	4077	
3:49 PM	9	10	8	205	5130	4130	
3:50 PM	13	16	8	213	5313	4313	
3:51 PM	10	12	8	216	5399	4399	
3:52 PM	11	13	8	221	5517	4517	
3:53 PM	7	8	8	220	5505	4505	
3:54 PM	2	3	8	214	5362	4362	
3:55 PM	10	12	8	218	5447	4447	
3:56 PM	13	16	8	225	5631	4631	
3:57 PM	7	8	8	225	5618	4618	
3:58 PM	18	21	8	237	5933	4933	
3:59 PM	10	12	8	241	6018	5018	
4:00 PM	9	10	8	243	6071	5071	
4:01 PM	11	13	8	248	6189	5189	
4:02 PM	13	16	8	255	6373	5373	
4:03 PM	11	13	8	260	6491	5491	
4:04 PM	12	14	8	266	6642	5642	
4:05 PM	14	17	8	274	6858	5858	
4:06 PM	10	12	8	278	6944	5944	
4:07 PM	13	16	8	285	7128	6128	
4:08 PM	6	7	8	283	7083	6083	
4:09 PM	9	10	8	285	7136	6136	
4:10 PM	8	9	8	286	7156	6156	
4:11 PM	11	13	8	291	7274	6274	
4:12 PM	9	10	8	293	7327	6327	
4:13 PM	10	12	8	297	7413	6413	
4:14 PM	10	12	8	300	7498	6498	
4:15 PM	12	14	8	306	7649	6649	
4:16 PM	14	17	8	315	7865	6865	
4:17 PM	8	9	8	315	7886	6886	
4:18 PM	11	13	8	320	8004	7004	
4:19 PM	8	9	8	321	8024	7024	
4:20 PM	13	16	8	328	8208	7208	
4:21 PM	4	5	8	325	8130	7130	
4:22 PM	11	13	8	330	8248	7248	
4:23 PM	7	8	8	329	8236	7236	
4:24 PM	10	12	8	333	8322	7322	
4:25 PM	6	7	8	331	8277	7277	
4:26 PM	3	4	8	327	8166	7166	
4:27 PM	14	17	8	335	8383	7383	
4:28 PM	3	4	8	331	8272	7272	
4:29 PM	12	14	8	327	8423	7423	
4:30 PM	9	10	8	339	8476	7476	
4:31 PM	9	10	8	341	8529	7529	
4:32 PM	8	9	8	342	8549	7549	
4:33 PM	8	9	8	343	8570	7570	
4:34 PM	7	8	8	342	8557	7557	
4:35 PM	9	10	8	344	8610	7610	
4:36 PM	6	7	8	343	8565	7565	
4:37 PM	12	14	8	349	8716	7716	
4:38 PM	11	13	8	353	8834	7834	
4:39 PM	18	21	8	366	9149	8149	
4:40 PM	8	9	8	367	9169	8169	
4:41 PM	11	13	8	371	9287	8287	
4:42 PM	14	17	8	380	9503	8503	
4:43 PM	3	4	8	376	9393	8393	
4:44 PM	11	13	8	380	9511	8511	
4:45 PM	6	7	8	379	9466	8466	
4:46 PM	6	7	8	377	9421	8421	
4:47 PM	10	12	8	380	9507	8507	
4:48 PM	13	16	8	388	9690	8690	
4:49 PM	14	17	8	396	9907	8907	
4:50 PM	27	31	8	419	10482	9482	
4:51 PM	11	13					

EB 195		2026 AM w/ BK Project w/ SR195 IMP	AM Adjustment factor	0.9155	AM k30 factor (R103)	1.15		
Storage Length	No. of Storage Lanes	Ramp Meter Rate	1	1200	2-lane retrofit (use shoulder) alternate release Max rate = 1400			EB 195
Time	2021 AM Volume	Adjusted Volume	Vehicles released	Vehicles in queue	Queue length	Exceed Storage		Time
6:00 AM	4	4	4	0	0	0		6:00 AM
6:01 AM	5	5	5	0	0	0		6:01 AM
6:02 AM	1	1	1	0	0	0		6:02 AM
6:03 AM	2	2	2	0	0	0		6:03 AM
6:04 AM	5	5	5	0	0	0		6:04 AM
6:05 AM	4	4	4	0	0	0		6:05 AM
6:06 AM	7	7	7	0	0	0		6:06 AM
6:07 AM	5	5	5	0	0	0		6:07 AM
6:08 AM	4	4	4	0	0	0		6:08 AM
6:09 AM	5	5	5	0	0	0		6:09 AM
6:10 AM	7	7	7	0	0	0		6:10 AM
6:11 AM	6	6	6	0	0	0		6:11 AM
6:12 AM	10	9	9	0	0	0		6:12 AM
6:13 AM	6	6	6	0	0	0		6:13 AM
6:14 AM	5	5	5	0	0	0		6:14 AM
6:15 AM	6	6	6	0	0	0		6:15 AM
6:16 AM	5	5	5	0	0	0		6:16 AM
6:17 AM	6	6	6	0	0	0		6:17 AM
6:18 AM	4	4	4	0	0	0		6:18 AM
6:19 AM	11	10	10	0	0	0		6:19 AM
6:20 AM	13	12	12	0	0	0		6:20 AM
6:21 AM	14	13	13	0	0	0		6:21 AM
6:22 AM	8	8	8	0	0	0		6:22 AM
6:23 AM	13	12	12	0	0	0		6:23 AM
6:24 AM	16	15	15	0	0	0		6:24 AM
6:25 AM	18	17	17	0	0	0		6:25 AM
6:26 AM	6	6	6	0	0	0		6:26 AM
6:27 AM	12	11	11	0	0	0		6:27 AM
6:28 AM	7	7	7	0	0	0		6:28 AM
6:29 AM	13	12	12	0	0	0		6:29 AM
6:30 AM	10	9	9	0	0	0		6:30 AM
6:31 AM	16	15	15	0	0	0		6:31 AM
6:32 AM	16	15	15	0	0	0		6:32 AM
6:33 AM	6	6	6	0	0	0		6:33 AM
6:34 AM	12	11	11	0	0	0		6:34 AM
6:35 AM	12	11	11	0	0	0		6:35 AM
6:36 AM	11	10	10	0	0	0		6:36 AM
6:37 AM	13	12	12	0	0	0		6:37 AM
6:38 AM	13	12	12	0	0	0		6:38 AM
6:39 AM	15	14	14	0	0	0		6:39 AM
6:40 AM	8	8	8	0	0	0		6:40 AM
6:41 AM	22	20	20	0	10	0		6:41 AM
6:42 AM	17	16	16	0	0	0		6:42 AM
6:43 AM	22	20	20	0	10	0		6:43 AM
6:44 AM	28	25	20	6	142	0		6:44 AM
6:45 AM	22	20	20	6	153	0		6:45 AM
6:46 AM	24	22	20	8	212	0		6:46 AM
6:47 AM	20	18	20	7	174	0		6:47 AM
6:48 AM	21	19	20	6	160	0		6:48 AM
6:49 AM	24	22	20	9	219	0		6:49 AM
6:50 AM	17	16	20	4	108	0		6:50 AM
6:51 AM	23	21	20	6	143	0		6:51 AM
6:52 AM	22	20	20	6	153	0		6:52 AM
6:53 AM	18	17	20	3	66	0		6:53 AM
6:54 AM	14	13	15	0	0	0		6:54 AM
6:55 AM	17	16	16	0	0	0		6:55 AM
6:56 AM	19	18	18	0	0	0		6:56 AM
6:57 AM	13	12	12	0	0	0		6:57 AM
6:58 AM	13	12	12	0	0	0		6:58 AM
6:59 AM	17	16	16	0	0	0		6:59 AM
7:00 AM	16	15	15	0	0	0		7:00 AM
7:01 AM	16	15	15	0	0	0		7:01 AM
7:02 AM	7	7	7	0	0	0		7:02 AM
7:03 AM	23	21	20	1	35	0		7:03 AM
7:04 AM	12	11	12	0	0	0		7:04 AM
7:05 AM	17	16	16	0	0	0		7:05 AM
7:06 AM	6	6	6	0	0	0		7:06 AM
7:07 AM	19	18	18	0	0	0		7:07 AM
7:08 AM	21	19	19	0	0	0		7:08 AM
7:09 AM	15	14	14	0	0	0		7:09 AM
7:10 AM	12	11	11	0	0	0		7:10 AM
7:11 AM	17	16	16	0	0	0		7:11 AM
7:12 AM	24	22	20	2	59	0		7:12 AM
7:13 AM	23	21	20	1	94	0		7:13 AM
7:14 AM	19	18	20	1	31	0		7:14 AM
7:15 AM	21	19	20	1	17	0		7:15 AM
7:16 AM	15	14	14	0	0	0		7:16 AM
7:17 AM	23	21	20	1	35	0		7:17 AM
7:18 AM	17	16	17	0	0	0		7:18 AM
7:19 AM	23	21	20	1	35	0		7:19 AM
7:20 AM	23	21	20	3	69	0		7:20 AM
7:21 AM	25	23	20	6	153	0		7:21 AM
7:22 AM	23	21	20	8	188	0		7:22 AM
7:23 AM	18	17	20	4	101	0		7:23 AM
7:24 AM	20	18	20	3	63	0		7:24 AM
7:25 AM	16	15	17	0	0	0		7:25 AM
7:26 AM	16	15	15	0	0	0		7:26 AM
7:27 AM	25	23	20	3	83	0		7:27 AM
7:28 AM	17	16	19	0	0	0		7:28 AM
7:29 AM	15	14	14	0	0	0		7:29 AM
7:30 AM	30	27	20	7	181	0		7:30 AM
7:31 AM	23	21	20	9	215	0		7:31 AM
7:32 AM	22	20	20	9	226	0		7:32 AM
7:33 AM	23	21	20	10	261	0		7:33 AM
7:34 AM	27	24	20	15	368	0		7:34 AM
7:35 AM	30	27	20	22	549	0		7:35 AM
7:36 AM	28	25	20	7	681	0		7:36 AM
7:37 AM	22	20	20	8	691	0		7:37 AM
7:38 AM	25	23	20	31	775	0		7:38 AM
7:39 AM	20	18	20	29	736	0		7:39 AM
7:40 AM	16	15	20	24	601	0		7:40 AM
7:41 AM	24	22	20	26	660	0		7:41 AM
7:42 AM	24	22	20	29	719	0		7:42 AM
7:43 AM	32	29	20	38	948	0		7:43 AM
7:44 AM	19	18	20	35	886	0		7:44 AM
7:45 AM	20	18	20	34	848	0		

EB 195		2026 PM w/ BK Project w/ SR195 IMP		PM Adjustment factor	0.923	PM k30 factor (R103)	1.14	2-lane retrofit (use shoulder) alternate release Max rate = 1400
Storage Length	No. of Storage Lanes	Ramp Meter Rate	800					
Time	2021 PM Volume	Adjusted Volume	Vehicles released	Vehicles in queue	Queue length	Exceed Storage		
3:00 PM	13	12	12	0	0	0		
3:01 PM	7	6	6	0	0	0		
3:02 PM	13	12	12	0	0	0		
3:03 PM	9	8	8	0	0	0		
3:04 PM	11	10	10	0	0	0		
3:05 PM	9	8	8	0	0	0		
3:06 PM	12	11	11	0	0	0		
3:07 PM	6	5	5	0	0	0		
3:08 PM	6	5	5	0	0	0		
3:09 PM	18	16	13	3	76	0		
3:10 PM	6	5	8	0	0	0		
3:11 PM	10	9	9	0	0	0		
3:12 PM	8	7	7	0	0	0		
3:13 PM	4	4	4	0	0	0		
3:14 PM	11	10	10	0	0	0		
3:15 PM	12	11	11	0	0	0		
3:16 PM	8	7	7	0	0	0		
3:17 PM	11	10	10	0	0	0		
3:18 PM	14	13	13	0	0	0		
3:19 PM	16	14	13	1	25	0		
3:20 PM	11	10	11	0	0	0		
3:21 PM	6	5	5	0	0	0		
3:22 PM	10	9	9	0	0	0		
3:23 PM	8	7	7	0	0	0		
3:24 PM	8	7	7	0	0	0		
3:25 PM	13	12	12	0	0	0		
3:26 PM	4	4	4	0	0	0		
3:27 PM	4	4	4	0	0	0		
3:28 PM	16	14	13	1	25	0		
3:29 PM	14	13	13	1	24	0		
3:30 PM	10	9	10	0	0	0		
3:31 PM	10	9	9	0	0	0		
3:32 PM	9	8	8	0	0	0		
3:33 PM	11	10	10	0	0	0		
3:34 PM	9	8	8	0	0	0		
3:35 PM	18	16	13	3	76	0		
3:36 PM	17	15	13	5	127	0		
3:37 PM	16	14	13	6	152	0		
3:38 PM	7	6	12	0	0	0		
3:39 PM	12	11	11	0	0	0		
3:40 PM	10	9	9	0	0	0		
3:41 PM	7	6	6	0	0	0		
3:42 PM	9	8	8	0	0	0		
3:43 PM	8	7	7	0	0	0		
3:44 PM	13	12	12	0	0	0		
3:45 PM	10	9	9	0	0	0		
3:46 PM	9	8	8	0	0	0		
3:47 PM	16	14	13	1	25	0		
3:48 PM	23	21	13	9	229	0		
3:49 PM	9	8	13	4	100	0		
3:50 PM	13	12	13	3	74	0		
3:51 PM	10	9	12	0	0	0		
3:52 PM	11	10	10	0	0	0		
3:53 PM	7	6	6	0	0	0		
3:54 PM	2	2	2	0	0	0		
3:55 PM	10	9	9	0	0	0		
3:56 PM	13	12	12	0	0	0		
3:57 PM	7	6	6	0	0	0		
3:58 PM	18	16	13	3	76	0		
3:59 PM	10	9	12	0	0	0		
4:00 PM	9	8	8	0	0	0		
4:01 PM	11	10	10	0	0	0		
4:02 PM	13	12	12	0	0	0		
4:03 PM	11	10	10	0	0	0		
4:04 PM	12	11	11	0	0	0		
4:05 PM	14	13	13	0	0	0		
4:06 PM	10	9	9	0	0	0		
4:07 PM	13	12	12	0	0	0		
4:08 PM	6	5	5	0	0	0		
4:09 PM	9	8	8	0	0	0		
4:10 PM	8	7	7	0	0	0		
4:11 PM	11	10	10	0	0	0		
4:12 PM	9	8	8	0	0	0		
4:13 PM	10	9	9	0	0	0		
4:14 PM	10	9	9	0	0	0		
4:15 PM	12	11	11	0	0	0		
4:16 PM	14	13	13	0	0	0		
4:17 PM	8	7	7	0	0	0		
4:18 PM	11	10	10	0	0	0		
4:19 PM	8	7	7	0	0	0		
4:20 PM	13	12	12	0	0	0		
4:21 PM	4	4	4	0	0	0		
4:22 PM	11	10	10	0	0	0		
4:23 PM	7	6	6	0	0	0		
4:24 PM	10	9	9	0	0	0		
4:25 PM	6	5	5	0	0	0		
4:26 PM	3	3	3	0	0	0		
4:27 PM	14	13	13	0	0	0		
4:28 PM	3	3	3	0	0	0		
4:29 PM	12	11	11	0	0	0		
4:30 PM	9	8	8	0	0	0		
4:31 PM	9	8	8	0	0	0		
4:32 PM	8	7	7	0	0	0		
4:33 PM	8	7	7	0	0	0		
4:34 PM	7	6	6	0	0	0		
4:35 PM	9	8	8	0	0	0		
4:36 PM	6	5	5	0	0	0		
4:37 PM	12	11	11	0	0	0		
4:38 PM	11	10	10	0	0	0		
4:39 PM	18	16	13	3	76	0		
4:40 PM	8	7	10	0	0	0		
4:41 PM	11	10	10	0	0	0		
4:42 PM	14	13	13	0	0	0		
4:43 PM	3	3	3	0	0	0		
4:44 PM	11	10	10	0	0	0		
4:45 PM	6	5	5	0	0	0		
4:46 PM	5	5	5	0	0	0		
4:47 PM	10	9	9	0	0	0		
4:48 PM	13	12	12	0	0	0		
4:49 PM	14	13	13	0	0	0		
4:50 PM	27	25	13	11	281	0		
4:51 PM	11	10	13	8	203	0		
4:52 PM	11	10	13	5	126	0		
4:53 PM	8	7	12	0	0	0		
4:54 PM	7	6	6	0	0	0		
4:55 PM	1	1	1	0	0	0		
4:56 PM	8	7	7	0	0	0		
4:57 PM	10	9	9	0	0	0		

