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TRANSPORTATION
CONSULTANTS, INC.

June 27, 2022

Mr. Kevin Murphy
East West Partners
PO Drawer 2770
Avon, CO 81650

Re: West End
2022 Update
Eagle County, CO
LSC #220510

Dear Mr. Murphy:

In response to your request, LSC Transportation Consultants, Inc. has prepared this updated traffic impact analysis for the proposed West End development (the site) and the adjacent Gashouse and Edwards Plaza parcels (the impact area) to address preliminary feedback from CDOT. As shown on Figure 1, the site is located north of US Highway 6 and west of the Edwards Access Road in the Edwards community of Eagle County, Colorado.

REPORT CONTENTS

The report contains the following: the existing roadway and traffic conditions in the vicinity of the site including the lane geometries, traffic controls, posted speed limits, etc.; the existing weekday peak-hour traffic volumes; the typical weekday site-generated traffic volume projections for the site and impact area; the assignment of the projected traffic volumes to the area roadways; the projected long-term background and resulting total traffic volumes on the area roadways; the site's and impact area's projected traffic impacts; and any recommended roadway improvements to mitigate the site's and impact area's traffic impacts or the impacts from growth in background traffic. All work is consistent with the approved TIS methodology form which is attached for reference.

LAND USE AND ACCESS

New West End PUD

The new West End PUD land use proposal consists of approximately 275 multi-family workforce dwelling units (see Figure 2).

Loop Road

The new West End PUD will be served by a "loop road" around an enlarged Gashouse parcel (Loop Road) as shown in Figure 2. The proposed Loop Road involves a land exchange between

the West End, Gashouse and Edwards Plaza owners. The Gashouse parcel's existing US Highway 6 access point would be relocated to the west to accommodate the additional land for the Gashouse parcel and become the southern end of the Loop Road (Intersection #3). The Gashouse parcel would be accessed from a new access to the Loop Road, with no US Highway 6 or Edwards Access Road direct access. The eastern end of the Loop Road would terminate at Edwards Access Road (Intersection #4).

The Loop Road in conjunction with the recently constructed roundabout at US Highway 6 and Edwards Access Road facilitates full mobility ingress and egress from all directions using only right-in and right-out turn movements.

Site Access to Loop Road

The site will access the Loop Road as shown in Figure 2. There will be separate ingress and egress locations to allow for easy turn around with no backing maneuver. There will be minimal queuing on the Loop Road considering both ends are right-in/right-out movement. The ingress location is located a sufficient distance from US Highway 6 so no queuing issues are expected.

Impact Area/Northwest Corner of Edwards

Edwards Plaza

The existing uses of the Edwards Plaza parcels, which are traffic-intense commercial uses, are assumed to remain for purposes of this traffic impact study.

Gashouse Parcel

The owner of the Gashouse property has not indicated any near-term redevelopment plans. For the purpose of this traffic impact study, a high trip generation potential of 3,000 square feet restaurant with drive-through use was assumed.

AREA ROADWAYS

Major Roadways

The major roadways in the vicinity of the site and impact area are shown on Figure 1 and are described below.

- **US Highway 6** is an east-west, two-lane US Highway south of the site. It is designated by CDOT as Non-Rural Principal Highway (NR-A) per the attached CDOT *Straight Line Diagram*. The intersection with Edwards Access Road is controlled by a recently constructed modern two-lane roundabout (the "2019 Edwards Roundabout"). The posted speed limit in the vicinity of the site is 35 mph east of Edwards Access Road and 45 mph west of Edwards Access Road. US 6 is planned to be widened to four lanes adjacent to the site by 2040.

- **Edward Access Road** is a north-south, four-lane principal arterial roadway east of the site. The intersection with US Highway 6 is roundabout-controlled. The posted speed limit in the vicinity of the site is 35 mph.

BACKGROUND INFORMATION

2019 Edwards Roundabout

The Edwards River Park (ERP) proposed development is located on the former quarry site north of the intersection of US Highway 6 and Lake Creek Road. In connection with the proposed ERP development, the April 4, 2019 ERP traffic impact study was conducted by McDowell Engineering (ERP TIS). Final plans had been prepared and construction was about to begin on the 2019 Edwards Roundabout when CDOT and Eagle County expressed concerns that the ERP TIS indicated higher traffic volume projections than the previous design traffic volumes for the 2019 Edwards Roundabout. These concerns were addressed in a memo from Felsburg, Holt & Ullevig dated May 15, 2019 (FHU Memo). The new higher traffic volume forecast from the FHU Memo were referred to MSA Professional Services, Inc. and MSA/Ourston was tasked with updating the operational analysis of the 2019 Edwards Roundabout.

Taking into consideration the new higher traffic volume forecasts, a MSA memo dated May 23, 2019 (2019 MSA/Ourston Memo) concluded that although the 2019 Edwards Roundabout is not a complete solution to the traffic concerns of Edwards, the 2019 Edwards Roundabout is the best available alternative:

> *"For validation of the decision to construct a roundabout at this intersection, consideration should be given to the operation of a traffic signal alternative with a similar lane configuration and property impacts. If a traffic signal operates with similar, or more, congestion than the roundabout near the Design Year (2019), the roundabout alternative is still the more prudent intersection improvement based on safety benefits. A roundabout will operate better for all approaches during the off-peak periods and any potential crashes at the intersection will be less severe with a roundabout in place."*

FHU Memo Projected Traffic vs. Currently Projected Traffic

The FHU Memo assumed 200 multi-family units and 100,000 square feet of commercial space for the combined West End and Vogelman parcels, which were assumed to have a weekday daily trip generation potential of 5,600 trips. In comparison, the new West End PUD proposes only 275 multi-family units, which is estimated to have a weekday daily trip generation potential considerably below the FHU Memo assumptions.

The FHU Memo did not assume any future development for the Gashouse parcel. However, even when assuming the most traffic-intense future use of the potential future land use options for the Gashouse parcel, the predicted traffic for the combined West End, Vogelman and Gashouse parcels still result in a net reduction of about 640 daily trips relative to what was previously assumed in the FHU Memo for only the West End and Vogelman parcels (i.e., nothing assumed for the Gashouse parcel).

2019 Edwards Roundabout/No West End Development

Out of an abundance of caution and to alleviate any risk that future traffic issues of the 2019 Edwards Roundabout are inaccurately attributed to the anticipated development of the West End parcel and impact area parcels, please see the comparisons of background traffic and total

traffic level of service rates in Table 1. The poor levels of service in the study area are expected to occur with or without the proposed developments.

TRAFFIC CONDITIONS

Existing Traffic Conditions

Figure 3a shows the existing early March, 2020 traffic volumes in the vicinity of the site and impact area on a typical weekday and Figure 3b shows the seasonally adjusted traffic volumes based on a seasonal factor of 1.14 from March to September. The seasonal adjustment factor spreadsheet is attached for reference. The weekday peak-hour traffic volumes in Figure 3a are from the attached traffic counts conducted by Counter Measures on March 3rd and 4th, 2020. Figure 3c shows the existing lane geometries, traffic controls, and posted speed limits.

2025 and 2040 Background Traffic

Figure 4a shows the estimated 2025 background traffic based on an annual growth rate of one-half percent plus buildout of the Edwards River Park (ERP) project per the approved TIS methodology form. Figure 4b shows the 2025 lane geometry and traffic control.

Figure 5a shows the trips estimated for the West End and Vogelman parcels in the April 4, 2019 ERP Traffic Study (ERP TIS) by McDowell Engineering - excerpts from this study are attached for reference. Per the approved TIS methodology form, these volumes were subtracted from the 2040 total traffic volumes provided by CDOT in the May 15, 2019 FHU Memorandum (FHU Memo) which is attached for reference. Figure 5b shows the 2040 background traffic and Figure 5c shows the 2040 background lane geometry and traffic control.

Existing, 2025, and 2040 Background Levels of Service

Level of service (LOS) is a quantitative measure of the level of congestion or delay at an intersection. Level of service is indicated on a scale from "A" to "F." LOS A is indicative of little congestion or delay and LOS F is indicative of a high level of congestion or delay. Attached are specific level of service definitions for unsignalized intersections.

The intersections in Figures 3b through 5c were analyzed as appropriate to determine the existing, 2025 background, and 2040 background levels of service using Synchro and Rodel. Table 1 shows the level of service analysis results. The level of service reports are attached.

1. **US 6/Edwards Access Road:** This roundabout-controlled intersection currently operates at an overall LOS "A" during both morning and afternoon peak-hours and is expected to operate at LOS "B" or better through 2025 and LOS "C" by 2040. There are individual approaches expected to operate at LOS "E" or "F" by 2040.

2. **US 6/Edwards Village Center Access:** All movements at this stop-sign controlled intersection currently operate at LOS "C" or better during both morning and afternoon peak-hours and are expected to do so through 2040 with the following exception: The northbound approach operates at LOS "F" during the afternoon peak-hour and is expected to do so through 2040. The intersection may eventually need to be converted to three-quarter movement.

3. **US 6/Gashouse Access (Proposed Loop Road):** This intersection was only evaluated in the total traffic scenarios.

4. **Edwards Access Road/Edwards Plaza Secondary Access (Proposed Loop Road)/Riverwalk Access RIRO):** All movements at this stop-sign controlled intersection currently operate at LOS "B" or better during both morning and afternoon peak-hours and are expected to do so through 2040 with the following exception: The westbound right-turn movement (i.e., trips exiting Riverwalk) operates at LOS "F" in the afternoon peak-hour and is expected to do so through 2040 primarily due to the heavy volume of turning traffic.

5. **Edwards Access Road/Edwards Plaza Primary Access (Three-Quarter):** All movements at this stop-sign controlled intersection currently operate at LOS "B" or better during both morning and afternoon peak-hours and are expected to operate at LOS "C" or better through 2040.

TRIP GENERATION

Table 2 shows the estimated average weekday, morning peak-hour, and afternoon peak-hour trip generation for the proposed site based on the rates from *Trip Generation, 11th Edition, 2021* by the Institute of Transportation Engineers (ITE).

The site is projected to generate about 1,837 vehicle-trips on the average weekday, with about half entering and half exiting during a 24-hour period. During the morning peak-hour, which generally occurs for one hour sometime between 6:30 and 8:30 a.m., about 26 vehicles would enter and about 82 vehicles would exit the site. During the afternoon peak-hour, which generally occurs for one hour sometime between 4:00 and 6:00 p.m., about 75 vehicles would enter and about 75 vehicles would exit.

The Gashouse parcel is projected to generate about 1,402 vehicle-trips on the average weekday, with about half entering and half exiting during a 24-hour period. During the morning peak-hour, which generally occurs for one hour sometime between 6:30 and 8:30 a.m., about 68 vehicles would enter and about 66 vehicles would exit the site. During the afternoon peak-hour, which generally occurs for one hour sometime between 4:00 and 6:00 p.m., about 52 vehicles would enter and about 48 vehicles would exit.

These estimates assume 43 percent passby trips for the Gashouse Parcel restaurant use consistent with the ITE *Trip Generation Handbook*, 3rd Edition. No internal trips or alternative travel mode trips were assumed to maintain a conservative analysis.

TRIP DISTRIBUTION

Figure 6 shows the estimated directional distribution of the site-generated and impact area generated traffic volumes on the area roadways. The estimates were based on the location of the two parcels with respect to the regional population, employment, and activity centers; and the site's proposed land use. These assumptions are consistent with the approved TIS methodology form.

TRIP ASSIGNMENT

Figure 7a shows the estimated West End Parcel site-generated traffic volumes based on the West End trip generation estimate (from Table 2) and the residential directional distribution in Figure 6.

Figure 7b shows the estimated Gashouse Parcel primary site-generated traffic volumes based on the Gashouse primary trip generation estimate (from Table 2) and the commercial directional distribution in Figure 6.

Figure 7c shows the estimated Gashouse Parcel passby site-generated traffic volumes based on the Gashouse pass-by trip generation estimate (from Table 2).

Figure 7d is the assignment of total site-generated and impact area generated trips and is the sum of the traffic volumes in Figures 7a through 7c.

2025 AND 2040 TOTAL TRAFFIC

Figure 8a shows the 2025 total traffic which is the sum of 2025 background traffic volumes (from Figure 4a) and the total site-generated traffic volumes (from Figure 7d) Figure 8b shows the recommended lane geometry and traffic control.

Figure 9a shows the 2040 total traffic which is the sum of 2040 background traffic volumes (from Figure 5b) and the total site-generated traffic volumes (from Figure 7d). Figure 9b shows the 2040 recommended lane geometry and traffic control. Figure 9a also shows the 2040 roundabout peak-hour traffic volumes provided by CDOT in the FHU Memo.

PROJECTED LEVELS OF SERVICE

The intersections in Figures 8a through 9b were analyzed to determine the 2025 and 2040 total traffic levels of service. Table 1 shows the level of service analysis results. The level of service reports are attached.

1. **US 6/Edwards Access Road:** This roundabout-controlled intersection is expected to operate at an overall LOS “A” during the morning peak-hour and LOS “C” during the afternoon peak-hour through 2025. In 2040, the morning peak-hour is expected to operate at LOS “E” and the afternoon peak-hour is expected to operate at LOS “D”. There are individual approaches expected to operate at LOS “F” in both peak-hours. The same analysis was run for 2040 total traffic using the traffic volumes provided by CDOT in the May 15, 2019 FHU Memorandum which resulted in slightly better operations in the morning peak-hour improving from 43.7 seconds (LOS “E”) to 36.8 seconds (LOS “E”) but considerably worse operations in the afternoon peak-hour degrading from 29.8 seconds (LOS “D”) to 73.3 seconds (LOS “F”). This is primarily due to the currently proposed land uses having a considerably lower trip generation potential in the afternoon peak-hour than assumed in the FHU Memo.

2. **US 6/Edwards Village Center Access/West End Access:** All movements at this stop-sign controlled intersection are expected to operate at LOS “D” or better during both morning

and afternoon peak-hours through 2040 with the exception of the northbound approach. The intersection may need to be converted to three-quarter movement by 2040.

3. **US 6/Gashouse Access (Proposed Loop Road) (RIRO):** All movements at this stop-sign controlled intersection are expected to operate at LOS "C" or better during both morning and afternoon peak-hours through 2040.

4. **Edwards Access Road/Edwards Plaza Secondary Access (Proposed Loop Road)/Riverwalk Access (RIRO):** All movements at this stop-sign controlled intersection are expected to operate at LOS "C" or better during both morning and afternoon peak-hours through 2040 with the following exception: The westbound right-turn movement (i.e., trips exiting Riverwalk) is expected to operate at LOS "F" in the afternoon peak-hour through 2040 primarily due to the heavy volume of turning traffic.

5. **Edwards Access Road/Edwards Plaza Primary Access (Three-Quarter):** All movements at this stop-sign controlled intersection are expected to operate at LOS "C" or better during both morning and afternoon peak-hours through 2040.

RIGHT-TURN AUXILIARY LANE ANALYSIS AT THE THREE SITE ACCESS INTERSECTIONS

Based on feedback from CDOT, Intersections #3 and #4 were revisited to determine if right-turn deceleration and acceleration lanes are needed for the right-turn movements in and out of the site. Intersections #3 and #4 are proposed as right-in/right-out site access points.

Intersection #3:

Deceleration Lane - Figure 9a shows the right-turn movement into the site is expected to peak at about 84 vehicles per hour in the afternoon peak hour by 2040. US 6 in this location has a 45 mph posted speed limit but the intersection is located only about 250 feet downstream from the existing roundabout so approaching westbound travel speeds are expected to be below 45 mph. A westbound to northbound right-turn deceleration lane would typically be required on US 6 approaching this intersection based on the posted speed limit and projected turning volume. The typical length required would be a 273-foot long lane plus a 162-foot transition taper. The distance between Intersection #3 and the existing roundabout is only about 250 feet so any right-turn lane would need to be substandard in length. A review of the properties in this location suggest a 60-foot right-turn lane plus a 75-foot transition taper would likely fit in the space available. The vehicle speeds exiting the existing roundabout should be in the range of 25-30 mph so a substandard lane would likely provide a benefit if desired by CDOT.

Acceleration Lane - Figure 9a shows the right-turn movement out of the site is expected to peak at about 39 vehicles per hour in the morning peak hour by 2040 - this volume is well below 50 vehicles per hour and is expected to operate at acceptable levels of service so no acceleration lane is required.

Intersection #4:

Deceleration Lane - Figure 9a shows the right-turn movement into the site is expected to peak at about 48 vehicles per hour in the afternoon peak hour by 2040. Edwards Access Road in this location has a 35 mph posted speed limit. A southbound to westbound right-turn deceleration

lane would typically be required on Edwards Access Road approaching this intersection based on the posted speed limit and projected turning volume. The typical length required would be a 190-foot long lane plus a 120-foot transition taper. There are three reasons why this lane is not recommended. First, the construction of this lane would materially impact the adjacent property, Edwards Plaza, by requiring all of its existing parking spaces on the eastern side of Edwards Plaza I to be eliminated to accommodate the deceleration lane. Recall, the proposed Loop Road requires the participation of Edwards Plaza and the Gashouse in a land exchange with the West End. The project team feels that a deceleration lane at this location, and the associated loss of parking spaces on the eastern side of Edwards Plaza I, would be fatal to obtaining Edwards Plaza's required consent because these parking spaces serve retail along the eastern side of Edwards Plaza I [1]. Second, the outside southbound lane on Edwards Access Road is a right-turn-only lane at the existing roundabout so traffic approaching the roundabout will already be decelerating given the close proximity of this intersection to the roundabout (approximately 150 feet). Third, the southbound movement at the roundabout is expected to have queuing at peak times in future years that may periodically back up through Intersection #4. The project team's concern is providing a southbound deceleration lane would allow southbound vehicles to exit the southbound Edwards Access Road queue a few hundred feet further north making the Loop Road attractive as a roundabout bypass during peak traffic conditions. The project team feels not providing this deceleration lane would make the Loop Road much less attractive as a roundabout bypass.

Acceleration Lane - Figure 9a shows the right-turn movement out of the site is expected to peak at about 119 vehicles per hour in the morning peak hour by 2040. The posted speed limit is below 45 mph and the movement is expected to operate at acceptable levels of service so no acceleration lane is required.

CONCLUSIONS AND RECOMMENDATIONS

Trip Generation

1. The site is projected to generate about 1,837 vehicle-trips on the average weekday, with about half entering and half exiting during a 24-hour period. During the morning peak-hour, which generally occurs for one hour sometime between 6:30 and 8:30 a.m., about 26 vehicles would enter and about 82 vehicles would exit the site. During the afternoon peak-hour, which generally occurs for one hour sometime between 4:00 and 6:00 p.m., about 75 vehicles would enter and about 75 vehicles would exit.

2. The Gashouse parcel is projected to generate about 1,402 vehicle-trips on the average weekday, with about half entering and half exiting during a 24-hour period. During the morning peak-hour, which generally occurs for one hour sometime between 6:30 and 8:30 a.m., about 68 vehicles would enter and about 66 vehicles would exit the site. During the afternoon peak-hour, which generally occurs for one hour sometime between 4:00 and 6:00 p.m., about 52 vehicles would enter and about 48 vehicles would exit. These estimates assume 43 percent passby trips for the Gashouse Parcel restaurant use consistent with the ITE *Trip Generation Handbook*, 3rd Edition. No internal trips or alternative travel mode trips were assumed to maintain a conservative analysis.

[1] A future deceleration lane could be required if/when Edwards Plaza redevelops.

Projected Levels of Service

3. The roundabout controlled US 6/Edwards Road intersection (i.e., 2019 Edwards Roundabout) is expected to operate at an overall LOS "E" during the morning peak-hour and LOS "D" during the afternoon peak-hours in 2040 with individual approaches operating at LOS "F". The prior land uses assumed in the ERP TIS and the FHU Memo would also operate at LOS "E" in the morning peak-hour but degrade from LOS "D" to LOS "F" in the afternoon peak-hour. This is primarily due to the prior land uses having a much higher trip generation potential in the afternoon peak-hour than for the currently proposed land uses.

4. All movements at the stop-sign controlled intersections (i.e., Intersections #2, #3, #4, and #5) are expected to operate at LOS "D" or better through 2040 with the following exceptions: The northbound approach at the US 6/Edwards Village Center/ West End intersection is expected to operate at LOS "F" during both peak-hours. The intersection may need to be converted to three-quarter movement by 2040. The westbound right-turn movement (i.e., trips exiting Riverwalk) at the Edwards Access Road/Edwards Plaza Secondary Access (Proposed Loop Road)/Riverwalk (RIRO) is expected to operate at LOS "F" in the afternoon peak-hour primarily due to the heavy volume of turning traffic. This LOS "F" does not materially affect the function of the Proposed Loop Road as it is separated from it across the Edwards Access Road by a raised center median.

Recommendations

5. The West End site proposes residential use only. Eliminating commercial uses helps to reduce the previously identified impacts to the surrounding roadway network.

6. A right-turn lane may be appropriate at Intersection #3 based on CDOT's review of this analysis. No acceleration lanes are recommended at the site access intersections (Intersections #3 and #4). We are available to discuss at length as the project moves through the review process. Figure 10 shows additional conceptual detail for the site access and loop road including a proposed bus stop relocation.

7. The Loop Road and general internal site connectivity shown in Figures 2 and 10 should be implemented to maximize the benefits of the adjacent roundabout.

* * * * *

We trust our findings will assist you in gaining approval of the proposed West End PUD. Please contact me if you have any questions or need further assistance.

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

By_____
Christopher S. McGranahan, PE, PTOE
Principal

CSM/wc

6-27-22

Enclosures: Tables 1 and 2
Figures 1 - 10
TIS Methodology Form
CDOT Straight Line Diagram
Seasonal Adjustment Spreadsheet
Traffic Count Reports
Excerpts from April 4, 2019 ERP TIS by McDowell Engineering (ERP TIS)
FHU Memorandum dated May 15, 2019 (FHU Memo)
Level of Service Definitions
Level of Service Reports

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Table 1
Intersection Levels of Service Analysis
West End - 2022 Update
Eagle County, CO
LSC #220510; June, 2022

Intersection Location	Traffic Control	Existing Traffic Level of Service AM	Existing Traffic Level of Service PM	2025 Background Traffic Level of Service AM	2025 Background Traffic Level of Service PM	2025 Total Traffic Level of Service AM	2025 Total Traffic Level of Service PM	2040 Background Traffic Level of Service AM	2040 Background Traffic Level of Service PM	2040 Total Traffic Level of Service AM	2040 Total Traffic Level of Service PM	2040 Total Traffic CDOT - FHU [1] Level of Service AM	2040 Total Traffic CDOT - FHU [1] Level of Service PM
1) US 6/Edwards Access Road	Roundabout												
EB Approach		A	A	A	B	A	B	A	F	A	F	A	F
WB Approach		A	B	A	C	A	D	E	A	F	B	F	B
NB Approach		A	A	A	B	A	C	D	A	D	B	D	B
SB Approach		A	A	A	A	A	B	A	B	A	B	A	B
Entire Intersection Delay (sec /veh)		5.7	7.8	6.5	14.2	7.3	19.5	24.2	22.9	43.7	29.8	36.8	73.3
Entire Intersection LOS		A	A	A	B	A	C	C	C	E	D	E	F
2) US 6/Edwards Village Center Access	TWSC												
NB Approach		C	F	C	F	D	F	F	F	F	F		
WB Left		A	B	B	B	B	B	B	B	B	B		
Entire Intersection LOS		16.8	>240	24.8	>240	28.4	>240	52.8	114.8	54.0	125.6		
3) US 6/Gashouse Access (Proposed Loop Road)	TWSC												
SB Approach	RIRO	--	--	--	--	B	B	--	--	B	C		
Critical Movement Delay(sec /veh)		--	--	--	--	10.8	13.8	--	--	12.1	16.1		
4) Edwards Access Road/Edwards Plaza Secondary Access (Proposed Loop Road/Riverwak Access	TWSC												
EB Right	RIRO	B	B	B	B	B	B	B	B	C	C		
WB Right		B	F	B	F	B	F	C	F	C	F		
Critical Movement Delay(sec /veh)		12.0	75.9	12.7	132.9	13.0	144.1	15.6	96.1	16.0	104.5		
5) Edwards Access Road/Edwards Plaza Primary Access	TWSC												
NB Left	Three-	A	A	A	B	A	B	B	B	B	B		
EB Right	Quarter	B	B	B	B	B	B	B	C	B	C		
Critical Movement Delay(sec /veh)		10.6	12.1	11.2	14.5	11.3	14.9	12.6	18.5	12.7	19.2		

(1) Based on the 2040 traffic projections provided by CDOT from the FHU Memorandum dated May 15, 2019 - attached for reference.

Table 2
ESTIMATED TRAFFIC GENERATION
West End - 2022 Update
Eagle County, CO
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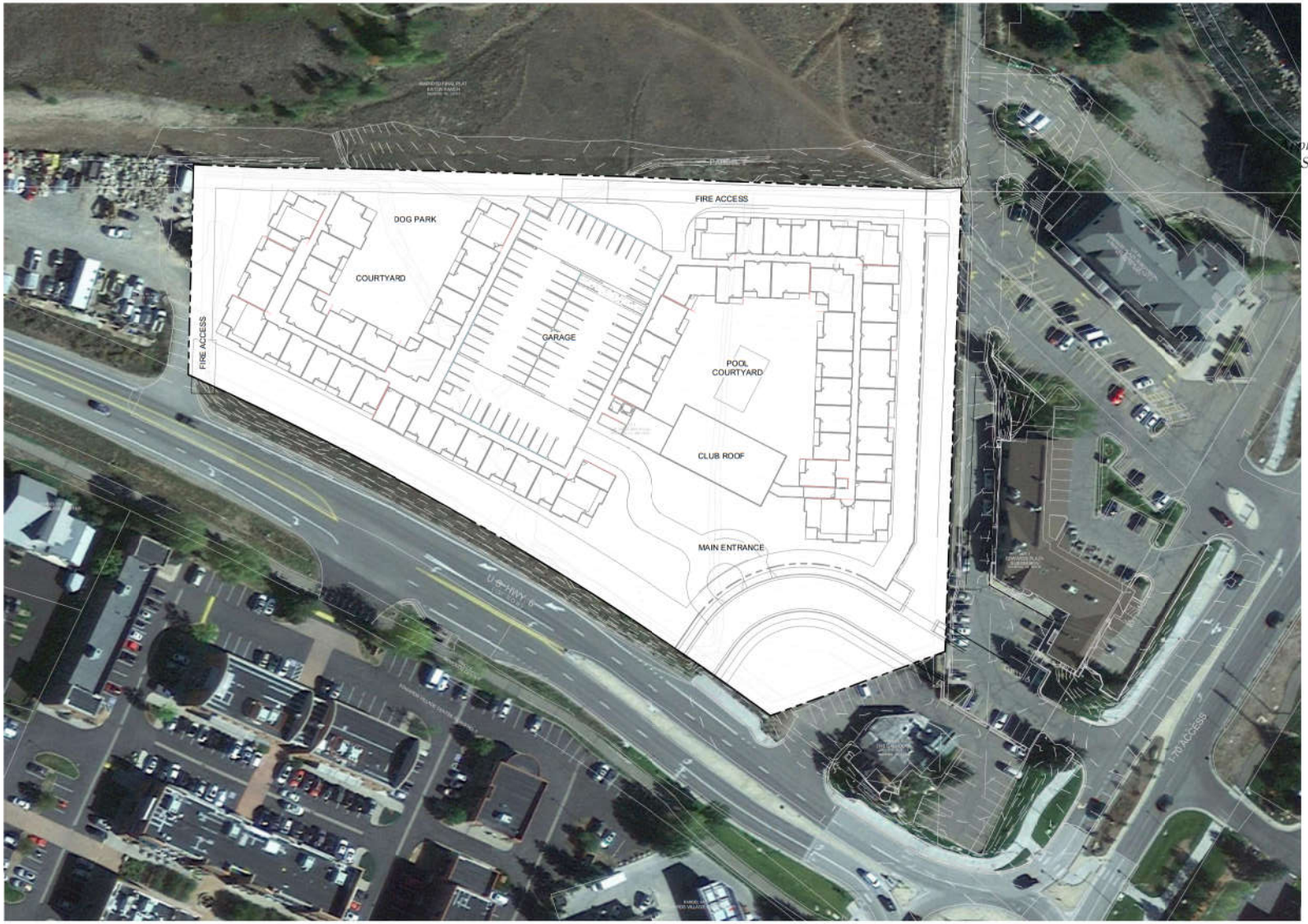
		Trip Generation Rates [1]					Vehicle-Trips Generated				
		Average	AM Peak-Hour		PM Peak-Hour		Average	AM Peak-Hour		PM Peak-Hour	
Trip Generating Category	Quantity	Weekday	In	Out	In	Out	Weekday	In	Out	In	Out
PROPOSED LAND USES											
West End Parcel											
Apartments/Condos [2]	275 DU [3]	6.68	0.094	0.299	0.273	0.273	1,837	26	82	75	75
Gashouse Parcel											
Fast-Food Restaurant [4]	3 KSF [5]	467.48	22.751	21.859	17.176	15.854	1,402	68	66	52	48
						Passby Trips [6] =	603	29	29	22	22
						Primary Trips =	799	39	37	30	26

Notes:
(1) Source: *Trip Generation,* Institute of Transportation Engineers, 11th Edition, 2021
(2) ITE Land Use No. 220 - Multifamily Housing (Low-Rise); formula rates
(3) DU = Dwelling Units
(4) ITE Land Use No. 934 - Fast-Food Restaurant with Drive-Through
(5) KSF = 1,000 square feet
(6) 43% of restaurant trips are expected to be passby trips per the ITE *Trip Generation Handbook,* 3rd Edition.

