TRAFFIC IMPACT ANALYSIS

BUSH BSP

Spokane, Washington

June 24, 2019

2019-2373

Prepared by:

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This report has been prepared by Travis Ellingsen E.I.T. and the staff of Whipple Consulting Engineers, Inc. under the direction of the undersigned professional engineer whose seal and signature appears hereon.

Todd R. Whipple, P.E.

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EXECUTIVE SUMMARY

Supplemental to the SEPA Process for the proposed Bush BSP, a seven (7) lot commercial development, the following Traffic Impact Analysis applies:

1. City of Spokane and 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 site is currently undeveloped with field grass and weeds. The project proposes the development of 4.54 acres +/- into seven (7) commercial lots. Lot 1 & Lot 2 are anticipated to be developed as a part of Phase 1. Lot 1 is proposed to be developed with an automated carwash facility and Lot 2 is proposed to be developed with a drive through coffee shop. Lot 3 through Lot 7 are anticipated to be developed during future phases of the project. Assumptions were made for the land uses for Lot 3 through Lot 7 in order to determine the trip generations for the future lots. See Table 1, Lot Land Use Code Summary for additional information on potential land uses for each lot.

3. The site is proposed to be accessed from the west by two (2) interconnecting driveways to the Hilton parking lot on the west side of the property and one (1) driveway to Hilton Avenue on the south side of the property. There is currently an existing access easement that allows the project to be accessed via the right—in and right-out Hilton access on Highway 2. The access easement allows the site to use the Hiltons driveway connection to Highway 2 as an access as well as the two driveways that are proposed to connect to the Hilton's parking lot along the west side of the project property. The project proposes drive aisles and parking lots that provide access to the entire project property. Please see Figure 2 Preliminary Site Plan.

4. The site is currently zoned in the City of Spokane as Light Industrial (LI). The subject property is located on a portion of the NW 1/4 of Section 29, T 25N R 42E W.M., within the City of Spokane, Washington. The parcel number for the subject property is 25292.9066. The surrounding areas are also zoned as Light Industrial.

5. The project study area intersections were identified through conversations with the City of Spokane and WSDOT. The study encompasses the AM and PM peak hour analysis of the following intersections:
   - Highway 2 & Flint Road
   - Highway 2 & Hilton Access
   - Highway 2 & Technology Boulevard

6. As shown in Table 8, the proposed commercial development is anticipated to generate 147 new trips in the AM peak hour with 78 new trips entering the site and 69 new trips exiting the site. In the PM peak hour, the proposed development is anticipated to generate 169 new trips with 87 new trips entering the site and 82 new trips exiting the site.

7. This Traffic Impact Analysis (TIA) has reviewed and analyzed the study area per the scope established by the City of Spokane and WSDOT. The Level of Service analysis for the existing scenario found that the intersection of Highway 2 and Flint Road is anticipated to drop below an acceptable Level of Service during the PM peak hour for the 2025 without project scenario. However, the Level of Service can be brought back to an acceptable Level of Service for all scenarios by retiming of the signal. All other intersections are anticipated to operate at an acceptable level of service

   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 degrade LOS below concurrency levels at the intersection of Highway 2 and Flint Road in both the 2025 without project scenario and the 2025 with project scenario. However, the Level of Service can be brought back to an acceptable level of service with the retiming of the signal at the intersection of Highway 2 and Flint Road. This conclusion was reached and has been documented within the body of this report.

   - Under the **existing** conditions there are no intersection Level of Service deficiencies identified.

   - For the **year 2025 with background without project** scenario, the Level of Service for the intersection of Highway 2 and Flint Road is anticipated to drop below an acceptable Level of Service. However, the Level of Service can be brought back to an acceptable Level of Service with the retiming of the signal. There were no other intersection Level of Service deficiencies identified.

   - For the **year 2025 with background with project** scenario, with the signal retiming, there are no intersection Level of Service deficiencies identified.

8. **Recommendations**
   Based upon the conclusions within this study and the assumption that as a part of routine maintenance that the City of Spokane can retime the signal at the intersection of Highway 2 and Flint Road, the proposed project is recommended to complete all required conditions of approval including frontage improvements, participate as required in the City of Spokane's traffic impact fee at the time of building permit and should be allowed to move forward without further traffic analysis.

INTRODUCTION

Introduction, Purpose of Report and Study Area

This Traffic Impact Analysis (TIA) is required by the City of Spokane as a part of the traffic concurrency process for the proposed "Bush BSP" commercial development. The proposed development consists of seven (7) commercial lots on the 4.54 acres +/- site. Please see Figure 1 Vicinity Map and Figure 2 Preliminary Site Plan.

The purpose of this analysis is to review, assess, and identify potential traffic related impacts that the proposed project may have on the transportation network and where possible, minimize any impacts. This TIA will be completed in accordance with the current traffic guidelines from City of Spokane, WSDOT 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 project site is currently undeveloped with field grass and weeds. The project proposes the development of 4.54 acres +/- into seven (7) commercial lots. Lot 1 & Lot 2 are anticipated to be developed as a part of Phase 1. Lot 1 is proposed to be developed with an automated carwash facility and Lot 2 is proposed to be developed with a drive through coffee shop. Lot 3 through Lot 7 are anticipated to be developed during future phases of the project. Assumptions were made for the land uses for Lot 3 through Lot 7 in order to determine the trip generations for the future lots. See Table 1, Lot Land Use Code Summary for additional information on potential land uses for each lot.

Table 1 – Lot Land Use Code Summary

Lot #	Potential Land Use	Potential Bldg Size (sf)	LUC
1	Car Wash	6,552	948
2	Coffee Shop w/ Drive	1,248	937
3	Fast Food Restaurant W/ dr. thru	2,190	934
4	High Turn-over Restaurant	9,321	820
5	General Office	3,335	
6	Retail	10,682	
7	General Office	5,672	
-	**Total Shopping Center**	**29,010**	

The site is proposed to be accessed from the west by two (2) interconnecting driveways to the Hilton parking lot on the west side of the property and one (1) driveway to Hilton Avenue on the south side of the property. There is currently an existing access easement that allows the project to be accessed via the right—in and right-out Hilton access on Highway 2. The access easement allows the site to use the Hiltons driveway connection to Highway 2 as an access as well as the two driveways that are proposed to connect to the Hilton's parking lot along the west side of the project property. The project proposes drive aisles and parking lots that provide access to the entire project property. Please see Figure 2 Preliminary Site Plan.

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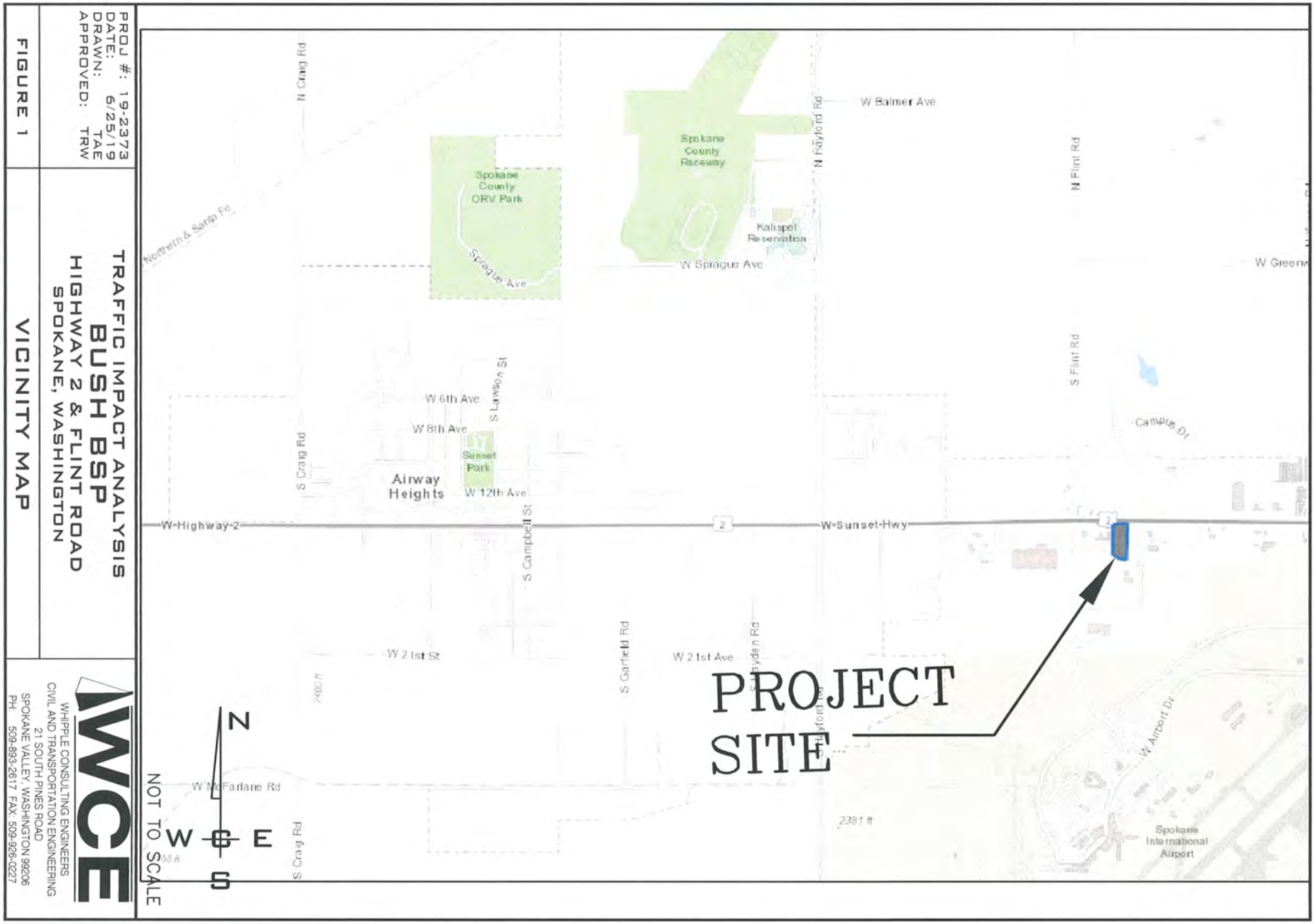

FIGURE 1

VICINITY MAP

TRAFFIC IMPACT ANALYSIS
BUSH BSP
HIGHWAY 2 & FLINT ROAD
SPOKANE, WASHINGTON

PROJ #: 19-2373
DATE: 6/25/19
DRAWN: TAE
APPROVED: TRW

WCE
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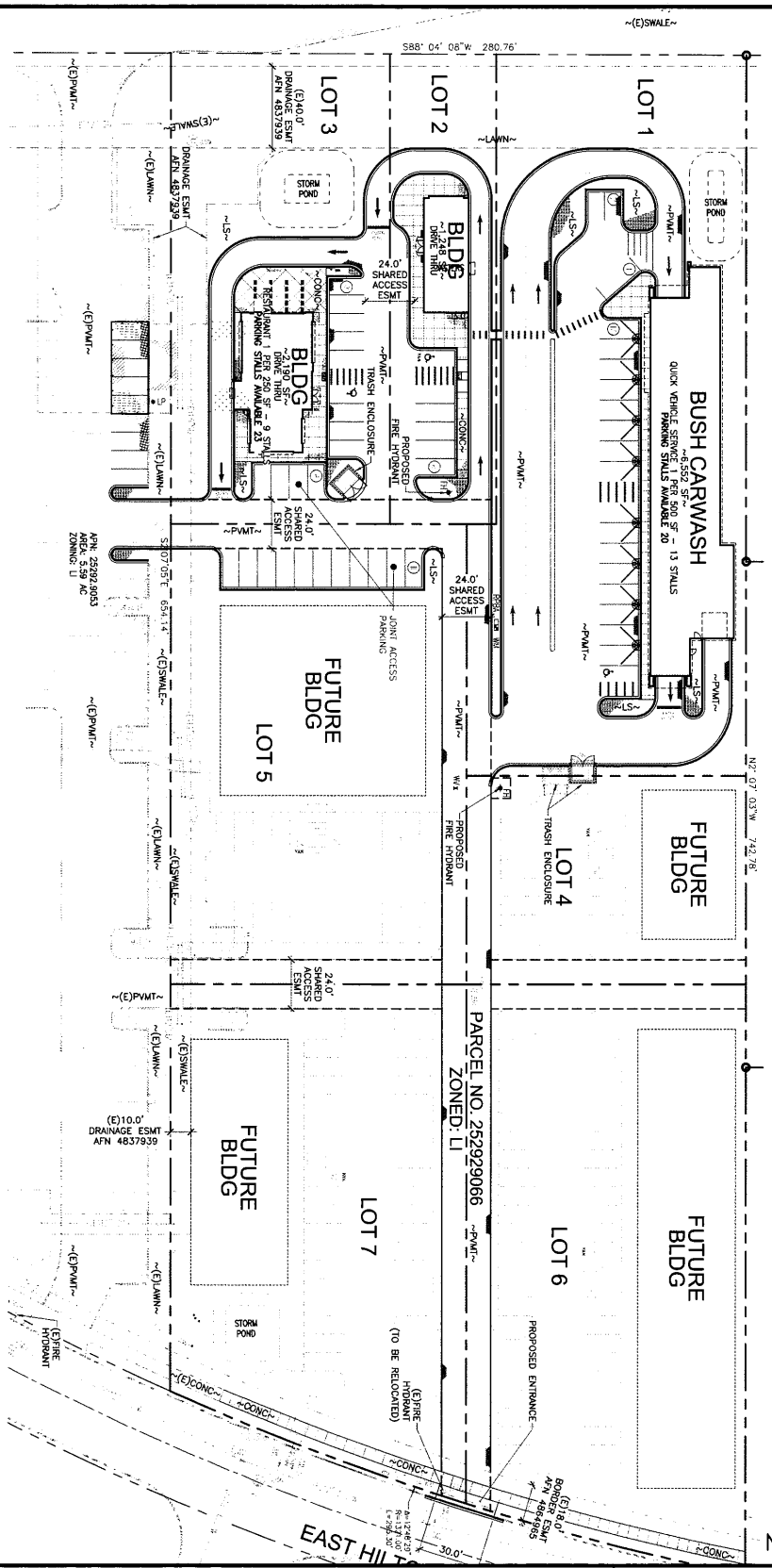

PROJ #: 19-2373 DATE: 6/25/19 DRAWN: TAE APPROVED: TRW	TRAFFIC IMPACT ANALYSIS **BUSH BSP** HIGHWAY 2 & FLINT ROAD SPOKANE, WASHINGTON	WCE WHIPPLE CONSULTING ENGINEERS CIVIL AND TRANSPORTATION ENGINEERING 21 SOUTH PINES ROAD SPOKANE VALLEY, WASHINGTON 99206 PH: 509-893-2617 FAX: 509-926-0227
FIGURE 2	PRELIMINARY SITE PLAN	

Existing and Proposed Conditions within the Study Area

Land Use & Zoning

The site is currently zoned in the City of Spokane as Light Industrial (LI). The subject property is located on a portion of the NW 1/4 of Section 29, T 25N R 42E W.M., within the City of Spokane, Washington. The parcel number for the subject property is 25292.9066. The surrounding areas are also zoned as Light Industrial.

Existing Roadways

The overall transportation network in this area consists of interstate highways, urban principle arterials, collectors, and local access roads. The project is proposed to be accessed via the Hilton's right-in right-out driveway on Highway 2 and an access driveway on Hilton Avenue. The proposed project trips are anticipated to use the following roadways:

Highway 2 is an east/west State Highway. Highway 2 extends west from Interstate 90 through Airway Heights, Wenatchee and Monroe before terminating at an intersection with Interstate 5. Within the Study Area Highway 2 is a two-way 5-, 6- and 7-lane highway, with a Two-Way-Left-Turn-Lane (TWLTL). Within the study area Highway 2 serves commercial, retail, and industrial uses. The posted speed limit within the study area is 45 MPH.

Flint Road is a north/south two-way, 2-lane Collector Road in Spokane County and the City of Spokane that extends south from Trails Road as a gravel road to Highway 2 and continues south as a paved road to Airport Drive. Flint Road north of Highway 2 generally serves residential uses, and Flint Road south of SR2 serves a mixture of Light industrial and commercial land uses. The posted speed limit on Flint Road is 35 MPH.

Technology Boulevard is generally a two-way, 2-lane north/south local access road. Technology Boulevard extends south from Highway 2 through Hilton Avenue to Granite Avenue. Technology Boulevard serves commercial and industrial land uses. The posted speed limit on Technology Boulevard is 25 MPH.

Hilton Avenue is generally an east/west, two-way, 2-lane local access road. Hilton Avenue extends east from Flint Road to Technology Boulevard. Hilton Avenue primarily serves commercial land uses. The speed limit on Hilton Avenue is 25 MPH.

Study Area Intersections

The project study area intersections were identified through conversations with the City of Spokane and WSDOT. The study encompasses the AM and PM peak hour analysis of the following intersection:

- Highway 2 & Flint Road
- Highway 2 & Hilton Access
- Highway 2 & Technology Boulevard

Traffic Control and Descriptions

Highway 2 & Flint Road is a signalized intersection with the following lane configuration: the eastbound approach has two receiving lanes, a left turn lane, two through lanes and a right turn lane. The west bound approach has two receiving lanes, two left turn lanes, two through lanes and a right turn lane. The northbound approach has two receiving lanes, two left turn lanes, a through lane and a right turn lane. The southbound approach has a receiving lane, a left turn lane and a through-right lane.

Highway 2 & Hilton Access is an unsignalized stop-controlled "T"-type intersection with the following lane configuration: the eastbound approach has two receiving lanes two through lanes and a right turn lane. The westbound approach has two receiving lanes, a two-way-left-turn lane and two through lanes. The northbound approach has a receiving lane and a right turn lane.

Highway 2 & Technology Boulevard is an unsignalized stop-controlled "T"-type intersection with the following lane configuration: the eastbound approach has two receiving lanes, a two-way-left-turn lane, a through lane and a through-right lane. The westbound approach has two receiving lanes, a two-way-left-turn lane and two through lanes. The northbound approach has a receiving lane and a left-right lane.

Traffic Safety

For the intersections within the study area, accident report summaries were received from the 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.

$$Rate\ per\ MEV = \frac{number\ of\ accidents\ in\ three\ years\ X\ 1\ million}{PM\ peak\ hour\ volume\ X\ 10\ \ X\ 365\ X\ 3\ years}$$

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 is shown in Table 2.

The accident data for this project is currently pending receival of the accident data and will therefore be provided when the accident data has been received.

Table 2 – Accident Data for Intersections within the Study Area

ACCIDENT DATA							
Intersection	2016		2017		2018		Per
	PDO	INJ	PDO	INJ	PDO	INJ	MEV
Highway 2 & Flint Road	--	--	--	--	--	--	--
Highway 2 & Hilton Access	--	--	--	--	--	--	--
Highway 2 & Technology Boulevard	--	--	--	--	--	--	--

PDO = Property Damage Only, INJ = Injury,

As shown in the Table 1, the accident analysis is pending.

Traffic Volumes and Peak Hours of Operation

Traffic counts were collected in May 2019 under the direction of Whipple Consulting Engineers, at the following intersections:

- Highway 2 & Flint Road (AM & PM)
- Highway 2 & Hilton Access (AM & PM)
- Highway 2 & Technology Boulevard (AM & PM)

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

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 *2010 Highway Capacity Manual*. 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 has 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	• Very low delay at intersection. • All signal cycles clear. • No vehicles wait through more than one signal cycle.
B	10 to 20	• 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	• 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	• 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	• 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	• 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 *2010 Highway Capacity Manual*. 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 has 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	• 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	• 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	• 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	• Often there is more than one vehicle in the queue. • Drivers feel quite restricted.
E	35 to 50	Very Long Traffic Delays	• 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	• 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

The existing Levels of Service at the scoped intersections were calculated using the methods from the *2010 Highway Capacity Manual* as implemented in Synchro, *version 9 - Build 915*. The existing Levels of Service for the intersections within the study area are summarized on the following tables. The existing traffic volumes used for this report are shown on Figure 3 and Figure 4.

Table 3 - Existing Intersections Levels of Service

INTERSECTION	(S)ignalized (U)nsignalized	AM Peak Hour		PM Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS
Highway 2 & Flint Road	S	27.8	C	44.4	D
Highway 2 & Hilton Access	U	10.0	A	10.9	B
Highway 2 & Technology Boulevard	U	13.5	B	24.8	C

The City of Spokane and the 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, all intersections are currently operating at an acceptable level of service.

