

Transportation Impact Analysis

THORP FAST-FOOD & GAS STATION

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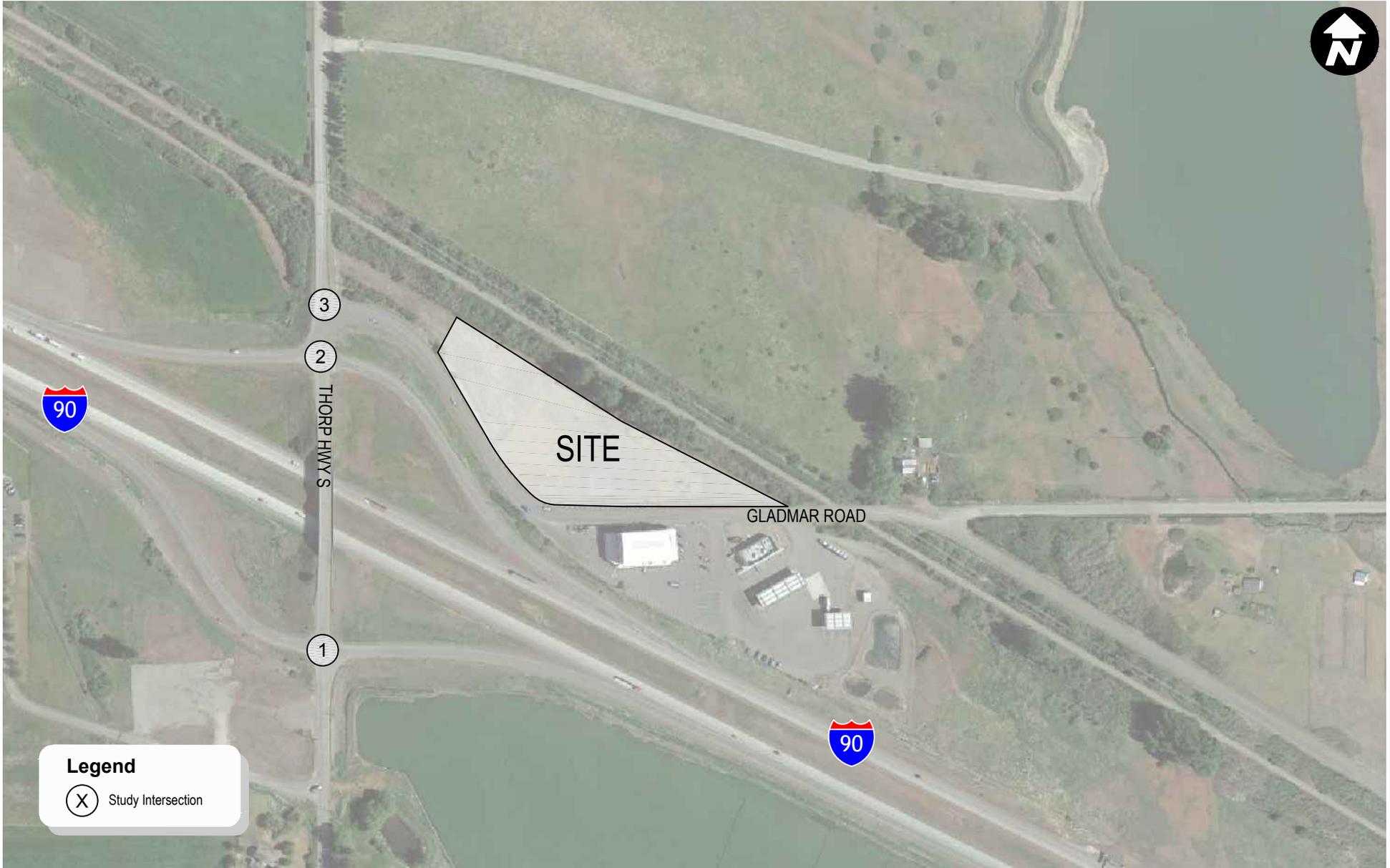
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Proposed Development

The purpose of this transportation impact analysis (TIA) is to identify potential traffic-related impacts associated with the proposed Thorp Fast-Food Restaurant and neighboring Card Lock gas station. As necessary, mitigation measures are identified that would offset or reduce significant impacts

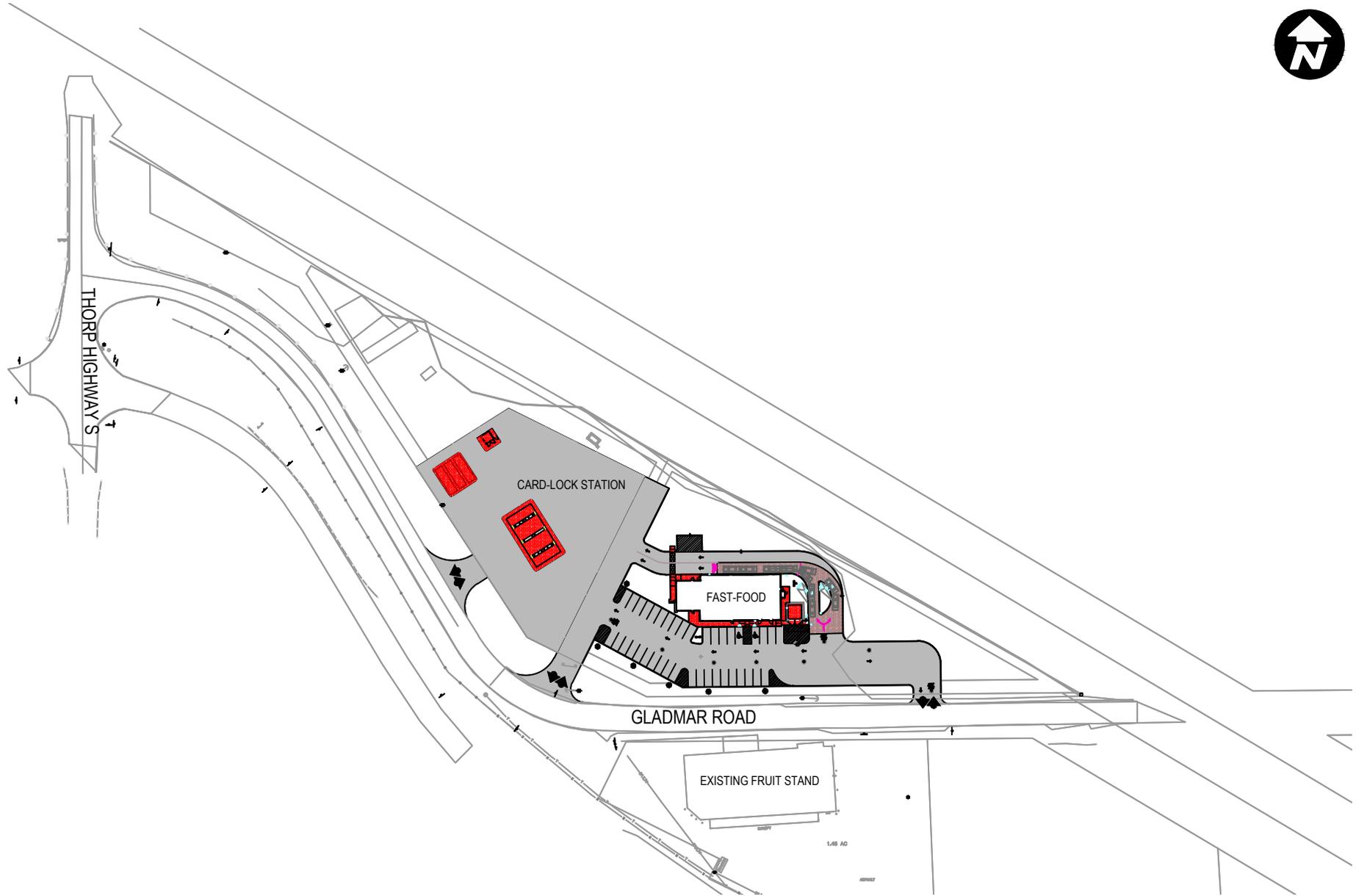
The proposed project is located north of Gladmar Road, east of Thorp Highway South and south of the John Wayne Pioneer Trail in Thorp as shown in Figure 1. The proposed project would construct a 5,000 square feet fast food restaurant with drive-through window. In addition, a members-only gas station for trucks only would also be constructed west of the proposed restaurant. Figure 2 illustrates the preliminary site plan. It is anticipated that the development would be constructed and operational by 2020.

A total of 39 parking spaces would be provided in the restaurant surface parking lot while no parking would be provided adjacent to the Card Lock fuel station. Access to both uses would be provided through three driveways. The two easternmost driveways would be aligned with existing driveways to the south that currently serve Thorp fruit stand, gas station and convenience store. The third is located further west and would generally serve only Card Lock fuel station traffic. The project site is currently vacant.



Site Vicinity & Study Intersections

Thorp Fast-Food Restaurant & Gas Station



Preliminary Site Plan

Thorp Fast-Food Restaurant & Gas Station

FIGURE

2

Existing Conditions

This section describes existing conditions within the study area. This review of the study area includes a review of the limits of the study area, the existing and proposed zoning and uses, and any other anticipated development potentially impacting the study area. This is followed by a review of the existing accessibility of the project site that includes a summary of the roadway system, existing traffic volumes, collision history, transit service, and non-motorized facilities.

Study Area & Scope

This analysis is consistent with the requirements outlined in the Traffic Impact Analysis Guidelines for Kittitas County Department of Public Works provided in Appendix A. The project site location is currently categorized as Highway Commercial Zoning per the Official County Map and the proposed zoning will remain the same. No specific other planned off-site development projects are anticipated before the 2020 analysis year.

The analysis focuses on the weekday PM peak period (4:00 to 6:00 p.m.) operations at three off-site intersections and the three proposed site driveways on Gladmar Road. This period represents the highest cumulative total traffic for the adjacent street system providing a conservative timeframe for level of service (LOS) analysis. The study off-site intersections include: 1) I-90 Eastbound Ramps / Thorp Highway S, 2) I-90 Westbound Ramps / Thorp Highway S, and 3) Thorp Highway S / Gladmar Road.

Site Accessibility

The following sections describe the accessibility of the project site.

Roadway System

The characteristics of the existing street system in the proposed project vicinity is described in Table 1.

Table 1. Study Area Existing Street System Summary

Roadway	Posted Speed Limit	Number of Travel Lanes	Parking	Sidewalks	Bicycle Facilities
Interstate 90 (I-90)	70 mph	4	No	No	No
Thorp Highway S	35 mph	2	No	No	No
Gladmar Road	35 mph	2	No	No	No

Based on a review of the Kittitas County 2015 – 2020 Capital Improvement Program (CIP), no funded future transportation projects are identified to potentially impact study intersections and roadways.

Traffic Volumes

Traffic counts were collected at each study intersection in November 2016. Due to the seasonal fluctuation in traffic volumes of the site vicinity and since a large portion of existing study area traffic is destined to and from the Thorp Fruit Stand and neighboring fuel stations south of the proposed site, existing traffic volumes were adjusted to estimate peak summer traffic conditions to provide a conservative forecast of future conditions. Based on transactions data provided from Thorp LLC for the existing fruit stand and neighboring fuel stations, the average August month was the highest sales period and with the number of

transactions 2.13 times greater than November conditions. As a conservative estimate, all traffic counts collected in November 2016 at the study intersections and existing site access driveways were increased by a factored of 2.13 factor to estimate peak August traffic volume conditions.

Figure 3 illustrates the existing weekday PM peak hour traffic volumes at the study intersections, rounded to the nearest 5 vehicles for both the observed and seasonally adjusted volumes. Detailed November 2016 traffic counts are provided in Appendix A.

Traffic Safety

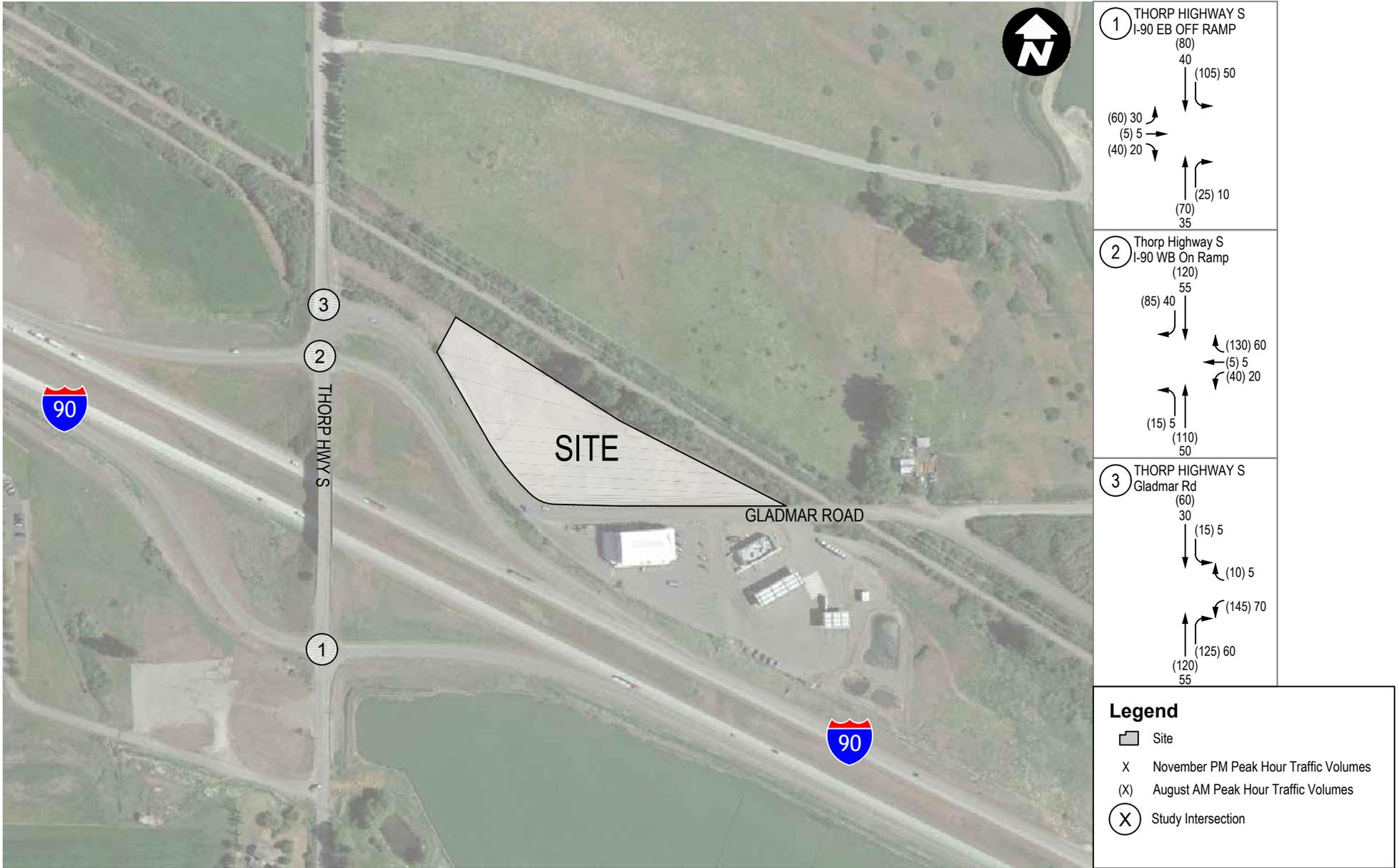
The Washington State Department of Transportation (WSDOT) provided collision data for three most recent calendar year for intersections and roadway segments within the study area. Specifically, the data was summarized between January 1, 2013 and December 31, 2015. Table 2 provides a summary of collision history within the study area.