2026 PM w/ BK Project w/ SR195 IMP (500ph)										PM Adjustment factor	0.923	PM k30 factor (R103)	1.14	2-lane retrofit (use shoulder) alternate release	Max rate = 1400
Storage Length	No. of Storage Lanes	2021 PM Volume	Adjusted Volume	Vehicles released	Vehicles in queue	Queue length	Exceed Storage								
3:00 PM	13	12	8	4	99	0				3:00 PM	12	8	0		
3:01 PM	7	6	8	2	44	0				3:01 PM	18	17	0		
3:02 PM	13	12	8	6	143	0				3:02 PM	31	25	0		
3:03 PM	9	8	8	6	139	0				3:03 PM	39	33	0		
3:04 PM	11	10	8	7	187	0				3:04 PM	49	42	0		
3:05 PM	9	8	8	7	183	0				3:05 PM	57	50	0		
3:06 PM	12	11	8	10	256	0				3:06 PM	69	58	0		
3:07 PM	6	5	8	7	176	0				3:07 PM	74	67	0		
3:08 PM	6	5	8	4	95	0				3:08 PM	79	75	0		
3:09 PM	18	16	8	12	297	0				3:09 PM	95	83	0		
3:10 PM	6	5	8	9	216	0				3:10 PM	100	92	0		
3:11 PM	10	9	8	10	238	0				3:11 PM	110	100	0		
3:12 PM	8	7	8	8	209	0				3:12 PM	117	108	0		
3:13 PM	4	4	8	4	103	0				3:13 PM	121	117	0		
3:14 PM	11	10	8	6	151	0				3:14 PM	131	125	0		
3:15 PM	12	11	8	9	224	0				3:15 PM	142	133	0		
3:16 PM	8	7	8	8	194	0				3:16 PM	149	142	0		
3:17 PM	11	10	8	10	242	0				3:17 PM	160	150	0		
3:18 PM	14	13	8	15	366	0				3:18 PM	173	158	0		
3:19 PM	16	14	8	21	516	0				3:19 PM	187	167	0		
3:20 PM	11	10	8	23	564	0				3:20 PM	198	175	0		
3:21 PM	6	5	8	19	484	0				3:21 PM	203	183	0		
3:22 PM	10	9	8	20	505	0				3:22 PM	212	192	0		
3:23 PM	8	7	8	19	476	0				3:23 PM	219	200	0		
3:24 PM	8	7	8	18	447	0				3:24 PM	226	208	0		
3:25 PM	13	12	8	22	546	0				3:25 PM	239	217	0		
3:26 PM	4	4	8	18	440	0				3:26 PM	243	225	0		
3:27 PM	4	4	8	13	334	0				3:27 PM	247	233	0		
3:28 PM	16	14	8	19	484	0				3:28 PM	261	242	0		
3:29 PM	14	13	8	24	608	0				3:29 PM	274	250	0		
3:30 PM	10	9	8	25	630	0				3:30 PM	284	258	0		
3:31 PM	10	9	8	26	652	0				3:31 PM	293	267	0		
3:32 PM	9	8	8	26	649	0				3:32 PM	301	275	0		
3:33 PM	11	10	8	28	696	0				3:33 PM	311	283	0		
3:34 PM	9	8	8	28	692	0				3:34 PM	319	292	0		
3:35 PM	18	16	8	36	894	0				3:35 PM	336	300	0		
3:36 PM	17	15	8	43	1069	69				3:36 PM	351	308	69		
3:37 PM	16	14	8	49	1219	219				3:37 PM	365	317	219		
3:38 PM	7	6	8	47	1164	164				3:38 PM	372	325	164		
3:39 PM	12	11	8	49	1237	237				3:39 PM	383	333	237		
3:40 PM	10	9	8	50	1259	259				3:40 PM	392	342	259		
3:41 PM	7	6	8	48	1205	205				3:41 PM	398	350	205		
3:42 PM	9	8	8	48	1201	201				3:42 PM	406	358	201		
3:43 PM	8	7	8	47	1172	172				3:43 PM	414	367	172		
3:44 PM	13	12	8	51	1271	271				3:44 PM	426	375	271		
3:45 PM	10	9	8	52	1292	292				3:45 PM	435	383	292		
3:46 PM	9	8	8	52	1289	289				3:46 PM	443	392	289		
3:47 PM	16	14	8	58	1439	439				3:47 PM	458	400	439		
3:48 PM	23	21	8	71	1768	768				3:48 PM	479	408	768		
3:49 PM	9	8	8	71	1764	764				3:49 PM	487	417	764		
3:50 PM	13	12	8	75	1863	863				3:50 PM	500	425	863		
3:51 PM	10	9	8	75	1885	885				3:51 PM	509	433	885		
3:52 PM	11	10	8	77	1933	933				3:52 PM	519	442	933		
3:53 PM	7	6	8	75	1878	878				3:53 PM	525	450	878		
3:54 PM	2	2	8	69	1721	721				3:54 PM	527	458	721		
3:55 PM	10	9	8	70	1743	743				3:55 PM	536	467	743		
3:56 PM	13	12	8	74	1841	841				3:56 PM	549	475	841		
3:57 PM	7	6	8	71	1787	787				3:57 PM	555	483	787		
3:58 PM	18	16	8	80	1988	988				3:58 PM	571	492	988		
3:59 PM	10	9	8	80	2010	1010				3:59 PM	580	500	1010		
4:00 PM	9	8	8	80	2006	1006				4:00 PM	589	508	1006		
4:01 PM	11	10	8	82	2054	1054				4:01 PM	599	517	1054		
4:02 PM	13	12	8	86	2152	1152				4:02 PM	611	525	1152		
4:03 PM	11	10	8	88	2200	1200				4:03 PM	621	533	1200		
4:04 PM	12	11	8	91	2273	1273				4:04 PM	633	542	1273		
4:05 PM	14	13</td													

EB 195		2026 AM with Project	AM Adjustment factor	AM k30 factor (R103)	1.15			
Storage Length	No. of Storage Lanes	Ramp Meter Rate	1.215	1.200	2-lane retrofit (use shoulder) alternate release Max rate = 1400			EB 195
Time	2021 AM Volume	Adjusted Volume	Vehicles released	Vehicles in queue	Queue length	Exceed Storage	Time	Cumulative Queue Length
6:00 AM	4	5	5	0	0	0	6:00 AM	5
6:01 AM	5	6	6	0	0	0	6:01 AM	12
6:02 AM	1	1	1	0	0	0	6:02 AM	13
6:03 AM	2	3	3	0	0	0	6:03 AM	15
6:04 AM	5	6	6	0	0	0	6:04 AM	22
6:05 AM	4	5	5	0	0	0	6:05 AM	27
6:06 AM	7	9	9	0	0	0	6:06 AM	36
6:07 AM	5	6	6	0	0	0	6:07 AM	43
6:08 AM	4	5	5	0	0	0	6:08 AM	48
6:09 AM	5	6	6	0	0	0	6:09 AM	54
6:10 AM	7	9	9	0	0	0	6:10 AM	63
6:11 AM	6	8	8	0	0	0	6:11 AM	71
6:12 AM	10	12	12	0	0	0	6:12 AM	83
6:13 AM	6	8	8	0	0	0	6:13 AM	90
6:14 AM	5	6	6	0	0	0	6:14 AM	97
6:15 AM	6	8	8	0	0	0	6:15 AM	105
6:16 AM	5	6	6	0	0	0	6:16 AM	111
6:17 AM	6	8	8	0	0	0	6:17 AM	119
6:18 AM	4	5	5	0	0	0	6:18 AM	124
6:19 AM	11	13	13	0	0	0	6:19 AM	137
6:20 AM	13	15	15	0	0	0	6:20 AM	152
6:21 AM	14	17	17	0	0	0	6:21 AM	169
6:22 AM	8	10	10	0	0	0	6:22 AM	179
6:23 AM	13	15	15	0	0	0	6:23 AM	195
6:24 AM	16	19	19	0	0	0	6:24 AM	214
6:25 AM	18	22	20	2	48	0	6:25 AM	234
6:26 AM	6	8	10	0	0	0	6:26 AM	244
6:27 AM	12	14	14	0	0	0	6:27 AM	258
6:28 AM	7	9	9	0	0	0	6:28 AM	267
6:29 AM	13	15	15	0	0	0	6:29 AM	283
6:30 AM	10	12	12	0	0	0	6:30 AM	294
6:31 AM	16	19	19	0	0	0	6:31 AM	314
6:32 AM	16	19	19	0	0	0	6:32 AM	333
6:33 AM	6	8	8	0	0	0	6:33 AM	341
6:34 AM	12	14	14	0	0	0	6:34 AM	355
6:35 AM	12	14	14	0	0	0	6:35 AM	369
6:36 AM	11	13	13	0	0	0	6:36 AM	382
6:37 AM	13	15	15	0	0	0	6:37 AM	397
6:38 AM	13	15	15	0	0	0	6:38 AM	413
6:39 AM	15	18	18	0	0	0	6:39 AM	431
6:40 AM	8	10	10	0	0	0	6:40 AM	441
6:41 AM	22	27	20	7	177	0	6:41 AM	468
6:42 AM	17	21	20	8	194	0	6:42 AM	489
6:43 AM	22	27	20	15	371	0	6:43 AM	516
6:44 AM	28	34	20	28	710	0	6:44 AM	550
6:45 AM	22	27	20	35	887	0	6:45 AM	577
6:46 AM	24	30	20	45	1129	129	6:46 AM	606
6:47 AM	20	25	20	50	1242	242	6:47 AM	631
6:48 AM	21	26	20	55	1387	387	6:48 AM	657
6:49 AM	24	30	20	65	1629	629	6:49 AM	686
6:50 AM	17	21	20	66	1645	645	6:50 AM	707
6:51 AM	23	28	20	74	1855	855	6:51 AM	735
6:52 AM	22	27	20	81	2032	1032	6:52 AM	763
6:53 AM	18	22	20	83	2081	1081	6:53 AM	785
6:54 AM	14	17	20	80	2000	1000	6:54 AM	801
6:55 AM	17	21	20	81	2016	1016	6:55 AM	822
6:56 AM	19	23	20	84	2097	1097	6:56 AM	845
6:57 AM	13	15	20	79	1984	984	6:57 AM	861
6:58 AM	13	15	20	75	1871	871	6:58 AM	876
6:59 AM	17	21	20	75	1887	887	6:59 AM	897
7:00 AM	16	19	20	75	1871	871	7:00 AM	916
7:01 AM	16	19	20	74	1855	855	7:01 AM	935
7:02 AM	7	9	20	63	1581	581	7:02 AM	945
7:03 AM	23	28	20	72	1790	790	7:03 AM	973
7:04 AM	12	14	20	66	1645	645	7:04 AM	987
7:05 AM	17	21	20	66	1661	661	7:05 AM	1008
7:06 AM	6	8	20	54	1355	355	7:06 AM	1015
7:07 AM	19	23	20	57	1436	436	7:07 AM	1039
7:08 AM	21	26	20	63	1581	581	7:08 AM	1065
7:09 AM	15	18	20	61	1532	532	7:09 AM	1081
7:10 AM	12	14	20	55	1387	387	7:10 AM	1097
7:11 AM	17	21	20	56	1403	403	7:11 AM	1117
7:12 AM	24	30	20	66	1645	645	7:12 AM	1147
7:13 AM	23	28	20	74	1855	855	7:13 AM	1175
7:14 AM	19	23	20	77	1936	936	7:14 AM	1199
7:15 AM	21	26	20	83	2081	1081	7:15 AM	1225
7:16 AM	15	18	20	81	2032	1032	7:16 AM	1243
7:17 AM	23	28	20	90	2242	1242	7:17 AM	1271
7:18 AM	17	21	20	90	2258	1258	7:18 AM	1292
7:19 AM	23	28	20	99	2468	1468	7:19 AM	1320
7:20 AM	23	28	20	107	2678	1678	7:20 AM	1348
7:21 AM	25	31	20	118	2952	1952	7:21 AM	1379
7:22 AM	23	28	20	126	3161	2161	7:22 AM	1408
7:23 AM	18	22	20	128	3210	2210	7:23 AM	1430
7:24 AM	20	25	20	133	3323	2323	7:24 AM	1454
7:25 AM	16	19	20	132	3307	2307	7:25 AM	1474
7:26 AM	16	19	20	132	3290	2290	7:26 AM	1493
7:27 AM	25	31	20	143	3565	2565	7:27 AM	1524
7:28 AM	17	21	20	143	3581	2581	7:28 AM	1545
7:29 AM	15	18	20	141	3532	2532	7:29 AM	1563
7:30 AM	30	36	20	157	3936	2936	7:30 AM	1599
7:31 AM	23	28	20	166	4145	3145	7:31 AM	1627
7:32 AM	22	27	20	173	4323	3323	7:32 AM	1654
7:33 AM	23	28	20	181	4532	3532	7:33 AM	1683
7:34 AM	27	32	20	194	4839	3839	7:34 AM	1715
7:35 AM	30	36	20	210	5242	4242	7:35 AM	1751

Storage Length	No. of Storage Lanes	2026 PM with Project	PM Adjustment factor	PM k30 factor (R103)		1.14	2-lane retrofit (use shoulder) alternate release Max rate = 1400
				Ramp Meter Rate	Vehicles in queue		
3:00 PM	13	16	1.186	61	0		
3:01 PM	7	8	10	0	0		
3:02 PM	13	16	13	2	61	0	
3:03 PM	9	11	13	0	0	0	
3:04 PM	11	13	13	0	0	0	
3:05 PM	9	11	11	0	0	0	
3:06 PM	12	14	13	1	28	0	
3:07 PM	6	7	8	0	0	0	
3:08 PM	6	7	7	0	0	0	
3:09 PM	18	21	13	8	193	0	
3:10 PM	6	7	13	1	24	0	
3:11 PM	10	12	13	0	0	0	
3:12 PM	8	9	9	0	0	0	
3:13 PM	4	5	5	0	0	0	
3:14 PM	11	13	13	0	0	0	
3:15 PM	12	14	13	1	28	0	
3:16 PM	8	9	10	0	0	0	
3:17 PM	11	13	13	0	0	0	
3:18 PM	14	17	13	4	94	0	
3:19 PM	16	18	13	9	221	0	
3:20 PM	11	13	13	9	217	0	
3:21 PM	6	7	13	2	48	0	
3:22 PM	10	12	13	0	10	0	
3:23 PM	8	9	10	0	0	0	
3:24 PM	8	9	9	0	0	0	
3:25 PM	13	16	13	2	61	0	
3:26 PM	4	5	8	0	0	0	
3:27 PM	4	5	5	0	0	0	
3:28 PM	16	18	13	5	127	0	
3:29 PM	14	17	13	9	221	0	
3:30 PM	10	12	13	7	184	0	
3:31 PM	10	12	13	6	146	0	
3:32 PM	9	11	13	3	76	0	
3:33 PM	11	13	13	3	72	0	
3:34 PM	9	11	13	0	1	0	
3:35 PM	18	21	13	8	194	0	
3:36 PM	17	20	13	14	354	0	
3:37 PM	16	18	13	19	481	0	
3:38 PM	7	8	13	14	345	0	
3:39 PM	12	14	13	15	373	0	
3:40 PM	10	12	13	13	336	0	
3:41 PM	7	8	13	8	200	0	
3:42 PM	9	11	13	5	130	0	
3:43 PM	8	9	13	1	26	0	
3:44 PM	13	16	13	4	88	0	
3:45 PM	10	12	13	2	50	0	
3:46 PM	9	11	13	0	0	0	
3:47 PM	16	18	13	5	127	0	
3:48 PM	23	28	13	19	484	0	
3:49 PM	9	11	13	17	414	0	
3:50 PM	13	16	13	19	475	0	
3:51 PM	10	12	13	18	438	0	
3:52 PM	11	13	13	17	433	0	
3:53 PM	7	8	13	12	297	0	
3:54 PM	2	3	13	1	30	0	
3:55 PM	10	12	13	0	0	0	
3:56 PM	13	16	13	2	61	0	
3:57 PM	7	8	10	0	0	0	
3:58 PM	18	21	13	8	193	0	
3:59 PM	10	12	13	6	155	0	
4:00 PM	9	11	13	3	85	0	
4:01 PM	11	13	13	3	81	0	
4:02 PM	13	16	13	6	142	0	
4:03 PM	11	13	13	5	137	0	
4:04 PM	12	14	13	7	166	0	
4:05 PM	14	17	13	10	260	0	
4:06 PM	10	12	13	9	222	0	
4:07 PM	13	16	13	11	284	0	
4:08 PM	6	7	13	5	115	0	
4:09 PM	9	11	13	2	44	0	
4:10 PM	8	9	11	0	0	0	
4:11 PM	11	13	13	0	0	0	
4:12 PM	9	11	11	0	0	0	
4:13 PM	10	12	12	0	0	0	
4:14 PM	10	12	12	0	0	0	
4:15 PM	12	14	13	1	28	0	
4:16 PM	14	17	13	5	122	0	
4:17 PM	8	9	13	1	19	0	
4:18 PM	11	13	13	1	15	0	
4:19 PM	8	9	10	0	0	0	
4:20 PM	13	16	13	2	61	0	
4:21 PM	4	5	8	0	0	0	
4:22 PM	11	13	13	0	0	0	
4:23 PM	7	8	8	0	0	0	
4:24 PM	10	12	12	0	0	0	
4:25 PM	6	7	7	0	0	0	
4:26 PM	3	4	4	0	0	0	
4:27 PM	14	17	13	4	94	0	
4:28 PM	3	4	8	0	0	0	
4:29 PM	12	14	13	1	28	0	
4:30 PM	9	11	12	0	0	0	
4:31 PM	9	11	11	0	0	0	
4:32 PM	8	9	9	0	0	0	
4:33 PM	8	9	9	0	0	0	
4:34 PM	7	8	8	0	0	0	
4:35 PM	9	11	11	0	0	0	
4:36 PM	6	7	7	0	0	0	
4:37 PM	12	14	13	1	28	0	
4:38 PM	11	13	13	1	24	0	
4:39 PM	18	21	13	9	217	0	
4:40 PM	8	9	13	5	113	0	
4:41 PM	11	13	13	4	109	0	
4:42 PM	14	17	13	8	203	0	
4:43 PM	3	4	12	0	0	0	
4:44 PM	11	13	13	0	0	0	
4:45 PM	6	7	7	0	0	0	
4:46 PM	6	7	7	0	0	0	
4:47 PM	10	12	12	0	0	0	
4:48 PM	13	16	13	2	61	0	
4:49 PM	14	17	13	6	155	0	
4:50 PM	27	32	13	24	611	0	
4:51 PM	11	13	13	24	607	0	
4:52 PM	11	13	13	24	602	0	
4:53 PM	8	9	13	20	499	0	
4:54 PM	7	8	13	15	363	0	
4:55 PM	1	1	13	3	63	0	
4:56 PM	8	9	12	0	0	0	
4:57 PM	10	12	12	0	0	0	
4:58 PM	8	9	9	0	0	0	
4:59 PM	10	12	12	0	0	0	
5:00 PM	12	14	13	1	28	0	
5:01 PM	21	25	13	13	320	0	
5:02 PM	13	16	13	15	381	0	
5:03 PM	8	9	13	11	278	0	
5:04 PM	7	8	13	6	142	0	
5:0							