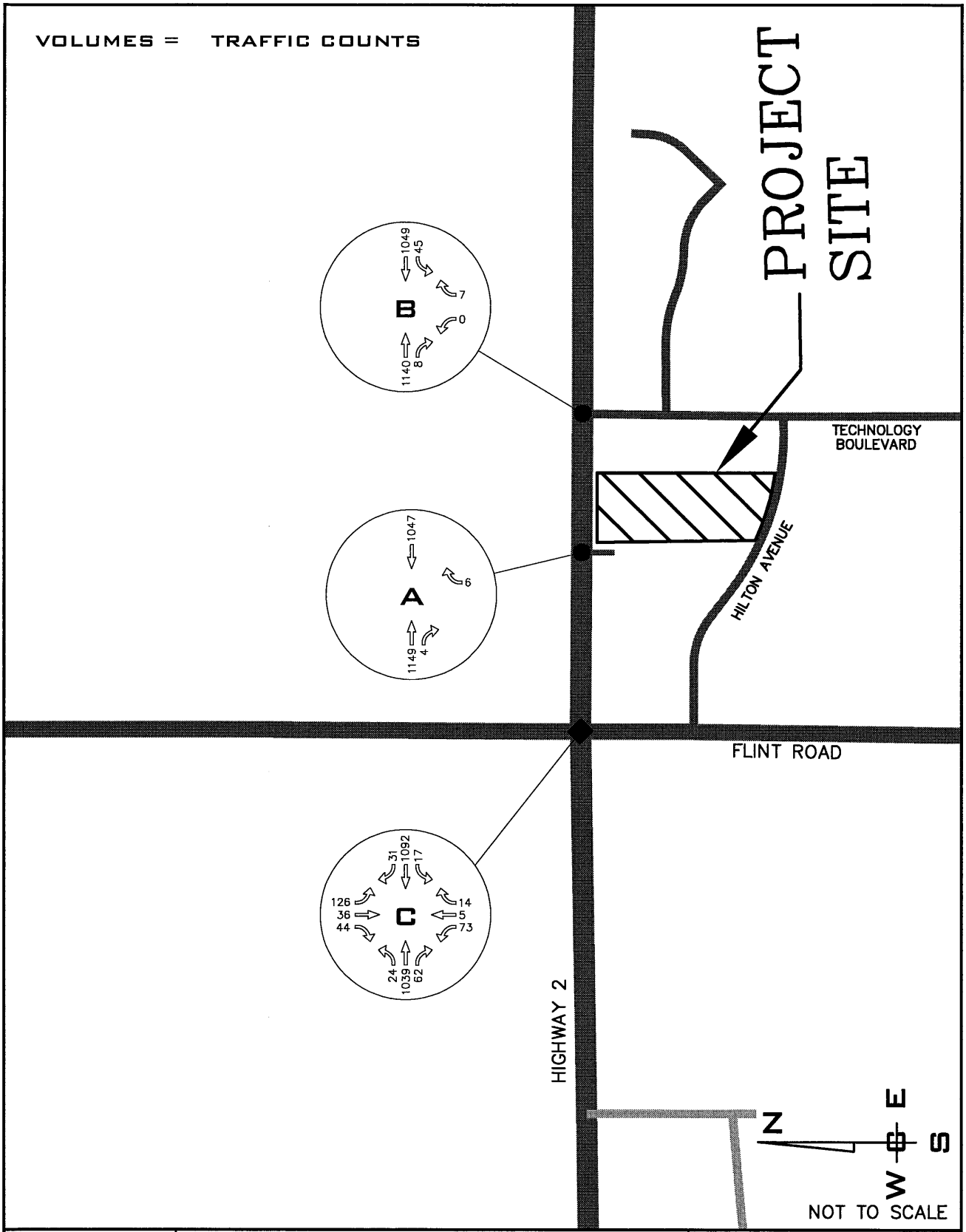

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FIGURE 3	2019 AM TRAFFIC VOLUMES & LOS	

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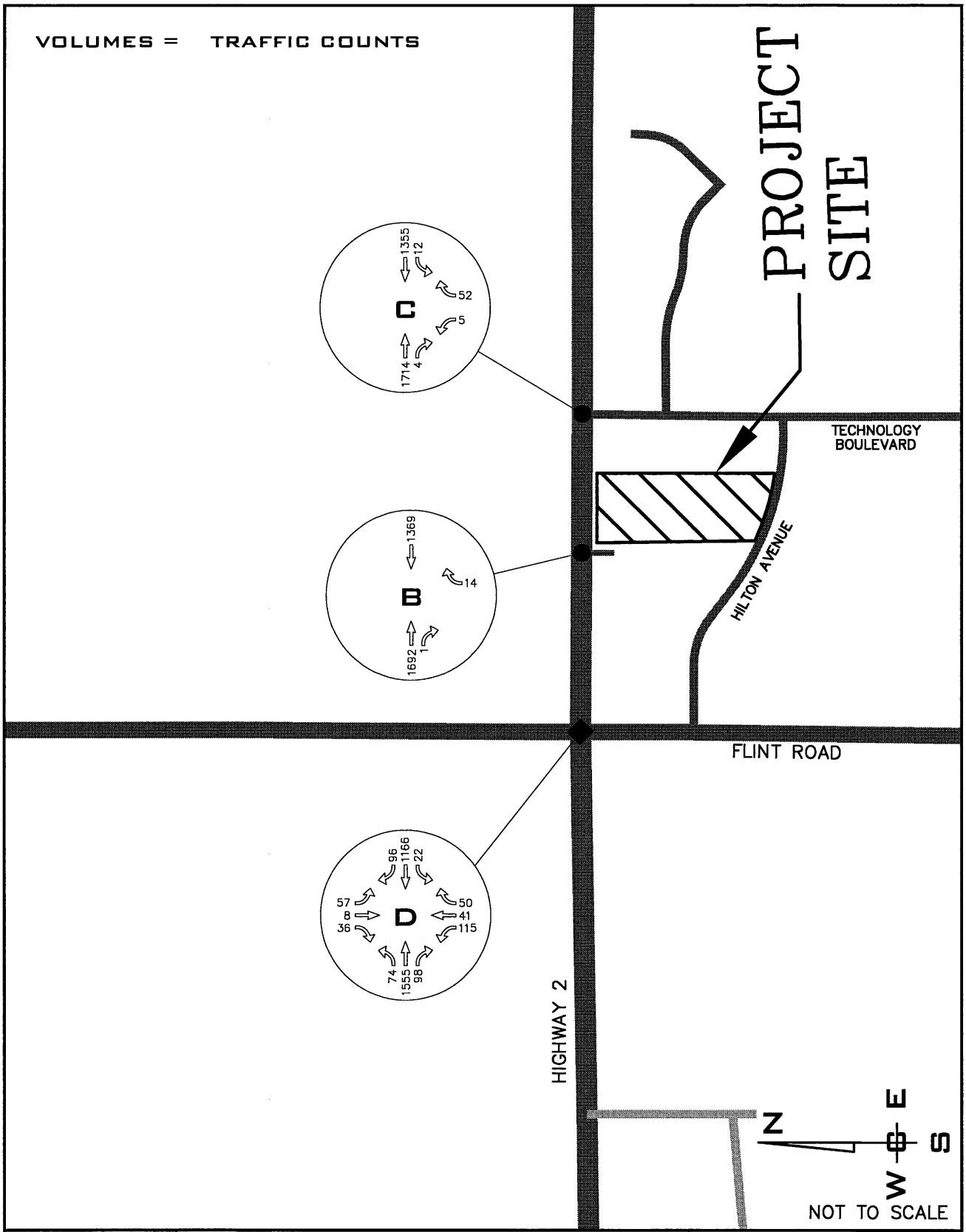

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FIGURE 4	2019 PM TRAFFIC VOLUMES & LOS	

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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 six-year build out, compounded annually, the total increase in traffic rate for the year 2025 is anticipated to be 1.062.

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 project traffic volumes used for this report are shown on Figure 5 and Figure 6.

- Hunters Crossing
- Hayden Homes
- Project Rose
- North 40 Phase 1
- Sekani at Crosspointe
- Casino Phase 1A

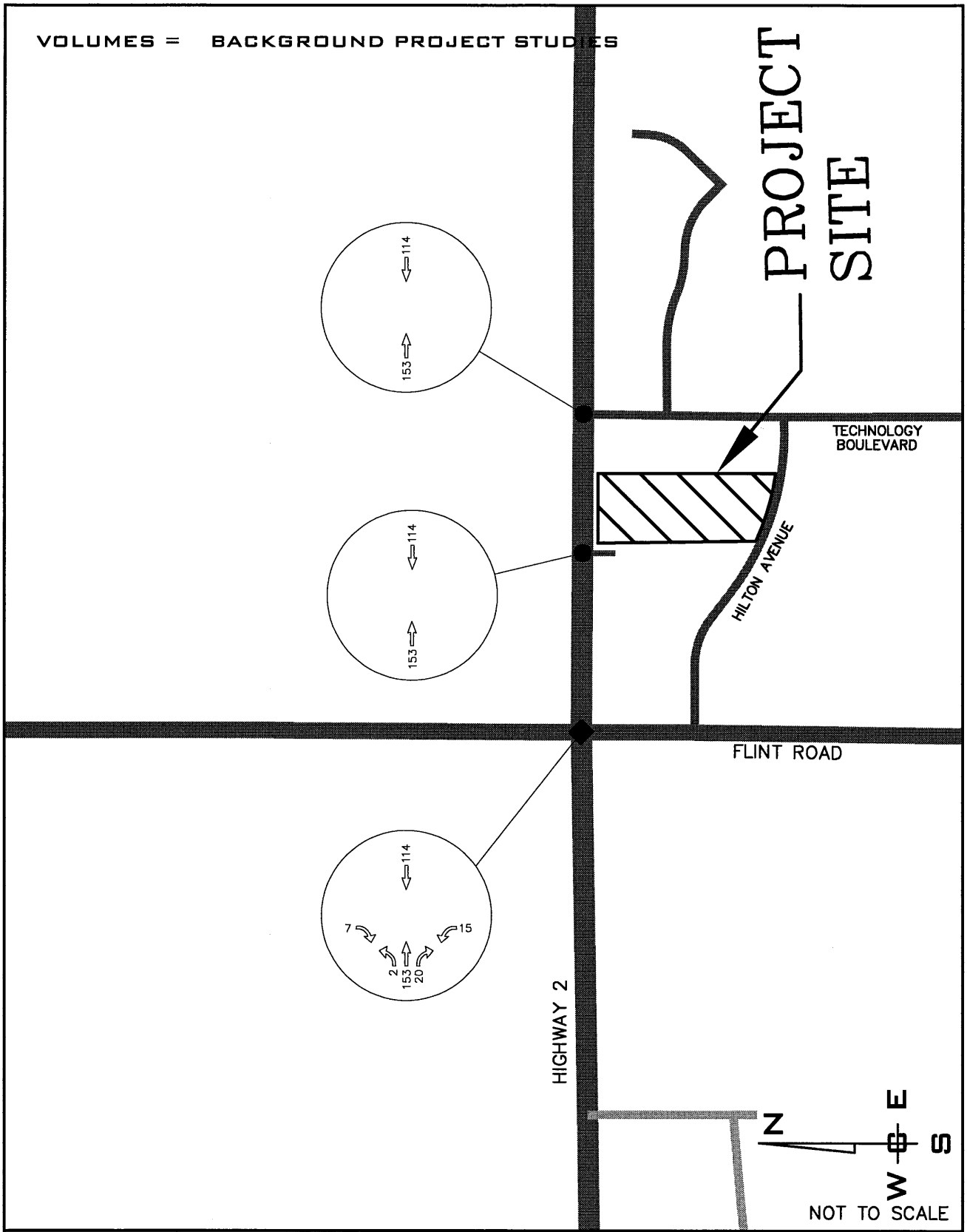

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FIGURE 5	AM BACKGROUND TRIPS	

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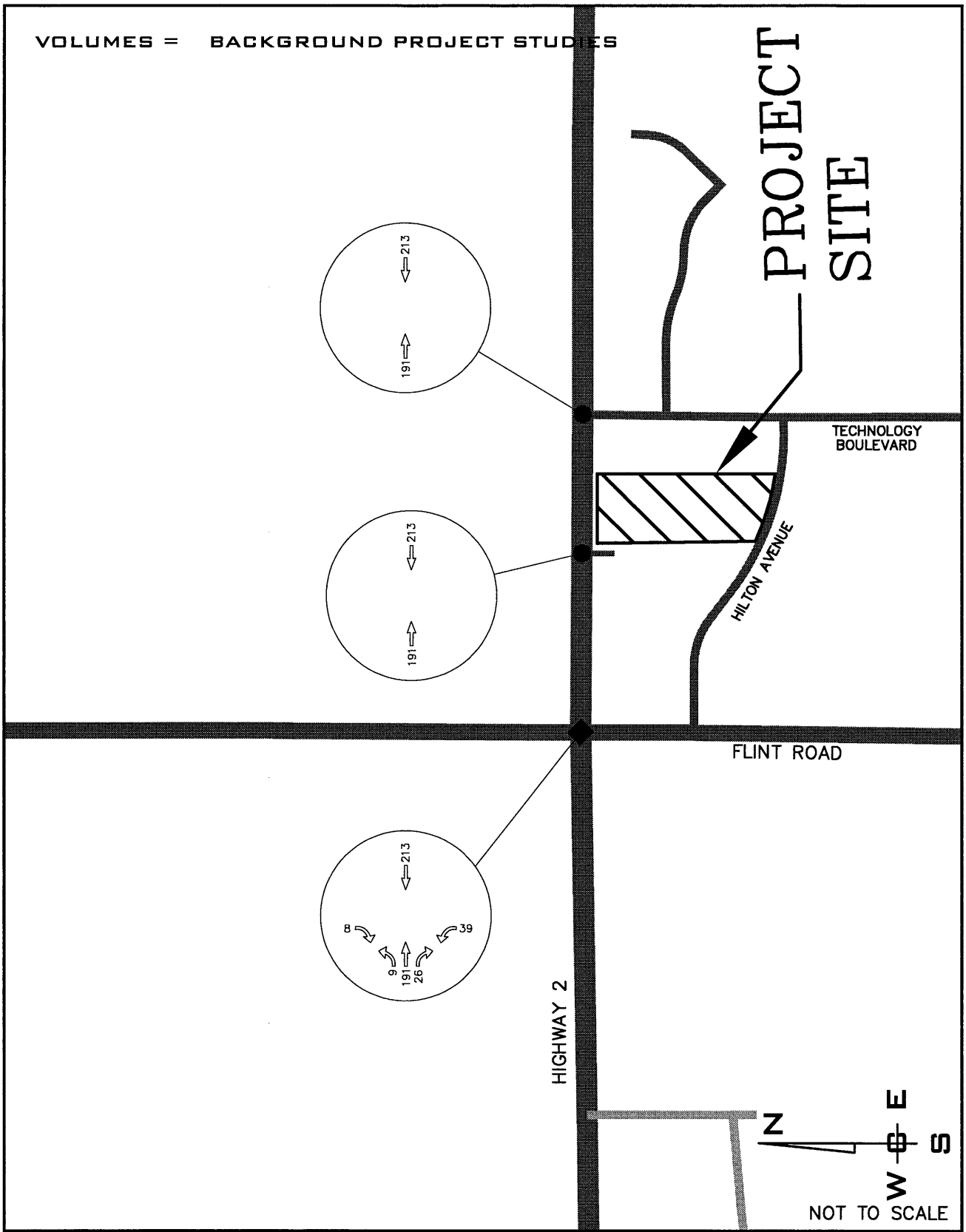

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FIGURE 6	PM BACKGROUND TRIPS	

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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.

The proposed project is a seven (7) lot commercial development. For the proposed development on Lot 1, Land Use Code (LUC) # 948 Automated Car Wash was used to establish the number of potential trips generated by the land use on Lot 1. For the proposed development on Lot 2, Land Use Code (LUC) # 937 Coffee/Donut Shop with Drive-Through Window was used to establish the number of potential trips generated by the land use on Lot 2. For the proposed development on Lot 3, Land Use Code (LUC) # 934 Fast-Food Restaurant with Drive-Through Window was used to establish the number of potential trips generated by the land use on Lot 3. For the proposed developments on Lots 4 through 7, Land Use Code (LUC) # 820 Shopping Center was used to establish the number of potential trips generated by the land uses on Lots 4 through 7. A summary of the potential land uses Land Use Codes used for each lot can be seen in Table 3.

Table 1 – Lot Land Use Code Summary (Copy)

Lot #	Potential Land Use	Potential Bldg Size (sf)	LUC
1	Car Wash	6,552	948
2	Coffee Shop w/ Drive	1,248	937
3	Fast Food Restaurant W/ dr. thru	2,190	934
4	High Turn-over Restaurant	9,321	820
5	General Office	3,335	
6	Retail	10,682	
7	General Office	5,672	
-	**Total Shopping Center**	**29,010**	

The complete trip generation for the project is included in the appendix with a copy of the table summaries provided as Table 4 for reference.

Table 4-Trip Generation Summary (Total)

Land Use Code (LUC)	AM Peak Hour Trips			PM Peak Hour Trips		
	Vol. / LUC	Directional Distribution		Vol. / LUC	Directional Distribution	
		In	Out		In	Out
LUC #948 Automated Car Wash	23	12	11	91	46	45
LUC #937 Coffee/Donut w/ Drive-Thru	111	57	54	54	27	27
LUC #934 Fast Food Restaurant w/ Dr.-Thru	153	78	75	125	65	60
LUC #820 Shopping Center	28	17	11	111	53	58
Total	315	164	151	381	191	190

Average Daily Trip Ends (ADT)		
Land Use Code (LUC)	Rate	ADT
LUC #948 Automated Car Wash	-	909
LUC #937 Coffee/Donut w/ Drive-Thru	-	1,018
LUC #934 Fast Food Restaurant w/ Dr.-Thru	-	1,790
LUC #820 Shopping Center	-	1,473
Total	-	5,190

As shown in Table 4, the proposed commercial development is anticipated to generate 315 trips in the AM peak hour with 164 trips entering the site and 151 trips exiting the site. In the PM peak hour, the proposed development is anticipated to generate 381 trips with 191 trips entering the site and 190 trips exiting the site. The proposed development is anticipated to generate 5,190 average daily trips to/from the project site. These trips are further broken down as pass-by and new trips.

Internal trips were taken into consideration for this project. A summary of the internal trips can be seen in Table 5. The internal trip calculations can be found in the appendix.

Table 5-Internal Trip Generation Summary

Land Use Code (LUC)	AM Peak Hour Trips			PM Peak Hour Trips		
	Vol. / LUC	Directional Distribution		Vol. / LUC	Directional Distribution	
		In	Out		In	Out
LUC #948 Automated Car Wash	1	0	1	12	7	5
LUC #937 Coffee/Donut w/ Drive-Thru	6	2	4	7	4	3
LUC #934 Fast Food Restaurant w/ Dr.-Thru	8	4	4	16	10	6
LUC #820 Shopping Center	10	6	4	35	14	21
LUC #310 Hotel	15	8	7	24	12	12
Total	40	20	20	94	47	47

As shown in Table 5, the proposed commercial development is anticipated to generate 25 internal trips in the AM peak hour with 12 internal trips entering the site and 13 internal trips exiting the site. In the PM peak hour, the proposed development is anticipated to generate 70 internal trips with 35 internal trips entering the site and 35 internal trips exiting the site.

A summary of the remaining external trips can be seen in Table 6.

Table 6-External Trip Generation Summary

Land Use Code (LUC)	AM Peak Hour Trips			PM Peak Hour Trips		
	Vol. / LUC	Directional Distribution		Vol. / LUC	Directional Distribution	
		In	Out		In	Out
LUC #948 Automated Car Wash	22	12	10	79	39	40
LUC #937 Coffee/Donut w/ Drive-Thru	105	55	50	47	23	24
LUC #934 Fast Food Restaurant w/ Dr.-Thru	145	74	71	109	55	54
LUC #820 Shopping Center	18	11	7	76	39	37
Total	290	152	138	311	156	155

As shown in Table 6, the proposed commercial development is anticipated to generate 290 external trips in the AM peak hour with 152 external trips entering the site and 138 external trips exiting the site. In the PM peak hour, the proposed development is anticipated to generate 311 external trips with 156 external trips entering the site and 155 external trips exiting the site.

Pass-by trips from the external trips into considered for this project. A summary of the pass-by trips can be seen in Table 7.

Table 7-Pass-by Trip Generation Summary

Land Use Code (LUC)	AM Peak Hour Trips			PM Peak Hour Trips		
	Vol. / LUC	Directional Distribution		Vol. / LUC	Directional Distribution	
		In	Out		In	Out
LUC #948 Automated Car Wash	11	6	5	39	19	20
LUC #937 Coffee/Donut w/ Drive-Thru	52	27	25	23	11	12
LUC #934 Fast Food Restaurant w/ Dr.-Thru	71	36	35	54	27	27
LUC #820 Shopping Center	9	5	4	26	12	14
Total	143	74	69	142	69	73

As shown in Table 7, the proposed commercial development is anticipated to generate 143 pass-by trips in the AM peak hour with 74 pass-by trips entering the site and 69 pass-by trips exiting the site. In the PM peak hour, the proposed development is anticipated to generate 142 pass-by trips with 69 pass-by trips entering the site and 73 pass-by trips exiting the site.

The remainder of the external trips are considered new trips to/from the project site. A summary of the new trips can be seen in Table 8.

