Traffic Impact Study

Proposed Silver Trace Multi-Use Development
US 278 and Isley Stamper Road
City of Powder Springs, Georgia

March 10, 2025

SEI ENGINEERING, INC.

in collaboration with

ACAMPORA TRAFFIC, LLC

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Proposed Silver Trace Multi-Use Development
US 278 and Isley Stamper Road
City of Powder Springs, Georgia

prepared for:

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March 10, 2025

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Introduction

This study assesses the traffic impact of a proposed multi-use development in Powder Springs, Georgia. The site is located along the south side of Wendy Bagwell Parkway / CH James Parkway (US 278), the east side of Isley Stamper Road, and the north side of the Silver Comet Trail, as shown in Figure 1. The project will consist of approximately 325 apartment units and approximately 7,000 square feet of low-intensity retail uses such as a coffee shop or a bicycle shop, which are appropriate in the context of the project's proximity to the Silver Comet Trail. The project will be served by one full-movement access on Isley Stamper Road and a right-in/right-out (RIRO) access along median-divided US 278.

The purpose of this traffic impact study is to determine existing traffic operating conditions in the vicinity of the proposed development, project future traffic volumes, assess the impact of the subject development, then develop conclusions and recommendations to mitigate the project traffic impact and ensure safe and efficient existing and future traffic conditions in the vicinity of the project.

Figure 1 – Site Location Map

Existing Traffic Conditions

Existing traffic operating conditions in the vicinity of the proposed development were assessed. The following is a description of existing transportation facilities, traffic volumes, and intersection operations.

Description of Existing Roadways

Wendy Bagwell Parkway / CH James Parkway (US 278, SR 6) is northwest/southeast urban principal arterial that provides regional mobility in northwest Georgia. The road has two through travel lanes in each direction, a wide grassed median, and exclusive turn lanes at most major intersections. In the vicinity of the site there is a signalized intersection on US 278 at Bill Carruth Parkway, an unsignalized median break at Isley Stamper Road, and a signalized intersection at Powder Springs Dallas Road / Elliot Road. The terrain is gently rolling and the posted speed limit is 45 mph west of a point approximately 800 feet west of Isley Stamper Road and 55 mph east of that point. The Georgia DOT recorded an Annual Average Daily Traffic (AADT) volume of 37,500 vehicles per day (vpd) on US 278 east of Powder Springs Dallas Road and 39,600 vpd on US 278 west of Metromont Road.

Isley Stamper Road is a two lane local street that connects US 278 at a median opening, side street stop sign controlled T-intersection to Rosedale Drive at a side street stop sign controlled T-intersection. The terrain is gently rolling, the pavement is in deteriorating condition, and the posted speed limit is 25 mph.

Rosedale Drive is a two lane collector that begins at SR 92 (west of which it changes name to C W Sims Road) and runs roughly parallel to and south of US 278, has a signalized intersection at Bill Carruth Parkway, continues to the Cobb County line where it changes name to Warren Farm Road then terminates at a side street stop sign controlled T-intersection at Powder Springs Dallas Road. The terrain is gently rolling and the posted speed limit is 35 mph near Isley Stamper Road, dropping to 25 mph to the east at the boundary to Cobb County / City of Powder Springs. The Paulding County DOT recorded a 2022 AADT of 2,805 vpd on Rosedale Drive near Isley Stamper Road.

Pedestrian, Bicycle, and Transit Accessibility

There is no sidewalk along US 278, Isley Stamper Road, or Rosedale Drive in this vicinity. However, the Silver Comet Trail runs roughly parallel to US 278 and Rosedale Drive, along the south side of the subject site, and intersects Isley Stamper Road with a striped crosswalk just north of Rosedale Drive. There are striped crosswalks and pedestrian crossing signals on all approaches at the signalized intersections of US 278 at Bill Carruth Parkway and at Powder Springs Dallas Road. The Silver Comet Trail allows bicycles, but there are no dedicated bicycle lanes on US 278, Isley Stamper Road, Rosedale Drive, or in the immediate vicinity. There is no regularly scheduled mass transit service in this vicinity.

Existing Traffic Volumes

Existing full turning movement peak hour traffic volume counts were collected at the following intersections in the vicinity of the site:

1. US 278 at Isley Stamper Road
2. US 278 at Powder Springs Dallas Road / Elliot Road
3. Rosedale Road at Isley Stamper Road

The counts were collected on Tuesday, April 30, 2024, from 7:00 a.m. to 9:00 a.m. and from 4:00 p.m. to 6:00 p.m. Area schools were in session on the day on which the counts were recorded. The locations of the traffic counts are presented in Figure 2.

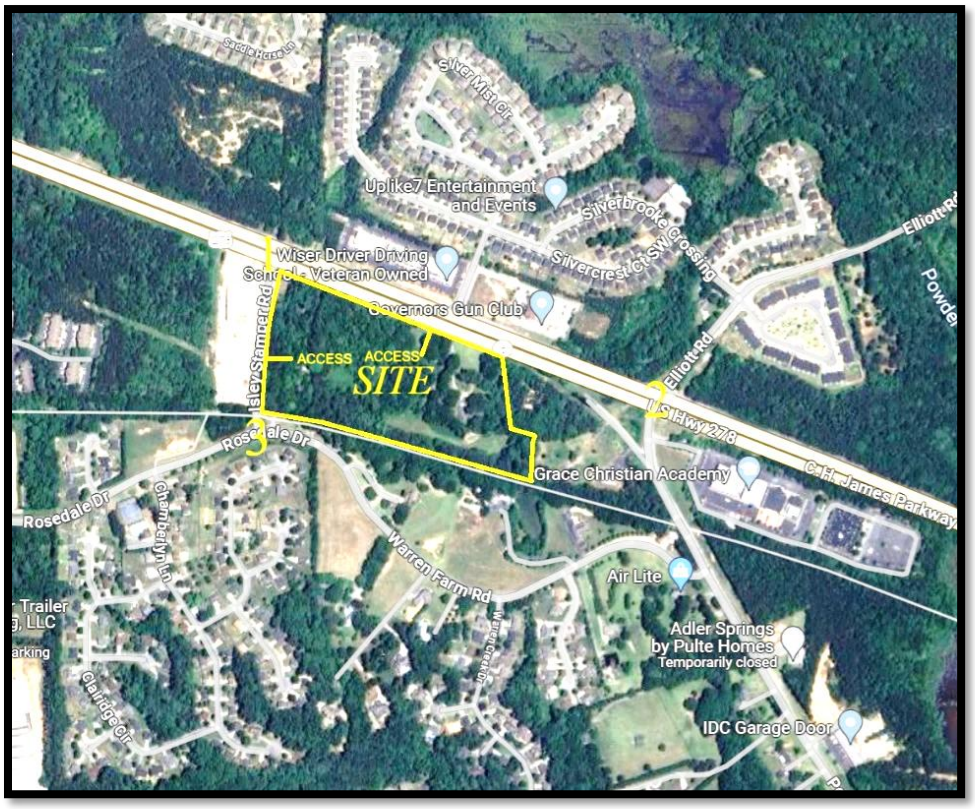


Figure 2 – Traffic Volume Count Location Map

From the intersection turning movement count data, the highest four consecutive 15-minute interval volumes at each intersection, during each time period, were determined. These volumes make up the 2024 weekday a.m. and p.m. peak hour traffic volumes at the intersections. These volumes were adjusted by a 2.0% growth factor (see No Build Traffic Conditions section of this report for a discussion of traffic volume growth) to obtain 2025 volumes at each intersection. These volumes are presented in Figure 3 and the raw count data is found in Appendix A.

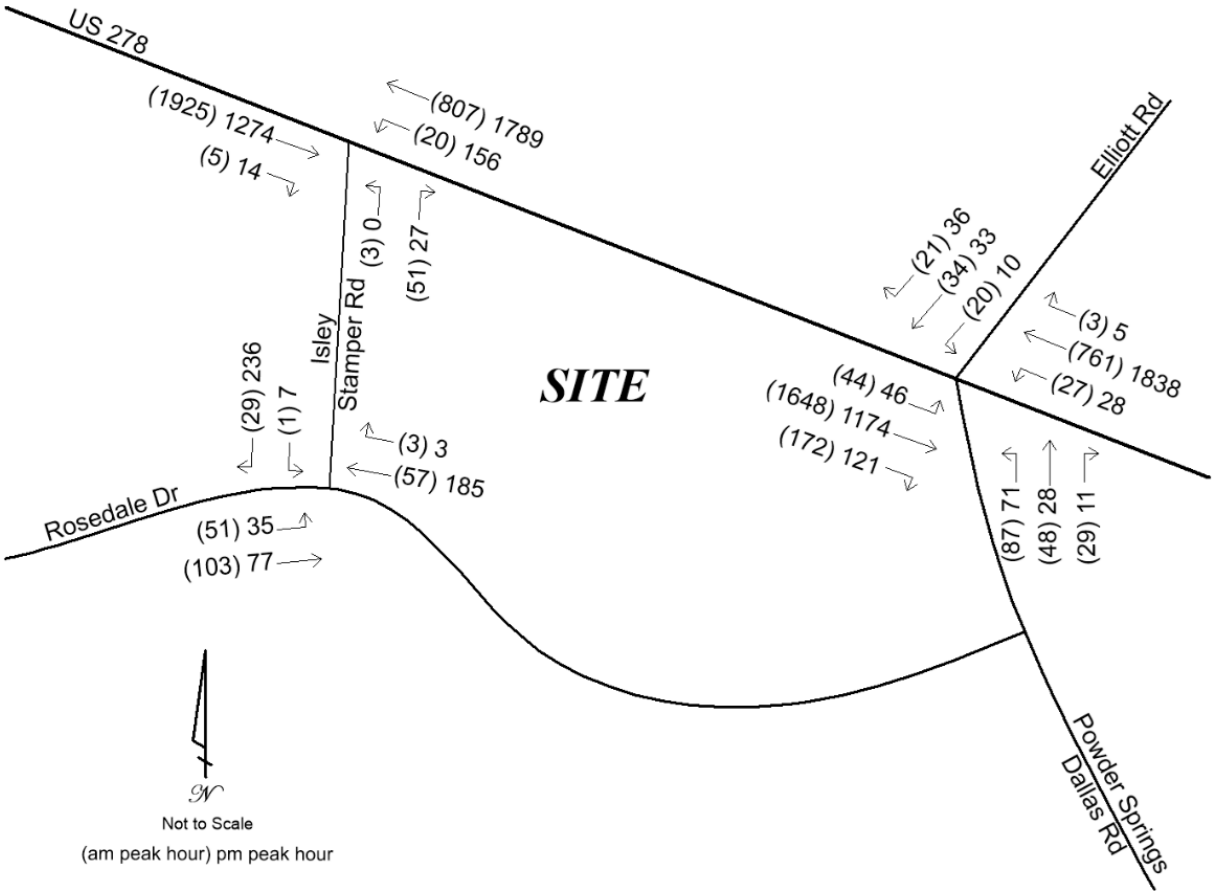


Figure 3 – Existing Weekday A.M. and P.M. Peak Hour Traffic Volumes

Existing Intersection Operations

Existing traffic operations were analyzed at the counted intersections using Synchro software, version 12 (the current version), in accordance with the methodology presented in the Transportation Research Board's 2022 *Highway Capacity Manual* 7th Edition (*HCM 7*). This methodology is presented in Appendix B. The analysis was based on the existing volumes, lanes, and control. The results of the analysis are shown in Table 1. Computer printouts containing detailed results of the existing analysis are located in Appendix C. Levels of service and delays are provided for each overall intersection and for each controlled approach or movement. Locations that operate unacceptably (LOS E or LOS F) are presented in bold type.

Table 1 – Existing Intersection Operations

Intersection / Approach	A.M. Peak Hour		P.M. Peak Hour	
	LOS	Delay (s/veh)	LOS	Delay (s/veh)
1. US 278 at Isley Stamper Road (side street stop)	A	1.3	A	0.9
northbound approach	***F***	***51.4***	B	14.6
westbound left turn	C	19.4	C	15.4
2. US 278 at Elliott Road / Powder Springs Dallas Road (signal)	B	16.7	B	12.8
northbound approach	D	35.4	D	36.2
southbound approach	C	29.4	C	34.9
eastbound approach	B	17.0	A	7.7
westbound approach	A	9.5	B	13.8
3. Rosedale Drive at Isley Stamper Road (side street stop)	A	2.8	A	5.7
southbound approach	A	8.9	B	11.6
eastbound left turn	A	7.4	A	7.7

The existing analysis reveals acceptable traffic operations at most locations. The side street stop sign controlled approach of Isley Stamper Road at US 278 fails in the a.m. peak. These delays are not unusual on side street stop sign controlled approaches at a busy thoroughfare such as US 278. Mitigation would require a change in control to a signal or a roundabout or conversion of the intersection to an RCUT (Restricted Crossing U-Turn) or RIRO (Right-In/Right-Out). The RCUT would prohibit northbound left turns from Isley Stamper Road, but allow all other movements at the intersection. The RIRO would prohibit northbound left turns from Isley Stamper Road and westbound left turns from US 278. The volumes on the failing Isley Stamper Road approach are moderately low and most are right turns, so warrants for signalization would not be satisfied based on the existing volumes. Based on the low volumes on the Isley Stamper Road approach and the failing condition being limited to just the side street approach in a.m. peak, no mitigation is identified for this intersection for the existing condition.

No-Build Traffic Conditions

A 2030 no-build condition was developed. This represents the traffic conditions that will exist in the future at the anticipated date of the build-out of the project, but not including the project's trips. The purpose of the analysis of this condition is to isolate the traffic impacts of the proposed development from background growth in volumes that is expected to occur in the area while the project is under construction.

In order to develop no-build volumes, a background growth factor was developed based on a review of historic Georgia DOT AADT traffic counts, as shown in Table 2.

Table 2 – Historic Georgia DOT Traffic Volume Counts and Annual Growth Rates

Year	US 278 E of Powder Springs Dallas	Annual Growth	US 278 W of Metromont	Annual Growth	Powder Springs Dallas E of US 278	Annual Growth	Hiram Douglasville S of Rosedale	Annual Growth
Station ID	067-2332		223-0127		067-0261		223-0174	
2019	33,900		36,200		8,230		16,500	
2020	31,200	-8.0%	36,400	0.6%	7,580	-7.9%	17,200	4.2%
2021	36,100	15.7%	39,400	8.2%	8,200	8.2%	18,600	8.1%
2022	37,500	3.9%	39,600	0.5%	8,530	4.0%	14,900	-19.9%
2023	36,800	-1.9%	39,900	0.8%	9,910	16.2%	15,000	0.7%
avg growth		*1.7%*		*2.0%*		*3.8%*		*-1.9%*

Growth in the area has fluctuated. Two of the four Georgia DOT count stations experienced a decrease in volumes between 2019 and 2020 which is considered an anomaly due to the COVID-19 pandemic. There was positive growth at all four locations the following year, which is somewhat attributable to a return to pre-pandemic levels and not necessarily new growth. In the last year of the data there was an increase at three of the four count stations, but a -1.9% decrease on US 278 near the site. Overall there was a modest increasing trend between 1.7% and 3.8% at three locations and an overall decreasing trend at the fourth. Based on the growth trends identified in Table 2, and taking the pandemic into consideration, it was decided that a modest background annual growth rate of 2.0% could be expected on the roads in this study while the proposed mixed-use development is built-out. This equates to a 10.4% increase in volumes from 2025 to the anticipated 2030 project buildout year. The 10.4% background growth factor was applied to the counted, adjusted, 2025 trips at each study intersection to develop the 2030 no-build volumes.

Silver Comet DRI Trips

A large mixed-use development, the Silver Comet Development of Regional Impact (DRI), is planned in the immediate vicinity of this project. That development is located along the north side and south side of US 278 and the east side of Poplar Springs Road. The proposed development will include a mix of residential and commercial land uses. The tract on the south side of US 278 will be developed with 27,000 ft² of retail village, which will include

a lawn and a stage area, 220 multi-family units, and 31 attached townhomes. The northeast tract on the north side of US 278 will be developed with 275 attached townhomes. The northwest tract will be developed with a 35,000 ft² retail shopping center, and may potentially include a gasoline station with 8 gasoline pumps.