Table 2. Three-Year Collision Summary – 2013 through 2015

Location	Number of Collisions			Total	Annual Average
	2013	2014	2015		
I-90 EB Ramps & Thorp Hwy S	1	0	1	2	0.67
I-90 WB Ramps & Thorp Hwy S	0	0	0	0	0
Thorp Hwy S & Gladmar Rd	0	1	0	1	0.33

Source: Transpo Group, 2016

Per the Kittitas County Long Range Transportation Plan, High Accident Locations are defined as corridors and intersections that have had three or more collisions reported during a 3-year analysis period. As summarized, no study intersection or roadway segment experienced more than two accidents over a 3-year period and averaged less than 1 collision per year. Of the three total collisions in the study area, two involved an angled collision and the remaining collision involved striking a fixed object and no injuries were noted in the collision reports.



Weekday Existing PM Peak Hour Traffic Volumes

Thorp Fast-Food Restaurant & Gas Station

FIGURE

Non-Motorized Facilities

There are no sidewalks, crosswalks or designated walking paths on the roadway or at intersections within the site vicinity. Immediately north of the site, the unpaved Iron Horse-John Wayne Pioneer Trail is available for recreational use for pedestrians and bicycles. This recreational trail has an unmarked crossing of Thorp Highway approximately 200 feet north of the Gladmar Road intersection. The trail also crosses Gladmar Road approximately 200 feet east of the project site and an unmarked crossing.

The Institute of Transportation Engineers' (ITE's) *Traffic Control Devices Handbook* (2nd Edition) provides guidance for when pedestrian or trail crossings are recommended. Specifically, where a minimum of 20 pedestrians typically cross a roadway within a one-hour period, a marked crosswalk is recommended. Based on the recreational and seasonal nature of trail activity, it is unlikely that a marked crosswalk would be recommended by *Traffic Control Devices Handbook* criteria.

Transit Facilities

Based on a review of HopeSource and Central Transit services, no dedicated transit facilities or scheduled service is provided within the project vicinity. HopeSource does provide shuttle services throughout the broader region but no fixed route service is provided.

Projected Traffic

This section documents the forecasting of future traffic volumes in the project vicinity, including traffic generated by the proposed project.

Background Traffic

Future (2020) without-project traffic volumes were forecasted by applying an average annual growth rate to existing (2016) traffic volumes. A compounding annual growth rate of 3.5 percent per year was applied to the existing seasonally adjusted weekday PM peak hour traffic volumes. This growth rate was identified based on historical average annual daily traffic (AADT) provided by WSDOT at the nearest permanent traffic recorder (PTR). This PTR is located approximately 18 miles west of the project site on I-90 near Cle Elum. Future (2020) without-project seasonally adjusted weekday PM peak hour traffic volumes reflecting background growth are shown on Figure 4.

Site Traffic

The number of vehicular trips and the distribution of the new trips to the surrounding roadway system is described in the following sections.

Trip Generation

Vehicular trips generated by the proposed fast-food restaurant with drive-through window were forecast based on the average trip generation rate for the Land Use #934 (Fast-Food Restaurant with Drive-Through Window) published in the Institute of Transportation Engineers' (ITE's) *Trip Generation Manual* (9th Edition). Weekday peak hour pass-by rates from *Trip Generation Handbook* (3rd Edition) were used. No weekday daily pass-by rates are provided within the *Trip Generation Handbook* but were assumed to be 50 percent based on the similarity between AM and PM peak pass-by rates.

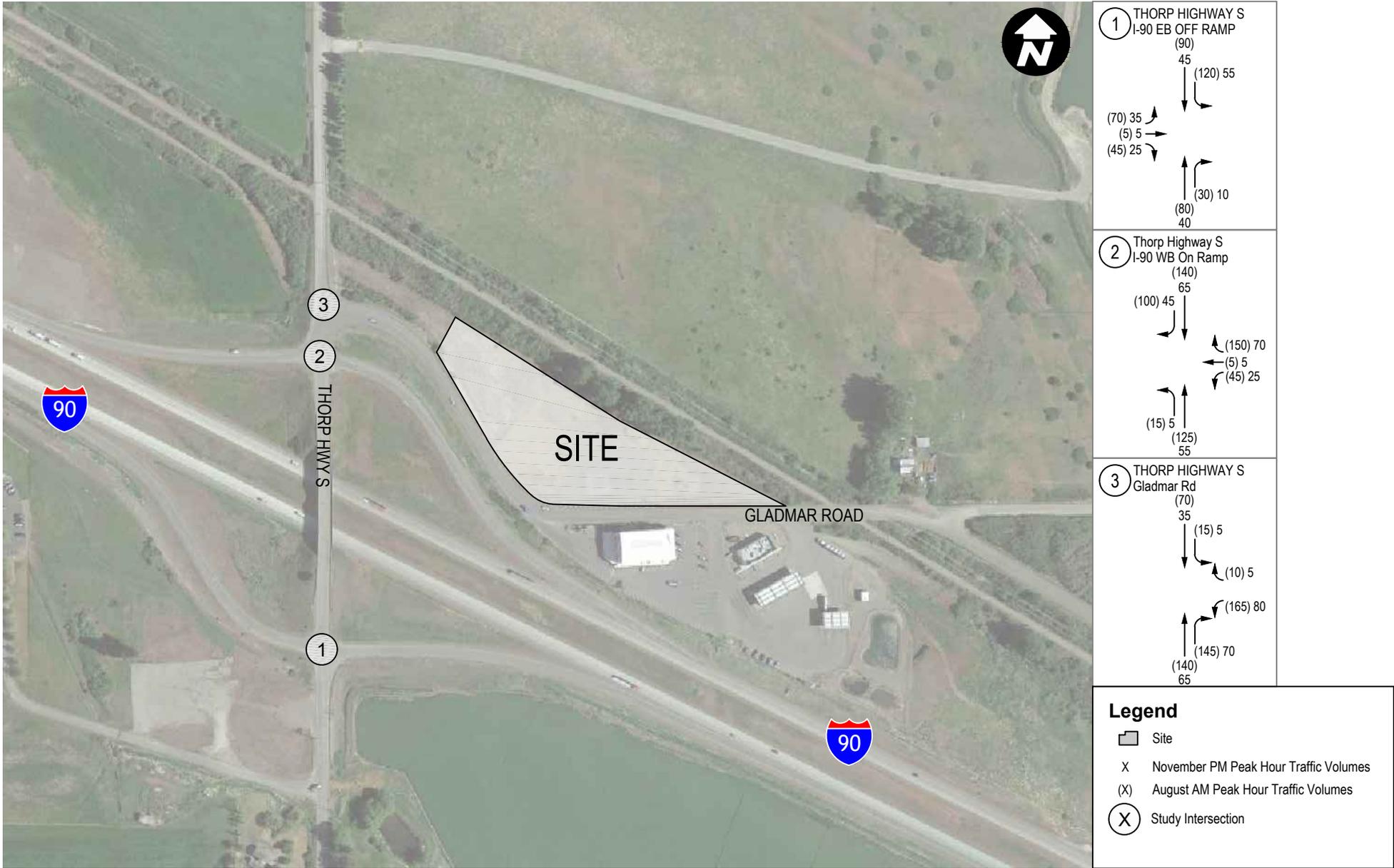
Because of the members-only nature of the proposed Card Lock fuel station, trips generated by the station were based on a trip generation study of similar facilities throughout Washington State. This study identified an average trip generation across four existing facilities but without regard to the number of fueling positions given the variability of trucks to passenger vehicles and the site's distances from freeway facilities. This study also indicated that no specific rate of pass-by trips was determined and provides for a conservative evaluation of potential off-site traffic impacts. A copy of this study is provided in Appendix X. Table 3 summarizes the estimated weekday daily and AM and PM peak hour trip generation for the proposed land uses. Appendix D provides the detailed trip generation calculation.

Table 3. Estimated Weekday Vehicle Trip Generation

Land Use	Size	Daily Trips	AM Peak-Hour Trips			PM Peak-Hour Trips		
			In	Out	Total	In	Out	Total
Fast-Food with Drive-Through ¹	5,000 sf	2,480	116	111	227	85	78	163
- Pass-By ¹ (49% AM, 50% PM, 50% daily)		-1,240	-56	-56	-112	-39	-39	-78
Card Lock Gas Station ²	4 pumps	120	16	15	31	16	15	31
Total		1,360	76	70	146	62	54	116

Notes: sf = square-feet

1. Based on rates found in *Trip Generation*, 9th Edition, ITE, 2012 for Land Use 934. Peak hour pass-by rates provided in *Trip Generation Handbook* (3rd Edition) and daily rate assumed to be 50 percent based on similar AM and PM rates.
2. Based on rates found in *104th Street Card Lock Traffic Impact Analysis* trip generation study (April 2014).



2020 Without-Project Weekday PM Peak Hour Traffic Volumes

Thorp Fast-Food Restaurant & Gas Station

FIGURE

4

As shown in Table 3 (page 8), the proposed project is anticipated to generate approximately 1,360 new daily vehicle trips with 146 net new vehicle trips during the AM peak hour and 116 net new vehicle trips during the PM peak hour. An additional 1,240 daily, 112 AM peak hour, and 78 weekday PM peak hour pass-by vehicle trips would be attracted to the site from I-90.

Project Trip Distribution & Assignment

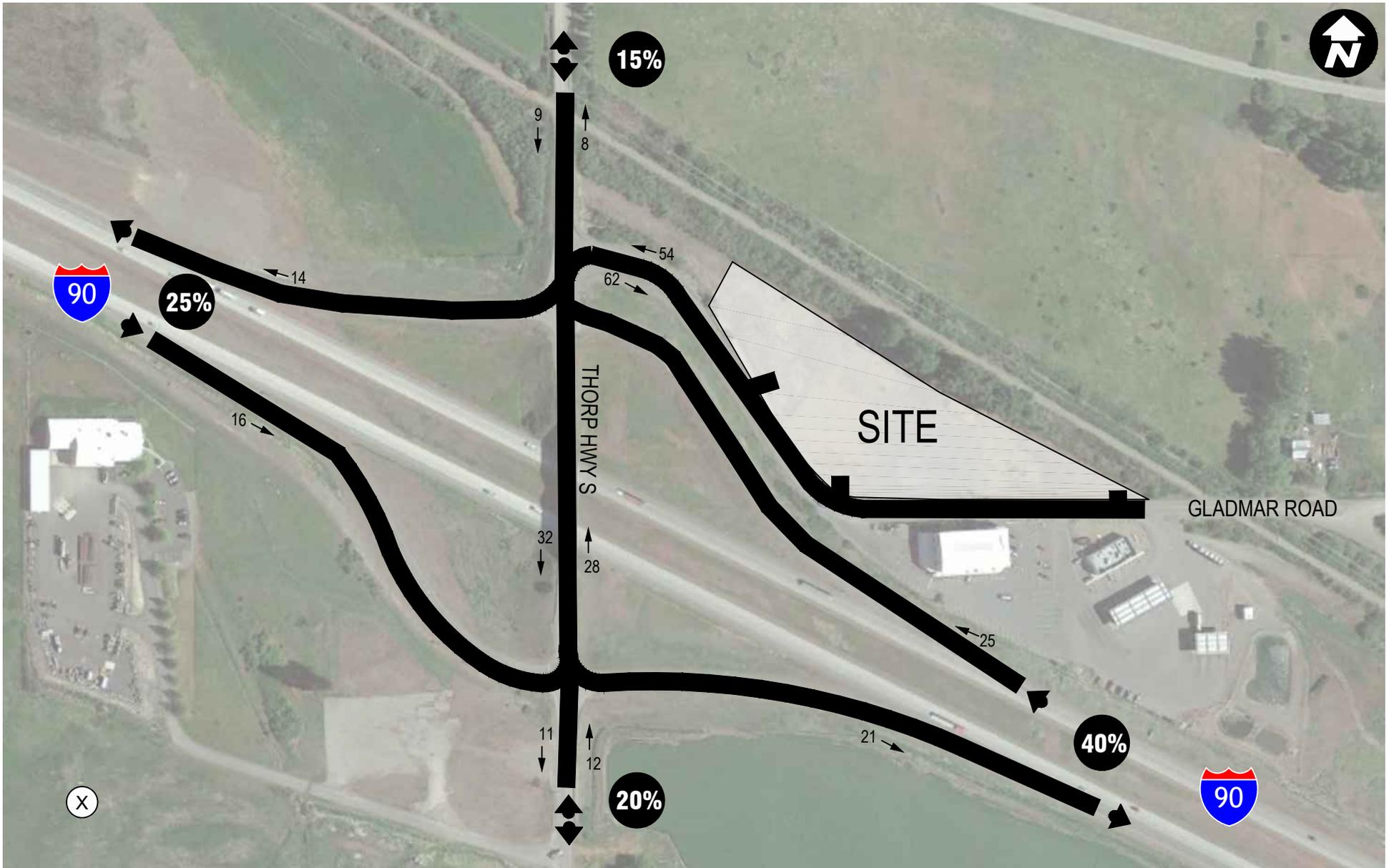
The distribution pattern of vehicle trips travelling to and from the proposed project were estimated based on existing driveway and study intersection traffic counts. The resulting distribution is shown in Figure 5. Restaurant pass-by trips were distributed based on existing on and off-ramp counts at the I-90 interchange. This results in approximately 65 percent to and from the east and 35 percent to and from the west.