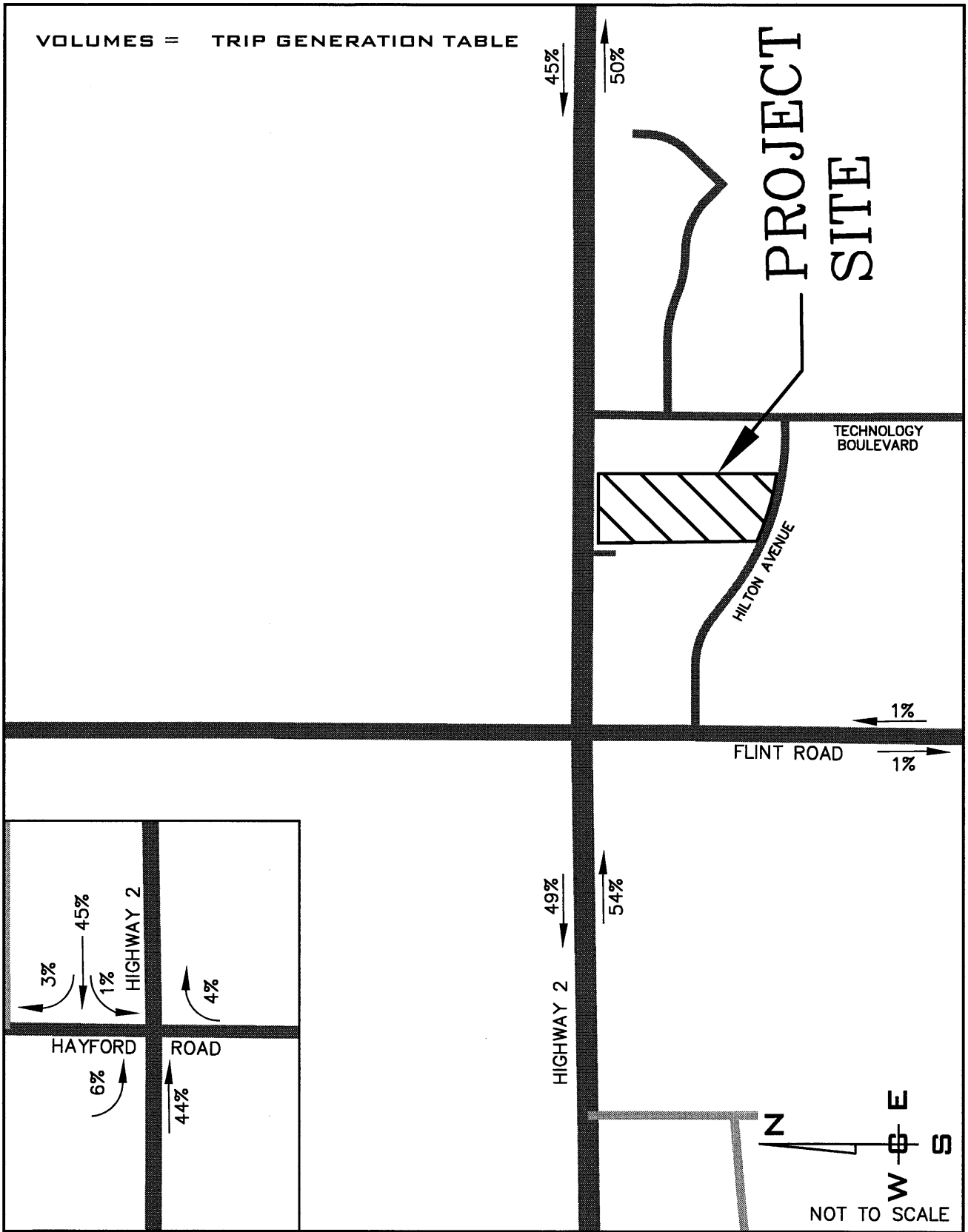
Table 8-New Trip Generation Summary

Land Use Code (LUC)	AM Peak Hour Trips			PM Peak Hour Trips		
	Vol. / LUC	Directional Distribution		Vol. / LUC	Directional Distribution	
		In	Out		In	Out
LUC #948 Automated Car Wash	11	6	5	40	20	20
LUC #937 Coffee/Donut w/ Drive-Thru	53	28	25	24	12	12
LUC #934 Fast Food Restaurant w/ Dr.-Thru	74	38	36	55	28	27
LUC #820 Shopping Center	9	6	3	50	27	23
Total	147	78	69	169	87	82

As shown in Table 8, the proposed commercial development is anticipated to generate 147 new trips in the AM peak hour with 78 new trips entering the site and 69 new trips exiting the site. In the PM peak hour, the proposed development is anticipated to generate 169 new trips with 87 new trips entering the site and 82 new trips exiting the site.

Trip Distribution Characteristics of the Proposed Project

Considering street light data from the WSDOT, traffic for the proposed development is anticipated as follows: 54% of the AM entering trips are anticipated to come from the west via Highway 2, 45% of the AM entering trips are anticipated to come from the east via Highway 2 and 1% of the AM entering trips are anticipated to come from the south via Flint Road. It is anticipated that 49% of the AM exiting trips will go to the west via Highway 2, 50% of the AM exiting trips are anticipated to go to the east via Highway 2 and 1% of the AM exiting trips are anticipated to go to the south via Flint Road. It is anticipated that 65% of the PM entering trips will come from the west via Highway 2, 34% of the PM entering trips are anticipated to come from the east via Highway 2 and 1% of the PM entering trips are anticipated to come from the south via Flint Road. It is anticipated that 70% of the PM exiting trips will go to the west via Highway 2, 29% of the PM exiting trips are anticipated to go to the east via Highway 2 and 1% of the PM exiting trips are anticipated to go to the south via Flint Road. Please see Figures 7 & 8 to see a graphical representation of these distribution.



PROJ #: 19-2373 DATE: 6/25/19 DRAWN: TAE APPROVED: TRW	TRAFFIC IMPACT ANALYSIS **BUSH BSP** HIGHWAY 2 & FLINT ROAD SPOKANE, WASHINGTON	WCE WHIPPLE CONSULTING ENGINEERS CIVIL AND TRANSPORTATION ENGINEERING 21 SOUTH PINES ROAD SPOKANE VALLEY, WASHINGTON 99206 PH: 509-893-2617 FAX: 509-926-0227
FIGURE 7	AM PROJECT TRIP PERCENTAGES	

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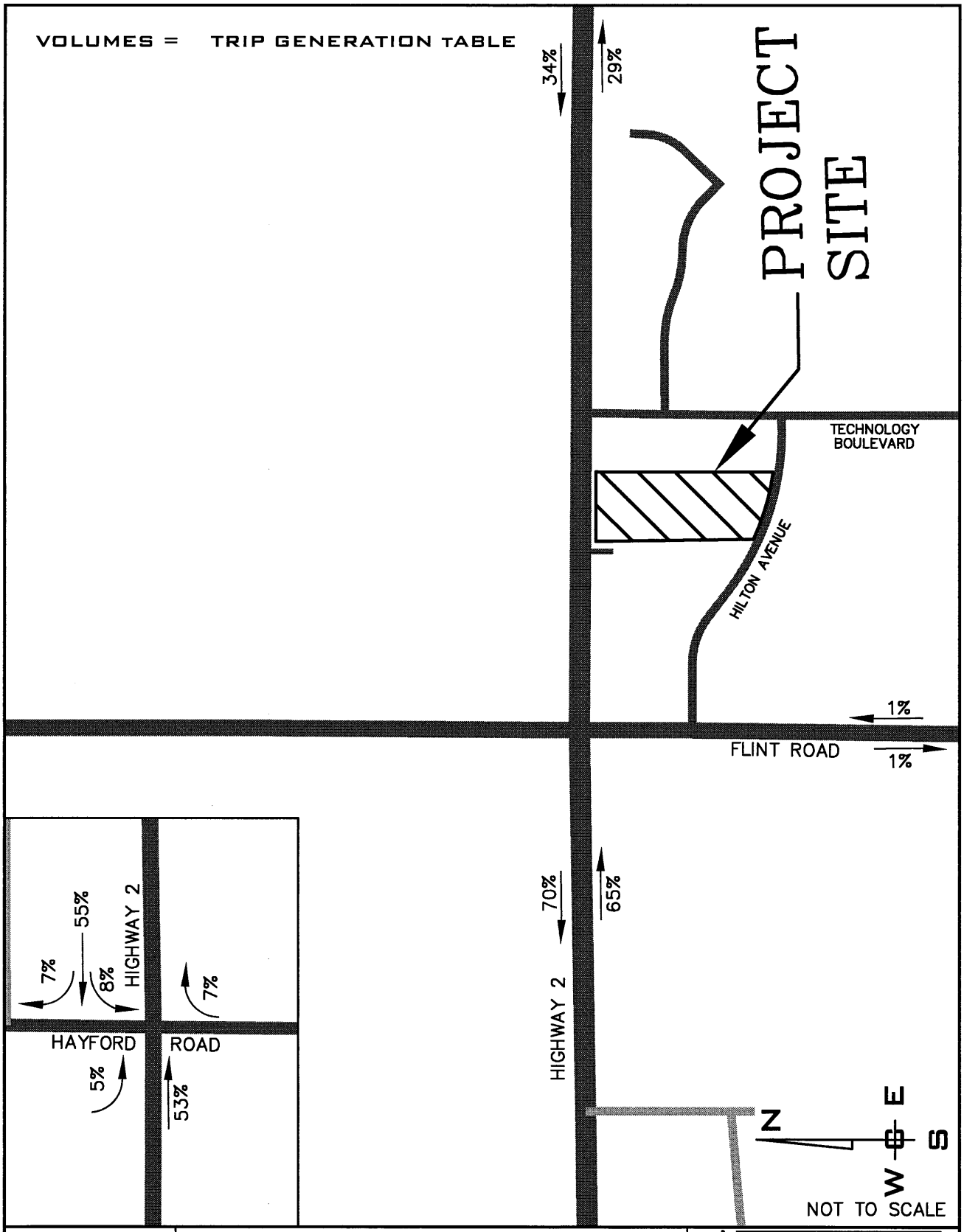

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FIGURE 8	PM PROJECT TRIP PERCENTAGES	

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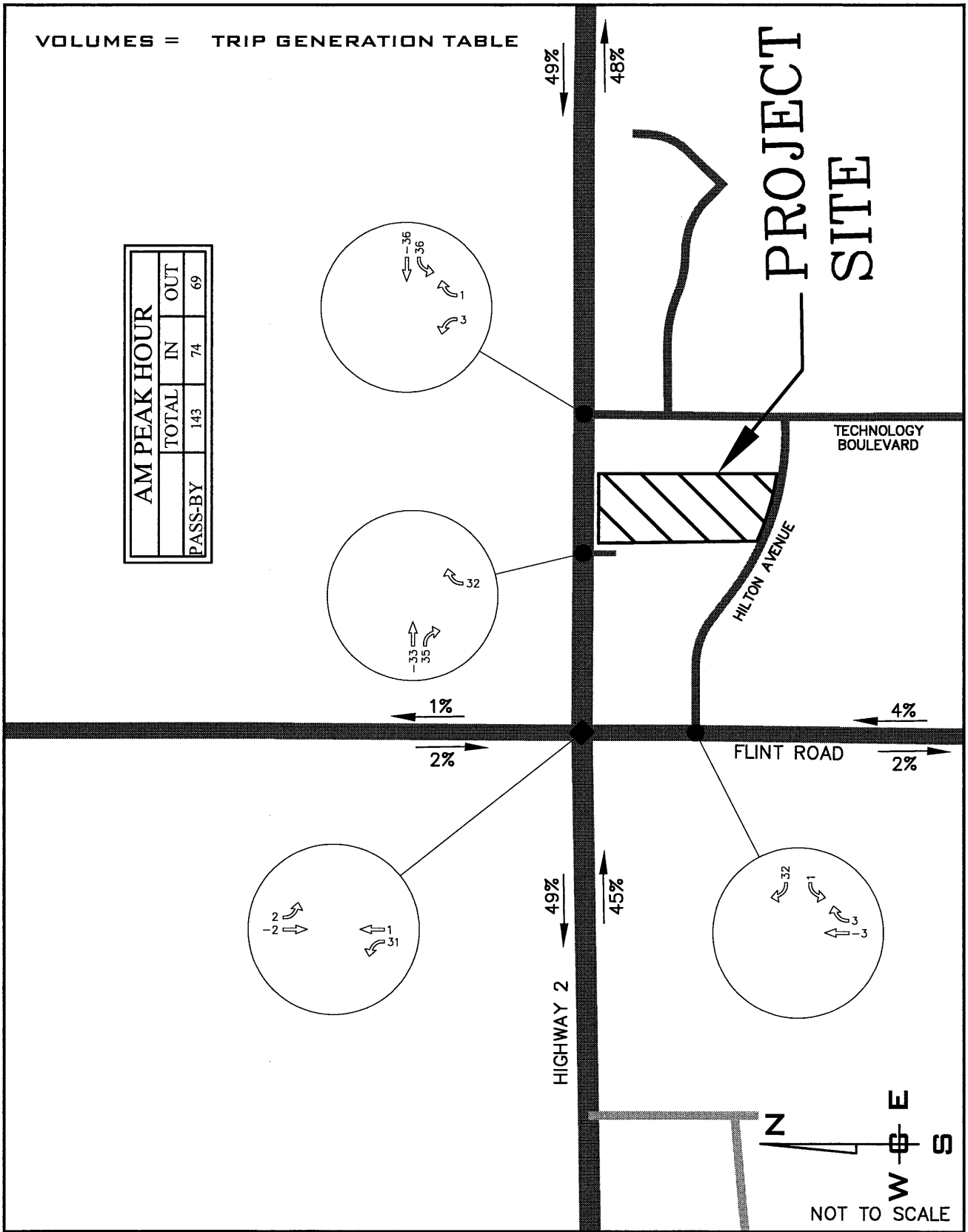

PROJ #: 19-2373 DATE: 6/25/19 DRAWN: TAE APPROVED: TRW	TRAFFIC IMPACT ANALYSIS **BUSH BSP** HIGHWAY 2 & FLINT ROAD SPOKANE, WASHINGTON	WCE WHIPPLE CONSULTING ENGINEERS CIVIL AND TRANSPORTATION ENGINEERING 21 SOUTH PINES ROAD SPOKANE VALLEY, WASHINGTON 99206 PH: 509-893-2617 FAX: 509-926-0227
FIGURE 9	AM PASS-BY TRIP DISTRIBUTION	

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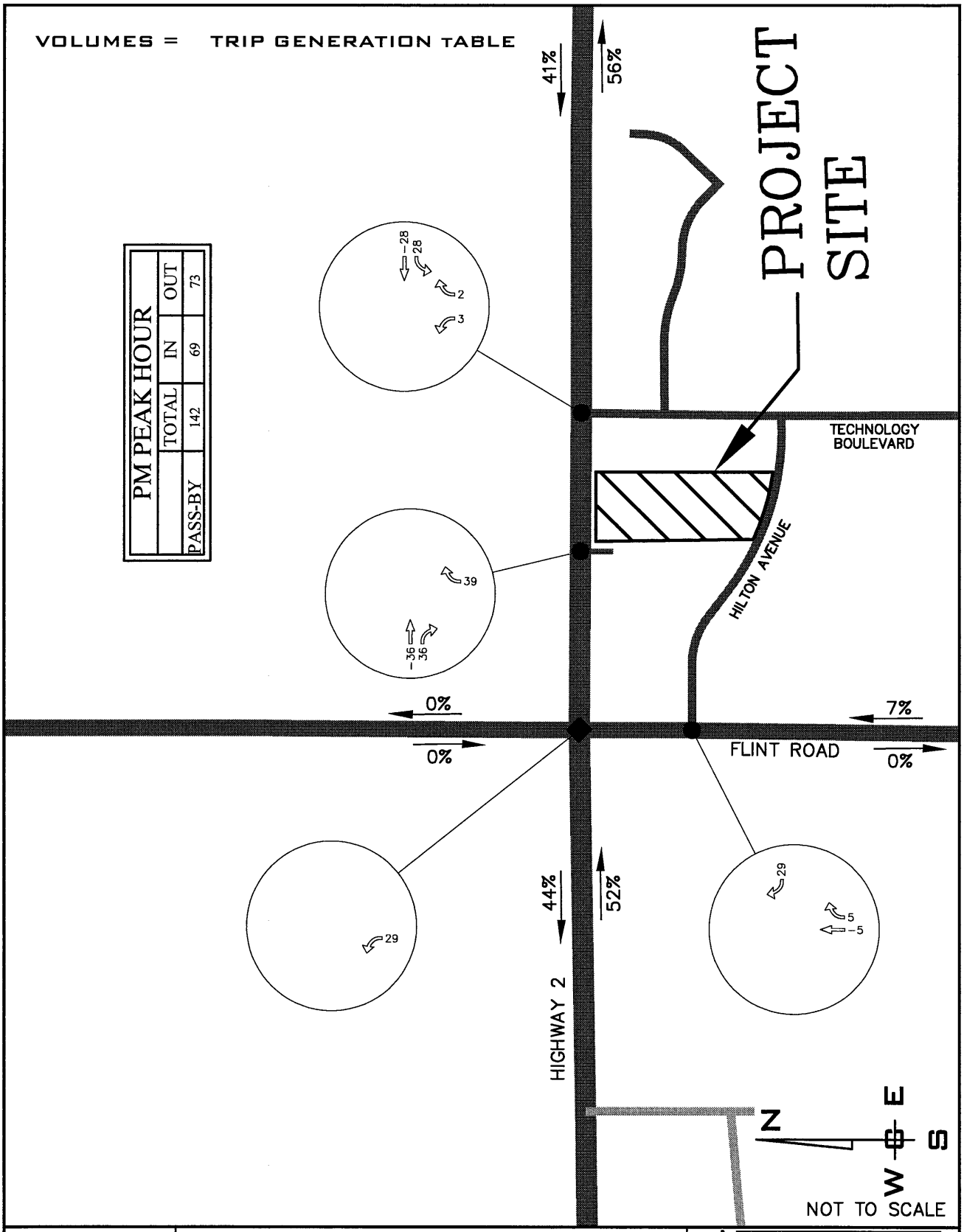

PROJ #: 19-2373 DATE: 6/25/19 DRAWN: TAE APPROVED: TRW	TRAFFIC IMPACT ANALYSIS **BUSH BSP** HIGHWAY 2 & FLINT ROAD SPOKANE, WASHINGTON	WCE WHIPPLE CONSULTING ENGINEERS CIVIL AND TRANSPORTATION ENGINEERING 21 SOUTH PINES ROAD SPOKANE VALLEY, WASHINGTON 99206 PH: 509-893-2617 FAX: 509-926-0227
FIGURE 10	PM PASS-BY TRIP DISTRIBUTION	

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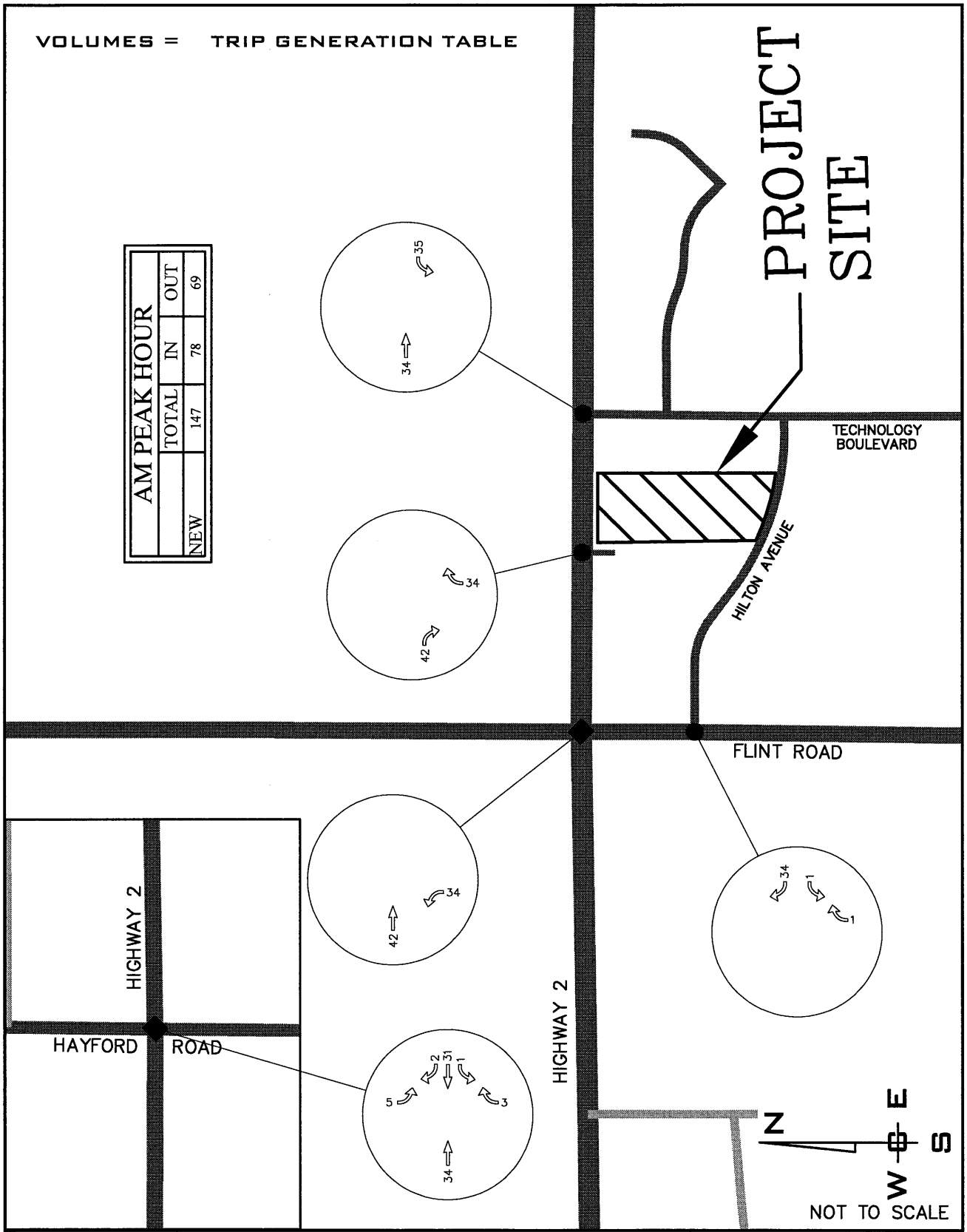

PROJ #: 19-2373 DATE: 6/25/19 DRAWN: TAE APPROVED: TRW	TRAFFIC IMPACT ANALYSIS **BUSH BSP** HIGHWAY 2 & FLINT ROAD SPOKANE, WASHINGTON	WCE WHIPPLE CONSULTING ENGINEERS CIVIL AND TRANSPORTATION ENGINEERING 21 SOUTH PINES ROAD SPOKANE VALLEY, WASHINGTON 99206 PH: 509-893-2617 FAX: 509-926-0227
FIGURE 11	AM NEW TRIP DISTRIBUTION	