Vehicular access to that project will be provided at several locations. The portion of the development on the south side of US 278 will be served by one right-in/right-out (RIRO) access on US 278 west of Isley Stamper Road. The northeastern portion of the development will include a full-movement access at the median break at Isley Stamper Road, a RIRO access on US 278 to the west of the full-movement access, and a connection to the commercial strip along the north side of US 278 east of Isley Stamper Road. The northwest tract of the development will be accessed by a RIRO driveway on US 278 east of Poplar Springs Road and a full movement driveway on Poplar Springs Road aligning with Nancy Path.

The specific trips from that development were obtained from the traffic impact study prepared for that development by Acampora Traffic, LLC, dated June 21, 2024. Those trips were added, by turning movement, to each intersection included in this traffic impact study.

The no-build volumes include the 2025 volumes, increased by the background growth factor, plus the trips that will be added by the Silver Comet DRI. These volumes are shown by turning movement at each intersection in the traffic volume worksheets in Appendix A. In addition to the trips from that project, the analysis of the no-build condition and future build condition includes the fourth approach that will be added by the Silver Comet DRI on US 278 across from Isley Stamper Road.

Programmed and Planned Transportation Infrastructure Projects

Programmed (scheduled and funded) or planned (anticipated) transportation infrastructure projects were identified in the immediate vicinity of the study intersections. These projects are as follows:

GDOT Project 0019956: Off-System Safety Improvements – Warren Farm Road and Powder Springs Dallas Road, improvements not identified.

CTP-480 – US 278 Bottleneck Operational Improvement – Signal Conversions to Unsignalized and Signalized R-CUTs – Poplar Springs Road to Pace Road, to the west of the study intersections. Short Term.

CTP-418, 419, and 420 – Guardrail, signage, and striping improvements at US 278 / Bill Carruth Parkway and other non-study intersections.

CTP-446 – Interparcel Connection Between Bill Carruth Parkway and Isley Stamper Road. Long Term.

For the no-build and future analyses in this study, the Silver Comet DRI access on US 278 aligning with Isley Stamper Road was added into the model. Project CTP-480 and the Georgia DOT project at Powder Springs Dallas Road could include modifications at the US 278 / Powder Springs Dallas Road / Elliott Road intersection, which were unknown for this study.

No-Build Intersection Operations

The no-build condition includes the no-build traffic volumes, as described above, entered into the Synchro 12 model with the existing lanes (plus the new fourth approach on US 278 across from Isley Stamper Road) and control. The 2030 no-build traffic operations were analyzed at each study intersection and the results of the no-build analysis are shown in Table 3. Computer printouts containing detailed results of the no-build analysis are located in Appendix D. Levels of service and delays are provided for each overall intersection and for each controlled approach or movement. Locations that operate unacceptably (LOS E or LOS F) are presented in bold type.

Table 3 – No-Build Intersection Operations

Intersection / Approach	A.M. Peak Hour		P.M. Peak Hour	
	LOS	Delay (s/veh)	LOS	Delay (s/veh)
1. US 278 at Isley Stamper Road (side street stop)	***F***	****NA***	***F***	****NA***
northbound approach	***F***	****NA***	***F***	****NA***
southbound approach	***F***	****NA***	***F***	****NA***
eastbound left turn	B	12.2	D	33.6
westbound left turn	C	23.9	C	19.6
2. US 278 at Elliott Road / Powder Springs Dallas Road (signal)	B	19.6	C	20.5
northbound approach	D	43.0	D	44.4
southbound approach	C	33.6	D	41.6
eastbound approach	C	20.7	B	18.4
westbound approach	A	8.8	B	19.0
3. Rosedale Drive at Isley Stamper Road (side street stop)	A	3.7	A	6.5
southbound approach	A	9.4	B	12.9
eastbound left turn	A	7.5	A	7.8

*NA – Limits of analysis methodology is exceeded, delay results not realistic.

The no-build analysis reveals no-build operations generally comparable to the existing condition, with increases in delays. As in the existing analysis, the side street stop sign controlled northbound approach of Isley Stamper Road at US 278 will continue to fail in the no-build condition and the new southbound approach exiting the Silver Comet DRI at that intersection will also fail. The side street approach volumes will continue to be insufficient to satisfy volume based warrants for signalization. A change in design to an RCUT or RIRO will merit consideration at this intersection by the no-build condition and this change should be considered whether or not the proposed Silver Trace project is developed. No mitigation is necessary at the other study intersections.

Project Traffic Characteristics

This section describes the anticipated traffic characteristics of the proposed development, including a site description, how much traffic the project will generate, and where that traffic will travel.

Project Description

The project will consist of approximately 325 apartment units and approximately 7,000 square feet of low-intensity retail uses such as a coffee shop or a bicycle shop, which are appropriate in the context of the project's proximity to the Silver Comet Trail. The project will be served by one full-movement access on Isley Stamper Road and a right-in/right-out (RIRO) access along median-divided US 278. The site plan is presented in Figure 4.

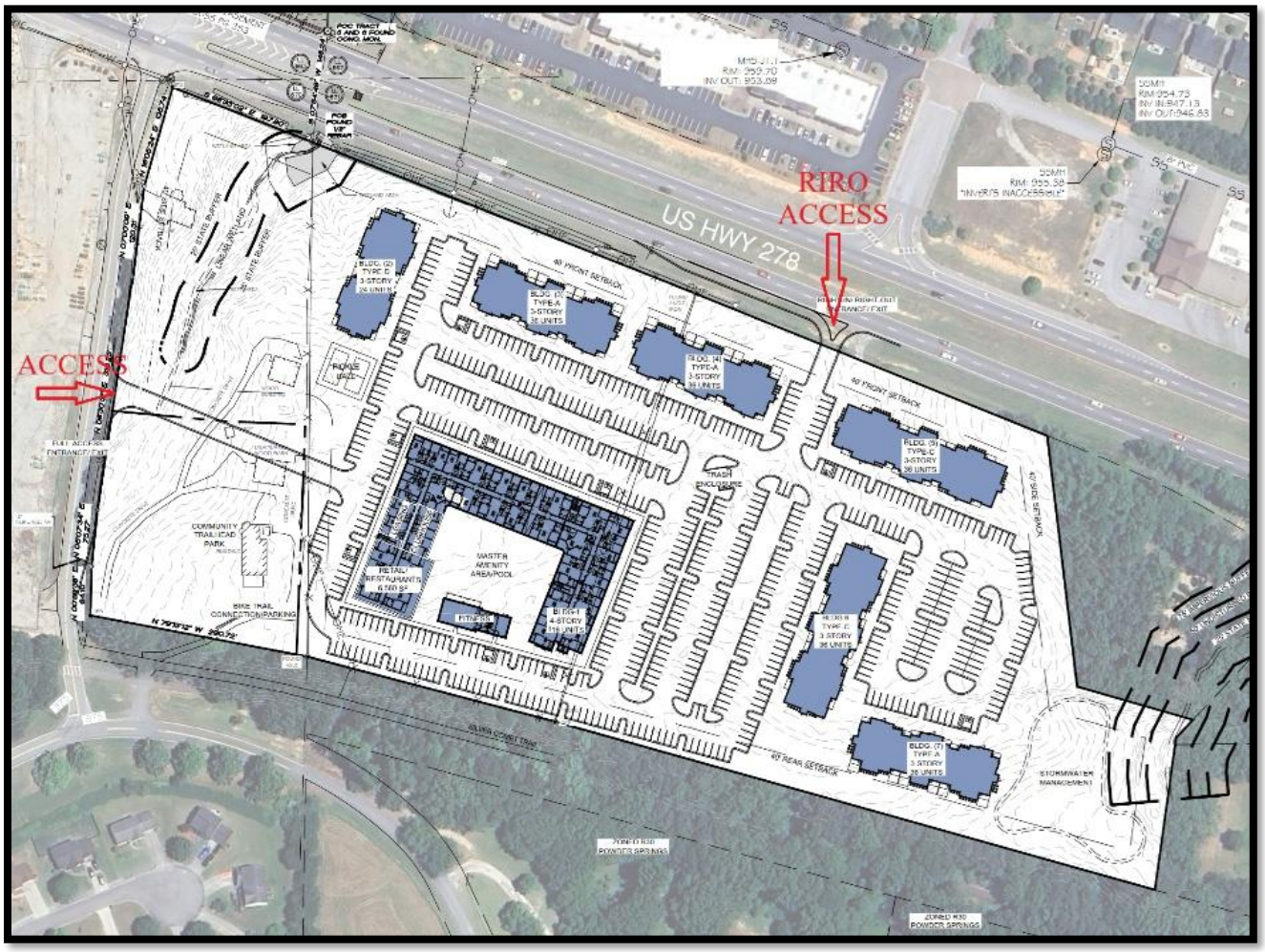


Figure 4 – Site Plan

Trip Generation

Trip generation is an estimate of the number of entering and exiting vehicular trips that will be generated by the proposed development. The volume of traffic that will be generated by the project was calculated using the equations and rates in the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 11th Edition (the current edition). ITE Land Use 221 – Multi-Family Housing (Mid-Rise) was chosen for the multi-family units, while ITE Land Use 822 – Strip Retail Plaza (less than 40,000 square feet) was chosen as representative of the low-intensity retail.

An adjustment was made to the retail trips to account for the effect of pass-by trips. Pass-by trips are trips that are already driving by the property but will be intercepted by the retail portions of this project. These trips are new to the retail driveways, but do not represent new trips to the adjacent roadways, since they are currently occurring and are, therefore, included in existing traffic volumes. The ITE *Trip Generation Manual* includes spreadsheets with pass-by data for several similar land uses. The closest retail land use with ITE pass-by data to the retail use proposed is ITE Land Use 821 – Shopping Plaza (40,000 ft² – 150,000 ft²). This use has an average p.m. peak hour pass-by percentage of 40%. Therefore, a 40% adjustment was applied to the p.m. peak hour trips, while a 30% reduction was applied to the a.m. and 24-hour numbers for the retail use.

Sometimes a multi-use adjustment is made to the trip generation to account for the interaction between land uses within a project. For this development, the multi-use calculations yielded very low trips, in the low single-digits. Therefore, to be very slightly conservative, no multi-use adjustment was applied, recognizing that there will be some internal trips, primarily made by walking, between the multi-family and retail within this project. Additionally, it should be recognized that the proximity to the Silver Comet Trail can be expected to replace some automobile trips with pedestrian and bicycle trips to and from the trail. During the time periods of analysis in this traffic study, the weekday a.m. and p.m. peak traffic time periods, it is expected that pedestrian and bicycle trips to and from the trail will be primarily recreational, as opposed to replacing commuter and other typical peak period automobile trips. Therefore, no reduction in automobile trips was applied to account for trail use, recognizing that there will be some such activity. The trip generation for the project is presented in Table 4.

Table 4 – Silver Comet Multi-Use Development Trip Generation

Land Use	ITE Code	Size	A.M. Peak Hour			P.M. Peak Hour			24-Hour
			In	Out	Total	In	Out	Total	2-Way
Multi-Family Residential	221	325 units	30	101	131	78	49	127	1,504
Retail Gross Trips	822	7,000 ft²	14	9	23	30	30	60	526
-Retail Pass-by Trips		30/40/30%	-4	-3	-7	-12	-12	-24	-158
Retail New Trips			10	6	16	18	18	36	368
Development Total Gross Trips			44	110	154	108	79	187	2,030
Development Total Pass-by Trips			-4	-3	-7	-12	-12	-24	-158
Development Total New Trips			40	107	147	96	67	163	1,872

The proposed multi-use development will generate 147 new a.m. peak hour trips, 163 new p.m. peak hour trips, and 1,872 new weekday trips.

Trip Distribution and Assignment

The trip distribution percentages indicate what proportion of the project's trips will travel to and from various directions. The trip distribution percentages for the multi-family were developed based on the locations and proximity of likely trip origins and destinations including regional employment centers, retail and offices in the area, nearby schools, other regional trip attractors, and the major routes of travel in the area. The trip distribution percentages for the new retail trips were based on population densities in the area and the distances of those populations to the site. The retail pass-by trips were assigned based on the existing traffic flows passing the site. The project trips, shown in Table 4, were assigned to each study intersection and the project accesses based on the distribution percentages. The trip distribution percentages and the total a.m. and p.m. peak hour trips expected to be generated by the proposed development are shown in Figure 5.

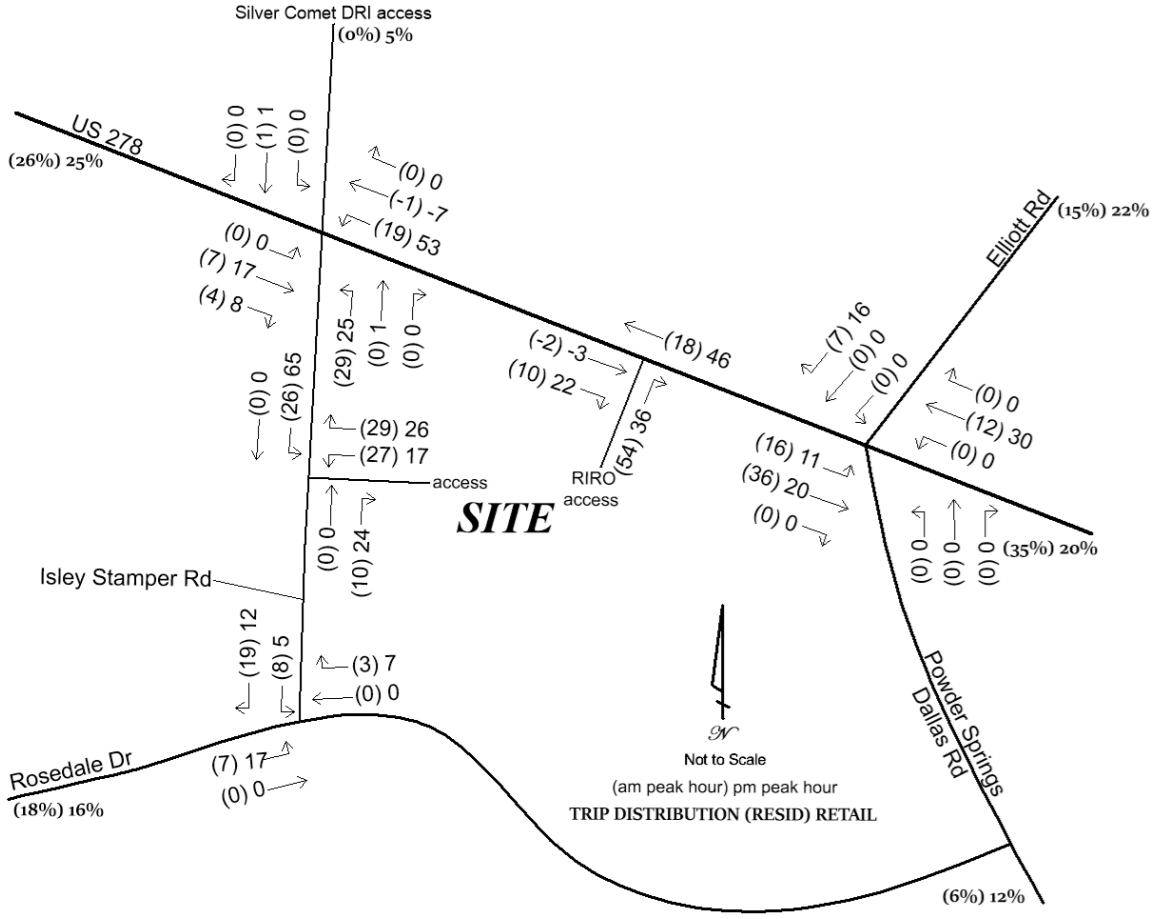


Figure 5 – Weekday A.M. and P.M. Peak Hour Project Trips and Distribution Percentages

Future Traffic Conditions

The future volumes consist of the no-build volumes plus the trips that will be generated by the proposed multi-use development. The future volumes are shown in Figure 6.