All Card Lock fuel station trips were assumed to be heavy vehicles and would enter the fuel station site via the westernmost driveway. Primary restaurant trips (non-pass-by trips) were assumed to access the site via the middle proposed drive given its proximity to the on-site parking. Pass-by restaurant trips were assumed to enter via the eastern driveway given its location near the drive-through window lane, and to then exit the site via the middle driveway near the exit of the drive-through window.

The assignment of weekday PM peak hour project generated traffic based on these distributions is also summarized in Figure 5.

Total Network Traffic

The assignment of weekday PM peak hour project generated traffic was added to future (2020) seasonally adjusted without-project traffic volumes at the study intersections and site access driveways. The resulting 2020 with-project traffic volumes are shown in Figure 6.



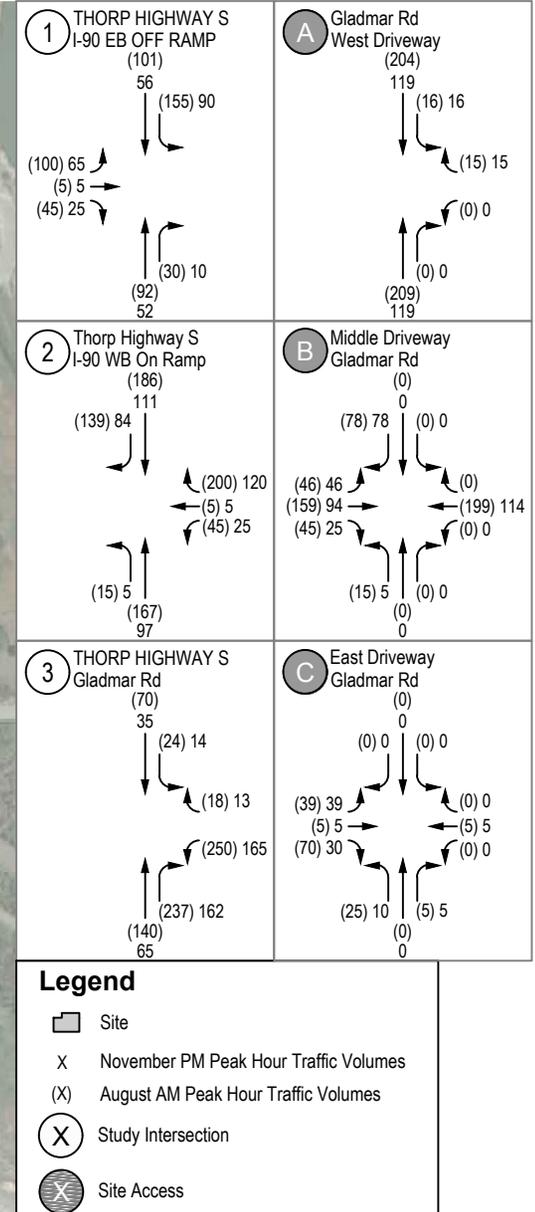
Note: Figure excludes 78 pass-by trips generated by the fast-food restaurant

Project Net Trip Distribution & Assignment

Thorp Fast-Food Restaurant & Gas Station

FIGURE

5



2020 With-Project Weekday PM Peak Hour Traffic Volumes

Thorp Fast-Food Restaurant & Gas Station

FIGURE

Traffic Analysis

This section of the report summarizes existing and forecast traffic operations at the site access driveways and study intersections considering both delays/levels-of-service and queuing. In addition, impacts of site circulation and parking, and traffic safety are also summarized.

Traffic Operations

The following sections summarize traffic operations for observed and seasonally adjusted existing conditions, as well as future without and with-project conditions. The review of future with-project conditions also describes site access circulation and operations.

Existing Traffic Operations

Existing weekday PM peak hour traffic operations were evaluated at the study intersections and site access driveways consistent with the procedures identified in the *Highway Capacity Manual* (2010), and evaluated using Synchro version 9.1. This methodology provides an estimate of vehicular delays and corresponding levels-of-service (LOS) values. In addition, an estimate of 95th-percentile queue lengths at unsignalized intersections such as the off-site and site access study intersections is also provided.

At stop-sign-controlled intersections, LOS is measured in the delay per vehicle for the worst operating approach or lane group. Traffic operations for an intersection can be described alphabetically with a range of levels of service (LOS A through F), with LOS A indicating free-flowing traffic and LOS F indicating extreme congestion and long vehicle delays. Appendix B contains a detailed explanation of LOS criteria and definitions. HCM calculations used heavy vehicle percentages observed during the November 2016 data collection. With increased traffic volumes, the relative magnitude of the peak traffic flow can vary relative to the remainder of the peak one-hour period. Thus, the Peak Hour Factor (PHF) used for the seasonally adjusted condition could be based on information published in NCHRP 599 report¹ for ranges of intersection volumes. For the existing seasonally adjusted scenario, no PHF adjustment was needed as traffic volumes remain below the minimum thresholds for updating this parameter.

Table 4 summarizes the existing weekday PM peak hour LOS and 95th-percentile queue lengths at study intersections under existing observed conditions (November 2016 counts) and seasonally adjusted existing condition volumes. The detailed LOS and queue length worksheets are provided in Appendix C.

Table 4. Existing (2016) Study Intersection Traffic Operations Summary

Intersection	November 2016 Counts			Seasonally Adjusted		
	LOS ¹	Delay ²	WM ³ & Queue ⁴	LOS	Delay	WM & Queue
I-90 EB Ramps & Thorp Highway S	B	10	EB - <1 veh	B	13	EB - 1 veh
I-90 WB Ramps & Thorp Highway S	A	10	WB - <1 veh	B	12	WB - 2 veh
Thorp Highway S & Gladmar Road	B	10	WB - <1 veh	B	14	WB - 2 veh

1. Level of service, based on 2010 Highway Capacity Manual methodology.
2. Average delay in seconds per vehicle.
3. Worst movement reported for unsignalized intersections.
4. 95th-percentile queue length reported. 95 percent of queues occurring during the peak hour are shorter than the 95th-percentile.

¹ National Cooperative Highway Research Program (NCHRP) Report 599. *Default Values for Highway Capacity and Level of Service Analyses*

Based on the Kittitas County Long Range Transportation Plan, Kittitas County has adopted an LOS standard of LOS C for all intersections located in the designated rural area. As shown in Table 4~~Error! Reference source not found.~~, all existing study intersections currently operate at LOS B or better during either observed (November 2016) or seasonal peak conditions. Queue lengths are also 2 vehicles or shorter and do not extend into adjacent intersections, driveways, or near mainline I-90.

Future Without & With-Project Traffic Operations

Future (2020) traffic operations were evaluated consistent with the existing conditions analysis (HCM methodology). Because of increased traffic volumes related to seasonal adjustment factors and both background traffic growth, Peak Hour Factors for study intersections recommended by NCHRP 599 were used for the analysis of future operations. In addition, traffic generated by the proposed Card Lock fuel station is anticipated to be almost exclusively semi-truck vehicles. The heavy vehicle percentages used in the operational analysis have been adjusted to reflect this increased truck traffic for future with-project conditions.

Table 5 summarizes future (2020) without and with-project conditions at the three off-site study intersections. Site access driveway operations as summarized in Table 6. The detailed LOS and queue length worksheets are provided in Appendix C.

Table 5. Future (2020) Without & With-Project Seasonally Adjusted Study Intersection Traffic Operations Summary

Intersection	2020 Without-Project			2020 With-Project		
	LOS ¹	Delay ²	WM ³ & Queue ⁴	LOS	Delay	WM & Queue
I-90 EB Ramps & Thorp Highway S	B	15	EB – 2 veh	C	17	EB - 2 veh
I-90 WB Ramps & Thorp Highway S	B	12	WB - 2 veh	B	13	WB - 2 veh
Thorp Highway S & Gladmar Road	B	14	WB – 2 veh	C	21	WB - 4 veh

1. Level of service, based on 2010 Highway Capacity Manual methodology.
2. Average delay in seconds per vehicle.
3. Worst movement reported for unsignalized intersections.
4. 95th-percentile queue length reported. 95 percent of queues occurring during the peak hour are shorter than the 95th-percentile.

Table 6. Future (2020) With-Project Seasonally Adjusted Site Access Driveway Traffic Operations Summary

Driveway Intersection	November 2016 Counts		
	LOS ¹	Delay ²	WM ³ & Queue ⁴
West Driveway & Gladmar Road	B	11	WB - <1 veh
Middle Driveway & Gladmar Road	C	15	NB - <1 veh
East Driveway & Gladmar Road	A	10	NB - <1 veh

1. Level of service, based on 2010 Highway Capacity Manual methodology.
2. Average delay in seconds per vehicle.
3. Worst movement reported for unsignalized intersections.
4. 95th-percentile queue length reported. 95 percent of queues occurring during the peak hour are shorter than the 95th-percentile

As shown in Table 5, all off-site study intersections would operate at LOS C with both background and project generated traffic growth during forecast peak season conditions. This forecast meets Kittitas County’s LOS C standard identified in the Long Range Transportation Plan. Table 6 shows that the worst operating movements at the site access driveways is anticipated to be the driveway approach and not occur on Gladmar Road. The worst movement at all three driveways is forecast to operate at LOS C or better with peak queues

during the peak season that are less than one vehicle based on HCM queue length methodologies.

Traffic Safety Impact

Potential impact to vehicular and pedestrian/bicyclist safety were reviewed.

Traffic generated by the proposed project would likely result in a proportionate increase in the probability of collisions. It is unlikely, however, that this traffic would create a safety hazard or significantly increase the number of reported collisions in the study area.

Vehicular sight distance at the site access driveways was also reviewed. Based on Kittitas County sight distance requirements,² sight distance at the three proposed site driveways was analyzed based on the posted speed limit of 35 mph. County requirements indicate 250 feet of sight distance is required and is illustrated for each driveway location in Figure 7, Figure 8, and Figure 9 for west, middle, and east driveways, respectively.

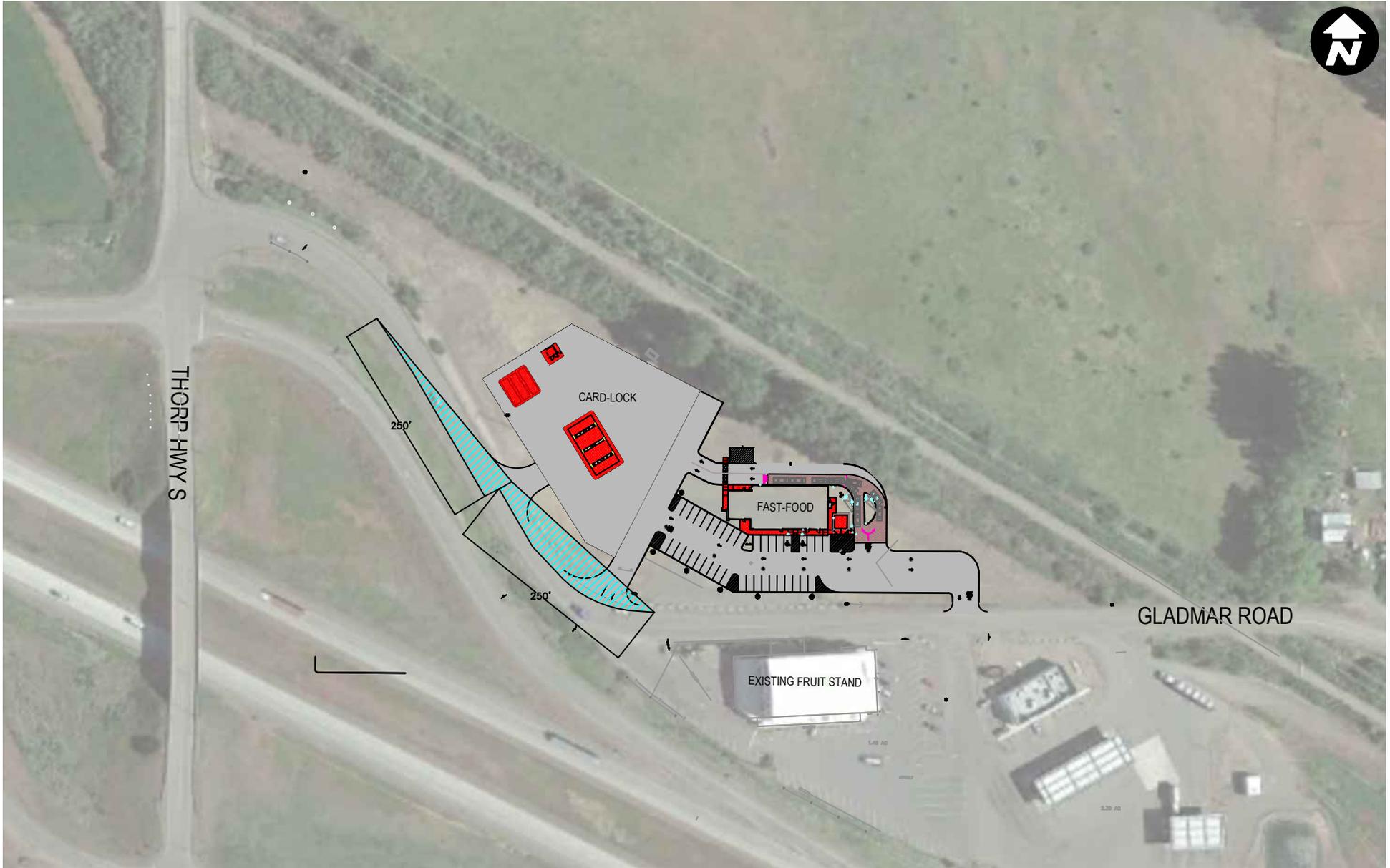
Based on the project's proposed uses, nearly all project trips are expected to be vehicular; minimal increases to pedestrian and bicycle travel is expected. In addition, the majority of project traffic is expected to travel to/from I-90 and would not notably increase vehicular traffic and non-motorized conflicts at the Iron Horse-John Wayne Pioneer Trail crossing located north and east of the project site when also considering the low volume recreational nature of the trail.