Figure 1

Vicinity Map

West End - 2022 Update (LSC #220510)

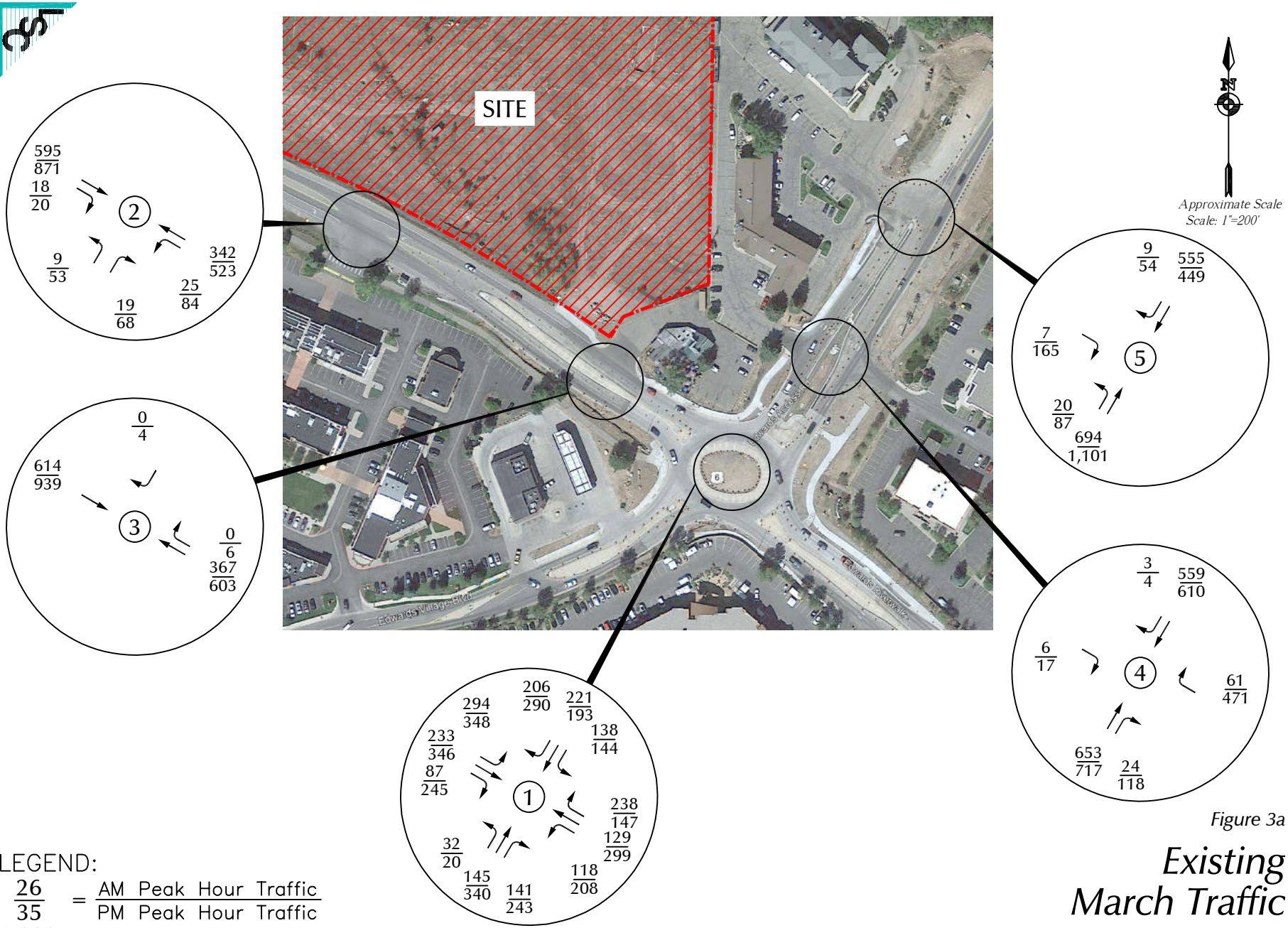


Approximate Scale
Scale: NTS

Figure 2

Site Plan

West End - 2022 Update (LSC #220510)



LEGEND:

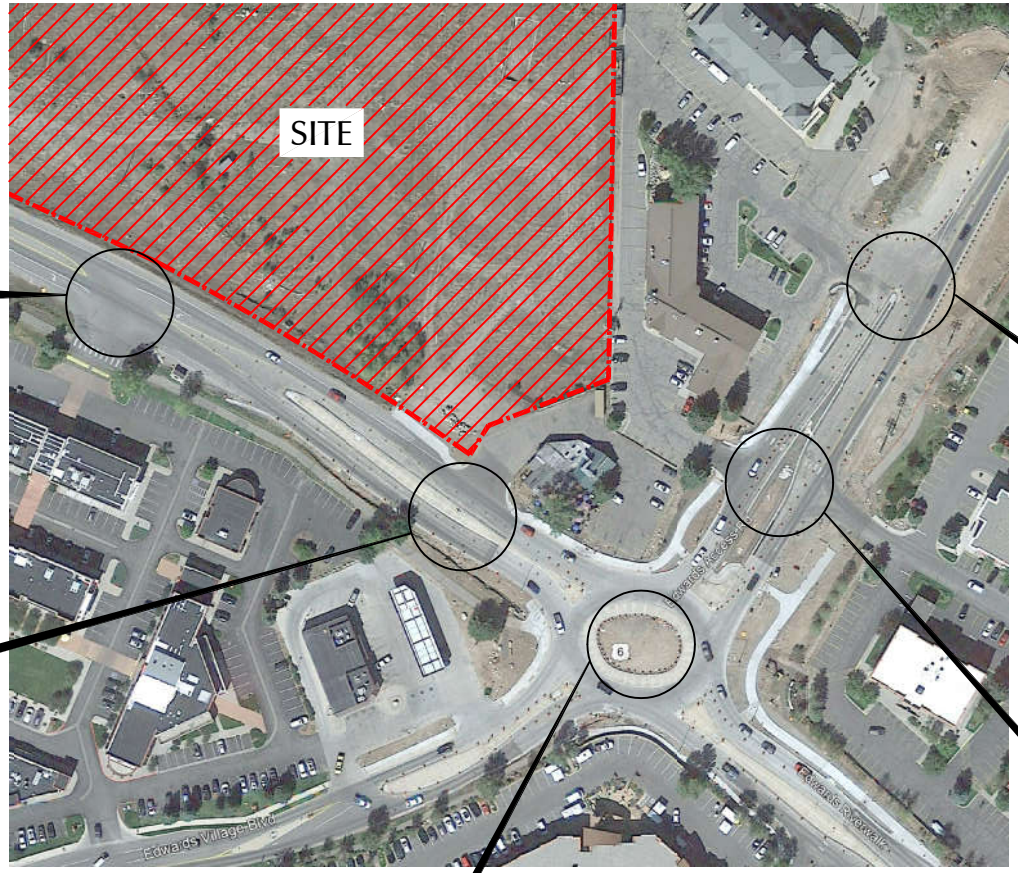
$\frac{26}{35}$ = $\frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$

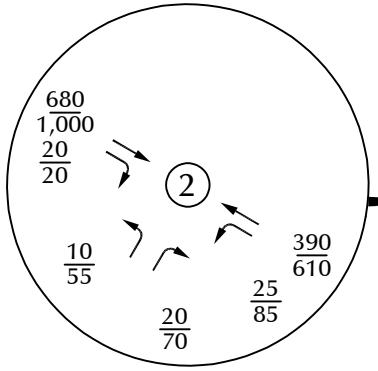
1,000 = Average Daily Traffic

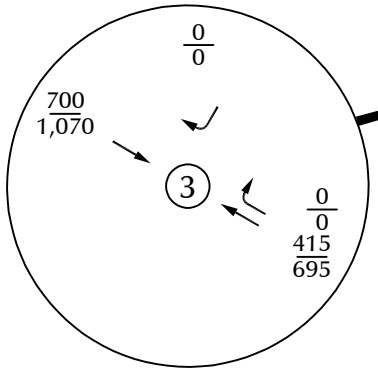
Figure 3a

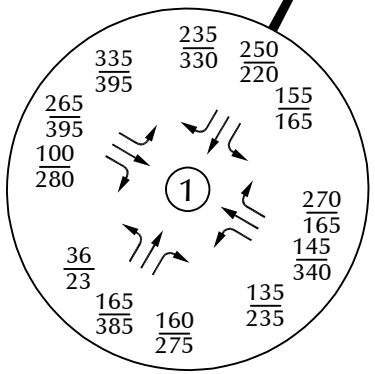
Existing March Traffic

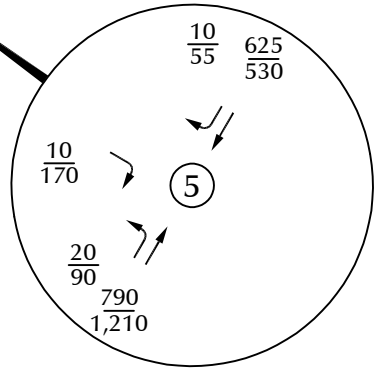
West End - 2022 Update (LSC #220510)

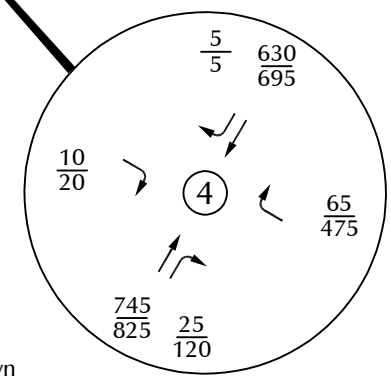












Approximate Scale
Scale: 1"=200'

LEGEND:

$\frac{26}{35}$ = $\frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$

Note: Through traffic volumes were grown by 14 percent to account for seasonal variation between March and the non-summer peak of September per the approved TIS methodology form.

Figure 3b

Adjusted Existing Traffic

West End - 2022 Update (LSC #220510)

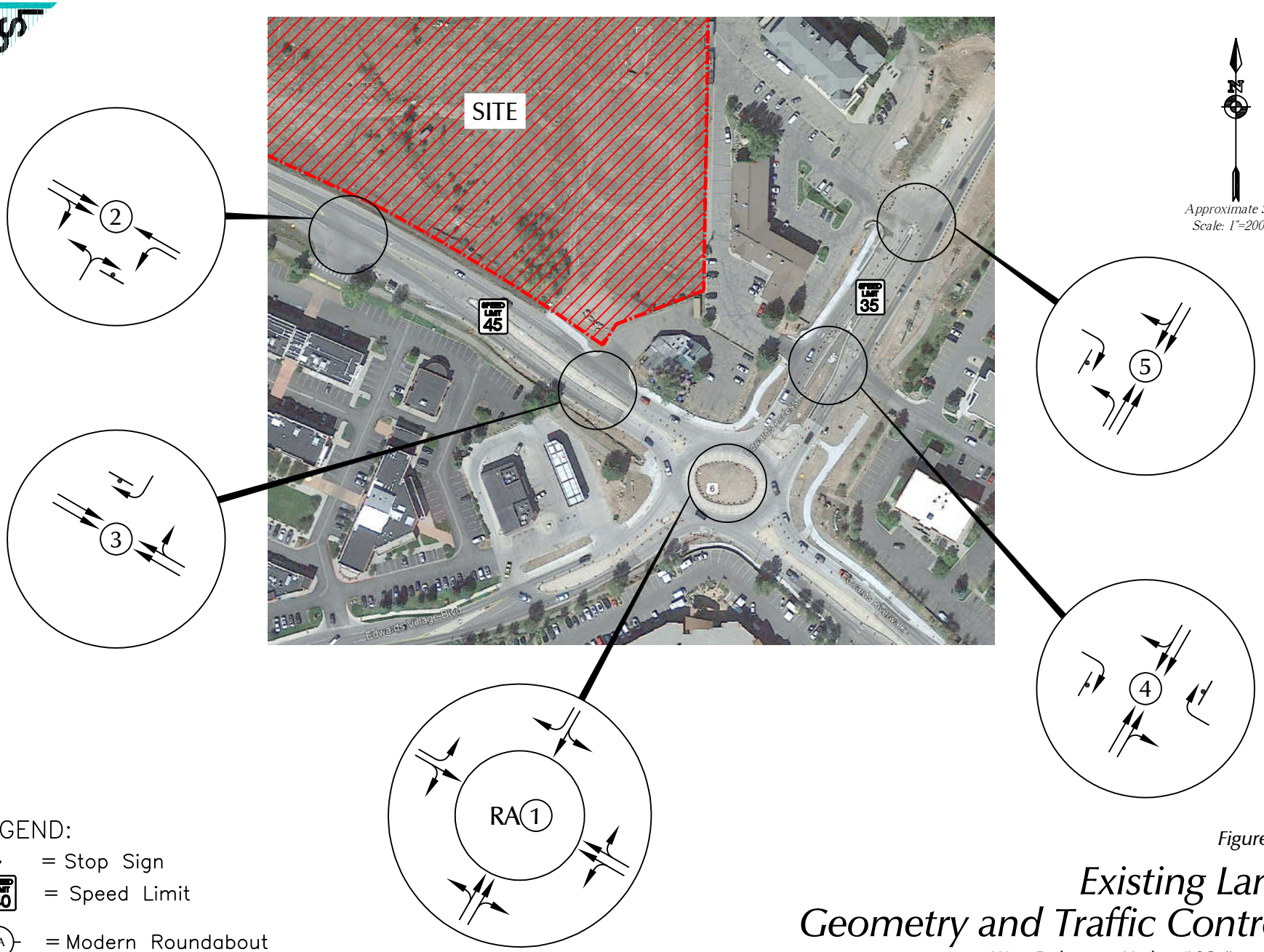
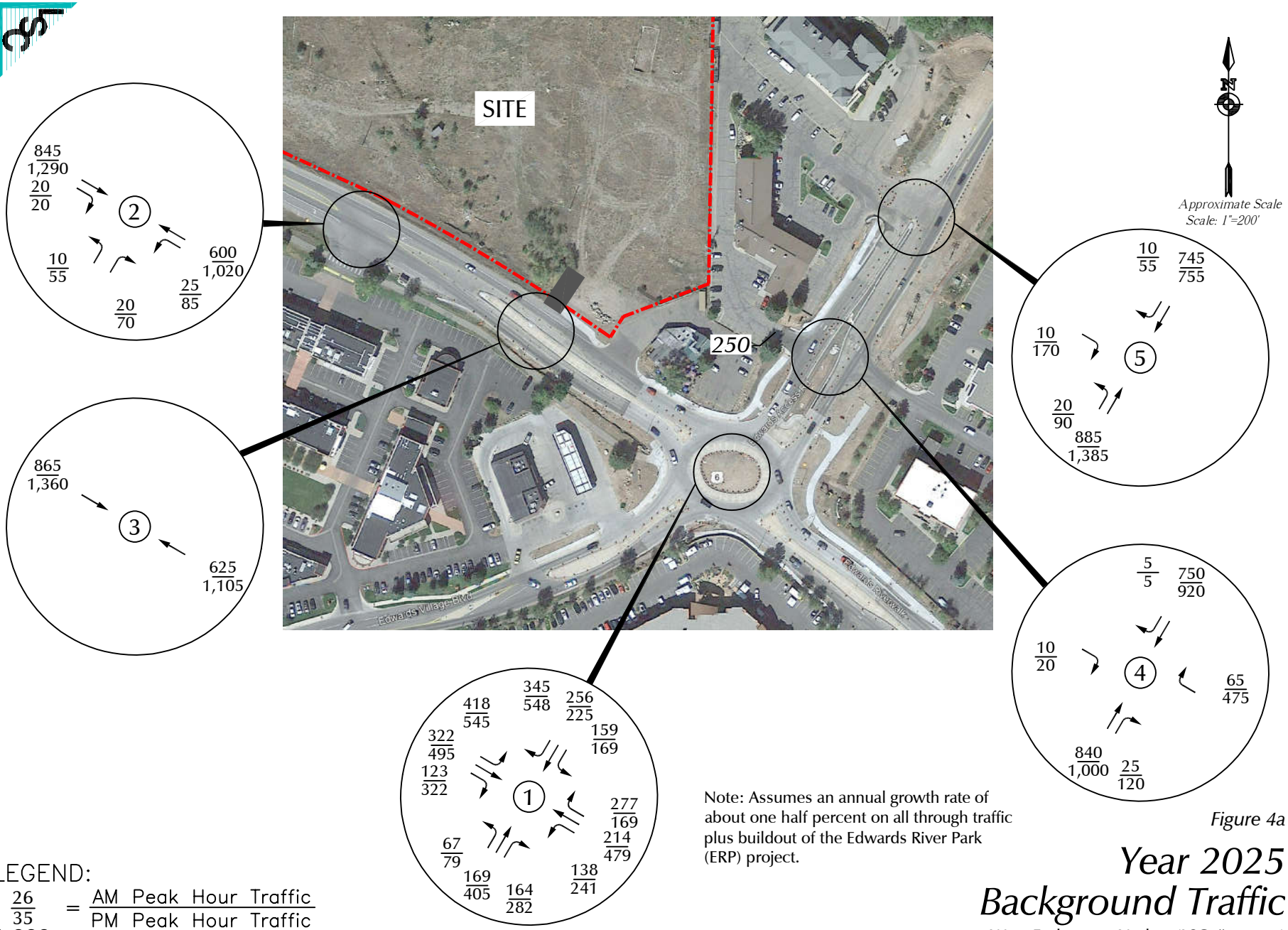


Figure 3c

Existing Lane Geometry and Traffic Control

West End - 2022 Update (LSC #220510)



LEGEND:

$\frac{26}{35}$ = $\frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$

1,000 = Average Daily Traffic

Note: Assumes an annual growth rate of about one half percent on all through traffic plus buildout of the Edwards River Park (ERP) project.

Figure 4a

Year 2025 Background Traffic

West End - 2022 Update (LSC #220510)

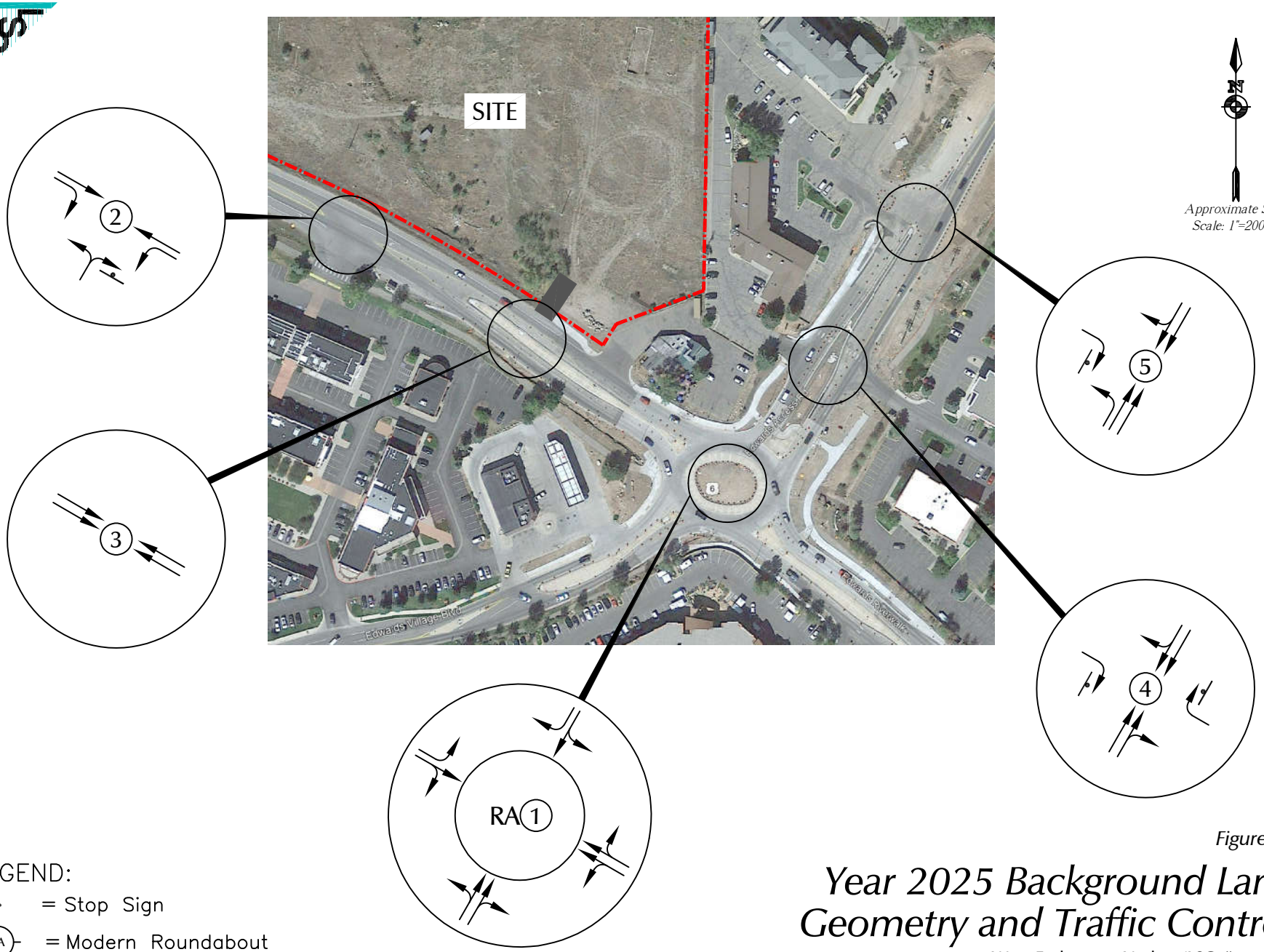
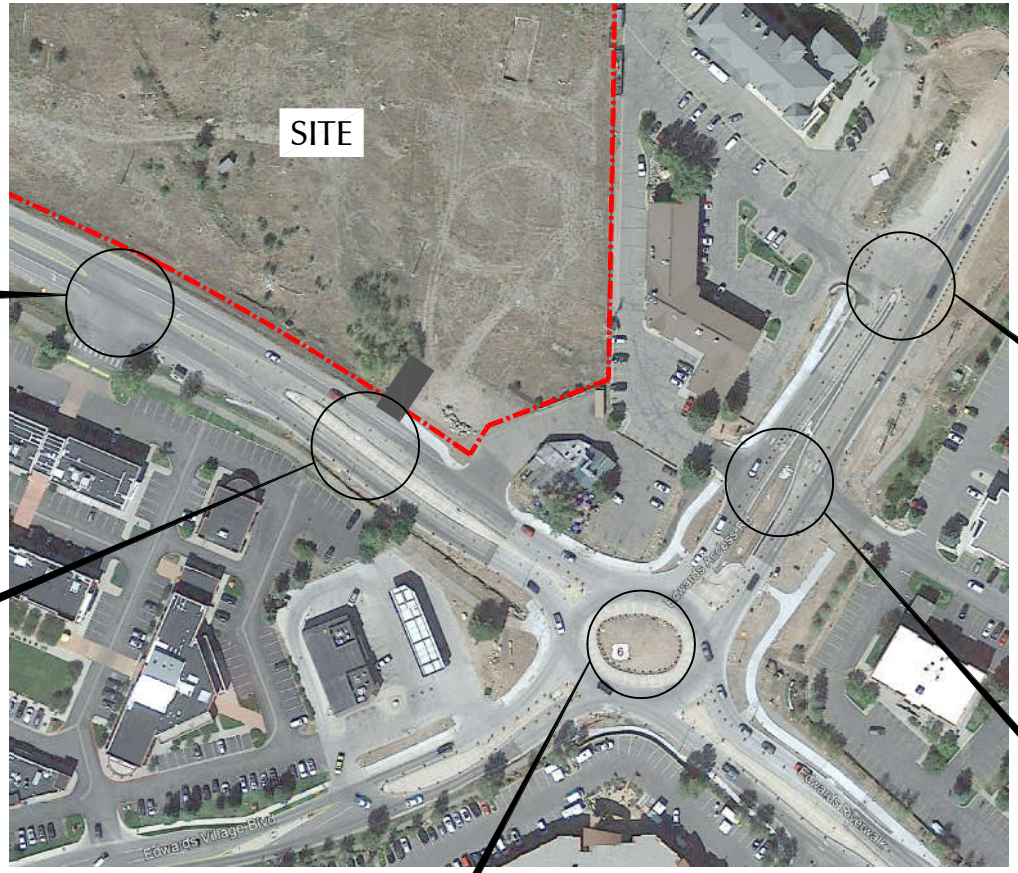
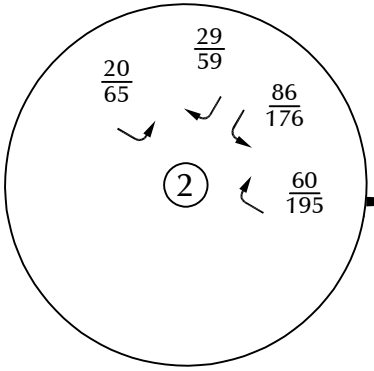


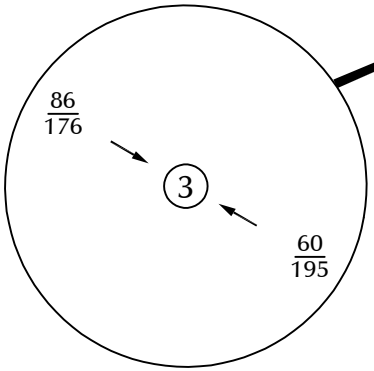
Figure 4b

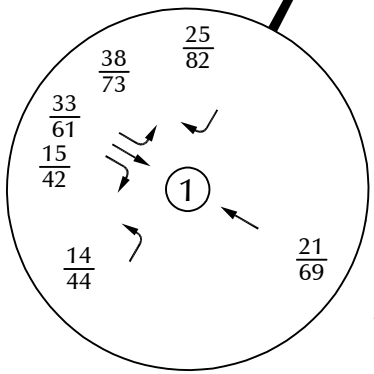
Year 2025 Background Lane Geometry and Traffic Control

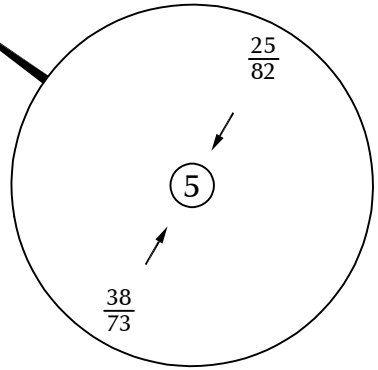
West End - 2022 Update (LSC #220510)

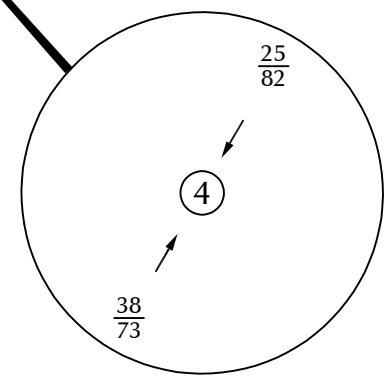












Approximate Scale
Scale: 1"=200'

Notes:
1. Assumes full movement access on US 6.
2. Assumes 80 entering and 115 exiting morning peak hour trips.
3. Assumes 260 entering and 235 exiting afternoon peak hour trips.

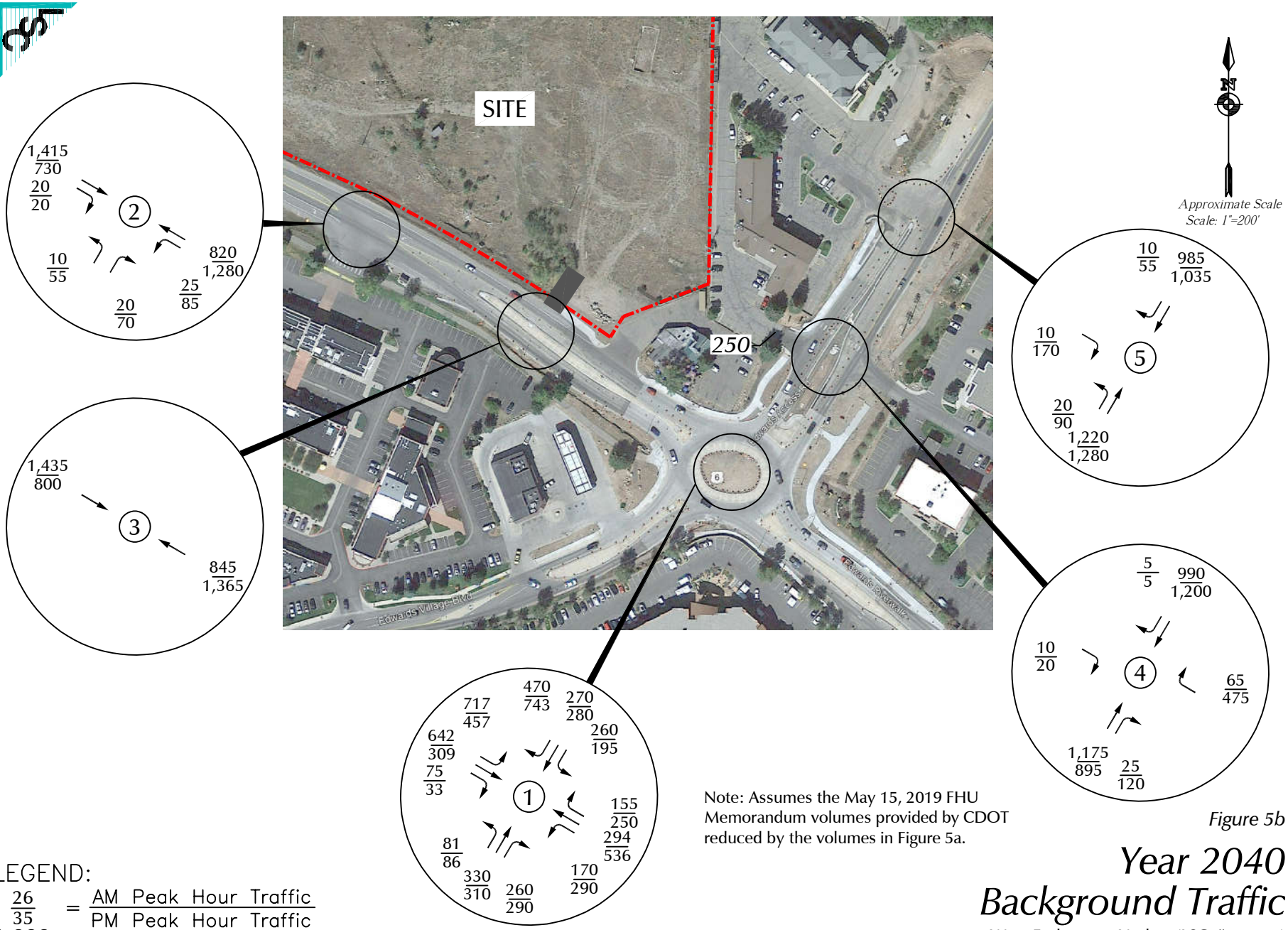
LEGEND:

$\frac{26}{35}$ = $\frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$

Figure 5a

Trip Assignment of West End/ Vogelman Parcels Assumed in ERP TIA

West End - 2022 Update (LSC #220510)



LEGEND:

$\frac{26}{35}$ = $\frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$

1,000 = Average Daily Traffic

Note: Assumes the May 15, 2019 FHU Memorandum volumes provided by CDOT reduced by the volumes in Figure 5a.