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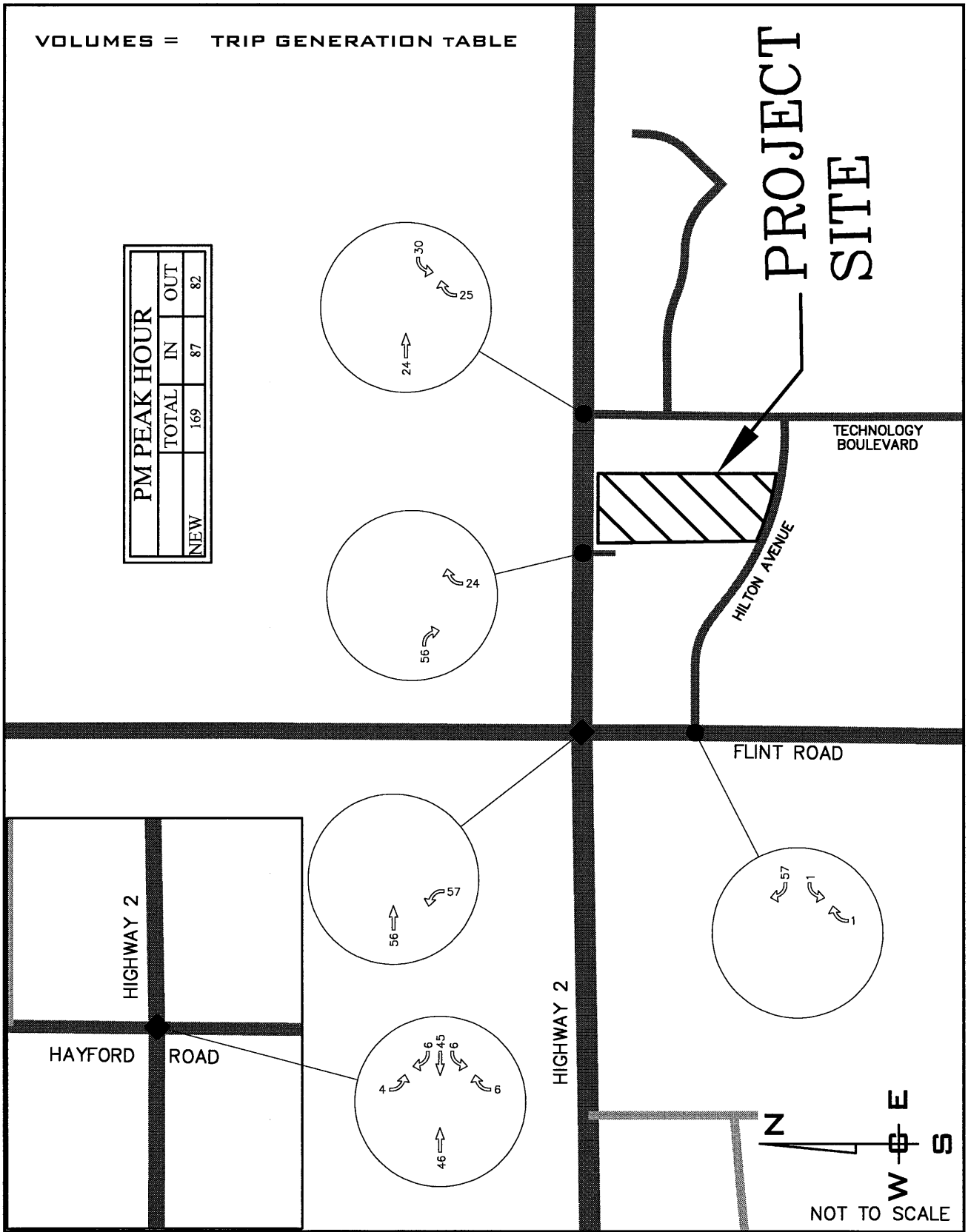

PROJ #: 19-2373 DATE: 6/25/19 DRAWN: TAE APPROVED: TRW	TRAFFIC IMPACT ANALYSIS **BUSH BSP** HIGHWAY 2 & FLINT ROAD SPOKANE, WASHINGTON	WCE WHIPPLE CONSULTING ENGINEERS CIVIL AND TRANSPORTATION ENGINEERING 21 SOUTH PINES ROAD SPOKANE VALLEY, WASHINGTON 99206 PH: 509-893-2617 FAX: 509-926-0227
FIGURE 12	PM NEW TRIP DISTRIBUTION	

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FUTURE YEAR TRAFFIC IMPACT ANALYSIS

Future Year Traffic Impact Analysis

Level of Service calculations for the Year 2025 conditions assumed that the existing traffic volumes as shown on Figures 3 and 4 experience an increase above the existing volumes at the established background rate. Two scenarios were examined for the year 2025 analysis. The first scenario assumes that the development has not moved forward and analyzes the scoped intersections with the background growth rate. 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.

Year 2025 without the Project, with the Background Projects

This scenario assumes that the development has not moved forward. The traffic volumes for this condition include the existing traffic, as shown on Figures 3 and 4, multiplied by the background growth rate plus the background project volumes on Figures 5 and 6. Please see Figures 13 and 14 for the traffic volumes used for this scenario. A summary of the Level of Service results is shown in the following table. This scenario allows for a future baseline to be developed sans the project trips.

Table 9- Year 2025 Levels of Service, without the Project, with the Background Projects

INTERSECTION	(S)ignalized (U)nsignalized	AM Peak Hour		PM Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS
Highway 2 & Flint Road • With Signal Retiming	S	36.2 (26.4)	D (C)	**112.6** (29.8)	**F** (C)
Highway 2 & Hilton Access	U	16.3	C	21.0	C
Highway 2 & Technology Boulevard	U	15.2	C	34.1	D

The City of Spokane has 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 9, the intersection of Highway 2 & Flint Road is anticipated to drop below an acceptable Level of Service in the PM peak hour. However, the Level of Service can be brought back to an acceptable Level of Service with a retiming of the signal at the intersection of Highway 2 & Flint Road. The assumption was made that the signal retiming improvement will carry throughout all other scenarios. All other intersections are anticipated to operate at an acceptable level of service.

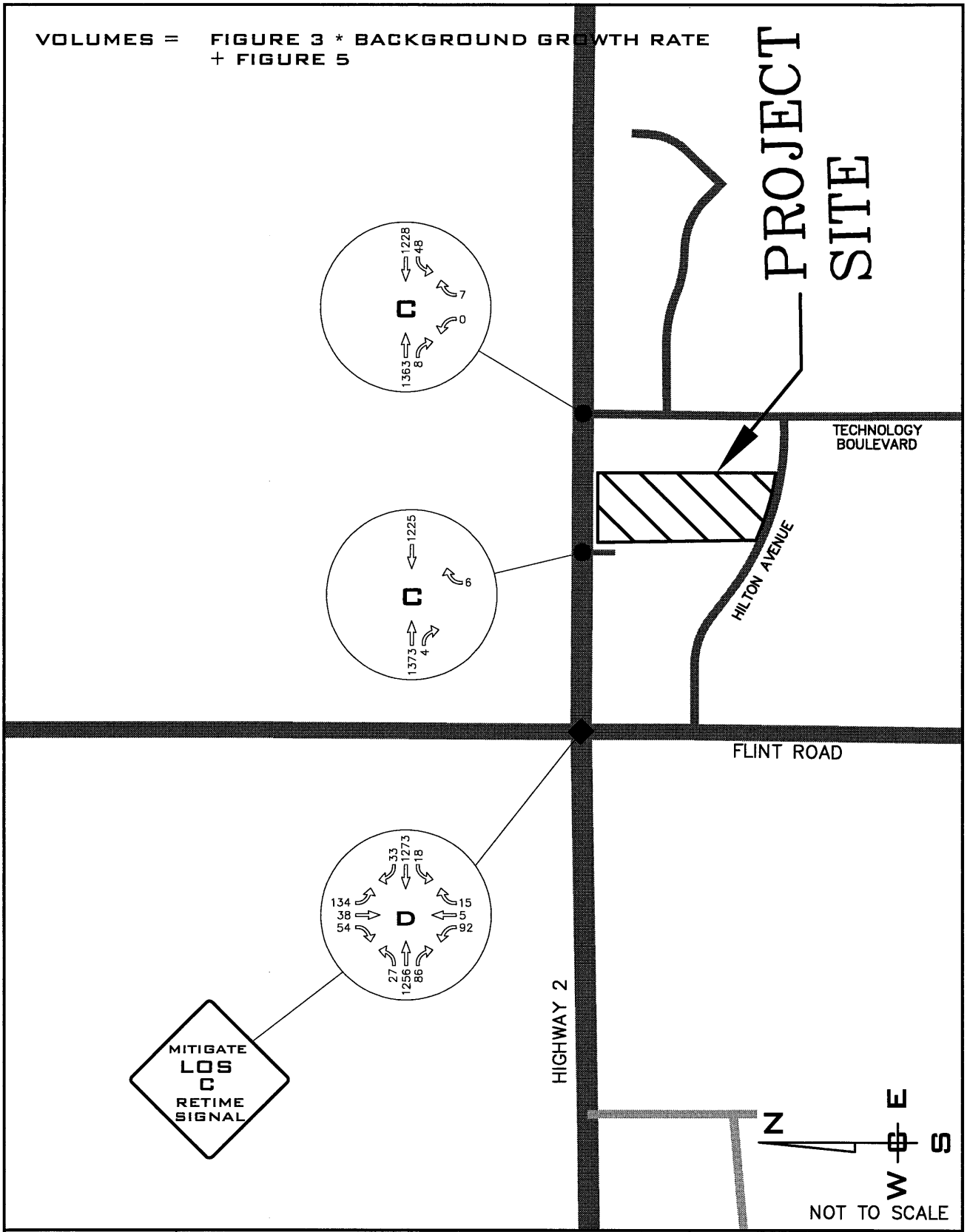

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FIGURE 13	2025 AM VOL. W-O PROJECT & LOS	

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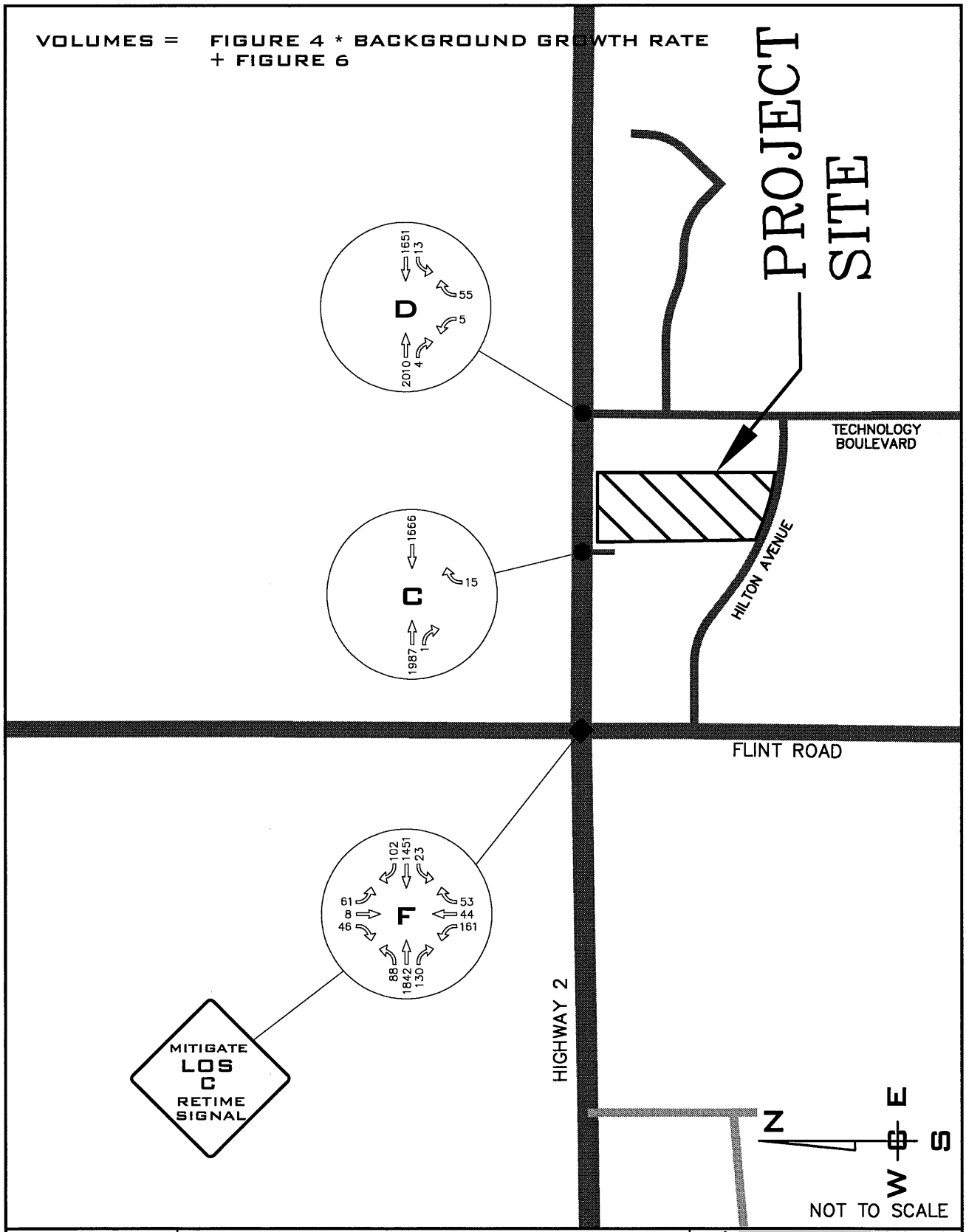

PROJ #: 19-2373 DATE: 6/25/19 DRAWN: TAE APPROVED: TRW	TRAFFIC IMPACT ANALYSIS **BUSH BSP** HIGHWAY 2 & FLINT ROAD SPOKANE, WASHINGTON	WCE WHIPPLE CONSULTING ENGINEERS CIVIL AND TRANSPORTATION ENGINEERING 21 SOUTH PINES ROAD SPOKANE VALLEY, WASHINGTON 99206 PH: 509-893-2617 FAX: 509-926-0227
FIGURE 14	2025 PM VOL. W-O PROJECT & LOS	

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Year 2025 with the Project, with the Background Projects

This scenario assumes that the development has moved forward and is added to the previously established baseline. The traffic volume for this condition includes the traffic volumes shown on Figures 13 and 14 and adds the project pass-by trips as shown on Figures 9 and 10 as well as the project new trips as shown on Figures 11 and 12. Please see Figures 15 and 16 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 2025 Levels of Service, with the Project, with the Background Projects

INTERSECTION (S)ignalized (U)nsignalized		AM Peak Hour		PM Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS
Highway 2 & Flint Road	S	27.0	C	34.2	C
Highway 2 & Hilton Access	U	19.1	C	26.4	D
Highway 2 & Technology Boulevard	U	23.2	C	47.1	E

The City of Spokane has 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 proposed project all intersections are anticipated to operate at an acceptable level of service.

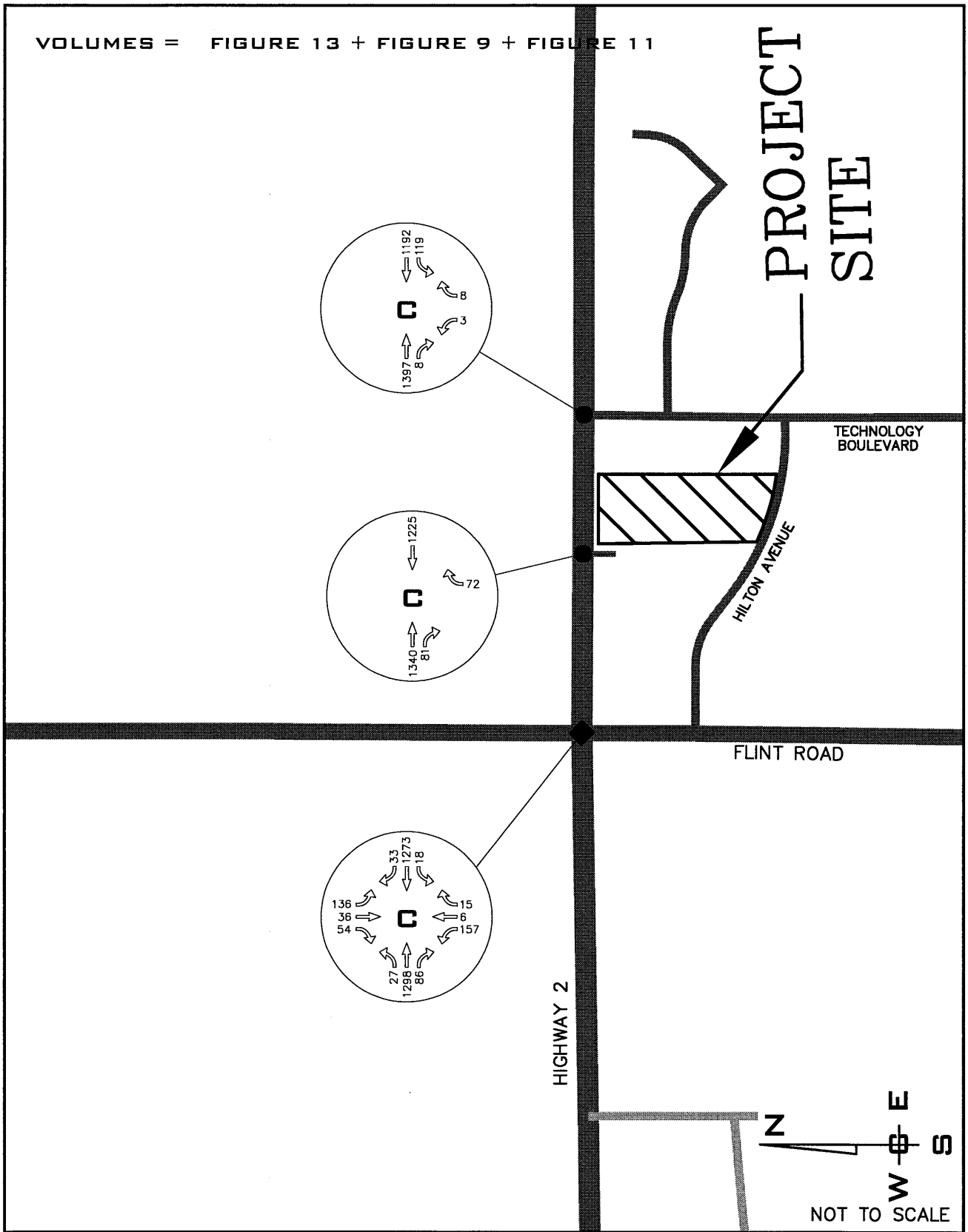

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FIGURE 15	2025 AM VOL. W- PROJECT & LOS	

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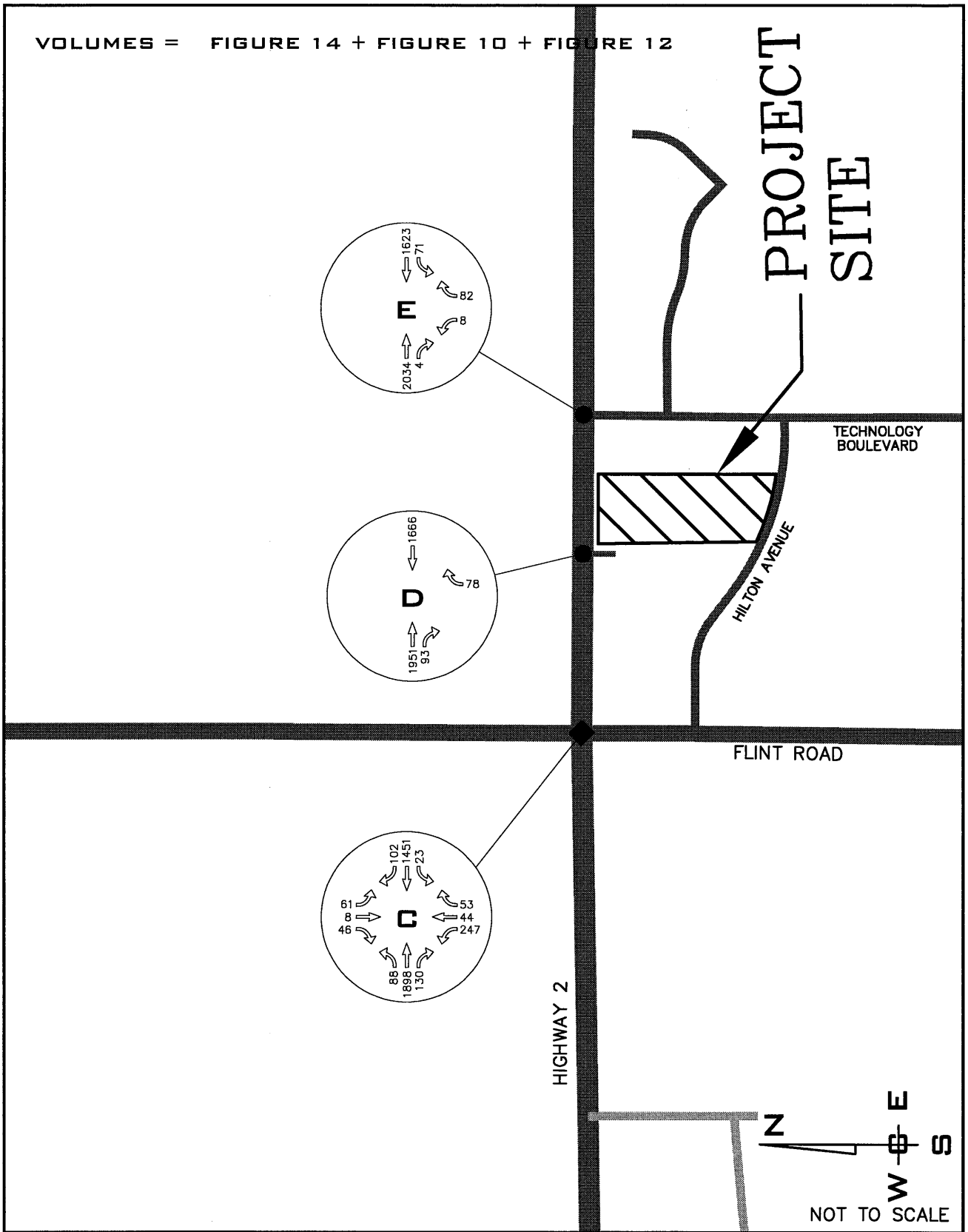


PROJ #: 19-2373 DATE: 6/25/19 DRAWN: TAE APPROVED: TRW	TRAFFIC IMPACT ANALYSIS **BUSH BSP** HIGHWAY 2 & FLINT ROAD SPOKANE, WASHINGTON	WCE WHIPPLE CONSULTING ENGINEERS CIVIL AND TRANSPORTATION ENGINEERING 21 SOUTH PINES ROAD SPOKANE VALLEY, WASHINGTON 99206 PH: 509-893-2617 FAX: 509-926-0227
FIGURE 16	2025 PM VOL. W- PROJECT & LOS	

Conclusions

This Traffic Impact Analysis (TIA) has reviewed and analyzed the study area per the scope established by the City of Spokane and WSDOT. The Level of Service analysis for the existing scenario found that the intersection of Highway 2 and Flint Road is anticipated to drop below an acceptable Level of Service during the PM peak hour for the 2025 without project scenario. However, the Level of Service can be brought back to an acceptable Level of Service for all scenarios by retiming of the signal. All other intersections are anticipated to operate at an acceptable level of service

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 degrade LOS below concurrency levels at the intersection of Highway 2 and Flint Road in both the 2025 without project scenario and the 2025 with project scenario. However, the Level of Service can be brought back to an acceptable level of service with the retiming of the signal at the intersection of Highway 2 and Flint Road. This conclusion was reached and has been documented within the body of this report.