Circulation & Parking

A surface parking lot would be provided adjacent to the proposed restaurant use and no parking would be provide adjacent to the Card Lock fuel station. Access to would be provided through three driveways and traffic can circulate on-site to enter and depart via any of the three different driveway. The preliminary site plan shown in Figure 2 (page 3) illustrates these features.

The two easternmost driveways would be aligned with existing driveways to the south that currently serve Thorp fruit stand, gas station and convenience store. The third is located further west and would generally serve only Card Lock fuel station traffic. As previously described, the site access driveways operate acceptably with development of the proposed restaurant and fuel station uses.

² Kittitas County Code. Chapter 12.05, Table 5-2 Sight Distance Requirements

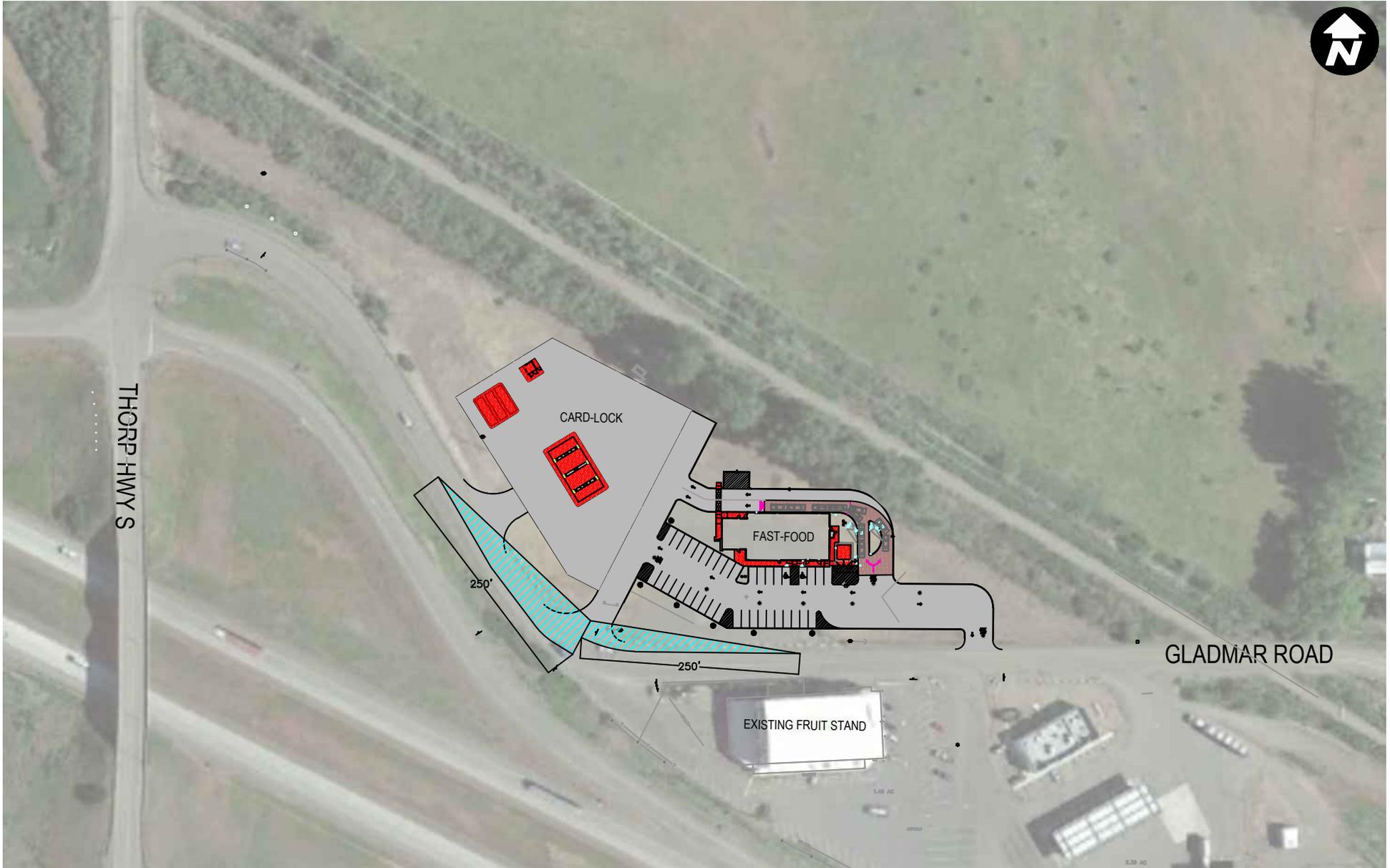


West Driveway (A) Sight Distance

Thorp Fast-Food Restaurant & Gas Station

FIGURE

7

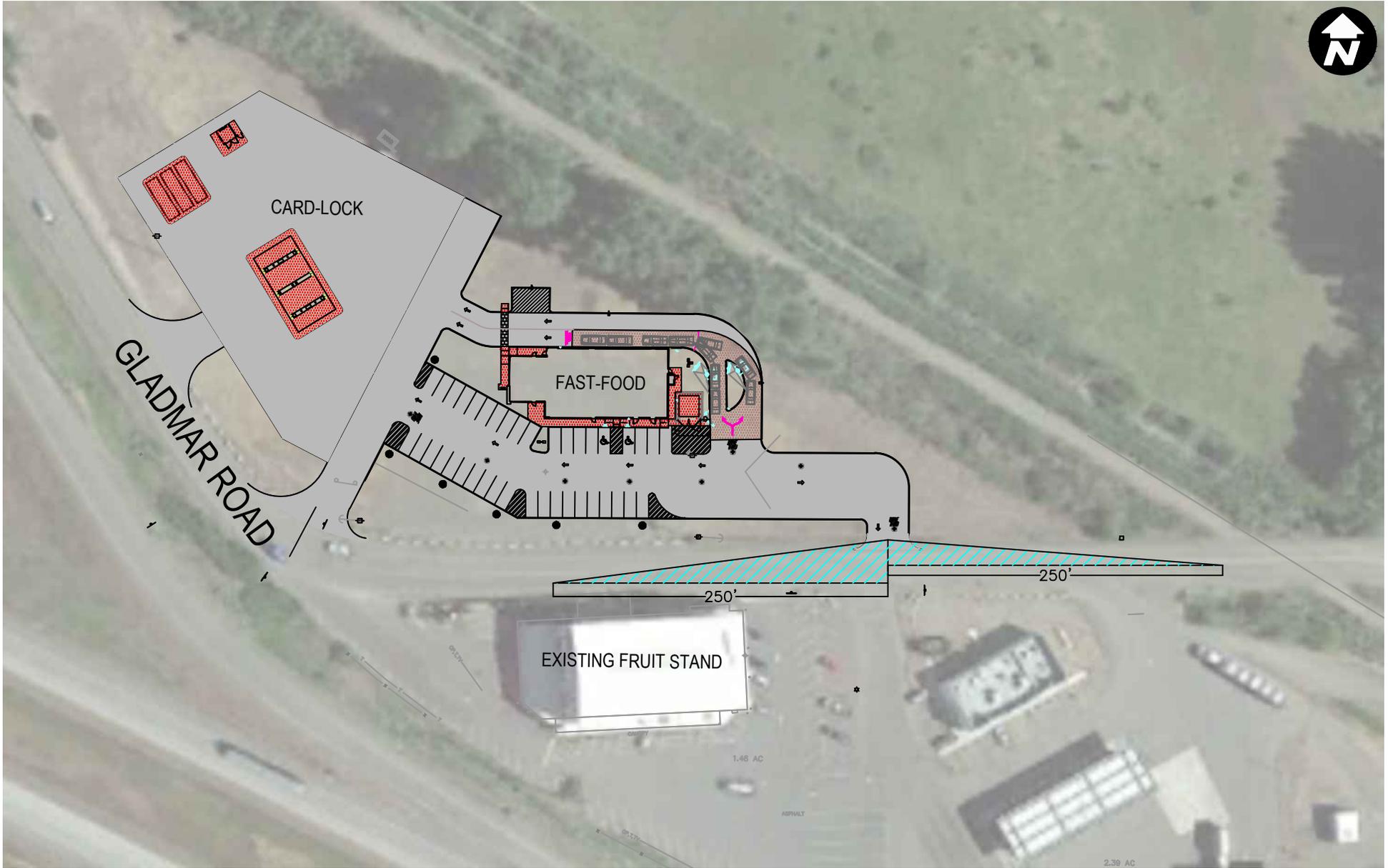


Middle Driveway (B) Sight Distance

Thorp Fast-Food Restaurant & Gas Station

FIGURE

8



East Driveway (C) Sight Distance

Thorp Fast-Food Restaurant & Gas Station

FIGURE

9

Findings and Conclusions

This TIA summarizes the transportation impacts associated with the fast-food restaurant and card-lock gas station located in Thorp, Washington. General findings and recommendations include:

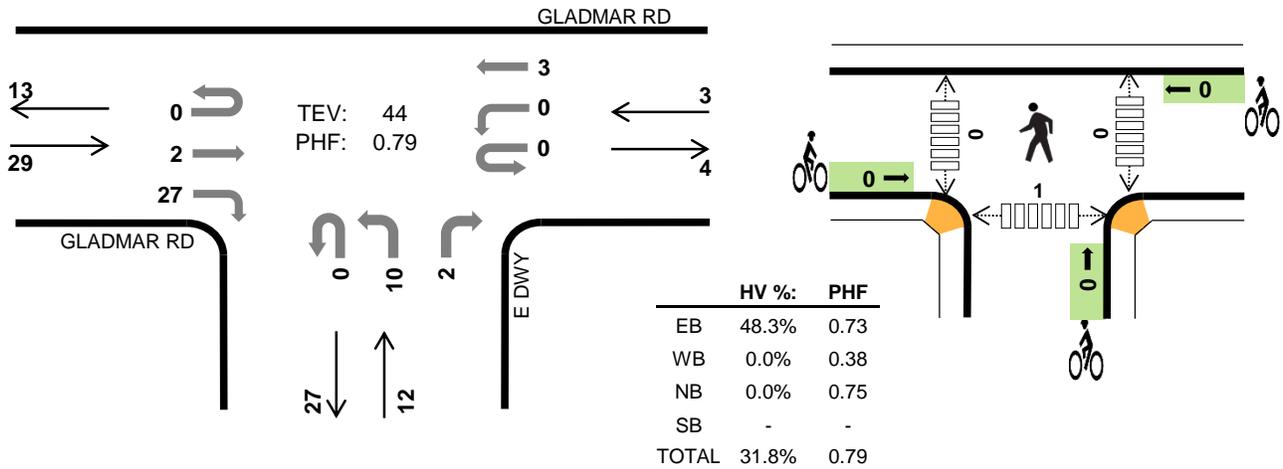
- The proposed project would construct a 5,000 square feet fast-food restaurant with drive-through and a 4-pump card-lock gas station. 39 parking spaces would be provided on a surface parking lot.
- The proposed project is anticipated to generate approximately 1,360 net new daily vehicle trips with 146 net new vehicle trips during the AM peak hour and 116 net new vehicle trips during the PM peak hour.
- Access to the proposed site would be provided through three new driveways on the north side of Gladmar Road.
- All the off-site study intersections are anticipated to operate at LOS C or better with the project which would meet Kittitas County LOS standards.
- The three site driveways are also expected to meet LOS standards during future November and peak August conditions.