Figure 5b

Year 2040 Background Traffic

West End - 2022 Update (LSC #220510)

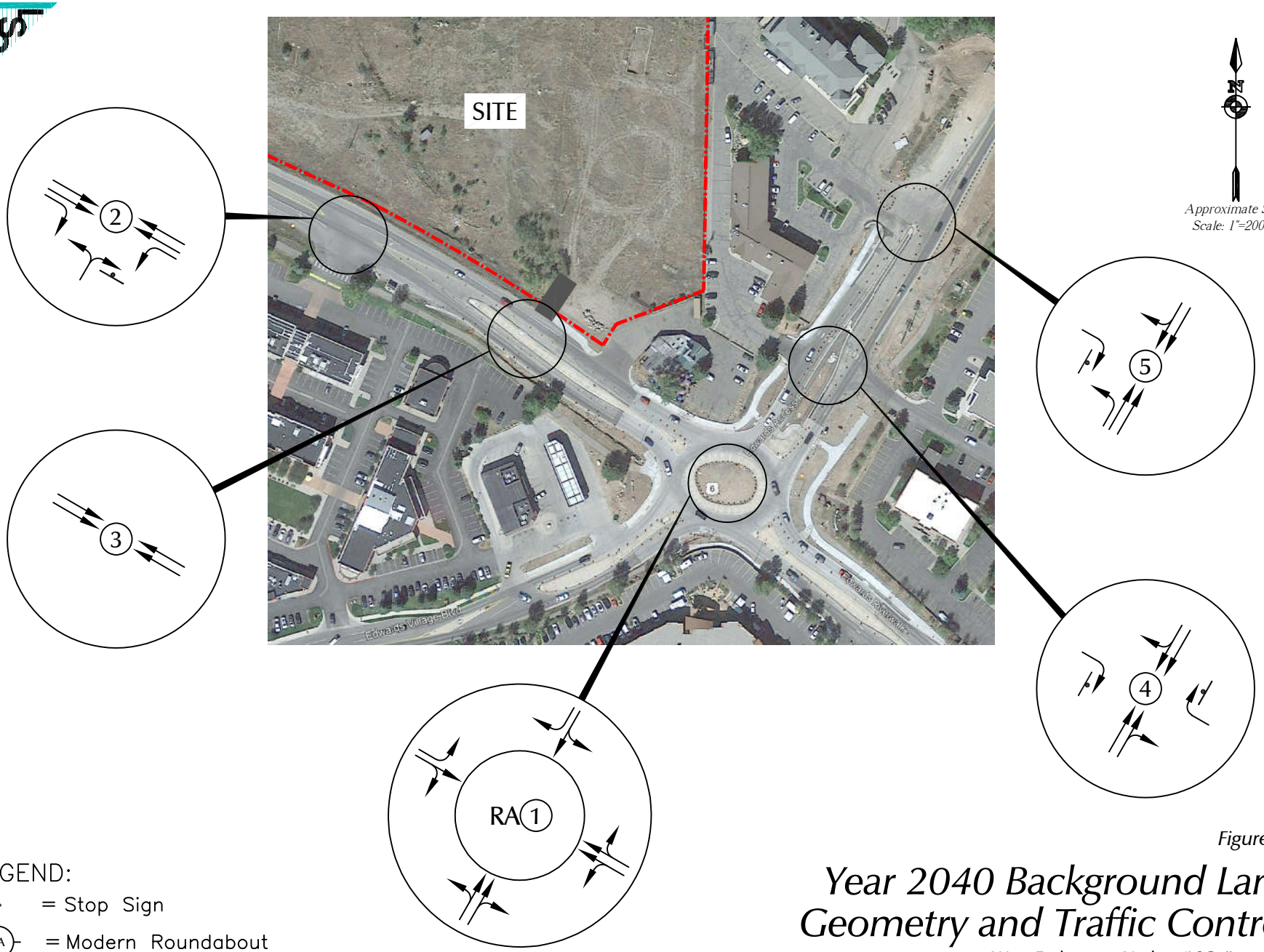


Figure 5c

Year 2040 Background Lane Geometry and Traffic Control

West End - 2022 Update (LSC #220510)

N

Approximate Scale
Scale: 1"=400'

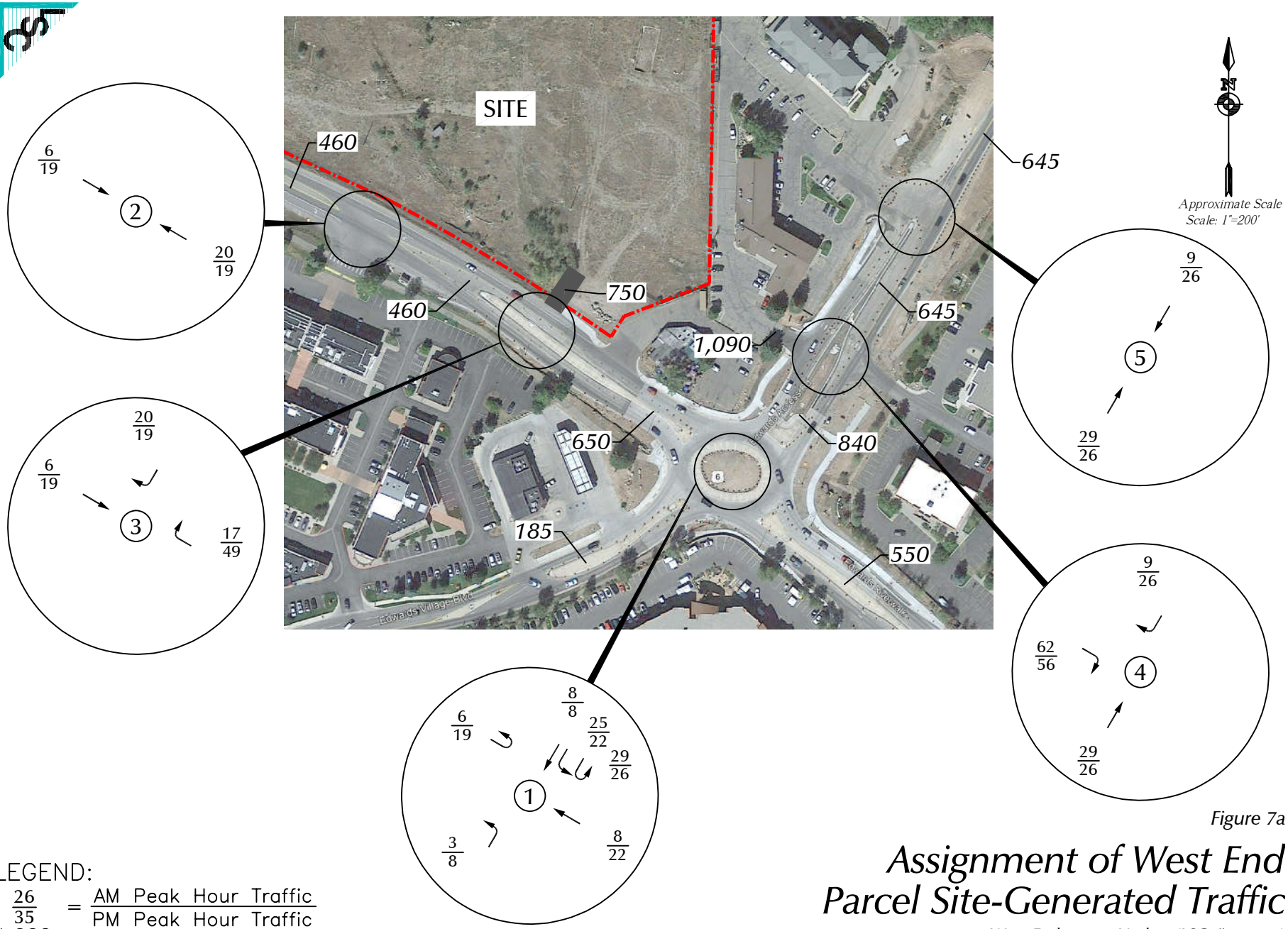
Figure 6

Directional Distribution of Site and Impact Area Generated Traffic

West End - 2022 Update (LSC #220510)

LEGEND:

$$\frac{XX\%}{XX\%} = \frac{\text{Residential Percent Directional Distribution}}{\text{Commercial Percent Directional Distribution}}$$



LEGEND:

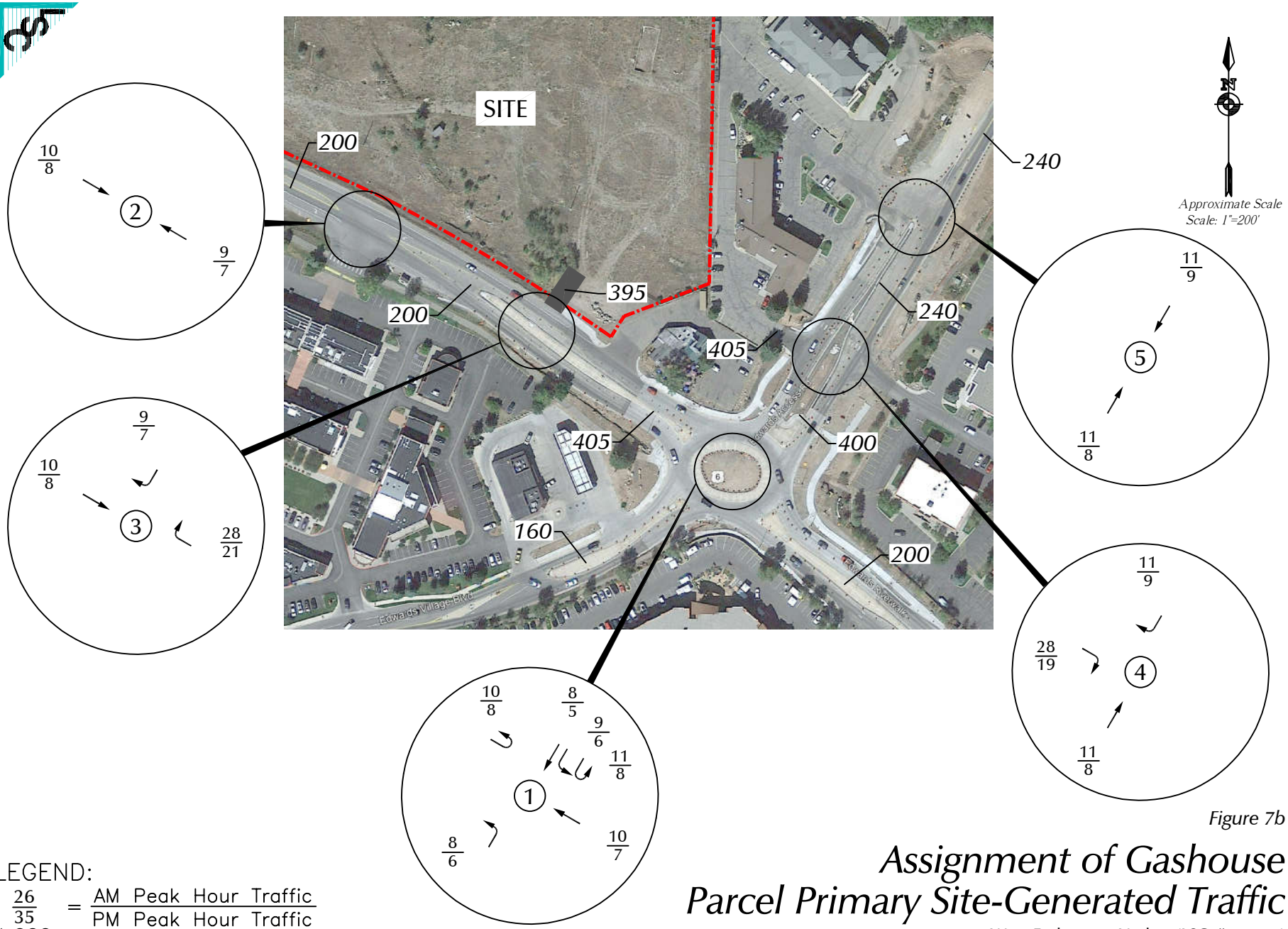
$\frac{26}{35}$ = $\frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$

1,000 = Average Daily Traffic

Figure 7a

Assignment of West End Parcel Site-Generated Traffic

West End - 2022 Update (LSC #220510)



LEGEND:

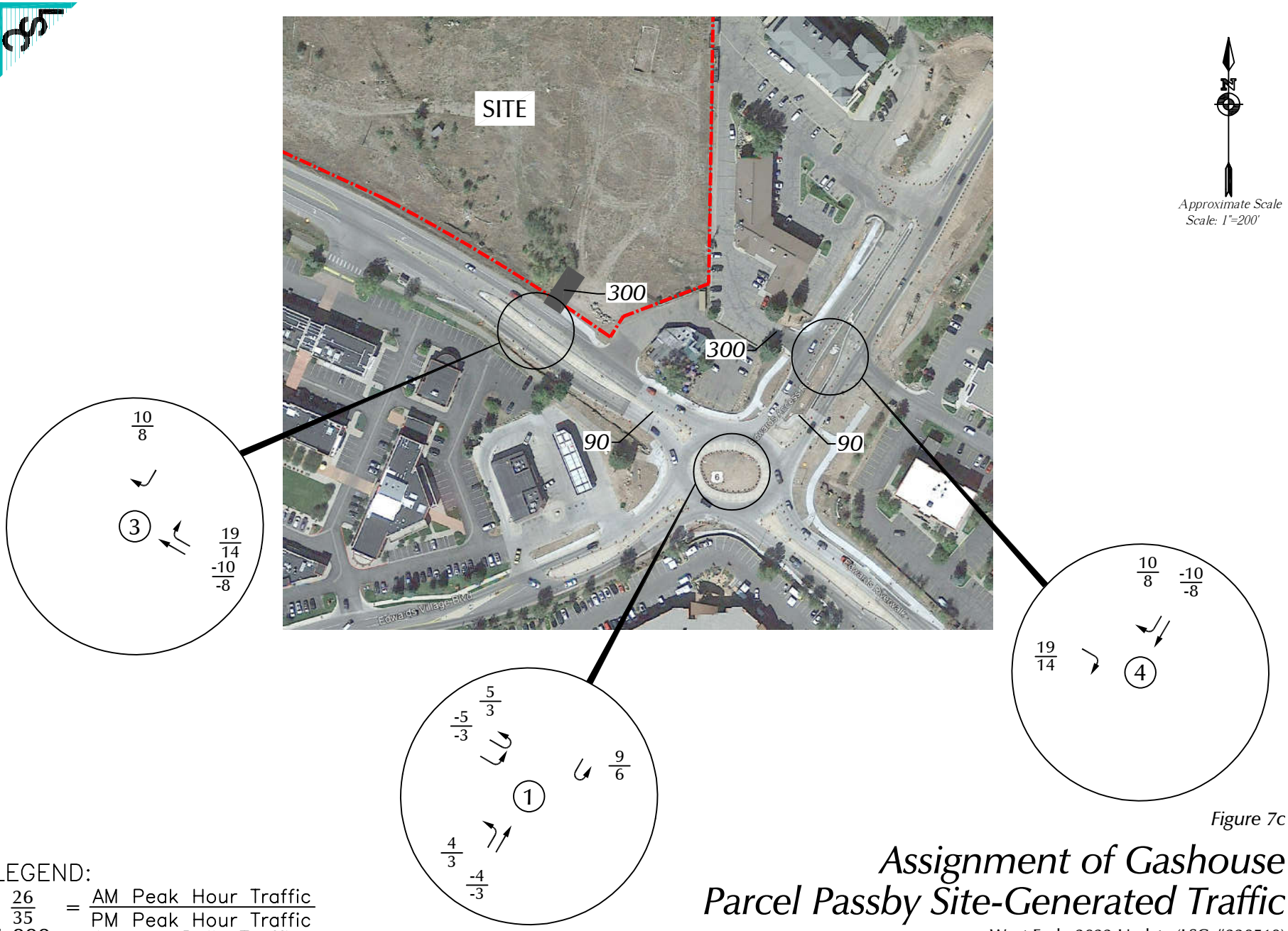
$\frac{26}{35}$ = $\frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$

1,000 = Average Daily Traffic

Figure 7b

Assignment of Gashouse Parcel Primary Site-Generated Traffic

West End - 2022 Update (LSC #220510)



LEGEND:

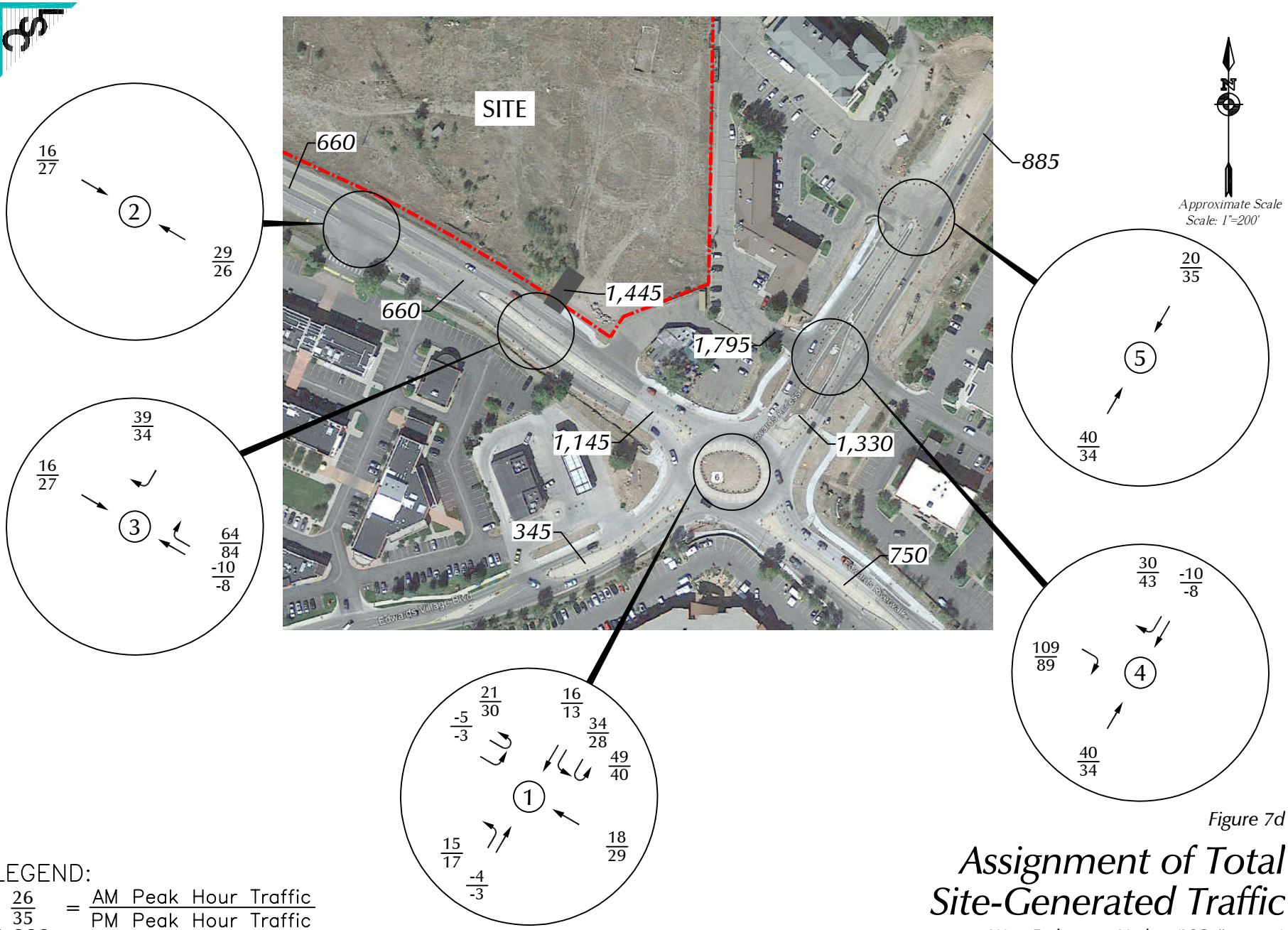
$\frac{26}{35}$ = AM Peak Hour Traffic / PM Peak Hour Traffic

1,000 = Average Daily Traffic

Figure 7c

Assignment of Gashouse Parcel Passby Site-Generated Traffic

West End - 2022 Update (LSC #220510)



LEGEND:

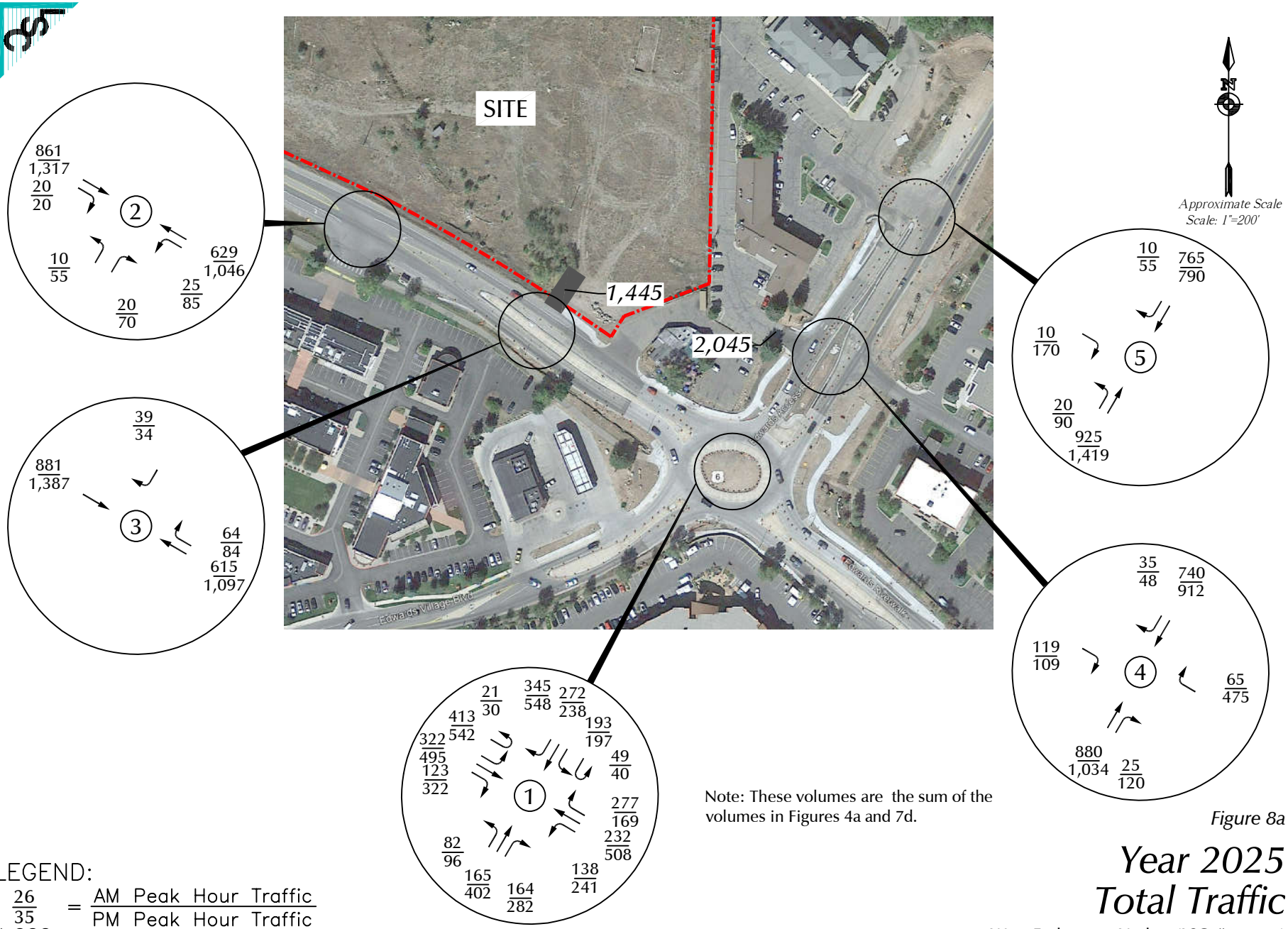
$\frac{26}{35}$ = $\frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$

1,000 = Average Daily Traffic

Figure 7d

Assignment of Total Site-Generated Traffic

West End - 2022 Update (LSC #220510)



Note: These volumes are the sum of the volumes in Figures 4a and 7d.

LEGEND:

$\frac{26}{35}$ = $\frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$

1,000 = Average Daily Traffic

Figure 8a

Year 2025 Total Traffic

West End - 2022 Update (LSC #220510)

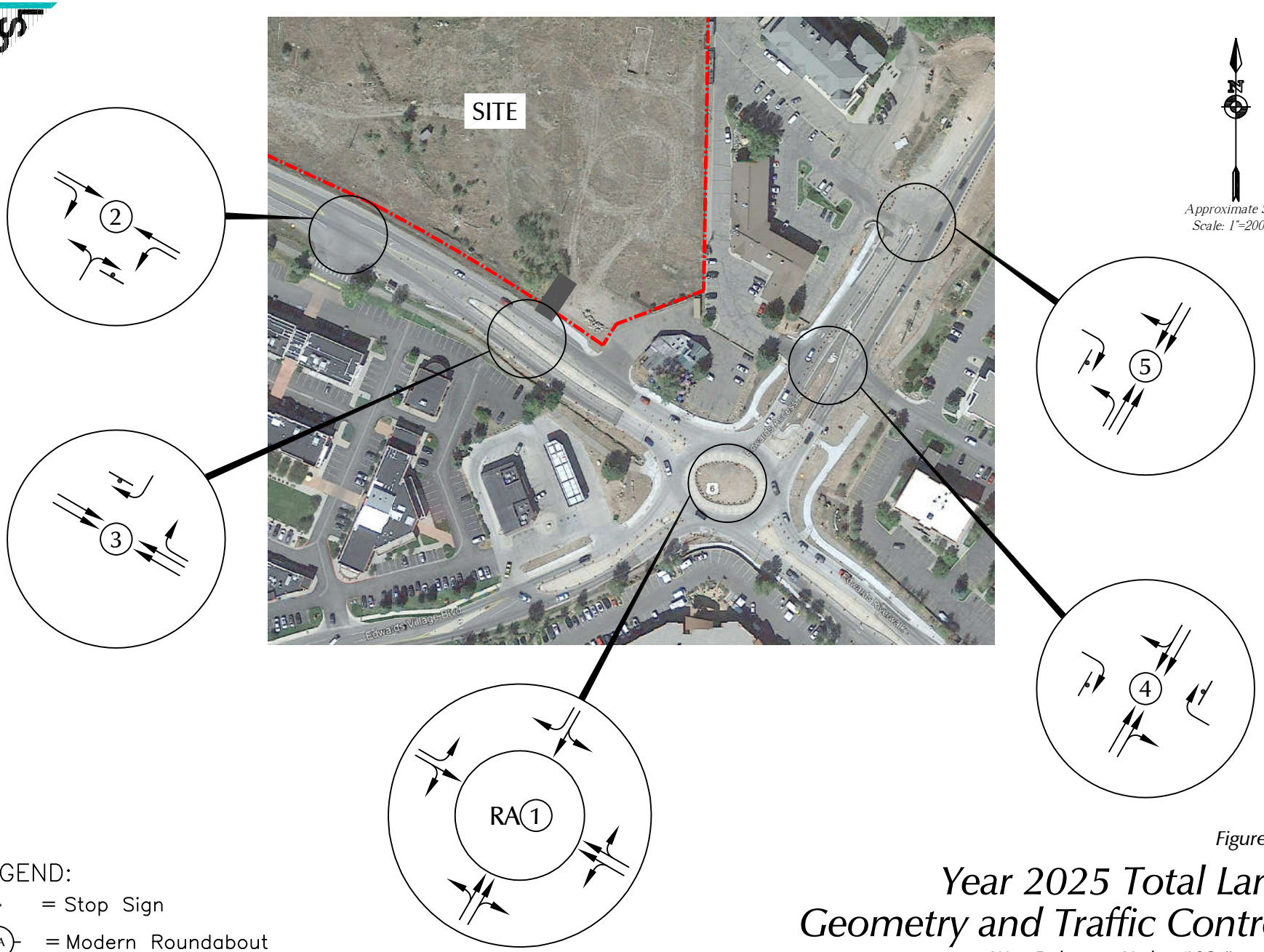
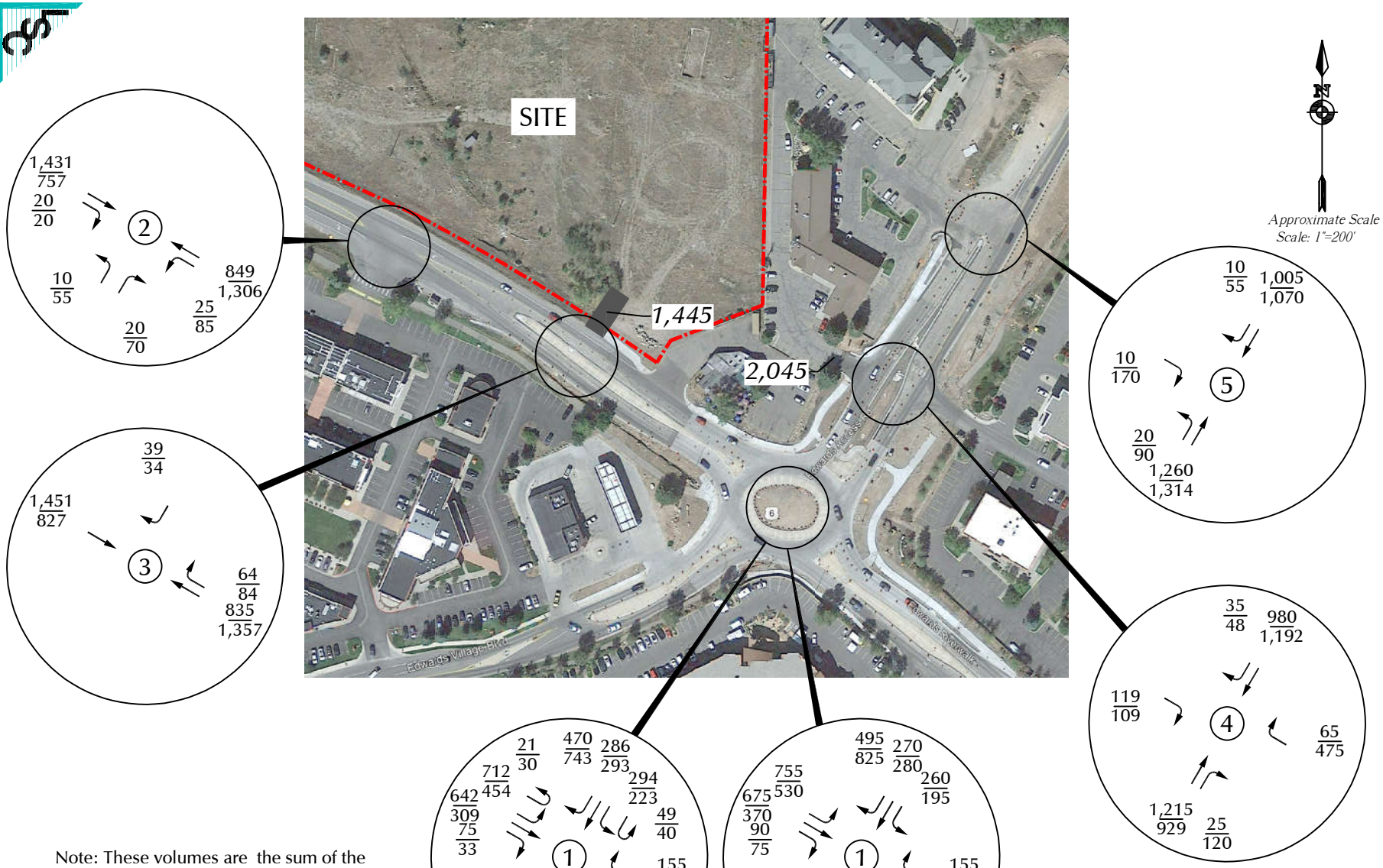


Figure 8b

Year 2025 Total Lane Geometry and Traffic Control

West End - 2022 Update (LSC #220510)



Note: These volumes are the sum of the volumes in Figures 5b and 7d.