- Under the **existing** conditions there are no intersection Level of Service deficiencies identified.

- For the **year 2025 with background without project** scenario, the Level of Service for the intersection of Highway 2 and Flint Road is anticipated to drop below an acceptable Level of Service. However, the Level of Service can be brought back to an acceptable Level of Service with the retiming of the signal. There were no other intersection Level of Service deficiencies identified.

- For the **year 2025 with background with project** scenario, with the signal retiming, there are no intersection Level of Service deficiencies identified.

Recommendations

Based upon the conclusions within this study and the assumption that as a part of routine maintenance that the City of Spokane can retime the signal at the intersection of Highway 2 and Flint Road, the proposed project is recommended to complete all required conditions of approval including frontage improvements, participate as required in the City of Spokane's traffic impact fee at the time of building permit and should be allowed to move forward without further traffic analysis.

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 and ≤ 15	Short Traffic Delays
C	>15 and ≤ 25	Average Traffic Delays
D	>25 and ≤ 35	Long Traffic Delays
E	> 35 and ≤ 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	• Nearly all drivers find freedom of operation. • Very seldom is there more than one vehicle in the queue.
B	• Some drivers begin to consider the delay an inconvenience • Occasionally there is more than one vehicle in the queue.
C	• Many times there is more than one vehicle in the queue. • Most drivers feel restricted, but not objectionably so.
D	• Often there is more than one vehicle in the queue. • Drivers feel quite restricted.
E	• 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	• 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	• Very low delay at intersection. • All signal cycles clear. • No vehicles wait through more than one signal cycle.
B	• Operating speeds beginning to be affected by other traffic. • Short traffic delays at intersections. • Higher average intersections delays resulting from more vehicles stopping.
C	• 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	• 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	• 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	• 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* THE FOLLOWING INTERSECTIONS ON SR 002

SR 002 (aka Sunset Hwy, mp 280.16 - 280.30) @ Flint Rd

SR 002 (aka Sunset Hwy, mp 280.31 - 280.35) @ Hilton Access - *No Reported Crashes*

SR 002 (aka Sunset Hwy, mp 280.46 - 280.50) @ Technology Blvd - *No Reported Crashes*

01/01/2016 - 12/31/2018

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	CITY	PRIMARY TRAFFICWAY	MILEPOST	DATE	TIME	MOST SEVERE INJURY TYPE	# INJ	# FAT	# VEH	# PEDS	# BIKES
State Route	Spokane	002	280.18	10/10/2018	17:34	Possible Injury	1	0	2	0	0
State Route	Spokane	002	280.20	01/26/2017	20:20	Possible Injury	1	0	2	0	0
State Route	Spokane	002	280.22	05/03/2016	14:30	No Apparent Injury	0	0	2	0	0
State Route	Spokane	002	280.22	05/17/2016	10:36	No Apparent Injury	0	0	2	0	0
State Route	Spokane	002	280.22	05/28/2016	01:19	No Apparent Injury	0	0	2	0	0
State Route	Spokane	002	280.22	05/22/2016	15:48	No Apparent Injury	0	0	2	0	0
State Route	Spokane	002	280.22	08/22/2016	13:17	No Apparent Injury	0	0	2	0	0
State Route	Spokane	002	280.22	08/25/2016	08:51	No Apparent Injury	0	0	2	0	0
State Route	Spokane	002	280.22	10/25/2016	19:30	Possible Injury	1	0	2	0	0
State Route	Spokane	002	280.22	11/04/2016	10:45	No Apparent Injury	0	0	2	0	0
State Route	Spokane	002	280.22	12/01/2016	17:13	No Apparent Injury	0	0	2	0	0
State Route	Spokane	002	280.22	12/26/2016	13:50	No Apparent Injury	0	0	3	0	0
State Route	Spokane	002	280.22	03/06/2017	07:27	Suspected Minor Injury	2	0	3	0	0
State Route	Spokane	002	280.22	06/06/2017	13:43	Suspected Serious Injury	3	0	3	0	0
State Route	Spokane	002	280.22	11/24/2017	10:55	No Apparent Injury	0	0	2	0	0
State Route	Spokane	002	280.22	03/16/2018	12:09	Possible Injury	1	0	2	0	0
State Route	Spokane	002	280.22	03/16/2018	03:29	Unknown	0	0	1	0	0
State Route	Spokane	002	280.22	08/21/2018	15:25	No Apparent Injury	0	0	2	0	0
State Route	Spokane	002	280.22	11/21/2018	17:08	Possible Injury	1	0	2	0	0

OFFICER REPORTED CRASHES THAT OCCURRED *at* OR *in the vicinity of* THE FOLLOWING INTERSECTIONS ON SR 002

SR 002 (aka Sunset Hwy, mp 280.16 - 280.30) @ Flint Rd

SR 002 (aka Sunset Hwy, mp 280.31 - 280.35) @ Hilton Access - *No Reported Crashes*

SR 002 (aka Sunset Hwy, mp 280.46 - 280.50) @ Technology Blvd - *No Reported Crashes*

01/01/2016 - 12/31/2018

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	CITY	PRIMARY TRAFFICWAY	MILEPOST	DATE	TIME	MOST SEVERE INJURY TYPE	# INJ	# FAT	# VEH	# PEDS	# BIKES
State Route	Spokane	002	280.23	11/29/2017	10:40	Possible Injury	1	0	2	0	0
State Route	Spokane	002	280.24	06/21/2017	10:55	Possible Injury	1	0	2	0	0
State Route	Spokane	002	280.25	10/17/2018	16:09	No Apparent Injury	0	0	3	0	0

RAW TRAFFIC COUNTS

PROJECT: WCE Bush BSP
JOB NO. 19-15
INTERSECTION: Highway 2 & Flint Road

TRAFFIC COUNT REDUCTION WORKSHEET

DATE OF COUNT: 5/16/2019
Counter: Miovision
Analyst: BNG

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

Traffic Counts & Surveys Inc.

AM PEAK HOURS

APPROACH	MOVEMENT	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	
		pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk
Eastbound	Left	0	0	4	1	5	3	6	0	1	0	4	5	8	0	5	3	5	12	5	2	5	1	6	2
	Through	199	3	182	10	183	12	233	14	278	20	239	12	229	14	208	24	167	15	188	20	178	20	186	20
	Right	13	1	5	0	10	1	14	0	11	0	23	0	14	0	11	1	21	0	13	0	16	1	14	0
	App. Total	212	4	191	11	198	16	253	14	290	20	266	17	251	14	224	28	193	27	206	22	199	22	206	22
	Pct Trucks		0.019		0.054		0.075		0.052		0.065		0.06		0.053		0.111		0.123		0.096		0.1		0.096
Westbound	Left	5	0	4	1	7	0	7	0	2	0	3	0	5	0	11	0	17	0	5	0	5	2	1	1
	Through	296	9	316	11	249	16	244	21	276	25	261	16	235	14	206	17	245	28	230	15	204	24	240	25
	Right	9	0	10	0	8	1	6	1	9	0	4	4	7	0	7	0	8	1	7	3	8	1	9	1
	App. Total	310	9	330	12	264	17	257	22	287	25	268	20	247	14	224	17	270	29	242	18	217	27	250	27
	Pct Trucks		0.028		0.035		0.06		0.079		0.08		0.069		0.054		0.071		0.097		0.069		0.111		0.097
Northbound	Left	19	2	10	1	14	2	17	0	18	0	14	3	19	2	18	1	18	2	7	0	24	1	16	2
	Through	2	0	1	1	3	1	0	0	1	0	2	1	1	0	2	0	2	0	3	0	2	0	0	0
	Right	2	0	1	1	1	0	1	1	2	0	4	0	6	0	6	0	2	0	3	0	5	0	1	0
	App. Total	23	2	12	3	18	3	18	1	21	0	20	4	26	2	26	1	22	2	13	0	31	1	17	2
	Pct Trucks		0.08		0.2		0.143		0.053		0		0.167		0.071		0.037		0.083		0		0.031		0.105
Southbound	Left	23	0	16	0	22	0	44	2	39	0	21	1	19	0	25	4	13	0	17	0	14	1	13	3
	Through	6	0	11	0	8	0	10	0	7	0	8	0	11	0	8	0	5	0	6	0	1	0	1	0
	Right	10	0	17	1	9	1	6	5	6	0	13	2	10	2	7	0	5	4	7	1	3	4	8	0
	App. Total	39	0	44	1	39	1	60	7	52	0	42	3	40	2	40	4	23	4	30	1	18	5	22	3
	Pct Trucks		0		0.022		0.025		0.104		0		0.067		0.048		0.091		0.148		0.032		0.217		0.12
Total Intersection Volume		584	15	577	27	519	37	588	44	650	45	596	44	564	32	514	50	508	62	491	41	465	55	495	54
Intersection Pct Trucks		2.5%		4.5%		6.7%		7.0%		6.5%		6.9%		5.4%		8.9%		10.9%		7.7%		10.6%		9.8%	

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
		Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped
Eastbound	Crosswalk	0	0	1	0	0	0	0	0	0	0	1	0
Westbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	Crosswalk	0	1	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	1	1	0	0	0	0	0	0	0	1	0

Bicycle 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
		bike	bike	bike	bike	bike	bike	bike	bike	bike	bike	bike	bike
Eastbound	Through												
Westbound	Through												
Northbound	Through												
Southbound	Through												
	Total	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Total One Hour Volumes		Pct Trucks
6:30 AM	2391	5.1%
6:45 AM	2487	6.2%
7:00 AM	2523	6.7%
7:15 AM	**2563**	**6.4%**
7:30 AM	2495	6.9%
7:45 AM	2370	7.9%
8:00 AM	2262	8.2%
8:15 AM	2186	9.5%
8:30 AM	2171	9.8%

PROJECT: WCE Bush BSP
JOB NO. 19-15
INTERSECTION: Highway 2 & Flint Road

Data Transfer
Intersection No. 1

DATE OF COUNT: 5/16/2019
Counter Analyst
Miovision BNG

TRAFFIC COUNT REDUCTION WORKSHEET
AM PEAK HOUR BREAKDOWN

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

Traffic Counts & Surveys Inc.

APPROACH	MOVEMENT	7:15 AM		7:30 AM		7:45 AM		8:00 AM		TOTAL	P.H.F.	Pct Trucks		App Dist
		pass	trk	pass	trk	pass	trk	pass	trk					
Eastbound	Left	6	0	1	0	4	5	8	0	24	0.67	21%		2.13%
	Through	233	14	278	20	239	12	229	14	1039	0.87	6%		92.36%
	Right	14	0	11	0	23	0	14	0	62	0.67	0%		5.51%
	App. Total	253	14	290	20	266	17	251	14	1125	0.91			
	Pct Trucks		0.052434		0.064516		0.060071		0.05283					
Westbound	Left	7	0	2	0	3	0	5	0	17	0.61	0%		1.49%
	Through	244	21	276	25	261	16	235	14	1092	0.91	7%		95.79%
	Right	6	1	9	0	4	4	7	0	31	0.86	16%		2.72%
	App. Total	257	22	287	25	268	20	247	14	1140	0.91			
	Pct Trucks		0.078853		0.080128		0.069444		0.05364					
Northbound	Left	17	0	18	0	14	3	19	2	73	0.87	7%		79.35%
	Through	0	0	1	0	2	1	1	0	5	0.42	20%		5.43%
	Right	1	1	2	0	4	0	6	0	14	0.58	7%		15.22%
	App. Total	18	1	21	0	20	4	26	2	92	0.82			
	Pct Trucks		0.052632		0		0.166667		0.071429					
Southbound	Left	44	2	39	0	21	1	19	0	126	0.68	2%		61.17%
	Through	10	0	7	0	8	0	11	0	36	0.82	0%		17.48%
	Right	6	5	6	0	13	2	10	2	44	0.73	20%		21.36%
	App. Total	60	7	52	0	42	3	40	2	206	0.77			
	Pct Trucks		0.104478		0		0.066667		0.047619					
Total Intersection Volume		588	44	650	45	596	44	564	32	**2563**	**0.92**	**6%**		
Intersection Pct Trucks			7.0%		6.5%		6.9%		5.4%					

Pedestrian Volumes

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

Bicycles Volumes

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

Notes

Miovision Vehicle classification

Passenger Vehicle	Truck Vehicle

PROJECT: WCE Bush BSP
JOB NO. 19-15
INTERSECTION: Highway 2 & Flint Road

TRAFFIC COUNT REDUCTION WORKSHEET

DATE OF COUNT: 5/16/2019
Counter: Miovision
Analyst: BNG

PM PEAK HOURS

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	
		pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk
Eastbound	Left	9	0	30	4	12	1	11	4	11	1	14	1	18	0	7	0	9	2	12	0	11	0	6	0
	Through	372	23	397	16	342	13	382	12	387	6	352	16	355	7	310	12	248	6	234	13	218	4	173	2
	Right	18	2	27	1	20	1	29	1	19	0	26	1	23	1	17	0	23	0	18	1	12	0	14	0
	App. Total	399	25	454	21	374	15	422	17	417	7	392	18	396	8	334	12	280	8	264	14	241	4	193	2
	Pct Trucks		0.059		0.044		0.039		0.039		0.017		0.044		0.02		0.035		0.028		0.05		0.016		0.01
Westbound	Left	3	0	7	1	3	0	8	0	3	0	7	1	5	0	12	0	8	0	7	0	6	1	11	0
	Through	299	11	296	9	282	5	280	12	274	8	260	1	209	5	272	7	286	5	301	3	341	6	254	2
	Right	21	4	19	2	25	2	24	0	24	0	24	1	20	1	28	0	45	2	30	0	29	1	29	0
	App. Total	323	15	322	12	310	7	312	12	301	8	291	3	234	6	312	7	339	7	338	3	376	8	294	2
	Pct Trucks		0.044		0.036		0.022		0.037		0.026		0.01		0.025		0.022		0.02		0.009		0.021		0.007
Northbound	Left	22	0	30	3	21	1	28	0	31	1	25	0	19	1	28	0	33	0	26	2	25	2	24	2
	Through	7	1	7	0	10	0	6	0	18	0	6	0	11	1	8	0	13	0	5	1	7	0	11	0
	Right	7	1	12	0	12	0	8	0	18	0	7	0	7	0	3	0	9	0	3	0	3	0	4	1
	App. Total	36	2	49	3	43	1	42	0	67	1	38	0	37	2	39	0	55	0	34	3	35	2	39	3
	Pct Trucks		0.053		0.058		0.023		0		0.015		0		0.051		0		0		0.081		0.054		0.071
Southbound	Left	9	0	11	3	13	3	9	2	15	1	20	3	13	2	11	0	7	0	11	1	4	0	16	0
	Through	7	0	2	0	2	0	2	0	2	0	10	1	4	0	0	0	5	0	4	0	4	0	5	0
	Right	8	1	6	3	4	1	9	1	10	2	8	2	6	0	3	0	9	1	6	0	4	1	3	0
	App. Total	24	1	19	6	19	4	20	3	27	3	38	6	23	2	14	0	21	1	21	1	12	1	24	0
	Pct Trucks		0.04		0.24		0.174		0.13		0.1		0.136		0.08		0		0.045		0.045		0.077		0
Total Intersection Volume		782	43	844	42	746	27	796	32	812	19	759	27	690	18	699	19	695	16	657	21	664	15	550	7
Intersection Pct Trucks		5.2%		4.7%		3.5%		3.9%		2.3%		3.4%		2.5%		2.6%		2.3%		3.1%		2.2%		1.3%	

Pedestrian Volumes

APPROACH	MOVEMENT	15 Minute Period Beginning @											
		3:30	3:45	4:00	4:15	4:30	4:45	5:00	5:15	5:30	5:45	6:00	6:15
		Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped
Eastbound	Crosswalk	0	0	0	0	0	0	0	0	0	1	0	0
Westbound	Crosswalk	1	1	2	0	0	0	0	0	0	0	0	1
Northbound	Crosswalk	2	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	3	1	2	0	0	0	0	0	0	1	0	1

Bicycle Volumes

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

Intersection Total One Hour Volumes		Pct Trucks
3:30 PM	3312	4.3%
3:45 PM	**3318**	**3.6%**
4:00 PM	3218	3.3%
4:15 PM	3153	3.0%
4:30 PM	3043	2.7%
4:45 PM	2923	2.7%
5:00 PM	2815	2.6%
5:15 PM	2786	2.5%
5:30 PM	2625	2.2%

PROJECT: WCE Bush BSP
JOB NO. 19-15
INTERSECTION: Highway 2 & Flint Road

Data Transfer
Intersection No. 1

DATE OF COUNT: 5/16/2019
Counter Analyst
Miovision BNG

TRAFFIC COUNT REDUCTION WORKSHEET
PM PEAK HOUR BREAKDOWN

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

Traffic Counts & Surveys Inc.

APPROACH	MOVEMENT	3:45 PM		4:00 PM		4:15 PM		4:30 PM		TOTAL	P.H.F.	Pct Trucks		App Dist
		pass	trk	pass	trk	pass	trk	pass	trk					
Eastbound	Left	30	4	12	1	11	4	11	1	74	0.54	14%		4.28%
	Through	397	16	342	13	382	12	387	6	1555	0.94	3%		90.04%
	Right	27	1	20	1	29	1	19	0	98	0.82	3%		5.67%
	App. Total	454	21	374	15	422	17	417	7	1727	0.91			
	Pct Trucks		0.044211		0.03856		0.038724		0.016509					
Westbound	Left	7	1	3	0	8	0	3	0	22	0.69	5%		1.71%
	Through	296	9	282	5	280	12	274	8	1166	0.96	3%		90.81%
	Right	19	2	25	2	24	0	24	0	96	0.89	4%		7.48%
	App. Total	322	12	310	7	312	12	301	8	1284	0.96			
	Pct Trucks		0.035928		0.022082		0.037037		0.02589					
Northbound	Left	30	3	21	1	28	0	31	1	115	0.87	4%		55.83%
	Through	7	0	10	0	6	0	18	0	41	0.57	0%		19.90%
	Right	12	0	12	0	8	0	18	0	50	0.69	0%		24.27%
	App. Total	49	3	43	1	42	0	67	1	206	0.76			
	Pct Trucks		0.057692		0.022727		0		0.014706					
Southbound	Left	11	3	13	3	9	2	15	1	57	0.89	16%		56.44%
	Through	2	0	2	0	2	0	2	0	8	1.00	0%		7.92%
	Right	6	3	4	1	9	1	10	2	36	0.75	19%		35.64%
	App. Total	19	6	19	4	20	3	27	3	101	0.84			
	Pct Trucks		0.24		0.173913		0.130435		0.1					
Total Intersection Volume		844	42	746	27	796	32	812	19	**3318**	**0.94**	**4%**		
Intersection Pct Trucks			4.7%		3.5%		3.9%		2.3%					

Pedestrian Volumes

APPROACH	MOVEMENT	3:45 Ped	4:00 Ped	4:15 Ped	4:30 Ped	Confli. Ped TOTAL
Eastbound	Crosswalk	0	0	0	0	0
Westbound	Crosswalk	1	2	0	0	3
Northbound	Crosswalk	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0
	Total	1	2	0	0	

Bicycles Volumes

APPROACH	MOVEMENT	3:45 bike	4:00 bike	4:15 bike	4:30 bike	Confli. Bike TOTAL
Eastbound	Through					0
Westbound	Through					0
Northbound	Through					0
Southbound	Through					0
	Total	0	0	0	0	

Notes

Miovision Vehicle classification

Passenger Vehicle	Truck Vehicle

PROJECT: WCE Bush BSP
JOB NO. 19-15
INTERSECTION: Highway 2 & Hilton Access

TRAFFIC COUNT REDUCTION WORKSHEET

DATE OF COUNT: 5/21/2019
Counter: Miovision
Analyst: BNG

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

Traffic Counts & Surveys Inc.