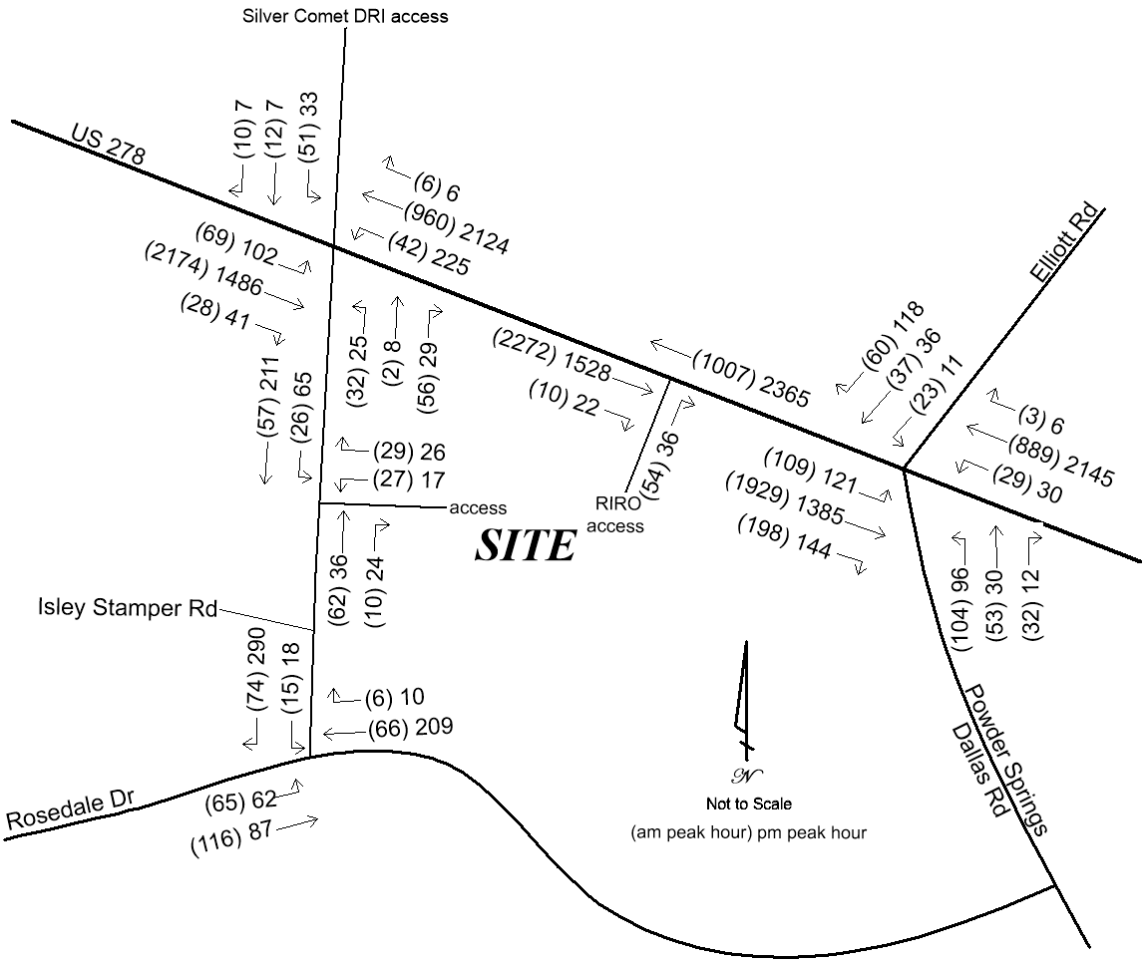


Figure 6 – Future Weekday A.M. and P.M. Peak Hour Volumes

Auxiliary Lane Requirements at Project Accesses

The applicable standards were evaluated to determine if left or right turn lanes are needed on the public roads at each project access. On US 278 the project access will be restricted to RIRO operations. This access is under the jurisdiction of the Georgia DOT. On Isley Stamper Road the access is under the jurisdiction of Paulding County.

Project Access on US 278 – Right Turn Lane

To determine if an eastbound right turn lane is required on US 278 at the project access, the Georgia DOT standards for determining the need for these auxiliary lanes, as set forth in their *Regulations for Driveway and Encroachment*

Control (Driveway Manual), revision 5.4 dated 2/10/2023, were evaluated. The right turn lane analysis is based on *Driveway Manual* Table 4-6, Minimum Volumes Requiring Right Turn Lanes, which is shown below as Table 5.

Table 5 – Georgia DOT Right Turn Lane Standards

Posted Speed	2 Lane Routes		More than 2 Lanes on Main Road	
	AADT		AADT	
	< 6,000	>=6,000	<10,000	>=10,000
35 MPH or Less	200 RTV a day	100 RTV a day	200 RTV a day	100 RTV a day
40 to 50 MPH	150 RTV a day	75 RTV a day	150 RTV a day	75 RTV a day
55 to 60 MPH	100 RTV a day	50 RTV a day	100 RTV a day	50 RTV a day
>= 65 MPH	Always	Always	Always	Always

Table 4-6 Minimum Volumes Requiring Right Turn Lanes

The 2023 AADT on US 278 is 37,500 vpd which is above the 10,000 vpd threshold for roads with greater than two lanes. On a road with greater than two lanes, a 55 mph speed limit (the speed limit is 45 mph west of about 800 feet west of Isley Stamper Road and 55 mph east of that point), and a 24-hour volume above 10,000 vpd, the right turn volume (RTV) above which a right turn lane is required is 50 right turn vehicles (RTV) per day. The daily eastbound right turn volume on US 278 at the project RIRO access is calculated at 225 RTV. This is above the 50 RTV threshold and, therefore, an eastbound right turn lane is required on US 278 at the project RIRO access. This study agrees with that requirement and the site plan includes this right turn lane. This section of US 278 is median divided and no westbound left turn lanes will be permitted at this project access. Therefore, no westbound left turn lane is necessary.

Project Access on Isley Stamper Road

Isley Stamper Road is a two lane local street under the jurisdiction of Paulding County. The County Code states:

> 5.16.3 *Auxiliary lanes* – Along any collector or arterial, a deceleration lane, acceleration lane, larger turning radius, traffic islands, or other devices or designs may be required to avoid specific traffic hazards which would otherwise be created by the proposed driveway location.

Because this is a low volume, low speed local street, turn lanes are not automatically required at the project access. The volume making a northbound right turn into the project at this access will be moderately low (10 vehicles in the a.m. peak hour and 24 vehicles in the p.m. peak hour) and the northbound through volumes are also low. Therefore, a northbound right turn lane is not considered necessary. Southbound, the volumes are higher, with the left turn volumes into the site projected at 26 vehicles in the a.m. peak hour and 65 vehicles in the p.m. peak hour. In many cases, these volumes would merit consideration of providing a left turn lane. However, the northbound opposing flows on Isley Stamper Road will be low, such that southbound left turns into the site will incur minimal impedance. With minimal impedance, left turns into the project from Isley Stamper Road will incur very low delays and negligible queuing. Therefore, a southbound left turn lane on Isley Stamper Road is not considered necessary and the analysis results reported below include no left or right turn lane on Isley Stamper Road at the project access.

Future Intersection Operations

An operational analysis was performed for the anticipated future project build-out at the study intersections and the project accesses. The analysis at each access assumed that the turn lanes recommended above will be constructed on US 278 and Isley Stamper Road, each access will be constructed with one entering lane and one exiting lane, and each side street approach exiting the project will be controlled by side street stop sign. Table 6 presents the results of the future analysis. Computer printouts containing detailed results of the future analysis are located in Appendix E. Levels of service and delays are provided for each overall intersection and for each controlled approach or movement. Locations that operate unacceptably (LOS E or LOS F) are presented in bold type.

Table 6 – Future Intersection Operations

Intersection / Approach	A.M. Peak Hour		P.M. Peak Hour	
	LOS	Delay (s/veh)	LOS	Delay (s/veh)
1. US 278 at Isley Stamper Road (side street stop)	***F***	****NA***	***F***	****NA***
northbound approach	***F***	****NA***	***F***	****NA***
southbound approach	***F***	****NA***	***F***	****NA***
eastbound left turn	B	12.2	D	32.8
westbound left turn	D	26.8	C	24.4
2. US 278 at Elliott Road / Powder Springs Dallas Road (signal)	C	21.1	C	24.0
northbound approach	D	43.6	D	46.0
southbound approach	C	33.9	D	43.1
eastbound approach	C	22.9	C	24.4
westbound approach	A	8.9	C	20.7
3. Rosedale Drive at Isley Stamper Road (side street stop)	A	4.3	A	6.7
southbound approach	A	9.7	B	13.4
eastbound left turn	A	7.5	A	7.9
4. Isley Stamper Road at Project Access (side street stop)	A	3.5	A	2.6
southbound left turn (entering project)	A	7.4	A	7.5
westbound approach (exiting project)	A	9.5	B	10.1
5. US 278 at Project RIRO Access (side street stop)	A	0.6	A	0.2
northbound right turn (exiting project)	D	35.4	C	17.6

*NA – Limits of analysis methodology is exceeded, delay results not realistic.

The northbound and southbound side street approaches of Isley Stamper Road and the Silver Comet DRI access at US 278 will continue to fail in the future. Mitigation would require signalization or alternative change in design to an RCUT or RIRO. The Georgia DOT has been implementing RCUTs at unsignalized median breaks along this section of US 278 and this intersection will be a logical candidate for this change. This change is appropriate whether or not the Silver Trace development is built and is therefore considered a system improvement.

All other locations will operate acceptably in the future condition and no other mitigation is identified as a consequence of the proposed mixed-use development.

Each project access should be constructed with one inbound lane and one exiting lane. Each exiting approach should be controlled by side street stop sign and accompanying stop bar.

It is recommended that the project civil/site engineer comply with all applicable design standards including sight distances, turn lane storage and taper lengths, turn radii, driveway widths, islands, angles with the adjacent roadways, and grades.

Conclusions and Recommendations

This study assesses the traffic impact of a proposed multi-use development in Powder Springs. The site is located along the south side of US 278, the east side of Isley Stamper Road, and the north side of the Silver Comet Trail. The project will consist of approximately 325 apartment units and approximately 7,000 square feet of low-intensity retail uses such as a coffee shop or a bicycle shop, which are appropriate in the context of the project's proximity to the Silver Comet Trail. The project will be served by one full-movement access on Isley Stamper Road and a right-in/right-out (RIRO) access along median-divided US 278. The following are the findings and recommendations of this study:

1. The existing analysis reveals acceptable traffic operations at most locations. The northbound side street stop sign controlled approach of Isley Stamper Road at US 278 fails in the existing a.m. peak. No mitigation is identified for the existing condition.

2. Traffic volume growth in this area has been a mix of positive and negative. An annual growth rate of 2.0%, applied for five years from 2025, for a total of 10.4% growth, was used in developing no-build and future volume projections. The no-build and future volumes also include the trips from the proposed nearby Silver Comet mixed-use DRI. In conjunction with that development, a fourth, southbound approach will be added at the median break on US 278 at Isley Stamper Road.

3. The no-build analysis shows slight deterioration in operations due to anticipated growth in this area. The intersection of US 278 at Isley Stamper Road / Silver Comet DRI access will be a logical candidate for a change in control to a signal, RCUT, or RIRO by the no-build condition. This change should be considered by the Georgia DOT whether or not the Silver Trace project is developed, and is therefore considered a system improvement.

4. The proposed multi-use development will generate 147 new a.m. peak hour trips, 163 new p.m. peak hour trips, and 1,872 new weekday trips.

5. The future analysis with the addition of the proposed development's trips reveals additional modest deterioration in operations at the study intersections. The same mitigation identified for the no-build condition continues to be applicable for the future condition.

6. An eastbound right turn lane (deceleration lane) should be added on US 278 at the project RIRO access.

7. Due to the low volumes, no turn lanes are considered necessary on Isley Stamper at the project access.

8. Each project access should be constructed with one inbound lane and one exiting lane. Each exiting approach should be controlled by side street stop sign and accompanying stop bar.

9. It is recommended that the project civil/site engineer comply with all applicable design standards including sight distances, turn lane storage and taper lengths, turn radii, driveway widths, islands, angles with the adjacent roadways, and grades.

Appendix A

Traffic Count Data

Silver Trace Multi-Use Development
Traffic Impact Study
City of Powder Springs, Georgia

March 2025

Intersection: 1. US 278 at Isley Stamper Road / Silver Comet DRI Access

Weekday A.M. Peak Hour	Northbound Isley Stamper Road				Southbound Silver Comet DRI Access				Eastbound US 278				Westbound US 278			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Counted Volumes (Tuesday, April 30, 2024 7:00-8:00)	**3**		**50**	**53**					**2**	**1885**	**5**	**1892**	**20**	**791**		**811**
Growth to 2025	2.0%		2.0%						2.0%	2.0%	2.0%		2.0%	2.0%		
2025 Existing Volumes	**3**		**51**	**54**					**2**	**1923**	**5**	**1930**	**20**	**807**		**827**
Annual Background Growth to 2030	10.4%		10.4%						10.4%	10.4%	10.4%		10.4%	10.4%		
Silver Comet DRI Total Trips	0	2	0	2	51	11	10	72	67	44	18	129	0	70	6	76
2030 No-Build Volumes	**3**	**2**	**56**	**62**	**51**	**11**	**10**	**72**	**69**	**2167**	**24**	**2260**	**23**	**961**	**6**	**989**
Silver Trace Residential Trips	26	0	0	26	0	0	0	0	0	6	2	8	15	0	0	15
Silver Trace Retail New Trips	2	0	0	2	0	1	0	1	0	2	1	3	3	0	0	3
Silver Trace Retail Pass-by Trips	1	0	0	1	0	0	0	0	0	-1	1	0	1	-1	0	0
Silver Trace Total Trips	**29**	**0**	**0**	**29**	**0**	**1**	**0**	**1**	**0**	**7**	**4**	**11**	**19**	**-1**	**0**	**18**
2030 Build Volumes	**32**	**2**	**56**	**91**	**51**	**12**	**10**	**73**	**69**	**2174**	**28**	**2271**	**42**	**960**	**6**	**1007**

Weekday P.M. Peak Hour	Northbound Isley Stamper Road				Southbound Silver Comet DRI Access				Eastbound US 278				Westbound US 278			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Counted Volumes (Tuesday, April 30, 2024 4:00-5:00)	**0**		**26**	**26**					**4**	**1245**	**14**	**1263**	**153**	**1754**		**1907**
Growth to 2025	2.0%		2.0%						2.0%	2.0%	2.0%		2.0%	2.0%		
2025 Existing Volumes	**0**		**27**	**27**					**4**	**1270**	**14**	**1288**	**156**	**1789**		**1945**
Annual Background Growth to 2030	10.4%		10.4%						10.4%	10.4%	10.4%		10.4%	10.4%		
Silver Comet DRI Total Trips	0	7	0	7	33	6	7	46	97	67	17	181	0	156	16	172
2030 No-Build Volumes	**0**	**7**	**29**	**36**	**33**	**6**	**7**	**46**	**102**	**1469**	**33**	**1603**	**172**	**2131**	**16**	**2319**
Silver Trace Residential Trips	13	0	0	13	0	0	0	0	0	16	4	20	39	0	0	39
Silver Trace Retail New Trips	5	1	0	6	0	1	0	1	0	3	2	5	7	0	0	7
Silver Trace Retail Pass-by Trips	7	0	0	7	0	0	0	0	0	-2	2	0	7	-7	0	0
Silver Trace Total Trips	**25**	**1**	**0**	**26**	**0**	**1**	**0**	**1**	**0**	**17**	**8**	**25**	**53**	**-7**	**0**	**46**
2030 Build Volumes	**25**	**8**	**29**	**62**	**33**	**7**	**7**	**47**	**102**	**1486**	**41**	**1628**	**225**	**2124**	**16**	**2365**

Silver Trace Multi-Use Development
Traffic Impact Study
City of Powder Springs, Georgia

March 2025

Intersection: 2. US 278 at Powder Springs Dallas Road / Elliott Road

Weekday A.M. Peak Hour	Northbound Powder Springs Dallas Road				Southbound Elliott Road				Eastbound US 278				Westbound US 278			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Counted Volumes (Tuesday, April 30, 2024 7:15-8:15)	**85**	**47**	**28**	**160**	**20**	**33**	**21**	**74**	**43**	**1616**	**169**	**1828**	**26**	**746**	**3**	**775**
Growth to 2025	2.0%	2.0%	2.0%		2.0%	2.0%	2.0%		2.0%	2.0%	2.0%		2.0%	2.0%	2.0%	
2025 Existing Volumes	**87**	**48**	**29**	**163**	**20**	**34**	**21**	**75**	**44**	**1648**	**172**	**1865**	**27**	**761**	**3**	**791**
Annual Background Growth to 2030	10.4%	10.4%	10.4%		10.4%	10.4%	10.4%		10.4%	10.4%	10.4%		10.4%	10.4%	10.4%	
Silver Comet DRI Total Trips	8	0	0	8	0	0	29	29	45	73	8	126	0	37	0	37
2030 No-Build Volumes	**104**	**53**	**32**	**188**	**23**	**37**	**53**	**112**	**93**	**1893**	**198**	**2184**	**29**	**877**	**3**	**910**
Silver Trace Residential Trips	0	0	0	0	0	0	5	5	15	35	0	50	0	10	0	10
Silver Trace Retail New Trips	0	0	0	0	0	0	2	2	1	1	0	2	0	2	0	2
Silver Trace Retail Pass-by Trips	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Silver Trace Total Trips	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**7**	**16**	**36**	**0**	**52**	**0**	**12**	**0**	**12**
2030 Build Volumes	**104**	**53**	**32**	**188**	**23**	**37**	**60**	**119**	**109**	**1929**	**198**	**2236**	**29**	**889**	**3**	**922**