E DWY GLADMAR RD



Peak Hour

Date: Wed, Nov 09, 2016
 Count Period: 4:00 PM to 6:00 PM
 Peak Hour: 4:30 PM to 5:30 PM



Two-Hour Count Summaries

Interval Start	GLADMAR RD Eastbound				GLADMAR RD Westbound				E DWY Northbound				0 Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	9	0	0	0	0	0	1	0	0	0	0	0	0	10	0
4:15 PM	0	0	2	1	0	0	0	0	0	1	0	0	0	0	0	0	4	0
4:30 PM	0	0	0	6	0	0	1	0	0	0	0	1	0	0	0	0	8	0
4:45 PM	0	0	1	9	0	0	0	0	0	3	0	1	0	0	0	0	14	36
5:00 PM	0	0	0	8	0	0	2	0	0	3	0	0	0	0	0	0	13	39
5:15 PM	0	0	1	4	0	0	0	0	0	4	0	0	0	0	0	0	9	44
5:30 PM	0	0	0	7	0	0	0	0	0	1	0	0	0	0	0	0	8	44
5:45 PM	0	0	0	2	0	0	0	0	0	3	0	0	0	0	0	0	5	35
Count Total	0	0	4	46	0	0	3	0	0	16	0	2	0	0	0	0	71	0
Peak Hour	0	0	2	27	0	0	3	0	0	10	0	2	0	0	0	0	44	0

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

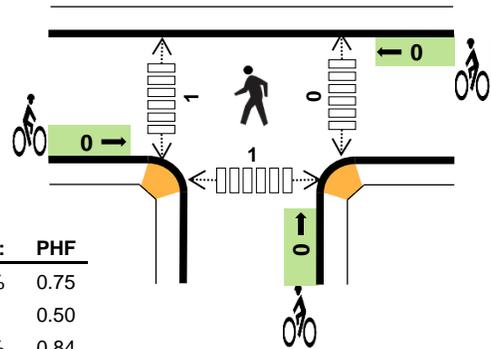
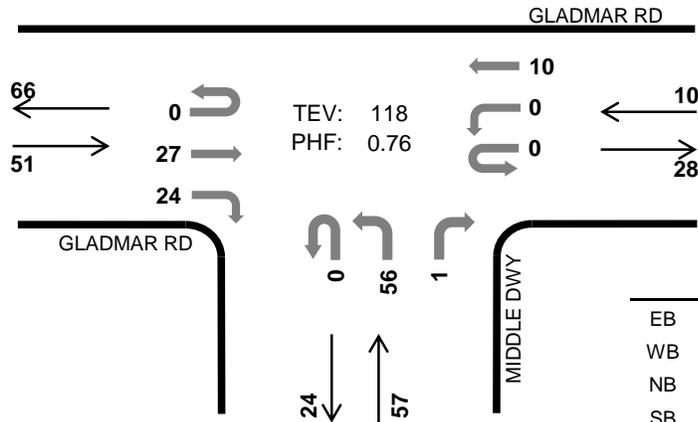
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0
4:15 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
4:30 PM	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0
4:45 PM	5	0	0	0	5	0	0	0	0	0	0	0	0	1	1
5:00 PM	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0
5:15 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
5:30 PM	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0
5:45 PM	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0
Count Total	25	0	0	0	25	0	0	0	0	0	0	0	0	1	1
Peak Hr	14	0	0	0	14	0	0	0	0	0	0	0	0	1	1

MIDDLE DWY GLADMAR RD



Peak Hour

Date: Wed, Nov 09, 2016
 Count Period: 4:00 PM to 6:00 PM
 Peak Hour: 4:15 PM to 5:15 PM



	HV %:	PHF
EB	23.5%	0.75
WB	0.0%	0.50
NB	24.6%	0.84
SB	-	-
TOTAL	22.0%	0.76

Two-Hour Count Summaries

Interval Start	GLADMAR RD Eastbound				GLADMAR RD Westbound				MIDDLE DWY Northbound				0 Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	9	3	0	0	1	0	0	21	0	0	0	0	0	0	34	0
4:15 PM	0	0	2	6	0	0	1	0	0	13	0	1	0	0	0	0	23	0
4:30 PM	0	0	6	3	0	0	1	0	0	13	0	0	0	0	0	0	23	0
4:45 PM	0	0	10	7	0	0	3	0	0	13	0	0	0	0	0	0	33	113
5:00 PM	0	0	9	8	0	0	5	0	0	17	0	0	0	0	0	0	39	118
5:15 PM	0	0	5	2	0	0	4	0	0	10	0	0	0	0	0	0	21	116
5:30 PM	0	0	7	4	0	0	1	0	0	7	0	0	0	0	0	0	19	112
5:45 PM	0	0	2	4	0	0	3	0	0	4	0	0	0	0	0	0	13	92
Count Total	0	0	50	37	0	0	19	0	0	98	0	1	0	0	0	0	205	0
Peak Hour	0	0	27	24	0	0	10	0	0	56	0	1	0	0	0	0	118	0

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

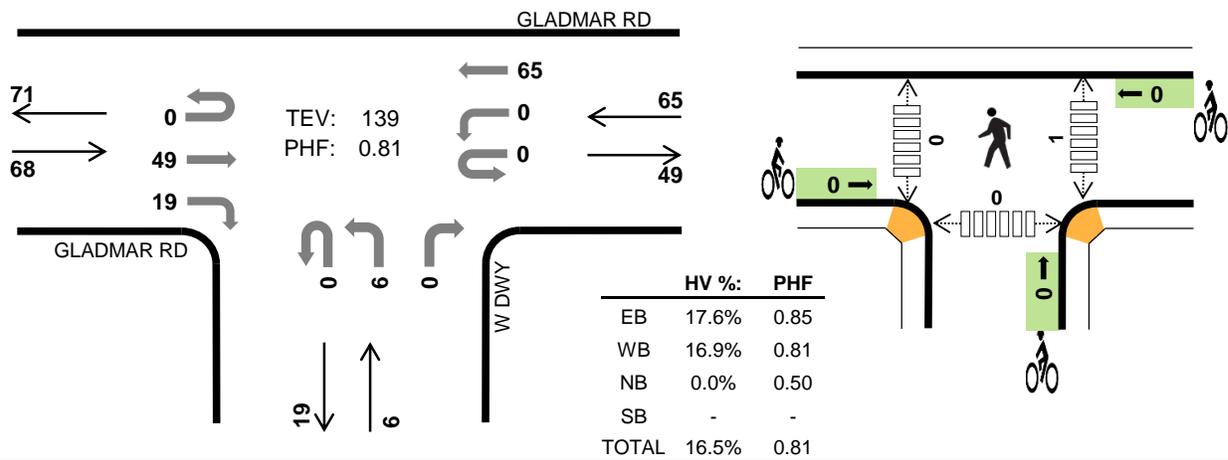
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	4	0	3	0	7	0	0	0	0	0	0	0	0	0	0
4:15 PM	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0
4:30 PM	3	0	3	0	6	0	0	0	0	0	0	0	0	0	0
4:45 PM	4	0	6	0	10	0	0	0	0	0	0	0	0	1	1
5:00 PM	4	0	4	0	8	0	0	0	0	0	0	1	0	0	1
5:15 PM	1	0	3	0	4	0	0	0	0	0	0	0	0	0	0
5:30 PM	4	0	2	0	6	0	0	0	0	0	0	0	0	0	0
5:45 PM	2	0	1	0	3	0	0	0	0	0	0	0	0	0	0
Count Total	23	0	23	0	46	0	0	0	0	0	0	1	0	1	2
Peak Hr	12	0	14	0	26	0	0	0	0	0	0	1	0	1	2

W DWY GLADMAR RD



Peak Hour

Date: Wed, Nov 09, 2016
 Count Period: 4:00 PM to 6:00 PM
 Peak Hour: 4:15 PM to 5:15 PM



Two-Hour Count Summaries

Interval Start	GLADMAR RD Eastbound				GLADMAR RD Westbound				W DWY Northbound				W DWY Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	12	5	0	0	24	0	0	0	0	0	0	0	0	0	41	0
4:15 PM	0	0	7	5	0	0	15	0	0	1	0	0	0	0	0	0	28	0
4:30 PM	0	0	9	7	0	0	13	0	0	1	0	0	0	0	0	0	30	0
4:45 PM	0	0	17	3	0	0	17	0	0	1	0	0	0	0	0	0	38	137
5:00 PM	0	0	16	4	0	0	20	0	0	3	0	0	0	0	0	0	43	139
5:15 PM	0	0	7	3	0	0	16	0	0	2	0	0	0	0	0	0	28	139
5:30 PM	0	0	10	1	0	0	8	0	0	4	0	0	0	0	0	0	23	132
5:45 PM	0	0	6	1	0	0	8	0	0	0	0	0	0	0	0	0	15	109
Count Total	0	0	84	29	0	0	121	0	0	12	0	0	0	0	0	0	246	0
Peak Hour	0	0	49	19	0	0	65	0	0	6	0	0	0	0	0	0	139	0

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

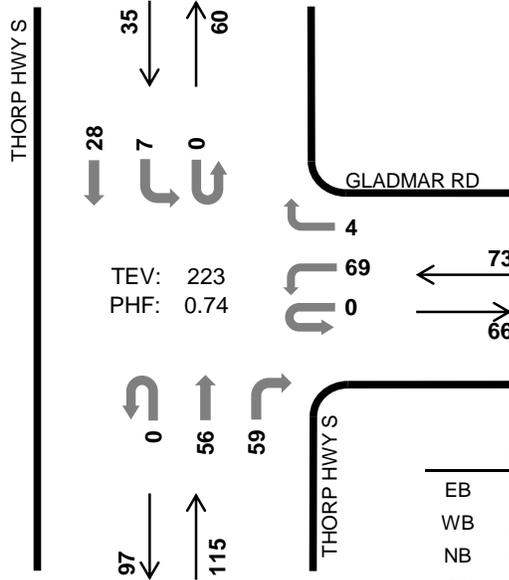
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	4	3	0	0	7	0	0	0	0	0	0	0	0	0	0
4:15 PM	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0
4:30 PM	3	2	0	0	5	0	0	0	0	0	0	0	0	0	0
4:45 PM	4	5	0	0	9	0	0	0	0	0	0	0	0	0	0
5:00 PM	4	3	0	0	7	0	0	0	0	0	1	0	0	0	1
5:15 PM	1	3	0	0	4	0	0	0	0	0	0	0	0	0	0
5:30 PM	2	2	0	0	4	0	0	0	0	0	0	0	0	0	0
5:45 PM	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0
Count Total	21	19	0	0	40	0	0	0	0	0	1	0	0	0	1
Peak Hr	12	11	0	0	23	0	0	0	0	0	1	0	0	0	1

THORP HWY S GLADMAR RD

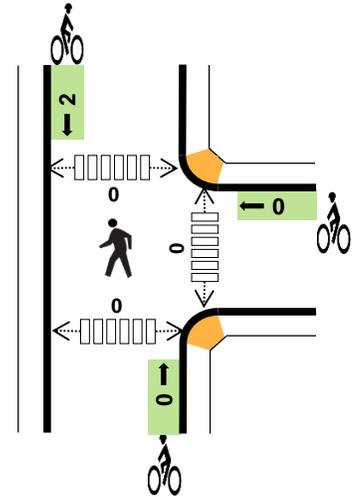


Peak Hour

Date: Wed, Nov 09, 2016
 Count Period: 4:00 PM to 6:00 PM
 Peak Hour: 4:30 PM to 5:30 PM



TEV: 223
 PHF: 0.74



	HV %:	PHF
EB	-	-
WB	23.3%	0.70
NB	12.2%	0.85
SB	0.0%	0.49
TOTAL	13.9%	0.74

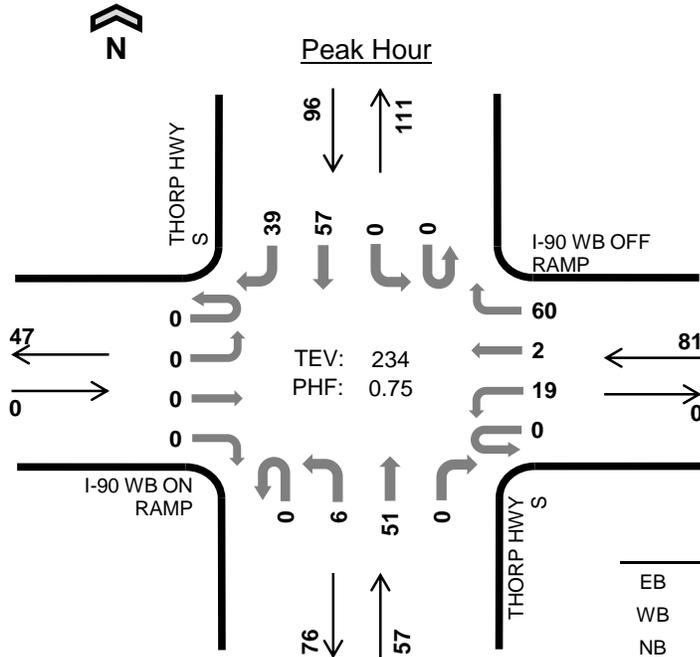
Two-Hour Count Summaries

Interval Start	0				GLADMAR RD				THORP HWY S				THORP HWY S				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	20	0	2	0	0	7	14	0	2	11	0	56	0
4:15 PM	0	0	0	0	0	17	0	1	0	0	8	11	0	2	4	0	43	0
4:30 PM	0	0	0	0	0	13	0	1	0	0	6	16	0	0	4	0	40	0
4:45 PM	0	0	0	0	0	14	0	1	0	0	17	17	0	3	4	0	56	195
5:00 PM	0	0	0	0	0	25	0	1	0	0	13	18	0	3	15	0	75	214
5:15 PM	0	0	0	0	0	17	0	1	0	0	20	8	0	1	5	0	52	223
5:30 PM	0	0	0	0	0	10	0	1	0	0	8	9	0	3	6	0	37	220
5:45 PM	0	0	0	0	0	8	0	2	0	0	6	7	0	0	7	0	30	194
Count Total	0	0	0	0	0	124	0	10	0	0	85	100	0	14	56	0	389	0
Peak Hour	0	0	0	0	0	69	0	4	0	0	56	59	0	7	28	0	223	0

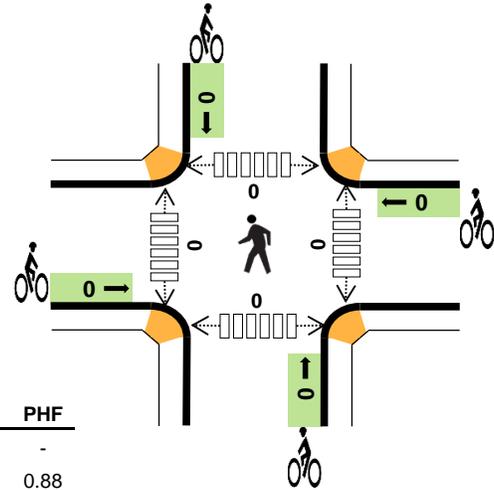
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	3	6	0	9	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	2	1	0	3	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	2	4	0	6	0	0	0	1	1	0	0	0	0	0
4:45 PM	0	6	5	0	11	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	5	4	0	9	0	0	0	1	1	0	0	0	0	0
5:15 PM	0	4	1	0	5	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	2	4	0	6	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	1	2	0	3	0	0	0	0	0	0	0	0	0	0
Count Total	0	25	27	0	52	0	0	0	2	2	0	0	0	0	0
Peak Hr	0	17	14	0	31	0	0	0	2	2	0	0	0	0	0