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	
		pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk
Eastbound	Left	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0
	Through	247	13	211	17	195	11	298	21	309	25	274	16	203	18	212	16	208	16	179	28	198	15	176	26
	Right	0	0	0	0	0	0	1	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	App. Total	248	13	211	17	195	11	299	21	311	26	274	16	203	18	212	16	208	20	179	28	198	15	176	26
	Pct Trucks		0.05		0.075		0.053		0.066		0.077		0.055		0.081		0.07		0.088		0.135		0.07		0.129
Westbound	Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Through	311	11	300	7	252	14	253	15	241	21	227	24	189	26	217	43	236	19	223	21	176	19	181	20
	Right	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	App. Total	311	11	300	7	252	14	253	15	241	21	227	24	189	26	217	43	236	19	223	21	176	19	181	20
	Pct Trucks		0.034		0.023		0.053		0.056		0.08		0.096		0.121		0.165		0.075		0.086		0.097		0.1
Northbound	Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Through	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Right	1	0	0	1	1	0	1	0	0	0	3	1	2	0	1	0	3	0	2	0	0	0	0	0
	App. Total	1	0	0	1	1	0	1	0	0	0	3	1	2	0	1	0	3	0	2	0	0	0	0	0
	Pct Trucks		0		1		0		0				0.25		0		0		0		0				
Southbound	Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Through	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Right	0	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
	Pct Trucks																								
Total Intersection Volume		560	24	511	25	448	25	553	36	552	47	504	41	394	44	430	59	447	39	404	49	374	34	357	46
Intersection Pct Trucks		4.1%		4.7%		5.3%		6.1%		7.8%		7.5%		10.0%		12.1%		8.0%		10.8%		8.3%		11.4%	

Pedestrian Volumes

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
		Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped
Eastbound	Crosswalk	0	0	0	0	0	0	0	1	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	1	0	0	0	0

Bicycle Volumes

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
		bike	bike	bike	bike	bike	bike	bike	bike	bike	bike	bike	bike
Eastbound	Through												
Westbound	Through												
Northbound	Through												
Southbound	Through												
	Total	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Total One Hour Volumes		Pct Trucks
6:30 AM	2182	5.0%
6:45 AM	2197	6.1%
7:00 AM	**2206**	**6.8%**
7:15 AM	2171	7.7%
7:30 AM	2071	9.2%
7:45 AM	1958	9.3%
8:00 AM	1866	10.2%
8:15 AM	1836	9.9%
8:30 AM	1750	9.6%

PROJECT: WCE Bush BSP
JOB NO. 19-15
INTERSECTION: Highway 2 & Hilton Access

Data Transfer
Intersection No. 1

DATE OF COUNT: 5/21/2019
Counter Analyst
Miovision BNG

TRAFFIC COUNT REDUCTION WORKSHEET
AM PEAK HOUR BREAKDOWN

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

Traffic Counts & Surveys Inc.

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					
Eastbound	Left	0	0	0	0	0	0	0	0	0				0.00%
	Through	195	11	298	21	309	25	274	16	1149	0.86	6%		99.65%
	Right	0	0	1	0	2	1	0	0	4	0.33	25%		0.35%
	App. Total	195	11	299	21	311	26	274	16	1153	0.86			
	Pct Trucks		0.053398		0.065625		0.077151		0.055172					
Westbound	Left	0	0	0	0	0	0	0	0	0				0.00%
	Through	252	14	253	15	241	21	227	24	1047	0.98	7%		100.00%
	Right	0	0	0	0	0	0	0	0	0				0.00%
	App. Total	252	14	253	15	241	21	227	24	1047	0.98			
	Pct Trucks		0.052632		0.05597		0.080153		0.095618					
Northbound	Left	0	0	0	0	0	0	0	0	0				0.00%
	Through	0	0	0	0	0	0	0	0	0				0.00%
	Right	1	0	1	0	0	0	3	1	6	0.38	17%		100.00%
	App. Total	1	0	1	0	0	0	3	1	6	0.38			
	Pct Trucks		0		0				0.25					
Southbound	Left	0	0	0	0	0	0	0	0	0				
	Through	0	0	0	0	0	0	0	0	0				
	Right	0	0	0	0	0	0	0	0	0				
	App. Total	0	0	0	0	0	0	0	0	0				
	Pct Trucks													
Total Intersection Volume		448	25	553	36	552	47	504	41	**2206**	**0.92**	**7%**		
Intersection Pct Trucks			5.3%		6.1%		7.8%		7.5%					

Pedestrian Volumes

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

Bicycles Volumes

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

Notes

Miovision Vehicle classification	
Passenger Vehicle	Truck Vehicle

PROJECT: WCE Bush BSP
JOB NO. 19-15
INTERSECTION: Highway 2 & Hilton Access

TRAFFIC COUNT REDUCTION WORKSHEET

DATE OF COUNT: 5/21/2019
Counter: Miovision
Analyst: BNG

PM PEAK HOURS

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	
		pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk
Eastbound	Left	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0
	Through	310	21	410	20	419	14	410	18	387	16	413	15	352	12	327	14	276	7	253	17	228	8	217	15
	Right	2	0	0	0	1	0	0	0	0	0	0	0	2	0	1	0	2	0	1	0	3	0	6	0
	App. Total	312	21	410	20	420	14	410	18	388	16	413	15	354	12	328	14	278	10	254	17	231	8	223	15
	Pct Trucks		0.063		0.047		0.032		0.042		0.04		0.035		0.033		0.041		0.035		0.063		0.033		0.063
Westbound	Left	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Through	313	13	288	12	322	24	326	11	320	9	350	7	308	7	376	3	352	5	270	4	293	9	240	3
	Right	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	App. Total	313	13	289	12	322	24	326	11	320	9	350	7	308	7	376	3	352	5	270	4	293	9	240	3
	Pct Trucks		0.04		0.04		0.069		0.033		0.027		0.02		0.022		0.008		0.014		0.015		0.03		0.012
Northbound	Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
	Through	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Right	2	0	1	0	3	0	4	0	4	0	3	0	1	0	3	0	6	0	2	0	0	0	1	0
	App. Total	2	0	1	0	3	0	4	0	4	0	3	0	1	0	3	0	6	0	2	0	1	0	1	0
	Pct Trucks		0		0		0		0		0		0		0		0		0		0		0		0
Southbound	Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Through	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Right	0	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
	Pct Trucks																								
Total Intersection Volume		627	34	700	32	745	38	740	29	712	25	766	22	663	19	707	17	636	15	526	21	525	17	464	18
Intersection Pct Trucks		5.1%		4.4%		4.9%		3.8%		3.4%		2.8%		2.8%		2.3%		2.3%		3.8%		3.1%		3.7%	

Pedestrian Volumes

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

Bicycle Volumes

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

Intersection Total		Pct
One Hour Volumes		Trucks
3:30 PM	2945	4.5%
3:45 PM	3021	4.1%
4:00 PM	**3077**	**3.7%**
4:15 PM	2976	3.2%
4:30 PM	2931	2.8%
4:45 PM	2845	2.6%
5:00 PM	2604	2.8%
5:15 PM	2464	2.8%
5:30 PM	2222	3.2%

PROJECT: WCE Bush BSP
JOB NO. 19-15
INTERSECTION: Highway 2 & Hilton Access

Data Transfer
Intersection No. 1

DATE OF COUNT: 5/21/2019
Counter Analyst
Miovision BNG

TRAFFIC COUNT REDUCTION WORKSHEET
PM PEAK HOUR BREAKDOWN

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

Traffic Counts & Surveys Inc.

APPROACH	MOVEMENT	4:00 PM		4:15 PM		4:30 PM		4:45 PM		TOTAL	P.H.F.	Pct Trucks		App Dist
		pass	trk	pass	trk	pass	trk	pass	trk					
Eastbound	Left	0	0	0	0	1	0	0	0	1	0.25	0%		0.06%
	Through	419	14	410	18	387	16	413	15	1692	0.98	4%		99.88%
	Right	1	0	0	0	0	0	0	0	1	0.25	0%		0.06%
	App. Total	420	14	410	18	388	16	413	15	1694	0.98			
	Pct Trucks		0.032258		0.042056		0.039604		0.035047					
Westbound	Left	0	0	0	0	0	0	0	0	0				0.00%
	Through	322	24	326	11	320	9	350	7	1369	0.96	4%		100.00%
	Right	0	0	0	0	0	0	0	0	0				0.00%
	App. Total	322	24	326	11	320	9	350	7	1369	0.96			
	Pct Trucks		0.069364		0.032641		0.027356		0.019608					
Northbound	Left	0	0	0	0	0	0	0	0	0				0.00%
	Through	0	0	0	0	0	0	0	0	0				0.00%
	Right	3	0	4	0	4	0	3	0	14	0.88	0%		100.00%
	App. Total	3	0	4	0	4	0	3	0	14	0.88			
	Pct Trucks		0		0		0		0					
Southbound	Left	0	0	0	0	0	0	0	0	0				
	Through	0	0	0	0	0	0	0	0	0				
	Right	0	0	0	0	0	0	0	0	0				
	App. Total	0	0	0	0	0	0	0	0	0				
	Pct Trucks													
Total Intersection Volume		745	38	740	29	712	25	766	22	**3077**	**0.98**	**4%**		
Intersection Pct Trucks			4.9%		3.8%		3.4%		2.8%					

Pedestrian Volumes

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

Bicycles Volumes

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

Notes

Miovision Vehicle classification

Passenger Vehicle	Truck Vehicle

PROJECT: WCE Bush BSP
JOB NO. 19-15
INTERSECTION: Highway 2 & Technology Blvd

TRAFFIC COUNT REDUCTION WORKSHEET

Traffic Counts & Surveys Inc.
Phone: (509) 951-1851
email: beng@trfcnts.com

DATE OF COUNT: 5/21/2019
Counter: Miovision
Analyst: BNG

AM PEAK HOURS

		15 Minute Period Beginning @																							
APPROACH	MOVEMENT	6:30 AM		6:45 AM		7:00 AM		7:15 AM		7:30 AM		7:45 AM		8:00 AM		8:15 AM		8:30 AM		8:45 AM		9:00 AM		9:15 AM	
		pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk
Eastbound	Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0
	Through	243	12	217	20	191	11	296	20	315	24	267	16	207	17	212	17	205	18	181	28	195	13	171	26
	Right	1	0	1	0	0	0	2	0	0	0	6	0	0	0	3	0	3	0	0	0	2	0	0	0
	App. Total	244	12	218	20	191	11	298	20	315	24	273	16	207	17	215	17	208	23	181	28	197	13	171	26
	Pct Trucks		0.047		0.084		0.054		0.063		0.071		0.055		0.076		0.073		0.1		0.134		0.062		0.132
Westbound	Left	4	0	4	0	8	1	10	0	9	0	17	0	20	0	7	0	7	0	8	0	4	0	4	0
	Through	321	10	303	7	250	14	255	16	243	21	226	24	188	28	221	41	232	21	213	22	175	18	174	20
	Right	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	App. Total	325	10	307	7	258	15	265	16	252	21	243	24	208	28	228	41	239	21	221	22	179	18	178	20
	Pct Trucks		0.03		0.022		0.055		0.057		0.077		0.09		0.119		0.152		0.081		0.091		0.091		0.101
Northbound	Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Through	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Right	0	0	0	0	2	0	2	0	1	0	2	0	6	0	0	0	3	0	1	0	2	0	2	0
	App. Total	0	0	0	0	2	0	2	0	1	0	2	0	6	0	0	0	3	0	1	0	2	0	2	0
	Pct Trucks						0		0		0		0		0				0		0		0		0
Southbound	Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Through	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Right	0	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
	Pct Trucks																								
Total Intersection Volume		569	22	525	27	451	26	565	36	568	45	518	40	421	45	443	58	450	44	403	50	378	31	351	46
Intersection Pct Trucks		3.7%		4.9%		5.5%		6.0%		7.3%		7.2%		9.7%		11.6%		8.9%		11.0%		7.6%		11.6%	

Pedestrian Volumes

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

Intersection Total		Pct
One Hour Volumes		Trucks
6:30 AM	2221	5.0%
6:45 AM	2243	6.0%
7:00 AM	**2249**	**6.5%**
7:15 AM	2238	7.4%
7:30 AM	2138	8.8%
7:45 AM	2019	9.3%
8:00 AM	1914	10.3%
8:15 AM	1857	9.9%
8:30 AM	1753	9.8%

PROJECT: WCE Bush BSP
JOB NO. 19-15
INTERSECTION: Highway 2 & Technology Blvd

Data Transfer
Intersection No. 1

DATE OF COUNT: 5/21/2019
Counter Analyst
Miovision BNG

TRAFFIC COUNT REDUCTION WORKSHEET
AM PEAK HOUR BREAKDOWN

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

Traffic Counts & Surveys Inc.

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					
Eastbound	Left	0	0	0	0	0	0	0	0	0				0.00%
	Through	191	11	296	20	315	24	267	16	1140	0.84	6%		99.30%
	Right	0	0	2	0	0	0	6	0	8	0.33	0%		0.70%
	App. Total	191	11	298	20	315	24	273	16	1148	0.85			
	Pct Trucks		0.054455		0.062893		0.070796		0.055363					
Westbound	Left	8	1	10	0	9	0	17	0	45	0.66	2%		4.11%
	Through	250	14	255	16	243	21	226	24	1049	0.97	7%		95.89%
	Right	0	0	0	0	0	0	0	0	0				0.00%
	App. Total	258	15	265	16	252	21	243	24	1094	0.97			
	Pct Trucks		0.054945		0.05694		0.076923		0.089888					
Northbound	Left	0	0	0	0	0	0	0	0	0				0.00%
	Through	0	0	0	0	0	0	0	0	0				0.00%
	Right	2	0	2	0	1	0	2	0	7	0.88	0%		100.00%
	App. Total	2	0	2	0	1	0	2	0	7	0.88			
	Pct Trucks		0		0		0		0					
Southbound	Left	0	0	0	0	0	0	0	0	0				
	Through	0	0	0	0	0	0	0	0	0				
	Right	0	0	0	0	0	0	0	0	0				
	App. Total	0	0	0	0	0	0	0	0	0				
	Pct Trucks													
Total Intersection Volume		451	26	565	36	568	45	518	40	**2249**	**0.92**	**7%**		
Intersection Pct Trucks			5.5%		6.0%		7.3%		7.2%					

Pedestrian Volumes

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

Bicycles Volumes

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

Notes

Miovision Vehicle classification	
Passenger Vehicle	Truck Vehicle

PROJECT: WCE Bush BSP
JOB NO. 19-15
INTERSECTION: Highway 2 & Technology Blvd

TRAFFIC COUNT REDUCTION WORKSHEET

DATE OF COUNT: 5/21/2019
Counter: Miovision
Analyst: BNG

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

Traffic Counts & Surveys Inc.

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	
		pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk
Eastbound	Left	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3	0	0	0	0	0	0
	Through	308	21	403	20	428	15	419	20	380	17	419	16	357	12	323	11	282	10	252	16	231	8	222	13
	Right	0	0	0	0	3	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	App. Total	308	21	403	20	431	15	420	20	380	17	420	16	357	12	324	11	282	13	252	16	231	8	222	13
	Pct Trucks		0.064		0.047		0.034		0.045		0.043		0.037		0.033		0.033		0.044		0.06		0.033		0.055
Westbound	Left	2	1	4	0	2	0	1	0	4	0	5	0	2	0	2	0	3	0	3	0	0	0	2	0
	Through	315	13	291	12	317	20	321	11	315	9	355	7	300	9	363	5	352	6	271	3	291	8	238	3
	Right	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	App. Total	317	14	295	12	319	20	322	11	319	9	360	7	302	9	365	5	355	6	274	3	291	8	240	3
	Pct Trucks		0.042		0.039		0.059		0.033		0.027		0.019		0.029		0.014		0.017		0.011		0.027		0.012
Northbound	Left	0	0	0	0	1	0	1	0	0	0	3	0	2	0	2	0	1	0	1	0	0	0	0	0
	Through	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Right	6	0	7	0	16	0	10	0	11	1	14	0	26	0	15	0	7	0	5	0	2	0	3	0
	App. Total	6	0	7	0	17	0	11	0	11	1	17	0	28	0	17	0	8	0	6	0	2	0	3	0
	Pct Trucks		0		0		0		0		0.083		0		0		0		0		0		0		0
Southbound	Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Through	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Right	0	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
	Pct Trucks																								
Total Intersection Volume		631	35	705	32	767	35	753	31	710	27	797	23	687	21	706	16	645	19	532	19	524	16	465	16
Intersection Pct Trucks		5.3%		4.3%		4.4%		4.0%		3.7%		2.8%		3.0%		2.2%		2.9%		3.4%		3.0%		3.3%	

Pedestrian Volumes

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

Bicycle Volumes

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

Intersection Total		Pct
One Hour Volumes		Trucks
3:30 PM	2989	4.4%
3:45 PM	3060	4.1%
4:00 PM	**3143**	**3.7%**
4:15 PM	3049	3.3%
4:30 PM	2987	2.9%
4:45 PM	2914	2.7%
5:00 PM	2645	2.8%
5:15 PM	2477	2.8%
5:30 PM	2236	3.1%

PROJECT: WCE Bush BSP
JOB NO. 19-15
INTERSECTION: Highway 2 & Technology Blvd

Data Transfer
Intersection No. 1

DATE OF COUNT: 5/21/2019
Counter Analyst
Miovision BNG

TRAFFIC COUNT REDUCTION WORKSHEET
PM PEAK HOUR BREAKDOWN

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

Traffic Counts & Surveys Inc.

APPROACH	MOVEMENT	4:00 PM		4:15 PM		4:30 PM		4:45 PM		TOTAL	P.H.F.	Pct Trucks		App Dist
		pass	trk	pass	trk	pass	trk	pass	trk					
Eastbound	Left	0	0	0	0	0	0	1	0	1	0.25	0%		0.06%
	Through	428	15	419	20	380	17	419	16	1714	0.97	4%		99.71%
	Right	3	0	1	0	0	0	0	0	4	0.33	0%		0.23%
	App. Total	431	15	420	20	380	17	420	16	1719	0.96			
	Pct Trucks		0.033632		0.045455		0.042821		0.036697					
Westbound	Left	2	0	1	0	4	0	5	0	12	0.60	0%		0.88%
	Through	317	20	321	11	315	9	355	7	1355	0.94	3%		99.12%
	Right	0	0	0	0	0	0	0	0	0				0.00%
	App. Total	319	20	322	11	319	9	360	7	1367	0.93			
	Pct Trucks		0.058997		0.033033		0.027439		0.019074					
Northbound	Left	1	0	1	0	0	0	3	0	5	0.42	0%		8.77%
	Through	0	0	0	0	0	0	0	0	0				0.00%
	Right	16	0	10	0	11	1	14	0	52	0.81	2%		91.23%
	App. Total	17	0	11	0	11	1	17	0	57	0.84			
	Pct Trucks		0		0		0.083333		0					
Southbound	Left	0	0	0	0	0	0	0	0	0				
	Through	0	0	0	0	0	0	0	0	0				
	Right	0	0	0	0	0	0	0	0	0				
	App. Total	0	0	0	0	0	0	0	0	0				
	Pct Trucks													
Total Intersection Volume		767	35	753	31	710	27	797	23	**3143**	**0.96**	**4%**		
Intersection Pct Trucks			4.4%		4.0%		3.7%		2.8%					

Pedestrian Volumes

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

Bicycles Volumes

APPROACH	MOVEMENT	4:00 bike	4:15 bike	4:30 bike	4:45 bike	Confli. Bike TOTAL
Eastbound	Through					0
Westbound	Through					0
Northbound	Through					0
Southbound	Through					0
	Total	0	0	0	0	

Notes

Miovision Vehicle classification	
Passenger Vehicle	Truck Vehicle

BACKGROUND PROJECTS

Original Background Projects

INTERSECTION: Highway 2 & Flint Road
AM PEAK HOUR

Background Trips	Hayden Homes	Hunters Crossing (North)	Hunters Crossing (South)	Project Rose	Sekani X Pointe	Casino Phase 1A	North 40	Total
EB LT	0	0	0	0	0	2	0	2
EB THRU	33	24	34	0	10	43	9	153
EB RT	3	2	3	0	2	9	1	20
WB LT	0	0	0	0	0	0	0	0
WB THRU	11	9	11	3	5	57	18	114
WB RT	0	0	0	0	0	0	0	0
NB LT	1	0	1	0	1	12	0	15
NB THRU	0	0	0	0	0	0	0	0
NB RT	0	0	0	0	0	0	0	0
SB LT	0	0	0	0	0	0	0	0
SB THRU	0	0	0	0	0	0	0	0
SB RT	0	0	0	3	0	2	2	7