Storage Length	Time	2026 PM with Project (500 vph)		PM Adjustment factor	Ramp Meter Rate	PM k30 factor (R103)	1.14	2-lane retrofit (use shoulder) alternate release Max rate = 1400	Exceed Storage	Cumulative Queue Length	Excessive Queue Length
		No. of Storage Lanes	2021 PM Volume								
Time	2021 PM Volume	Adjusted Volume	Vehicles released	Vehicles in queue	Queue length	Exceed Storage					
3:00 PM	13	16	8	7	186	0					
3:01 PM	7	8	8	7	175	0					
3:02 PM	13	16	8	14	361	0					
3:03 PM	9	11	8	17	416	0					
3:04 PM	11	13	8	21	537	0					
3:05 PM	9	11	8	24	591	0					
3:06 PM	12	14	8	30	745	0					
3:07 PM	6	7	8	28	701	0					
3:08 PM	6	7	8	26	657	0					
3:09 PM	18	21	8	39	975	0					
3:10 PM	6	7	8	37	931	0					
3:11 PM	10	12	8	41	1018	18					
3:12 PM	8	9	8	42	1040	40					
3:13 PM	4	5	8	39	963	0					
3:14 PM	11	13	8	43	1084	84					
3:15 PM	12	14	8	49	1237	237					
3:16 PM	8	9	8	50	1259	259					
3:17 PM	11	13	8	55	1380	380					
3:18 PM	14	17	8	64	1599	599					
3:19 PM	16	18	8	74	1851	851					
3:20 PM	11	13	8	79	1971	971					
3:21 PM	6	7	8	77	1927	927					
3:22 PM	10	12	8	81	2015	1015					
3:23 PM	8	9	8	81	2037	1037					
3:24 PM	8	9	8	82	2059	1059					
3:25 PM	13	16	8	90	2245	1245					
3:26 PM	4	5	8	87	2168	1168					
3:27 PM	4	5	8	84	2091	1091					
3:28 PM	16	18	8	94	2343	1343					
3:29 PM	14	17	8	102	2562	1562					
3:30 PM	10	12	8	106	2650	1650					
3:31 PM	10	12	8	110	2738	1738					
3:32 PM	9	11	8	112	2792	1792					
3:33 PM	11	13	8	117	2913	1913					
3:34 PM	9	11	8	119	2967	1967					
3:35 PM	18	21	8	131	3285	2285					
3:36 PM	17	20	8	143	3570	2570					
3:37 PM	16	18	8	153	3822	2822					
3:38 PM	7	8	8	152	3811	2811					
3:39 PM	12	14	8	159	3964	2964					
3:40 PM	10	12	8	162	4052	3052					
3:41 PM	7	8	8	162	4041	3041					
3:42 PM	9	11	8	164	4096	3096					
3:43 PM	8	9	8	165	4118	3118					
3:44 PM	13	16	8	172	4304	3304					
3:45 PM	10	12	8	176	4391	3391					
3:46 PM	9	11	8	178	4446	3446					
3:47 PM	16	18	8	188	4698	3698					
3:48 PM	23	28	8	207	5180	4180					
3:49 PM	9	11	8	209	5235	4235					
3:50 PM	13	16	8	217	5421	4421					
3:51 PM	10	12	8	220	5509	4509					
3:52 PM	11	13	8	225	5629	4629					
3:53 PM	7	8	8	225	5618	4618					
3:54 PM	2	3	8	219	5476	4476					
3:55 PM	10	12	8	223	5563	4563					
3:56 PM	13	16	8	230	5750	4750					
3:57 PM	7	8	8	230	5739	4739					
3:58 PM	18	21	8	242	6056	5056					
3:59 PM	10	12	8	246	6144	5144					
4:00 PM	9	11	8	248	6199	5199					
4:01 PM	11	13	8	253	6319	5319					
4:02 PM	13	16	8	260	6505	5505					
4:03 PM	11	13	8	265	6626	5626					
4:04 PM	12	14	8	271	6779	5779					
4:05 PM	14	17	8	280	6988	5988					
4:06 PM	10	12	8	283	7086	6086					
4:07 PM	13	16	8	291	7272	6272					
4:08 PM	6	7	8	289	7228	6228					
4:09 PM	9	11	8	291	7283	6283					
4:10 PM	8	9	8	292	7305	6305					
4:11 PM	11	13	8	297	7425	6425					
4:12 PM	9	11	8	299	7480	6480					
4:13 PM	10	12	8	303	7568	6568					
4:14 PM	12	14	8	306	7655	6655					
4:15 PM	12	14	8	312	7809	6809					
4:16 PM	14	17	8	321	8028	7028					
4:17 PM	8	9	8	322	8050	7050					
4:18 PM	11	13	8	327	8170	7170					
4:19 PM	8	9	8	328	8192	7192					
4:20 PM	13	16	8	335	8378	7378					
4:21 PM	4	5	8	332	8301	7301					
4:22 PM	11	13	8	337	8422	7422					
4:23 PM	7	8	8	336	8411	7411					
4:24 PM	10	12	8	340	8499	7499					
4:25 PM	6	7	8	338	8455	7455					
4:26 PM	3	4	8	334	8345	7345					
4:27 PM	14	17	8	343	8564	7564					

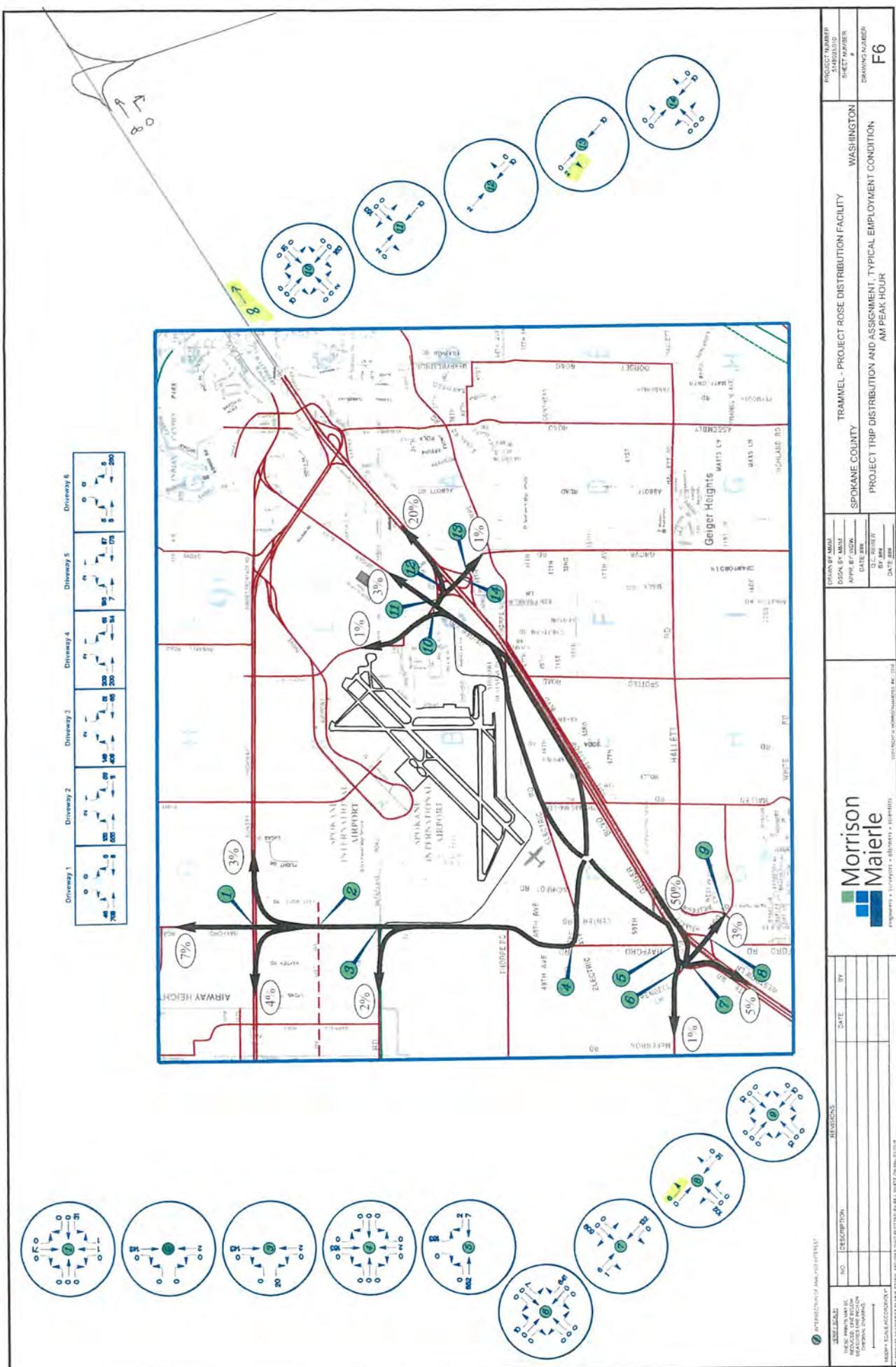
EB 195		2026 AM w/ Project w/ SR195 IMP	AM Adjustment factor	0.9225	AM k30 factor (R103)	1.15					
Storage Length	No. of Storage Lanes	Ramp Meter Rate	Ramp Meter Rate	1200	2-lane retrofit (use shoulder) alternate release Max rate = 1400			EB 195			
Time	2021 AM Volume	Adjusted Volume	Vehicles released	Vehicles in queue	Queue length	Exceed Storage		Time			
6:00 AM	4	4	4	0	0	0		6:00 AM	4	4	0
6:01 AM	5	5	5	0	0	0		6:01 AM	9	9	0
6:02 AM	1	1	1	0	0	0		6:02 AM	10	10	0
6:03 AM	2	2	2	0	0	0		6:03 AM	12	12	0
6:04 AM	5	5	5	0	0	0		6:04 AM	17	17	0
6:05 AM	4	4	4	0	0	0		6:05 AM	21	21	0
6:06 AM	7	7	7	0	0	0		6:06 AM	27	27	0
6:07 AM	5	5	5	0	0	0		6:07 AM	32	32	0
6:08 AM	4	4	4	0	0	0		6:08 AM	36	36	0
6:09 AM	5	5	5	0	0	0		6:09 AM	41	41	0
6:10 AM	7	7	7	0	0	0		6:10 AM	48	48	0
6:11 AM	6	6	6	0	0	0		6:11 AM	54	54	0
6:12 AM	10	9	9	0	0	0		6:12 AM	63	63	0
6:13 AM	6	6	6	0	0	0		6:13 AM	69	69	0
6:14 AM	5	5	5	0	0	0		6:14 AM	73	73	0
6:15 AM	6	6	6	0	0	0		6:15 AM	79	79	0
6:16 AM	5	5	5	0	0	0		6:16 AM	84	84	0
6:17 AM	6	6	6	0	0	0		6:17 AM	90	90	0
6:18 AM	4	4	4	0	0	0		6:18 AM	94	94	0
6:19 AM	11	10	10	0	0	0		6:19 AM	104	104	0
6:20 AM	13	12	12	0	0	0		6:20 AM	116	116	0
6:21 AM	14	13	13	0	0	0		6:21 AM	128	128	0
6:22 AM	8	8	8	0	0	0		6:22 AM	136	136	0
6:23 AM	13	12	12	0	0	0		6:23 AM	148	148	0
6:24 AM	16	15	15	0	0	0		6:24 AM	163	163	0
6:25 AM	18	17	17	0	0	0		6:25 AM	179	179	0
6:26 AM	6	6	6	0	0	0		6:26 AM	185	185	0
6:27 AM	12	11	11	0	0	0		6:27 AM	196	196	0
6:28 AM	7	7	7	0	0	0		6:28 AM	203	203	0
6:29 AM	13	12	12	0	0	0		6:29 AM	215	215	0
6:30 AM	10	9	9	0	0	0		6:30 AM	223	223	0
6:31 AM	16	15	15	0	0	0		6:31 AM	238	238	0
6:32 AM	16	15	15	0	0	0		6:32 AM	253	253	0
6:33 AM	6	6	6	0	0	0		6:33 AM	259	259	0
6:34 AM	12	11	11	0	0	0		6:34 AM	269	269	0
6:35 AM	12	11	11	0	0	0		6:35 AM	280	280	0
6:36 AM	11	10	10	0	0	0		6:36 AM	290	290	0
6:37 AM	13	12	12	0	0	0		6:37 AM	302	302	0
6:38 AM	13	12	12	0	0	0		6:38 AM	314	314	0
6:39 AM	15	14	14	0	0	0		6:39 AM	327	327	0
6:40 AM	8	8	8	0	0	0		6:40 AM	335	335	0
6:41 AM	22	21	20	1	14	0		6:41 AM	356	355	0
6:42 AM	17	16	16	0	0	0		6:42 AM	371	371	0
6:43 AM	22	21	20	1	14	0		6:43 AM	392	391	0
6:44 AM	28	25	20	6	151	0		6:44 AM	417	411	0
6:45 AM	22	21	20	7	165	0		6:45 AM	438	431	0
6:46 AM	24	23	20	9	229	0		6:46 AM	460	451	0
6:47 AM	20	19	20	8	194	0		6:47 AM	479	471	0
6:48 AM	21	20	20	7	184	0		6:48 AM	499	491	0
6:49 AM	24	23	20	10	247	0		6:49 AM	521	511	0
6:50 AM	17	16	20	6	139	0		6:50 AM	537	531	0
6:51 AM	23	22	20	7	178	0		6:51 AM	558	551	0
6:52 AM	22	21	20	8	192	0		6:52 AM	579	571	0
6:53 AM	18	17	20	4	109	0		6:53 AM	596	591	0
6:54 AM	14	13	17	0	0	0		6:54 AM	608	608	0
6:55 AM	17	16	16	0	0	0		6:55 AM	624	624	0
6:56 AM	19	18	18	0	0	0		6:56 AM	642	642	0
6:57 AM	13	12	12	0	0	0		6:57 AM	653	653	0
6:58 AM	13	12	12	0	0	0		6:58 AM	665	665	0
6:59 AM	17	16	16	0	0	0		6:59 AM	681	681	0
7:00 AM	16	15	15	0	0	0		7:00 AM	696	696	0
7:01 AM	16	15	15	0	0	0		7:01 AM	710	710	0
7:02 AM	7	7	7	0	0	0		7:02 AM	717	717	0
7:03 AM	23	22	20	2	39	0		7:03 AM	739	737	0
7:04 AM	12	11	12	0	0	0		7:04 AM	749	749	0
7:05 AM	17	16	16	0	0	0		7:05 AM	765	765	0
7:06 AM	6	6	6	0	0	0		7:06 AM	771	771	0
7:07 AM	19	18	18	0	0	0		7:07 AM	789	789	0
7:08 AM	21	20	20	0	0	0		7:08 AM	808	808	0
7:09 AM	15	14	14	0	0	0		7:09 AM	822	822	0
7:10 AM	12	11	11	0	0	0		7:10 AM	833	833	0
7:11 AM	17	16	16	0	0	0		7:11 AM	848	848	0
7:12 AM	24	23	20	3	63	0		7:12 AM	871	868	0
7:13 AM	23	22	20	4	102	0		7:13 AM	893	888	0
7:14 AM	19	18	20	2	43	0		7:14 AM	910	908	0
7:15 AM	21	20	20	1	33	0		7:15 AM	930	928	0
7:16 AM	15	14	15	0	0	0		7:16 AM	943	943	0
7:17 AM	23	22	20	2	39	0		7:17 AM	965	963	0
7:18 AM	17	16	17	0	0	0		7:18 AM	981	981	0
7:19 AM	23	22	20	2	39	0		7:19 AM	1002		