THORP HWY S I-90 WB ON RAMP



Date: Wed, Nov 09, 2016
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM



	HV %:	PHF
EB	-	-
WB	11.1%	0.88
NB	12.3%	0.71
SB	15.6%	0.62
TOTAL	13.2%	0.75

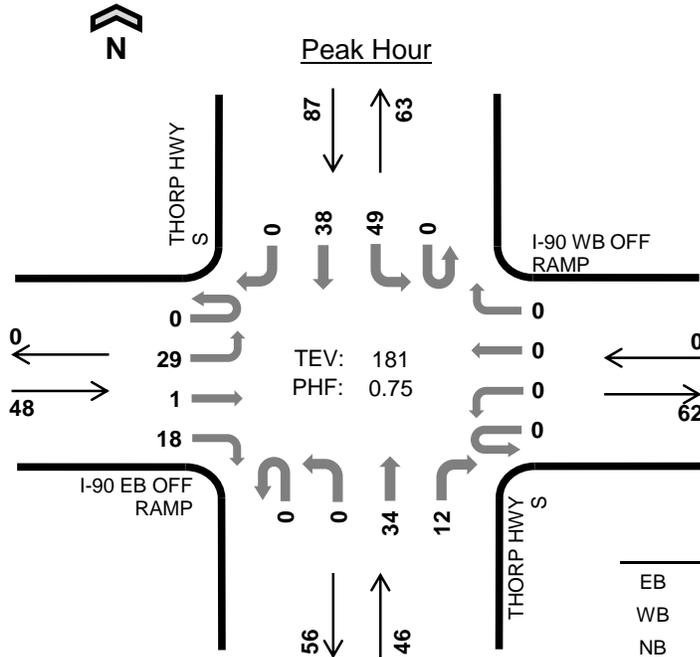
Two-Hour Count Summaries

Interval Start	I-90 WB ON RAMP				I-90 WB OFF RAMP				THORP HWY S Northbound				THORP HWY S Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	14	0	0	7	0	0	0	19	11	51	0
4:15 PM	0	0	0	0	0	0	1	11	0	2	6	0	0	0	15	6	41	0
4:30 PM	0	0	0	0	0	3	0	14	0	0	7	0	0	0	8	9	41	0
4:45 PM	0	0	0	0	0	3	1	19	0	1	12	0	0	0	9	9	54	187
5:00 PM	0	0	0	0	0	7	0	15	0	0	17	0	0	0	26	13	78	214
5:15 PM	0	0	0	0	0	6	1	12	0	5	15	0	0	0	14	8	61	234
5:30 PM	0	0	0	0	0	2	0	6	0	2	10	0	0	0	13	4	37	230
5:45 PM	0	0	0	0	0	5	0	7	0	0	7	0	0	0	12	4	35	211
Count Total	0	0	0	0	0	26	3	98	0	10	81	0	0	0	116	64	398	0
Peak Hour	0	0	0	0	0	19	2	60	0	6	51	0	0	0	57	39	234	0

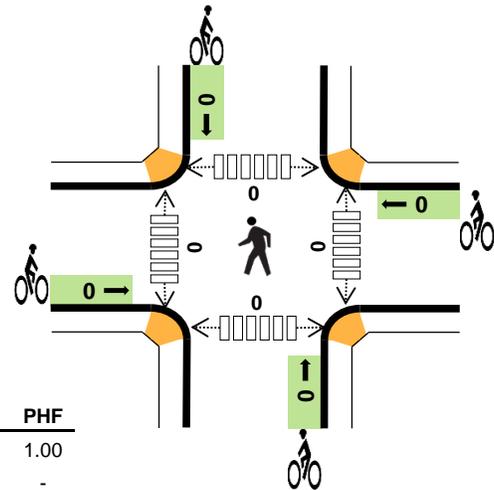
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	2	3	2	7	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	1	2	3	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	3	1	2	6	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	2	2	5	9	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	3	4	5	12	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	1	0	3	4	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	1	3	3	7	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	1	1	1	3	0	0	0	0	0	0	0	0	0	0
Count Total	0	13	15	23	51	0	0	0	0	0	0	0	0	0	0
Peak Hour	0	9	7	15	31	0	0	0	0	0	0	0	0	0	0

THORP HWY S I-90 EB OFF RAMP



Date: Wed, Nov 09, 2016
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM



	HV %:	PHF
EB	12.5%	1.00
WB	-	-
NB	0.0%	0.64
SB	9.2%	0.60
TOTAL	7.7%	0.75

Two-Hour Count Summaries

Interval Start	I-90 EB OFF RAMP				I-90 WB OFF RAMP				THORP HWY S Northbound				THORP HWY S Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	4	0	5	0	0	0	0	0	0	3	4	0	15	4	0	35	0
4:15 PM	0	4	1	3	0	0	0	0	0	0	4	3	0	10	4	0	29	0
4:30 PM	0	4	0	4	0	0	0	0	0	0	3	2	0	5	7	0	25	0
4:45 PM	0	7	1	4	0	0	0	0	0	0	8	2	0	9	5	0	36	125
5:00 PM	0	9	0	3	0	0	0	0	0	0	7	5	0	17	19	0	60	150
5:15 PM	0	5	0	7	0	0	0	0	0	0	15	3	0	11	10	0	51	172
5:30 PM	0	8	0	4	0	0	0	0	0	0	4	2	0	12	4	0	34	181
5:45 PM	0	4	0	2	0	0	0	0	0	0	3	1	0	9	9	0	28	173
Count Total	0	45	2	32	0	0	0	0	0	0	47	22	0	88	62	0	298	0
Peak Hour	0	29	1	18	0	0	0	0	0	0	34	12	0	49	38	0	181	0

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

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	2	0	0	2	4	0	0	0	0	0	0	0	0	0	0
4:15 PM	2	0	0	2	4	0	0	0	0	0	0	0	0	0	0
4:30 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
4:45 PM	2	0	0	4	6	0	0	0	0	0	0	0	0	0	0
5:00 PM	1	0	0	3	4	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	3	0	0	1	4	0	0	0	0	0	0	0	0	0	0
5:45 PM	1	0	0	1	2	0	0	0	0	0	0	0	0	0	0
Count Total	12	0	0	13	25	0	0	0	0	0	0	0	0	0	0
Peak Hour	6	0	0	8	14	0	0	0	0	0	0	0	0	0	0

Highway Capacity Manual 2010

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

Table 1. Level of Service Criteria for Signalized Intersections

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

Source: *Highway Capacity Manual 2010*, Transportation Research Board, 2010.

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

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

Table 2. Level of Service Criteria for Unsignalized Intersections

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

Source: *Highway Capacity Manual 2010*, Transportation Research Board, 2010.

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

Intersection												
Int Delay, s/veh	4.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	30	5	20	0	0	0	0	35	10	50	40	0
Future Vol, veh/h	30	5	20	0	0	0	0	35	10	50	40	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	13	13	13	0	0	0	0	0	0	9	9	9
Mvmt Flow	40	7	27	0	0	0	0	47	13	67	53	0
Major/Minor	Minor2			Major1			Major2					
Conflicting Flow All	240	247	53	-	0	0	-	0	0	60	0	0
Stage 1	187	187	-	-	-	-	-	-	-	-	-	-
Stage 2	53	60	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	6.53	6.63	6.33	-	-	-	-	-	-	4.19	-	-
Critical Hdwy Stg 1	5.53	5.63	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.53	5.63	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.617	4.117	3.417	-	-	-	-	-	-	2.281	-	-
Pot Cap-1 Maneuver	725	637	984	0	-	-	0	-	-	1500	-	0
Stage 1	819	725	-	0	-	-	0	-	-	-	-	0
Stage 2	942	824	-	0	-	-	0	-	-	-	-	0
Platoon blocked, %												
Mov Cap-1 Maneuver	692	0	984	-	-	-	-	-	-	1500	-	-
Mov Cap-2 Maneuver	692	0	-	-	-	-	-	-	-	-	-	-
Stage 1	781	0	-	-	-	-	-	-	-	-	-	-
Stage 2	942	0	-	-	-	-	-	-	-	-	-	-
Approach	EB			NB			SB					
HCM Control Delay, s	10.1			0			4.2					
HCM LOS	B											
Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBL	SBT							
Capacity (veh/h)	-	-	785	1500	-							
HCM Lane V/C Ratio	-	-	0.093	0.044	-							
HCM Control Delay (s)	-	-	10.1	7.5	0							
HCM Lane LOS	-	-	B	A	A							
HCM 95th %tile Q(veh)	-	-	0.3	0.1	-							

HCM 2010 TWSC
2: Thorp Highway S & I-90 WB ramps

Thorp Fast Food + Gas Station
Existing November PM Peak

Intersection

Int Delay, s/veh 3.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Vol, veh/h	0	0	0	20	5	60	5	50	0	0	55	40
Future Vol, veh/h	0	0	0	20	5	60	5	50	0	0	55	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	11	11	11	12	12	12	16	16	16
Mvmt Flow	0	0	0	27	7	80	7	67	0	0	73	53

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	180	207	67	127	0	-	-	-	0
Stage 1	80	80	-	-	-	-	-	-	-
Stage 2	100	127	-	-	-	-	-	-	-
Critical Hdwy	6.51	6.61	6.31	4.22	-	-	-	-	-
Critical Hdwy Stg 1	5.51	5.61	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.51	5.61	-	-	-	-	-	-	-
Follow-up Hdwy	3.599	4.099	3.399	2.308	-	-	-	-	-
Pot Cap-1 Maneuver	789	674	972	1399	-	0	0	-	-
Stage 1	921	811	-	-	-	0	0	-	-
Stage 2	902	774	-	-	-	0	0	-	-
Platoon blocked, %									
Mov Cap-1 Maneuver	785	0	972	1399	-	-	-	-	-
Mov Cap-2 Maneuver	785	0	-	-	-	-	-	-	-
Stage 1	916	0	-	-	-	-	-	-	-
Stage 2	902	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBTWBLn1	SBT	SBR
Capacity (veh/h)	1399	-	917	-
HCM Lane V/C Ratio	0.005	-	0.124	-
HCM Control Delay (s)	7.6	0	9.5	-
HCM Lane LOS	A	A	A	-
HCM 95th %tile Q(veh)	0	-	0.4	-

Intersection

Int Delay, s/veh 3.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	70	5	55	60	5	30
Future Vol, veh/h	70	5	55	60	5	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	23	23	12	12	0	0
Mvmt Flow	95	7	74	81	7	41

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	169	115	0	0	155	0
Stage 1	115	-	-	-	-	-
Stage 2	54	-	-	-	-	-
Critical Hdwy	6.63	6.43	-	-	4.1	-
Critical Hdwy Stg 1	5.63	-	-	-	-	-
Critical Hdwy Stg 2	5.63	-	-	-	-	-
Follow-up Hdwy	3.707	3.507	-	-	2.2	-
Pot Cap-1 Maneuver	775	884	-	-	1438	-
Stage 1	860	-	-	-	-	-
Stage 2	918	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	771	884	-	-	1438	-
Mov Cap-2 Maneuver	771	-	-	-	-	-
Stage 1	860	-	-	-	-	-
Stage 2	913	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	10.3		0		1.1
HCM LOS	B				

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 778	1438	-
HCM Lane V/C Ratio	-	- 0.13	0.005	-
HCM Control Delay (s)	-	- 10.3	7.5	0
HCM Lane LOS	-	- B	A	A
HCM 95th %tile Q(veh)	-	- 0.4	0	-

Intersection

Int Delay, s/veh 5.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	60	5	40	0	0	0	0	70	25	105	80	0
Future Vol, veh/h	60	5	40	0	0	0	0	70	25	105	80	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free								
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	13	13	13	0	0	0	0	0	0	9	9	9
Mvmt Flow	80	7	53	0	0	0	0	93	33	140	107	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	497	514	107	-	0	0	127	0	0
Stage 1	387	387	-	-	-	-	-	-	-
Stage 2	110	127	-	-	-	-	-	-	-
Critical Hdwy	6.53	6.63	6.33	-	-	-	4.19	-	-
Critical Hdwy Stg 1	5.53	5.63	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.53	5.63	-	-	-	-	-	-	-
Follow-up Hdwy	3.617	4.117	3.417	-	-	-	2.281	-	-
Pot Cap-1 Maneuver	513	449	918	0	-	-	1417	-	0
Stage 1	663	591	-	0	-	-	-	-	0
Stage 2	888	770	-	0	-	-	-	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	459	0	918	-	-	-	1417	-	-
Mov Cap-2 Maneuver	459	0	-	-	-	-	-	-	-
Stage 1	593	0	-	-	-	-	-	-	-
Stage 2	888	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.3	0	4.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBL	SBT
Capacity (veh/h)	-	-	574	1417	-
HCM Lane V/C Ratio	-	-	0.244	0.099	-
HCM Control Delay (s)	-	-	13.3	7.8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1	0.3	-

Intersection

Int Delay, s/veh 4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Vol, veh/h	0	0	0	40	5	130	15	110	0	0	120	85
Future Vol, veh/h	0	0	0	40	5	130	15	110	0	0	120	85
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	11	11	11	12	12	12	16	16	16
Mvmt Flow	0	0	0	53	7	173	20	147	0	0	160	113

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	404	460	147
Stage 1	187	187	-
Stage 2	217	273	-
Critical Hdwy	6.51	6.61	6.31
Critical Hdwy Stg 1	5.51	5.61	-
Critical Hdwy Stg 2	5.51	5.61	-
Follow-up Hdwy	3.599	4.099	3.399
Pot Cap-1 Maneuver	586	485	877
Stage 1	824	729	-
Stage 2	798	668	-
Platoon blocked, %			
Mov Cap-1 Maneuver	575	0	877
Mov Cap-2 Maneuver	575	0	-
Stage 1	809	0	-
Stage 2	798	0	-

Approach	WB	NB	SB
HCM Control Delay, s	11.6	1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBTWBLn1	SBT	SBR
Capacity (veh/h)	1235	-	781	-
HCM Lane V/C Ratio	0.016	-	0.299	-
HCM Control Delay (s)	8	0	11.6	-
HCM Lane LOS	A	A	B	-
HCM 95th %tile Q(veh)	0	-	1.3	-

Intersection

Int Delay, s/veh 5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	145	10	120	125	15	60
Future Vol, veh/h	145	10	120	125	15	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	23	23	12	12	0	0
Mvmt Flow	196	14	162	169	20	81