Weekday P.M. Peak Hour	Northbound Powder Springs Dallas Road				Southbound Elliott Road				Eastbound US 278				Westbound US 278			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Counted Volumes (Tuesday, April 30, 2024 4:00-5:00)	**70**	**27**	**11**	**108**	**10**	**32**	**35**	**77**	**45**	**1151**	**119**	**1315**	**27**	**1802**	**5**	**1834**
Growth to 2025	2.0%	2.0%	2.0%		2.0%	2.0%	2.0%		2.0%	2.0%	2.0%		2.0%	2.0%	2.0%	
2025 Existing Volumes	**71**	**28**	**11**	**110**	**10**	**33**	**36**	**79**	**46**	**1174**	**121**	**1341**	**28**	**1838**	**5**	**1871**
Annual Background Growth to 2030	10.4%	10.4%	10.4%		10.4%	10.4%	10.4%		10.4%	10.4%	10.4%		10.4%	10.4%	10.4%	
Silver Comet DRI Total Trips	17	0	0	17	0	0	63	63	59	69	10	138	0	86	0	86
2030 No-Build Volumes	**96**	**30**	**12**	**139**	**11**	**36**	**102**	**150**	**110**	**1365**	**144**	**1619**	**30**	**2115**	**6**	**2151**
Silver Trace Residential Trips	0	0	0	0	0	0	12	12	7	17	0	24	0	27	0	27
Silver Trace Retail New Trips	0	0	0	0	0	0	4	4	4	3	0	7	0	3	0	3
Silver Trace Retail Pass-by Trips	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Silver Trace Total Trips	**0**	**0**	**0**	**0**	**0**	**0**	**16**	**16**	**11**	**20**	**0**	**31**	**0**	**30**	**0**	**30**
2030 Build Volumes	**96**	**30**	**12**	**139**	**11**	**36**	**118**	**166**	**121**	**1385**	**144**	**1650**	**30**	**2145**	**6**	**2181**

Silver Trace Multi-Use Development
Traffic Impact Study
City of Powder Springs, Georgia

March 2025

Intersection: 3. Rosedale Drive at Isley Stamper Road

Weekday A.M. Peak Hour		**Southbound Isley Stamper Road**			**Eastbound Rosedale Drive**			**Westbound Rosedale Drive**		
		L	**R**	**Tot**	**L**	**T**	**Tot**	**T**	**R**	**Tot**
Counted Volumes (Tuesday, April 30, 2024 7:15-8:15)		**1**	**28**	**29**	**50**	**101**	**151**	**56**	**3**	**59**
Growth to 2025		2.0%	2.0%		2.0%	2.0%		2.0%	2.0%	
2025 Existing Volumes		**1**	**29**	**30**	**51**	**103**	**154**	**57**	**3**	**60**
Annual Background Growth to 2030		10.4%	10.4%		10.4%	10.4%		10.4%	10.4%	
Silver Comet DRI Total Trips		6	23	29	2	2	4	3	0	3
2030 No-Build Volumes		**7**	**55**	**62**	**58**	**116**	**174**	**66**	**3**	**69**
Silver Trace Residential Trips		7	18	25	5	0	5	0	2	2
Silver Trace Retail New Trips		1	1	2	2	0	2	0	1	1
Silver Trace Retail Pass-by Trips		0	0	0	0	0	0	0	0	0
Silver Trace Total Trips		**8**	**19**	**27**	**7**	**0**	**7**	**0**	**3**	**3**
2030 Build Volumes		**15**	**74**	**89**	**65**	**116**	**181**	**66**	**6**	**72**

Weekday P.M. Peak Hour		**Southbound Isley Stamper Road**			**Eastbound Rosedale Drive**			**Westbound Rosedale Drive**		
		L	**R**	**Tot**	**L**	**T**	**Tot**	**T**	**R**	**Tot**
Counted Volumes (Tuesday, April 30, 2024 5:00-6:00)		**7**	**231**	**238**	**34**	**75**	**109**	**181**	**3**	**184**
Growth to 2025		2.0%	2.0%		2.0%	2.0%		2.0%	2.0%	
2025 Existing Volumes		**7**	**236**	**243**	**35**	**77**	**111**	**185**	**3**	**188**
Annual Background Growth to 2030		10.4%	10.4%		10.4%	10.4%		10.4%	10.4%	
Silver Comet DRI Total Trips		5	18	23	7	3	10	5	0	5
2030 No-Build Volumes		**13**	**278**	**291**	**45**	**87**	**133**	**209**	**3**	**212**
Silver Trace Residential Trips		3	9	12	14	0	14	0	5	5
Silver Trace Retail New Trips		2	3	5	3	0	3	0	2	2
Silver Trace Retail Pass-by Trips		0	0	0	0	0	0	0	0	0
Silver Trace Total Trips		**5**	**12**	**17**	**17**	**0**	**17**	**0**	**7**	**7**
2030 Build Volumes		**18**	**290**	**308**	**62**	**87**	**150**	**209**	**10**	**219**

Silver Trace Multi-Use Development
Traffic Impact Study
City of Powder Springs, Georgia

March 2025

Intersection: 4. Isley Stamper Road at Project Access

Weekday A.M. Peak Hour	**Northbound Isley Stamper Road**			**Southbound Isley Stamper Road**				**Westbound Project Access**		
	T	**R**	**Tot**	**L**	**T**	**Tot**		**L**	**R**	**Tot**
Counted Volumes (Tuesday, April 30, 2024 7:00-8:00)	**53**		**53**		**25**	**25**				
Growth to 2025	2.0%				2.0%					
2025 Existing Volumes	**54**		**54**		**26**	**26**				
Annual Background Growth to 2030	10.4%				10.4%					
Silver Comet DRI Total Trips	2		2		29	72				
2030 No-Build Volumes	**62**		**62**		**57**	**57**				
Silver Trace Residential Trips	0	7	7	17	0	17		25	26	51
Silver Trace Retail New Trips	0	3	3	5	0	5		2	2	4
Silver Trace Retail Pass-by Trips	0	0	0	4	0	4		0	1	1
Silver Trace Total Trips	**0**	**10**	**10**	**26**	**0**	**26**		**27**	**29**	**56**
2030 Build Volumes	**62**	**10**	**72**	**26**	**57**	**83**		**27**	**29**	**56**

Weekday P.M. Peak Hour	**Northbound Isley Stamper Road**			**Southbound Isley Stamper Road**				**Westbound Project Access**		
	T	**R**	**Tot**	**L**	**T**	**Tot**		**L**	**R**	**Tot**
Counted Volumes (Tuesday, April 30, 2024 4:00-5:00)	**26**		**26**		**167**	**167**				
Growth to 2025	2.0%				2.0%					
2025 Existing Volumes	**27**		**27**		**170**	**170**				
Annual Background Growth to 2030	10.4%				10.4%					
Silver Comet DRI Total Trips	7		7		23	46				
2030 No-Build Volumes	**36**		**36**		**211**	**211**				
Silver Trace Residential Trips	0	19	19	43	0	43		12	13	25
Silver Trace Retail New Trips	0	5	5	10	0	10		5	6	11
Silver Trace Retail Pass-by Trips	0	0	0	12	0	12		0	7	7
Silver Trace Total Trips	**0**	**24**	**24**	**65**	**0**	**65**		**17**	**26**	**43**
2030 Build Volumes	**36**	**24**	**60**	**65**	**211**	**276**		**17**	**26**	**43**

Silver Trace Multi-Use Development
Traffic Impact Study
City of Powder Springs, Georgia

March 2025

Intersection: 5. US 278 at Project Right-In/Right-Out (RIRO) Access

Weekday A.M. Peak Hour	**Northbound Project RIRO Access**			**Eastbound US 278**			**Westbound US 278**	
	R	**Tot**		**T**	**R**	**Tot**	**T**	**Tot**
Counted Volumes (Tuesday, April 30, 2024 7:00-8:00)				**1935**		**1935**	**811**	**811**
Growth to 2025				2.0%			2.0%	
2025 Existing Volumes				**1974**		**1974**	**827**	**827**
Annual Background Growth to 2030				10.4%			10.4%	
Silver Comet DRI Total Trips				95		129	76	76
2030 No-Build Volumes				**2274**		**2274**	**989**	**989**
Silver Trace Residential Trips	50	50		0	6	6	15	15
Silver Trace Retail New Trips	2	2		0	2	2	3	3
Silver Trace Retail Pass-by Trips	2	2		-2	2	0	0	0
Silver Trace Total Trips	**54**	**54**		**-2**	**10**	**8**	**18**	**18**
2030 Build Volumes	**54**	**54**		**2272**	**10**	**2282**	**1007**	**1007**

Weekday P.M. Peak Hour	**Northbound Project RIRO Access**			**Eastbound US 278**			**Westbound US 278**	
	R	**Tot**		**T**	**R**	**Tot**	**T**	**Tot**
Counted Volumes (Tuesday, April 30, 2024 4:00-5:00)				**1271**		**1271**	**1907**	**1907**
Growth to 2025				2.0%			2.0%	
2025 Existing Volumes				**1296**		**1296**	**1945**	**1945**
Annual Background Growth to 2030				10.4%			10.4%	
Silver Comet DRI Total Trips				100		181	172	172
2030 No-Build Volumes				**1531**		**1531**	**2319**	**2319**
Silver Trace Residential Trips	24	24		0	16	16	39	39
Silver Trace Retail New Trips	7	7		0	3	3	7	7
Silver Trace Retail Pass-by Trips	5	5		-3	3	0	0	0
Silver Trace Total Trips	**36**	**36**		**-3**	**22**	**19**	**46**	**46**
2030 Build Volumes	**36**	**36**		**1528**	**22**	**1550**	**2365**	**2365**

Reliable Traffic Data Services

Tel: (770) 578-8158 I Fax: (770) 578-8159

TMC Data
US278/SR6 @ Isley Stamper Rd
Hiram, GA
7-9 AM | 4-6 PM

File Name : 48860002
Site Code : 48860002
Start Date : 4/30/2024
Page No : 1

Groups Printed- Cars, Buses and Trucks

	Isley Stamper Rd Northbound					Private Drwy Southbound					US278 / SR6 Eastbound					US278 / SR6 Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	1	0	11	0	12	0	0	0	0	0	0	498	0	0	498	4	154	0	0	158	668
07:15 AM	0	0	17	0	17	0	0	0	0	0	0	476	4	0	480	5	168	0	0	173	670
07:30 AM	1	0	10	0	11	0	0	0	0	0	0	448	1	1	450	5	217	0	0	222	683
07:45 AM	1	0	12	0	13	0	0	0	0	0	0	463	0	1	464	6	252	0	0	258	735
Total	3	0	50	0	53	0	0	0	0	0	0	1885	5	2	1892	20	791	0	0	811	2756
08:00 AM	2	0	13	0	15	0	0	0	0	0	0	403	3	1	407	4	242	0	0	246	668
08:15 AM	0	0	7	0	7	0	0	0	0	0	0	367	1	1	369	2	234	0	0	236	612
08:30 AM	0	0	4	0	4	0	0	0	0	0	0	348	0	0	348	6	225	0	0	231	583
08:45 AM	0	0	7	0	7	0	0	0	0	0	0	344	0	0	344	6	221	0	0	227	578
Total	2	0	31	0	33	0	0	0	0	0	0	1462	4	2	1468	18	922	0	0	940	2441
*** BREAK ***																					
04:00 PM	0	0	7	0	7	0	0	0	0	0	0	317	5	0	322	32	428	0	0	460	789
04:15 PM	0	0	6	0	6	0	0	0	0	0	0	297	5	0	302	38	439	0	0	477	785
04:30 PM	0	0	6	0	6	0	0	0	0	0	0	326	3	0	329	43	465	0	0	508	843
04:45 PM	0	0	7	0	7	0	0	0	0	0	0	305	1	4	310	40	422	0	0	462	779
Total	0	0	26	0	26	0	0	0	0	0	0	1245	14	4	1263	153	1754	0	0	1907	3196
05:00 PM	0	0	13	0	13	0	0	0	0	0	0	308	6	0	314	49	406	0	0	455	782
05:15 PM	1	0	8	0	9	0	0	0	0	0	0	312	5	0	317	57	394	0	0	451	777
05:30 PM	0	0	6	0	6	0	0	0	0	0	0	296	4	0	300	58	377	0	0	435	741
05:45 PM	0	0	10	0	10	0	0	0	0	0	0	273	2	1	276	52	365	0	0	417	703
Total	1	0	37	0	38	0	0	0	0	0	0	1189	17	1	1207	216	1542	0	0	1758	3003
Grand Total	6	0	144	0	150	0	0	0	0	0	0	5781	40	9	5830	407	5009	0	0	5416	11396
Apprch %	4	0	96	0		0	0	0	0		0	99.2	0.7	0.2		7.5	92.5	0	0		
Total %	0.1	0	1.3	0	1.3	0	0	0	0	0	0	50.7	0.4	0.1	51.2	3.6	44	0	0	47.5	

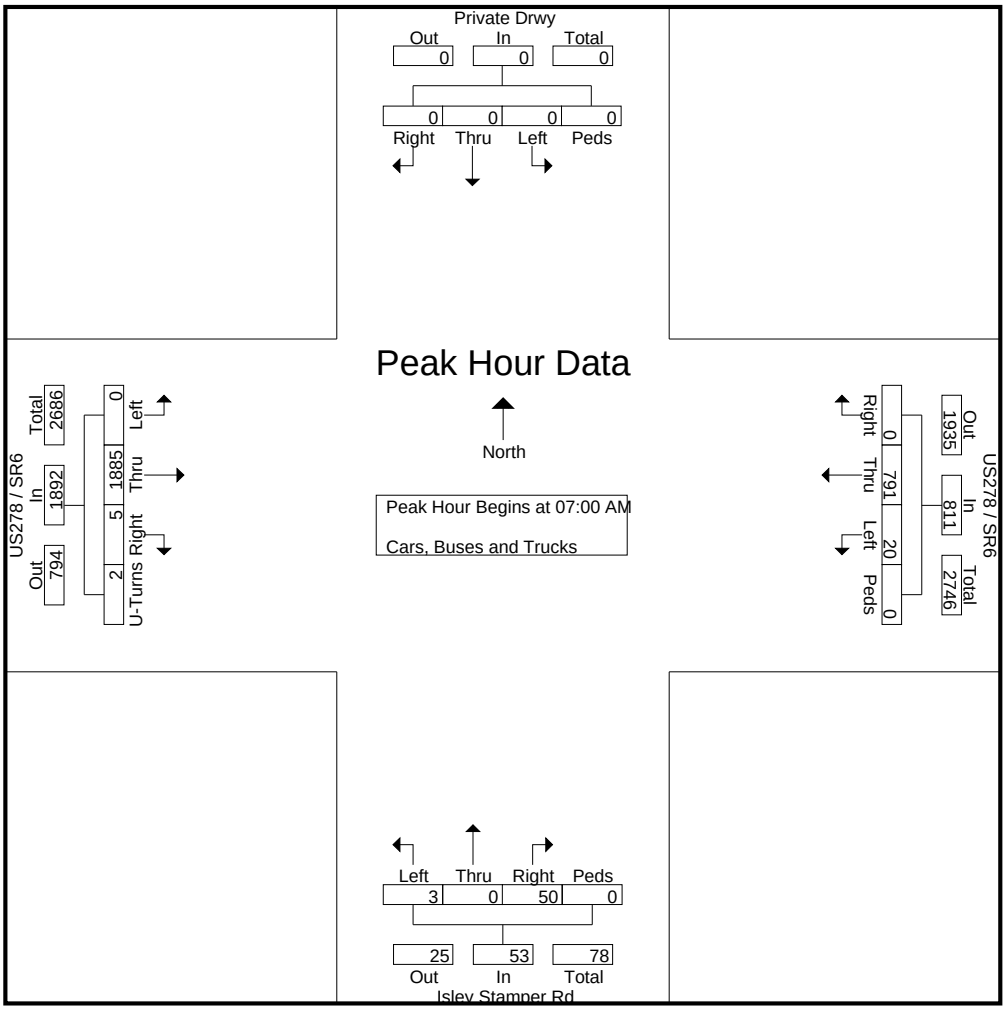
Reliable Traffic Data Services

Tel: (770) 578-8158 I Fax: (770) 578-8159

TMC Data
US278/SR6 @ Isley Stamper Rd
Hiram, GA
7-9 AM | 4-6 PM

File Name : 48860002
Site Code : 48860002
Start Date : 4/30/2024
Page No : 2

	Isley Stamper Rd Northbound					Private Drwy Southbound					US278 / SR6 Eastbound					US278 / SR6 Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	**1**	0	11	0	12	0	0	0	0	0	0	**498**	0	0	**498**	4	154	0	0	158	668
07:15 AM	0	0	**17**	0	**17**	0	0	0	0	0	0	476	**4**	0	480	5	168	0	0	173	670
07:30 AM	1	0	10	0	11	0	0	0	0	0	0	448	1	**1**	450	5	217	0	0	222	683
07:45 AM	1	0	12	0	13	0	0	0	0	0	0	463	0	1	464	**6**	**252**	0	0	**258**	**735**
Total Volume	3	0	50	0	53	0	0	0	0	0	0	1885	5	2	1892	20	791	0	0	811	2756
% App. Total	5.7	0	94.3	0		0	0	0	0		0	99.6	0.3	0.1		2.5	97.5	0	0		
PHF	.750	.000	.735	.000	.779	.000	.000	.000	.000	.000	.000	.946	.313	.500	.950	.833	.785	.000	.000	.786	.937