LEGEND:

$\frac{26}{35}$ = $\frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$

1,000 = Average Daily Traffic

Current Projections

Prior CDOT/FHU Projections

Figure 9a

Year 2040 Total Traffic

West End - 2022 Update (LSC #220510)

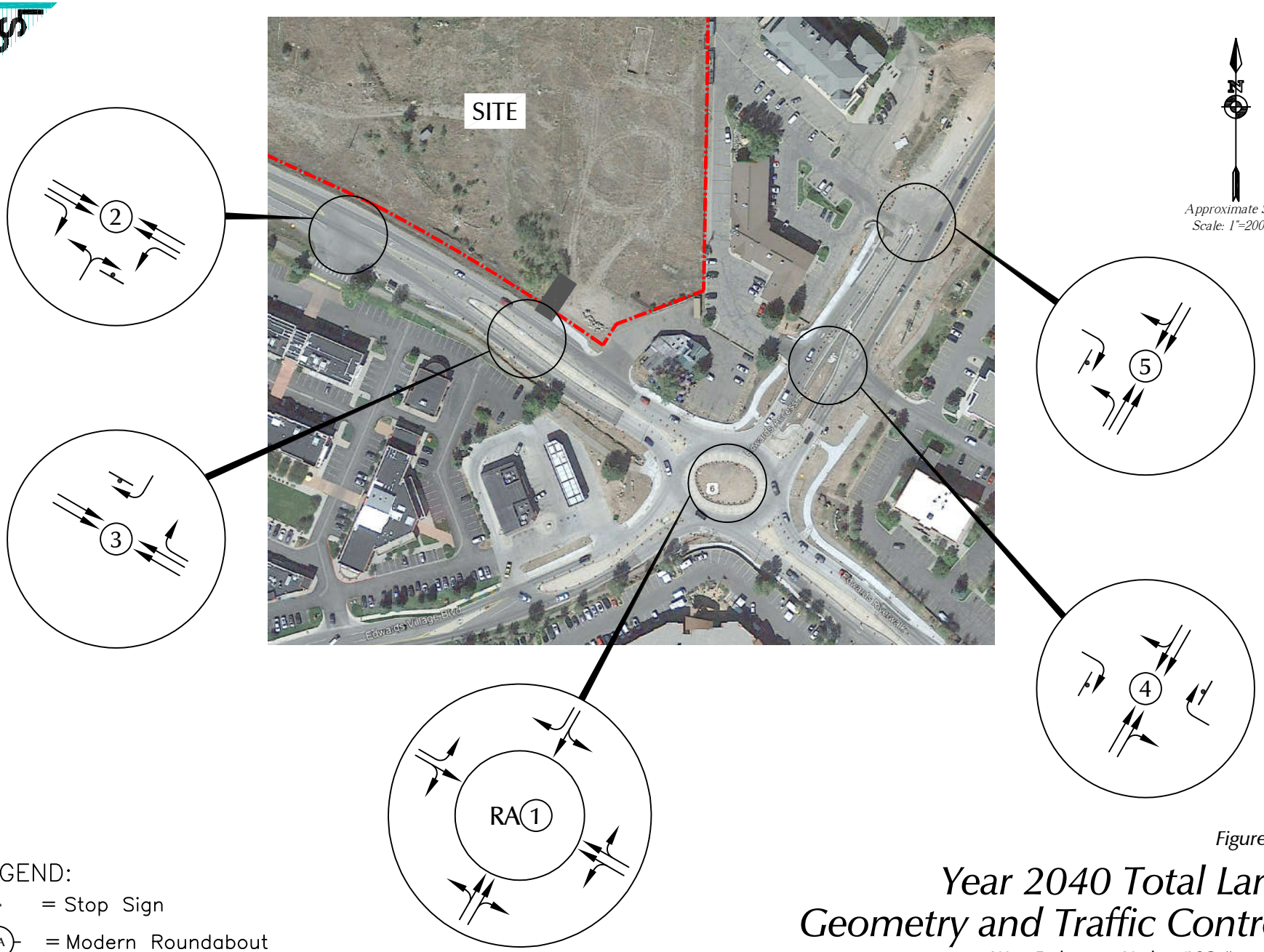


Figure 9b

Year 2040 Total Lane Geometry and Traffic Control

West End - 2022 Update (LSC #220510)

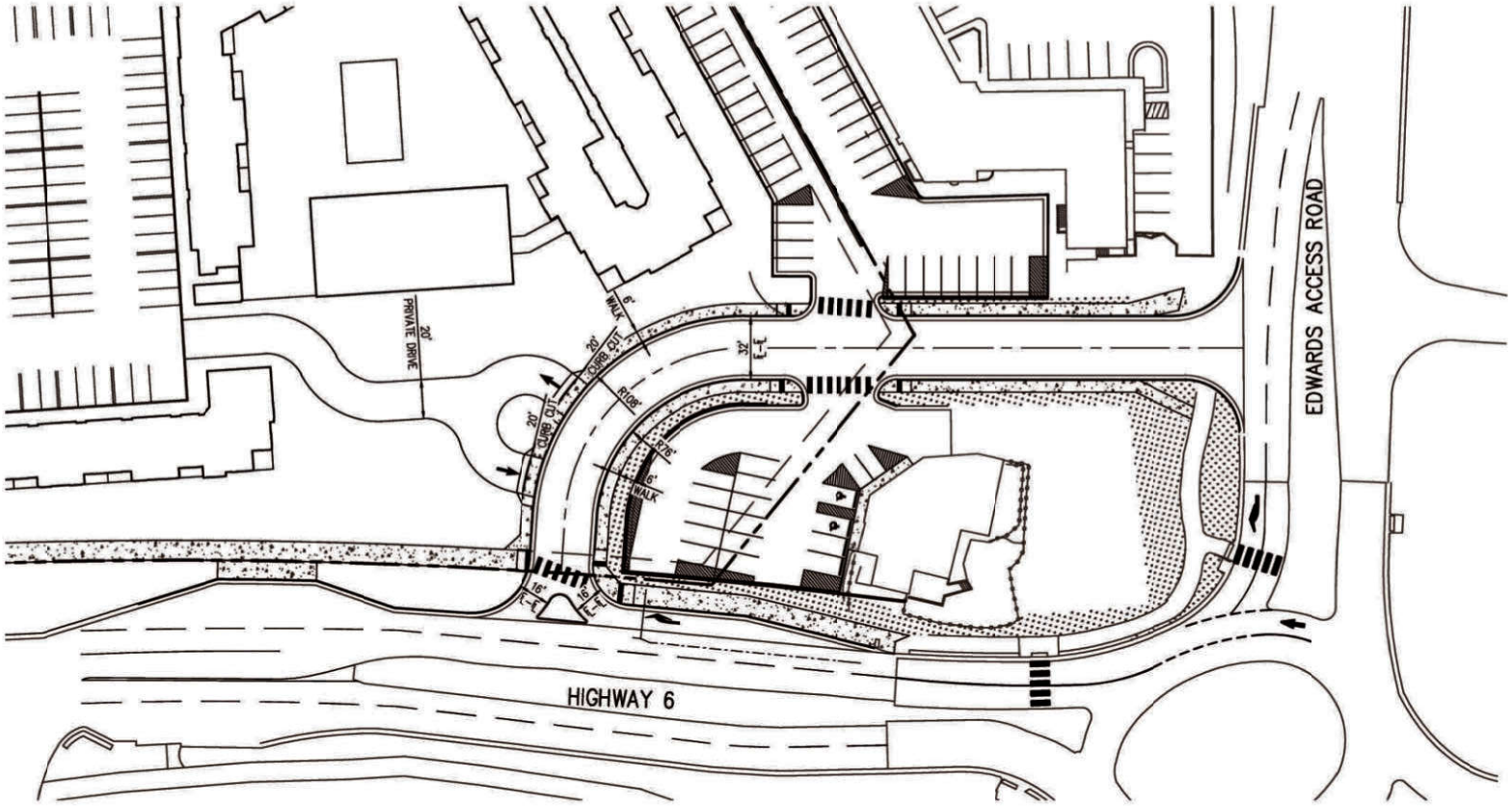


Figure 10

Site Access & Loop Road Details

West End - 2022 Update (LSC #220510)

COLORADO
Department of Transportation
Region 3

Transportation Impact Study Methodology Form

Prior to starting a traffic impact study, a Methodology Form must be submitted for review and signed by the Region 3 Access Engineer. It shall be included as part of the study.

Form submitted to CDOT 05/05/20.

CONTACT INFORMATION	
Consultant: Name:	LSC Transportation Consultants, Inc.
Telephone:	303-333-1105
Email:	chris@lsctrans.com & lsc@lscdenver.com
Developer/Owner Name:	Edwards West End Holdings, LLC

PROJECT INFORMATION	
Project Name	West End
Project Location	Eagle County, CO
Project Description *(Attached proposed site plan)*	See attached plan
State Highway	US 6
County	Eagle
Mile Post	166
Posted Speed Limit	35 mph west of the roundabout

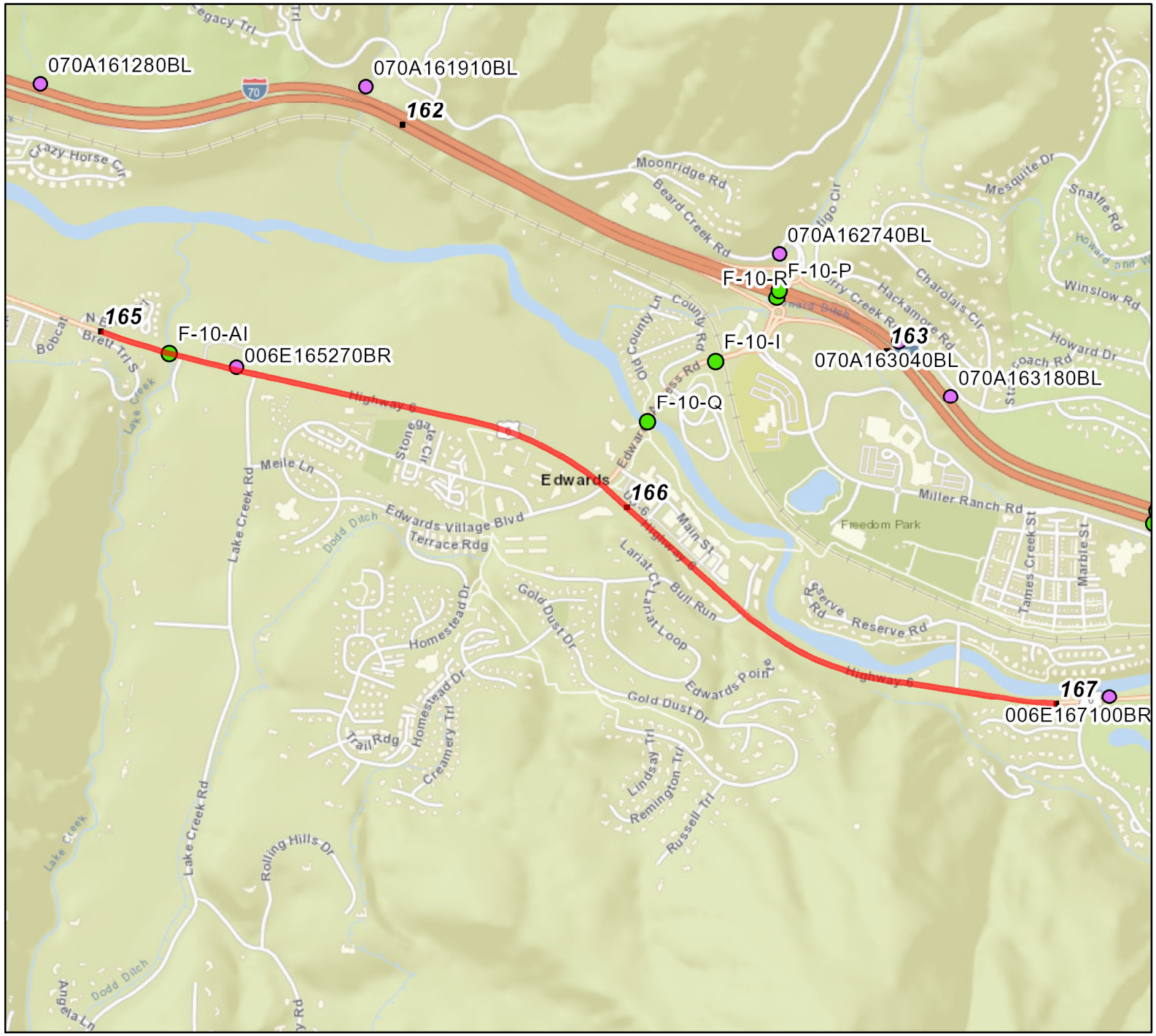
TIS ASSUMPTIONS			
Study Years	Current Year: 2020	Buildout Year: 2025	Long Term Year: 2040
Traffic Assessment Level *(Provide justification)*	Traffic Impact Study		
Study Intersections	1. US 6/Edwards Access Roundabout	6.	
	2. Access Intersections	7.	
	3.	8.	
	4.	9.	
	5.	10.	
Future Growth Rate	☐ OTIS	☐ Regional TDM	■ Other See Notes Section
Seasonal Adjustment Factor	March traffic counts will be adjusted to September based on historical seasonal data from CDOT consistent with the Edwards River Park TIA by McDowell (Factor from March to September is 1.14).		

COLORADO
Department of Transportation
Region 3

ASSUMPTIONS CONTINUED					
Project Trip Distribution *(State assumptions and attach sketch that shows individual movements.)*	Residential: 25% west, 35% north, 30% east, and 10% south. Commercial: 25% west, 30% north, 25% east, and 20% south.				
Trip Reduction Percentage	Internal Capture:	N/A	Pass By:	43% for restaurant uses per ITE Handbook	
	Multi-Modal:	N/A	Other:	N/A	
Study Time Periods *(Check all that apply)*	■ AM (7-9)	■ PM (4-6)	☐ Weekday		
	☐ SAT (Midday)	☐ Other			
Existing and Proposed ITE Trip Generation Land Use	Proposed uses will likely be: West End - Apartments/Condos (LUC 220 and/or LUC 221); Vogelman - Apartments/ Condos (LUC 220 and/or LUC 221); Gashouse - Drive-Thru Restaurant (LUC 934)				
Analysis Methods *(Check all that apply)*	TWSC ■ Synchro or Roundabouts ■ HCS *(isolated intersections only)*	☐ SimTraffic or ☐ Other *(closely spaced intersections or when known/expected queuing issue)*			
	☐ Signal Warrants	☐ Pedestrian/Transit/Bicycle			
	☐ Safety/Sight Distance	☐ Queuing and Storage			
	☐ Other				
Notes and Other Assumptions	2025 background traffic will assume Edwards River Park (ERP) is completed plus a background annual growth rate of 0.5 percent. 2040 background traffic will be based on the projections by FHU provided by CDOT in an email dated April 27, 2020 less the site-generated trips assumed by the ERP TIA.				
Crash Data	CDOT will perform a crash data analysis for the highway in the vicinity of the proposed access and provide to the consultant. As a part of the study consultant shall recommend mitigation measures for any identified safety issues.				
Simulation Input Files	Consultant to provide computer files used for analysis with a signed and sealed copy of the study.				

CDOT INTERNAL USE ONLY		
Review Comments ☐ Revise and Resubmit		
Engineer Signature/Date	☒ Approved	08 May 2020

Route 006E From 165 to 167



Legend

- Route
- Milepoint

Structures

- Major Structure
- Minor Structure

Created:

Date: 4/3/2020

Time: 12:22:03 PM

0 0.15 0.3 0.45 0.6

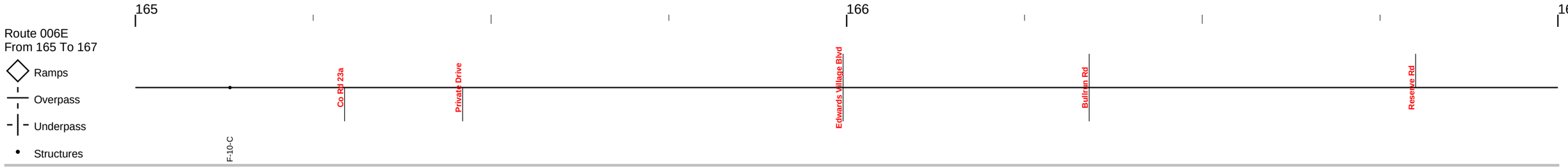
Miles

N

W E

S

CDOT



CLASSIFICATION

Access Control	NR-A: Non-Rural Principal Highway

SAFETY

Primary Speed Limit	45	35	50

TRAFFIC

AADT	9500	11000	9900
V/C Ratio	0.57	0.66	0.59
Year 20 Factor	1.43	1.27	1.18

It may appear that information is missing from the straight line diagram. If so, reduce the number of miles/page and re-submit the request.

COUNT STATION ID	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
		Count Station 11 is located on I-70 East of SH 131											
11	2020	25,212	24,948	20,794									
11	2019	24,754	24,526	26,836	26,614	29,111	33,505	34,978	34,099	32,049	29,503	25,247	25,706
11	2018	23,833	23,879	28,066	25,227	29,140	31,990	32,973	31,668	31,171	27,693	24,967	24,944
11	2017	21,883	23,391	27,430	24,926	27,503	32,675	33,346	31,620	29,830	27,045	25,064	24,946
11	2016	22,470	20,829	25,512	23,563	27,800	31,702	33,354	32,044	30,647	27,020	23,524	23,246
11	2015	21,420	20,606	25,633	23,457	25,290	29,571	32,273	29,663	28,616	25,758	21,938	23,347
11	2014	19,821	19,902	23,275	21,317	23,761	27,277	29,877	28,696	26,362	24,408	20,203	21,459
11	2013	19,541	19,101	22,792	20,349	23,523	21,059	28,327	27,702	24,218	22,205	19,886	20,527
11	2012	19,531	19,755	23,271	20,611	23,037	26,496	27,976	27,526	24,666	22,125	20,449	18,208
11	2011	18,928	18,957	21,794	19,271	21,061	25,090	27,358	27,519	25,481	22,004	19,863	20,684
11	2010	19,580	19,845	20,536	20,416	22,368	25,691	28,091	27,231	24,872	20,956	19,086	19,337
11	2009	20,473	21,084	22,687	20,734	22,971	26,494	28,787	27,696	25,134	22,138	20,205	19,814
11	2008	21,786	22,880	24,374	22,791	24,524	26,906	28,666	28,362	25,861	23,962	20,539	19,436
11	2007	21,395	21,353	23,637	22,582	24,265	27,268	29,439	26,065	23,595	22,722	22,460	20,238
11	2006	19,845	18,485	23,220	22,153	21,138	26,740	28,011	27,524	25,338	20,618	21,992	20,939
11	2005	19,470	21,207	22,943	21,288	23,505	27,502	26,983	26,646	24,940	22,596	20,515	19,588
11	2004	18,910	18,951	22,690	21,136	22,659	24,727	28,076	27,149	24,787	22,388	19,567	19,931
11	2003	18,431	17,949	18,942	20,692	22,441	25,869	27,729	27,381	23,831	22,323	18,017	18,767
11	2002	17,455	18,639	20,925	20,125	22,250	23,241	25,979	25,025	21,984	21,313	18,322	19,105
11	2001								18,732	19,138	18,973	18,976	17,924

March		July		September	
2015 to 2019 - 5 Year Total =	133,477	2015 to 2019 - 5 Year Total =	166,924	2015 to 2019 - 5 Year Total =	152,313
Five Year Average =	26,695	Five Year Average =	33,385	Five Year Average =	30,463
		Seasonal Adj. Factor =	1.25	Seasonal Adj. Factor =	1.14

COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: EDWARDS ACCESS RD
E/W STREET: US 6
CITY: EDWARDS
COUNTY: EAGLE

File Name : EDWAUS6
Site Code : 00000014
Start Date : 3/4/2020
Page No : 1

Groups Printed- VEHICLES

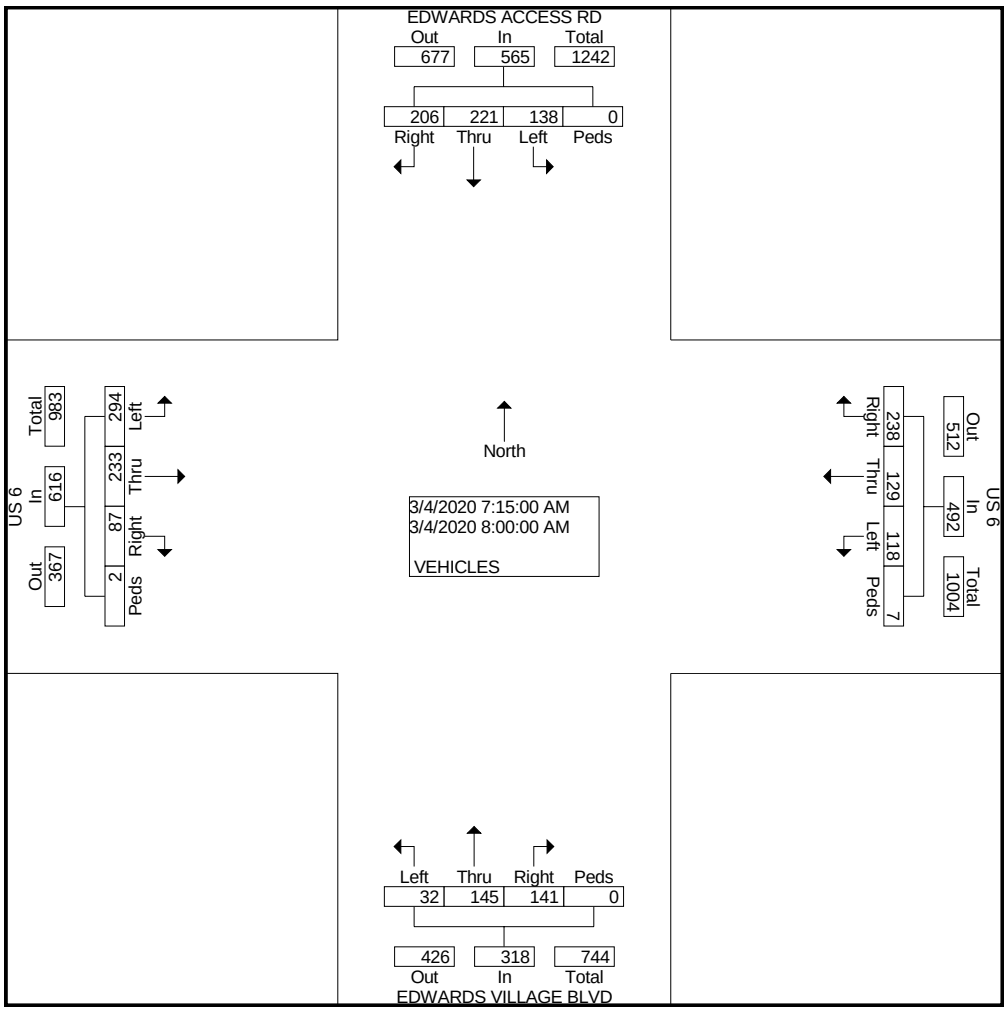
	EDWARDS ACCESS RD Southbound				US 6 Westbound				EDWARDS VILLAGE BLVD Northbound				US 6 Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	6	8	5	0	6	5	9	0	6	16	11	0	18	19	4	0	113
06:45 AM	19	9	25	0	6	9	7	0	1	29	30	0	33	41	11	0	220
Total	25	17	30	0	12	14	16	0	7	45	41	0	51	60	15	0	333
07:00 AM	32	25	20	0	5	9	26	0	1	29	30	0	44	39	11	0	271
07:15 AM	20	27	22	0	20	26	45	0	6	34	29	0	64	47	16	0	356
07:30 AM	31	46	49	0	27	29	54	0	8	38	46	0	72	55	23	0	478
07:45 AM	52	75	94	0	38	46	76	7	5	41	34	0	76	56	24	2	626
Total	135	173	185	0	90	110	201	7	20	142	139	0	256	197	74	2	1731
08:00 AM	35	73	41	0	33	28	63	0	13	32	32	0	82	75	24	0	531
08:15 AM	39	85	30	0	13	25	29	1	8	14	6	0	33	57	14	0	354
Total	74	158	71	0	46	53	92	1	21	46	38	0	115	132	38	0	885
04:00 PM	55	31	47	0	49	59	53	0	5	58	25	0	51	60	36	0	529
04:15 PM	43	35	51	0	67	54	34	0	7	55	38	0	80	71	44	0	579
04:30 PM	37	20	58	0	42	70	40	0	10	62	36	1	89	83	34	0	582
04:45 PM	31	27	57	0	50	63	32	0	4	60	50	0	103	77	55	0	609
Total	166	113	213	0	208	246	159	0	26	235	149	1	323	291	169	0	2299
05:00 PM	36	36	67	0	54	78	47	0	7	78	45	0	82	82	72	0	684
05:15 PM	43	54	80	0	46	80	41	0	5	88	59	0	96	84	58	0	734
05:30 PM	29	49	82	0	52	69	28	0	5	97	73	0	88	90	56	0	718
05:45 PM	36	54	61	0	56	72	31	0	3	77	66	0	82	90	59	0	687
Total	144	193	290	0	208	299	147	0	20	340	243	0	348	346	245	0	2823
Grand Total	544	654	789	0	564	722	615	8	94	808	610	1	1093	1026	541	2	8071
Apprch %	27.4	32.9	39.7	0.0	29.5	37.8	32.2	0.4	6.2	53.4	40.3	0.1	41.1	38.5	20.3	0.1	
Total %	6.7	8.1	9.8	0.0	7.0	8.9	7.6	0.1	1.2	10.0	7.6	0.0	13.5	12.7	6.7	0.0	

COUNTER MEASURES INC.
1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: EDWARDS ACCESS RD
E/W STREET: US 6
CITY: EDWARDS
COUNTY: EAGLE

File Name : EDWAUS6
Site Code : 00000014
Start Date : 3/4/2020
Page No : 2

	EDWARDS ACCESS RD Southbound					US 6 Westbound					EDWARDS VILLAGE BLVD Northbound					US 6 Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 06:30 AM to 08:30 AM - Peak 1 of 1																					
Intersection	07:15 AM																				
Volume	138	221	206	0	565	118	129	238	7	492	32	145	141	0	318	294	233	87	2	616	1991
Percent	24.4	39.1	36.5	0.0		24.0	26.2	48.4	1.4		10.1	45.6	44.3	0.0		47.7	37.8	14.1	0.3		
07:45 Volume	52	75	94	0	221	38	46	76	7	167	5	41	34	0	80	76	56	24	2	158	626
Peak Factor																					0.795
High Int.	07:45 AM					07:45 AM					07:30 AM					08:00 AM					
Volume	52	75	94	0	221	38	46	76	7	167	8	38	46	0	92	82	75	24	0	181	
Peak Factor					0.639					0.737					0.864					0.851	

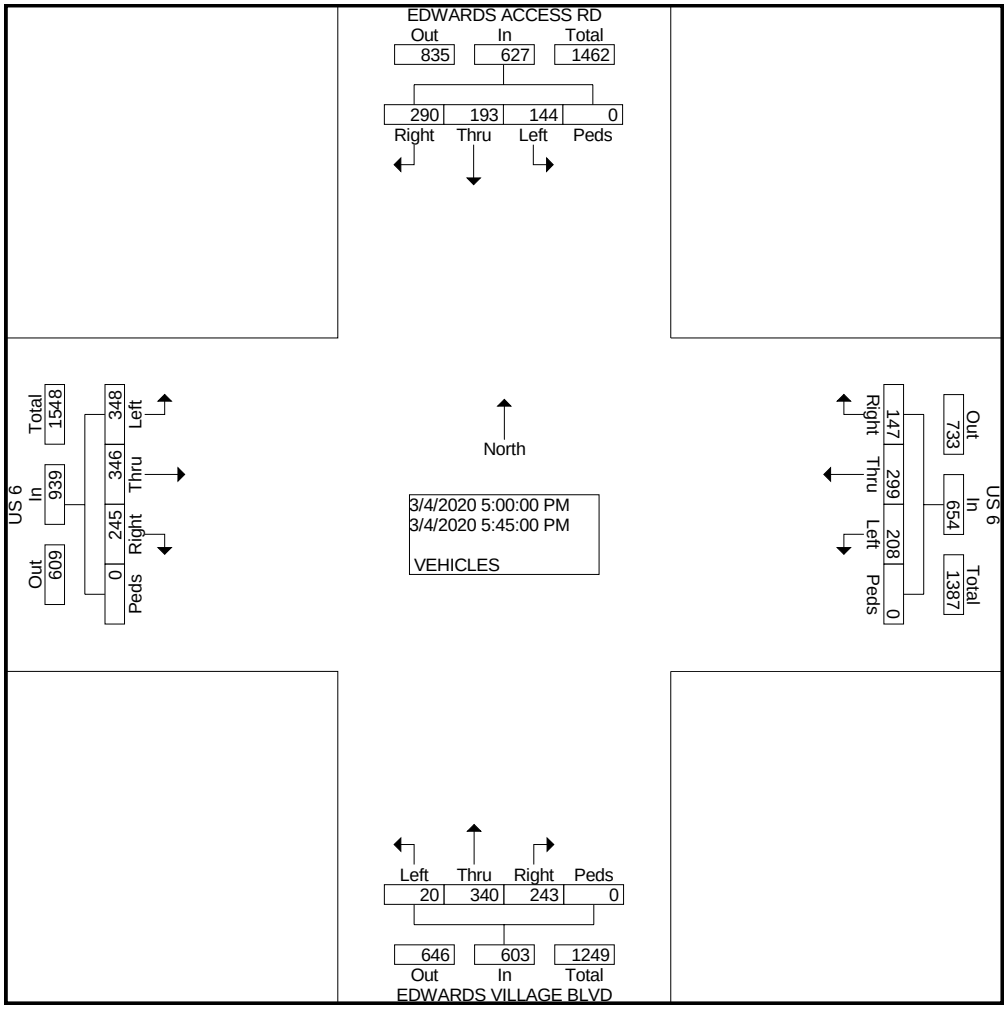


COUNTER MEASURES INC.
1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: EDWARDS ACCESS RD
E/W STREET: US 6
CITY: EDWARDS
COUNTY: EAGLE

File Name : EDWAUS6
Site Code : 00000014
Start Date : 3/4/2020
Page No : 2

	EDWARDS ACCESS RD Southbound					US 6 Westbound					EDWARDS VILLAGE BLVD Northbound					US 6 Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	05:00 PM																				
Volume	144	193	290	0	627	208	299	147	0	654	20	340	243	0	603	348	346	245	0	939	2823
Percent	23.0	30.8	46.3	0.0		31.8	45.7	22.5	0.0		3.3	56.4	40.3	0.0		37.1	36.8	26.1	0.0		
05:15 Volume	43	54	80	0	177	46	80	41	0	167	5	88	59	0	152	96	84	58	0	238	734
Peak Factor																					0.962
High Int.	05:15 PM					05:00 PM					05:30 PM					05:15 PM					
Volume	43	54	80	0	177	54	78	47	0	179	5	97	73	0	175	96	84	58	0	238	
Peak Factor					0.886					0.913					0.861					0.986	



COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: EDWARDS ACC RD
E/W STREET: WELLS FARGO ACC
CITY: EDWARDS
COUNTY: EAGLE

File Name : EDW ACC RD WELLS F-B
Site Code : 00000014
Start Date : 3/5/2020
Page No : 1

Groups Printed- VEHICLES

	EDWARDS ACCESS RD Southbound				WELLS FARGO ACC Westbound				EDWARDS ACCESS RD Northbound				BUS ACC N/O US-6 Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	0	0	0	0	0	3	0	0	0	1	0	0	0	1	0	5
06:45 AM	0	0	0	0	0	0	10	0	0	0	5	0	0	0	0	0	15
Total	0	0	0	0	0	0	13	0	0	0	6	0	0	0	1	0	20
07:00 AM	0	0	1	0	0	0	9	0	0	0	2	0	0	0	2	0	14
07:15 AM	0	0	0	0	0	0	9	0	0	0	4	0	0	0	0	0	13
07:30 AM	0	0	2	0	0	0	14	0	0	0	3	0	0	0	2	0	21
07:45 AM	0	0	1	0	0	0	24	0	0	0	5	0	0	0	3	0	33
Total	0	0	4	0	0	0	56	0	0	0	14	0	0	0	7	0	81
08:00 AM	0	0	0	0	0	0	14	0	0	0	12	1	0	0	1	0	28
08:15 AM	0	0	1	0	0	0	20	0	0	0	13	2	0	0	0	0	36
Total	0	0	1	0	0	0	34	0	0	0	25	3	0	0	1	0	64
04:00 PM	0	0	1	0	0	0	31	0	0	0	26	0	0	0	3	0	61
04:15 PM	0	0	0	0	0	0	42	0	0	0	25	0	0	0	1	0	68
04:30 PM	0	0	2	0	0	0	85	0	0	0	33	0	0	0	4	0	124
04:45 PM	0	0	1	0	0	0	106	0	0	0	21	0	0	0	4	0	132
Total	0	0	4	0	0	0	264	0	0	0	105	0	0	0	12	0	385
05:00 PM	0	0	1	0	0	0	121	0	0	0	26	0	0	0	2	0	150
05:15 PM	0	0	0	0	0	0	100	0	0	0	33	0	0	0	5	0	138
05:30 PM	0	0	2	0	0	0	135	0	0	0	28	0	0	0	4	0	169
05:45 PM	0	0	1	0	0	0	115	0	0	0	31	0	0	0	6	0	153
Total	0	0	4	0	0	0	471	0	0	0	118	0	0	0	17	0	610
Grand Total	0	0	13	0	0	0	838	0	0	0	268	3	0	0	38	0	1160
Apprch %	0.0	0.0	100.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	98.9	1.1	0.0	0.0	100.0	0.0	
Total %	0.0	0.0	1.1	0.0	0.0	0.0	72.2	0.0	0.0	0.0	23.1	0.3	0.0	0.0	3.3	0.0	