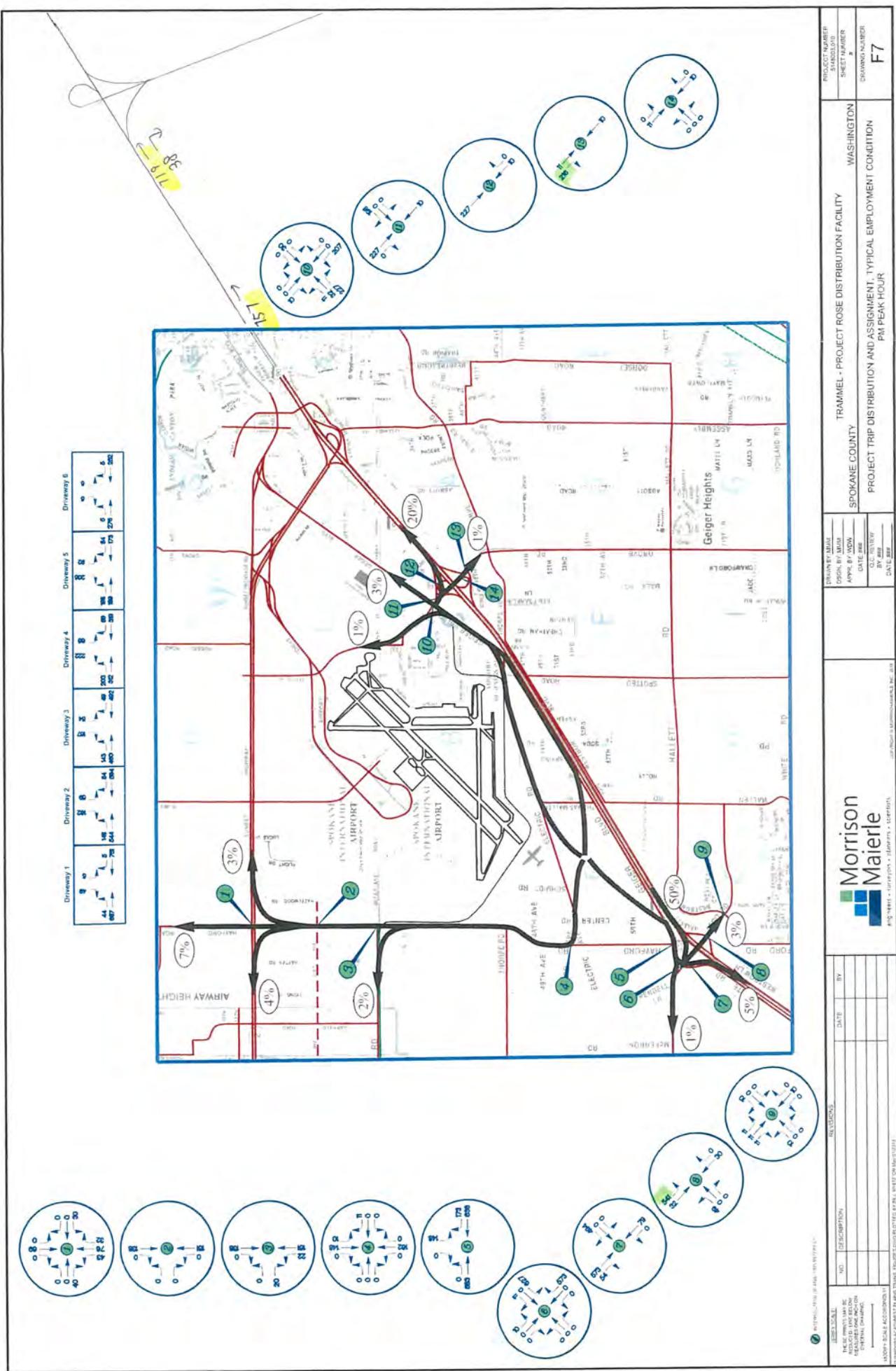
EB 195		2026 PM w/ Project w/ SR195 IMP	PM Adjustment factor	0.93	PM k30 factor (R103)	1.14	2-lane retrofit (use shoulder) alternate release Max rate = 1400	EB 195			
Storage Length	No. of Storage Lanes	Ramp Meter Rate	Vehicles released	Vehicles in queue	Queue length	Exceed Storage		Time	Cumulative Volume	Cumulative Queue Length	Excessive Queue Length
Time	2021 PM Volume	Adjusted Volume						Time			
3:00 PM	13	12	12	0	0	0		3:00 PM	12	12	0
3:01 PM	7	6	6	0	0	0		3:01 PM	19	19	0
3:02 PM	13	12	12	0	0	0		3:02 PM	31	31	0
3:03 PM	9	8	8	0	0	0		3:03 PM	39	39	0
3:04 PM	11	10	10	0	0	0		3:04 PM	50	50	0
3:05 PM	9	8	8	0	0	0		3:05 PM	58	58	0
3:06 PM	12	11	11	0	0	0		3:06 PM	69	69	0
3:07 PM	6	5	5	0	0	0		3:07 PM	74	74	0
3:08 PM	6	5	5	0	0	0		3:08 PM	79	79	0
3:09 PM	18	17	13	3	79	0		3:09 PM	96	93	0
3:10 PM	6	5	8	0	0	0		3:10 PM	101	101	0
3:11 PM	10	9	9	0	0	0		3:11 PM	110	110	0
3:12 PM	8	7	7	0	0	0		3:12 PM	118	118	0
3:13 PM	4	4	4	0	0	0		3:13 PM	122	122	0
3:14 PM	11	10	10	0	0	0		3:14 PM	132	132	0
3:15 PM	12	11	11	0	0	0		3:15 PM	143	143	0
3:16 PM	8	7	7	0	0	0		3:16 PM	151	151	0
3:17 PM	11	10	10	0	0	0		3:17 PM	161	161	0
3:18 PM	14	13	13	0	2	0		3:18 PM	174	174	0
3:19 PM	16	14	13	1	30	0		3:19 PM	189	188	0
3:20 PM	11	10	11	0	0	0		3:20 PM	199	199	0
3:21 PM	6	5	5	0	0	0		3:21 PM	204	204	0
3:22 PM	10	9	9	0	0	0		3:22 PM	213	213	0
3:23 PM	8	7	7	0	0	0		3:23 PM	221	221	0
3:24 PM	8	7	7	0	0	0		3:24 PM	228	228	0
3:25 PM	13	12	12	0	0	0		3:25 PM	240	240	0
3:26 PM	4	4	4	0	0	0		3:26 PM	244	244	0
3:27 PM	4	4	4	0	0	0		3:27 PM	249	249	0
3:28 PM	16	14	13	1	28	0		3:28 PM	263	262	0
3:29 PM	14	13	13	1	30	0		3:29 PM	276	275	0
3:30 PM	10	9	10	0	0	0		3:30 PM	286	286	0
3:31 PM	10	9	9	0	0	0		3:31 PM	295	295	0
3:32 PM	9	8	8	0	0	0		3:32 PM	303	303	0
3:33 PM	11	10	10	0	0	0		3:33 PM	314	314	0
3:34 PM	9	8	8	0	0	0		3:34 PM	322	322	0
3:35 PM	18	17	13	3	79	0		3:35 PM	338	335	0
3:36 PM	17	15	13	5	133	0		3:36 PM	354	348	0
3:37 PM	16	14	13	6	160	0		3:37 PM	368	362	0
3:38 PM	7	6	13	0	0	0		3:38 PM	374	374	0
3:39 PM	12	11	11	0	0	0		3:39 PM	386	386	0
3:40 PM	10	9	9	0	0	0		3:40 PM	395	395	0
3:41 PM	7	6	6	0	0	0		3:41 PM	401	401	0
3:42 PM	9	8	8	0	0	0		3:42 PM	409	409	0
3:43 PM	8	7	7	0	0	0		3:43 PM	417	417	0
3:44 PM	13	12	12	0	0	0		3:44 PM	429	429	0
3:45 PM	10	9	9	0	0	0		3:45 PM	438	438	0
3:46 PM	9	8	8	0	0	0		3:46 PM	447	447	0
3:47 PM	16	14	13	1	28	0		3:47 PM	461	460	0
3:48 PM	23	22	13	9	236	0		3:48 PM	483	473	0
3:49 PM	9	8	13	4	109	0		3:49 PM	491	487	0
3:50 PM	13	12	13	3	85	0		3:50 PM	503	500	0
3:51 PM	10	9	13	0	0	0		3:51 PM	513	513	0
3:52 PM	11	10	10	0	0	0		3:52 PM	523	523	0
3:53 PM	7	6	6	0	0	0		3:53 PM	529	529	0
3:54 PM	2	2	2	0	0	0		3:54 PM	531	531	0
3:55 PM	10	9	9	0	0	0		3:55 PM	540	540	0
3:56 PM	13	12	12	0	0	0		3:56 PM	553	553	0
3:57 PM	7	6	6	0	0	0		3:57 PM	559	559	0
3:58 PM	18	17	13	3	79	0		3:58 PM	576	572	0
3:59 PM	10	9	12	0	0	0		3:59 PM	585	585	0
4:00 PM	9	8	8	0	0	0		4:00 PM	593	593	0
4:01 PM	11	10	10	0	0	0		4:01 PM	603	603	0
4:02 PM	13	12	12	0	0	0		4:02 PM	616	616	0
4:03 PM	11	10	10	0	0	0		4:03 PM	626	626	0
4:04 PM	12	11	11	0	0	0		4:04 PM	637	637	0
4:05 PM	14	13	13	0	2	0		4:05 PM	651	651	0
4:06 PM	10	9	9	0	0	0		4:06 PM	660	660	0
4:07 PM	13	12	12	0	0	0		4:07 PM	672	672	0
4:08 PM	6	5	5	0	0	0		4:08 PM	678	678	0
4:09 PM	9	8	8	0	0	0		4:09 PM	686	686	0
4:10 PM	8	7	7	0	0	0		4:10 PM	693	693	0
4:11 PM	11	10	10	0	0	0		4:11 PM	703	703	0
4:12 PM	9	8	8	0	0	0		4:12 PM	712	712	0
4:13 PM	10	9	9	0	0	0		4:13 PM	721	721	0
4:14 PM	10	9	9	0	0	0		4:14 PM	730	730	0
4:15 PM	12	11	11	0	0	0		4:15 PM	742	742	0
4:16 PM	14	13	13	0	2	0		4:16 PM	755	755	0
4:17 PM	8	7	7	0	0	0		4:17 PM	762	762	0
4:18 PM	11	10	10	0	0	0</					

**PEAK HOUR
I-90 EB**

THE TIME PERIOD WITH QUEUE BEYOND THE STORAGE AFTER I-90

Time	2021 PM Volume	Adjusted Volume	No. of Storage Lanes	Project w/ SR195 IMP(500 vph)	PM Adjustment factor	Ramp Meter	PM k30 factor (R103)	1.14	2-lane retrofit (use shoulder) alternate release Max rate = 1400			Excessive Queue Length
									Vehicles released	Vehicles in queue	Queue length	
3:00 PM	13	12	8	4	101	0	0.93	500	500	101	0	0
3:01 PM	7	6	8	2	47	0				58	50	0
3:02 PM	13	12	8	6	149	0				67	67	0
3:03 PM	9	8	8	6	146	0				75	75	0
3:04 PM	11	10	8	8	196	0				83	83	0
3:05 PM	9	8	8	8	194	0				92	92	0
3:06 PM	12	11	8	11	269	0				108	108	0
3:07 PM	6	5	8	8	190	0				117	117	0
3:08 PM	6	5	8	4	110	0				125	125	0
3:09 PM	18	17	8	13	315	0				133	133	0
3:10 PM	6	5	8	9	235	0				142	142	0
3:11 PM	10	9	8	10	259	0				150	150	0
3:12 PM	8	7	8	9	231	0				158	158	0
3:13 PM	4	4	8	5	126	0				167	167	0
3:14 PM	11	10	8	7	175	0				175	175	0
3:15 PM	12	11	8	10	251	0				183	183	0
3:16 PM	8	7	8	9	223	0				191	191	0
3:17 PM	11	10	8	11	272	0				199	199	0
3:18 PM	14	13	8	16	399	0				207	207	0
3:19 PM	16	14	8	22	552	0				215	215	0
3:20 PM	11	10	8	24	601	0				223	223	0
3:21 PM	6	5	8	21	522	0				230	230	0
3:22 PM	10	9	8	22	546	0				238	238	0
3:23 PM	8	7	8	21	518	0				246	246	0
3:24 PM	8	7	8	20	490	0				254	254	0
3:25 PM	13	12	8	24	591	0				262	262	0
3:26 PM	4	4	8	19	486	0				270	270	0
3:27 PM	4	4	8	15	381	0				278	278	0
3:28 PM	16	14	8	21	533	0				286	286	0
3:29 PM	14	13	8	26	660	0				294	294	0
3:30 PM	10	9	8	27	684	0				302	302	0
3:31 PM	10	9	8	28	708	0				310	310	0
3:32 PM	9	8	8	28	706	0				318	318	0
3:33 PM	11	10	8	30	755	0				326	326	0
3:34 PM	9	8	8	30	753	0				334	334	0
3:35 PM	18	17	8	38	957	0				342	342	0
3:36 PM	17	15	8	45	1136	136				350	350	0
3:37 PM	16	14	8	52	1288	288				358	358	0
3:38 PM	7	6	8	49	1235	235				366	366	0
3:39 PM	12	11	8	52	1310	310				374	374	0
3:40 PM	10	9	8	53	1334	334				382	382	0
3:41 PM	7	6	8	51	1280	280				390	390	0
3:42 PM	9	8	8	51	1278	278				398	398	0
3:43 PM	8	7	8	50	1250	250				406	406	0
3:44 PM	13	12	8	54	1351	351				414	414	0
3:45 PM	10	9	8	55	1375	375				422	422	0
3:46 PM	9	8	8	55	1373	373				430	430	0
3:47 PM	16	14	8	61	1526	526				438	438	0
3:48 PM	23	22	8	74	1859	859				446	446	0
3:49 PM	9	8	8	74	1857	857				454	454	0
3:50 PM	13	12	8	78	1958	958				462	462	0
3:51 PM	10	9	8	79	1981	981				470	470	0
3:52 PM	11	10	8	81	2031	1031				478	478	0
3:53 PM	7	6	8	79	1977	977				486	486	0
3:54 PM	2	2	8	73	1821	821				494	494	0
3:55 PM	10	9	8	74	1844	844				502	502	0
3:56 PM	13	12	8	78	1945	945				510	510	0
3:57 PM	7	6	8	76	1892	892				518	518	0
3:58 PM	18	17	8	84	2096	1096				526	526	0
3:59 PM	10	9	8	85	2120	1120				534	534	0
4:00 PM	9	8	8	85	2118	1118				542	542	0
4:01 PM	11	10	8	87	2167	1167				550	550	0
4:02 PM	13	12	8	91	2268	1268				558	558	0
4:03 PM	11	10	8	93	2318	1318				566	566	0
4:04 PM	12	11	8	96	2393	1393				574	574	0
4:05 PM	14	13	8	101	2520	1520				582	582	0
4:06 PM	10	9	8	102	2544	1544				590	590	0
4:07 PM	13	12	8	106	2645	1645				598	598	0
4:08 PM	6	5	8	103	2565	1565				606	606	0
4:09 PM	9	8	8	103	2563	1563				614	614	0
4:10 PM	8	7	8	101	2535	1535				622	622	0
4:11 PM	11	10	8	103	2585	1585				630	630	0
4:12 PM	9	8	8	103	2583	1583				638	638	0
4:13 PM	10	9	8	104	2607	1607				646	646	0
4:14 PM	10	9	8	105	2630	1630				654	654	0
4:15 PM	12	11	8	108	2706	1706				662	662	0
4:16 PM	14	13	8									





16th Aug

Redacted

- 20 P.M. Tues
Exhibit 6

All Σ^+
 \rightarrow
 $22 \rightarrow$
 $2 \rightarrow$
 $138 \rightarrow$
I-assignment
90% to EB mode
10% to R mode
 $\frac{142}{22} \rightarrow$

-53 AM
58-76 ↑
2

111
59 ↑
50 →
57 06
Sunset Highway
1-53 Trips Route 10

22
60
from Thorpe
from Lew
165

Sunset Highway
53 Trips Rain
Sunset Highway

Thorpe
 Existing
 Redirection
 Redirected
 of the \$96
 of the contract past 16th $\left(\frac{584}{678}\right) \left(\frac{1057}{137}\right)$
 86% contract
 ~ \$12
 Cut in 1/3 volume
 1282
 93%
 61
 536
 128 P

PM 1-1
at the site
78% use EB Ramp
~~or~~ 399
at tr = 399 Volume
~~1000~~

15% are unclassified
be redistributed at Theory
 ≈ 60 .