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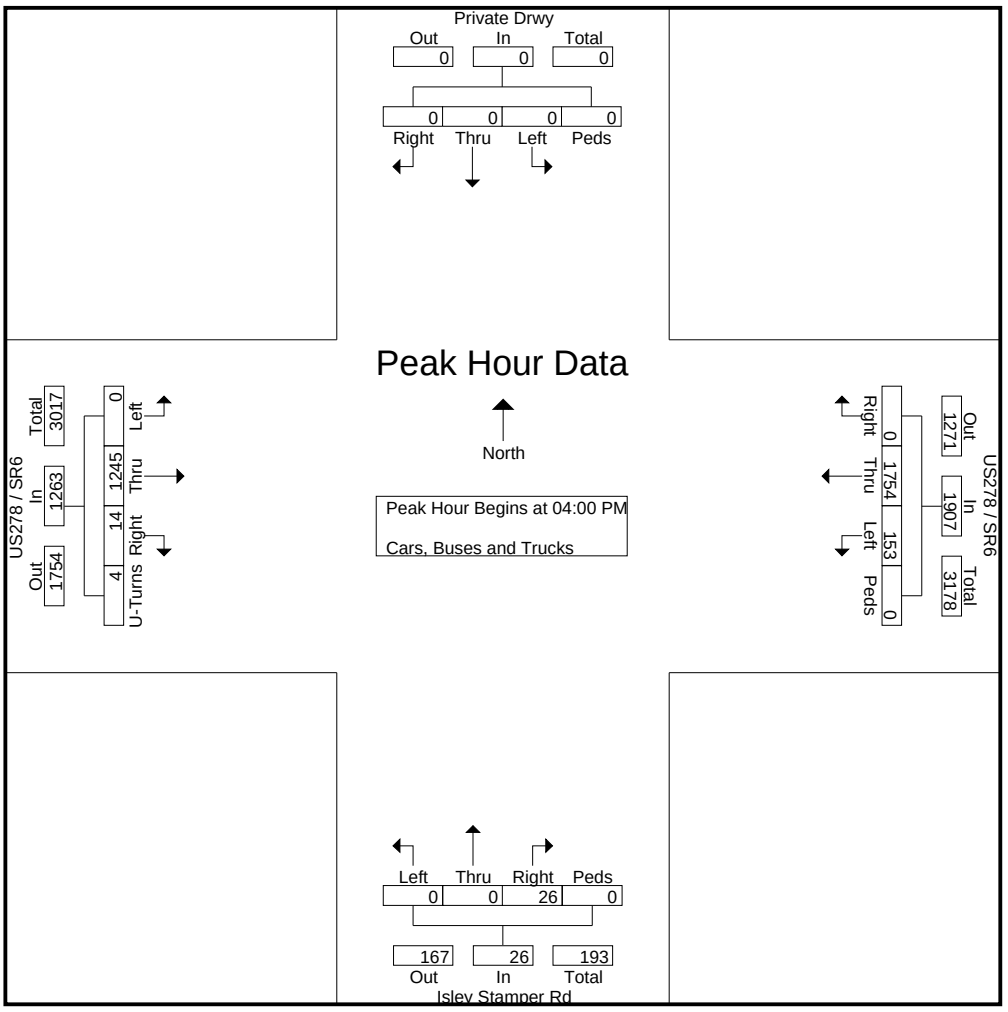
TMC Data
US278/SR6 @ Isley Stamper Rd
Hiram, GA
7-9 AM | 4-6 PM

File Name : 48860002
Site Code : 48860002
Start Date : 4/30/2024
Page No : 3

	Isley Stamper Rd Northbound					Private Drwy Southbound					US278 / SR6 Eastbound					US278 / SR6 Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	0	**7**	0	**7**	0	0	0	0	0	0	317	**5**	0	322	32	428	0	0	460	789
04:15 PM	0	0	6	0	6	0	0	0	0	0	0	297	5	0	302	38	439	0	0	477	785
04:30 PM	0	0	6	0	6	0	0	0	0	0	0	**326**	3	0	**329**	**43**	**465**	0	0	**508**	**843**
04:45 PM	0	0	7	0	7	0	0	0	0	0	0	305	1	**4**	310	40	422	0	0	462	779
Total Volume	0	0	26	0	26	0	0	0	0	0	0	1245	14	4	1263	153	1754	0	0	1907	3196
% App. Total	0	0	100	0		0	0	0	0		0	98.6	1.1	0.3		8	92	0	0		
PHF	.000	.000	.929	.000	.929	.000	.000	.000	.000	.000	.000	.955	.700	.250	.960	.890	.943	.000	.000	.938	.948



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TMC Data
US278/SR6 @ Powder Springs Dallas Rd/
Elliott Rd, Hiram, GA
7-9 AM | 4-6 PM

File Name : 48860004
Site Code : 48860004
Start Date : 4/30/2024
Page No : 1

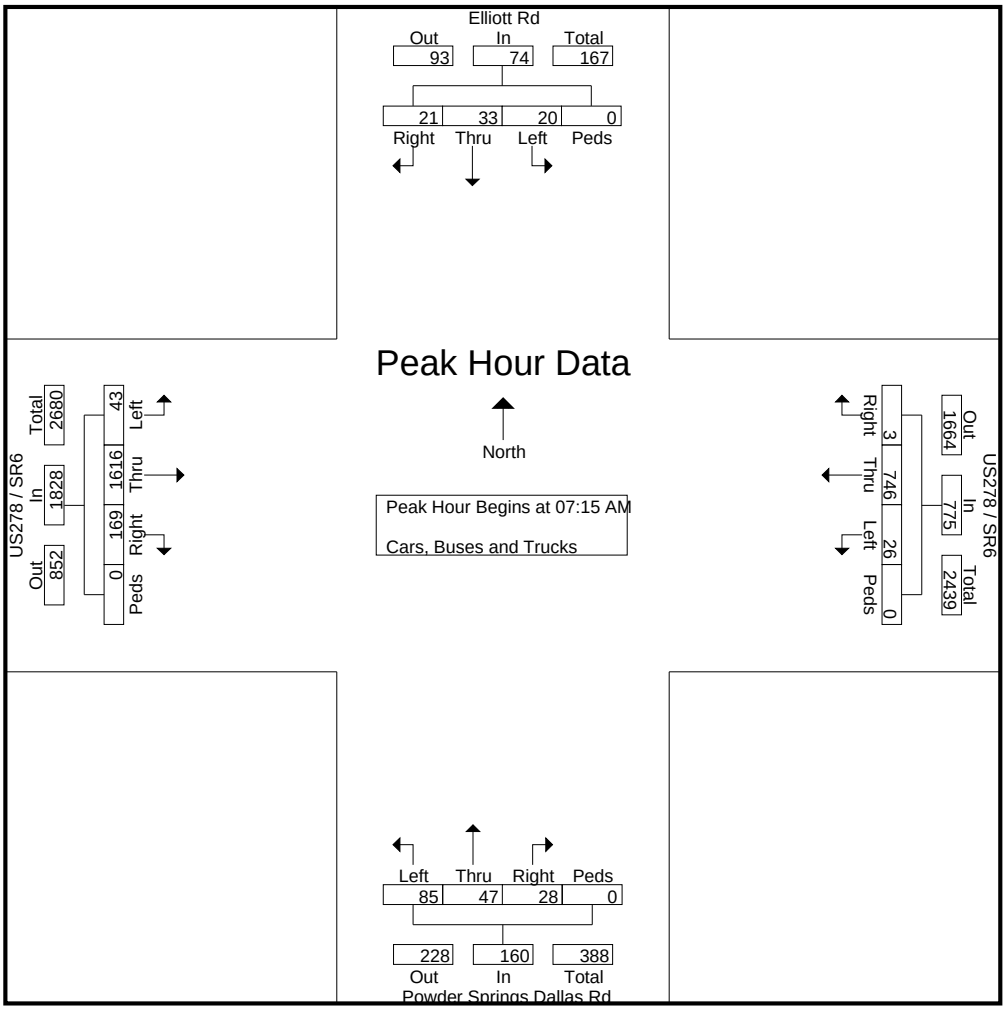
Groups Printed- Cars, Buses and Trucks

	Powder Springs Dallas Rd Northbound					Elliott Rd Southbound					US278 / SR6 Eastbound					US278 / SR6 Westbound					
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
07:00 AM	9	5	1	0	15	5	4	3	0	12	11	432	32	0	475	1	132	1	0	134	636
07:15 AM	14	9	2	0	25	5	5	5	0	15	8	465	44	0	517	1	176	1	0	178	735
07:30 AM	18	11	1	0	30	7	7	5	0	19	10	412	45	0	467	4	179	1	0	184	700
07:45 AM	25	12	11	0	48	3	14	5	0	22	11	375	42	0	428	11	193	1	0	205	703
Total	66	37	15	0	118	20	30	18	0	68	40	1684	163	0	1887	17	680	4	0	701	2774
08:00 AM	28	15	14	0	57	5	7	6	0	18	14	364	38	0	416	10	198	0	0	208	699
08:15 AM	14	0	7	0	21	1	6	2	0	9	7	378	22	0	407	3	213	0	0	216	653
08:30 AM	16	6	5	0	27	5	4	6	0	15	6	330	29	0	365	3	219	1	0	223	630
08:45 AM	17	3	3	0	23	2	4	6	0	12	8	345	28	0	381	2	210	1	0	213	629
Total	75	24	29	0	128	13	21	20	0	54	35	1417	117	0	1569	18	840	2	0	860	2611
*** BREAK ***																					
04:00 PM	18	8	3	0	29	4	11	7	0	22	10	296	30	0	336	6	454	2	0	462	849
04:15 PM	15	5	5	0	25	3	3	7	0	13	7	289	31	0	327	8	446	2	0	456	821
04:30 PM	15	9	1	0	25	1	10	10	0	21	9	281	25	0	315	6	491	0	0	497	858
04:45 PM	22	5	2	0	29	2	8	11	0	21	19	285	33	0	337	7	411	1	0	419	806
Total	70	27	11	0	108	10	32	35	0	77	45	1151	119	0	1315	27	1802	5	0	1834	3334
05:00 PM	20	5	1	0	26	2	11	11	0	24	12	288	27	0	327	8	429	0	0	437	814
05:15 PM	17	6	3	0	26	1	7	9	0	17	17	263	24	0	304	12	407	2	0	421	768
05:30 PM	20	6	4	0	30	2	8	7	0	17	16	224	31	0	271	9	372	2	0	383	701
05:45 PM	23	5	3	0	31	2	5	17	0	24	23	213	35	0	271	6	346	1	0	353	679
Total	80	22	11	0	113	7	31	44	0	82	68	988	117	0	1173	35	1554	5	0	1594	2962
Grand Total	291	110	66	0	467	50	114	117	0	281	188	5240	516	0	5944	97	4876	16	0	4989	11681
Apprch %	62.3	23.6	14.1	0		17.8	40.6	41.6	0		3.2	88.2	8.7	0		1.9	97.7	0.3	0		
Total %	2.5	0.9	0.6	0	4	0.4	1	1	0	2.4	1.6	44.9	4.4	0	50.9	0.8	41.7	0.1	0	42.7	

TMC Data
US278/SR6 @ Powder Springs Dallas Rd/
Elliott Rd, Hiram, GA
7-9 AM | 4-6 PM

File Name : 48860004
Site Code : 48860004
Start Date : 4/30/2024
Page No : 2

	Powder Springs Dallas Rd Northbound					Elliott Rd Southbound					US278 / SR6 Eastbound					US278 / SR6 Westbound					
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 Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	14	9	2	0	25	5	5	5	0	15	8	**465**	44	0	**517**	1	176	**1**	0	178	**735**
07:30 AM	18	11	1	0	30	**7**	7	5	0	19	10	412	**45**	0	467	4	179	1	0	184	700
07:45 AM	25	12	11	0	48	3	**14**	5	0	**22**	11	375	42	0	428	**11**	193	1	0	205	703
08:00 AM	**28**	**15**	**14**	0	**57**	5	7	**6**	0	18	**14**	364	38	0	416	10	**198**	0	0	**208**	699
Total Volume	85	47	28	0	160	20	33	21	0	74	43	1616	169	0	1828	26	746	3	0	775	2837
% App. Total	53.1	29.4	17.5	0		27	44.6	28.4	0		2.4	88.4	9.2	0		3.4	96.3	0.4	0		
PHF	.759	.783	.500	.000	.702	.714	.589	.875	.000	.841	.768	.869	.939	.000	.884	.591	.942	.750	.000	.931	.965



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TMC Data
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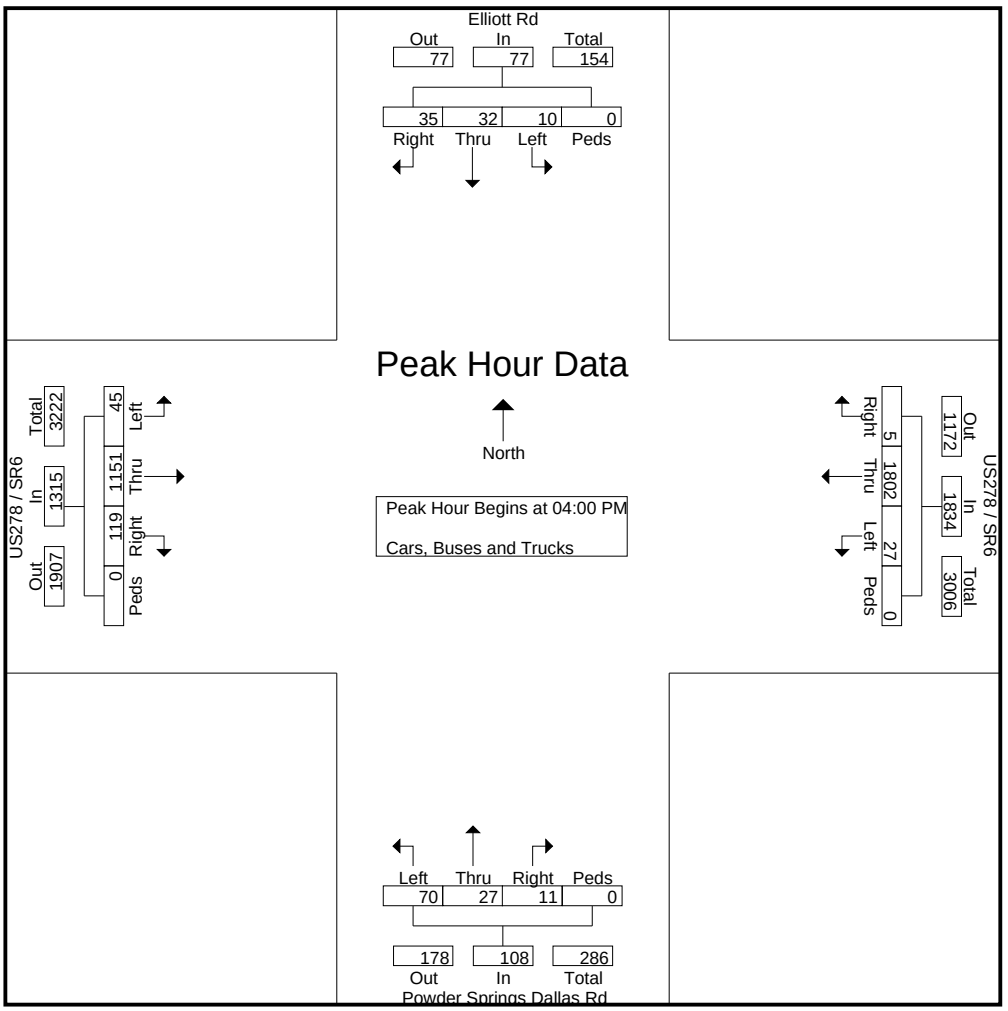
Elliott Rd, Hiram, GA
7-9 AM | 4-6 PM