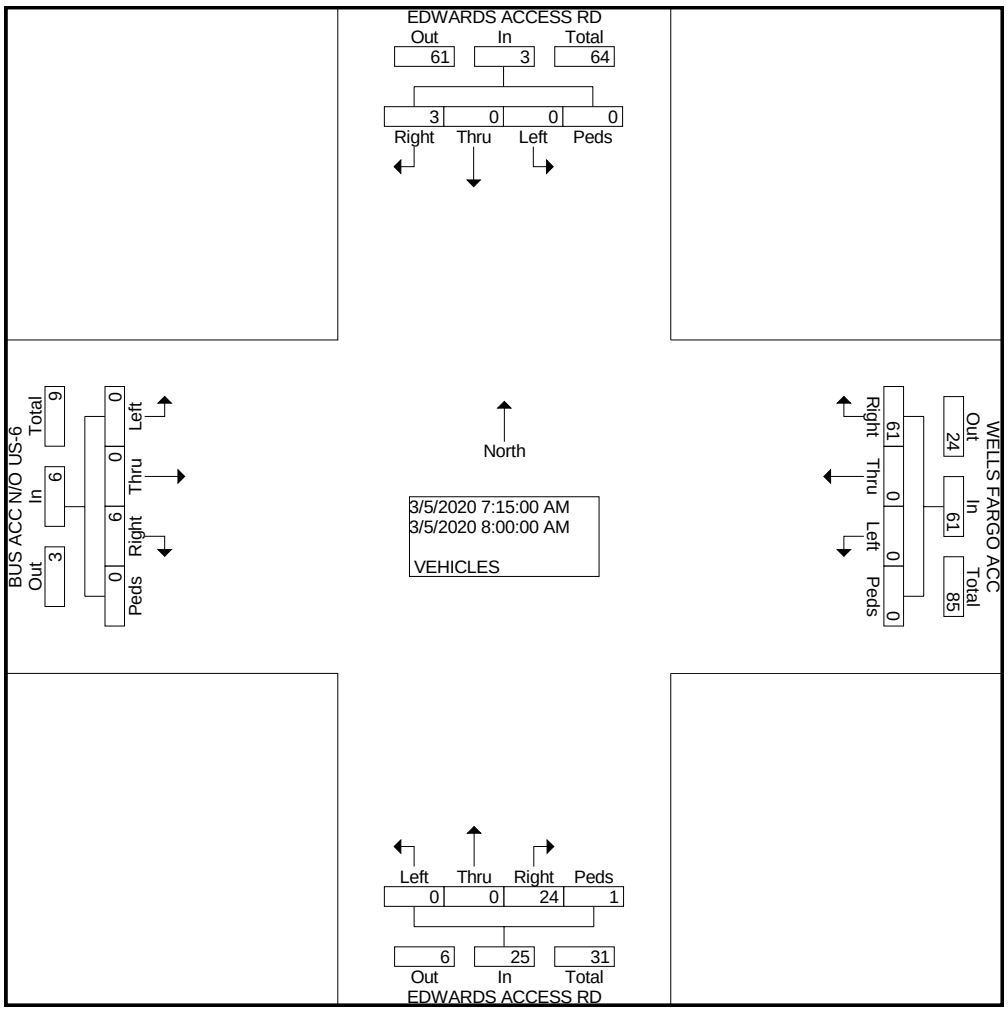
COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: EDWARDS ACC RD
E/W STREET: WELLS FARGO ACC
CITY: EDWARDS
COUNTY: EAGLE

File Name : EDW ACC RD WELLS F-B
Site Code : 00000014
Start Date : 3/5/2020
Page No : 2

	EDWARDS ACCESS RD Southbound					WELLS FARGO ACC Westbound					EDWARDS ACCESS RD Northbound					BUS ACC N/O US-6 Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 07:15 AM to 08:00 AM - Peak 1 of 1																					
Intersection	07:15 AM																				
Volume	0	0	3	0	3	0	0	61	0	61	0	0	24	1	25	0	0	6	0	6	95
Percent	0.0	0.0	100.0	0.0		0.0	0.0	100.0	0.0		0.0	0.0	96.0	4.0		0.0	0.0	100.0	0.0		
07:45 Volume	0	0	1	0	1	0	0	24	0	24	0	0	5	0	5	0	0	3	0	3	33
Peak Factor																					0.720
High Int.	07:30 AM					07:45 AM					08:00 AM					07:45 AM					
Volume	0	0	2	0	2	0	0	24	0	24	0	0	12	1	13	0	0	3	0	3	
Peak Factor					0.375					0.635					0.481					0.500	



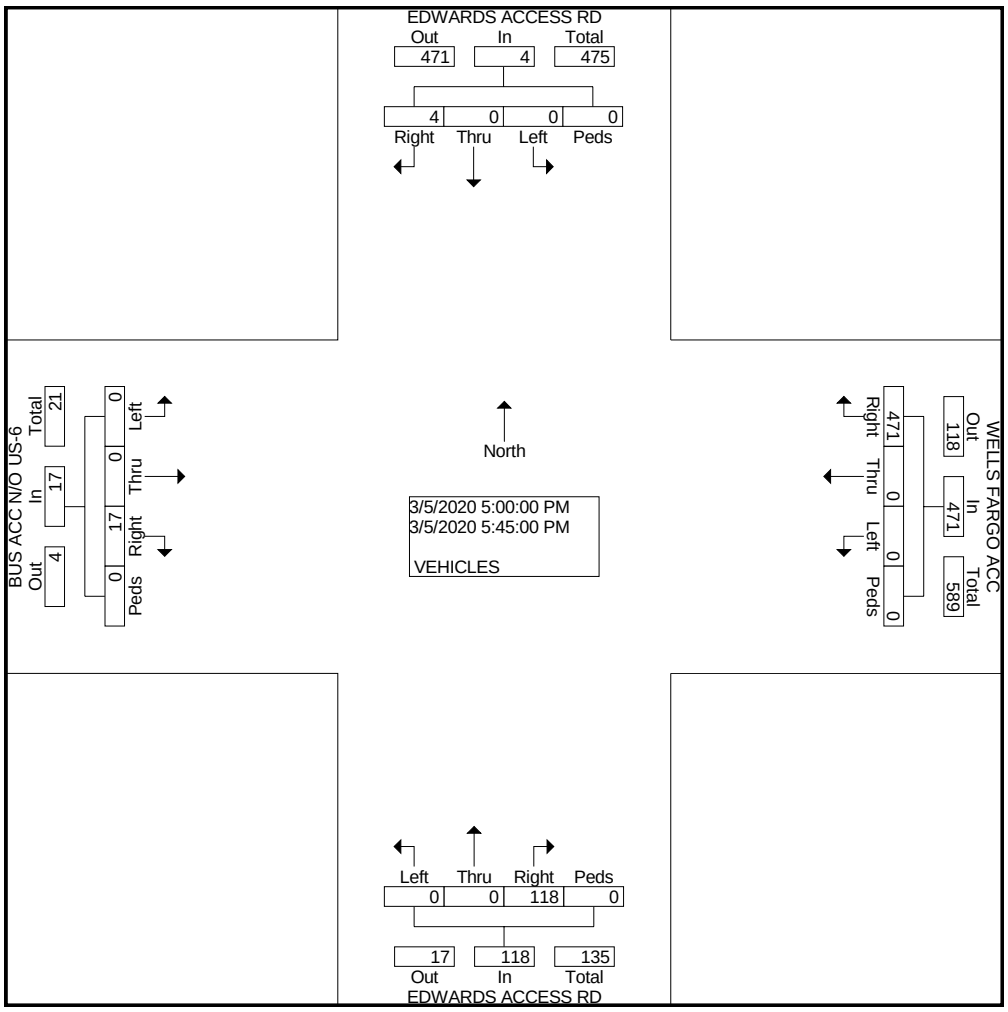
COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: EDWARDS ACC RD
E/W STREET: WELLS FARGO ACC
CITY: EDWARDS
COUNTY: EAGLE

File Name : EDW ACC RD WELLS F-B
Site Code : 00000014
Start Date : 3/5/2020

	EDWARDS ACCESS RD Southbound					WELLS FARGO ACC Westbound					EDWARDS ACCESS RD Northbound					BUS ACC N/O US-6 Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	05:00 PM																				
Volume	0	0	4	0	4	0	0	471	0	471	0	0	118	0	118	0	0	17	0	17	610
Percent	0.0	0.0	100.0	0.0		0.0	0.0	100.0	0.0		0.0	0.0	100.0	0.0		0.0	0.0	100.0	0.0		
05:30 Volume	0	0	2	0	2	0	0	135	0	135	0	0	28	0	28	0	0	4	0	4	169
Peak Factor																					0.902
High Int.	05:30 PM					05:30 PM					05:15 PM					05:45 PM					
Volume	0	0	2	0	2	0	0	135	0	135	0	0	33	0	33	0	0	6	0	6	
Peak Factor					0.500					0.872					0.894					0.708	



COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: EDWARDS ACC RD
E/W STREET: ALPINE BANK ACC RD
CITY: EDWARDS
COUNTY: EAGLE

File Name : EDW ACC ALPINE ACC-B
Site Code : 00000000
Start Date : 3/4/2020
Page No : 1

Groups Printed- VEHICLES

	EDWARDS ACC RD Southbound				Westbound				EDWARDS ACC RD Northbound				ALPINE BANK ACC Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
06:45 AM	0	0	2	0	0	0	0	0	4	0	0	0	0	0	0	0	6
Total	0	0	2	0	0	0	0	0	5	0	0	0	0	0	0	0	7
07:00 AM	0	0	3	0	0	0	0	0	2	0	0	0	0	0	2	0	7
07:15 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	3	0	5
07:30 AM	0	0	0	2	0	0	0	0	6	0	0	0	0	0	4	0	12
07:45 AM	0	0	2	2	0	0	0	0	4	0	0	0	0	0	0	1	9
Total	0	0	7	4	0	0	0	0	12	0	0	0	0	0	9	1	33
08:00 AM	0	0	5	0	0	0	0	0	10	0	0	0	0	0	0	0	15
08:15 AM	0	0	2	0	0	0	0	0	8	0	0	0	0	0	1	0	11
Total	0	0	7	0	0	0	0	0	18	0	0	0	0	0	1	0	26
04:00 PM	0	0	12	0	0	0	0	0	4	0	0	3	0	0	24	0	43
04:15 PM	0	0	13	0	0	0	0	0	21	0	0	4	0	0	36	0	74
04:30 PM	0	0	17	0	0	0	0	0	13	0	0	2	0	0	41	0	73
04:45 PM	0	0	23	0	0	0	0	0	19	0	0	0	0	0	51	0	93
Total	0	0	65	0	0	0	0	0	57	0	0	9	0	0	152	0	283
05:00 PM	0	0	18	0	0	0	0	0	18	0	0	5	0	0	48	0	89
05:15 PM	0	0	14	0	0	0	0	0	23	0	0	6	0	0	50	0	93
05:30 PM	0	0	10	0	0	0	0	0	26	0	0	3	0	0	28	0	67
05:45 PM	0	0	12	0	0	0	0	0	20	0	0	0	0	0	39	0	71
Total	0	0	54	0	0	0	0	0	87	0	0	14	0	0	165	0	320
Grand Total	0	0	135	4	0	0	0	0	179	0	0	23	0	0	327	1	669
Apprch %	0.0	0.0	97.1	2.9	0.0	0.0	0.0	0.0	88.6	0.0	0.0	11.4	0.0	0.0	99.7	0.3	
Total %	0.0	0.0	20.2	0.6	0.0	0.0	0.0	0.0	26.8	0.0	0.0	3.4	0.0	0.0	48.9	0.1	

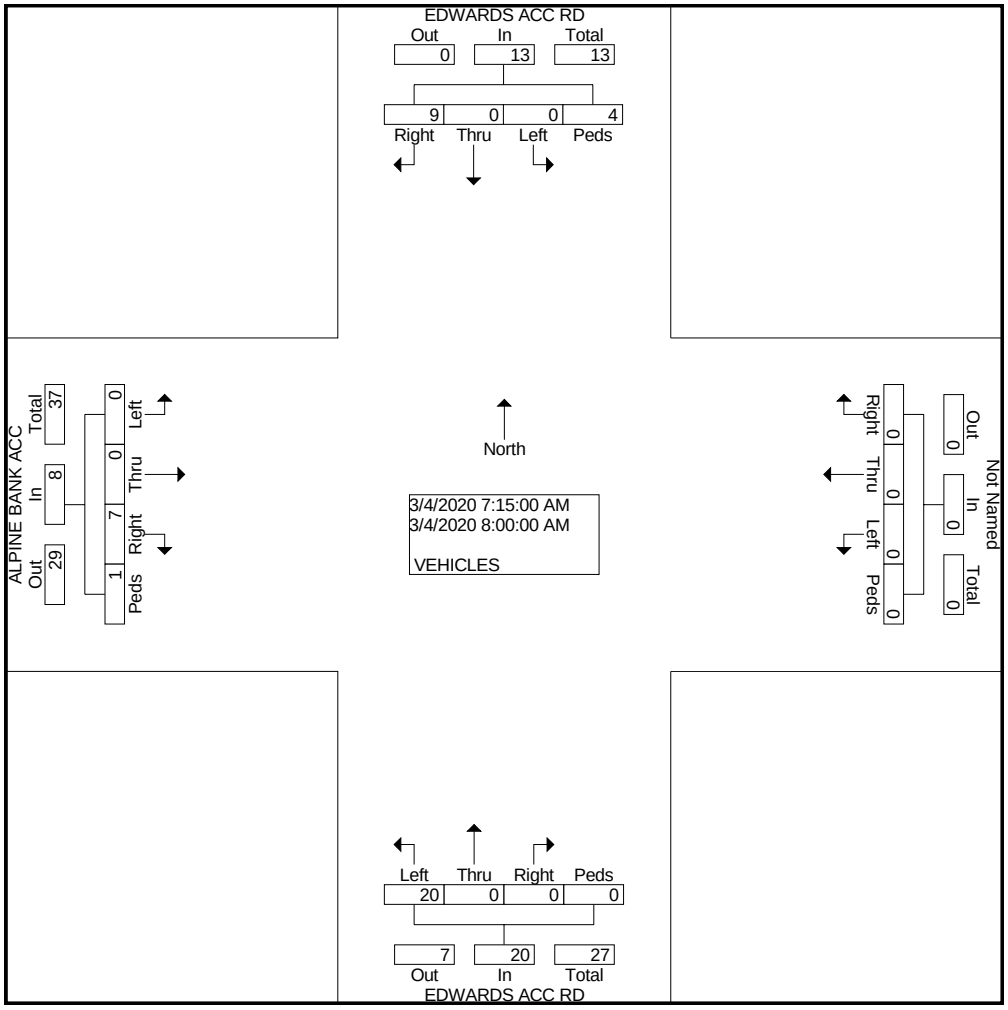
COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: EDWARDS ACC RD
E/W STREET: ALPINE BANK ACC RD
CITY: EDWARDS
COUNTY: EAGLE

File Name : EDW ACC ALPINE ACC-B
Site Code : 00000000
Start Date : 3/4/2020
Page No : 2

	EDWARDS ACC RD Southbound					Westbound					EDWARDS ACC RD Northbound					ALPINE BANK ACC Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 07:15 AM to 08:00 AM - Peak 1 of 1																					
Intersection	07:15 AM																				
Volume	0	0	9	4	13	0	0	0	0	0	20	0	0	0	20	0	0	7	1	8	41
Percent	0.0	0.0	69.2	30.8		0.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0		0.0	0.0	87.5	12.5		
08:00 Volume	0	0	5	0	5	0	0	0	0	0	10	0	0	0	10	0	0	0	0	0	15
Peak Factor																					0.683
High Int.	08:00 AM										08:00 AM					07:30 AM					
Volume	0	0	5	0	5	0	0	0	0	0	10	0	0	0	10	0	0	4	0	4	
Peak Factor					0.650										0.500					0.500	

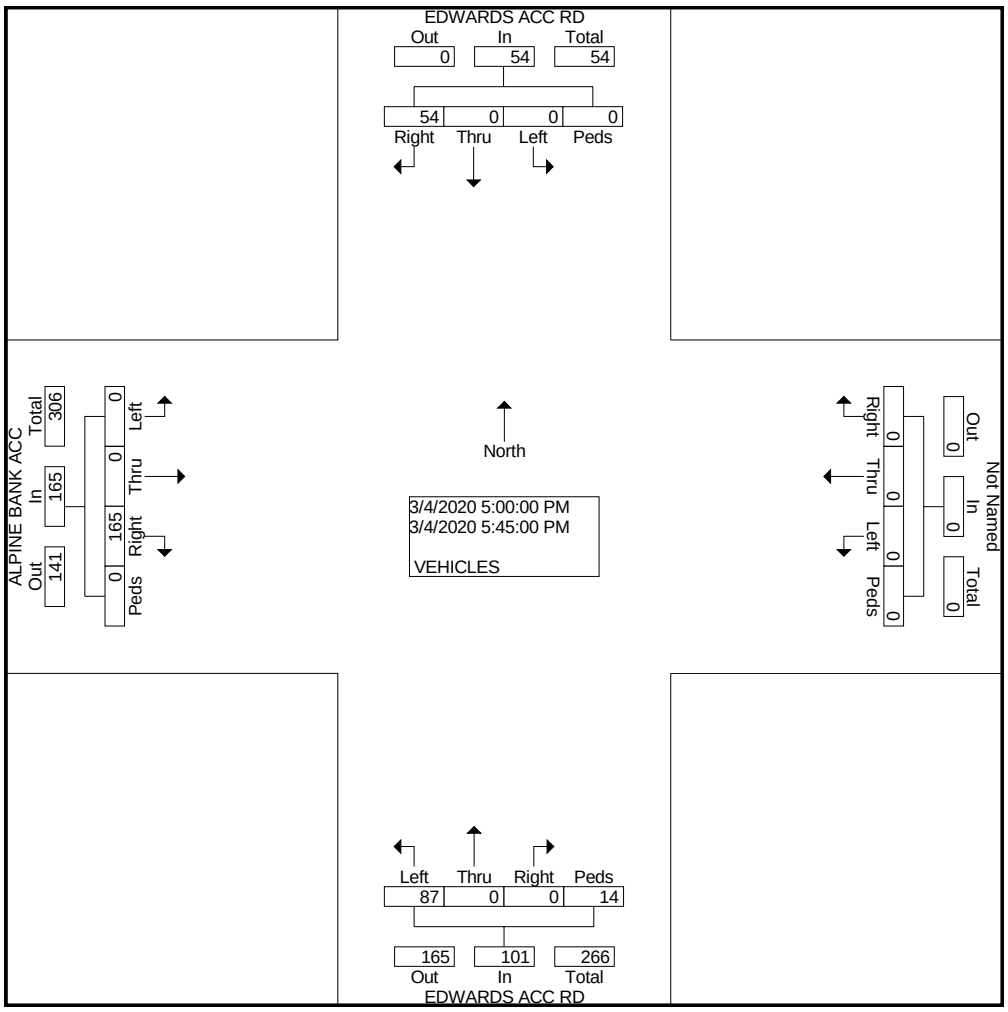


COUNTER MEASURES INC.
1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: EDWARDS ACC RD
E/W STREET: ALPINE BANK ACC RD
CITY: EDWARDS
COUNTY: EAGLE

File Name : EDW ACC ALPINE ACC-B
Site Code : 00000000
Start Date : 3/4/2020

	EDWARDS ACC RD Southbound					Westbound					EDWARDS ACC RD Northbound					ALPINE BANK ACC Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 05:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	05:00 PM																				
Volume	0	0	54	0	54	0	0	0	0	0	87	0	0	14	101	0	0	165	0	165	320
Percent	0.0	0.0	100.0	0.0		0.0	0.0	0.0	0.0		86.1	0.0	0.0	13.9		0.0	0.0	100.0	0.0		
05:15 Volume	0	0	14	0	14	0	0	0	0	0	23	0	0	6	29	0	0	50	0	50	93
Peak Factor																					0.860
High Int.	05:00 PM										05:15 PM					05:15 PM					
Volume	0	0	18	0	18	0	0	0	0	0	23	0	0	6	29	0	0	50	0	50	
Peak Factor					0.750										0.871					0.825	



COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: US-6
E/W STREET: 2ND ACC W/O RND A BOUT
CITY: EDWARDS
COUNTY: EAGLE

File Name : 2ND ACC W-O RND US 6-B
Site Code : 00000011
Start Date : 3/4/2020
Page No : 1

Groups Printed- VEHICLES

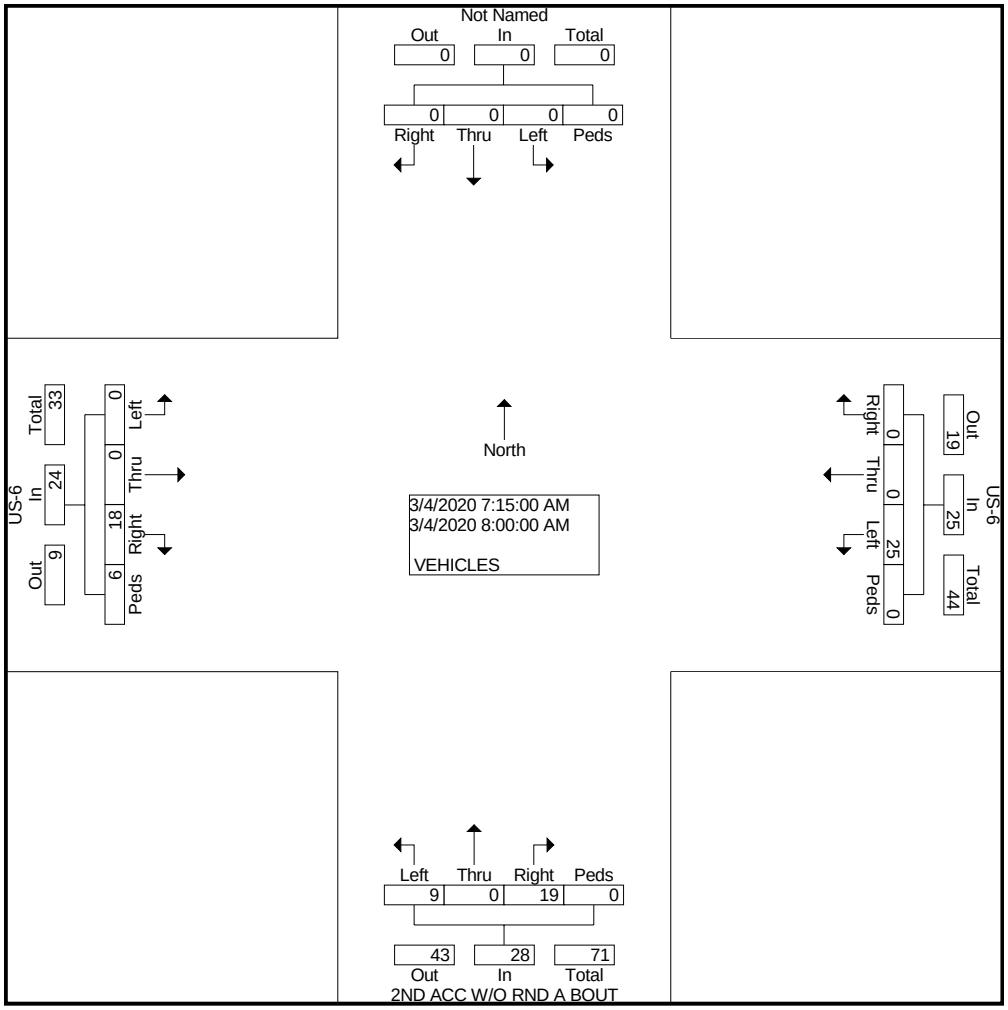
	Southbound				US-6 Westbound				2ND ACC W/O RND A BOUT Northbound				US-6 Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
06:45 AM	0	0	0	0	5	0	0	0	3	0	2	0	0	0	1	1	12
Total	0	0	0	0	6	0	0	0	3	0	2	0	0	0	1	1	13
07:00 AM	0	0	0	0	3	0	0	0	0	0	2	0	0	0	3	0	8
07:15 AM	0	0	0	0	2	0	0	0	3	0	7	0	0	0	3	3	18
07:30 AM	0	0	0	0	3	0	0	0	0	0	1	0	0	0	1	0	5
07:45 AM	0	0	0	0	11	0	0	0	6	0	4	0	0	0	6	2	29
Total	0	0	0	0	19	0	0	0	9	0	14	0	0	0	13	5	60
08:00 AM	0	0	0	0	9	0	0	0	0	0	7	0	0	0	8	1	25
Total	0	0	0	0	9	0	0	0	0	0	7	0	0	0	8	1	25
04:00 PM	0	0	0	0	21	0	0	0	7	0	18	0	0	0	5	3	54
04:15 PM	0	0	0	0	25	0	0	0	13	0	32	0	0	0	11	2	83
04:30 PM	0	0	0	0	18	0	0	0	8	0	20	0	0	0	5	0	51
04:45 PM	0	0	0	0	27	0	0	1	8	0	22	0	0	0	7	2	67
Total	0	0	0	0	91	0	0	1	36	0	92	0	0	0	28	7	255
05:00 PM	0	0	0	0	19	0	0	0	14	0	20	0	0	0	6	5	64
05:15 PM	0	0	0	0	29	0	0	0	10	0	18	0	0	0	4	2	63
05:30 PM	0	0	0	0	12	0	0	0	15	0	17	0	0	0	6	0	50
05:45 PM	0	0	0	0	24	0	0	0	14	0	13	0	0	0	4	0	55
Total	0	0	0	0	84	0	0	0	53	0	68	0	0	0	20	7	232
Grand Total	0	0	0	0	209	0	0	1	101	0	183	0	0	0	70	21	585
Apprch %	0.0	0.0	0.0	0.0	99.5	0.0	0.0	0.5	35.6	0.0	64.4	0.0	0.0	0.0	76.9	23.1	
Total %	0.0	0.0	0.0	0.0	35.7	0.0	0.0	0.2	17.3	0.0	31.3	0.0	0.0	0.0	12.0	3.6	

COUNTER MEASURES INC.
1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: US-6
E/W STREET: 2ND ACC W/O RND A BOUT
CITY: EDWARDS
COUNTY: EAGLE

File Name : 2ND ACC W-O RND US 6-B
Site Code : 00000011
Start Date : 3/4/2020

	Southbound					US-6 Westbound					2ND ACC W/O RND A BOUT Northbound					US-6 Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Intersection	07:15 AM																				
Volume	0	0	0	0	0	25	0	0	0	25	9	0	19	0	28	0	0	18	6	24	77
Percent	0.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0		32.1	0.0	67.9	0.0		0.0	0.0	75.0	25.0		
07:45 Volume	0	0	0	0	0	11	0	0	0	11	6	0	4	0	10	0	0	6	2	8	29
Peak Factor																					0.664
High Int.	6:15:00 AM					07:45 AM					07:15 AM					08:00 AM					
Volume	0	0	0	0	0	11	0	0	0	11	3	0	7	0	10	0	0	8	1	9	
Peak Factor										0.568					0.700					0.667	



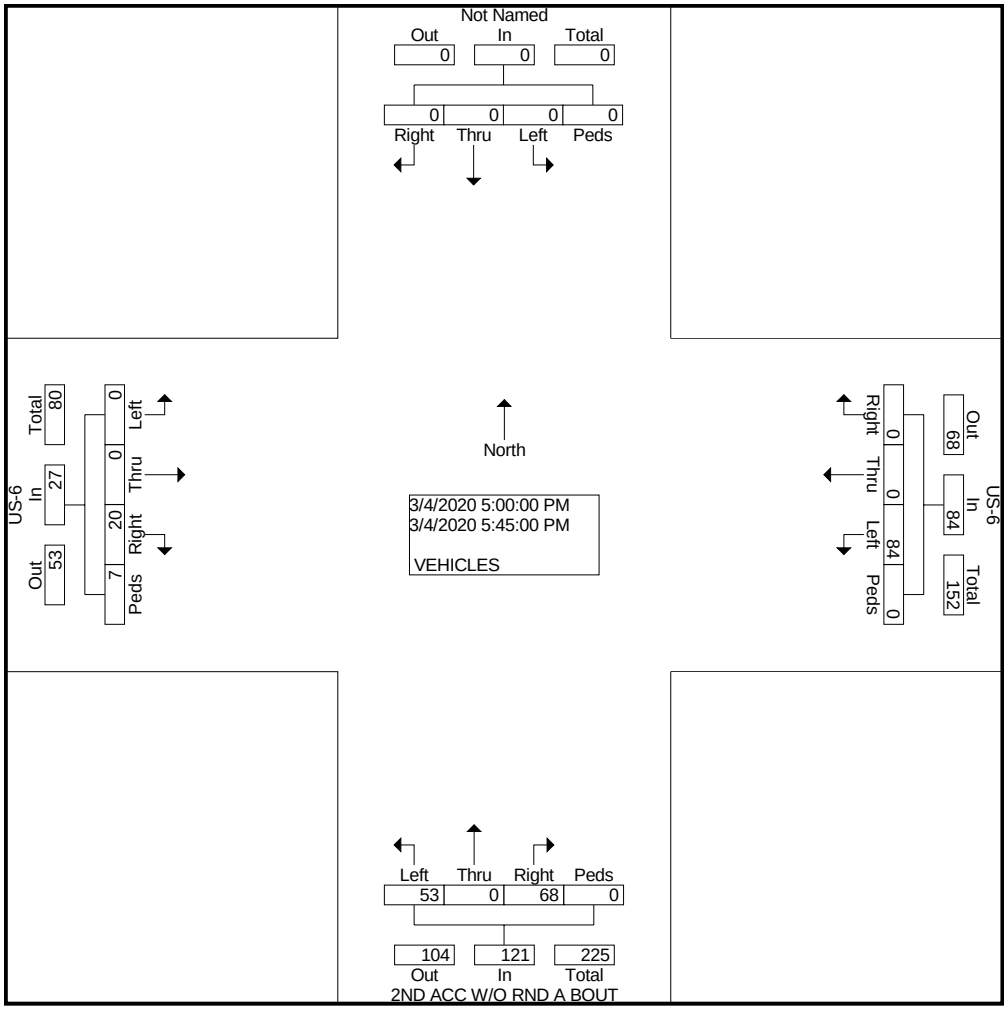
COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: US-6
E/W STREET: 2ND ACC W/O RND A BOUT
CITY: EDWARDS
COUNTY: EAGLE

File Name : 2ND ACC W-O RND US 6-B
Site Code : 00000011
Start Date : 3/4/2020
Page No : 2

	Southbound					US-6 Westbound					2ND ACC W/O RND A BOUT Northbound					US-6 Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 05:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	05:00 PM																				
Volume	0	0	0	0	0	84	0	0	0	84	53	0	68	0	121	0	0	20	7	27	232
Percent	0.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0		43.8	0.0	56.2	0.0		0.0	0.0	74.1	25.9		
05:00 Volume	0	0	0	0	0	19	0	0	0	19	14	0	20	0	34	0	0	6	5	11	64
Peak Factor																					0.906
High Int.						05:15 PM					05:00 PM					05:00 PM					
Volume	0	0	0	0	0	29	0	0	0	29	14	0	20	0	34	0	0	6	5	11	
Peak Factor										0.724					0.890					0.614	



COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: 1ST ACC W-O RND
E/W STREET: US-6
CITY: EDWARDS
COUNTY: EAGLE

File Name : 1ST ACC W-O RND US 6
Site Code : 00000011
Start Date : 3/4/2020
Page No : 1

Groups Printed- IST ACC W-O RND US-6

	1ST ACC W-O RND Southbound				US 6 Westbound				Northbound				US 6 Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:15 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
05:00 PM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	3
05:15 PM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	3
05:30 PM	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	3
05:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Total	0	0	4	0	0	0	6	0	0	0	0	0	0	0	0	0	10
Grand Total	0	0	4	0	0	0	7	0	0	0	0	0	0	0	0	0	11
Apprch %	0.0	0.0	100.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total %	0.0	0.0	36.4	0.0	0.0	0.0	63.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