Henry Spokane - LL
Existing building at the 353
Radnor

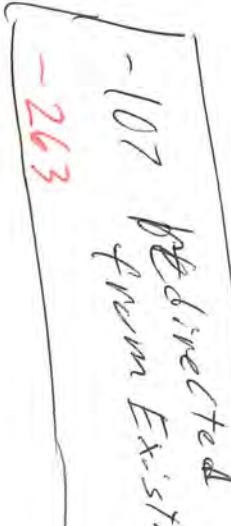
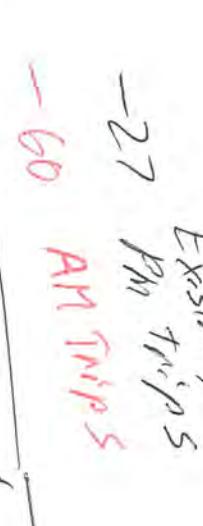
PM
343
of the continue part
861, continue
X 276
of the 276 Volume
- ER Lamp
602

RM 719 —
In 22 of the 215 volumes
of the 215 Volumes
15% are anticipated to
be redirected at those
N 32 : 183

Of the 183
154 are anticipated,
and 27 are
predicted at TEW

- 107
- 263

11.11

	-27 AN Trips
	-60
	-263

pm
AM
3 4 12
F July 2022

11	35	25	27	823	1	2	4 P
2	5	14	12	37	1	1	4 P
6	18				13	39	4 P

- 107	redirected from Existing redundant projects	- 114
- 25	redirected from Cender projects	- 114
63	added Vol from Cender projects	- 114
- 69	Net difference in trips	- 114

Existing

Ramp Meter	IFW ↑
PM - 50	13%
AM - 100	14% - 3

EB RAMP

-6	-5	3
-14	-2	8
-3	-2	2
-4	-2	12
-11	-4	6
-2	-1	4
-20	-9	11
=		-25

Ramp Meter

PM - 3
AM - 10

PM - 8
AM - 36

ΔM	16	3	\uparrow	$\nearrow P$
ΔM	12	-2	\uparrow	$\nearrow P$
ΔM	42	6	\uparrow	$\nearrow P$
ΔM	7	1	\uparrow	$\nearrow P$
ΔM	9	2	\uparrow	$\nearrow P$
ΔM	31	5	\uparrow	$\nearrow P$
ΔM	3	1	\uparrow	$\nearrow P$
ΔM	52	9	\uparrow	$\nearrow P$
ΔM	244		\uparrow	$\nearrow P$

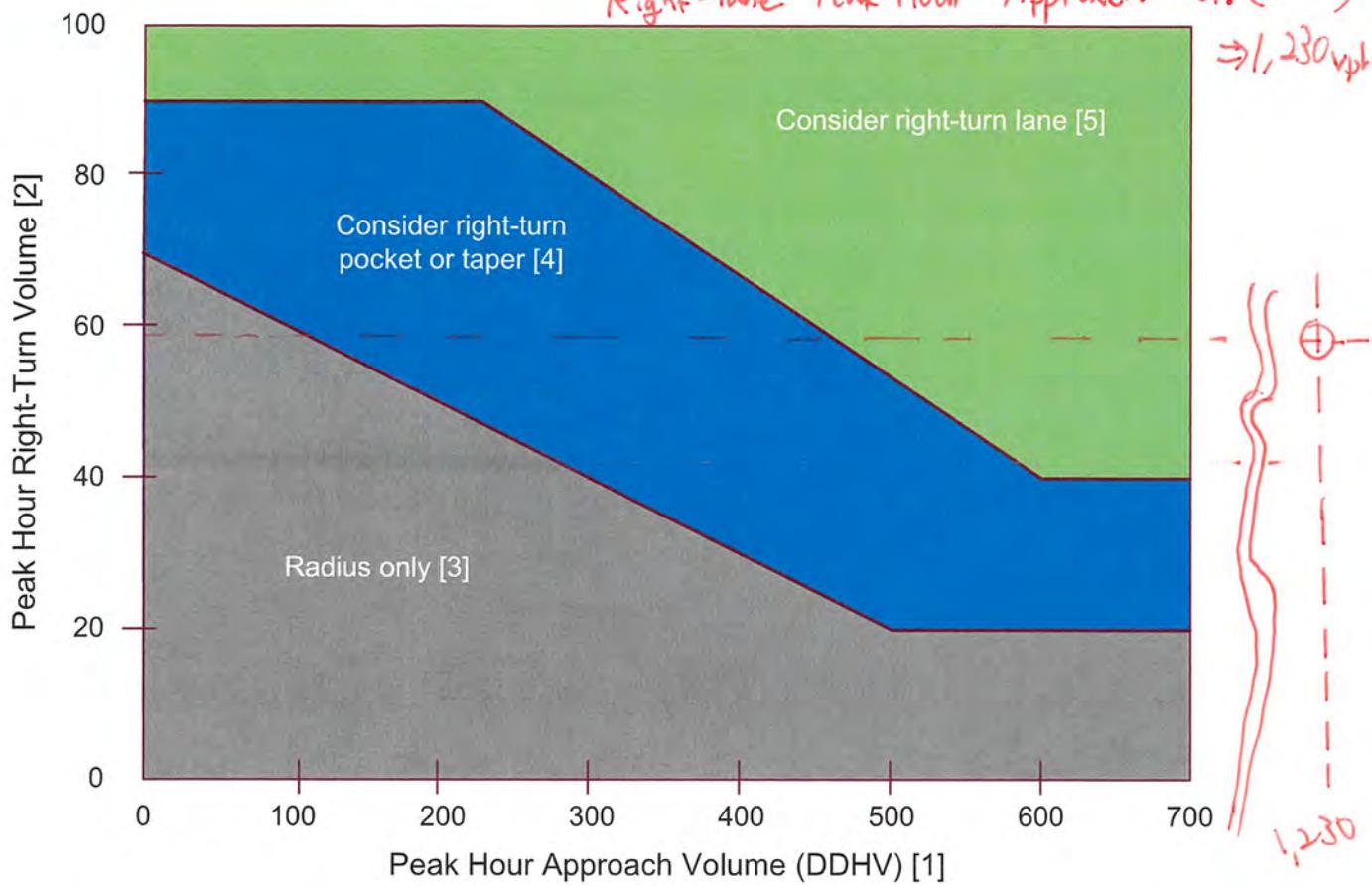
RIGHT TURN LANE WARRANT ANALYSIS

Inland Empire Way & US 195

Chapter 1310

Intersections

Exhibit 1310-11 Right-Turn Lane Guidelines

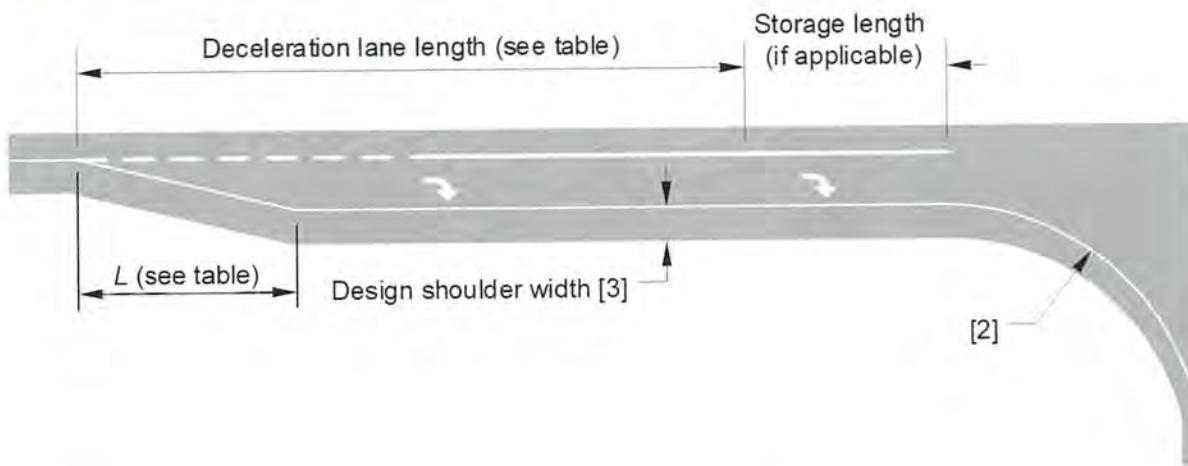


Notes:

- [1] For two-lane highways, use the peak hour DDHV (through + right-turn).
For multilane highways (posted speed 45 mph or above), use the right-lane peak hour approach volume (through + right-turn).
- [2] When all three of the following conditions are met, reduce the right-turn DDHV by 20:
 - The posted speed is 45 mph or below
 - The right-turn volume is greater than 40 VPH
 - The peak hour approach volume (DDHV) is less than 300 VPH
- [3] For right-turn corner design, see Exhibit 1310-6.
- [4] For right-turn pocket or taper design, see Exhibit 1310-12.
- [5] For right-turn lane design, see Exhibit 1310-13.

An acceleration lane (see Exhibit 1310-14) is not as advantageous because entering drivers can wait for an opportunity to merge without disrupting through traffic. However, acceleration lanes for left-turning vehicles provide a benefit by allowing the turn to be made in two movements.

Exhibit 1310-13 Right-Turn Lane



Highway Design Speed (mph)	Deceleration Lane Length (ft)
30	160 [1]
35	220
40	275
45	350
50	425
55	515
60	605
65	715
70	820

Posted Speed Limit	L
Below 40 mph	40 ft
40 mph or above	100 ft

Grade	Upgrade	Downgrade
3% to less than 5%	0.9	1.2
5% or more	0.8	1.35

Adjustment Multiplier for Grades 3% or Greater

Minimum Deceleration Lane Length (ft)

Notes:

[1] When adjusting for grade, do not reduce the deceleration lane to less than 150 ft.

[2] For right-turn corner design, see Exhibit 1310-6.

[3] See 1310.03(6) and Chapter 1230.

General:

For pavement marking details, see the *Standard Plans* and the *MUTCD*.

LOS ANALYSIS AT 23RD AVE (THORPE RD) & IEW

Intersection						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	130	1	13	24	6	15
Future Vol, veh/h	130	1	13	24	6	15
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	13	13	22	22
Mvmt Flow	148	1	15	27	7	17
Number of Lanes	1	0	0	1	1	0
Approach	EB	NB		SB		
Opposing Approach		SB		NB		
Opposing Lanes	0	1		1		
Conflicting Approach Left	SB	EB				
Conflicting Lanes Left	1	1		0		
Conflicting Approach Right	NB			EB		
Conflicting Lanes Right	1	0		1		
HCM Control Delay	8.2	7.8		7.4		
HCM LOS	A	A		A		
Lane	NBLn1	EBLn1	SBLn1			
Vol Left, %	35%	99%	0%			
Vol Thru, %	65%	0%	29%			
Vol Right, %	0%	1%	71%			
Sign Control	Stop	Stop	Stop			
Traffic Vol by Lane	37	131	21			
LT Vol	13	130	0			
Through Vol	24	0	6			
RT Vol	0	1	15			
Lane Flow Rate	42	149	24			
Geometry Grp	1	1	1			
Degree of Util (X)	0.052	0.175	0.028			
Departure Headway (Hd)	4.471	4.241	4.238			
Convergence, Y/N	Yes	Yes	Yes			
Cap	790	843	850			
Service Time	2.563	2.283	2.238			
HCM Lane V/C Ratio	0.053	0.177	0.028			
HCM Control Delay	7.8	8.2	7.4			
HCM Lane LOS	A	A	A			
HCM 95th-tile Q	0.2	0.6	0.1			

Intersection						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	62	15	15	18	32	40
Future Vol, veh/h	62	15	15	18	32	40
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	0	0	4	4	0	0
Mvmt Flow	71	17	17	21	37	46
Number of Lanes	1	0	0	1	1	0
Approach	EB	NB		SB		
Opposing Approach		SB		NB		
Opposing Lanes	0	1		1		
Conflicting Approach Left	SB	EB				
Conflicting Lanes Left	1	1		0		
Conflicting Approach Right	NB			EB		
Conflicting Lanes Right	1	0		1		
HCM Control Delay	7.7	7.5		7.2		
HCM LOS	A	A		A		
Lane	NBLn1	EBLn1	SBLn1			
Vol Left, %	45%	81%	0%			
Vol Thru, %	55%	0%	44%			
Vol Right, %	0%	19%	56%			
Sign Control	Stop	Stop	Stop			
Traffic Vol by Lane	33	77	72			
LT Vol	15	62	0			
Through Vol	18	0	32			
RT Vol	0	15	40			
Lane Flow Rate	38	89	83			
Geometry Grp	1	1	1			
Degree of Util (X)	0.045	0.102	0.086			
Departure Headway (Hd)	4.279	4.153	3.751			
Convergence, Y/N	Yes	Yes	Yes			
Cap	831	859	947			
Service Time	2.336	2.197	1.806			
HCM Lane V/C Ratio	0.046	0.104	0.088			
HCM Control Delay	7.5	7.7	7.2			
HCM Lane LOS	A	A	A			
HCM 95th-tile Q	0.1	0.3	0.3			

Intersection						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	136	1	14	25	6	16
Future Vol, veh/h	136	1	14	25	6	16
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	13	13	22	22
Mvmt Flow	155	1	16	28	7	18
Number of Lanes	1	0	0	1	1	0
Approach	EB	NB		SB		
Opposing Approach		SB		NB		
Opposing Lanes	0	1		1		
Conflicting Approach Left	SB	EB				
Conflicting Lanes Left	1	1		0		
Conflicting Approach Right	NB			EB		
Conflicting Lanes Right	1	0		1		
HCM Control Delay	8.3	7.9		7.4		
HCM LOS	A	A		A		
Lane	NBLn1	EBLn1	SBLn1			
Vol Left, %	36%	99%	0%			
Vol Thru, %	64%	0%	27%			
Vol Right, %	0%	1%	73%			
Sign Control	Stop	Stop	Stop			
Traffic Vol by Lane	39	137	22			
LT Vol	14	136	0			
Through Vol	25	0	6			
RT Vol	0	1	16			
Lane Flow Rate	44	156	25			
Geometry Grp	1	1	1			
Degree of Util (X)	0.055	0.184	0.03			
Departure Headway (Hd)	4.485	4.247	4.25			
Convergence, Y/N	Yes	Yes	Yes			
Cap	786	841	848			
Service Time	2.584	2.293	2.25			
HCM Lane V/C Ratio	0.056	0.185	0.029			
HCM Control Delay	7.9	8.3	7.4			
HCM Lane LOS	A	A	A			
HCM 95th-tile Q	0.2	0.7	0.1			