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	369	247	0	0	331	0
Stage 1	247	-	-	-	-	-
Stage 2	122	-	-	-	-	-
Critical Hdwy	6.63	6.43	-	-	4.1	-
Critical Hdwy Stg 1	5.63	-	-	-	-	-
Critical Hdwy Stg 2	5.63	-	-	-	-	-
Follow-up Hdwy	3.707	3.507	-	-	2.2	-
Pot Cap-1 Maneuver	592	743	-	-	1240	-
Stage 1	747	-	-	-	-	-
Stage 2	854	-	-	-	-	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	582	743	-	-	1240	-
Mov Cap-2 Maneuver	582	-	-	-	-	-
Stage 1	747	-	-	-	-	-
Stage 2	839	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	14.4		0		1.6
HCM LOS	B				

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	590	1240
HCM Lane V/C Ratio	-	-	0.355	0.016
HCM Control Delay (s)	-	-	14.4	8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	1.6	0.1

Intersection												
Int Delay, s/veh	5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	35	5	25	0	0	0	0	40	10	55	45	0
Future Vol, veh/h	35	5	25	0	0	0	0	40	10	55	45	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	13	13	13	0	0	0	0	0	0	9	9	9
Mvmt Flow	47	7	33	0	0	0	0	53	13	73	60	0
Major/Minor	Minor2			Major1			Major2					
Conflicting Flow All	267	274	60	-	0	0	-	0	0	67	0	0
Stage 1	207	207	-	-	-	-	-	-	-	-	-	-
Stage 2	60	67	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	6.53	6.63	6.33	-	-	-	-	-	-	4.19	-	-
Critical Hdwy Stg 1	5.53	5.63	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.53	5.63	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.617	4.117	3.417	-	-	-	-	-	-	2.281	-	-
Pot Cap-1 Maneuver	699	615	975	0	-	-	0	-	-	1491	-	0
Stage 1	802	710	-	0	-	-	0	-	-	-	-	0
Stage 2	935	818	-	0	-	-	0	-	-	-	-	0
Platoon blocked, %												
Mov Cap-1 Maneuver	663	0	975	-	-	-	-	-	-	1491	-	-
Mov Cap-2 Maneuver	663	0	-	-	-	-	-	-	-	-	-	-
Stage 1	761	0	-	-	-	-	-	-	-	-	-	-
Stage 2	935	0	-	-	-	-	-	-	-	-	-	-
Approach	EB			NB			SB					
HCM Control Delay, s	10.3			0			4.1					
HCM LOS	B											
Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBL	SBT							
Capacity (veh/h)	-	-	765	1491	-							
HCM Lane V/C Ratio	-	-	0.113	0.049	-							
HCM Control Delay (s)	-	-	10.3	7.5	0							
HCM Lane LOS	-	-	B	A	A							
HCM 95th %tile Q(veh)	-	-	0.4	0.2	-							

HCM 2010 TWSC
2: Thorp Highway S & I-90 WB ramps

Thorp Fast Food + Gas Station
2020 Without-Project November PM Peak

Intersection

Int Delay, s/veh 3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Vol, veh/h	0	0	0	25	5	70	5	55	0	0	65	45
Future Vol, veh/h	0	0	0	25	5	70	5	55	0	0	65	45
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	11	11	11	12	12	12	16	16	16
Mvmt Flow	0	0	0	33	7	93	7	73	0	0	87	60

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	204	234	73	147	0	-	-	-	0
Stage 1	87	87	-	-	-	-	-	-	-
Stage 2	117	147	-	-	-	-	-	-	-
Critical Hdwy	6.51	6.61	6.31	4.22	-	-	-	-	-
Critical Hdwy Stg 1	5.51	5.61	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.51	5.61	-	-	-	-	-	-	-
Follow-up Hdwy	3.599	4.099	3.399	2.308	-	-	-	-	-
Pot Cap-1 Maneuver	765	651	964	1376	-	0	0	-	-
Stage 1	914	806	-	-	-	0	0	-	-
Stage 2	886	759	-	-	-	0	0	-	-
Platoon blocked, %									
Mov Cap-1 Maneuver	761	0	964	1376	-	-	-	-	-
Mov Cap-2 Maneuver	761	0	-	-	-	-	-	-	-
Stage 1	909	0	-	-	-	-	-	-	-
Stage 2	886	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.7	0.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBTWBLn1	SBT	SBR
Capacity (veh/h)	1376	-	901	-
HCM Lane V/C Ratio	0.005	-	0.148	-
HCM Control Delay (s)	7.6	0	9.7	-
HCM Lane LOS	A	A	A	-
HCM 95th %tile Q(veh)	0	-	0.5	-

Intersection

Int Delay, s/veh 3.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	80	5	65	70	5	35
Future Vol, veh/h	80	5	65	70	5	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	23	23	12	12	0	0
Mvmt Flow	108	7	88	95	7	47

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	196	135	0	0	182	0
Stage 1	135	-	-	-	-	-
Stage 2	61	-	-	-	-	-
Critical Hdwy	6.63	6.43	-	-	4.1	-
Critical Hdwy Stg 1	5.63	-	-	-	-	-
Critical Hdwy Stg 2	5.63	-	-	-	-	-
Follow-up Hdwy	3.707	3.507	-	-	2.2	-
Pot Cap-1 Maneuver	747	861	-	-	1405	-
Stage 1	842	-	-	-	-	-
Stage 2	911	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	743	861	-	-	1405	-
Mov Cap-2 Maneuver	743	-	-	-	-	-
Stage 1	842	-	-	-	-	-
Stage 2	906	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	10.7		0		0.9
HCM LOS	B				

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 749	1405	-
HCM Lane V/C Ratio	-	- 0.153	0.005	-
HCM Control Delay (s)	-	- 10.7	7.6	0
HCM Lane LOS	-	- B	A	A
HCM 95th %tile Q(veh)	-	- 0.5	0	-

Intersection

Int Delay, s/veh 6.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	70	5	45	0	0	0	0	80	30	120	90	0
Future Vol, veh/h	70	5	45	0	0	0	0	80	30	120	90	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free								
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	13	13	13	0	0	0	0	0	0	9	9	9
Mvmt Flow	93	7	60	0	0	0	0	107	40	160	120	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	567	587	120	-	0	0	-	0	0
Stage 1	440	440	-	-	-	-	-	-	-
Stage 2	127	147	-	-	-	-	-	-	-
Critical Hdwy	6.53	6.63	6.33	-	-	-	-	4.19	-
Critical Hdwy Stg 1	5.53	5.63	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.53	5.63	-	-	-	-	-	-	-
Follow-up Hdwy	3.617	4.117	3.417	-	-	-	-	2.281	-
Pot Cap-1 Maneuver	467	407	903	0	-	-	0	1393	-
Stage 1	626	559	-	0	-	-	-	-	0
Stage 2	872	755	-	0	-	-	-	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	410	0	903	-	-	-	-	1393	-
Mov Cap-2 Maneuver	410	0	-	-	-	-	-	-	-
Stage 1	549	0	-	-	-	-	-	-	-
Stage 2	872	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.9	0	4.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBL	SBT
Capacity (veh/h)	-	-	521	1393	-
HCM Lane V/C Ratio	-	-	0.307	0.115	-
HCM Control Delay (s)	-	-	14.9	7.9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1.3	0.4	-

HCM 2010 TWSC
2: Thorp Highway S & I-90 WB ramps

Thorp Fast Food + Gas Station
2020 Without-Project August PM Peak

Intersection

Int Delay, s/veh 4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Vol, veh/h	0	0	0	45	5	150	15	125	0	0	140	100
Future Vol, veh/h	0	0	0	45	5	150	15	125	0	0	140	100
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	0	0	11	11	11	12	12	12	16	16	16
Mvmt Flow	0	0	0	52	6	172	17	144	0	0	161	115

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	396	454	144
Stage 1	178	178	-
Stage 2	218	276	-
Critical Hdwy	7.21	6.61	6.31
Critical Hdwy Stg 1	6.21	5.61	-
Critical Hdwy Stg 2	6.21	5.61	-
Follow-up Hdwy	3.599	4.099	3.399
Pot Cap-1 Maneuver	548	489	880
Stage 1	803	735	-
Stage 2	764	666	-
Platoon blocked, %			
Mov Cap-1 Maneuver	542	482	880
Mov Cap-2 Maneuver	542	482	-
Stage 1	791	724	-
Stage 2	764	666	-

Approach	WB	NB	SB
HCM Control Delay, s	11.8	0.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBTWBLn1	SBT	SBR
Capacity (veh/h)	1231	-	758	-
HCM Lane V/C Ratio	0.014	-	0.303	-
HCM Control Delay (s)	8	0	11.8	-
HCM Lane LOS	A	A	B	-
HCM 95th %tile Q(veh)	0	-	1.3	-

Intersection						
Int Delay, s/veh	4.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	165	10	140	145	15	70
Future Vol, veh/h	165	10	140	145	15	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	23	23	12	12	0	0
Mvmt Flow	190	11	161	167	17	80
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	359	244	0	0	328	0
Stage 1	244	-	-	-	-	-
Stage 2	115	-	-	-	-	-
Critical Hdwy	6.63	6.43	-	-	4.1	-
Critical Hdwy Stg 1	5.63	-	-	-	-	-
Critical Hdwy Stg 2	5.63	-	-	-	-	-
Follow-up Hdwy	3.707	3.507	-	-	2.2	-
Pot Cap-1 Maneuver	600	746	-	-	1243	-
Stage 1	750	-	-	-	-	-
Stage 2	860	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	592	746	-	-	1243	-
Mov Cap-2 Maneuver	592	-	-	-	-	-
Stage 1	750	-	-	-	-	-
Stage 2	848	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Delay, s	14		0		1.4	
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	599	1243	-	
HCM Lane V/C Ratio	-	-	0.336	0.014	-	
HCM Control Delay (s)	-	-	14	7.9	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	1.5	0	-	

Intersection												
Int Delay, s/veh	6.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	65	5	25	0	0	0	0	52	10	90	56	0
Future Vol, veh/h	65	5	25	0	0	0	0	52	10	90	56	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	16	16	16	0	0	0	3	3	3	14	14	14
Mvmt Flow	87	7	33	0	0	0	0	69	13	120	75	0
Major/Minor	Minor2			Major1			Major2					
Conflicting Flow All	391	398	75	-	0	0	-	0	0	83	0	0
Stage 1	315	315	-	-	-	-	-	-	-	-	-	-
Stage 2	76	83	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	6.56	6.66	6.36	-	-	-	-	-	-	4.24	-	-
Critical Hdwy Stg 1	5.56	5.66	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.56	5.66	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.644	4.144	3.444	-	-	-	-	-	-	2.326	-	-
Pot Cap-1 Maneuver	587	519	949	-	-	-	0	-	-	1442	-	0
Stage 1	709	631	-	-	-	-	0	-	-	-	-	0
Stage 2	913	799	-	-	-	-	0	-	-	-	-	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	536	0	949	-	-	-	-	-	-	1442	-	-
Mov Cap-2 Maneuver	536	0	-	-	-	-	-	-	-	-	-	-
Stage 1	647	0	-	-	-	-	-	-	-	-	-	-
Stage 2	913	0	-	-	-	-	-	-	-	-	-	-
Approach	EB			NB			SB					
HCM Control Delay, s	12.4			0			4.8					
HCM LOS	B											
Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBL	SBT							
Capacity (veh/h)	-	-	610	1442	-							
HCM Lane V/C Ratio	-	-	0.208	0.083	-							
HCM Control Delay (s)	-	-	12.4	7.7	0							
HCM Lane LOS	-	-	B	A	A							
HCM 95th %tile Q(veh)	-	-	0.8	0.3	-							

HCM 2010 TWSC
2: Thorp Highway S & I-90 WB ramps

Thorp Fast Food + Gas Station
2020 With-Project November PM Peak

Intersection

Int Delay, s/veh 3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Vol, veh/h	0	0	0	25	5	120	5	97	0	0	111	84
Future Vol, veh/h	0	0	0	25	5	120	5	97	0	0	111	84
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	14	14	14	16	16	16	20	20	20
Mvmt Flow	0	0	0	33	7	160	7	129	0	0	148	112

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	347	403	129	260	0	-	-	-	0
Stage 1	143	143	-	-	-	-	-	-	-
Stage 2	204	260	-	-	-	-	-	-	-
Critical Hdwy	6.54	6.64	6.34	4.26	-	-	-	-	-
Critical Hdwy Stg 1	5.54	5.64	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.54	5.64	-	-	-	-	-	-	-
Follow-up Hdwy	3.626	4.126	3.426	2.344	-	-	-	-	-
Pot Cap-1 Maneuver	626	518	890	1227	-	0	0	-	-
Stage 1	855	756	-	-	-	0	0	-	-
Stage 2	802	671	-	-	-	0	0	-	-
Platoon blocked, %									
Mov Cap-1 Maneuver	622	0	890	1227	-	-	-	-	-
Mov Cap-2 Maneuver	622	0	-	-	-	-	-	-	-
Stage 1	850	0	-	-	-	-	-	-	-
Stage 2	802	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBTWBLn1	SBT	SBR
Capacity (veh/h)	1227	-	828	-
HCM Lane V/C Ratio	0.005	-	0.242	-
HCM Control Delay (s)	8	0	10.7	-
HCM Lane LOS	A	A	B	-
HCM 95th %tile Q(veh)	0	-	0.9	-

Intersection

Int Delay, s/veh 5.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	165	13	65	162	14	35
Future Vol, veh/h	165	13	65	162	14	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	28	28	17	17	2	2
Mvmt Flow	223	18	88	219	19	47

Major/Minor	Minor1	Minor2	Major1	Major2	Major3	Major4
Conflicting Flow All	282	197	0	0	307	0
Stage 1	197	-	-	-	-	-
Stage 2	85	-	-	-	-	-
Critical Hdwy	6.68	6.48	-	-	4.12	-
Critical Hdwy Stg 1	5.68	-	-	-	-	-
Critical Hdwy Stg 2	5.68	-	-	-	-	-
Follow-up Hdwy	3.752	3.552	-	-	2.218	-
Pot Cap-1 Maneuver	656	782	-	-	1254	-
Stage 1	778	-	-	-	-	-
Stage 2	877	-	-	-	-	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	646	782	-	-	1254	-
Mov Cap-2 Maneuver	646	-	-	-	-	-
Stage 1	778	-	-	-	-	-
Stage 2	863	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.7	0	2.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	654	1254	-
HCM Lane V/C Ratio	-	-	0.368	0.015	-
HCM Control Delay (s)	-	-	13.7	7.9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1.7	0	-