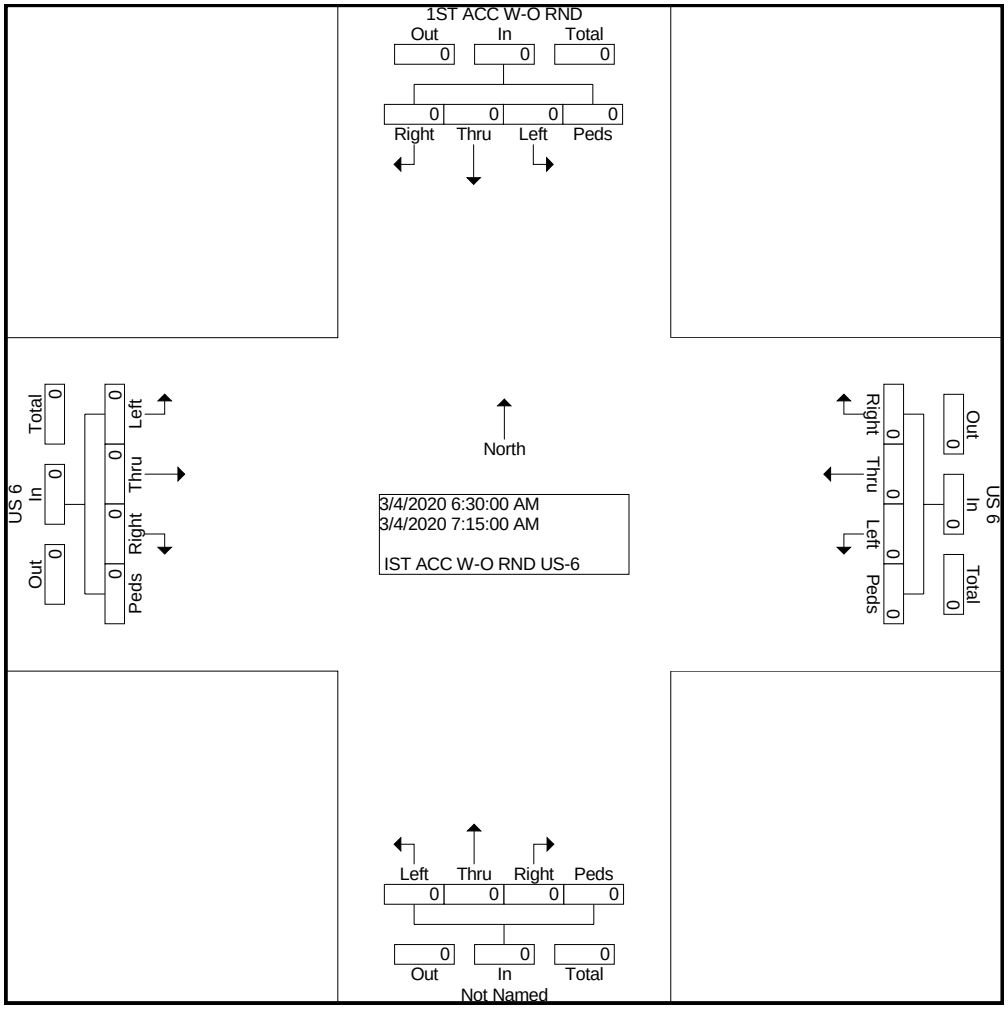
COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: 1ST ACC W-O RND
E/W STREET: US-6
CITY: EDWARDS
COUNTY: EAGLE

File Name : 1ST ACC W-O RND US 6
Site Code : 00000011
Start Date : 3/4/2020
Page No : 2

	1ST ACC W-O RND Southbound					US 6 Westbound					Northbound					US 6 Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Intersection	06:30 AM																				
Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Percent	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
07:15 Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Factor																					0.000
High Int. Volume Peak Factor	6:15:00 AM					6:15:00 AM					6:15:00 AM					6:15:00 AM					



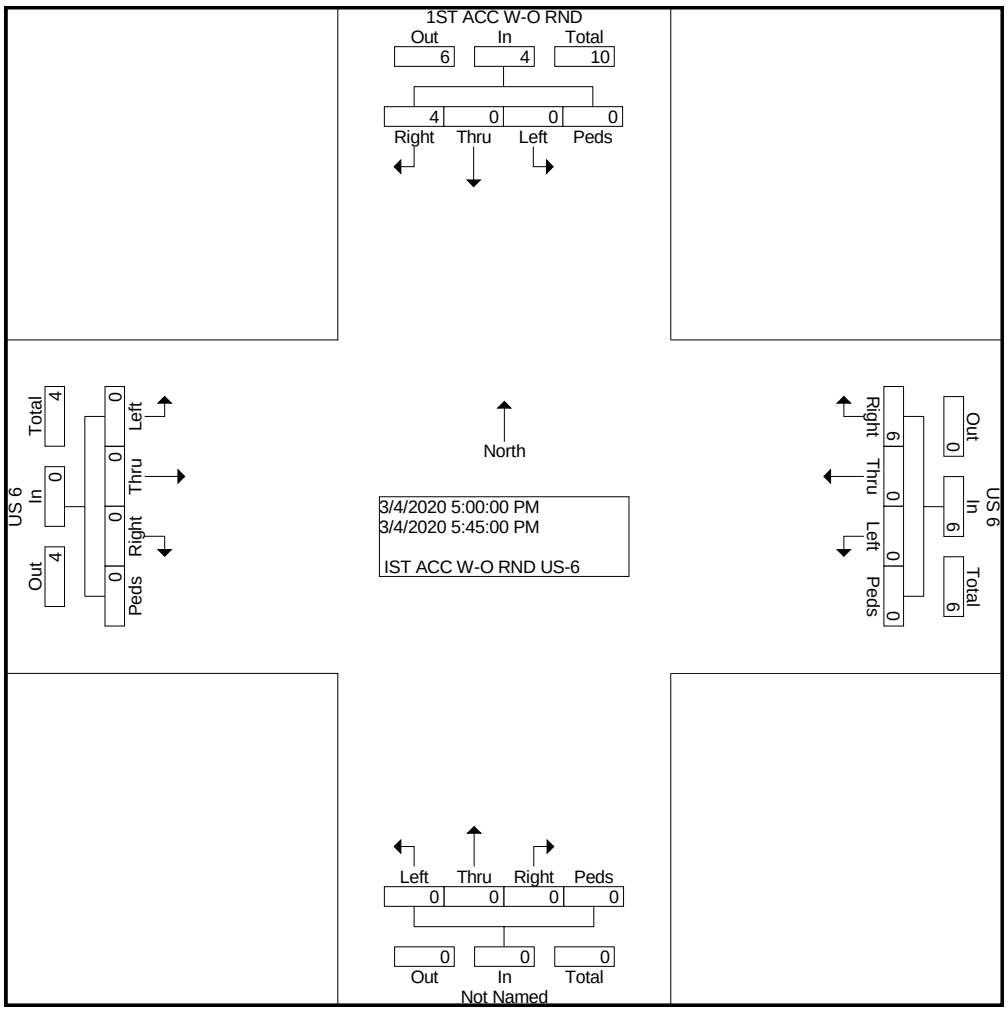
COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: 1ST ACC W-O RND
E/W STREET: US-6
CITY: EDWARDS
COUNTY: EAGLE

File Name : 1ST ACC W-O RND US 6
Site Code : 00000011
Start Date : 3/4/2020
Page No : 2

	1ST ACC W-O RND Southbound					US 6 Westbound					Northbound					US 6 Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	05:00 PM																				
Volume	0	0	4	0	4	0	0	6	0	6	0	0	0	0	0	0	0	0	0	0	10
Percent	0.0	0.0	100.0	0.0		0.0	0.0	100.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
05:30 Volume	0	0	2	0	2	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	3
Peak Factor																					0.833
High Int.	05:30 PM					05:00 PM															
Volume	0	0	2	0	2	0	0	2	0	2											
Peak Factor					0.500					0.750											



3.0 Future Traffic Projections

3.1 Background Infrastructure Assumptions

Eagle County and CDOT have begun construction in February 2019 on a new roundabout at the intersection of US 6 and I-70G. The roundabout is anticipated to be completed in Year 2019. Therefore, the Year 2022 and Year 2040 analyses incorporate the new roundabout based upon construction plans provided by Eagle County.

3.2 Seasonal Adjustment Factor

Traffic data was collected in January 2019. School was in session. Based upon data obtained from CDOT's Automatic Traffic Recorders (ATRs), traffic volumes in September are higher than any other time of year; except for the peak season summer months of June, July and August. Therefore, a seasonal adjustment factor of 1.26 was applied to all of the traffic counts to adjust the January counts to September volumes. The seasonal adjustment factor calculations from the ATR are included in the **Appendix**. This methodology is consistent with the *Maintenance Study* and the *I-70 G* study.

3.3 Background Traffic Growth

This project was originally scoped to use CDOT's historic growth rates on US 6 and I-70G. Per CDOT, the US 6 corridor near the project site is anticipated to have a 20-year growth factor of 1.47, which equates to a 1.94% annual growth rate at the project site.

However, during the analysis, it was determined that this methodology was not consistent with the *Maintenance Study* and *I-70G Study*. Forecasting at CDOT's historic growth rates yield significantly lower traffic projections than the methodology used in the *Maintenance Study* and *I-70G Study*.

Therefore, future background traffic growth was modeled using a base 1.00% growth rate and adding in approved project traffic that will contribute to the US 6 and I-70G corridors. This methodology is consistent with the *Maintenance Study* and the *I-70 G* study. Unlike the previous studies, the 1.00% base growth rate was applied to all movements at the study intersections. The previous studies have assumed that Edwards Village Boulevard is not experiencing traffic growth. Based upon current count data, that is not the case. The base growth rate was also applied to Lake Creek Road movements.

There are a number of developments planned for the Edwards area, including: the West End/Vogelman properties; Eagle River Meadows; Cordillera, and others. The traffic increase associated with these developments was obtained from the *I-70G Study*, with updated information for the projects that have been modified since the *I-70G Study* was done. The previously approved projects included in the growth

projections are summarized below in **Table 1**. The forecast comparison is depicted in **Figure 3**.

Table 1: Approved Projects – Background Trip Generation Calculations

Development	Land Use	Size	Average Weekday	AM Peak Hour Traffic			PM Peak Hour Traffic			SAT Peak Hour Traffic[4]		
			Trips	In	Out	Total	In	Out	Total	In	Out	Total
East of Eagle River Park:												
West End/Vogelman	Commercial (A)[3]	100 ksf	4270	60	35	95	180	190	370	234	216	450
	MF Residential (B)[3]	200 du	1330	20	80	100	80	45	125	83	57	140
Subtotal - Projects East of ERP			5600	80	115	195	260	235	495	317	273	590
West of Eagle River Park:												
Cordillera	SF Residential (C)[3]	350 du	3330	65	195	260	220	130	350	168	144	312
Fox Hollow	MF Residential (B)[1]	90 du	497	8	30	38	28	16	44	45	39	84
Six West (VIA)	MF Residential (B)[2]	121 du	768	18	46	64	48	29	77	61	52	113
Stillwater	MF Residential (B)	21 du	138	2	9	11	9	5	14	11	9	20
Subtotal - Projects West of ERP			4,733	93	280	373	305	180	485	285	244	529
Projects on I-70G:												
North Star	Commercial (1)[3]	23 ksf	980	15	5	20	40	45	85	54	50	104
Subtotal - Projects on I-70G			980	15	5	20	40	45	85	54	50	104
Total Approved Development			**11,313**	**188**	**400**	**588**	**605**	**460**	**1,065**	**656**	**567**	**1,223**

A. ITE Land Use Code 820 Shopping Center
B. ITE Land Use Code 220 Multifamily
C. ITE Land Use Code 210 Single Family Detached Housing
[1]Data from Fox Hollow Transportation Impact Study.
[2]Data from Six West Transportation Impact Study.
[3]Data from FHU's I-70G and US 6 Roundabout Traffic Study.
[4]Data from ITE *Trip Generation, 10th Edition* .
Note: The Hagedorn mini storage facility has been in full operations at the time of traffic data collection.

These trips were assigned to the study area roadways based on trip distribution patterns established in previous traffic engineering documents (*I-70G Study*, *Edwards Area Access Control Plan*, and *US 6 and I-70 G Corridor Feasibility Study*), as follows:

- 25 percent oriented to/from US 6 west of the Edwards Area
- 30 percent oriented to/from US 6 east of the Edwards Area
- 45 percent oriented to/from I-70 north of the study area

Per the *I-70G Study*, "Most of the above development is located west of the US 6/I-70 G intersection; therefore, only 75 percent of the trips generated within these developments would impact the study area roadways (the remaining 25 percent would be oriented to/from the west via US 6). All of the North Star development generated traffic would impact study area intersections, with 45 percent oriented to/from the north via I-70 G; thus, only 55 percent of North Star traffic would impact the US 6/I-70 G intersection (25 percent to/from the west and 30 percent to from the east via US 6)."

FELSBURG HOLT & ULLEVIG
connecting & enhancing communities

MEMORANDUM

TO: Michelle Stevens

FROM: Charles Buck

DATE: May 15, 2019

SUBJECT: Review of *Transportation Impact Study for Edwards River Park*
McDowell Engineering
FHU Reference No, 112475-07

I have reviewed the McDowell report for Edwards River Park, dated March 25, 2019. Both CDOT and Eagle County have expressed concerns that the projections contained within this report are substantially higher than the design volumes we developed for the I-*70 G Edwards Interchange Upgrade Phase 2* effort in 2016. Although our methods, assumptions, and resultant projections were vetted through the design team, recent traffic counts and analyses conducted by McDowell Engineering (McD) suggest that our projections may have underestimated the growth potential in the Edwards area. Therefore, to better understand how the McD projections were developed, I have reviewed the methods, assumptions, and calculations of the 2040 traffic volume forecasts at the US 6 and I-70 G intersection.

The intent of this review is to establish appropriate design volumes for the intersection. Note that McD considers a Saturday scenario in addition to weekday forecasts; I have focused my analysis on the weekday scenario for consistency with our 2016 study. I have the following comments:

Methods

1. The McD projections are based on traffic counts conducted January 29, 2019. These counts are substantially higher than the adjusted existing traffic volumes we developed for our report. The McD data include school related traffic.

2. The McD report adjusted the traffic counts using a Seasonal Adjustment Factor (SAF) calculated from CDOT Continuous Count data for I-70 at Wolcott (there are no continuous counters on US 6 near Edwards). The counts were adjusted to represent September using a factor of 1.26.

3. The McD report then factored these volumes by an annual growth rate of one percent per year to 2040. This is generally consistent with how we grew our background traffic volumes.

4. McD then added in traffic generated by potential developments in the Edwards area, which is also generally consistent with our methodology. McD also updated some of the future developments, as proposed densities have changed since 2016.

5. Trips generated by Edwards River Park (the proposed development which is the subject of the McD report) were then added in. The proposed land uses and densities for Edwards River Park (ERP) have also changed since 2016.

Differences from FHU Report

1. As noted above, the McD counts are higher than FHU's. We conducted our counts in June 2015, then adjusted them to reflect both the September 2015 recounts and August 2015 Stolfus counts (see *Edwards Transportation and Maintenance Analysis Study*).

2. The McD traffic counts were further increased using the 1.26 SAF. The SAF is based on I-70 regional travel patterns, which may or may not reflect the more localized travel along US 6 through Edwards.

3. McD applied the 1.0 percent annual growth rate to all study area movements. FHU applied this regional rate only to regional movements; local traffic increases were accounted for in the trip generation analysis of future development in Edwards.

4. McD applied the 1.0 percent growth rate to Edwards Village Boulevard (EVB) volumes, while FHU did not, as this roadway does not serve regional traffic movements.

5. The background development in Edwards has increased in density. Comparing McD Table 1 to FHU Table 1 (and extracting FHU's estimates for Eagle River Meadows (now ERP), the increases due to higher densities are 70 to 80 vehicles per hour (835 trips per day).

6. The trip generation for ERP has increased as well, due to the current mix of residential and commercial uses proposed. Comparing McD Table 6 to Eagle River Meadows in the FHU Table 1, the increases are about 240 to 360 vehicles per hour, and 3,500 trips per day. These increases more than double our previous trip generation estimates for the ERP site.

Analysis

1. The January 2019 traffic counts clearly show that traffic has grown since the 2015 counts were conducted, and at a higher rate than would be calculated assuming a straight-line growth from 2015 to 2040.

2. The McD projections may be overly conservative. The SAF of 1.26 adjusts the January volumes to September, which is a peak month. Adjusting to the annual average may be more appropriate for design; the SAF for the annual average is 1.16, based on the I-70 continuous counter data. Also, McD applied the SAF to Edwards Village Boulevard. As EVB serves primarily local traffic, it should be generally unaffected by regional fluctuations (other than school-related peaking, which is already accounted for in the data).

3. McD applied the 1.0 percent regional growth factor to EVB. However, lands served by EVB are generally built out. The only potential development remaining is "Tract T", a four-acre commercial site located southwest and up the hill from Edwards Corner. Tract T was not included in our 2016 analysis per direction from Eagle County. It is estimated, however, that this site could develop with about 43,000 square feet of office/business park type uses. A trip generation analysis assuming office yields an increase of about 50 trips during either peak hour, far less than McD calculated using the 1.0 percent annual growth factor.

4. For perspective, the overall annual growth rates (AGR) implied by the McD report (2019 to 2040 total) are between 3.8 percent (AM) and 4.7 percent (PM) along US 6, which is 3 to 4 times higher than CDOT's historic growth rate of 1.3 percent per year (calculated from the 20-year factor on OTIS). The McD rates are between 3.0 and 3.5 percent on I-70 G, about three times higher compared to 1.03 percent per OTIS.

5. The trip generation for ERP, as shown in McD Table 6, introduces an error via the internal capture reductions. The internal trips assigned to the commercial (35 percent), spa/restaurant (50 percent), conference center (80 percent), and amphitheater/wedding venue (20 percent) total more than the residential and hotel uses can account for. The reductions estimated by McD are summarized in the following table:

Internal Trips – Edwards River Park - McD Report

Commercial Trip Reductions				
Land Use	**AM Peak Hour**		**PM Peak Hour**	
	In	**Out**	**In**	**Out**
Shopping Center	-40	-34	-58	-58
Hotel Spa/Restaurant	-16	-7	-18	-15
Conference Center	-137	-25	-25	-137
Amphitheatre/Wedding	0	0	-6	0
Total Reductions	**-193**	**-66**	**-107**	**-210**
Residential Vehicle Trips				
Land Use	**AM Peak Hour**		**PM Peak Hour**	
	In	**Out**	**In**	**Out**
Residential	35	141	123	69
Hotel	33	29	34	54
Total Vehicle Trips	**68**	**170**	**157**	**74**

In looking at the above table, consider the following internal trip directionality:

- An inbound trip to the commercial uses is outbound from the residential uses.
- An outbound trip from the commercial is inbound to the residential.

It can be seen that inbound commercial in the AM exceeds the outbound residential trip generation by 23 trips. The outbound commercial to residential is only 2 trips less than the residential inbound trip generation. In the PM peak hour, the internal commercial trips exceed the residential trips in both directions. Thus, the McD internal trip generation assumptions are simply not possible. Also, McD does not actually reduce the residential trips – only the commercial; this is an unrealistic approach.

A more rational way to model the internal capture would be to reduce the residential trips by an appropriate percentage with a reciprocal reduction in the commercial trips. I have estimated that maybe 50 percent of the residential trips could be captured by the commercial uses at ERP. The following table demonstrates the resultant reductions:

Internal Trips – Edwards River Park - FHU Estimates

Residential Trips				
Trip Type	**AM Peak Hour**		**PM Peak Hour**	
	In	**Out**	**In**	**Out**
Total Residential Trips	70	170	155	125
Internal Trips	**-35**	**-85**	**-75**	**-65**
External Trips	35	85	80	60
Commercial Trips				
Trip Type	**AM Peak Hour**		**PM Peak Hour**	
	In	**Out**	**In**	**Out**
Total Commercial Trips	315	140	510	370
Internal Trips	**-85**	**-35**	**-65**	**-75**
External Trips	230	105	445	295
Total External Trips	**265**	**190**	**525**	**355**
Note: volumes are rounded to the nearest 5 for simplicity.				

By comparing the above table to McD Table 1, it can be seen that the McD report may be underestimating the trip generation potential of ERP and its consequent impacts on area roadways. The inbound/outbound directionality of the external trips is also affected.

Proposed Traffic Volume Revisions (see attached Figures)

1. I have used the January 2019 traffic counts as the basis for updating the 2040 projections (***Figure 1***).

2. These volumes are increased using an annual average SAF of 1.16 (***Figure 2***). The SAF is not applied to Edwards Village Boulevard, which serves primarily local users.

3. The 1.0 percent per year regional growth rate is applied to regional movements (***Figure 3***). This AGR is also not applied to EVB. To account for future growth on EVB, the Tract T trip generation (***Figure A***) is added in.

4. Trips generated for Edwards area development (***Figure B***), as calculated by McD, are added in to obtain the 2040 background traffic volumes (***Figure 4***).

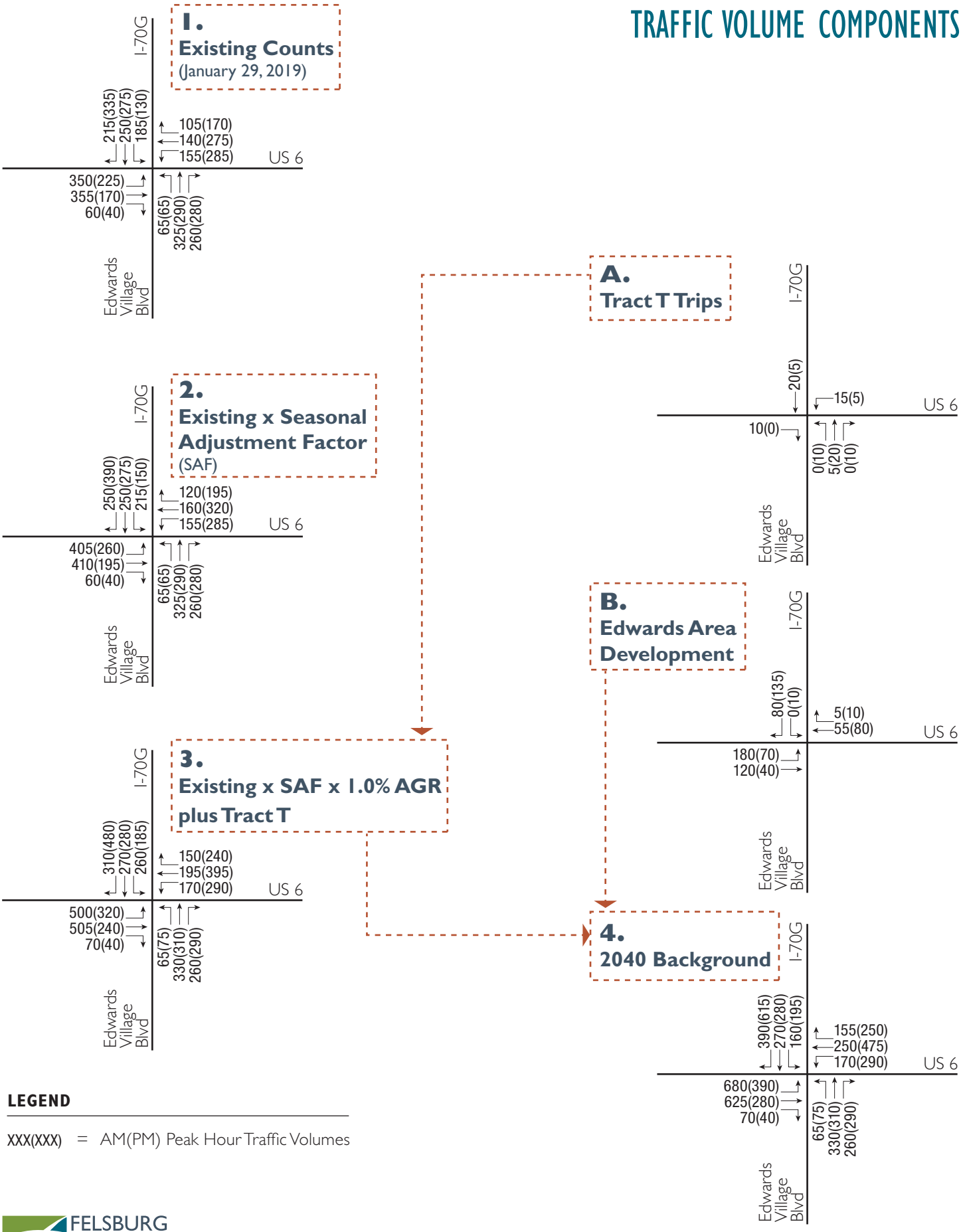
5. The above external trips for ERP were assigned to the roadway system based on the McD trip distribution assumptions (***Figure C***). This traffic assignment was added to the background traffic (***Figure 4***) to obtain the total proposed 2040 traffic volumes (***Figure 5***).

Conclusions

1. In light of the January 29, 2019 traffic data, an updated evaluation of projected operations at US 6 and I-70 G would be helpful to determine the sensitivity of the roundabout design and to identify the potential need for any improvements to the design.

2. The McD projections for 2040 may be overly conservative. However, using the information and analyses provided in the McD report, I have made adjustments, as described above, to update the projections for the US 6 and I-70 G intersection for design purposes. The resultant proposed 2040 total traffic volumes (included in the attachments) can be forwarded on to MSA for updating the roundabout analysis.

TRAFFIC VOLUME COMPONENTS



LEGEND

XXX(XXX) = AM(PM) Peak Hour Traffic Volumes

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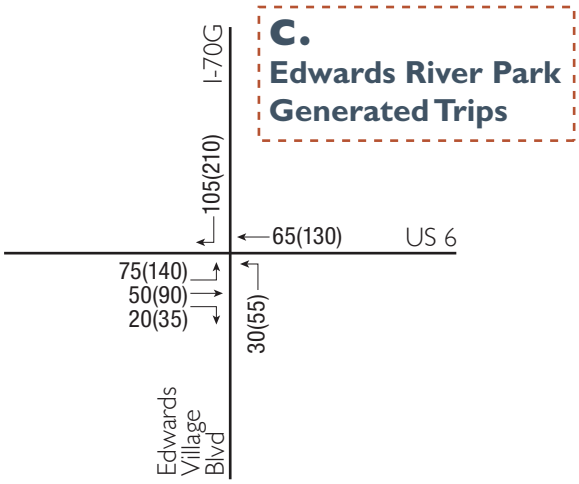
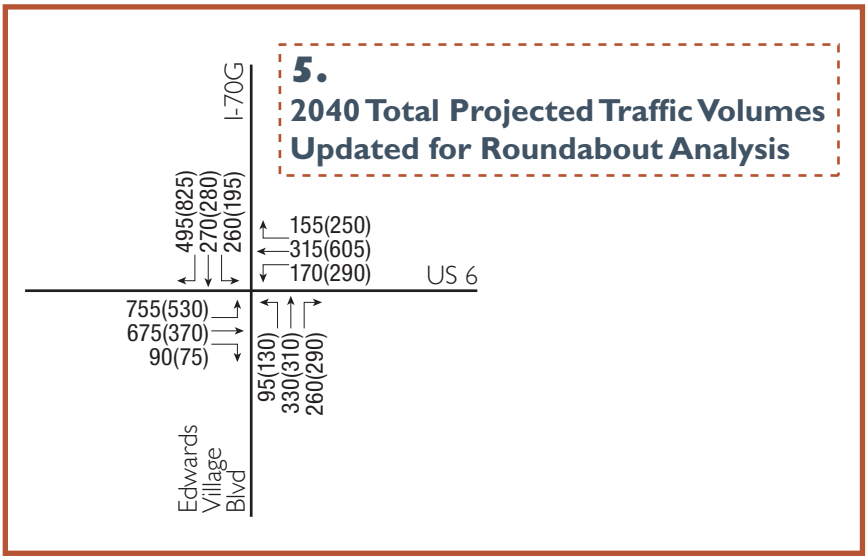
TRAFFIC VOLUME COMPONENTS (cont)





LEGEND

XXX(XXX) = AM(PM) Peak Hour Traffic Volumes

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LEVEL OF SERVICE DEFINITIONS

From *Highway Capacity Manual*, Transportation Research Board, 2016, 6th Edition

UNSIGNALIZED INTERSECTION LEVEL OF SERVICE (LOS)

Applicable to Two-Way Stop Control, All-Way Stop Control, and Roundabouts

LOS	Average Vehicle Control Delay	Operational Characteristics
A	<10 seconds	Normally, vehicles on the stop-controlled approach only have to wait up to 10 seconds before being able to clear the intersection. Left-turning vehicles on the uncontrolled street do not have to wait to make their turn.
B	10 to 15 seconds	Vehicles on the stop-controlled approach will experience delays before being able to clear the intersection. The delay could be up to 15 seconds. Left-turning vehicles on the uncontrolled street may have to wait to make their turn.
C	15 to 25 seconds	Vehicles on the stop-controlled approach can expect delays in the range of 15 to 25 seconds before clearing the intersection. Motorists may begin to take chances due to the long delays, thereby posing a safety risk to through traffic. Left-turning vehicles on the uncontrolled street will now be required to wait to make their turn causing a queue to be created in the turn lane.
D	25 to 35 seconds	This is the point at which a traffic signal may be warranted for this intersection. The delays for the stop-controlled intersection are not considered to be excessive. The length of the queue may begin to block other public and private access points.
E	35 to 50 seconds	The delays for all critical traffic movements are considered to be unacceptable. The length of the queues for the stop-controlled approaches as well as the left-turn movements are extremely long. There is a high probability that this intersection will meet traffic signal warrants. The ability to install a traffic signal is affected by the location of other existing traffic signals. Consideration may be given to restricting the accesses by eliminating the left-turn movements from and to the stop-controlled approach.
F	>50 seconds	The delay for the critical traffic movements are probably in excess of 100 seconds. The length of the queues are extremely long. Motorists are selecting alternative routes due to the long delays. The only remedy for these long delays is installing a traffic signal or restricting the accesses. The potential for accidents at this intersection are extremely high due to motorist taking more risky chances. If the median permits, motorists begin making two-stage left-turns.