Intersection

Intersection Delay, s/veh 10.1

Intersection LOS B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	186	1	14	235	6	16
Future Vol, veh/h	186	1	14	235	6	16
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	13	13	22	22
Mvmt Flow	211	1	16	267	7	18
Number of Lanes	1	0	0	1	1	0
Approach	EB		NB		SB	
Opposing Approach			SB		NB	
Opposing Lanes	0		1		1	
Conflicting Approach Left	SB		EB			
Conflicting Lanes Left	1		1		0	
Conflicting Approach Right	NB			EB		
Conflicting Lanes Right	1		0		1	
HCM Control Delay	9.9		10.5		7.9	
HCM LOS	A		B		A	

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	6%	99%	0%
Vol Thru, %	94%	0%	27%
Vol Right, %	0%	1%	73%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	249	187	22
LT Vol	14	186	0
Through Vol	235	0	6
RT Vol	0	1	16
Lane Flow Rate	283	212	25
Geometry Grp	1	1	1
Degree of Util (X)	0.37	0.288	0.033
Departure Headway (Hd)	4.705	4.879	4.718
Convergence, Y/N	Yes	Yes	Yes
Cap	764	737	757
Service Time	2.733	2.91	2.759
HCM Lane V/C Ratio	0.37	0.288	0.033
HCM Control Delay	10.5	9.9	7.9
HCM Lane LOS	B	A	A
HCM 95th-tile Q	1.7	1.2	0.1

Intersection

Int Delay, s/veh 5.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
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Lane Configurations						
Traffic Vol, veh/h	186	1	14	235	6	16
Future Vol, veh/h	186	1	14	235	6	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	13	13	22	22
Mvmt Flow	211	1	16	267	7	18

Major/Minor	Minor2	Major1	Major2
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Conflicting Flow All	315	16	25	0	-	0
Stage 1	16	-	-	-	-	-
Stage 2	299	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.23	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.317	-	-	-
Pot Cap-1 Maneuver	678	1063	1521	-	-	-
Stage 1	1007	-	-	-	-	-
Stage 2	752	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	670	1063	1521	-	-	-
Mov Cap-2 Maneuver	670	-	-	-	-	-
Stage 1	995	-	-	-	-	-
Stage 2	752	-	-	-	-	-

Approach	EB	NB	SB
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HCM Control Delay, s	12.8	0.4	0
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HCM LOS	B
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Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1521	-	671	-	-
HCM Lane V/C Ratio	0.01	-	0.317	-	-
HCM Control Delay (s)	7.4	0	12.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	1.4	-	-

Intersection						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	65	16	16	18	34	42
Future Vol, veh/h	65	16	16	18	34	42
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	0	0	4	4	0	0
Mvmt Flow	75	18	18	21	39	48
Number of Lanes	1	0	0	1	1	0
Approach	EB	NB		SB		
Opposing Approach		SB		NB		
Opposing Lanes	0	1		1		
Conflicting Approach Left	SB	EB				
Conflicting Lanes Left	1	1		0		
Conflicting Approach Right	NB			EB		
Conflicting Lanes Right	1	0		1		
HCM Control Delay	7.7	7.6		7.2		
HCM LOS	A	A		A		
Lane	NBLn1	EBLn1	SBLn1			
Vol Left, %	47%	80%	0%			
Vol Thru, %	53%	0%	45%			
Vol Right, %	0%	20%	55%			
Sign Control	Stop	Stop	Stop			
Traffic Vol by Lane	34	81	76			
LT Vol	16	65	0			
Through Vol	18	0	34			
RT Vol	0	16	42			
Lane Flow Rate	39	93	87			
Geometry Grp	1	1	1			
Degree of Util (X)	0.047	0.108	0.091			
Departure Headway (Hd)	4.294	4.161	3.762			
Convergence, Y/N	Yes	Yes	Yes			
Cap	827	857	943			
Service Time	2.356	2.209	1.822			
HCM Lane V/C Ratio	0.047	0.109	0.092			
HCM Control Delay	7.6	7.7	7.2			
HCM Lane LOS	A	A	A			
HCM 95th-tile Q	0.1	0.4	0.3			

Intersection

Intersection Delay, s/veh 8.1

Intersection LOS A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	85	16	16	115	34	42
Future Vol, veh/h	85	16	16	115	34	42
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	0	0	4	4	0	0
Mvmt Flow	98	18	18	132	39	48
Number of Lanes	1	0	0	1	1	0
Approach	EB		NB		SB	
Opposing Approach			SB		NB	
Opposing Lanes	0		1		1	
Conflicting Approach Left	SB		EB			
Conflicting Lanes Left	1		1		0	
Conflicting Approach Right	NB			EB		
Conflicting Lanes Right	1		0		1	
HCM Control Delay	8.3		8.3		7.4	
HCM LOS	A		A		A	

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	12%	84%	0%
Vol Thru, %	88%	0%	45%
Vol Right, %	0%	16%	55%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	131	101	76
LT Vol	16	85	0
Through Vol	115	0	34
RT Vol	0	16	42
Lane Flow Rate	151	116	87
Geometry Grp	1	1	1
Degree of Util (X)	0.183	0.145	0.097
Departure Headway (Hd)	4.365	4.493	4.004
Convergence, Y/N	Yes	Yes	Yes
Cap	827	800	897
Service Time	2.365	2.508	2.017
HCM Lane V/C Ratio	0.183	0.145	0.097
HCM Control Delay	8.3	8.3	7.4
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.7	0.5	0.3

Intersection						
Int Delay, s/veh	3.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		A	B		
Traffic Vol, veh/h	85	16	16	115	34	42
Future Vol, veh/h	85	16	16	115	34	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	0	0	4	4	0	0
Mvmt Flow	98	18	18	132	39	48
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	231	63	87	0	-	0
Stage 1	63	-	-	-	-	-
Stage 2	168	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.14	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.236	-	-	-
Pot Cap-1 Maneuver	762	1007	1496	-	-	-
Stage 1	965	-	-	-	-	-
Stage 2	867	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	752	1007	1496	-	-	-
Mov Cap-2 Maneuver	752	-	-	-	-	-
Stage 1	952	-	-	-	-	-
Stage 2	867	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.4	0.9		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1496	-	783	-	-	
HCM Lane V/C Ratio	0.012	-	0.148	-	-	
HCM Control Delay (s)	7.4	0	10.4	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.5	-	-	

Intersection						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	144	1	14	25	6	18
Future Vol, veh/h	144	1	14	25	6	18
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	13	13	22	22
Mvmt Flow	164	1	16	28	7	20
Number of Lanes	1	0	0	1	1	0
Approach	EB	NB		SB		
Opposing Approach		SB		NB		
Opposing Lanes	0	1		1		
Conflicting Approach Left	SB	EB				
Conflicting Lanes Left	1	1		0		
Conflicting Approach Right	NB			EB		
Conflicting Lanes Right	1	0		1		
HCM Control Delay	8.3	7.9		7.4		
HCM LOS	A	A		A		
Lane	NBLn1	EBLn1	SBLn1			
Vol Left, %	36%	99%	0%			
Vol Thru, %	64%	0%	25%			
Vol Right, %	0%	1%	75%			
Sign Control	Stop	Stop	Stop			
Traffic Vol by Lane	39	145	24			
LT Vol	14	144	0			
Through Vol	25	0	6			
RT Vol	0	1	18			
Lane Flow Rate	44	165	27			
Geometry Grp	1	1	1			
Degree of Util (X)	0.057	0.195	0.032			
Departure Headway (Hd)	4.607	4.251	4.259			
Convergence, Y/N	Yes	Yes	Yes			
Cap	782	839	845			
Service Time	2.608	2.301	2.26			
HCM Lane V/C Ratio	0.056	0.197	0.032			
HCM Control Delay	7.9	8.3	7.4			
HCM Lane LOS	A	A	A			
HCM 95th-tile Q	0.2	0.7	0.1			

Intersection						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	200	1	14	257	6	18
Future Vol, veh/h	200	1	14	257	6	18
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	13	13	22	22
Mvmt Flow	227	1	16	292	7	20
Number of Lanes	1	0	0	1	1	0
Approach	EB	NB		SB		
Opposing Approach		SB		NB		
Opposing Lanes	0	1		1		
Conflicting Approach Left	SB	EB				
Conflicting Lanes Left	1	1		0		
Conflicting Approach Right	NB			EB		
Conflicting Lanes Right	1	0		1		
HCM Control Delay	10.3	11		8		
HCM LOS	B	B		A		
Lane	NBLn1	EBLn1	SBLn1			
Vol Left, %	5%	100%	0%			
Vol Thru, %	95%	0%	25%			
Vol Right, %	0%	0%	75%			
Sign Control	Stop	Stop	Stop			
Traffic Vol by Lane	271	201	24			
LT Vol	14	200	0			
Through Vol	257	0	6			
RT Vol	0	1	18			
Lane Flow Rate	308	228	27			
Geometry Grp	1	1	1			
Degree of Util (X)	0.407	0.314	0.036			
Departure Headway (Hd)	4.755	4.951	4.787			
Convergence, Y/N	Yes	Yes	Yes			
Cap	758	726	745			
Service Time	2.787	2.987	2.836			
HCM Lane V/C Ratio	0.406	0.314	0.036			
HCM Control Delay	11	10.3	8			
HCM Lane LOS	B	B	A			
HCM 95th-tile Q	2	1.3	0.1			

Intersection

Int Delay, s/veh 5.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
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Lane Configurations						
Traffic Vol, veh/h	200	1	14	257	6	18
Future Vol, veh/h	200	1	14	257	6	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	13	13	22	22
Mvmt Flow	227	1	16	292	7	20

Major/Minor	Minor2	Major1	Major2
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Conflicting Flow All	341	17	27	0	-	0
Stage 1	17	-	-	-	-	-
Stage 2	324	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.23	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.317	-	-	-
Pot Cap-1 Maneuver	655	1062	1518	-	-	-
Stage 1	1006	-	-	-	-	-
Stage 2	733	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	646	1062	1518	-	-	-
Mov Cap-2 Maneuver	646	-	-	-	-	-
Stage 1	993	-	-	-	-	-
Stage 2	733	-	-	-	-	-

Approach	EB	NB	SB
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HCM Control Delay, s	13.6	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1518	-	647	-	-
HCM Lane V/C Ratio	0.01	-	0.353	-	-
HCM Control Delay (s)	7.4	0	13.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	1.6	-	-

Intersection						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	70	16	16	18	34	50
Future Vol, veh/h	70	16	16	18	34	50
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	0	0	4	4	0	0
Mvmt Flow	80	18	18	21	39	57
Number of Lanes	1	0	0	1	1	0
Approach	EB	NB		SB		
Opposing Approach		SB		NB		
Opposing Lanes	0	1		1		
Conflicting Approach Left	SB	EB				
Conflicting Lanes Left	1	1		0		
Conflicting Approach Right	NB			EB		
Conflicting Lanes Right	1	0		1		
HCM Control Delay	7.8	7.6		7.2		
HCM LOS	A	A		A		
Lane	NBLn1	EBLn1	SBLn1			
Vol Left, %	47%	81%	0%			
Vol Thru, %	53%	0%	40%			
Vol Right, %	0%	19%	60%			
Sign Control	Stop	Stop	Stop			
Traffic Vol by Lane	34	86	84			
LT Vol	16	70	0			
Through Vol	18	0	34			
RT Vol	0	16	50			
Lane Flow Rate	39	99	97			
Geometry Grp	1	1	1			
Degree of Util (X)	0.047	0.115	0.1			
Departure Headway (Hd)	4.311	4.186	3.746			
Convergence, Y/N	Yes	Yes	Yes			
Cap	823	851	946			
Service Time	2.378	2.235	1.81			
HCM Lane V/C Ratio	0.047	0.116	0.103			
HCM Control Delay	7.6	7.8	7.2			
HCM Lane LOS	A	A	A			
HCM 95th-tile Q	0.1	0.4	0.3			

Intersection

Intersection Delay, s/veh 8.1

Intersection LOS A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	93	16	16	125	34	50
Future Vol, veh/h	93	16	16	125	34	50
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	101	17	17	136	37	54
Number of Lanes	1	0	0	1	1	0
Approach	EB		NB		SB	
Opposing Approach			SB		NB	
Opposing Lanes	0		1		1	
Conflicting Approach Left	SB		EB			
Conflicting Lanes Left	1		1		0	
Conflicting Approach Right	NB			EB		
Conflicting Lanes Right	1		0		1	
HCM Control Delay	8.4		8.3		7.5	
HCM LOS	A		A		A	

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	11%	85%	0%
Vol Thru, %	89%	0%	40%
Vol Right, %	0%	15%	60%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	141	109	84
LT Vol	16	93	0
Through Vol	125	0	34
RT Vol	0	16	50
Lane Flow Rate	153	118	91
Geometry Grp	1	1	1
Degree of Util (X)	0.185	0.15	0.102
Departure Headway (Hd)	4.344	4.55	4.024
Convergence, Y/N	Yes	Yes	Yes
Cap	831	790	893
Service Time	2.344	2.565	2.037
HCM Lane V/C Ratio	0.184	0.149	0.102
HCM Control Delay	8.3	8.4	7.5
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.7	0.5	0.3

Intersection

Int Delay, s/veh 3.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
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Lane Configurations						
Traffic Vol, veh/h	93	16	16	125	34	50
Future Vol, veh/h	93	16	16	125	34	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	101	17	17	136	37	54

Major/Minor	Minor2	Major1	Major2
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Conflicting Flow All	234	64	91	0	-	0
Stage 1	64	-	-	-	-	-
Stage 2	170	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	754	1000	1504	-	-	-
Stage 1	959	-	-	-	-	-
Stage 2	860	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	745	1000	1504	-	-	-
Mov Cap-2 Maneuver	745	-	-	-	-	-
Stage 1	947	-	-	-	-	-
Stage 2	860	-	-	-	-	-

Approach	EB	NB	SB
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HCM Control Delay, s	10.5	0.8	0
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HCM LOS	B
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Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1504	-	774	-	-
HCM Lane V/C Ratio	0.012	-	0.153	-	-
HCM Control Delay (s)	7.4	0	10.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.5	-	-

Intersection

Intersection Delay, s/veh 8.2

Intersection LOS A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	149	1	14	25	6	20
Future Vol, veh/h	149	1	14	25	6	20
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	13	13	22	22
Mvmt Flow	169	1	16	28	7	23
Number of Lanes	1	0	0	1	1	0
Approach	EB		NB		SB	
Opposing Approach			SB		NB	
Opposing Lanes	0		1		1	
Conflicting Approach Left	SB		EB			
Conflicting Lanes Left	1		1		0	
Conflicting Approach Right	NB			EB		
Conflicting Lanes Right	1		0		1	
HCM Control Delay	8.4		7.9		7.4	
HCM LOS	A		A		A	

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	36%	99%	0%
Vol Thru, %	64%	0%	23%
Vol Right, %	0%	1%	77%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	39	150	26
LT Vol	14	149	0
Through Vol	25	0	6
RT Vol	0	1	20
Lane Flow Rate	44	170	30
Geometry Grp	1	1	1
Degree of Util (X)	0.057	0.201	0.035
Departure Headway (Hd)	4.622	4.255	4.26
Convergence, Y/N	Yes	Yes	Yes
Cap	780	839	845
Service Time	2.623	2.307	2.261
HCM Lane V/C Ratio	0.056	0.203	0.036
HCM Control Delay	7.9	8.4	7.4
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.2	0.7	0.1

Intersection

Intersection Delay, s/veh 10.7

Intersection LOS B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	206	1	14	260	6	20
Future Vol, veh/h	206	1	14	260	6	20
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	13	13	22	22
Mvmt Flow	234	1	16	295	7	23
Number of Lanes	1	0	0	1	1	0
Approach	EB		NB		SB	
Opposing Approach			SB		NB	
Opposing Lanes	0		1		1	
Conflicting Approach Left	SB		EB			
Conflicting Lanes Left	1		1		0	
Conflicting Approach Right	NB			EB		
Conflicting Lanes Right	1		0		1	
HCM Control Delay	10.4		11.2		8	
HCM LOS	B		B		A	

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	5%	100%	0%
Vol Thru, %	95%	0%	23%
Vol Right, %	0%	0%	77%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	274	207	26
LT Vol	14	206	0
Through Vol	260	0	6
RT Vol	0	1	20
Lane Flow Rate	311	235	30
Geometry Grp	1	1	1
Degree of Util (X)	0.413	0.324	0.039
Departure Headway (Hd)	4.776	4.965	4.8
Convergence, Y/N	Yes	Yes	Yes
Cap	754	722	742
Service Time	2.81	3.004	2.851
HCM Lane V/C Ratio	0.412	0.325	0.04
HCM Control Delay	11.2	10.4	8
HCM Lane LOS	B	B	A
HCM 95th-tile Q	2	1.4	0.1