File Name : 48860004
Site Code : 48860004
Start Date : 4/30/2024
Page No : 3

	Powder Springs Dallas Rd Northbound					Elliott Rd Southbound					US278 / SR6 Eastbound					US278 / SR6 Westbound					
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 Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	18	8	3	0	**29**	**4**	**11**	7	0	**22**	10	**296**	30	0	336	6	454	**2**	0	462	849
04:15 PM	15	5	**5**	0	25	3	3	7	0	13	7	289	31	0	327	**8**	446	2	0	456	821
04:30 PM	15	**9**	1	0	25	1	10	10	0	21	9	281	25	0	315	6	**491**	0	0	**497**	**858**
04:45 PM	**22**	5	2	0	29	2	8	**11**	0	21	**19**	285	**33**	0	**337**	7	411	1	0	419	806
Total Volume	70	27	11	0	108	10	32	35	0	77	45	1151	119	0	1315	27	1802	5	0	1834	3334
% App. Total	64.8	25	10.2	0		13	41.6	45.5	0		3.4	87.5	9	0		1.5	98.3	0.3	0		
PHF	.795	.750	.550	.000	.931	.625	.727	.795	.000	.875	.592	.972	.902	.000	.976	.844	.918	.625	.000	.923	.971



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TMC Data
Rosedale Dr @ Isley Stamper Rd
Hiram, GA
7-9 AM | 4-6 PM

File Name : 48860007
Site Code : 48860007
Start Date : 4/30/2024
Page No : 1

Groups Printed- Cars, Buses and Trucks

	Northbound					Isley Stamper Rd Southbound					Rosedale Dr Eastbound					Rosedale Dr Westbound					
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
07:00 AM	0	0	0	0	0	1	0	9	0	10	14	13	0	0	27	0	7	0	0	7	44
07:15 AM	0	0	0	0	0	0	0	6	0	6	10	29	0	0	39	0	10	0	0	10	55
07:30 AM	0	0	0	0	0	1	0	10	0	11	18	24	0	0	42	0	16	1	0	17	70
07:45 AM	0	0	0	0	0	0	0	7	0	7	7	30	0	0	37	0	14	0	0	14	58
Total	0	0	0	0	0	2	0	32	0	34	49	96	0	0	145	0	47	1	0	48	227
08:00 AM	0	0	0	0	0	0	0	5	0	5	15	18	0	0	33	0	16	2	0	18	56
08:15 AM	0	0	0	0	0	0	0	9	0	9	6	19	0	0	25	0	9	0	0	9	43
08:30 AM	0	0	0	0	0	0	0	4	0	4	4	10	0	0	14	0	12	0	0	12	30
08:45 AM	0	0	0	0	0	0	0	6	0	6	7	8	0	0	15	0	11	0	0	11	32
Total	0	0	0	0	0	0	0	24	0	24	32	55	0	0	87	0	48	2	0	50	161
*** BREAK ***																					
04:00 PM	0	0	0	0	0	2	0	34	0	36	5	13	0	0	18	0	23	3	0	26	80
04:15 PM	0	0	0	0	0	2	0	45	0	47	4	13	0	0	17	0	24	0	0	24	88
04:30 PM	0	0	0	0	0	2	0	47	0	49	6	15	0	0	21	0	34	1	0	35	105
04:45 PM	0	0	0	0	0	0	0	37	0	37	9	18	0	0	27	0	39	0	0	39	103
Total	0	0	0	0	0	6	0	163	0	169	24	59	0	0	83	0	120	4	0	124	376
05:00 PM	0	0	0	0	0	4	0	54	0	58	12	17	0	0	29	0	53	0	0	53	140
05:15 PM	0	0	0	0	0	1	0	67	0	68	7	16	0	0	23	0	47	1	0	48	139
05:30 PM	0	0	0	0	0	1	0	58	0	59	6	20	0	0	26	0	43	0	0	43	128
05:45 PM	0	0	0	0	0	1	0	52	0	53	9	22	0	0	31	0	38	2	0	40	124
Total	0	0	0	0	0	7	0	231	0	238	34	75	0	0	109	0	181	3	0	184	531
Grand Total	0	0	0	0	0	15	0	450	0	465	139	285	0	0	424	0	396	10	0	406	1295
Apprch %	0	0	0	0		3.2	0	96.8	0		32.8	67.2	0	0		0	97.5	2.5	0		
Total %	0	0	0	0	0	1.2	0	34.7	0	35.9	10.7	22	0	0	32.7	0	30.6	0.8	0	31.4	

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TMC Data
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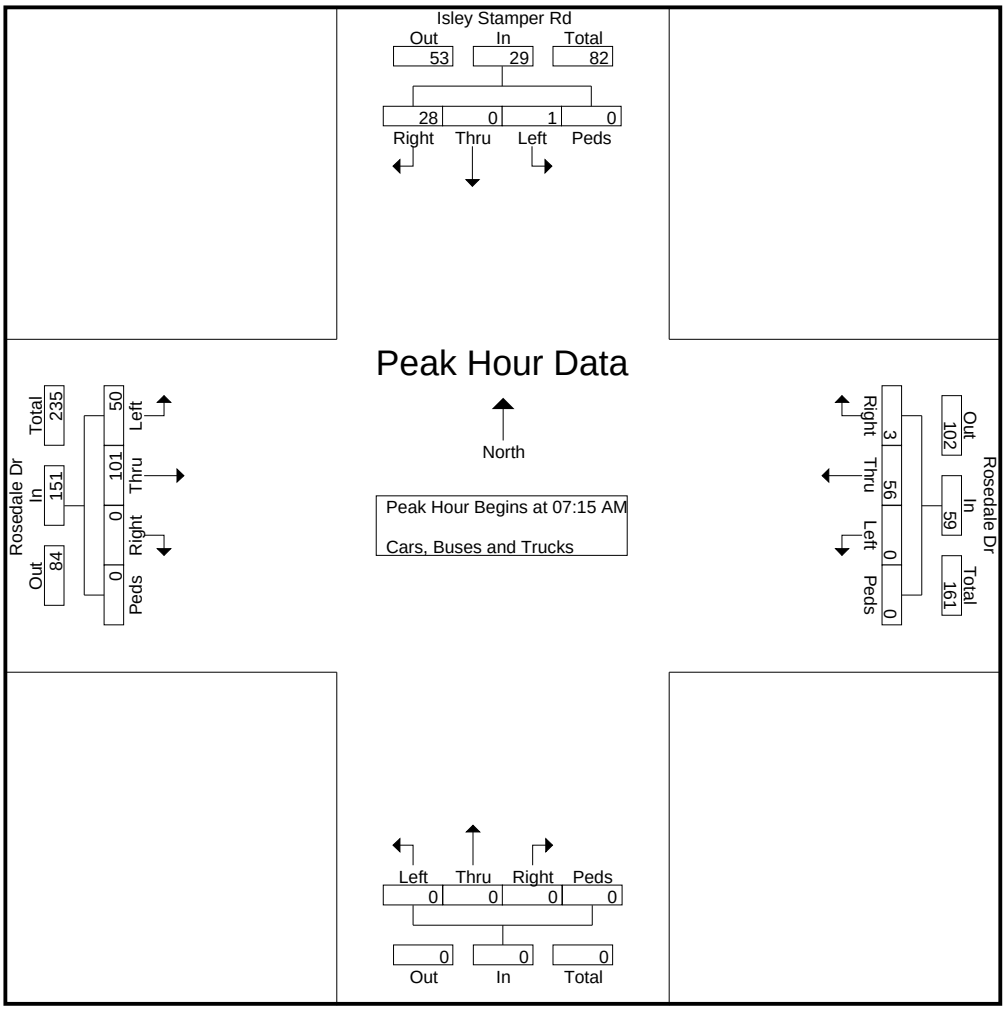
Hiram, GA
7-9 AM | 4-6 PM

File Name : 48860007
Site Code : 48860007
Start Date : 4/30/2024
Page No : 2

	Northbound					Isley Stamper Rd Southbound					Rosedale Dr Eastbound					Rosedale Dr Westbound					
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 Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	0	0	0	0	0	0	6	0	6	10	29	0	0	39	0	10	0	0	10	55
07:30 AM	0	0	0	0	0	**1**	0	**10**	0	**11**	**18**	24	0	0	**42**	0	**16**	1	0	17	**70**
07:45 AM	0	0	0	0	0	0	0	7	0	7	7	**30**	0	0	37	0	14	0	0	14	58
08:00 AM	0	0	0	0	0	0	0	5	0	5	15	18	0	0	33	0	16	**2**	0	**18**	56
Total Volume	0	0	0	0	0	1	0	28	0	29	50	101	0	0	151	0	56	3	0	59	239
% App. Total								96.6			33.1	66.9					94.9				
PHF	.000	.000	.000	.000	.000	.250	.000	.700	.000	.659	.694	.842	.000	.000	.899	.000	.875	.375	.000	.819	.854



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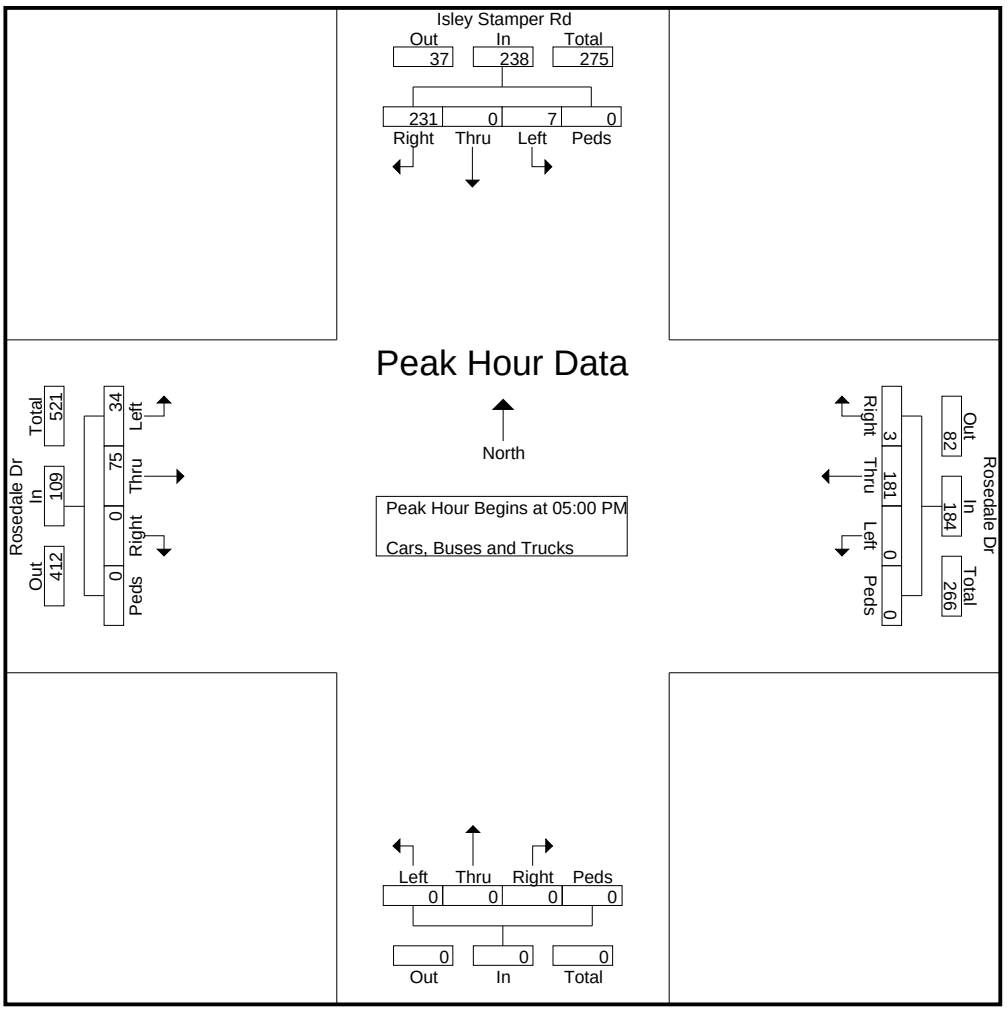
Hiram, GA
7-9 AM | 4-6 PM

File Name : 48860007
Site Code : 48860007
Start Date : 4/30/2024
Page No : 3

	Northbound					Isley Stamper Rd Southbound					Rosedale Dr Eastbound					Rosedale Dr Westbound					
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 Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	0	0	0	0	**4**	0	54	0	58	**12**	17	0	0	29	0	**53**	0	0	**53**	**140**
05:15 PM	0	0	0	0	0	1	0	**67**	0	**68**	7	16	0	0	23	0	47	1	0	48	139
05:30 PM	0	0	0	0	0	1	0	58	0	59	6	20	0	0	26	0	43	0	0	43	128
05:45 PM	0	0	0	0	0	1	0	52	0	53	9	**22**	0	0	**31**	0	38	**2**	0	40	124
Total Volume	0	0	0	0	0	7	0	231	0	238	34	75	0	0	109	0	181	3	0	184	531
% App. Total								97.1			31.2	68.8					98.4				
PHF	.000	.000	.000	.000	.000	.438	.000	.862	.000	.875	.708	.852	.000	.000	.879	.000	.854	.375	.000	.868	.948



Appendix B

Intersection Analysis Methodology

Intersection Analysis Methodology

The methodology used for evaluating traffic operations at intersections is presented in the Transportation Research Board's 2022 *Highway Capacity Manual*, 7th Edition (HCM 7). Synchro 12 software, which emulates the HCM 7 methodology, was used for all analyses. The following is an overview of the methodology employed for the analysis of signalized intersections and roundabouts and stop-sign controlled (unsignalized) intersections. Levels of service (LOS) are assigned letters A through F. LOS A indicates operations with very low control delay while LOS F describes operations with high control delay. LOS F is considered to be unacceptable by most drivers, while LOS E is typically considered to be the limit of acceptable delay.

Signalized Intersections and Roundabouts – Level of service for a signalized intersection and a roundabout is defined in terms of control delay per vehicle. For signalized intersections and roundabouts, a composite intersection level of service is determined. The thresholds for each level of service are higher for signalized intersections and roundabouts than for unsignalized intersections. This is attributable to a variety of factors including expectation and acceptance of higher delays at signals/roundabouts, and the fact that drivers can relax when waiting at a signal as opposed to having to remain attentive as they proceed through the unsignalized intersection. The level of service criteria for signalized intersections and roundabouts are shown in Table A.

Table A – Level of Service Criteria for Signalized Intersections and Roundabouts

Control Delay (s/veh)	LOS
≤ 10	A
> 10 and ≤ 20	B
> 20 and ≤ 35	C
> 35 and ≤ 55	D
> 55 and ≤ 80	E
> 80	F

Source: Highway Capacity Manual 7

Unsignalized Intersections – Level of service for an unsignalized intersection is defined in terms of control delay per vehicle. Control delay is that portion of delay attributable to the control device and includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The delays at unsignalized intersections are based on gap acceptance theory, factoring in availability of gaps, usefulness of the gaps, and the priority of right-of-way given to each traffic stream. The level of service criteria for unsignalized intersections are presented in Table B.