Operational Data

Main Geometry (ft)

Approach and Entry Geometry

Leg	Leg Names	Approach Bearing (deg)	Grade Separation G	Half Width V	Approach Lanes n	Entry Width E	Entry Lanes n	Flare Length L'	Entry Radius R	Entry Angle ?
1	North Leg	0	0	12.00	1	14.00	1	55.00	50.00	20.00
2	West Leg	90	0	24.00	2	25.70	2	70.00	40.00	20.00
3	South Leg	160	0	12.10	1	24.00	2	130.00	60.00	20.00
4	East Leg	265	0	22.30	2	24.00	2	180.00	60.00	20.00

Circulating and Exit Geometry

Leg	Leg Names	Inscribed Diameter D	Circulating Width C	Circulating Lanes nc	Exit Width Ex	Exit Lanes nex	Exit Half Width Vx	Exit Half Width Lanes nvx
1	North Leg	165.00	30.00	2	24.70	2	23.30	2
2	West Leg	140.00	20.00	1	25.10	2	24.00	2
3	South Leg	165.00	30.00	2	25.00	1	12.20	1
4	East Leg	140.00	30.00	2	24.00	2	19.40	2

Capacity Modifiers and Capacity Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Entry Calibration		Approach Road			Exit Road		
		Capacity + or -	XWalk Factor	Intercept + or -	Slope Factor	V (ft)	Default Capacity	Calib Capacity	V (ft)	Default Capacity	Calib Capacity
1	North Leg	0	1.000	0	1.000	24.00	3584	0	23.30	3480	0
2	West Leg	0	1.000	0	1.000	20.00	3584	0	24.00	3584	0
3	South Leg	0	1.000	0	1.000	20.00	1807	0	12.20	1822	0
4	East Leg	0	1.000	0	1.000	20.00	3331	0	19.40	2897	0

Bypass Geometry

Bypass Approach Geometry (ft)

Leg	Leg Names	Bypass Type	Bypass Flows	V	nv	Vb	nvb	Vt	nvt
1	North Leg	Yield	235	12	1	12	1	24	2

Bypass Entry and Exit Geometry (ft)

Leg	Leg Names	Entry Geometry						Leg	Leg Names	Exit Lanes	
		Eb	neb	Lb	Lt	Rb	Phib			nex	Nmx
1	North Leg	12	1	20	130	65.0001976	30	2	West Leg	2	2

Bypass Entry Capacity Modifiers and Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Calibration	
		Capacity + or -	Cross Walk Factor	Intercept + or -	Slope Factor
1	North Leg	0	1.000	0	1.000

Traffic Flow Data (veh/hr)

2020 AM Peak Peak Hour Flows

Leg	Leg Names	Turning Flows					Flow Modifiers		
		U-Turn	Exit-3	Exit-2	Exit-1	Bypass	Trucks %	Flow Factor	Peak Hour Factor
1	North Leg	0	155	250	0	235	2.0	1.00	0.9
2	West Leg	0	335	265	100	0	2.0	1.00	0.9
3	South Leg	0	36	165	160	0	2.0	1.00	0.9
4	East Leg	0	135	145	270	0	2.0	1.00	0.9

Operational Results

2020 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	North Leg	Yield	405	235	316	316	770	1064	975	0.3854	0.2438
2	West Leg	None	700		540		416	1712		0.4155	
3	South Leg	None	361		755		485	1448		0.2530	
4	East Leg	None	550		536		580	1793		0.3109	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	North Leg	Yield	5.24	4.82	5.08	1.68	0.89	A	A	A
2	West Leg	None	6.52		6.52	3.61		A		A
3	South Leg	None	5.73		5.73	1.64		A		A
4	East Leg	None	5.48		5.48	2.36		A		A

2020 AM Peak - 15 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	North Leg	Yield	426	247	333	333	810	1058	970	0.4075	0.2578
2	West Leg	None	737		568		438	1682		0.4443	
3	South Leg	None	380		794		510	1421		0.2707	
4	East Leg	None	579		564		610	1772		0.3306	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	North Leg	Yield	5.28	4.82	5.11	1.68	0.89	A	A	A
2	West Leg	None	6.68		6.68	3.61		A		A
3	South Leg	None	5.78		5.78	1.64		A		A
4	East Leg	None	5.52		5.52	2.36		A		A

Global Results

Performance and Accidents

2020 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	2016	235	2251
Capacity	veh/hr	6017	975	6992
Average Delay	sec/veh	5.84	4.82	5.73
L.O.S. (Signal)	A – F	A	A	A
L.O.S. (Unsig)	A – F	A	A	A
Total Delay	veh.hrs	3.27	0.31	3.58

Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	680	20	25	390	10	20
Future Vol, veh/h	680	20	25	390	10	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	60	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	739	22	27	424	11	22

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	761	0	1228	381
Stage 1	-	-	-	-	750	-
Stage 2	-	-	-	-	478	-
Critical Hdwy	-	-	4.13	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	849	-	183	618
Stage 1	-	-	-	-	428	-
Stage 2	-	-	-	-	623	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	849	-	177	618
Mov Cap-2 Maneuver	-	-	-	-	177	-
Stage 1	-	-	-	-	428	-
Stage 2	-	-	-	-	603	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	16.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	338	-	-	849	-
HCM Lane V/C Ratio	0.096	-	-	0.032	-
HCM Control Delay (s)	16.8	-	-	9.4	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	10	0	0	65	0	745	25	0	630	5
Future Vol, veh/h	0	0	10	0	0	65	0	745	25	0	630	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	11	0	0	71	0	810	27	0	685	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	345	-	-	419	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	-	-	6.94	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	-	-	3.32	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	651	0	0	583	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	651	-	-	583	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.6	12	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	651	583	-	-
HCM Lane V/C Ratio	-	-	0.017	0.121	-	-
HCM Control Delay (s)	-	-	10.6	12	-	-
HCM Lane LOS	-	-	B	B	-	-
HCM 95th %tile Q(veh)	-	-	0.1	0.4	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	10	20	790	625	10
Future Vol, veh/h	0	10	20	790	625	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	11	22	859	679	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	345	690	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	0	651	900	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	651	900	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.6	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	900	-	651	-	-
HCM Lane V/C Ratio	0.024	-	0.017	-	-
HCM Control Delay (s)	9.1	-	10.6	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Operational Data

Main Geometry (ft)

Approach and Entry Geometry

Leg	Leg Names	Approach Bearing (deg)	Grade Separation G	Half Width V	Approach Lanes n	Entry Width E	Entry Lanes n	Flare Length L'	Entry Radius R	Entry Angle ?
1	North Leg	0	0	12.00	1	14.00	1	55.00	50.00	20.00
2	West Leg	90	0	24.00	2	25.70	2	70.00	40.00	20.00
3	South Leg	160	0	12.10	1	24.00	2	130.00	60.00	20.00
4	East Leg	265	0	22.30	2	24.00	2	180.00	60.00	20.00

Circulating and Exit Geometry

Leg	Leg Names	Inscribed Diameter D	Circulating Width C	Circulating Lanes nc	Exit Width Ex	Exit Lanes nex	Exit Half Width Vx	Exit Half Width Lanes nvx
1	North Leg	165.00	30.00	2	24.70	2	23.30	2
2	West Leg	140.00	20.00	1	25.10	2	24.00	2
3	South Leg	165.00	30.00	2	25.00	1	12.20	1
4	East Leg	140.00	30.00	2	24.00	2	19.40	2

Capacity Modifiers and Capacity Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Entry Calibration		Approach Road			Exit Road		
		Capacity + or -	XWalk Factor	Intercept + or -	Slope Factor	V (ft)	Default Capacity	Calib Capacity	V (ft)	Default Capacity	Calib Capacity
1	North Leg	0	1.000	0	1.000	24.00	3584	0	23.30	3480	0
2	West Leg	0	1.000	0	1.000	20.00	3584	0	24.00	3584	0
3	South Leg	0	1.000	0	1.000	20.00	1807	0	12.20	1822	0
4	East Leg	0	1.000	0	1.000	20.00	3331	0	19.40	2897	0

Bypass Geometry

Bypass Approach Geometry (ft)

Leg	Leg Names	Bypass Type	Bypass Flows	V	nv	Vb	nvb	Vt	nvt
1	North Leg	Yield	330	12	1	12	1	24	2

Bypass Entry and Exit Geometry (ft)

Leg	Leg Names	Entry Geometry						Leg	Leg Names	Exit Lanes	
		Eb	neb	Lb	Lt	Rb	Phib			nex	Nmx
1	North Leg	12	1	20	130	65.00020384	30	2	West Leg	2	2

Bypass Entry Capacity Modifiers and Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Calibration	
		Capacity + or -	Cross Walk Factor	Intercept + or -	Slope Factor
1	North Leg	0	1.000	0	1.000

Traffic Flow Data (veh/hr)

2020 PM Peak Peak Hour Flows

Leg	Leg Names	Turning Flows					Flow Modifiers		
		U-Turn	Exit-3	Exit-2	Exit-1	Bypass	Trucks %	Flow Factor	Peak Hour Factor
1	North Leg	0	165	220	0	330	2.0	1.00	0.9
2	West Leg	0	395	395	280	0	2.0	1.00	0.9
3	South Leg	0	23	385	275	0	2.0	1.00	0.9
4	East Leg	0	235	340	165	0	2.0	1.00	0.9

Operational Results

2020 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	North Leg	Yield	385	330	598	598	945	960	876	0.4070	0.3827
2	West Leg	None	1070		620		693	1628		0.6721	
3	South Leg	None	683		955		735	1315		0.5309	
4	East Leg	None	740		803		835	1594		0.4709	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	North Leg	Yield	5.99	6.52	6.24	1.85	1.72	A	A	A
2	West Leg	None	9.49		9.49	8.29		A		A
3	South Leg	None	9.01		9.01	4.98		A		A
4	East Leg	None	5.88		5.88	3.51		A		A

2020 PM Peak - 15 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	North Leg	Yield	405	347	629	629	994	948	865	0.4330	0.4073
2	West Leg	None	1126		652		729	1594		0.7215	
3	South Leg	None	719		1004		773	1282		0.5720	
4	East Leg	None	779		844		878	1564		0.5046	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	North Leg	Yield	6.10	6.63	6.34	1.85	1.72	A	A	A
2	West Leg	None	10.21		10.21	8.29		B		B
3	South Leg	None	9.44		9.44	4.98		A		A
4	East Leg	None	6.09		6.09	3.51		A		A

Global Results

Performance and Accidents

2020 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	2878	330	3208
Capacity	veh/hr	5497	876	6373
Average Delay	sec/veh	7.98	6.52	7.83
L.O.S. (Signal)	A – F	A	A	A
L.O.S. (Unsig)	A – F	A	A	A
Total Delay	veh.hrs	6.38	0.60	6.98

Intersection	
Int Delay, s/veh	16.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1000	20	85	610	55	70
Future Vol, veh/h	1000	20	85	610	55	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	60	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1087	22	92	663	60	76

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1109	0	1945	555
Stage 1	-	-	-	-	1098	-
Stage 2	-	-	-	-	847	-
Critical Hdwy	-	-	4.13	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	628	-	64	476
Stage 1	-	-	-	-	282	-
Stage 2	-	-	-	-	419	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	628	-	~ 55	476
Mov Cap-2 Maneuver	-	-	-	-	~ 55	-
Stage 1	-	-	-	-	282	-
Stage 2	-	-	-	-	358	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.4	240.5
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	109	-	-	628	-
HCM Lane V/C Ratio	1.247	-	-	0.147	-
HCM Control Delay (s)	240.5	-	-	11.7	-
HCM Lane LOS	F	-	-	B	-
HCM 95th %tile Q(veh)	9	-	-	0.5	-

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

Intersection	
Int Delay, s/veh	16.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	20	0	0	475	0	825	125	0	695	5
Future Vol, veh/h	0	0	20	0	0	475	0	825	125	0	695	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	22	0	0	516	0	897	136	0	755	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	380	-	-	517	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	-	-	6.94	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	-	-	3.32	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	618	0	0	~ 503	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	618	-	-	~ 503	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11	75.9	0	0
HCM LOS	B	F		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	618	503	-	-
HCM Lane V/C Ratio	-	-	0.035	1.026	-	-
HCM Control Delay (s)	-	-	11	75.9	-	-
HCM Lane LOS	-	-	B	F	-	-
HCM 95th %tile Q(veh)	-	-	0.1	14.8	-	-

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

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	170	90	1210	530	55
Future Vol, veh/h	0	170	90	1210	530	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	181	96	1287	564	59

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	312	623	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	0	684	954	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	684	954	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.1	0.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	954	-	684	-	-
HCM Lane V/C Ratio	0.1	-	0.264	-	-
HCM Control Delay (s)	9.2	-	12.1	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.3	-	1.1	-	-

Operational Data

Main Geometry (ft)

Approach and Entry Geometry

Leg	Leg Names	Approach Bearing (deg)	Grade Separation G	Half Width V	Approach Lanes n	Entry Width E	Entry Lanes n	Flare Length L'	Entry Radius R	Entry Angle ?
1	North Leg	0	0	12.00	1	14.00	1	55.00	50.00	20.00
2	West Leg	90	0	24.00	2	25.70	2	70.00	40.00	20.00
3	South Leg	160	0	12.10	1	24.00	2	130.00	60.00	20.00
4	East Leg	265	0	22.30	2	24.00	2	180.00	60.00	20.00

Circulating and Exit Geometry

Leg	Leg Names	Inscribed Diameter D	Circulating Width C	Circulating Lanes nc	Exit Width Ex	Exit Lanes nex	Exit Half Width Vx	Exit Half Width Lanes nvx
1	North Leg	165.00	30.00	2	24.70	2	23.30	2
2	West Leg	140.00	20.00	1	25.10	2	24.00	2
3	South Leg	165.00	30.00	2	25.00	1	12.20	1
4	East Leg	140.00	30.00	2	24.00	2	19.40	2

Capacity Modifiers and Capacity Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Entry Calibration		Approach Road			Exit Road		
		Capacity + or -	XWalk Factor	Intercept + or -	Slope Factor	V (ft)	Default Capacity	Calib Capacity	V (ft)	Default Capacity	Calib Capacity
1	North Leg	0	1.000	0	1.000	24.00	3584	0	23.30	3480	0
2	West Leg	0	1.000	0	1.000	20.00	3584	0	24.00	3584	0
3	South Leg	0	1.000	0	1.000	20.00	1807	0	12.20	1822	0
4	East Leg	0	1.000	0	1.000	20.00	3331	0	19.40	2897	0

Bypass Geometry

Bypass Approach Geometry (ft)

Leg	Leg Names	Bypass Type	Bypass Flows	V	nv	Vb	nvb	Vt	nvt
1	North Leg	Yield	345	12	1	12	1	24	2

Bypass Entry and Exit Geometry (ft)

Leg	Leg Names	Entry Geometry						Leg	Leg Names	Exit Lanes	
		Eb	neb	Lb	Lt	Rb	Phib			nex	Nmx
1	North Leg	12	1	20	130	65.0001976	30	2	West Leg	2	2

Bypass Entry Capacity Modifiers and Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Calibration	
		Capacity + or -	Cross Walk Factor	Intercept + or -	Slope Factor
1	North Leg	0	1.000	0	1.000

Traffic Flow Data (veh/hr)

2025 AM Peak Peak Hour Flows

Leg	Leg Names	Turning Flows					Flow Modifiers		
		U-Turn	Exit-3	Exit-2	Exit-1	Bypass	Trucks %	Flow Factor	Peak Hour Factor
1	North Leg	0	159	256	0	345	2.0	1.00	0.9
2	West Leg	0	418	322	123	0	2.0	1.00	0.9
3	South Leg	0	67	169	164	0	2.0	1.00	0.9
4	East Leg	0	138	214	277	0	2.0	1.00	0.9

Operational Results

2025 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	North Leg	Yield	415	345	419	419	864	1026	939	0.4100	0.3727
2	West Leg	None	863		553		626	1698		0.5179	
3	South Leg	None	400		899		517	1352		0.3005	
4	East Leg	None	629		654		645	1705		0.3741	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	North Leg	Yield	5.64	6.00	5.80	1.86	1.64	A	A	A
2	West Leg	None	7.93		7.93	5.42		A		A
3	South Leg	None	6.17		6.17	1.97		A		A
4	East Leg	None	5.73		5.73	2.85		A		A

2025 AM Peak - 15 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	North Leg	Yield	437	363	441	441	909	1018	931	0.4344	0.3950
2	West Leg	None	908		582		659	1668		0.5542	
3	South Leg	None	421		946		544	1321		0.3231	
4	East Leg	None	662		688		679	1680		0.3991	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	North Leg	Yield	5.71	6.06	5.87	1.86	1.64	A	A	A
2	West Leg	None	8.22		8.22	5.42		A		A
3	South Leg	None	6.28		6.28	1.97		A		A
4	East Leg	None	5.83		5.83	2.85		A		A

Global Results

Performance and Accidents

2025 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	2307	345	2652
Capacity	veh/hr	5781	939	6720
Average Delay	sec/veh	6.61	6.00	6.53
L.O.S. (Signal)	A – F	A	A	A
L.O.S. (Unsig)	A – F	A	A	A
Total Delay	veh.hrs	4.24	0.57	4.81

Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	845	20	25	600	10	20
Future Vol, veh/h	845	20	25	600	10	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	60	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	918	22	27	652	11	22

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	940	0	1635	470
Stage 1	-	-	-	-	929	-
Stage 2	-	-	-	-	706	-
Critical Hdwy	-	-	4.13	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	727	-	101	541
Stage 1	-	-	-	-	346	-
Stage 2	-	-	-	-	488	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	727	-	97	541
Mov Cap-2 Maneuver	-	-	-	-	97	-
Stage 1	-	-	-	-	346	-
Stage 2	-	-	-	-	470	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	24.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	214	-	-	727	-
HCM Lane V/C Ratio	0.152	-	-	0.037	-
HCM Control Delay (s)	24.8	-	-	10.1	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	0.5	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	10	0	0	65	0	840	25	0	750	5
Future Vol, veh/h	0	0	10	0	0	65	0	840	25	0	750	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	11	0	0	71	0	913	27	0	815	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	410	-	-	470	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	-	-	6.94	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	-	-	3.32	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	591	0	0	540	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	591	-	-	540	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.2	12.7	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	591	540	-	-
HCM Lane V/C Ratio	-	-	0.018	0.131	-	-
HCM Control Delay (s)	-	-	11.2	12.7	-	-
HCM Lane LOS	-	-	B	B	-	-
HCM 95th %tile Q(veh)	-	-	0.1	0.4	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	10	20	885	745	10
Future Vol, veh/h	0	10	20	885	745	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	11	22	962	810	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	411	821	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	0	590	804	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	590	804	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.2	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	804	-	590	-	-
HCM Lane V/C Ratio	0.027	-	0.018	-	-
HCM Control Delay (s)	9.6	-	11.2	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Operational Data

Main Geometry (ft)

Approach and Entry Geometry

Leg	Leg Names	Approach Bearing (deg)	Grade Separation G	Half Width V	Approach Lanes n	Entry Width E	Entry Lanes n	Flare Length L'	Entry Radius R	Entry Angle ?
1	North Leg	0	0	12.00	1	14.00	1	55.00	50.00	20.00
2	West Leg	90	0	24.00	2	25.70	2	70.00	40.00	20.00
3	South Leg	160	0	12.10	1	24.00	2	130.00	60.00	20.00
4	East Leg	265	0	22.30	2	24.00	2	180.00	60.00	20.00

Circulating and Exit Geometry

Leg	Leg Names	Inscribed Diameter D	Circulating Width C	Circulating Lanes nc	Exit Width Ex	Exit Lanes nex	Exit Half Width Vx	Exit Half Width Lanes nvx
1	North Leg	165.00	30.00	2	24.70	2	23.30	2
2	West Leg	140.00	20.00	1	25.10	2	24.00	2
3	South Leg	165.00	30.00	2	25.00	1	12.20	1
4	East Leg	140.00	30.00	2	24.00	2	19.40	2

Capacity Modifiers and Capacity Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Entry Calibration		Approach Road			Exit Road		
		Capacity + or -	XWalk Factor	Intercept + or -	Slope Factor	V (ft)	Default Capacity	Calib Capacity	V (ft)	Default Capacity	Calib Capacity
1	North Leg	0	1.000	0	1.000	24.00	3584	0	23.30	3480	0
2	West Leg	0	1.000	0	1.000	20.00	3584	0	24.00	3584	0
3	South Leg	0	1.000	0	1.000	20.00	1807	0	12.20	1822	0
4	East Leg	0	1.000	0	1.000	20.00	3331	0	19.40	2897	0

Bypass Geometry

Bypass Approach Geometry (ft)

Leg	Leg Names	Bypass Type	Bypass Flows	V	nv	Vb	nvb	Vt	nvt
1	North Leg	Yield	548	12	1	12	1	24	2

Bypass Entry and Exit Geometry (ft)

Leg	Leg Names	Entry Geometry						Leg	Leg Names	Exit Lanes	
		Eb	neb	Lb	Lt	Rb	Phib			nex	Nmx
1	North Leg	12	1	20	130	65.00020384	30	2	West Leg	2	2

Bypass Entry Capacity Modifiers and Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Calibration	
		Capacity + or -	Cross Walk Factor	Intercept + or -	Slope Factor
1	North Leg	0	1.000	0	1.000

Traffic Flow Data (veh/hr)

2025 PM Peak Peak Hour Flows

Leg	Leg Names	Turning Flows					Flow Modifiers		
		U-Turn	Exit-3	Exit-2	Exit-1	Bypass	Trucks %	Flow Factor	Peak Hour Factor
1	North Leg	0	169	225	0	548	2.0	1.00	0.9
2	West Leg	0	545	495	322	0	2.0	1.00	0.9
3	South Leg	0	79	405	282	0	2.0	1.00	0.9
4	East Leg	0	241	479	169	0	2.0	1.00	0.9

Operational Results

2025 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	North Leg	Yield	394	548	799	799	1117	885	805	0.4525	0.7019
2	West Leg	None	1362		635		1105	1613		0.8834	
3	South Leg	None	766		1207		787	1147		0.6894	
4	East Leg	None	889		1027		945	1427		0.6358	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	North Leg	Yield	6.98	13.66	10.86	2.23	6.26	A	B	B
2	West Leg	None	20.28		20.28	23.24		C		C
3	South Leg	None	13.78		13.78	8.84		B		B
4	East Leg	None	8.58		8.58	6.34		A		A

2025 PM Peak - 15 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	North Leg	Yield	415	577	839	839	1168	871	791	0.4837	0.7512
2	West Leg	None	1434		667		1160	1579		0.9497	
3	South Leg	None	806		1259		824	1112		0.7471	
4	East Leg	None	936		1074		988	1393		0.6846	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	North Leg	Yield	7.17	14.66	11.53	2.23	6.26	A	B	B
2	West Leg	None	23.24		23.24	23.24		C		C
3	South Leg	None	14.92		14.92	8.84		B		B
4	East Leg	None	9.18		9.18	6.34		A		A

Global Results

Performance and Accidents

2025 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	3411	548	3959
Capacity	veh/hr	5073	805	5878
Average Delay	sec/veh	14.23	13.66	14.15
L.O.S. (Signal)	A – F	B	B	B
L.O.S. (Unsig)	A – F	B	B	B
Total Delay	veh.hrs	13.49	2.08	15.57

Intersection	
Int Delay, s/veh	78.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1290	20	85	1020	55	70
Future Vol, veh/h	1290	20	85	1020	55	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	60	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1402	22	92	1109	60	76

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1424	0	2706	712
Stage 1	-	-	-	-	1413	-
Stage 2	-	-	-	-	1293	-
Critical Hdwy	-	-	4.13	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	476	-	~ 20	376
Stage 1	-	-	-	-	191	-
Stage 2	-	-	-	-	256	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	476	-	~ 16	376
Mov Cap-2 Maneuver	-	-	-	-	~ 16	-
Stage 1	-	-	-	-	191	-
Stage 2	-	-	-	-	207	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.1	$ 1588.1
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	34	-	-	476	-
HCM Lane V/C Ratio	3.996	-	-	0.194	-
HCM Control Delay (s)	$ 1588.1	-	-	14.4	-
HCM Lane LOS	F	-	-	B	-
HCM 95th %tile Q(veh)	15.9	-	-	0.7	-

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

Intersection	
Int Delay, s/veh	24.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	20	0	0	475	0	1000	125	0	920	5
Future Vol, veh/h	0	0	20	0	0	475	0	1000	125	0	920	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	22	0	0	516	0	1087	136	0	1000	5

Major/Minor	Minor2		Minor1			Major1				Major2		
Conflicting Flow All	-	-	503	-	-	612	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	-	-	6.94	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	-	-	3.32	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	514	0	0	~ 436	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	514	-	-	~ 436	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.3	132.9	0	0
HCM LOS	B	F		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	514	436	-	-
HCM Lane V/C Ratio	-	-	0.042	1.184	-	-
HCM Control Delay (s)	-	-	12.3	132.9	-	-
HCM Lane LOS	-	-	B	F	-	-
HCM 95th %tile Q(veh)	-	-	0.1	19.8	-	-

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

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	170	90	1385	755	55
Future Vol, veh/h	0	170	90	1385	755	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	185	98	1505	821	60

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	441	881	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	0	564	763	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	564	763	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	763	-	564	-	-
HCM Lane V/C Ratio	0.128	-	0.328	-	-
HCM Control Delay (s)	10.4	-	14.5	-	-
HCM Lane LOS	B	-	B	-	-
HCM 95th %tile Q(veh)	0.4	-	1.4	-	-

Scheme Summary

Control Data

Control Data and Model Parameters

West End	2025 PHF Flow Profile (veh)
2025 Total Traffic	7.5 min Time Slice
Rodel-Win1	Queuing Delays (sec)
Right Hand Drive	Daylight conditions
AM Peak Hour	Peak 60/15 min Results
Full Geometry	Output flows: Vehicles
English Units (ft)	50% Confidence Level

Operational Data

Main Geometry (ft)

Approach and Entry Geometry

Leg	Leg Names	Approach Bearing (deg)	Grade Separation G	Half Width V	Approach Lanes n	Entry Width E	Entry Lanes n	Flare Length L'	Entry Radius R	Entry Angle Φ
1	North Leg	0	0	12.00	1	14.00	1	55.00	50.00	20.00
2	West Leg	90	0	24.00	2	25.70	2	70.00	40.00	20.00
3	South Leg	160	0	12.10	1	24.00	2	130.00	60.00	20.00
4	East Leg	265	0	22.30	2	24.00	2	180.00	60.00	20.00

Circulating and Exit Geometry

Leg	Leg Names	Inscribed Diameter D	Circulating Width C	Circulating Lanes nc	Exit Width Ex	Exit Lanes nex	Exit Half Width Vx	Exit Half Width Lanes nvx
1	North Leg	165.00	30.00	2	24.70	2	23.30	2
2	West Leg	140.00	20.00	1	25.10	2	24.00	2
3	South Leg	165.00	30.00	2	25.00	1	12.20	1
4	East Leg	140.00	30.00	2	24.00	2	19.40	2

Capacity Modifiers and Capacity Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Entry Calibration		Approach Road			Exit Road		
		Capacity + or -	XWalk Factor	Intercept + or -	Slope Factor	V (ft)	Default Capacity	Calib Capacity	V (ft)	Default Capacity	Calib Capacity
1	North Leg	0	1.000	0	1.000	24.00	3584	0	23.30	3480	0
2	West Leg	0	1.000	0	1.000	20.00	3584	0	24.00	3584	0
3	South Leg	0	1.000	0	1.000	20.00	1807	0	12.20	1822	0
4	East Leg	0	1.000	0	1.000	20.00	3331	0	19.40	2897	0

Bypass Geometry

Bypass Approach Geometry (ft)

Leg	Leg Names	Bypass Type	Bypass Flows	V	nv	Vb	nvb	Vt	nvt
1	North Leg	Yield	345	12	1	12	1	24	2

Bypass Entry and Exit Geometry (ft)

Leg	Leg Names	Entry Geometry						Leg	Leg Names	Exit Lanes	
		Eb	neb	Lb	Lt	Rb	Phib			nex	Nmx
1	North Leg	12	1	20	130	65.00017888	30	2	West Leg	2	2

Bypass Entry Capacity Modifiers and Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Calibration	
		Capacity + or -	Cross Walk Factor	Intercept + or -	Slope Factor
1	North Leg	0	1.000	0	1.000

Traffic Flow Data (veh/hr)

2025 AM Peak Peak Hour Flows

Leg	Leg Names	Turning Flows					Flow Modifiers		
		U-Turn	Exit-3	Exit-2	Exit-1	Bypass	Trucks %	Flow Factor	Peak Hour Factor
1	North Leg	49	193	272	0	345	2.0	1.00	0.9
2	West Leg	21	413	322	123	0	2.0	1.00	0.9
3	South Leg	0	82	165	164	0	2.0	1.00	0.9
4	East Leg	0	138	232	277	0	2.0	1.00	0.9

Operational Results

2025 AM Peak - 60 minutes

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	North Leg	Yield	6.94	6.19	6.64	2.86	1.70	A	A	A
2	West Leg	None	9.37		9.37	6.58		A		A
3	South Leg	None	6.56		6.56	2.17		A		A
4	East Leg	None	6.01		6.01	3.09		A		A

2025 AM Peak - 15 minutes

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	North Leg	Yield	7.12	6.27	6.78	2.86	1.70	A	A	A
2	West Leg	None	9.84		9.84	6.58		A		A
3	South Leg	None	6.72		6.72	2.17		A		A
4	East Leg	None	6.14		6.14	3.09		A		A

Global Results

Performance and Accidents

2025 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	2451	345	2796
Capacity	veh/hr	5536	920	6456
Average Delay	sec/veh	7.50	6.19	7.34
L.O.S. (Signal)	A – F	A	A	A
L.O.S. (Unsig)	A – F	A	A	A
Total Delay	veh.hrs	5.11	0.59	5.70

Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	861	20	25	629	10	20
Future Vol, veh/h	861	20	25	629	10	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	140	60	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	936	22	27	684	11	22

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	958	0	1674	936
Stage 1	-	-	-	-	936	-
Stage 2	-	-	-	-	738	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	718	-	105	321
Stage 1	-	-	-	-	382	-
Stage 2	-	-	-	-	473	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	718	-	101	321
Mov Cap-2 Maneuver	-	-	-	-	101	-
Stage 1	-	-	-	-	382	-
Stage 2	-	-	-	-	455	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	28.4
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	186	-	-	718	-
HCM Lane V/C Ratio	0.175	-	-	0.038	-
HCM Control Delay (s)	28.4	-	-	10.2	-
HCM Lane LOS	D	-	-	B	-
HCM 95th %tile Q(veh)	0.6	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Vol, veh/h	0	881	615	64	0	39
Future Vol, veh/h	0	881	615	64	0	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	0	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	958	668	70	0	42

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	334
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	662
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	662
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.8
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	662
HCM Lane V/C Ratio	-	-	-	0.064
HCM Control Delay (s)	-	-	-	10.8
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.2

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	119	0	0	65	0	880	25	0	740	35
Future Vol, veh/h	0	0	119	0	0	65	0	880	25	0	740	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	129	0	0	71	0	957	27	0	804	38

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	421	-	-	492	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	-	-	6.94	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	-	-	3.32	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	581	0	0	522	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	581	-	-	522	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13	13	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	581	522	-	-
HCM Lane V/C Ratio	-	-	0.223	0.135	-	-
HCM Control Delay (s)	-	-	13	13	-	-
HCM Lane LOS	-	-	B	B	-	-
HCM 95th %tile Q(veh)	-	-	0.8	0.5	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	10	20	925	765	10
Future Vol, veh/h	0	10	20	925	765	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	11	22	1005	832	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	422	843	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	0	580	789	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	580	789	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.3	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	789	-	580	-	-
HCM Lane V/C Ratio	0.028	-	0.019	-	-
HCM Control Delay (s)	9.7	-	11.3	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Scheme Summary

Control Data

Control Data and Model Parameters

West End	2025 PHF Flow Profile (veh)
2025 Total Traffic	7.5 min Time Slice
Rodel-Win1	Queuing Delays (sec)
Right Hand Drive	Daylight conditions
PM Peak Hour	Peak 60/15 min Results
Full Geometry	Output flows: Vehicles
English Units (ft)	50% Confidence Level

Operational Data

Main Geometry (ft)

Approach and Entry Geometry

Leg	Leg Names	Approach Bearing (deg)	Grade Separation G	Half Width V	Approach Lanes n	Entry Width E	Entry Lanes n	Flare Length L'	Entry Radius R	Entry Angle Φ
1	North Leg	0	0	12.00	1	14.00	1	55.00	50.00	20.00
2	West Leg	90	0	24.00	2	25.70	2	70.00	40.00	20.00
3	South Leg	160	0	12.10	1	24.00	2	130.00	60.00	20.00
4	East Leg	265	0	22.30	2	24.00	2	180.00	60.00	20.00

Circulating and Exit Geometry

Leg	Leg Names	Inscribed Diameter D	Circulating Width C	Circulating Lanes nc	Exit Width Ex	Exit Lanes nex	Exit Half Width Vx	Exit Half Width Lanes nvx
1	North Leg	165.00	30.00	2	24.70	2	23.30	2
2	West Leg	140.00	20.00	1	25.10	2	24.00	2
3	South Leg	165.00	30.00	2	25.00	1	12.20	1
4	East Leg	140.00	30.00	2	24.00	2	19.40	2