Original Background Projects

INTERSECTION: Highway 2 & Hilton Access
AM PEAK HOUR

Background	Hayden	Hunters Crossing	Hunters Crossing	Project	Sekani	Casino	North	
Trips	Homes	(North)	(South)	Rose	X Pointe	Phase 1A	40	Total
EB LT	0	0	0	0	0	0	0	0
EB THRU	33	24	34	0	10	43	9	153
EB RT	0	0	0	0	0	0	0	0
WB LT	0	0	0	0	0	0	0	0
WB THRU	11	9	11	3	5	57	18	114
WB RT	0	0	0	0	0	0	0	0
NB LT	0	0	0	0	0	0	0	0
NB THRU	0	0	0	0	0	0	0	0
NB RT	0	0	0	0	0	0	0	0
SB LT	0	0	0	0	0	0	0	0
SB THRU	0	0	0	0	0	0	0	0
SB RT	0	0	0	0	0	0	0	0

Original Background Projects

INTERSECTION: Highway 2 & Technology Boulevard
AM PEAK HOUR

Background Trips	Hayden Homes	Hunters Crossing (North)	Hunters Crossing (South)	Project Rose	Sekani X Pointe	Casino Phase 1A	North 40	Total
EB LT	0	0	0	0	0	0	0	0
EB THRU	33	24	34	0	10	43	9	153
EB RT	0	0	0	0	0	0	0	0
WB LT	0	0	0	0	0	0	0	0
WB THRU	11	9	11	3	5	57	18	114
WB RT	0	0	0	0	0	0	0	0
NB LT	0	0	0	0	0	0	0	0
NB THRU	0	0	0	0	0	0	0	0
NB RT	0	0	0	0	0	0	0	0
SB LT	0	0	0	0	0	0	0	0
SB THRU	0	0	0	0	0	0	0	0
SB RT	0	0	0	0	0	0	0	0

Original Background Projects

INTERSECTION: Highway 2 & Flint Road
PM PEAK HOUR

Background Trips	Hayden Homes	Hunters Crossing (North)	Hunters Crossing (South)	Project Rose	Sekani X Pointe	Casino Phase 1A	North 40	Total
EB LT	0	0	0	3	0	3	3	9
EB THRU	19	14	19	3	10	70	56	191
EB RT	1	1	1	0	1	15	7	26
WB LT	0	0	0	0	0	0	0	0
WB THRU	33	24	34	3	9	76	34	213
WB RT	0	0	0	0	0	0	0	0
NB LT	3	2	3	0	1	17	13	39
NB THRU	0	0	0	0	0	0	0	0
NB RT	0	0	0	0	0	0	0	0
SB LT	0	0	0	0	0	0	0	0
SB THRU	0	0	0	0	0	0	0	0
SB RT	0	0	0	3	0	3	2	8

Original Background Projects

INTERSECTION: Highway 2 & Hilton Access
PM PEAK HOUR

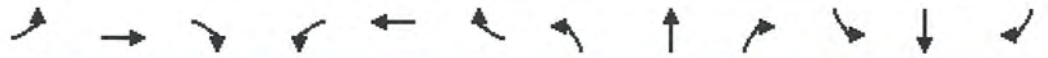
Background	Hayden	Hunters Crossing	Hunters Crossing	Project	Sekani	Casino	North	
Trips	Homes	(North)	(South)	Rose	X Pointe	Phase 1A	40	Total
EB LT	0	0	0	0	0	0	0	0
EB THRU	19	14	19	3	10	70	56	191
EB RT	0	0	0	0	0	0	0	0
WB LT	0	0	0	0	0	0	0	0
WB THRU	33	24	34	3	9	76	34	213
WB RT	0	0	0	0	0	0	0	0
NB LT	0	0	0	0	0	0	0	0
NB THRU	0	0	0	0	0	0	0	0
NB RT	0	0	0	0	0	0	0	0
SB LT	0	0	0	0	0	0	0	0
SB THRU	0	0	0	0	0	0	0	0
SB RT	0	0	0	0	0	0	0	0

Original Background Projects

INTERSECTION: Highway 2 & Technology Boulevard
PM PEAK HOUR

Background Trips	Hayden Homes	Hunters Crossing (North)	Hunters Crossing (South)	Project Rose	Sekani X Pointe	Casino Phase 1A	North 40	Total
EB LT	0	0	0	0	0	0	0	0
EB THRU	19	14	19	3	10	70	56	191
EB RT	0	0	0	0	0	0	0	0
WB LT	0	0	0	0	0	0	0	0
WB THRU	33	24	34	3	9	76	34	213
WB RT	0	0	0	0	0	0	0	0
NB LT	0	0	0	0	0	0	0	0
NB THRU	0	0	0	0	0	0	0	0
NB RT	0	0	0	0	0	0	0	0
SB LT	0	0	0	0	0	0	0	0
SB THRU	0	0	0	0	0	0	0	0
SB RT	0	0	0	0	0	0	0	0

LEVEL OF SERVICE
CALCULATIONS
AM & PM EXISTING CONDITIONS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	1039	62	17	1092	31	73	5	14	126	36	44
Future Volume (vph)	24	1039	62	17	1092	31	73	5	14	126	36	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1492	3406	1615	3502	3374	1392	3273	1583	1509	1770	1570	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1492	3406	1615	3502	3374	1392	3273	1583	1509	1770	1570	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	26	1129	67	18	1187	34	79	5	15	137	39	48
RTOR Reduction (vph)	0	0	34	0	0	10	0	0	14	0	34	0
Lane Group Flow (vph)	26	1129	33	18	1187	24	79	5	1	137	53	0
Heavy Vehicles (%)	21%	6%	0%	0%	7%	16%	7%	20%	7%	2%	0%	20%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	
Permitted Phases			2			6			8			
Actuated Green, G (s)	3.5	36.3	43.9	5.4	38.2	62.7	7.6	2.6	8.0	24.5	19.5	
Effective Green, g (s)	3.5	36.3	43.9	5.4	38.2	62.7	7.6	2.6	8.0	24.5	19.5	
Actuated g/C Ratio	0.04	0.41	0.49	0.06	0.43	0.71	0.09	0.03	0.09	0.28	0.22	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.4	3.0	3.0	2.4	
Lane Grp Cap (vph)	58	1392	889	212	1451	1061	280	46	220	488	344	
v/s Ratio Prot	c0.02	0.33	0.00	0.01	c0.35	0.01	0.02	0.00	0.00	c0.08	c0.03	
v/s Ratio Perm			0.02			0.01			0.00			
v/c Ratio	0.45	0.81	0.04	0.08	0.82	0.02	0.28	0.11	0.01	0.28	0.16	
Uniform Delay, d1	41.7	23.2	11.6	39.4	22.2	3.9	38.0	42.0	36.8	25.2	28.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.4	5.2	0.0	0.2	5.2	0.0	0.6	0.7	0.0	0.3	0.1	
Delay (s)	47.1	28.4	11.6	39.5	27.5	3.9	38.6	42.7	36.8	25.6	28.1	
Level of Service	D	C	B	D	C	A	D	D	D	C	C	
Approach Delay (s)		27.9			27.0			38.5			26.6	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	27.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	88.8	Sum of lost time (s)	20.0
Intersection Capacity Utilization	57.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱		↑↑		↱
Traffic Vol, veh/h	1149	4	0	1047	0	6
Future Vol, veh/h	1149	4	0	1047	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	Yield
Storage Length	-	185	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	6	25	0	7	0	17
Mvmt Flow	1249	4	0	1138	0	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	-	625
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.24
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.47
Pot Cap-1 Maneuver	-	0	0	-	0	393
Stage 1	-	0	0	-	0	-
Stage 2	-	0	0	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	-	393
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	14.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	393	-	-
HCM Lane V/C Ratio	0.017	-	-
HCM Control Delay (s)	14.3	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1140	8	45	1049	0	7
Future Vol, veh/h	1140	8	45	1049	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	6	0	2	7	0	0
Mvmt Flow	1239	9	49	1140	0	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1248	0	1912	624
Stage 1	-	-	-	-	1244	-
Stage 2	-	-	-	-	668	-
Critical Hdwy	-	-	4.14	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.22	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	553	-	61	433
Stage 1	-	-	-	-	239	-
Stage 2	-	-	-	-	477	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	553	-	56	433
Mov Cap-2 Maneuver	-	-	-	-	164	-
Stage 1	-	-	-	-	239	-
Stage 2	-	-	-	-	435	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	13.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	433	-	-	553	-
HCM Lane V/C Ratio	0.018	-	-	0.088	-
HCM Control Delay (s)	13.5	-	-	12.1	-
HCM Lane LOS	B	-	-	B	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	1555	98	22	1166	96	115	41	50	57	8	36
Future Volume (vph)	74	1555	98	22	1166	96	115	41	50	57	8	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.88	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1583	3505	1568	3335	3505	1553	3367	1900	1615	1556	1447	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1583	3505	1568	3335	3505	1553	3367	1900	1615	1556	1447	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	79	1654	104	23	1240	102	122	44	53	61	9	38
RTOR Reduction (vph)	0	0	45	0	0	45	0	0	43	0	34	0
Lane Group Flow (vph)	79	1654	59	23	1240	57	122	44	10	61	13	0
Heavy Vehicles (%)	14%	3%	3%	5%	3%	4%	4%	0%	0%	16%	0%	19%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	
Permitted Phases			2			6			8			
Actuated Green, G (s)	8.4	36.8	47.4	7.6	36.0	46.8	10.6	7.9	15.5	10.8	8.1	
Effective Green, g (s)	8.4	36.8	47.4	7.6	36.0	46.8	10.6	7.9	15.5	10.8	8.1	
Actuated g/C Ratio	0.10	0.44	0.57	0.09	0.43	0.56	0.13	0.10	0.19	0.13	0.10	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.4	3.0	3.0	2.4	
Lane Grp Cap (vph)	160	1552	988	305	1518	968	429	180	398	202	141	
v/s Ratio Prot	c0.05	c0.47	0.01	0.01	0.35	0.01	0.04	c0.02	0.00	c0.04	0.01	
v/s Ratio Perm			0.03			0.03			0.00			
v/c Ratio	0.49	1.07	0.06	0.08	0.82	0.06	0.28	0.24	0.02	0.30	0.09	
Uniform Delay, d1	35.3	23.1	7.9	34.5	20.7	8.2	32.8	34.8	27.6	32.7	34.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.4	42.6	0.0	0.1	5.0	0.0	0.4	0.5	0.0	0.8	0.2	
Delay (s)	37.7	65.8	8.0	34.6	25.6	8.2	33.2	35.3	27.6	33.6	34.3	
Level of Service	D	E	A	C	C	A	C	D	C	C	C	
Approach Delay (s)		61.3			24.5			32.3			33.9	
Approach LOS		E			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	44.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	83.1	Sum of lost time (s)	20.0
Intersection Capacity Utilization	76.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱		↑↑		↱
Traffic Vol, veh/h	1692	1	0	1369	0	14
Future Vol, veh/h	1692	1	0	1369	0	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	Yield
Storage Length	-	185	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	4	0	0	4	0	0
Mvmt Flow	1727	1	0	1397	0	14

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	-	864
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	0	-	0	301
Stage 1	-	0	0	-	0	-
Stage 2	-	0	0	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	-	301
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	17.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	301	-	-
HCM Lane V/C Ratio	0.047	-	-
HCM Control Delay (s)	17.6	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	0.1	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1714	4	12	1355	5	52
Future Vol, veh/h	1714	4	12	1355	5	52
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	4	0	0	3	0	2
Mvmt Flow	1785	4	13	1411	5	54

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1789	0	2519	895
Stage 1	-	-	-	-	1787	-
Stage 2	-	-	-	-	732	-
Critical Hdwy	-	-	4.1	-	6.8	6.94
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.32
Pot Cap-1 Maneuver	-	-	351	-	24	284
Stage 1	-	-	-	-	122	-
Stage 2	-	-	-	-	442	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	351	-	23	284
Mov Cap-2 Maneuver	-	-	-	-	94	-
Stage 1	-	-	-	-	122	-
Stage 2	-	-	-	-	426	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	24.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	241	-	-	351	-
HCM Lane V/C Ratio	0.246	-	-	0.036	-
HCM Control Delay (s)	24.8	-	-	15.6	-
HCM Lane LOS	C	-	-	C	-
HCM 95th %tile Q(veh)	0.9	-	-	0.1	-

YEAR 2025

LEVEL OF SERVICE CALCULATIONS

AM & PM WITHOUT PROJECT, WITH BACKGROUND

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	1256	86	18	1273	33	92	5	15	134	38	54
Future Volume (vph)	27	1256	86	18	1273	33	92	5	15	134	38	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1492	3406	1615	3502	3374	1392	3273	1583	1509	1770	1549	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1492	3406	1615	3502	3374	1392	3273	1583	1509	1770	1549	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	29	1365	93	20	1384	36	100	5	16	146	41	59
RTOR Reduction (vph)	0	0	43	0	0	11	0	0	15	0	41	0
Lane Group Flow (vph)	29	1365	50	20	1384	25	100	5	1	146	59	0
Heavy Vehicles (%)	21%	6%	0%	0%	7%	16%	7%	20%	7%	2%	0%	20%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	
Permitted Phases			2			6			8			
Actuated Green, G (s)	3.5	36.8	47.3	5.3	38.6	61.9	10.5	2.5	7.8	23.3	15.3	
Effective Green, g (s)	3.5	36.8	47.3	5.3	38.6	61.9	10.5	2.5	7.8	23.3	15.3	
Actuated g/C Ratio	0.04	0.42	0.54	0.06	0.44	0.70	0.12	0.03	0.09	0.27	0.17	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.4	3.0	3.0	2.4	
Lane Grp Cap (vph)	59	1425	960	211	1481	1059	390	45	219	469	269	
v/s Ratio Prot	c0.02	0.40	0.01	0.01	c0.41	0.01	0.03	0.00	0.00	c0.08	c0.04	
v/s Ratio Perm			0.02			0.01			0.00			
v/c Ratio	0.49	0.96	0.05	0.09	0.93	0.02	0.26	0.11	0.01	0.31	0.22	
Uniform Delay, d1	41.3	24.8	9.6	39.0	23.4	3.9	35.2	41.6	36.5	25.9	31.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	6.3	15.7	0.0	0.2	12.2	0.0	0.3	0.7	0.0	0.4	0.3	
Delay (s)	47.6	40.5	9.7	39.2	35.7	3.9	35.5	42.3	36.5	26.3	31.4	
Level of Service	D	D	A	D	D	A	D	D	D	C	C	
Approach Delay (s)		38.7			35.0			35.9			28.4	
Approach LOS		D			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	36.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	87.9	Sum of lost time (s)	20.0
Intersection Capacity Utilization	63.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	1256	86	18	1273	33	92	5	15	134	38	54
Future Volume (vph)	27	1256	86	18	1273	33	92	5	15	134	38	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1492	3406	1615	3502	3374	1392	3273	1583	1509	1770	1549	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1492	3406	1615	3502	3374	1392	3273	1583	1509	1770	1549	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	29	1365	93	20	1384	36	100	5	16	146	41	59
RTOR Reduction (vph)	0	0	42	0	0	16	0	0	15	0	47	0
Lane Group Flow (vph)	29	1365	51	20	1384	20	100	5	1	146	53	0
Heavy Vehicles (%)	21%	6%	0%	0%	7%	16%	7%	20%	7%	2%	0%	20%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			
Actuated Green, G (s)	6.2	68.2	68.2	8.8	70.8	70.8	10.0	6.0	6.0	22.0	18.0	
Effective Green, g (s)	6.2	68.2	68.2	8.8	70.8	70.8	10.0	6.0	6.0	22.0	18.0	
Actuated g/C Ratio	0.05	0.55	0.55	0.07	0.57	0.57	0.08	0.05	0.05	0.18	0.14	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.4	2.4	3.0	2.4	
Lane Grp Cap (vph)	74	1858	881	246	1911	788	261	75	72	311	223	
v/s Ratio Prot	0.02	c0.40		0.01	c0.41		0.03	0.00		c0.08	c0.03	
v/s Ratio Perm			0.03			0.01			0.00			
v/c Ratio	0.39	0.73	0.06	0.08	0.72	0.03	0.38	0.07	0.01	0.47	0.24	
Uniform Delay, d1	57.6	21.5	13.3	54.3	19.9	11.9	54.6	56.8	56.7	46.3	47.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.4	2.6	0.1	0.1	2.4	0.1	0.9	0.2	0.0	1.1	0.4	
Delay (s)	61.0	24.2	13.4	54.5	22.3	12.0	55.5	57.1	56.7	47.4	47.8	
Level of Service	E	C	B	D	C	B	E	E	E	D	D	
Approach Delay (s)		24.2			22.5			55.7			47.5	
Approach LOS		C			C			E			D	

Intersection Summary			
HCM 2000 Control Delay	26.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	68.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱		↑↑		↱
Traffic Vol, veh/h	1373	4	0	1225	0	6
Future Vol, veh/h	1373	4	0	1225	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	Yield
Storage Length	-	185	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	6	25	0	7	0	17
Mvmt Flow	1492	4	0	1332	0	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	-	746
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.24
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.47
Pot Cap-1 Maneuver	-	0	0	-	0	325
Stage 1	-	0	0	-	0	-
Stage 2	-	0	0	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	-	325
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	16.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	325	-	-
HCM Lane V/C Ratio	0.02	-	-
HCM Control Delay (s)	16.3	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	0.1	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1363	8	48	1228	0	7
Future Vol, veh/h	1363	8	48	1228	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	6	0	2	7	0	0
Mvmt Flow	1482	9	52	1335	0	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1491	0	2259	746
Stage 1	-	-	-	-	1487	-
Stage 2	-	-	-	-	772	-
Critical Hdwy	-	-	4.14	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.22	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	446	-	36	360
Stage 1	-	-	-	-	177	-
Stage 2	-	-	-	-	422	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	446	-	32	360
Mov Cap-2 Maneuver	-	-	-	-	122	-
Stage 1	-	-	-	-	177	-
Stage 2	-	-	-	-	373	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	15.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	360	-	-	446	-
HCM Lane V/C Ratio	0.021	-	-	0.117	-
HCM Control Delay (s)	15.2	-	-	14.1	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	1842	130	23	1451	102	161	44	53	61	8	46
Future Volume (vph)	88	1842	130	23	1451	102	161	44	53	61	8	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.87	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1583	3505	1568	3335	3505	1553	3367	1900	1615	1556	1430	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1583	3505	1568	3335	3505	1553	3367	1900	1615	1556	1430	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	94	1960	138	24	1544	109	171	47	56	65	9	49
RTOR Reduction (vph)	0	0	53	0	0	46	0	0	46	0	42	0
Lane Group Flow (vph)	94	1960	85	24	1544	63	171	47	10	65	16	0
Heavy Vehicles (%)	14%	3%	3%	5%	3%	4%	4%	0%	0%	16%	0%	19%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	
Permitted Phases			2			6			8			
Actuated Green, G (s)	8.8	37.1	48.3	7.3	35.6	50.5	11.2	8.3	15.6	14.9	12.0	
Effective Green, g (s)	8.8	37.1	48.3	7.3	35.6	50.5	11.2	8.3	15.6	14.9	12.0	
Actuated g/C Ratio	0.10	0.42	0.55	0.08	0.41	0.58	0.13	0.09	0.18	0.17	0.14	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.4	3.0	3.0	2.4	
Lane Grp Cap (vph)	159	1484	954	277	1424	983	430	180	379	264	195	
v/s Ratio Prot	c0.06	c0.56	0.01	0.01	0.44	0.01	c0.05	c0.02	0.00	0.04	c0.01	
v/s Ratio Perm			0.04			0.03			0.00			
v/c Ratio	0.59	1.32	0.09	0.09	1.08	0.06	0.40	0.26	0.03	0.25	0.08	
Uniform Delay, d1	37.7	25.2	9.3	37.1	26.0	8.2	35.1	36.8	29.7	31.5	33.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.8	149.2	0.0	0.1	50.2	0.0	0.6	0.5	0.0	0.5	0.1	
Delay (s)	43.5	174.4	9.3	37.2	76.2	8.2	35.7	37.3	29.8	32.0	33.1	
Level of Service	D	F	A	D	E	A	D	D	C	C	C	
Approach Delay (s)		158.4			71.2			34.8			32.5	
Approach LOS		F			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	112.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	87.6	Sum of lost time (s)	20.0
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	1842	130	23	1451	102	161	44	53	61	8	46
Future Volume (vph)	88	1842	130	23	1451	102	161	44	53	61	8	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.87	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1583	3505	1568	3335	3505	1553	3367	1900	1615	1556	1430	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1583	3505	1568	3335	3505	1553	3367	1900	1615	1556	1430	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	94	1960	138	24	1544	109	171	47	56	65	9	49
RTOR Reduction (vph)	0	0	45	0	0	45	0	0	49	0	45	0
Lane Group Flow (vph)	94	1960	93	24	1544	64	171	47	7	65	13	0
Heavy Vehicles (%)	14%	3%	3%	5%	3%	4%	4%	0%	0%	16%	0%	19%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			
Actuated Green, G (s)	15.6	97.0	97.0	6.0	87.4	87.4	14.0	18.0	18.0	8.0	12.0	
Effective Green, g (s)	15.6	97.0	97.0	6.0	87.4	87.4	14.0	18.0	18.0	8.0	12.0	
Actuated g/C Ratio	0.10	0.65	0.65	0.04	0.59	0.59	0.09	0.12	0.12	0.05	0.08	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.4	2.4	3.0	2.4	
Lane Grp Cap (vph)	165	2281	1020	134	2055	910	316	229	195	83	115	
v/s Ratio Prot	c0.06	c0.56		0.01	0.44		c0.05	c0.02		c0.04	0.01	
v/s Ratio Perm			0.06			0.04			0.00			
v/c Ratio	0.57	0.86	0.09	0.18	0.75	0.07	0.54	0.21	0.03	0.78	0.11	
Uniform Delay, d1	63.5	20.6	9.6	69.1	22.8	13.3	64.4	59.1	57.8	69.6	63.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.5	4.5	0.2	0.6	2.6	0.1	1.9	0.3	0.0	37.0	0.3	
Delay (s)	68.0	25.1	9.8	69.8	25.4	13.4	66.3	59.3	57.9	106.7	63.8	
Level of Service	E	C	A	E	C	B	E	E	E	F	E	
Approach Delay (s)		26.0			25.2			63.4			86.5	
Approach LOS		C			C			E			F	