Table B – Level of Service Criteria for Unsignalized Intersections

Control Delay (s/veh)	LOS
0 – 10	A
> 10 and ≤ 15	B
> 15 and ≤ 25	C
> 25 and ≤ 35	D
> 35 and ≤ 50	E
> 50	F

Source: Highway Capacity Manual 7

Appendix C

Existing Intersection Operational Analysis

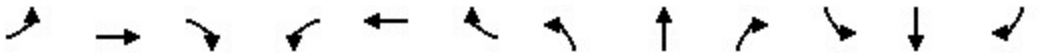
Intersection	
Int Delay, s/veh	1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1925	5	20	807	3	51
Future Vol, veh/h	1925	5	20	807	3	51
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	275	270	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	79	79	78	78
Heavy Vehicles, %	8	2	2	8	2	2
Mvmt Flow	2026	5	25	1022	4	65

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	2032	0	2588	1013
Stage 1	-	-	-	-	2026	-
Stage 2	-	-	-	-	561	-
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	-	-	275	-	21	237
Stage 1	-	-	-	-	88	-
Stage 2	-	-	-	-	535	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	275	-	19	237
Mov Cap-2 Maneuver	-	-	-	-	19	-
Stage 1	-	-	-	-	88	-
Stage 2	-	-	-	-	485	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.47	51.43
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	144	-	-	275	-
HCM Lane V/C Ratio	0.482	-	-	0.092	-
HCM Ctrl Dly (s/v)	51.4	-	-	19.4	-
HCM Lane LOS	F	-	-	C	-
HCM 95th %tile Q(veh)	2.2	-	-	0.3	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	1648	172	27	761	3	87	48	29	20	34	21
Future Volume (veh/h)	44	1648	172	27	761	3	87	48	29	20	34	21
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1752	1856	1841	1752	1870	1856	1870	1841	1870	1870	1870
Adj Flow Rate, veh/h	50	1873	195	29	818	0	124	69	41	24	40	25
Peak Hour Factor	0.88	0.88	0.88	0.93	0.93	0.93	0.70	0.70	0.70	0.84	0.84	0.84
Percent Heavy Veh, %	2	10	3	4	10	2	3	2	4	2	2	2
Cap, veh/h	427	2151	1016	110	2151		255	138	72	137	221	122
Arrive On Green	0.65	0.65	0.65	0.65	0.65	0.00	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	668	3328	1572	198	3328	1585	757	522	272	348	838	463
Grp Volume(v), veh/h	50	1873	195	29	818	0	234	0	0	89	0	0
Grp Sat Flow(s),veh/h/ln	668	1664	1572	198	1664	1585	1551	0	0	1649	0	0
Q Serve(g_s), s	3.8	45.5	5.0	13.9	11.5	0.0	8.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	15.3	45.5	5.0	59.4	11.5	0.0	12.6	0.0	0.0	3.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.53		0.18	0.27		0.28
Lane Grp Cap(c), veh/h	427	2151	1016	110	2151		464	0	0	481	0	0
V/C Ratio(X)	0.12	0.87	0.19	0.26	0.38		0.50	0.00	0.00	0.19	0.00	0.00
Avail Cap(c_a), veh/h	453	2280	1077	118	2280		464	0	0	481	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.9	14.3	7.1	38.3	8.3	0.0	31.5	0.0	0.0	28.5	0.0	0.0
Incr Delay (d2), s/veh	0.1	3.8	0.1	1.3	0.1	0.0	3.9	0.0	0.0	0.8	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	13.6	1.3	0.7	3.2	0.0	5.2	0.0	0.0	1.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	12.0	18.1	7.2	39.6	8.4	0.0	35.4	0.0	0.0	29.4	0.0	0.0
LnGrp LOS	B	B	A	D	A		D			C		
Approach Vol, veh/h		2118			847			234			89	
Approach Delay, s/veh		17.0			9.5			35.4			29.4	
Approach LOS		B			A			D			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		30.9		69.1		30.9		69.1				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		22.5		68.5		22.5		68.5				
Max Q Clear Time (g_c+I1), s		14.6		47.5		5.9		61.4				
Green Ext Time (p_c), s		0.7		14.5		0.3		3.2				

Intersection Summary												
HCM 7th Control Delay, s/veh			16.7									
HCM 7th LOS			B									

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	51	103	57	3	1	29
Future Vol, veh/h	51	103	57	3	1	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	82	82	66	66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	57	114	70	4	2	44

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	73	0	-	0	299	71
Stage 1	-	-	-	-	71	-
Stage 2	-	-	-	-	228	-
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	1527	-	-	-	692	991
Stage 1	-	-	-	-	952	-
Stage 2	-	-	-	-	810	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1527	-	-	-	665	991
Mov Cap-2 Maneuver	-	-	-	-	665	-
Stage 1	-	-	-	-	914	-
Stage 2	-	-	-	-	810	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	2.47	0	8.87
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	596	-	-	-	975
HCM Lane V/C Ratio	0.037	-	-	-	0.047
HCM Ctrl Dly (s/v)	7.4	0	-	-	8.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1274	14	156	1789	0	27
Future Vol, veh/h	1274	14	156	1789	0	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	275	270	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	94	94	93	93
Heavy Vehicles, %	8	2	2	8	2	2
Mvmt Flow	1327	15	166	1903	0	29

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1342	0	2611	664
Stage 1	-	-	-	-	1327	-
Stage 2	-	-	-	-	1284	-
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	-	-	510	-	20	403
Stage 1	-	-	-	-	212	-
Stage 2	-	-	-	-	224	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	510	-	13	403
Mov Cap-2 Maneuver	-	-	-	-	13	-
Stage 1	-	-	-	-	212	-
Stage 2	-	-	-	-	151	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	1.24	14.61
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	403	-	-	510	-
HCM Lane V/C Ratio	0.072	-	-	0.326	-
HCM Ctrl Dly (s/v)	14.6	-	-	15.4	-
HCM Lane LOS	B	-	-	C	-
HCM 95th %tile Q(veh)	0.2	-	-	1.4	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	1174	121	28	1838	5	71	28	11	10	33	36
Future Volume (veh/h)	46	1174	121	28	1838	5	71	28	11	10	33	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1752	1856	1841	1752	1870	1856	1870	1841	1870	1870	1870
Adj Flow Rate, veh/h	47	1198	123	30	1998	0	76	30	12	11	38	41
Peak Hour Factor	0.98	0.98	0.98	0.92	0.92	0.92	0.93	0.93	0.93	0.88	0.88	0.88
Percent Heavy Veh, %	2	10	3	4	10	2	3	2	4	2	2	2
Cap, veh/h	129	2351	1110	293	2351		247	92	32	60	168	157
Arrive On Green	0.71	0.71	0.71	0.71	0.71	0.00	0.20	0.20	0.20	0.20	0.20	0.20
Sat Flow, veh/h	216	3328	1572	409	3328	1585	922	454	156	98	825	772
Grp Volume(v), veh/h	47	1198	123	30	1998	0	118	0	0	90	0	0
Grp Sat Flow(s),veh/h/ln	216	1664	1572	409	1664	1585	1532	0	0	1695	0	0
Q Serve(g_s), s	20.5	16.5	2.5	3.6	44.1	0.0	1.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	64.6	16.5	2.5	20.2	44.1	0.0	5.8	0.0	0.0	4.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.64		0.10	0.12		0.46
Lane Grp Cap(c), veh/h	129	2351	1110	293	2351		371	0	0	386	0	0
V/C Ratio(X)	0.36	0.51	0.11	0.10	0.85		0.32	0.00	0.00	0.23	0.00	0.00
Avail Cap(c_a), veh/h	133	2413	1140	301	2413		371	0	0	386	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	34.5	6.7	4.7	11.4	10.8	0.0	33.9	0.0	0.0	33.4	0.0	0.0
Incr Delay (d2), s/veh	1.7	0.2	0.0	0.2	3.0	0.0	2.2	0.0	0.0	1.4	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	3.9	0.6	0.3	11.4	0.0	2.6	0.0	0.0	2.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	36.3	6.9	4.7	11.5	13.8	0.0	36.2	0.0	0.0	34.9	0.0	0.0
LnGrp LOS	D	A	A	B	B		D			C		
Approach Vol, veh/h		1368			2028			118			90	
Approach Delay, s/veh		7.7			13.8			36.2			34.9	
Approach LOS		A			B			D			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		24.9		75.1		24.9		75.1				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.5		72.5		18.5		72.5				
Max Q Clear Time (g_c+I1), s		7.8		66.6		6.4		46.1				
Green Ext Time (p_c), s		0.4		4.0		0.3		17.5				

Intersection Summary												
HCM 7th Control Delay, s/veh			12.8									
HCM 7th LOS			B									

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	35	77	185	3	7	236
Future Vol, veh/h	35	77	185	3	7	236
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	87	87	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	88	213	3	8	268

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	216	0	-	0	381	214
Stage 1	-	-	-	-	214	-
Stage 2	-	-	-	-	167	-
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	1354	-	-	-	621	826
Stage 1	-	-	-	-	821	-
Stage 2	-	-	-	-	862	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1354	-	-	-	602	826
Mov Cap-2 Maneuver	-	-	-	-	602	-
Stage 1	-	-	-	-	796	-
Stage 2	-	-	-	-	862	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	2.42	0	11.64
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	563	-	-	-	817
HCM Lane V/C Ratio	0.029	-	-	-	0.338
HCM Ctrl Dly (s/v)	7.7	0	-	-	11.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	1.5

Appendix D

No-Build Intersection Operational Analysis

Intersection	
Int Delay, s/veh	305.7

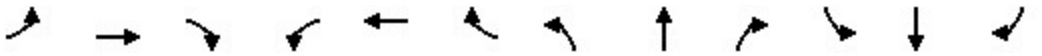
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	69	2167	24	23	961	6	3	2	56	51	11	10
Future Vol, veh/h	69	2167	24	23	961	6	3	2	56	51	11	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	275	-	275	270	-	270	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	80	80	80	82	82	82	85	85	85
Heavy Vehicles, %	2	8	2	2	8	2	2	2	2	2	2	2
Mvmt Flow	72	2257	25	29	1201	8	4	2	68	60	13	12

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1209	0	0	2282	0	0	3066	3667	1129	2532	3685	601
Stage 1	-	-	-	-	-	-	2401	2401	-	1259	1259	-
Stage 2	-	-	-	-	-	-	665	1266	-	1274	2426	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	573	-	-	219	-	-	5	5	198	~ 14	~ 5	444
Stage 1	-	-	-	-	-	-	34	64	-	181	240	-
Stage 2	-	-	-	-	-	-	416	238	-	177	62	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	573	-	-	219	-	-	-	4	198	~ 3	~ 4	444
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	4	-	~ 3	~ 4	-
Stage 1	-	-	-	-	-	-	30	56	-	157	209	-
Stage 2	-	-	-	-	-	-	330	207	-	97	54	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.37	0.56		$ 13518.87
HCM LOS			-	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	573	-	-	219	-	-	3
HCM Lane V/C Ratio	-	0.125	-	-	0.131	-	-	26.203
HCM Ctrl Dly (s/v)	-	12.2	-	-	23.9	-	-	$ 13518.9
HCM Lane LOS	-	B	-	-	C	-	-	F
HCM 95th %tile Q(veh)	-	0.4	-	-	0.4	-	-	12.7

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	1893	198	29	877	3	104	53	32	23	37	53
Future Volume (veh/h)	93	1893	198	29	877	3	104	53	32	23	37	53
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1752	1856	1841	1752	1870	1856	1870	1841	1870	1870	1870
Adj Flow Rate, veh/h	103	2103	220	31	933	0	144	74	44	27	44	63
Peak Hour Factor	0.90	0.90	0.90	0.94	0.94	0.94	0.72	0.72	0.72	0.84	0.84	0.84
Percent Heavy Veh, %	2	10	3	4	10	2	3	2	4	2	2	2
Cap, veh/h	401	2247	1061	90	2247		238	109	59	97	154	184
Arrive On Green	0.68	0.68	0.68	0.68	0.68	0.00	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	600	3328	1572	154	3328	1585	775	463	250	227	656	783
Grp Volume(v), veh/h	103	2103	220	31	933	0	262	0	0	134	0	0
Grp Sat Flow(s),veh/h/ln	600	1664	1572	154	1664	1585	1489	0	0	1665	0	0
Q Serve(g_s), s	9.4	55.8	5.3	11.7	12.7	0.0	9.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	22.0	55.8	5.3	67.5	12.7	0.0	16.2	0.0	0.0	6.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.55		0.17	0.20		0.47
Lane Grp Cap(c), veh/h	401	2247	1061	90	2247		406	0	0	434	0	0
V/C Ratio(X)	0.26	0.94	0.21	0.34	0.42		0.65	0.00	0.00	0.31	0.00	0.00
Avail Cap(c_a), veh/h	401	2247	1061	90	2247		406	0	0	434	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.3	14.3	6.1	46.6	7.3	0.0	35.3	0.0	0.0	31.7	0.0	0.0
Incr Delay (d2), s/veh	0.3	8.2	0.1	2.2	0.1	0.0	7.7	0.0	0.0	1.8	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	16.9	1.3	0.8	3.3	0.0	6.6	0.0	0.0	2.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	12.6	22.6	6.2	48.8	7.5	0.0	43.0	0.0	0.0	33.6	0.0	0.0
LnGrp LOS	B	C	A	D	A		D			C		
Approach Vol, veh/h		2426			964			262			134	
Approach Delay, s/veh		20.7			8.8			43.0			33.6	
Approach LOS		C			A			D			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		28.0		72.0		28.0		72.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		23.5		67.5		23.5		67.5				
Max Q Clear Time (g_c+I1), s		18.2		57.8		8.4		69.5				
Green Ext Time (p_c), s		0.7		8.5		0.6		0.0				

Intersection Summary	
HCM 7th Control Delay, s/veh	19.6
HCM 7th LOS	B

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	58	116	66	3	7	55
Future Vol, veh/h	58	116	66	3	7	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	82	82	66	66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	64	129	80	4	11	83

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	84	0	-	0	340	82
Stage 1	-	-	-	-	82	-
Stage 2	-	-	-	-	258	-
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	1513	-	-	-	656	977
Stage 1	-	-	-	-	941	-
Stage 2	-	-	-	-	785	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1513	-	-	-	626	977
Mov Cap-2 Maneuver	-	-	-	-	626	-
Stage 1	-	-	-	-	898	-
Stage 2	-	-	-	-	785	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	2.5	0	9.36
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	600	-	-	-	919
HCM Lane V/C Ratio	0.043	-	-	-	0.102
HCM Ctrl Dly (s/v)	7.5	0	-	-	9.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	102	1469	33	172	2131	16	0	7	29	33	6	7
Future Vol, veh/h	102	1469	33	172	2131	16	0	7	29	33	6	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	275	-	275	270	-	270	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	96	96	96	93	93	93	90	90	90
Heavy Vehicles, %	2	8	2	2	8	2	2	2	2	2	2	2
Mvmt Flow	105	1514	34	179	2220	17	0	8	31	37	7	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	2236	0	0	1548	0	0	3196	4320	757	3549	4337	1110
Stage 1	-	-	-	-	-	-	1725	1725	-	2578	2578	-
Stage 2	-	-	-	-	-	-	1472	2595	-	971	1759	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	228	-	-	424	-	-	4	~ 2	350	~ 2	~ 2	204
Stage 1	-	-	-	-	-	-	92	142	-	~ 26	52	-
Stage 2	-	-	-	-	-	-	133	51	-	271	137	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	228	-	-	424	-	-	-	~ 1	350	-	~ 1	204
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	~ 1	-	-	~ 1	-
Stage 1	-	-	-	-	-	-	50	77	-	~ 15	30	-
Stage 2	-	-	-	-	-	-	57	29	-	120	74	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	2.13	1.45		
HCM LOS			-	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	228	-	-	424	-	-	-
HCM Lane V/C Ratio	-	0.461	-	-	0.422	-	-	-
HCM Ctrl Dly (s/v)	-	33.6	-	-	19.6	-	-	-
HCM Lane LOS	-	D	-	-	C	-	-	-
HCM 95th %tile Q(veh)	-	2.2	-	-	2.1	-	-	-