Intersection

Int Delay, s/veh 1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	15	119	0	16	119
Future Vol, veh/h	0	15	119	0	16	119
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	100	100	17	17	26	26
Mvmt Flow	0	19	147	0	20	147

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	333	147	0	0	147	0
Stage 1	147	-	-	-	-	-
Stage 2	186	-	-	-	-	-
Critical Hdwy	7.4	7.2	-	-	4.36	-
Critical Hdwy Stg 1	6.4	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	4.4	4.2	-	-	2.434	-
Pot Cap-1 Maneuver	502	695	-	-	1300	-
Stage 1	688	-	-	-	-	-
Stage 2	657	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	493	695	-	-	1300	-
Mov Cap-2 Maneuver	493	-	-	-	-	-
Stage 1	688	-	-	-	-	-
Stage 2	646	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	10.3		0		0.9
HCM LOS	B				

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 695	1300	-
HCM Lane V/C Ratio	-	- 0.027	0.015	-
HCM Control Delay (s)	-	- 10.3	7.8	0
HCM Lane LOS	-	- B	A	A
HCM 95th %tile Q(veh)	-	- 0.1	0	-

Intersection												
Int Delay, s/veh	3.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	46	94	25	0	114	0	5	0	0	0	0	78
Future Vol, veh/h	46	94	25	0	114	0	5	0	0	0	0	78
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	18	18	18	17	17	17	0	0	0	0	0	0
Mvmt Flow	57	116	31	0	141	0	6	0	0	0	0	96
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	141	0	0	147	0	0	434	386	131	386	401	141
Stage 1	-	-	-	-	-	-	245	245	-	141	141	-
Stage 2	-	-	-	-	-	-	189	141	-	245	260	-
Critical Hdwy	4.28	-	-	4.27	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.362	-	-	2.353	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1349	-	-	1348	-	-	536	551	924	576	541	912
Stage 1	-	-	-	-	-	-	763	707	-	867	784	-
Stage 2	-	-	-	-	-	-	817	784	-	763	697	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1349	-	-	1348	-	-	463	526	924	556	516	912
Mov Cap-2 Maneuver	-	-	-	-	-	-	463	526	-	556	516	-
Stage 1	-	-	-	-	-	-	728	674	-	827	784	-
Stage 2	-	-	-	-	-	-	731	784	-	728	665	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.2			0			12.9			9.4		
HCM LOS							B			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	463	1349	-	-	1348	-	-	912				
HCM Lane V/C Ratio	0.013	0.042	-	-	-	-	-	0.106				
HCM Control Delay (s)	12.9	7.8	0	-	0	-	-	9.4				
HCM Lane LOS	B	A	A	-	A	-	-	A				
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.4				

Intersection												
Int Delay, s/veh	4.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	39	5	30	0	5	0	10	0	5	0	0	0
Future Vol, veh/h	39	5	30	0	5	0	10	0	5	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	48	48	48	2	2	2	2	2	2	2	2	2
Mvmt Flow	49	6	38	0	6	0	13	0	6	0	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	6	0	0	44	0	0	130	130	25	133	149	6
Stage 1	-	-	-	-	-	-	124	124	-	6	6	-
Stage 2	-	-	-	-	-	-	6	6	-	127	143	-
Critical Hdwy	4.58	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.632	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1360	-	-	1564	-	-	843	761	1051	839	743	1077
Stage 1	-	-	-	-	-	-	880	793	-	1016	891	-
Stage 2	-	-	-	-	-	-	1016	891	-	877	779	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1360	-	-	1564	-	-	819	733	1051	810	716	1077
Mov Cap-2 Maneuver	-	-	-	-	-	-	819	733	-	810	716	-
Stage 1	-	-	-	-	-	-	847	764	-	978	891	-
Stage 2	-	-	-	-	-	-	1016	891	-	839	750	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	4.1			0			9.2			0		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	884	1360	-	-	1564	-	-	-				
HCM Lane V/C Ratio	0.021	0.036	-	-	-	-	-	-				
HCM Control Delay (s)	9.2	7.7	0	-	0	-	-	0				
HCM Lane LOS	A	A	A	-	A	-	-	A				
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	-				

Intersection												
Int Delay, s/veh	7.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	100	5	45	0	0	0	0	92	30	155	101	0
Future Vol, veh/h	100	5	45	0	0	0	0	92	30	155	101	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	16	16	16	0	0	0	3	3	3	14	14	14
Mvmt Flow	115	6	52	0	0	0	0	106	34	178	116	0
Major/Minor	Minor2			Major1			Major2					
Conflicting Flow All	595	612	116	-	0	0	-	0	0	140	0	0
Stage 1	472	472	-	-	-	-	-	-	-	-	-	-
Stage 2	123	140	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	6.56	6.66	6.36	-	-	-	-	-	-	4.24	-	-
Critical Hdwy Stg 1	5.56	5.66	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.56	5.66	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.644	4.144	3.444	-	-	-	-	-	-	2.326	-	-
Pot Cap-1 Maneuver	445	390	900	-	-	-	0	-	-	1373	-	0
Stage 1	599	536	-	-	-	-	0	-	-	-	-	0
Stage 2	869	755	-	-	-	-	0	-	-	-	-	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	383	0	900	-	-	-	-	-	-	1373	-	-
Mov Cap-2 Maneuver	383	0	-	-	-	-	-	-	-	-	-	-
Stage 1	516	0	-	-	-	-	-	-	-	-	-	-
Stage 2	869	0	-	-	-	-	-	-	-	-	-	-
Approach	EB			NB			SB					
HCM Control Delay, s	17.2			0			4.9					
HCM LOS	C											
Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBL	SBT							
Capacity (veh/h)	-	-	466	1373	-							
HCM Lane V/C Ratio	-	-	0.37	0.13	-							
HCM Control Delay (s)	-	-	17.2	8	0							
HCM Lane LOS	-	-	C	A	A							
HCM 95th %tile Q(veh)	-	-	1.7	0.4	-							

HCM 2010 TWSC
2: Thorp Highway S & I-90 WB ramps

Thorp Fast Food + Gas Station
2020 With-Project August PM Peak

Intersection

Int Delay, s/veh 4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Vol, veh/h	0	0	0	45	5	200	15	167	0	0	186	139
Future Vol, veh/h	0	0	0	45	5	200	15	167	0	0	186	139
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	0	0	14	14	14	16	16	16	20	20	20
Mvmt Flow	0	0	0	52	6	230	17	192	0	0	214	160

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	520	600	192	374	0	-	-	-	0
Stage 1	226	226	-	-	-	-	-	-	-
Stage 2	294	374	-	-	-	-	-	-	-
Critical Hdwy	6.54	6.64	6.34	4.26	-	-	-	-	-
Critical Hdwy Stg 1	5.54	5.64	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.54	5.64	-	-	-	-	-	-	-
Follow-up Hdwy	3.626	4.126	3.426	2.344	-	-	-	-	-
Pot Cap-1 Maneuver	496	399	820	1112	-	0	0	-	-
Stage 1	784	695	-	-	-	0	0	-	-
Stage 2	730	597	-	-	-	0	0	-	-
Platoon blocked, %									
Mov Cap-1 Maneuver	488	0	820	1112	-	-	-	-	-
Mov Cap-2 Maneuver	488	0	-	-	-	-	-	-	-
Stage 1	771	0	-	-	-	-	-	-	-
Stage 2	730	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.1	0.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBTWBLn1	SBT	SBR
Capacity (veh/h)	1112	-	729	-
HCM Lane V/C Ratio	0.016	-	0.394	-
HCM Control Delay (s)	8.3	0	13.1	-
HCM Lane LOS	A	A	B	-
HCM 95th %tile Q(veh)	0	-	1.9	-

Intersection

Int Delay, s/veh 7.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	250	18	140	237	24	70
Future Vol, veh/h	250	18	140	237	24	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	28	28	17	17	2	2
Mvmt Flow	287	21	161	272	28	80

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	433	297	0	0	433	0
Stage 1	297	-	-	-	-	-
Stage 2	136	-	-	-	-	-
Critical Hdwy	6.68	6.48	-	-	4.12	-
Critical Hdwy Stg 1	5.68	-	-	-	-	-
Critical Hdwy Stg 2	5.68	-	-	-	-	-
Follow-up Hdwy	3.752	3.552	-	-	2.218	-
Pot Cap-1 Maneuver	534	685	-	-	1127	-
Stage 1	698	-	-	-	-	-
Stage 2	830	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	520	685	-	-	1127	-
Mov Cap-2 Maneuver	520	-	-	-	-	-
Stage 1	698	-	-	-	-	-
Stage 2	808	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	20.9		0		2.1
HCM LOS	C				

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	529	1127	-
HCM Lane V/C Ratio	-	-	0.582	0.024	-
HCM Control Delay (s)	-	-	20.9	8.3	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	3.7	0.1	-

Intersection

Int Delay, s/veh 0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	15	209	0	16	204
Future Vol, veh/h	0	15	209	0	16	204
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	100	100	17	17	26	26
Mvmt Flow	0	19	258	0	20	252

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	549	258	0	0	258	0
Stage 1	258	-	-	-	-	-
Stage 2	291	-	-	-	-	-
Critical Hdwy	7.4	7.2	-	-	4.36	-
Critical Hdwy Stg 1	6.4	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	4.4	4.2	-	-	2.434	-
Pot Cap-1 Maneuver	363	592	-	-	1179	-
Stage 1	603	-	-	-	-	-
Stage 2	580	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	356	592	-	-	1179	-
Mov Cap-2 Maneuver	356	-	-	-	-	-
Stage 1	603	-	-	-	-	-
Stage 2	568	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	11.3		0		0.6
HCM LOS	B				

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	592	1179	-
HCM Lane V/C Ratio	-	-	0.031	0.017	-
HCM Control Delay (s)	-	-	11.3	8.1	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	46	159	45	0	199	0	15	0	0	0	0	78
Future Vol, veh/h	46	159	45	0	199	0	15	0	0	0	0	78
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	18	18	18	17	17	17	0	0	0	0	0	0
Mvmt Flow	53	183	52	0	229	0	17	0	0	0	0	90
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	229	0	0	234	0	0	588	543	209	543	569	229
Stage 1	-	-	-	-	-	-	314	314	-	229	229	-
Stage 2	-	-	-	-	-	-	274	229	-	314	340	-
Critical Hdwy	4.28	-	-	4.27	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.362	-	-	2.353	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1250	-	-	1250	-	-	423	450	836	454	435	815
Stage 1	-	-	-	-	-	-	701	660	-	778	718	-
Stage 2	-	-	-	-	-	-	736	718	-	701	643	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1250	-	-	1250	-	-	362	428	836	437	414	815
Mov Cap-2 Maneuver	-	-	-	-	-	-	362	428	-	437	414	-
Stage 1	-	-	-	-	-	-	667	628	-	740	718	-
Stage 2	-	-	-	-	-	-	655	718	-	667	611	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.5			0			15.4			10		
HCM LOS							C			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	362	1250	-	-	1250	-	-	815				
HCM Lane V/C Ratio	0.048	0.042	-	-	-	-	-	0.11				
HCM Control Delay (s)	15.4	8	0	-	0	-	-	10				
HCM Lane LOS	C	A	A	-	A	-	-	B				
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.4				

Intersection												
Int Delay, s/veh	4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	39	5	70	0	5	0	25	0	5	0	0	0
Future Vol, veh/h	39	5	70	0	5	0	25	0	5	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	48	48	48	2	2	2	2	2	2	2	2	2
Mvmt Flow	49	6	89	0	6	0	32	0	6	0	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	6	0	0	95	0	0	155	155	51	159	200	6
Stage 1	-	-	-	-	-	-	149	149	-	6	6	-
Stage 2	-	-	-	-	-	-	6	6	-	153	194	-
Critical Hdwy	4.58	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.632	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1360	-	-	1499	-	-	812	737	1017	807	696	1077
Stage 1	-	-	-	-	-	-	854	774	-	1016	891	-
Stage 2	-	-	-	-	-	-	1016	891	-	849	740	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1360	-	-	1499	-	-	788	709	1017	779	670	1077
Mov Cap-2 Maneuver	-	-	-	-	-	-	788	709	-	779	670	-
Stage 1	-	-	-	-	-	-	822	745	-	977	891	-
Stage 2	-	-	-	-	-	-	1016	891	-	812	712	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.7			0			9.6			0		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	819	1360	-	-	1499	-	-	-				
HCM Lane V/C Ratio	0.046	0.036	-	-	-	-	-	-				
HCM Control Delay (s)	9.6	7.7	0	-	0	-	-	0				
HCM Lane LOS	A	A	A	-	A	-	-	A				
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	-				

Updated Trip Generation (December 2016)													
Land Use	Size	Daily		AM					PM				
		Daily Rate	Daily Trips	AM Rate	AM Total	%Inbound	AM IN	AM OUT	PM Rate	PM Total	%Inbound	PM IN	PM Out
Restaurant with drive-thru	5,000 sf	496.12	2480	45.42	227	51%	116	111	32.65	163	52%	85	78
<i>Pass-By (50% Daily, 49% AM, 50% PM)</i> ¹			-1240				-56	-56				-39	-39
Truck Gas Station (Card Lock) ²	4 pumps		120				16	15				16	15
Net Total			1360				76	70				62	54

1. Based on rates found in *Trip Generation*, 9th Edition, ITE 2012 for Land Use 934. Peak hour pass-by rates provided in *Trip Generation Handbook* (3rd Edition) and daily rate assumed to be 50 percent based on similar AM and PM rates.

2. Based on rates found in *104th Street Card Lock Traffic Impact Analysis* trip generation study (April 2014).