Intersection Summary			
HCM 2000 Control Delay	29.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	149.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱		↑↑		↱
Traffic Vol, veh/h	1987	1	0	1666	0	15
Future Vol, veh/h	1987	1	0	1666	0	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	Yield
Storage Length	-	185	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	4	0	0	4	0	0
Mvmt Flow	2028	1	0	1700	0	15

Major/Minor	Major1			Major2		Minor1
Conflicting Flow All	0	-	-	-	-	1014
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	0	-	0	240
Stage 1	-	0	0	-	0	-
Stage 2	-	0	0	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	-	240
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	21
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	240	-	-
HCM Lane V/C Ratio	0.064	-	-
HCM Control Delay (s)	21	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	0.2	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2010	4	13	1651	5	55
Future Vol, veh/h	2010	4	13	1651	5	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	4	0	0	3	0	2
Mvmt Flow	2094	4	14	1720	5	57

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	2098	0	2984	1049
Stage 1	-	-	-	-	2096	-
Stage 2	-	-	-	-	888	-
Critical Hdwy	-	-	4.1	-	6.8	6.94
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.32
Pot Cap-1 Maneuver	-	-	266	-	11	224
Stage 1	-	-	-	-	82	-
Stage 2	-	-	-	-	367	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	266	-	10	224
Mov Cap-2 Maneuver	-	-	-	-	63	-
Stage 1	-	-	-	-	82	-
Stage 2	-	-	-	-	348	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	34.1
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	185	-	-	266	-
HCM Lane V/C Ratio	0.338	-	-	0.051	-
HCM Control Delay (s)	34.1	-	-	19.3	-
HCM Lane LOS	D	-	-	C	-
HCM 95th %tile Q(veh)	1.4	-	-	0.2	-

YEAR 2025

LEVEL OF SERVICE CALCULATIONS

AM & PM WITH PROJECT, WITH BACKGROUND

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	1298	86	18	1273	33	157	6	15	136	36	54
Future Volume (vph)	27	1298	86	18	1273	33	157	6	15	136	36	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1492	3406	1615	3502	3374	1392	3273	1583	1509	1770	1543	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1492	3406	1615	3502	3374	1392	3273	1583	1509	1770	1543	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	29	1411	93	20	1384	36	171	7	16	148	39	59
RTOR Reduction (vph)	0	0	41	0	0	15	0	0	15	0	50	0
Lane Group Flow (vph)	29	1411	52	20	1384	21	171	7	1	148	48	0
Heavy Vehicles (%)	21%	6%	0%	0%	7%	16%	7%	20%	7%	2%	0%	20%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			
Actuated Green, G (s)	6.2	69.6	69.6	8.4	71.8	71.8	10.0	9.0	9.0	18.0	17.0	
Effective Green, g (s)	6.2	69.6	69.6	8.4	71.8	71.8	10.0	9.0	9.0	18.0	17.0	
Actuated g/C Ratio	0.05	0.56	0.56	0.07	0.57	0.57	0.08	0.07	0.07	0.14	0.14	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.4	2.4	3.0	2.4	
Lane Grp Cap (vph)	74	1896	899	235	1938	799	261	113	108	254	209	
v/s Ratio Prot	0.02	c0.41		0.01	c0.41		0.05	0.00		c0.08	c0.03	
v/s Ratio Perm			0.03			0.01			0.00			
v/c Ratio	0.39	0.74	0.06	0.09	0.71	0.03	0.66	0.06	0.01	0.58	0.23	
Uniform Delay, d1	57.6	21.0	12.7	54.7	19.2	11.5	55.8	54.1	53.9	50.0	48.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.4	2.7	0.1	0.2	2.3	0.1	5.8	0.2	0.0	3.4	0.4	
Delay (s)	61.0	23.7	12.8	54.9	21.5	11.6	61.6	54.2	53.9	53.4	48.5	
Level of Service	E	C	B	D	C	B	E	D	D	D	D	
Approach Delay (s)		23.7			21.7			60.7			51.4	
Approach LOS		C			C			E			D	

Intersection Summary			
HCM 2000 Control Delay	27.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱		↑↑		↱
Traffic Vol, veh/h	1340	81	0	1225	0	72
Future Vol, veh/h	1340	81	0	1225	0	72
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	Yield
Storage Length	-	185	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	6	25	0	7	0	17
Mvmt Flow	1457	88	0	1332	0	78

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	-	729
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.24
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.47
Pot Cap-1 Maneuver	-	0	0	-	0	333
Stage 1	-	0	0	-	0	-
Stage 2	-	0	0	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	-	333
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	19.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	333	-	-
HCM Lane V/C Ratio	0.235	-	-
HCM Control Delay (s)	19.1	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	0.9	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1397	8	119	1192	3	8
Future Vol, veh/h	1397	8	119	1192	3	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	6	0	2	7	0	0
Mvmt Flow	1518	9	129	1296	3	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1527	0	2429	764
Stage 1	-	-	-	-	1523	-
Stage 2	-	-	-	-	906	-
Critical Hdwy	-	-	4.14	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.22	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	432	-	27	351
Stage 1	-	-	-	-	169	-
Stage 2	-	-	-	-	359	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	432	-	19	351
Mov Cap-2 Maneuver	-	-	-	-	101	-
Stage 1	-	-	-	-	169	-
Stage 2	-	-	-	-	252	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.5	23.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	210	-	-	432	-
HCM Lane V/C Ratio	0.057	-	-	0.299	-
HCM Control Delay (s)	23.2	-	-	16.9	-
HCM Lane LOS	C	-	-	C	-
HCM 95th %tile Q(veh)	0.2	-	-	1.2	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	1898	130	23	1451	102	247	44	53	61	8	46
Future Volume (vph)	88	1898	130	23	1451	102	247	44	53	61	8	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.87	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1583	3505	1568	3335	3505	1553	3367	1900	1615	1556	1430	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1583	3505	1568	3335	3505	1553	3367	1900	1615	1556	1430	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	94	2019	138	24	1544	109	263	47	56	65	9	49
RTOR Reduction (vph)	0	0	48	0	0	48	0	0	48	0	45	0
Lane Group Flow (vph)	94	2019	90	24	1544	61	263	47	8	65	13	0
Heavy Vehicles (%)	14%	3%	3%	5%	3%	4%	4%	0%	0%	16%	0%	19%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			
Actuated Green, G (s)	15.2	90.9	90.9	6.0	81.7	81.7	16.1	20.1	20.1	8.0	12.0	
Effective Green, g (s)	15.2	90.9	90.9	6.0	81.7	81.7	16.1	20.1	20.1	8.0	12.0	
Actuated g/C Ratio	0.10	0.63	0.63	0.04	0.56	0.56	0.11	0.14	0.14	0.06	0.08	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.4	2.4	3.0	2.4	
Lane Grp Cap (vph)	165	2197	982	138	1974	875	373	263	223	85	118	
v/s Ratio Prot	c0.06	c0.58		0.01	0.44		c0.08	c0.02		0.04	0.01	
v/s Ratio Perm			0.06			0.04			0.00			
v/c Ratio	0.57	0.92	0.09	0.17	0.78	0.07	0.71	0.18	0.03	0.76	0.11	
Uniform Delay, d1	61.8	23.8	10.7	67.1	24.7	14.4	62.2	55.2	54.1	67.6	61.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.5	7.7	0.2	0.6	3.2	0.2	6.0	0.2	0.0	32.8	0.3	
Delay (s)	66.2	31.5	10.9	67.7	27.9	14.5	68.1	55.4	54.1	100.4	61.8	
Level of Service	E	C	B	E	C	B	E	E	D	F	E	
Approach Delay (s)		31.7			27.6			64.3			82.2	
Approach LOS		C			C			E			F	

Intersection Summary			
HCM 2000 Control Delay	34.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	87.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱		↑↑		↱
Traffic Vol, veh/h	1951	93	0	1666	0	78
Future Vol, veh/h	1951	93	0	1666	0	78
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	Yield
Storage Length	-	185	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	4	0	0	4	0	0
Mvmt Flow	1991	95	0	1700	0	80

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	-	996
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	0	-	0	247
Stage 1	-	0	0	-	0	-
Stage 2	-	0	0	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	-	247
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	26.4
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	247	-	-
HCM Lane V/C Ratio	0.322	-	-
HCM Control Delay (s)	26.4	-	-
HCM Lane LOS	D	-	-
HCM 95th %tile Q(veh)	1.3	-	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2034	4	71	1623	8	82
Future Vol, veh/h	2034	4	71	1623	8	82
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	4	0	0	3	0	2
Mvmt Flow	2119	4	74	1691	8	85

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	2123	0	3115	1062
Stage 1	-	-	-	-	2121	-
Stage 2	-	-	-	-	994	-
Critical Hdwy	-	-	4.1	-	6.8	6.94
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.32
Pot Cap-1 Maneuver	-	-	260	-	9	220
Stage 1	-	-	-	-	80	-
Stage 2	-	-	-	-	323	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	260	-	~ 6	220
Mov Cap-2 Maneuver	-	-	-	-	56	-
Stage 1	-	-	-	-	80	-
Stage 2	-	-	-	-	231	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	47.1
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	175	-	-	260	-
HCM Lane V/C Ratio	0.536	-	-	0.284	-
HCM Control Delay (s)	47.1	-	-	24.3	-
HCM Lane LOS	E	-	-	C	-
HCM 95th %tile Q(veh)	2.7	-	-	1.1	-

Notes

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

TRIP GENERATION TABLES

PER LAND USE CODE

Whipple Consulting Engineers
Trip Generation
May 31, 2019
WCE No. 19-2373

Lot #	Potential Land Use	Potential Bldg Size (sf)	LUC
1	Car Wash	6,552	948
2	Coffee Shop w/ Drive	1,248	937
3	Fast Food Restaurant W/ dr. thru	2,190	934
4	High Turn-over Restaurant	9,321	820
5	General Office	3,335	
6	Retail	10,682	
7	General Office	5,672	
-	**Total Shopping Center**	**29,010**	

Trip Generation Rates for LUC #948 – Automated Carwash

Thousand Square Feet (KSF)	AM Peak Hour			PM Peak Hour		
	Vol. @ 3.55 trips / KSF*	Directional Distribution		Vol. @ 14.20 trips / KSF	Directional Distribution	
		50% In	50% Out		50% In	50% Out
6.4	23	12	11	91	46	45
Internal Trips	1	0	1	12	7	5
External Trips	22	12	10	79	39	40
Pass-by/Diverted Trips	11	6	5	39	19	20
New Trips	11	6	5	40	20	20

Average Daily Trip Ends (ADT)		
KSF	Rate	ADT
6.4	142.0	909

Per engineering judgment; AM rate is 25% of the PM Peak Hour Trip Vol. rate
A Pass-by rate of 50%

Trip Generation Rates for LUC #937 – Coffee/Donut Shop with Drive-Through Window

Thousand Square Feet (KSF)	AM Peak Hour			PM Peak Hour		
	Vol. @ 88.99 trips per Unit	Directional Distribution		Vol. @ 43.38 trips / KSF	Directional Distribution	
		51% In	49% Out		50% In	50% Out
1.24	111	57	54	54	27	27
Internal Trips	6	2	4	7	4	3
External Trips	105	55	50	47	23	24
Pass-by/Diverted Trips	52	27	25	23	11	12
New Trips	53	28	25	24	12	12

Average Daily Trip Ends (ADT)		
KSF	Rate	ADT
1.24	820.38	1,018

Per engineering judgement, a pass-by rate of 50%

Trip Generation Rates for LUC #934 – Fast Food Restaurant w/ Drive-Thru Window

Thousand Square Feet (KSF)	AM Peak Hour			PM Peak Hour		
	Vol. @ 40.19 trips / KSF	Directional Distribution		Vol. @ 32.67 trips / KSF	Directional Distribution	
		51% In	49% Out		52% In	48% Out
3.8	153	78	75	125	65	60
Internal Trips	8	4	4	16	10	6
External Trips	145	74	71	109	55	54
Pass-by/Diverted Trips	71	36	35	54	27	27
New Trips	74	38	36	55	28	27

Average Daily Trip Ends (ADT)		
KSF	Rate	ADT
3.8	470.95	1,790

Per ITE Handbook Tables 5.23 and 5.24, 49% for AM and 50% for PM,

Trip Generation Rates for LUC #820– Shopping Center

Thousand Square Feet (KSF)	AM Peak Hour			PM Peak Hour		
	Vol. @ 0.94 trips per Unit	Directional Distribution		Vol. @ 3.81 trips per Unit	Directional Distribution	
		62% In	38% Out		48% In	52% Out
29.0	28	17	11	111	53	58
Internal Trips	10	6	4	35	14	21
External Trips	18	11	7	76	39	37
Pass-by/Diverted Trips	9	5	4	26	12	14
New Trips	9	6	3	50	27	23

Average Daily Trip Ends (ADT)			Per ITE Handbook Table 5.6, the PM pass-by rate 34%. AM pass-by rate is assumed to be 50% of PM pass-by rate.
KSF	Rate	ADT	
39.0	37.75	1,473	

Trip Generation Rates for LUC #310– Hotel (Existing)

Rooms	AM Peak Hour			PM Peak Hour		
	Vol. @ 0.47 trips per Unit	Directional Distribution		Vol. @ 0.60 trips per Unit	Directional Distribution	
		59% In	41% Out		51% In	49% Out
100	47	28	19	60	31	29
Internal Trips	15	8	7	24	12	12

Average Daily Trip Ends (ADT)		
Rooms	Rate	ADT
100	8.36	836

Table 6-Trip Generation Summary (Total)

Land Use Code (LUC)	AM Peak Hour Trips			PM Peak Hour Trips		
	Vol. / LUC	Directional Distribution		Vol. / LUC	Directional Distribution	
		In	Out		In	Out
LUC #948 Automated Car Wash	23	12	11	91	46	45
LUC #937 Coffee/Donut w/ Drive-Thru	111	57	54	54	27	27
LUC #934 Fast Food Restaurant w/ Dr.-Thru	153	78	75	125	65	60
LUC #820 Shopping Center	28	17	11	111	53	58
Total	315	164	151	381	191	190

Average Daily Trip Ends (ADT)		
Land Use Code (LUC)	Rate	ADT
LUC #948 Automated Car Wash	-	909
LUC #937 Coffee/Donut w/ Drive-Thru	-	1,018
LUC #934 Fast Food Restaurant w/ Dr.-Thru	-	1,790
LUC #820 Shopping Center	-	1,473
Total	-	5,190

Table 7-Internal Trip Generation Summary

Land Use Code (LUC)	AM Peak Hour Trips			PM Peak Hour Trips		
	Vol. / LUC	Directional Distribution		Vol. / LUC	Directional Distribution	
		In	Out		In	Out
LUC #948 Automated Car Wash	1	0	1	12	7	5
LUC #937 Coffee/Donut w/ Drive-Thru	6	2	4	7	4	3
LUC #934 Fast Food Restaurant w/ Dr.-Thru	8	4	4	16	10	6
LUC #820 Shopping Center	10	6	4	35	14	21
Total	25	12	13	70	35	35

Table 8-External Trip Generation Summary

Land Use Code (LUC)	AM Peak Hour Trips			PM Peak Hour Trips		
	Vol. / LUC	Directional Distribution		Vol. / LUC	Directional Distribution	
		In	Out		In	Out
LUC #948 Automated Car Wash	22	12	10	79	39	40
LUC #937 Coffee/Donut w/ Drive-Thru	105	55	50	47	23	24
LUC #934 Fast Food Restaurant w/ Dr.-Thru	145	74	71	109	55	54
LUC #820 Shopping Center	18	11	7	76	39	37
Total	290	152	138	311	156	155

Table 9-Pass-by Trip Generation Summary

Land Use Code (LUC)	AM Peak Hour Trips			PM Peak Hour Trips		
	Vol. / LUC	Directional Distribution		Vol. / LUC	Directional Distribution	
		In	Out		In	Out
LUC #948 Automated Car Wash	11	6	5	39	19	20
LUC #937 Coffee/Donut w/ Drive-Thru	52	27	25	23	11	12
LUC #934 Fast Food Restaurant w/ Dr.-Thru	71	36	35	54	27	27
LUC #820 Shopping Center	9	5	4	26	12	14
Total	143	74	69	142	69	73

Table 10-New Trip Generation Summary

Land Use Code (LUC)	AM Peak Hour Trips			PM Peak Hour Trips		
	Vol. / LUC	Directional Distribution		Vol. / LUC	Directional Distribution	
		In	Out		In	Out
LUC #948 Automated Car Wash	11	6	5	40	20	20
LUC #937 Coffee/Donut w/ Drive-Thru	53	28	25	24	12	12
LUC #934 Fast Food Restaurant w/ Dr.-Thru	74	38	36	55	28	27
LUC #820 Shopping Center	9	6	3	50	27	23
Total	147	78	69	169	87	82

INTERNAL TRIP GENERATION CALCULATIONS

Whipple Consulting Engineers
Multi-Use Trip Generation Worksheet
Project Bush BSP
Project # 19-2305
Analyst BNG
Date 6/24/2019
Peak Hour **AM**

Legend	
31%	Percentages from ITE Handbook Tables 7.1and 7.2 or engineering judgment based on project characteristics
475	From LUC Trip Genration Tables
25	User Defined Balance

LAND USE A Retail

ITE LUC		948, 937, 934	
Size		6.4, 1.24, & 3.8 ksf	
	Total	Internal	External
Enter	147	6	141
Exit	140	9	131
Total	287	15	272
%	100%	5%	95%

Single Use Trip Gen Total 287

External: Exit **131**, **141** Enter

Demand (from/to) *20%* 28 — Lowest **3** — Demand (to/from) *20%* 3
Demand (to/from) *20%* 29 — Lowest **2** — Demand (from/to) *20%* 2
Demand (from/to) *20%* 28 — Lowest **6** — Demand (to/from) *20%* 6
Demand (to/from) *20%* 29 — Lowest **4** — Demand (from/to) *20%* 4

LAND USE B Shopping Center

ITE LUC		820	
Size		29.0 ksf	
	Total	Internal	External
Enter	17	6	11
Exit	11	4	7
Total	28	10	18
%	100%	36%	64%

Single Use Trip Gen Total 28

External: Exit **7**, **11** Enter

Demand (to/from) *20%* 3 — Lowest **3** — Demand (from/to) *20%* 4
Demand (from/to) *20%* 2 — Lowest **2** — Demand (to/from) *20%* 6

LAND USE C Hotel

ITE LUC		310	
Size		100 rms	
	Total	Internal	External
Enter	28	8	20
Exit	19	7	12
Total	47	15	32
%	100%	32%	68%

Single Use Trip Gen Total 47

External: Exit **12**, **20** Enter

Net External Trips for Multi-Use Development				
	Land Use A	Land Use B	Land Use C	TOTAL
Enter	141	11	20	172
Exit	131	7	12	150
Total	272	18	32	322
Single-use Trip Gen Est.	287	28	47	362

INTERNAL CAPTURE **11%**

Whipple Consulting Engineers
Multi-Use Trip Generation Worksheet
Project Bush BSP
Project # 19-2305
Analyst BNG
Date 6/24/2019
Peak Hour **PM**

Legend	
31%	Percentages from ITE Handbook Tables 7.1and 7.2 or engineering judgment based on project characteristics
475	From LUC Trip Genration Tables
25	User Defined Balance

LAND USE A Retail

ITE LUC	948, 937, 934		
Size	6.4, 1.24, & 3.8 ksf		
	Total	Internal	External
Enter	138	21	117
Exit	132	14	118
Total	270	35	235
%	100%	13%	87%

Single Use Trip Gen Total 270

External: Exit 118, Enter 117

Demand (from/to): 20% 26 — Lowest 8 — Demand (to/from): 20% 8
Demand (to/from): 20% 28 — Lowest 15 — Demand (from/to): 20% 15
Demand (from/to): 20% 26 — Lowest 6 — Demand (to/from): 20% 6
Demand (to/from): 20% 28 — Lowest 6 — Demand (from/to): 20% 6

LAND USE B Shopping Center

ITE LUC	820		
Size	29.0 ksf		
	Total	Internal	External
Enter	38	14	24
Exit	73	21	52
Total	111	35	76
%	100%	32%	68%

Single Use Trip Gen Total 111

External: Exit 52, Enter 24

Demand (to/from): 20% 8 — Lowest 6 — Demand (from/to): 20% 6
Demand (from/to): 20% 15 — Lowest 6 — Demand (to/from): 20% 6

LAND USE C Hotel

ITE LUC	310		
Size	100 rms		
	Total	Internal	External
Enter	31	12	19
Exit	29	12	17
Total	60	24	36
%	100%	40%	60%

Single Use Trip Gen Total 60

External: Exit 17, Enter 19

Net External Trips for Multi-Use Development				
	Land Use A	Land Use B	Land Use C	TOTAL
Enter	117	24	19	160
Exit	118	52	17	187
Total	235	76	36	347
Single-use Trip Gen Est.	270	111	60	441

INTERNAL CAPTURE **21%**