Intersection

Int Delay, s/veh 5.9

Movement	EBL	EBC	NBL	NBT	SBT	SBR
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Lane Configurations



Traffic Vol, veh/h 206 1 14 260 6 20

Future Vol, veh/h 206 1 14 260 6 20

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Stop Stop Free Free Free Free

RT Channelized - None - None - None

Storage Length 0 - - - - -

Veh in Median Storage, # 0 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 88 88 88 88 88 88

Heavy Vehicles, % 2 2 13 13 22 22

Mvmt Flow 234 1 16 295 7 23

Major/Minor	Minor2	Major1	Major2
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Conflicting Flow All 346 19 30 0 - 0

 Stage 1 19 - - - - -

 Stage 2 327 - - - - -

Critical Hdwy 6.42 6.22 4.23 - - -

Critical Hdwy Stg 1 5.42 - - - - -

Critical Hdwy Stg 2 5.42 - - - - -

Follow-up Hdwy 3.518 3.318 2.317 - - -

Pot Cap-1 Maneuver 651 1059 1514 - - -

 Stage 1 1004 - - - - -

 Stage 2 731 - - - - -

Platoon blocked, % - - - - -

Mov Cap-1 Maneuver 643 1059 1514 - - -

Mov Cap-2 Maneuver 643 - - - - -

 Stage 1 991 - - - - -

 Stage 2 731 - - - - -

Approach	EB	NB	SB
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HCM Control Delay, s 13.8 0.4 0

HCM LOS B

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
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Capacity (veh/h) 1514 - 644 - -

HCM Lane V/C Ratio 0.011 - 0.365 - -

HCM Control Delay (s) 7.4 0 13.8 - -

HCM Lane LOS A A B - -

HCM 95th %tile Q(veh) 0 - 1.7 - -

Intersection

Intersection Delay, s/veh 7.6

Intersection LOS A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	75	16	16	18	34	59
Future Vol, veh/h	75	16	16	18	34	59
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	0	0	4	4	0	0
Mvmt Flow	86	18	18	21	39	68
Number of Lanes	1	0	0	1	1	0
Approach	EB		NB		SB	
Opposing Approach			SB		NB	
Opposing Lanes	0		1		1	
Conflicting Approach Left	SB		EB			
Conflicting Lanes Left	1		1		0	
Conflicting Approach Right	NB			EB		
Conflicting Lanes Right	1		0		1	
HCM Control Delay	7.9		7.6		7.3	
HCM LOS	A		A		A	

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	47%	82%	0%
Vol Thru, %	53%	0%	37%
Vol Right, %	0%	18%	63%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	34	91	93
LT Vol	16	75	0
Through Vol	18	0	34
RT Vol	0	16	59
Lane Flow Rate	39	105	107
Geometry Grp	1	1	1
Degree of Util (X)	0.047	0.122	0.111
Departure Headway (Hd)	4.329	4.211	3.732
Convergence, Y/N	Yes	Yes	Yes
Cap	819	845	949
Service Time	2.401	2.265	1.8
HCM Lane V/C Ratio	0.048	0.124	0.113
HCM Control Delay	7.6	7.9	7.3
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0.4	0.4

Intersection

Intersection Delay, s/veh 8.3

Intersection LOS A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	98	16	16	126	34	59
Future Vol, veh/h	98	16	16	126	34	59
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	0	0	4	4	0	0
Mvmt Flow	113	18	18	145	39	68
Number of Lanes	1	0	0	1	1	0
Approach	EB		NB		SB	
Opposing Approach			SB		NB	
Opposing Lanes	0		1		1	
Conflicting Approach Left	SB		EB			
Conflicting Lanes Left	1		1		0	
Conflicting Approach Right	NB			EB		
Conflicting Lanes Right	1		0		1	
HCM Control Delay	8.5		8.5		7.6	
HCM LOS	A		A		A	

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	11%	86%	0%
Vol Thru, %	89%	0%	37%
Vol Right, %	0%	14%	63%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	142	114	93
LT Vol	16	98	0
Through Vol	126	0	34
RT Vol	0	16	59
Lane Flow Rate	163	131	107
Geometry Grp	1	1	1
Degree of Util (X)	0.2	0.167	0.119
Departure Headway (Hd)	4.414	4.578	4.013
Convergence, Y/N	Yes	Yes	Yes
Cap	816	785	896
Service Time	2.428	2.595	2.028
HCM Lane V/C Ratio	0.2	0.167	0.119
HCM Control Delay	8.5	8.5	7.6
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.7	0.6	0.4

Intersection						
Int Delay, s/veh	3.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		A	B		
Traffic Vol, veh/h	98	16	16	126	34	59
Future Vol, veh/h	98	16	16	126	34	59
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	0	0	4	4	0	0
Mvmt Flow	113	18	18	145	39	68
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	254	73	107	0	-	0
Stage 1	73	-	-	-	-	-
Stage 2	181	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.14	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.236	-	-	-
Pot Cap-1 Maneuver	739	995	1471	-	-	-
Stage 1	955	-	-	-	-	-
Stage 2	855	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	729	995	1471	-	-	-
Mov Cap-2 Maneuver	729	-	-	-	-	-
Stage 1	943	-	-	-	-	-
Stage 2	855	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.7	0.8		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1471	-	757	-	-	
HCM Lane V/C Ratio	0.013	-	0.173	-	-	
HCM Control Delay (s)	7.5	0	10.7	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.6	-	-	

QUEUE ANALYSIS AT 16TH AVE & SR 195

Intersection

Int Delay, s/veh 4.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↑	↔		↑	↑↑	↑	↑	↑↑	↑
Traffic Vol, veh/h	0	0	120	2	2	15	574	1215	6	5	582	21
Future Vol, veh/h	0	0	120	2	2	15	574	1215	6	5	582	21
Conflicting Peds, #/hr	1	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Yield	Yield	Yield	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	300	-	25	300	-	25
Veh in Median Storage, #	-	0	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	2	2	0	11	11
Mvmt Flow	0	0	133	2	2	17	638	1350	7	6	647	23

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	2962	3308	675
Stage 1	2626	2626	-
Stage 2	336	682	-
Critical Hdwy	6.8	6.5	6.9
Critical Hdwy Stg 1	5.8	5.5	-
Critical Hdwy Stg 2	5.8	5.5	-
Follow-up Hdwy	3.5	4	3.3
Pot Cap-1 Maneuver	12	9	401
Stage 1	41	50	-
Stage 2	702	453	-
Platoon blocked, %			-
Mov Cap-1 Maneuver	4	0	401
Mov Cap-2 Maneuver	11	0	930
Stage 1	13	0	-
Stage 2	694	0	-

Approach	WB	NB	SB
HCM Control Delay, s	67.5	5.4	0.1
HCM LOS	F		
<hr/>			
Minor Lane/Major Mvmt	NBL	NBT	NBRWBLn1
Capacity (veh/h)	930	-	78
HCM Lane V/C Ratio	0.686	-	0.271
HCM Control Delay (s)	16.9	-	67.5
HCM Lane LOS	C	-	F
HCM 95th %tile Q(veh)	5.7	-	1
			0

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	0	120	2	2	15	197	1592	6	5	582	21
Future Vol, veh/h	0	0	120	2	2	15	197	1592	6	5	582	21
Conflicting Peds, #/hr	1	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Yield	Yield	Yield	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	300	-	25	300	-	25
Veh in Median Storage, #	-	0	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	2	2	0	11	11
Mvmt Flow	0	0	133	2	2	17	219	1769	7	6	647	23

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	2543	2889	885
Stage 1	2207	2207	-
Stage 2	336	682	-
Critical Hdwy	6.8	6.5	6.9
Critical Hdwy Stg 1	5.8	5.5	-
Critical Hdwy Stg 2	5.8	5.5	-
Follow-up Hdwy	3.5	4	3.3
Pot Cap-1 Maneuver	23	16	292
Stage 1	71	83	-
Stage 2	702	453	-
Platoon blocked, %			-
Mov Cap-1 Maneuver	17	0	292
Mov Cap-2 Maneuver	47	0	-
Stage 1	54	0	-
Stage 2	690	0	-

Approach	WB	NB	SB
HCM Control Delay, s	27.5	1.1	0.1
HCM LOS	D		
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Minor Lane/Major Mvmt	NBL	NBT	NBRWBLn1
Capacity (veh/h)	930	-	181
HCM Lane V/C Ratio	0.235	-	0.117
HCM Control Delay (s)	10.1	-	27.5
HCM Lane LOS	B	-	D
HCM 95th %tile Q(veh)	0.9	-	0.4

Intersection

Int Delay, s/veh 9.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	177	4	2	16	329	487	13	24	1533	71
Future Vol, veh/h	0	0	177	4	2	16	329	487	13	24	1533	71
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Yield	Yield	Yield	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	300	-	25	300	-	25
Veh in Median Storage, #	-	0	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	5	5	5	0	7	7	5	1	1
Mvmt Flow	0	0	186	4	2	17	346	513	14	25	1614	75

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	2062	2944	257	1689	0
Stage 1	1205	1205	-	-	-
Stage 2	857	1739	-	-	-
Critical Hdwy	6.9	6.6	7	4.1	-
Critical Hdwy Stg 1	5.9	5.6	-	-	-
Critical Hdwy Stg 2	5.9	5.6	-	-	-
Follow-up Hdwy	3.55	4.05	3.35	2.2	-
Pot Cap-1 Maneuver	46	14	733	383	-
Stage 1	241	249	-	-	-
Stage 2	369	135	-	-	-
Platoon blocked, %					-
Mov Cap-1 Maneuver	~ 4	0	733	383	-
Mov Cap-2 Maneuver	10	0	-	-	-
Stage 1	23	0	-	-	-
Stage 2	360	0	-	-	-

Approach	WB	NB	SB	
HCM Control Delay, s	140.7	23.2	0.1	
HCM LOS	F			
Minor Lane/Major Mvmt	NBL	NBT	NBR	WB Ln1
Capacity (veh/h)	383	-	-	47
HCM Lane V/C Ratio	0.904	-	-	0.493
HCM Control Delay (s)	58.3	-	-	140.7
HCM Lane LOS	F	-	-	F
HCM 95th %tile Q(veh)	9.3	-	-	0.1

Notes

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

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	177	4	2	16	165	651	13	24	1533	71	
Future Vol, veh/h	0	0	177	4	2	16	165	651	13	24	1533	71	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Yield	Yield	Yield	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	0	-	-	-	300	-	25	300	-	25	
Veh in Median Storage, #	-	0	-	-	1	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95	
Heavy Vehicles, %	0	0	0	5	5	5	0	7	7	5	1	1	
Mvmt Flow	0	0	186	4	2	17	174	685	14	25	1614	75	
Major/Minor			Minor1		Major1		Major2						
Conflicting Flow All			1890	2772	343	1689	0	0	699	0	0		
Stage 1			1033	1033	-	-	-	-	-	-	-		
Stage 2			857	1739	-	-	-	-	-	-	-		
Critical Hdwy	6.9	6.6	7	4.1	-	-	-	-	4.2	-	-		
Critical Hdwy Stg 1	5.9	5.6	-	-	-	-	-	-	-	-	-		
Critical Hdwy Stg 2	5.9	5.6	-	-	-	-	-	-	-	-	-		
Follow-up Hdwy	3.55	4.05	3.35	2.2	-	-	-	2.25	-	-	-		
Pot Cap-1 Maneuver	60	18	644	383	-	-	874	-	-	-	-		
Stage 1	297	301	-	-	-	-	-	-	-	-	-		
Stage 2	369	135	-	-	-	-	-	-	-	-	-		
Platoon blocked, %													
Mov Cap-1 Maneuver	32	0	644	383	-	-	874	-	-	-	-		
Mov Cap-2 Maneuver	93	0	-	-	-	-	-	-	-	-	-		
Stage 1	162	0	-	-	-	-	-	-	-	-	-		
Stage 2	358	0	-	-	-	-	-	-	-	-	-		
Approach			WB		NB		SB						
HCM Control Delay, s			18.2			4.4			0.1				
HCM LOS			C										
Minor Lane/Major Mvmt			NBL	NBT	NBR	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	383	-	-	295	874	-	-	-	-				
HCM Lane V/C Ratio	0.453	-	-	0.079	0.029	-	-	-	-				
HCM Control Delay (s)	22	-	-	18.2	9.2	-	-	-	-				
HCM Lane LOS	C	-	-	C	A	-	-	-	-				
HCM 95th %tile Q(veh)	2.3	-	-	0.3	0.1	-	-	-	-				

Intersection													
Int Delay, s/veh	5												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations				↑	↔		↑	↑↑	↑	↑	↑↑	↑	
Traffic Vol, veh/h	0	0	121	2	2	15	590	1213	6	5	587	21	
Future Vol, veh/h	0	0	121	2	2	15	590	1213	6	5	587	21	
Conflicting Peds, #/hr	1	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Yield	Yield	Yield	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	0	-	-	-	300	-	25	300	-	25	
Veh in Median Storage, #	-	0	-	-	1	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90	
Heavy Vehicles, %	0	0	0	0	0	0	0	2	2	0	11	11	
Mvmt Flow	0	0	134	2	2	17	656	1348	7	6	652	23	
Major/Minor			Minor1		Major1		Major2						
Conflicting Flow All			2998	3347	674	675	0	0	1355	0	0		
Stage 1			2660	2660	-	-	-	-	-	-	-		
Stage 2			338	687	-	-	-	-	-	-	-		
Critical Hdwy	6.8	6.5	6.9	4.1	-	-	-	-	4.1	-	-		
Critical Hdwy Stg 1	5.8	5.5	-	-	-	-	-	-	-	-	-		
Critical Hdwy Stg 2	5.8	5.5	-	-	-	-	-	-	-	-	-		
Follow-up Hdwy	3.5	4	3.3	2.2	-	-	-	-	2.2	-	-		
Pot Cap-1 Maneuver	11	8	402	926	-	-	-	-	514	-	-		
Stage 1	40	48	-	-	-	-	-	-	-	-	-		
Stage 2	700	450	-	-	-	-	-	-	-	-	-		
Platoon blocked, %							-	-	-	-	-		
Mov Cap-1 Maneuver	3	0	402	926	-	-	-	-	514	-	-		
Mov Cap-2 Maneuver	9	0	-	-	-	-	-	-	-	-	-		
Stage 1	12	0	-	-	-	-	-	-	-	-	-		
Stage 2	692	0	-	-	-	-	-	-	-	-	-		
Approach			WB		NB		SB						
HCM Control Delay, s			83.3		5.8		0.1						
HCM LOS			F										
Minor Lane/Major Mvmt			NBL	NBT	NBR	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	926	-	-	66	514	-	-	-	-				
HCM Lane V/C Ratio	0.708	-	-	0.32	0.011	-	-	-	-				
HCM Control Delay (s)	17.7	-	-	83.3	12.1	-	-	-	-				
HCM Lane LOS	C	-	-	F	B	-	-	-	-				
HCM 95th %tile Q(veh)	6.2	-	-	1.2	0	-	-	-	-				

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	0	121	2	2	15	209	1594	6	5	587	21
Future Vol, veh/h	0	0	121	2	2	15	209	1594	6	5	587	21
Conflicting Peds, #/hr	1	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Yield	Yield	Yield	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	300	-	25	300	-	25
Veh in Median Storage, #	-	0	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	2	2	0	11	11
Mvmt Flow	0	0	134	2	2	17	232	1771	7	6	652	23

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	2573	2922	886
Stage 1	2235	2235	-
Stage 2	338	687	-
Critical Hdwy	6.8	6.5	6.9
Critical Hdwy Stg 1	5.8	5.5	-
Critical Hdwy Stg 2	5.8	5.5	-
Follow-up Hdwy	3.5	4	3.3
Pot Cap-1 Maneuver	22	16	292
Stage 1	69	80	-
Stage 2	700	450	-
Platoon blocked, %			-
Mov Cap-1 Maneuver	16	0	292
Mov Cap-2 Maneuver	45	0	-
Stage 1	52	0	-
Stage 2	688	0	-

Approach	WB	NB	SB
HCM Control Delay, s	28.1	1.2	0.1
HCM LOS	D		
<hr/>			
Minor Lane/Major Mvmt	NBL	NBT	NBR
Capacity (veh/h)	926	-	177
HCM Lane V/C Ratio	0.251	-	0.119
HCM Control Delay (s)	10.2	-	28.1
HCM Lane LOS	B	-	D
HCM 95th %tile Q(veh)	1	-	0.4