Capacity Modifiers and Capacity Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Entry Calibration		Approach Road			Exit Road		
		Capacity + or -	XWalk Factor	Intercept + or -	Slope Factor	V (ft)	Default Capacity	Calib Capacity	V (ft)	Default Capacity	Calib Capacity
1	North Leg	0	1.000	0	1.000	24.00	3584	0	23.30	3480	0
2	West Leg	0	1.000	0	1.000	20.00	3584	0	24.00	3584	0
3	South Leg	0	1.000	0	1.000	20.00	1807	0	12.20	1822	0
4	East Leg	0	1.000	0	1.000	20.00	3331	0	19.40	2897	0

Bypass Geometry

Bypass Approach Geometry (ft)

Leg	Leg Names	Bypass Type	Bypass Flows	V	nv	Vb	nvb	Vt	nvt
1	North Leg	Yield	548	12	1	12	1	24	2

Bypass Entry and Exit Geometry (ft)

Leg	Leg Names	Entry Geometry						Leg	Leg Names	Exit Lanes	
		Eb	neb	Lb	Lt	Rb	Phib			nex	Nmx
1	North Leg	12	1	20	130	65.00019136	30	2	West Leg	2	2

Bypass Entry Capacity Modifiers and Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Calibration	
		Capacity + or -	Cross Walk Factor	Intercept + or -	Slope Factor
1	North Leg	0	1.000	0	1.000

Traffic Flow Data (veh/hr)

2025 PM Peak Peak Hour Flows

Leg	Leg Names	Turning Flows					Flow Modifiers		
		U-Turn	Exit-3	Exit-2	Exit-1	Bypass	Trucks %	Flow Factor	Peak Hour Factor
1	North Leg	40	197	238	0	548	2.0	1.00	0.9
2	West Leg	30	542	495	322	0	2.0	1.00	0.9
3	South Leg	0	96	402	282	0	2.0	1.00	0.9
4	East Leg	0	241	508	169	0	2.0	1.00	0.9

Operational Results

2025 PM Peak - 60 minutes

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	North Leg	Yield	8.87	15.19	12.25	3.46	7.03	A	C	B
2	West Leg	None	32.54		32.54	39.55		D		D
3	South Leg	None	16.70		16.70	10.88		C		C
4	East Leg	None	10.02		10.02	7.70		B		B

2025 PM Peak - 15 minutes

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	North Leg	Yield	9.26	16.45	13.11	3.46	7.03	A	C	B
2	West Leg	None	37.94		37.94	39.55		E		E
3	South Leg	None	18.08		18.08	10.88		C		C
4	East Leg	None	10.82		10.82	7.70		B		B

Global Results

Performance and Accidents

2025 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	3562	548	4110
Capacity	veh/hr	4840	779	5619
Average Delay	sec/veh	20.11	15.19	19.45
L.O.S. (Signal)	A – F	C	B	B
L.O.S. (Unsig)	A – F	C	C	C
Total Delay	veh.hrs	19.90	2.31	22.21

Intersection	
Int Delay, s/veh	71.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1317	20	85	1046	55	70
Future Vol, veh/h	1317	20	85	1046	55	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	140	60	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1432	22	92	1137	60	76

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1454	0	2753	1432
Stage 1	-	-	-	-	1432	-
Stage 2	-	-	-	-	1321	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	465	-	~ 22	165
Stage 1	-	-	-	-	220	-
Stage 2	-	-	-	-	249	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	465	-	~ 18	165
Mov Cap-2 Maneuver	-	-	-	-	~ 18	-
Stage 1	-	-	-	-	220	-
Stage 2	-	-	-	-	200	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.1	$ 1477.1
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	36	-	-	465	-
HCM Lane V/C Ratio	3.774	-	-	0.199	-
HCM Control Delay (s)	$ 1477.1	-	-	14.7	-
HCM Lane LOS	F	-	-	B	-
HCM 95th %tile Q(veh)	15.7	-	-	0.7	-

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

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Vol, veh/h	0	1387	1097	84	0	34
Future Vol, veh/h	0	1387	1097	84	0	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	0	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1508	1192	91	0	37

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	596
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	447
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	447
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	13.8
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	447
HCM Lane V/C Ratio	-	-	-	0.083
HCM Control Delay (s)	-	-	-	13.8
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.3

Intersection	
Int Delay, s/veh	26

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	109	0	0	475	0	1034	120	0	912	48
Future Vol, veh/h	0	0	109	0	0	475	0	1034	120	0	912	48
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	118	0	0	516	0	1124	130	0	991	52

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	522	-	-	627	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	-	-	6.94	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	-	-	3.32	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	499	0	0	~ 426	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	499	-	-	~ 426	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.4	144.1	0	0
HCM LOS	B	F		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	499	426	-	-
HCM Lane V/C Ratio	-	-	0.237	1.212	-	-
HCM Control Delay (s)	-	-	14.4	144.1	-	-
HCM Lane LOS	-	-	B	F	-	-
HCM 95th %tile Q(veh)	-	-	0.9	20.7	-	-

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

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	170	90	1419	790	55
Future Vol, veh/h	0	170	90	1419	790	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	185	98	1542	859	60

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	460	919	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	0	548	738	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	548	738	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.9	0.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	738	-	548	-	-
HCM Lane V/C Ratio	0.133	-	0.337	-	-
HCM Control Delay (s)	10.6	-	14.9	-	-
HCM Lane LOS	B	-	B	-	-
HCM 95th %tile Q(veh)	0.5	-	1.5	-	-

Operational Data

Main Geometry (ft)

Approach and Entry Geometry

Leg	Leg Names	Approach Bearing (deg)	Grade Separation G	Half Width V	Approach Lanes n	Entry Width E	Entry Lanes n	Flare Length L'	Entry Radius R	Entry Angle ?
1	North Leg	0	0	12.00	1	14.00	1	55.00	50.00	20.00
2	West Leg	90	0	24.00	2	25.70	2	70.00	40.00	20.00
3	South Leg	160	0	12.10	1	24.00	2	130.00	60.00	20.00
4	East Leg	265	0	22.30	2	24.00	2	180.00	60.00	20.00

Circulating and Exit Geometry

Leg	Leg Names	Inscribed Diameter D	Circulating Width C	Circulating Lanes nc	Exit Width Ex	Exit Lanes nex	Exit Half Width Vx	Exit Half Width Lanes nvx
1	North Leg	165.00	30.00	2	24.70	2	23.30	2
2	West Leg	140.00	20.00	1	25.10	2	24.00	2
3	South Leg	165.00	30.00	2	25.00	1	12.20	1
4	East Leg	140.00	30.00	2	24.00	2	19.40	2

Capacity Modifiers and Capacity Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Entry Calibration		Approach Road			Exit Road		
		Capacity + or -	XWalk Factor	Intercept + or -	Slope Factor	V (ft)	Default Capacity	Calib Capacity	V (ft)	Default Capacity	Calib Capacity
1	North Leg	0	1.000	0	1.000	24.00	3584	0	23.30	3480	0
2	West Leg	0	1.000	0	1.000	20.00	3584	0	24.00	3584	0
3	South Leg	0	1.000	0	1.000	20.00	1807	0	12.20	1822	0
4	East Leg	0	1.000	0	1.000	20.00	3331	0	19.40	2897	0

Bypass Geometry

Bypass Approach Geometry (ft)

Leg	Leg Names	Bypass Type	Bypass Flows	V	nv	Vb	nvb	Vt	nvt
1	North Leg	Yield	470	12	1	12	1	24	2

Bypass Entry and Exit Geometry (ft)

Leg	Leg Names	Entry Geometry						Leg	Leg Names	Exit Lanes	
		Eb	neb	Lb	Lt	Rb	Phib			nex	Nmx
1	North Leg	12	1	20	130	65.00024752	30	2	West Leg	2	2

Bypass Entry Capacity Modifiers and Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Calibration	
		Capacity + or -	Cross Walk Factor	Intercept + or -	Slope Factor
1	North Leg	0	1.000	0	1.000

Traffic Flow Data (veh/hr)

2040 AM Peak Peak Hour Flows

Leg	Leg Names	Turning Flows					Flow Modifiers		
		U-Turn	Exit-3	Exit-2	Exit-1	Bypass	Trucks %	Flow Factor	Peak Hour Factor
1	North Leg	0	260	270	0	470	2.0	1.00	0.9
2	West Leg	0	717	642	75	0	2.0	1.00	0.9
3	South Leg	0	81	330	260	0	2.0	1.00	0.9
4	East Leg	0	170	294	155	0	2.0	1.00	0.9

Operational Results

2040 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	North Leg	Yield	530	470	545	545	1195	980	895	0.5508	0.5356
2	West Leg	None	1434		700		844	1544		1.0156	
3	South Leg	None	671		1608		514	880		0.8053	
4	East Leg	None	619		1121		1156	1358		0.4631	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	North Leg	Yield	7.56	8.35	7.93	3.24	3.16	A	A	A
2	West Leg	None	42.99		42.99	52.03		E		E
3	South Leg	None	24.81		24.81	14.13		C		C
4	East Leg	None	6.40		6.40	3.21		A		A

2040 AM Peak - 15 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	North Leg	Yield	558	495	572	572	1234	969	885	0.5850	0.5691
2	West Leg	None	1509		736		887	1507		1.0923	
3	South Leg	None	706		1654		539	850		0.8752	
4	East Leg	None	652		1155		1195	1333		0.4958	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	North Leg	Yield	7.80	8.62	8.19	3.24	3.16	A	A	A
2	West Leg	None	48.55		48.55	52.03		E		E
3	South Leg	None	26.97		26.97	14.13		D		D
4	East Leg	None	6.59		6.59	3.21		A		A

Global Results

Performance and Accidents

2040 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	3254	470	3724
Capacity	veh/hr	4762	895	5657
Average Delay	sec/veh	26.51	8.35	24.22
L.O.S. (Signal)	A – F	C	A	C
L.O.S. (Unsig)	A – F	D	A	C
Total Delay	veh.hrs	23.96	1.09	25.05

Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1415	20	25	820	10	20
Future Vol, veh/h	1415	20	25	820	10	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	60	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1538	22	27	891	11	22

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1560	0	2049	780
Stage 1	-	-	-	-	1549	-
Stage 2	-	-	-	-	500	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	420	-	48	338
Stage 1	-	-	-	-	161	-
Stage 2	-	-	-	-	575	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	420	-	45	338
Mov Cap-2 Maneuver	-	-	-	-	45	-
Stage 1	-	-	-	-	161	-
Stage 2	-	-	-	-	538	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	52.8
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	107	-	-	420	-
HCM Lane V/C Ratio	0.305	-	-	0.065	-
HCM Control Delay (s)	52.8	-	-	14.2	-
HCM Lane LOS	F	-	-	B	-
HCM 95th %tile Q(veh)	1.2	-	-	0.2	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	10	0	0	65	0	1175	25	0	990	5
Future Vol, veh/h	0	0	10	0	0	65	0	1175	25	0	990	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	11	0	0	71	0	1277	27	0	1076	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	541	-	-	652	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	-	-	6.94	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	-	-	3.32	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	485	0	0	411	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	485	-	-	411	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.6	15.6	0	0
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	485	411	-	-
HCM Lane V/C Ratio	-	-	0.022	0.172	-	-
HCM Control Delay (s)	-	-	12.6	15.6	-	-
HCM Lane LOS	-	-	B	C	-	-
HCM 95th %tile Q(veh)	-	-	0.1	0.6	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	10	20	1220	985	10
Future Vol, veh/h	0	10	20	1220	985	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	11	22	1326	1071	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	541	1082	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	0	485	640	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	485	640	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.6	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	640	-	485	-	-
HCM Lane V/C Ratio	0.034	-	0.022	-	-
HCM Control Delay (s)	10.8	-	12.6	-	-
HCM Lane LOS	B	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Operational Data

Main Geometry (ft)

Approach and Entry Geometry

Leg	Leg Names	Approach Bearing (deg)	Grade Separation G	Half Width V	Approach Lanes n	Entry Width E	Entry Lanes n	Flare Length L'	Entry Radius R	Entry Angle ?
1	North Leg	0	0	12.00	1	14.00	1	55.00	50.00	20.00
2	West Leg	90	0	24.00	2	25.70	2	70.00	40.00	20.00
3	South Leg	160	0	12.10	1	24.00	2	130.00	60.00	20.00
4	East Leg	265	0	22.30	2	24.00	2	180.00	60.00	20.00

Circulating and Exit Geometry

Leg	Leg Names	Inscribed Diameter D	Circulating Width C	Circulating Lanes nc	Exit Width Ex	Exit Lanes nex	Exit Half Width Vx	Exit Half Width Lanes nvx
1	North Leg	165.00	30.00	2	24.70	2	23.30	2
2	West Leg	140.00	20.00	1	25.10	2	24.00	2
3	South Leg	165.00	30.00	2	25.00	1	12.20	1
4	East Leg	140.00	30.00	2	24.00	2	19.40	2

Capacity Modifiers and Capacity Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Entry Calibration		Approach Road			Exit Road		
		Capacity + or -	XWalk Factor	Intercept + or -	Slope Factor	V (ft)	Default Capacity	Calib Capacity	V (ft)	Default Capacity	Calib Capacity
1	North Leg	0	1.000	0	1.000	24.00	3584	0	23.30	3480	0
2	West Leg	0	1.000	0	1.000	20.00	3584	0	24.00	3584	0
3	South Leg	0	1.000	0	1.000	20.00	1807	0	12.20	1822	0
4	East Leg	0	1.000	0	1.000	20.00	3331	0	19.40	2897	0

Bypass Geometry

Bypass Approach Geometry (ft)

Leg	Leg Names	Bypass Type	Bypass Flows	V	nv	Vb	nvb	Vt	nvt
1	North Leg	Yield	743	12	1	12	1	24	2

Bypass Entry and Exit Geometry (ft)

Leg	Leg Names	Entry Geometry						Leg	Leg Names	Exit Lanes	
		Eb	neb	Lb	Lt	Rb	Phib			nex	Nmx
1	North Leg	12	1	20	130	65.00025376	30	2	West Leg	2	2

Bypass Entry Capacity Modifiers and Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Calibration	
		Capacity + or -	Cross Walk Factor	Intercept + or -	Slope Factor
1	North Leg	0	1.000	0	1.000

Traffic Flow Data (veh/hr)

2040 PM Peak Peak Hour Flows

Leg	Leg Names	Turning Flows					Flow Modifiers		
		U-Turn	Exit-3	Exit-2	Exit-1	Bypass	Trucks %	Flow Factor	Peak Hour Factor
1	North Leg	0	195	280	0	743	2.0	1.00	0.9
2	West Leg	0	457	309	33	0	2.0	1.00	0.9
3	South Leg	0	86	310	290	0	2.0	1.00	0.9
4	East Leg	0	290	536	250	0	2.0	1.00	0.9

Operational Results

2040 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	North Leg	Yield	475	743	912	912	1017	844	765	0.5755	1.1275
2	West Leg	None	799		765		1348	1476		0.5528	
3	South Leg	None	686		961		603	1311		0.5353	
4	East Leg	None	1076		853		794	1557		0.7065	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	North Leg	Yield	9.19	78.61	51.53	3.61	45.84	A	F	F
2	West Leg	None	8.76		8.76	5.70		A		A
3	South Leg	None	9.43		9.43	5.23		A		A
4	East Leg	None	9.45		9.45	8.45		A		A

2040 PM Peak - 15 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	North Leg	Yield	500	782	957	957	1068	827	749	0.6171	1.1928
2	West Leg	None	841		803		1386	1436		0.5971	
3	South Leg	None	722		1009		633	1278		0.5767	
4	East Leg	None	1133		896		834	1525		0.7584	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	North Leg	Yield	9.63	83.76	54.85	3.61	45.84	A	F	F
2	West Leg	None	9.25		9.25	5.70		A		A
3	South Leg	None	9.87		9.87	5.23		A		A
4	East Leg	None	10.28		10.28	8.45		B		B

Global Results

Performance and Accidents

2040 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	3036	743	3779
Capacity	veh/hr	5188	765	5953
Average Delay	sec/veh	9.22	78.61	22.87
L.O.S. (Signal)	A – F	A	E	C
L.O.S. (Unsig)	A – F	A	F	C
Total Delay	veh.hrs	7.78	16.22	24.00

Intersection	
Int Delay, s/veh	6.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	730	20	85	1280	55	70
Future Vol, veh/h	730	20	85	1280	55	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	60	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	793	22	92	1391	60	76

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	815	0	1684	408
Stage 1	-	-	-	-	804	-
Stage 2	-	-	-	-	880	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	808	-	85	593
Stage 1	-	-	-	-	401	-
Stage 2	-	-	-	-	366	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	808	-	75	593
Mov Cap-2 Maneuver	-	-	-	-	75	-
Stage 1	-	-	-	-	401	-
Stage 2	-	-	-	-	324	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	114.8
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	147	-	-	808	-
HCM Lane V/C Ratio	0.924	-	-	0.114	-
HCM Control Delay (s)	114.8	-	-	10	-
HCM Lane LOS	F	-	-	B	-
HCM 95th %tile Q(veh)	6.5	-	-	0.4	-

Intersection	
Int Delay, s/veh	16.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	20	0	0	475	0	895	125	0	1200	5
Future Vol, veh/h	0	0	20	0	0	475	0	895	125	0	1200	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	22	0	0	516	0	973	136	0	1304	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	655	-	-	555	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	-	-	6.94	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	-	-	3.32	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	409	0	0	~ 475	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	409	-	-	~ 475	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.3	96.1	0	0
HCM LOS	B	F		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	409	475	-	-
HCM Lane V/C Ratio	-	-	0.053	1.087	-	-
HCM Control Delay (s)	-	-	14.3	96.1	-	-
HCM Lane LOS	-	-	B	F	-	-
HCM 95th %tile Q(veh)	-	-	0.2	16.7	-	-

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

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	170	90	1280	1035	55
Future Vol, veh/h	0	170	90	1280	1035	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	185	98	1391	1125	60

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	593	1185	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	0	449	585	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	449	585	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.5	0.8	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	585	-	449	-	-
HCM Lane V/C Ratio	0.167	-	0.412	-	-
HCM Control Delay (s)	12.4	-	18.5	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0.6	-	2	-	-

Scheme Summary

Control Data

Control Data and Model Parameters

West End	2040 PHF Flow Profile (veh)
2040 Total Traffic	7.5 min Time Slice
Rodel-Win1	Queuing Delays (sec)
Right Hand Drive	Daylight conditions
AM Peak Hour	Peak 60/15 min Results
Full Geometry	Output flows: Vehicles
English Units (ft)	50% Confidence Level

Available Data

Entry Capacity Calibrated	No
Entry Capacity Modified	No
Crosswalks	No
Flows Factored	No
Approach/Exit Road Capacity Calibrated	No
Accidents	No
Accident Costs	No
Bypass Model	Yes
Bypass Calibration	No
Global Results	Yes

Operational Data

Main Geometry (ft)

Approach and Entry Geometry

Leg	Leg Names	Approach Bearing (deg)	Grade Separation G	Half Width V	Approach Lanes n	Entry Width E	Entry Lanes n	Flare Length L'	Entry Radius R	Entry Angle Φ
1	North Leg	0	0	12.00	1	14.00	1	55.00	50.00	20.00
2	West Leg	90	0	24.00	2	25.70	2	70.00	40.00	20.00
3	South Leg	160	0	12.10	1	24.00	2	130.00	60.00	20.00
4	East Leg	265	0	22.30	2	24.00	2	180.00	60.00	20.00

Circulating and Exit Geometry

Leg	Leg Names	Inscribed Diameter D	Circulating Width C	Circulating Lanes nc	Exit Width Ex	Exit Lanes nex	Exit Half Width Vx	Exit Half Width Lanes nvx
1	North Leg	165.00	30.00	2	24.70	2	23.30	2
2	West Leg	140.00	20.00	1	25.10	2	24.00	2
3	South Leg	165.00	30.00	2	25.00	1	12.20	1
4	East Leg	140.00	30.00	2	24.00	2	19.40	2

Capacity Modifiers and Capacity Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Entry Calibration		Approach Road			Exit Road		
		Capacity + or -	XWalk Factor	Intercept + or -	Slope Factor	V (ft)	Default Capacity	Calib Capacity	V (ft)	Default Capacity	Calib Capacity
1	North Leg	0	1.000	0	1.000	24.00	3584	0	23.30	3480	0
2	West Leg	0	1.000	0	1.000	20.00	3584	0	24.00	3584	0
3	South Leg	0	1.000	0	1.000	20.00	1807	0	12.20	1822	0
4	East Leg	0	1.000	0	1.000	20.00	3331	0	19.40	2897	0

Bypass Geometry

Bypass Approach Geometry (ft)

Leg	Leg Names	Bypass Type	Bypass Flows	V	nv	Vb	nvb	Vt	nvt
1	North Leg	Yield	470	12	1	12	1	24	2

Bypass Entry and Exit Geometry (ft)

Leg	Leg Names	Entry Geometry						Leg	Leg Names	Exit Lanes	
		Eb	neb	Lb	Lt	Rb	Phib			nex	Nmx
1	North Leg	12	1	20	130	65.00021216	30	2	West Leg	2	2

Bypass Entry Capacity Modifiers and Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Calibration	
		Capacity + or -	Cross Walk Factor	Intercept + or -	Slope Factor
1	North Leg	0	1.000	0	1.000

Traffic Flow Data (veh/hr)

2040 AM Peak Peak Hour Flows

Leg	Leg Names	Turning Flows					Flow Modifiers		
		U-Turn	Exit-3	Exit-2	Exit-1	Bypass	Trucks %	Flow Factor	Peak Hour Factor
1	North Leg	49	294	286	0	470	2.0	1.00	0.9
2	West Leg	21	712	642	75	0	2.0	1.00	0.9
3	South Leg	0	96	326	260	0	2.0	1.00	0.9
4	East Leg	0	170	312	155	0	2.0	1.00	0.9

Operational Results

2040 AM Peak - 60 minutes

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	North Leg	Yield	10.08	8.73	9.50	5.20	3.32	B	A	A
2	West Leg	None	91.63		91.63	105.91		F		F
3	South Leg	None	31.28		31.28	16.55		D		D
4	East Leg	None	6.86		6.86	3.49		A		A

2040 AM Peak - 15 minutes

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	North Leg	Yield	10.62	9.03	9.94	5.20	3.32	B	A	A
2	West Leg	None	92.48		92.48	105.91		F		F
3	South Leg	None	32.82		32.82	16.55		D		D
4	East Leg	None	7.04		7.04	3.49		A		A

Global Results

Performance and Accidents

2040 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	3398	470	3868
Capacity	veh/hr	4552	876	5428
Average Delay	sec/veh	48.53	8.73	43.69
L.O.S. (Signal)	A – F	D	A	D
L.O.S. (Unsig)	A – F	E	A	E
Total Delay	veh.hrs	45.81	1.14	46.95

Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1431	20	25	849	10	20
Future Vol, veh/h	1431	20	25	849	10	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	140	60	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1555	22	27	923	11	22

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1577	0	2071	778
Stage 1	-	-	-	-	1555	-
Stage 2	-	-	-	-	516	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	414	-	47	339
Stage 1	-	-	-	-	160	-
Stage 2	-	-	-	-	564	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	414	-	44	339
Mov Cap-2 Maneuver	-	-	-	-	44	-
Stage 1	-	-	-	-	160	-
Stage 2	-	-	-	-	527	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	54
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	105	-	-	414	-
HCM Lane V/C Ratio	0.311	-	-	0.066	-
HCM Control Delay (s)	54	-	-	14.3	-
HCM Lane LOS	F	-	-	B	-
HCM 95th %tile Q(veh)	1.2	-	-	0.2	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Vol, veh/h	0	1451	835	64	0	39
Future Vol, veh/h	0	1451	835	64	0	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	0	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1577	908	70	0	42

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	454
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	553
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	553
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.1
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	553
HCM Lane V/C Ratio	-	-	-	0.077
HCM Control Delay (s)	-	-	-	12.1
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.2

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	119	0	0	65	0	1215	25	0	980	35
Future Vol, veh/h	0	0	119	0	0	65	0	1215	25	0	980	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	129	0	0	71	0	1321	27	0	1065	38

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	552	-	-	674	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	-	-	6.94	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	-	-	3.32	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	477	0	0	397	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	477	-	-	397	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.3	16	0	0
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	477	397	-	-
HCM Lane V/C Ratio	-	-	0.271	0.178	-	-
HCM Control Delay (s)	-	-	15.3	16	-	-
HCM Lane LOS	-	-	C	C	-	-
HCM 95th %tile Q(veh)	-	-	1.1	0.6	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	10	20	1260	1005	10
Future Vol, veh/h	0	10	20	1260	1005	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	11	22	1370	1092	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	552	1103	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	0	477	629	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	477	629	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.7	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	629	-	477	-	-
HCM Lane V/C Ratio	0.035	-	0.023	-	-
HCM Control Delay (s)	10.9	-	12.7	-	-
HCM Lane LOS	B	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Scheme Summary

Control Data

Control Data and Model Parameters

West End	2040 PHF Flow Profile (veh)
2040 Total Traffic	7.5 min Time Slice
Rodel-Win1	Queuing Delays (sec)
Right Hand Drive	Daylight conditions
PM Peak Hour	Peak 60/15 min Results
Full Geometry	Output flows: Vehicles
English Units (ft)	50% Confidence Level

Available Data

Entry Capacity Calibrated	No
Entry Capacity Modified	No
Crosswalks	No
Flows Factored	No
Approach/Exit Road Capacity Calibrated	No
Accidents	No
Accident Costs	No
Bypass Model	Yes
Bypass Calibration	No
Global Results	Yes

Operational Data

Main Geometry (ft)

Approach and Entry Geometry

Leg	Leg Names	Approach Bearing (deg)	Grade Separation G	Half Width V	Approach Lanes n	Entry Width E	Entry Lanes n	Flare Length L'	Entry Radius R	Entry Angle Φ
1	North Leg	0	0	12.00	1	14.00	1	55.00	50.00	20.00
2	West Leg	90	0	24.00	2	25.70	2	70.00	40.00	20.00
3	South Leg	160	0	12.10	1	24.00	2	130.00	60.00	20.00
4	East Leg	265	0	22.30	2	24.00	2	180.00	60.00	20.00

Circulating and Exit Geometry

Leg	Leg Names	Inscribed Diameter D	Circulating Width C	Circulating Lanes nc	Exit Width Ex	Exit Lanes nex	Exit Half Width Vx	Exit Half Width Lanes nvx
1	North Leg	165.00	30.00	2	24.70	2	23.30	2
2	West Leg	140.00	20.00	1	25.10	2	24.00	2
3	South Leg	165.00	30.00	2	25.00	1	12.20	1
4	East Leg	140.00	30.00	2	24.00	2	19.40	2

Capacity Modifiers and Capacity Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Entry Calibration		Approach Road			Exit Road		
		Capacity + or -	XWalk Factor	Intercept + or -	Slope Factor	V (ft)	Default Capacity	Calib Capacity	V (ft)	Default Capacity	Calib Capacity
1	North Leg	0	1.000	0	1.000	24.00	3584	0	23.30	3480	0
2	West Leg	0	1.000	0	1.000	20.00	3584	0	24.00	3584	0
3	South Leg	0	1.000	0	1.000	20.00	1807	0	12.20	1822	0
4	East Leg	0	1.000	0	1.000	20.00	3331	0	19.40	2897	0

Bypass Geometry

Bypass Approach Geometry (ft)

Leg	Leg Names	Bypass Type	Bypass Flows	V	nv	Vb	nvb	Vt	nvt
1	North Leg	Yield	743	12	1	12	1	24	2

Bypass Entry and Exit Geometry (ft)

Leg	Leg Names	Entry Geometry						Leg	Leg Names	Exit Lanes	
		Eb	neb	Lb	Lt	Rb	Phib			nex	Nmx
1	North Leg	12	1	20	130	65.00022256	30	2	West Leg	2	2

Bypass Entry Capacity Modifiers and Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Calibration	
		Capacity + or -	Cross Walk Factor	Intercept + or -	Slope Factor
1	North Leg	0	1.000	0	1.000

Traffic Flow Data (veh/hr)

2040 PM Peak Peak Hour Flows

Leg	Leg Names	Turning Flows					Flow Modifiers		
		U-Turn	Exit-3	Exit-2	Exit-1	Bypass	Trucks %	Flow Factor	Peak Hour Factor
1	North Leg	40	223	293	0	743	2.0	1.00	0.9
2	West Leg	30	454	309	33	0	2.0	1.00	0.9
3	South Leg	0	103	307	290	0	2.0	1.00	0.9
4	East Leg	0	290	565	250	0	2.0	1.00	0.9

Operational Results

2040 PM Peak - 60 minutes

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	North Leg	Yield	12.76	109.81	68.27	6.01	64.09	B	F	F
2	West Leg	None	10.17		10.17	6.95		B		B
3	South Leg	None	10.55		10.55	6.03		B		B
4	East Leg	None	11.33		11.33	10.62		B		B

2040 PM Peak - 15 minutes

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	North Leg	Yield	13.73	116.83	72.70	6.01	62.35	B	F	F
2	West Leg	None	10.91		10.91	6.95		B		B
3	South Leg	None	11.15		11.15	6.03		B		B
4	East Leg	None	12.59		12.59	10.62		B		B

Global Results

Performance and Accidents

2040 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	3187	743	3930
Capacity	veh/hr	4953	739	5692
Average Delay	sec/veh	11.11	109.81	29.77
L.O.S. (Signal)	A – F	B	F	C
L.O.S. (Unsig)	A – F	B	F	D
Total Delay	veh.hrs	9.83	22.66	32.50

Intersection	
Int Delay, s/veh	7.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	757	20	85	1306	55	70
Future Vol, veh/h	757	20	85	1306	55	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	140	60	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	823	22	92	1420	60	76

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	845	0	1717	412
Stage 1	-	-	-	-	823	-
Stage 2	-	-	-	-	894	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	787	-	81	589
Stage 1	-	-	-	-	392	-
Stage 2	-	-	-	-	360	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	787	-	72	589
Mov Cap-2 Maneuver	-	-	-	-	72	-
Stage 1	-	-	-	-	392	-
Stage 2	-	-	-	-	318	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	125.6
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	142	-	-	787	-
HCM Lane V/C Ratio	0.957	-	-	0.117	-
HCM Control Delay (s)	125.6	-	-	10.2	-
HCM Lane LOS	F	-	-	B	-
HCM 95th %tile Q(veh)	6.8	-	-	0.4	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Vol, veh/h	0	827	1357	84	0	34
Future Vol, veh/h	0	827	1357	84	0	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	0	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	899	1475	91	0	37

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	738
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	360
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	360
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	16.1
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	360
HCM Lane V/C Ratio	-	-	-	0.103
HCM Control Delay (s)	-	-	-	16.1
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.3

Intersection	
Int Delay, s/veh	18

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	119	0	0	475	0	929	120	0	1192	48
Future Vol, veh/h	0	0	119	0	0	475	0	929	120	0	1192	48
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	129	0	0	516	0	1010	130	0	1296	52

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	674	-	-	570	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	-	-	6.94	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	-	-	3.32	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	397	0	0	~ 465	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	397	-	-	~ 465	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18.4	104.5	0	0
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	397	465	-	-
HCM Lane V/C Ratio	-	-	0.326	1.11	-	-
HCM Control Delay (s)	-	-	18.4	104.5	-	-
HCM Lane LOS	-	-	C	F	-	-
HCM 95th %tile Q(veh)	-	-	1.4	17.5	-	-

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

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	170	90	1314	1070	55
Future Vol, veh/h	0	170	90	1314	1070	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	185	98	1428	1163	60

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	612	1223	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	0	436	566	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	436	566	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	19.2	0.8	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	566	-	436	-	-
HCM Lane V/C Ratio	0.173	-	0.424	-	-
HCM Control Delay (s)	12.7	-	19.2	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0.6	-	2.1	-	-