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	1365	144	30	2115	6	96	30	12	11	36	102
Future Volume (veh/h)	110	1365	144	30	2115	6	96	30	12	11	36	102
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1752	1856	1841	1752	1870	1856	1870	1841	1870	1870	1870
Adj Flow Rate, veh/h	111	1379	145	32	2250	0	103	32	13	12	40	115
Peak Hour Factor	0.99	0.99	0.99	0.94	0.94	0.94	0.93	0.93	0.93	0.89	0.89	0.89
Percent Heavy Veh, %	2	10	3	4	10	2	3	2	4	2	2	2
Cap, veh/h	97	2413	1140	251	2413		209	61	20	49	86	213
Arrive On Green	0.73	0.73	0.73	0.73	0.73	0.00	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	168	3328	1572	337	3328	1585	799	327	108	55	465	1150
Grp Volume(v), veh/h	111	1379	145	32	2250	0	148	0	0	167	0	0
Grp Sat Flow(s),veh/h/ln	168	1664	1572	337	1664	1585	1234	0	0	1670	0	0
Q Serve(g_s), s	15.1	19.5	2.8	4.9	57.4	0.0	2.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	72.5	19.5	2.8	24.4	57.4	0.0	11.9	0.0	0.0	9.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.70		0.09	0.07		0.69
Lane Grp Cap(c), veh/h	97	2413	1140	251	2413		289	0	0	348	0	0
V/C Ratio(X)	1.14	0.57	0.13	0.13	0.93		0.51	0.00	0.00	0.48	0.00	0.00
Avail Cap(c_a), veh/h	97	2413	1140	251	2413		289	0	0	348	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	48.0	6.5	4.2	12.2	11.7	0.0	38.1	0.0	0.0	36.9	0.0	0.0
Incr Delay (d2), s/veh	133.5	0.3	0.0	0.2	7.4	0.0	6.3	0.0	0.0	4.7	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	4.4	0.6	0.3	15.1	0.0	3.8	0.0	0.0	4.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	181.5	6.8	4.2	12.4	19.1	0.0	44.4	0.0	0.0	41.6	0.0	0.0
LnGrp LOS	F	A	A	B	B		D			D		
Approach Vol, veh/h		1635			2282			148			167	
Approach Delay, s/veh		18.4			19.0			44.4			41.6	
Approach LOS		B			B			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		23.0		77.0		23.0		77.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.5		72.5		18.5		72.5				
Max Q Clear Time (g_c+I1), s		13.9		74.5		11.1		59.4				
Green Ext Time (p_c), s		0.3		0.0		0.5		11.2				

Intersection Summary	
HCM 7th Control Delay, s/veh	20.5
HCM 7th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	6.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	45	87	209	3	13	278
Future Vol, veh/h	45	87	209	3	13	278
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	87	87	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	51	99	240	3	15	316

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	244	0	-	0	443	242
Stage 1	-	-	-	-	242	-
Stage 2	-	-	-	-	201	-
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	1323	-	-	-	572	797
Stage 1	-	-	-	-	798	-
Stage 2	-	-	-	-	833	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1323	-	-	-	549	797
Mov Cap-2 Maneuver	-	-	-	-	549	-
Stage 1	-	-	-	-	766	-
Stage 2	-	-	-	-	833	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	2.67	0	12.95
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	614	-	-	-	781
HCM Lane V/C Ratio	0.039	-	-	-	0.423
HCM Ctrl Dly (s/v)	7.8	0	-	-	12.9
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	2.1

Appendix E

Future Intersection Operational Analysis

Intersection	
Int Delay, s/veh	545

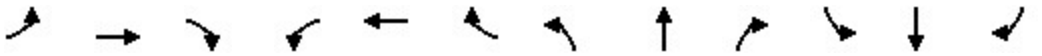
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	69	2174	28	42	960	6	32	2	56	51	12	10
Future Vol, veh/h	69	2174	28	42	960	6	32	2	56	51	12	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	275	-	275	270	-	270	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	80	80	80	85	85	85	85	85	85
Heavy Vehicles, %	2	8	2	2	8	2	2	2	2	2	2	2
Mvmt Flow	72	2265	29	53	1200	8	38	2	66	60	14	12

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1208	0	0	2294	0	0	3120	3721	1132	2582	3743	600
Stage 1	-	-	-	-	-	-	2408	2408	-	1305	1305	-
Stage 2	-	-	-	-	-	-	712	1313	-	1277	2438	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	574	-	-	217	-	-	~ 5	4	197	~ 13	~ 4	444
Stage 1	-	-	-	-	-	-	~ 33	63	-	169	228	-
Stage 2	-	-	-	-	-	-	389	226	-	176	61	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	574	-	-	217	-	-	-	3	197	~ 1	~ 3	444
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	3	-	~ 1	~ 3	-
Stage 1	-	-	-	-	-	-	~ 29	56	-	128	173	-
Stage 2	-	-	-	-	-	-	264	172	-	98	54	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.37	1.12		$ 24199.45
HCM LOS			-	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	574	-	-	217	-	-	2
HCM Lane V/C Ratio	-	0.125	-	-	0.242	-	-	46.39
HCM Ctrl Dly (s/v)	-	12.2	-	-	26.8	-	-	$ 24199.5
HCM Lane LOS	-	B	-	-	D	-	-	F
HCM 95th %tile Q(veh)	-	0.4	-	-	0.9	-	-	13

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	109	1929	198	29	889	3	104	53	32	23	37	60
Future Volume (veh/h)	109	1929	198	29	889	3	104	53	32	23	37	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1752	1856	1841	1752	1870	1856	1870	1841	1870	1870	1870
Adj Flow Rate, veh/h	121	2143	220	31	946	0	144	74	44	27	44	71
Peak Hour Factor	0.90	0.90	0.90	0.94	0.94	0.94	0.72	0.72	0.72	0.84	0.84	0.84
Percent Heavy Veh, %	2	10	3	4	10	2	3	2	4	2	2	2
Cap, veh/h	396	2247	1061	85	2247		235	107	58	92	147	196
Arrive On Green	0.68	0.68	0.68	0.68	0.68	0.00	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	593	3328	1572	148	3328	1585	764	457	247	209	625	834
Grp Volume(v), veh/h	121	2143	220	31	946	0	262	0	0	142	0	0
Grp Sat Flow(s),veh/h/ln	593	1664	1572	148	1664	1585	1468	0	0	1668	0	0
Q Serve(g_s), s	11.6	58.8	5.3	8.7	12.9	0.0	9.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	24.6	58.8	5.3	67.5	12.9	0.0	16.5	0.0	0.0	6.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.55		0.17	0.19		0.50
Lane Grp Cap(c), veh/h	396	2247	1061	85	2247		401	0	0	435	0	0
V/C Ratio(X)	0.31	0.95	0.21	0.36	0.42		0.65	0.00	0.00	0.33	0.00	0.00
Avail Cap(c_a), veh/h	396	2247	1061	85	2247		401	0	0	435	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	13.0	14.8	6.1	48.2	7.4	0.0	35.5	0.0	0.0	31.9	0.0	0.0
Incr Delay (d2), s/veh	0.4	10.3	0.1	2.6	0.1	0.0	8.1	0.0	0.0	2.0	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	18.3	1.3	0.8	3.3	0.0	6.7	0.0	0.0	3.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	13.4	25.1	6.2	50.8	7.5	0.0	43.6	0.0	0.0	33.9	0.0	0.0
LnGrp LOS	B	C	A	D	A		D			C		
Approach Vol, veh/h		2484			977			262			142	
Approach Delay, s/veh		22.9			8.9			43.6			33.9	
Approach LOS		C			A			D			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		28.0		72.0		28.0		72.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		23.5		67.5		23.5		67.5				
Max Q Clear Time (g_c+I1), s		18.5		60.8		8.9		69.5				
Green Ext Time (p_c), s		0.6		6.1		0.6		0.0				

Intersection Summary	
HCM 7th Control Delay, s/veh	21.1
HCM 7th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	65	116	66	6	15	74
Future Vol, veh/h	65	116	66	6	15	74
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	82	82	70	70
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	72	129	80	7	21	106

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	88	0	-	0	357	84
Stage 1	-	-	-	-	84	-
Stage 2	-	-	-	-	273	-
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	1508	-	-	-	641	975
Stage 1	-	-	-	-	939	-
Stage 2	-	-	-	-	773	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1508	-	-	-	608	975
Mov Cap-2 Maneuver	-	-	-	-	608	-
Stage 1	-	-	-	-	891	-
Stage 2	-	-	-	-	773	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	2.7	0	9.75
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	646	-	-	-	885
HCM Lane V/C Ratio	0.048	-	-	-	0.144
HCM Ctrl Dly (s/v)	7.5	0	-	-	9.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.5

Intersection	
Int Delay, s/veh	3.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	27	29	62	10	26	57
Future Vol, veh/h	27	29	62	10	26	57
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	34	36	73	12	31	67

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	207	79	0	0	85	0
Stage 1	79	-	-	-	-	-
Stage 2	128	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	781	982	-	-	1512	-
Stage 1	944	-	-	-	-	-
Stage 2	898	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	765	982	-	-	1512	-
Mov Cap-2 Maneuver	765	-	-	-	-	-
Stage 1	944	-	-	-	-	-
Stage 2	879	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	9.54	0	2.33
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	864	564	-
HCM Lane V/C Ratio	-	-	0.081	0.02	-
HCM Ctrl Dly (s/v)	-	-	9.5	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2272	10	0	1007	0	54
Future Vol, veh/h	2272	10	0	1007	0	54
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	80	80	88	88
Heavy Vehicles, %	8	2	2	8	2	2
Mvmt Flow	2367	10	0	1259	0	61

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	1183
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	182
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	182
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	34.52
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	182	-	-	-
HCM Lane V/C Ratio	0.337	-	-	-
HCM Ctrl Dly (s/v)	34.5	-	-	-
HCM Lane LOS	D	-	-	-
HCM 95th %tile Q(veh)	1.4	-	-	-

Intersection	
Int Delay, s/veh	2.2

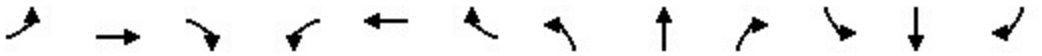
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	102	1486	41	225	2124	6	25	8	29	33	7	7
Future Vol, veh/h	102	1486	41	225	2124	6	25	8	29	33	7	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	275	-	275	270	-	270	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	96	96	96	94	94	94	90	90	90
Heavy Vehicles, %	2	8	2	2	8	2	2	2	2	2	2	2
Mvmt Flow	105	1532	42	234	2213	6	27	9	31	37	8	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	2219	0	0	1574	0	0	3321	4430	766	3662	4466	1106
Stage 1	-	-	-	-	-	-	1742	1742	-	2681	2681	-
Stage 2	-	-	-	-	-	-	1579	2688	-	981	1785	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	232	-	-	415	-	-	~ 3	~ 1	345	~ 2	~ 1	205
Stage 1	-	-	-	-	-	-	90	139	-	~ 22	46	-
Stage 2	-	-	-	-	-	-	114	45	-	268	133	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	232	-	-	415	-	-	-	~ 0	345	-	~ 0	205
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	~ 0	-	-	~ 0	-
Stage 1	-	-	-	-	-	-	49	76	-	~ 10	20	-
Stage 2	-	-	-	-	-	-	29	20	-	118	73	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	2.05	2.33		
HCM LOS			-	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	232	-	-	415	-	-	-
HCM Lane V/C Ratio	-	0.453	-	-	0.565	-	-	-
HCM Ctrl Dly (s/v)	-	32.8	-	-	24.4	-	-	-
HCM Lane LOS	-	D	-	-	C	-	-	-
HCM 95th %tile Q(veh)	-	2.2	-	-	3.4	-	-	-

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	121	1385	144	30	2145	6	96	30	12	11	36	118
Future Volume (veh/h)	121	1385	144	30	2145	6	96	30	12	11	36	118
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1752	1856	1841	1752	1870	1856	1870	1841	1870	1870	1870
Adj Flow Rate, veh/h	122	1399	145	32	2282	0	103	32	13	12	40	133
Peak Hour Factor	0.99	0.99	0.99	0.94	0.94	0.94	0.93	0.93	0.93	0.89	0.89	0.89
Percent Heavy Veh, %	2	10	3	4	10	2	3	2	4	2	2	2
Cap, veh/h	92	2413	1140	245	2413		199	57	19	48	78	223
Arrive On Green	0.73	0.73	0.73	0.73	0.73	0.00	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	163	3328	1572	330	3328	1585	744	310	101	51	421	1207
Grp Volume(v), veh/h	122	1399	145	32	2282	0	148	0	0	185	0	0
Grp Sat Flow(s),veh/h/ln	163	1664	1572	330	1664	1585	1156	0	0	1679	0	0
Q Serve(g_s), s	12.5	19.9	2.8	5.1	60.0	0.0	2.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	72.5	19.9	2.8	25.0	60.0	0.0	13.0	0.0	0.0	10.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.70		0.09	0.06		0.72
Lane Grp Cap(c), veh/h	92	2413	1140	245	2413		275	0	0	349	0	0
V/C Ratio(X)	1.32	0.58	0.13	0.13	0.95		0.54	0.00	0.00	0.53	0.00	0.00
Avail Cap(c_a), veh/h	92	2413	1140	245	2413		275	0	0	349	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	48.6	6.5	4.2	12.5	12.0	0.0	38.6	0.0	0.0	37.4	0.0	0.0
Incr Delay (d2), s/veh	201.4	0.4	0.0	0.2	8.7	0.0	7.4	0.0	0.0	5.7	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.4	4.5	0.6	0.3	16.1	0.0	3.9	0.0	0.0	4.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	250.0	6.9	4.2	12.7	20.8	0.0	46.0	0.0	0.0	43.1	0.0	0.0
LnGrp LOS	F	A	A	B	C		D			D		
Approach Vol, veh/h		1666			2314			148			185	
Approach Delay, s/veh		24.4			20.7			46.0			43.1	
Approach LOS		C			C			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		23.0		77.0		23.0		77.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.5		72.5		18.5		72.5				
Max Q Clear Time (g_c+I1), s		15.0		74.5		12.2		62.0				
Green Ext Time (p_c), s		0.2		0.0		0.5		9.2				

Intersection Summary	
HCM 7th Control Delay, s/veh	24.0
HCM 7th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	62	87	209	10	18	290
Future Vol, veh/h	62	87	209	10	18	290
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	87	87	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	70	99	240	11	20	322

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	252	0	-	0	486	246
Stage 1	-	-	-	-	246	-
Stage 2	-	-	-	-	240	-
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	1314	-	-	-	541	793
Stage 1	-	-	-	-	795	-
Stage 2	-	-	-	-	800	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1314	-	-	-	510	793
Mov Cap-2 Maneuver	-	-	-	-	510	-
Stage 1	-	-	-	-	750	-
Stage 2	-	-	-	-	800	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	3.29	0	13.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	749	-	-	-	768
HCM Lane V/C Ratio	0.054	-	-	-	0.446
HCM Ctrl Dly (s/v)	7.9	0	-	-	13.4
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	2.3

Intersection	
Int Delay, s/veh	2.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	17	26	36	24	65	211
Future Vol, veh/h	17	26	36	24	65	211
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	75	75	93	93	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	23	35	39	26	72	234

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	431	52	0	0	65	0
Stage 1	52	-	-	-	-	-
Stage 2	379	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	582	1016	-	-	1538	-
Stage 1	971	-	-	-	-	-
Stage 2	692	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	550	1016	-	-	1538	-
Mov Cap-2 Maneuver	550	-	-	-	-	-
Stage 1	971	-	-	-	-	-
Stage 2	655	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	10.11	0	1.76
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	761	424	-
HCM Lane V/C Ratio	-	-	0.075	0.047	-
HCM Ctrl Dly (s/v)	-	-	10.1	7.5	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1528	22	0	2365	0	36
Future Vol, veh/h	1528	22	0	2365	0	36
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	97	97	96	96	75	75
Heavy Vehicles, %	8	2	2	8	2	2
Mvmt Flow	1575	23	0	2464	0	48

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	788
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	334
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	334
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	17.57
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	334	-	-	-
HCM Lane V/C Ratio	0.144	-	-	-
HCM Ctrl Dly (s/v)	17.6	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.5	-	-	-