Intersection

Int Delay, s/veh 9.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	181	4	2	16	337	493	13	24	1551	71
Future Vol, veh/h	0	0	181	4	2	16	337	493	13	24	1551	71
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Yield	Yield	Yield	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	300	-	25	300	-	25
Veh in Median Storage, #	-	0	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	5	5	5	0	7	7	5	1	1
Mvmt Flow	0	0	191	4	2	17	355	519	14	25	1633	75

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	2096	2987	260
Stage 1	1229	1229	-
Stage 2	867	1758	-
Critical Hdwy	6.9	6.6	7
Critical Hdwy Stg 1	5.9	5.6	-
Critical Hdwy Stg 2	5.9	5.6	-
Follow-up Hdwy	3.55	4.05	3.35
Pot Cap-1 Maneuver	43	13	730
Stage 1	233	243	-
Stage 2	364	132	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	~ 2	0	730
Mov Cap-2 Maneuver	0	0	-
Stage 1	14	0	-
Stage 2	355	0	-

Approach	WB	NB	SB
HCM Control Delay, s	10.1	26.5	0.1
HCM LOS	B		
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Minor Lane/Major Mvmt	NBL	NBT	NBR
Capacity (veh/h)	377	-	730
HCM Lane V/C Ratio	0.941	-	0.032
HCM Control Delay (s)	66.2	-	10.1
HCM Lane LOS	F	-	B
HCM 95th %tile Q(veh)	10.2	-	0.1

Notes

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

Intersection													
Int Delay, s/veh	1.8												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations				↑	↔		↑	↑↑	↑	↑	↑↑	↑	
Traffic Vol, veh/h	0	0	181	4	2	16	172	658	13	24	1551	71	
Future Vol, veh/h	0	0	181	4	2	16	172	658	13	24	1551	71	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Yield	Yield	Yield	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	0	-	-	-	300	-	25	300	-	25	
Veh in Median Storage, #	-	0	-	-	1	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95	
Heavy Vehicles, %	0	0	0	5	5	5	0	7	7	5	1	1	
Mvmt Flow	0	0	191	4	2	17	181	693	14	25	1633	75	
Major/Minor			Minor1		Major1		Major2						
Conflicting Flow All			1922	2813	347	1708	0	0	707	0	0		
Stage 1			1055	1055	-	-	-	-	-	-	-		
Stage 2			867	1758	-	-	-	-	-	-	-		
Critical Hdwy			6.9	6.6	7	4.1	-	-	4.2	-	-		
Critical Hdwy Stg 1			5.9	5.6	-	-	-	-	-	-	-		
Critical Hdwy Stg 2			5.9	5.6	-	-	-	-	-	-	-		
Follow-up Hdwy			3.55	4.05	3.35	2.2	-	-	2.25	-	-		
Pot Cap-1 Maneuver			57	17	640	377	-	-	868	-	-		
Stage 1			290	294	-	-	-	-	-	-	-		
Stage 2			364	132	-	-	-	-	-	-	-		
Platoon blocked, %			-	-	-	-	-	-	-	-	-		
Mov Cap-1 Maneuver			29	0	640	377	-	-	868	-	-		
Mov Cap-2 Maneuver			87	0	-	-	-	-	-	-	-		
Stage 1			151	0	-	-	-	-	-	-	-		
Stage 2			353	0	-	-	-	-	-	-	-		
Approach			WB		NB		SB						
HCM Control Delay, s			18.9		4.7		0.1						
HCM LOS			C										
Minor Lane/Major Mvmt			NBL	NBT	NBR	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	377	-	-	282	868	-	-	-	-				
HCM Lane V/C Ratio	0.48	-	-	0.082	0.029	-	-	-	-				
HCM Control Delay (s)	23.1	-	-	18.9	9.3	-	-	-	-				
HCM Lane LOS	C	-	-	C	A	-	-	-	-				
HCM 95th %tile Q(veh)	2.5	-	-	0.3	0.1	-	-	-	-				

EB 195		2026 AM w/ Project w/ 16th N-Left	AM Adjustment factor	AM k30 factor (R103)	1.15			
Storage Length	No. of Storage Lanes	1000	Ramp Meter Rate	1200	2-lane retrofit (use shoulder) alternate release Max rate = 1400			EB 195
Time	2021 AM Volume	Adjusted Volume	Vehicles released	Vehicles in queue	Queue length	Exceed Storage	Cumulative Queue Length	Excessive Queue Length
6:00 AM	4	4	4	0	0	0	4	0
6:01 AM	5	5	5	0	0	0	8	0
6:02 AM	1	1	1	0	0	0	9	0
6:03 AM	2	2	2	0	0	0	11	0
6:04 AM	5	5	5	0	0	0	15	0
6:05 AM	4	4	4	0	0	0	19	0
6:06 AM	7	6	6	0	0	0	25	0
6:07 AM	5	5	5	0	0	0	30	0
6:08 AM	4	4	4	0	0	0	33	0
6:09 AM	5	5	5	0	0	0	38	0
6:10 AM	7	6	6	0	0	0	44	0
6:11 AM	6	5	5	0	0	0	50	0
6:12 AM	10	8	8	0	0	0	58	0
6:13 AM	6	5	5	0	0	0	63	0
6:14 AM	5	5	5	0	0	0	68	0
6:15 AM	6	5	5	0	0	0	73	0
6:16 AM	5	5	5	0	0	0	78	0
6:17 AM	6	5	5	0	0	0	83	0
6:18 AM	4	4	4	0	0	0	87	0
6:19 AM	11	9	9	0	0	0	96	0
6:20 AM	13	11	11	0	0	0	107	0
6:21 AM	14	12	12	0	0	0	118	0
6:22 AM	8	7	7	0	0	0	125	0
6:23 AM	13	11	11	0	0	0	136	0
6:24 AM	16	14	14	0	0	0	150	0
6:25 AM	18	15	15	0	0	0	165	0
6:26 AM	6	5	5	0	0	0	171	0
6:27 AM	12	10	10	0	0	0	181	0
6:28 AM	7	6	6	0	0	0	187	0
6:29 AM	13	11	11	0	0	0	198	0
6:30 AM	10	8	8	0	0	0	206	0
6:31 AM	16	14	14	0	0	0	219	0
6:32 AM	16	14	14	0	0	0	233	0
6:33 AM	6	5	5	0	0	0	238	0
6:34 AM	12	10	10	0	0	0	248	0
6:35 AM	12	10	10	0	0	0	258	0
6:36 AM	11	9	9	0	0	0	267	0
6:37 AM	13	11	11	0	0	0	278	0
6:38 AM	13	11	11	0	0	0	289	0
6:39 AM	15	13	13	0	0	0	302	0
6:40 AM	8	7	7	0	0	0	309	0
6:41 AM	22	19	19	0	0	0	328	0
6:42 AM	17	14	14	0	0	0	342	0
6:43 AM	22	19	19	0	0	0	361	0
6:44 AM	28	23	20	3	87	0	385	0
6:45 AM	22	19	20	2	61	0	404	0
6:46 AM	24	21	20	3	80	0	424	0
6:47 AM	20	17	20	0	9	0	441	0
6:48 AM	21	18	18	0	0	0	459	0
6:49 AM	24	21	20	1	19	0	479	0
6:50 AM	17	14	15	0	0	0	495	0
6:51 AM	23	20	20	0	0	0	515	0
6:52 AM	22	19	19	0	0	0	533	0
6:53 AM	18	15	15	0	0	0	549	0
6:54 AM	14	12	12	0	0	0	561	0
6:55 AM	17	14	14	0	0	0	575	0
6:56 AM	19	16	16	0	0	0	591	0
6:57 AM	13	11	11	0	0	0	602	0
6:58 AM	13	11	11	0	0	0	613	0
6:59 AM	17	14	14	0	0	0	627	0
7:00 AM	16	14	14	0	0	0	641	0
7:01 AM	16	14	14	0	0	0	654	0
7:02 AM	7	6	6	0	0	0	661	0
7:03 AM	23	20	20	0	0	0	681	0
7:04 AM	12	10	10	0	0	0	691	0
7:05 AM	17	14	14	0	0	0	705	0
7:06 AM	6	5	5	0	0	0	710	0
7:07 AM	19	16	16	0	0	0	727	0
7:08 AM	21	18	18	0	0	0	745	0
7:09 AM	15	13	13	0	0	0	757	0
7:10 AM	12	10	10	0	0	0	767	0
7:11 AM	17	14	14	0	0	0	782	0
7:12 AM	24	21	20	1	19	0	802	0
7:13 AM	23	20	20	1	16	0	822	0
7:14 AM	19	16	17	0	0	0	839	0
7:15 AM	21	18	18	0	0	0	857	0
7:16 AM	15	13	13	0	0	0	869	0
7:17 AM	23	20	20	0	0	0	889	0
7:18 AM	17	14	14	0	0	0	904	0
7:19 AM	23	20	20	0	0	0	923	0
7:20 AM	23	20	20	0	0	0	943	0
7:21 AM	25	22	20	2	42	0	965	0
7:22 AM	23	20	20	2	38	0	985	0
7:23 AM	18	15	17	0	0	0	1000	0
7:24 AM	20	17	17	0	0	0	1017	0
7:25 AM	16	14	14	0	0	0	1031	0
7:26 AM	16	14	14	0	0	0	1044	0
7:27 AM	25	22	20	2	42	0	1064	0
7:28 AM	17	14	16	0	0	0	1081	0
7:29 AM	15	13	13	0	0	0	1093	0
7:30 AM	30	25	20	5	132	0	1118	0
7:31 AM	23	20	20	5	128	0	1138	0
7:32 AM	22	19	20	4	102	0	1157	0
7:33 AM	23	20	20	4	99	0	1177	0
7:34 AM	27	23	20	7	163	0	1200	0
7:35 AM	30	25	20	12	295	0	1225	0
7:36 AM	28	23	20	15	382	0	1248	0
7:37 AM	22	19	20	14	356	0	1267	0
7:38 AM	25	22	20	16	397	0	1289	0
7:39 AM	20	17	20	13	326	0	1306	0
7:40 AM	16	14	20	7	164	0	1320	0
7:41 AM	24	21	20	7	183	0	1341	0
7:42 AM	24	21	20	8	203	0	1361	0
7:43 AM	32	27	20	15	380	0	1388	0

**PEAK
HOUR
I-90 EB**

**THE TIME
PERIOD
WITH
QUEUE
BEYOND
THE
STORAGE
AFTER I-90
EB PEAK
HOUR**

EB 195		2026 PM w/ Project w/ SR195 IMP(500 vph)		PM Adjustment factor	0.81	PM k30 factor (R103)	1.14	2-lane retrofit (use shoulder) alternate release	Max rate = 1400
Storage Length	No. of Storage Lanes	2021 PM Lanes	Adjusted Volume	Vehicles released	Ramp Meter	Vehicles in queue	Queue length	Exceed Storage	
3:00 PM	13	11	8	2	61	0	0	0	
3:01 PM	7	5	8	0	0	0	0	0	
3:02 PM	13	11	8	2	61	0	0	0	
3:03 PM	9	7	8	1	32	0	0	0	
3:04 PM	11	9	8	2	49	0	0	0	
3:05 PM	9	7	8	1	20	0	0	0	
3:06 PM	12	10	8	2	59	0	0	0	
3:07 PM	6	4	7	0	0	0	0	0	
3:08 PM	6	4	4	0	0	0	0	0	
3:09 PM	18	14	8	6	151	0	0	0	
3:10 PM	6	4	8	2	55	0	0	0	
3:11 PM	10	8	8	2	49	0	0	0	
3:12 PM	8	6	8	0	0	0	0	0	
3:13 PM	4	4	4	0	0	0	0	0	
3:14 PM	11	9	8	1	16	0	0	0	
3:15 PM	12	10	8	2	55	0	0	0	
3:16 PM	8	6	8	0	4	0	0	0	
3:17 PM	11	9	8	1	20	0	0	0	
3:18 PM	14	12	8	4	104	0	0	0	
3:19 PM	16	13	8	8	210	0	0	0	
3:20 PM	11	9	8	9	226	0	0	0	
3:21 PM	6	4	8	5	130	0	0	0	
3:22 PM	10	8	8	5	124	0	0	0	
3:23 PM	8	6	8	3	73	0	0	0	
3:24 PM	8	6	8	1	21	0	0	0	
3:25 PM	13	11	8	3	83	0	0	0	
3:26 PM	4	4	7	0	0	0	0	0	
3:27 PM	4	4	4	0	0	0	0	0	
3:28 PM	16	13	8	4	106	0	0	0	
3:29 PM	14	12	8	8	190	0	0	0	
3:30 PM	10	8	8	7	183	0	0	0	
3:31 PM	10	8	8	7	177	0	0	0	
3:32 PM	9	7	8	6	149	0	0	0	
3:33 PM	11	9	8	7	165	0	0	0	
3:34 PM	9	7	8	5	136	0	0	0	
3:35 PM	18	14	8	11	287	0	0	0	
3:36 PM	17	13	8	17	416	0	0	0	
3:37 PM	16	13	8	21	522	0	0	0	
3:38 PM	7	5	8	18	448	0	0	0	
3:39 PM	12	10	8	19	487	0	0	0	
3:40 PM	10	8	8	19	481	0	0	0	
3:41 PM	7	5	8	16	407	0	0	0	
3:42 PM	9	7	8	15	378	0	0	0	
3:43 PM	8	6	8	13	327	0	0	0	
3:44 PM	13	11	8	16	388	0	0	0	
3:45 PM	10	8	8	15	382	0	0	0	
3:46 PM	9	7	8	14	353	0	0	0	
3:47 PM	16	13	8	18	460	0	0	0	
3:48 PM	23	19	8	29	723	0	0	0	
3:49 PM	9	7	8	28	694	0	0	0	
3:50 PM	13	11	8	30	755	0	0	0	
3:51 PM	10	8	8	30	749	0	0	0	
3:52 PM	11	9	8	31	765	0	0	0	
3:53 PM	7	5	8	28	692	0	0	0	
3:54 PM	2	2	8	21	528	0	0	0	
3:55 PM	10	8	8	21	522	0	0	0	
3:56 PM	13	11	8	23	583	0	0	0	
3:57 PM	7	5	8	20	510	0	0	0	
3:58 PM	18	14	8	26	661	0	0	0	
3:59 PM	10	8	8	26	654	0	0	0	
4:00 PM	9	7	8	25	626	0	0	0	
4:01 PM	11	9	8	26	642	0	0	0	
4:02 PM	13	11	8	28	703	0	0	0	
4:03 PM	11	9	8	29	719	0	0	0	
4:04 PM	12	10	8	30	758	0	0	0	
4:05 PM	14	12	8	34	842	0	0	0	
4:06 PM	10	8	8	33	835	0	0	0	
4:07 PM	13	11	8	36	897	0	0	0	
4:08 PM	6	4	8	32	801	0	0	0	
4:09 PM	9	7	8	31	772	0	0	0	
4:10 PM	8	6	8	29	721	0	0	0	
4:11 PM	11	9	8	29	737	0	0	0	
4:12 PM	9	7	8	28	708	0	0	0	
4:13 PM	10	8	8	28	702	0	0	0	
4:14 PM	10	8	8	28	696	0	0	0	
4:15 PM	12	10	8	29	735	0	0	0	
4:16 PM	14	12	8	33	818	0	0	0	
4:17 PM	8	6	8	31	767	0	0	0	
4:18 PM	11	9	8	31	783	0	0	0	
4:19 PM	8	6	8	29	732	0	0	0	
4:20 PM	13	11	8	32	793	0	0	0	
4:21 PM	4	4	8	27	675	0	0	0	
4:22 PM	11	9	8	28	691	0	0	0	
4:23 PM	7	5	8	25	617	0	0	0	
4:24 PM	10	8	8	24	611	0	0	0	
4:25 PM	6	4	8	21	515	0	0	0	
4:26 PM	3	3	8	15	374	0	0	0	
4:27 PM	14	12	8	18	458	0	0	0	
4:28 PM	3	3	8	13	317	0	0	0	
4:29 PM	12	10	8	14	356	0	0	0	
4:30 PM	9	7	8	13	327	0	0	0	
4:31 PM	9	7	8	12	298	0	0	0	
4:32 PM	8	6	8	10	247	0	0	0	
4:33 PM	8	6	8	8	196	0	0	0	
4:34 PM	7	5	8	5	122	0	0	0	
4:35 PM	9	7	8	4	94	0	0	0	
4:36 PM	6	4	8	0	0	0	0	0	
4:37 PM	12	10	8	2	39	0	0	0	
4:38 PM	11	9	8	2	55	0	0	0	
4:39 PM	18	14	8	8	206	0	0		