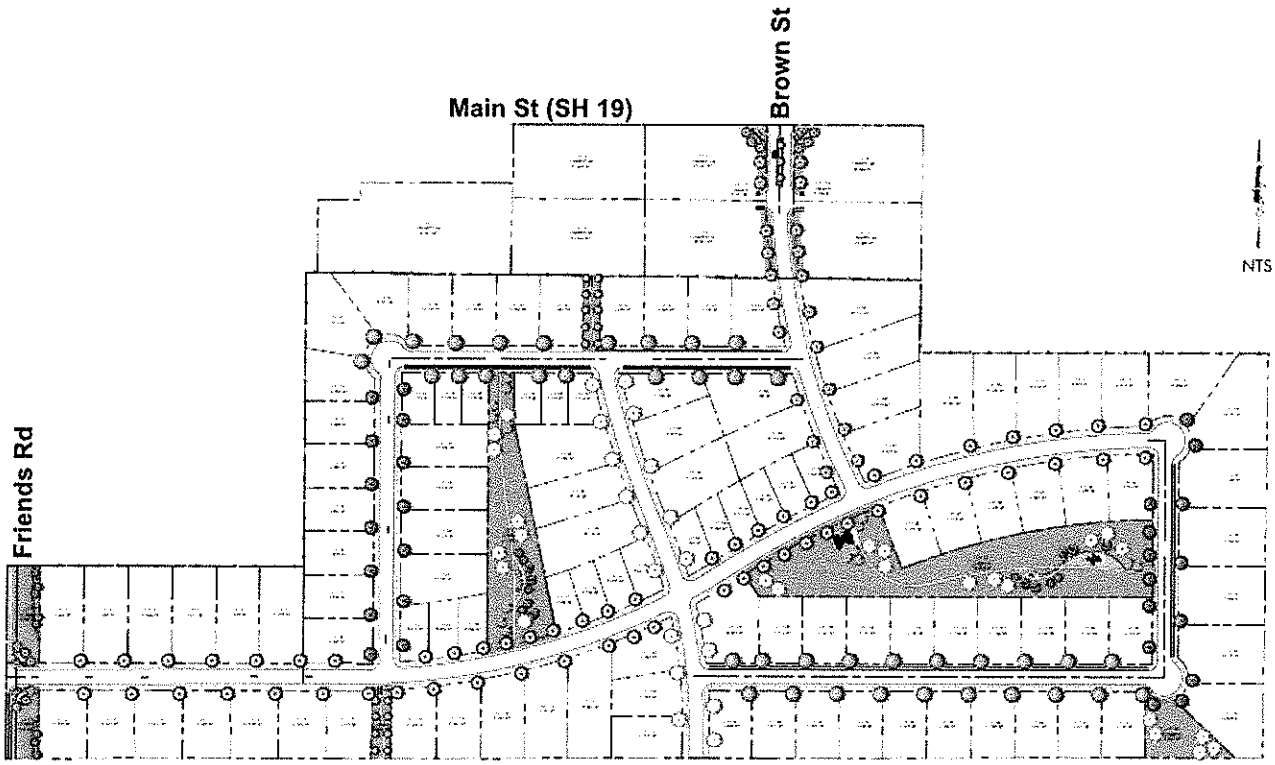
TRAFFIC IMPACT STUDY

ROYAL RIDGE SUBDIVISION

Greenleaf, Idaho

July 6, 2021



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EXECUTIVE SUMMARY

CR Engineering, Inc. has been retained to prepare a traffic impact study (TIS) for the proposed Royal Ridge Subdivision located southeast of the Friends Road and Main Street (SH 19) intersection in Greenleaf, Idaho, as shown in **Figure 1.1**. The scope of this report was determined through coordination with the Idaho Transportation Department (ITD), the City of Greenleaf, and the Golden Gate Highway District No. 3 (GGHD3 and was prepared in accordance with their requirements.

The TIS evaluates the potential traffic impacts resulting from background traffic growth and the proposed development, and makes recommendations for mitigating the impacts if needed. Traffic impacts were evaluated for the following analysis years and traffic conditions:

- 2021 Existing traffic
- 2025 Build-out year background traffic
- 2025 Build-out year total traffic
  - With and without site access on Main Street aligning with Brown Street
- 2030 Horizon year background traffic
- 2030 Horizon year total traffic
  - With and without site access on Main Street aligning with Brown Street

1.0 Proposed Development, Site Access, and Circulation

1.1 Royal Ridge Subdivision is a proposed mixed-use development estimated to contain 11 single-family lots and seven (7) commercial lots. The expected build-out year is 2025 but may change depending on the market conditions.

1.2 Based on the procedures outlined in the *Trip Generation Handbook, 3rd Edition* and the *Trip Generation Manual, 10th Edition,* both published by the Institute of Transportation Engineers (ITE), the proposed development is estimated to generate approximately 3,997 trips per weekday with 294 trips during the AM peak hour and 357 trips during the PM peak hour.

- Based on the proposed land uses and ITE methodology, the development is estimated to retain approximately 3% (10 trips) of the AM peak hour trips and 26% (94 trips) of the PM peak hour trips internally within the site
- Based on the ITE pass-by rates, the commercial development is estimated to generate 62 pass-by trips during the PM peak hour. No weekday or AM peak hour pass-by rates are available for the proposed land uses.
- All trips generated by the development were assumed to be made by personal or commercial vehicles

1.3 The estimated site traffic distribution patterns are:

- 20% with origins/destinations west of the site
- 45% with origins/destinations east of the site
- 30% with origins/destinations north of the site
- 5% with origins/destinations south of the site

1.4 Royal Ridge Subdivision is proposing one full-movement approach on Friends Road and one full-movement approach on Main Street aligning with Brown Street for site access:

- West Access on Friends Road
  - Located approximately 1,200 feet south of Main Street
    - Meets minimum access spacing on Friends Road, a collector street
  - Based on the *National Cooperative Highway Research Program* (NCHRP) Report 457 *Evaluating Intersection Improvements: An Engineering Study Guide* guidelines, the intersection is not anticipated to warrant turn lanes under 2025 or 2030 total traffic conditions with and without the proposed access on Main Street.
  - Anticipated to operate at an acceptable Level of Service (LOS) under 2025 and 2030 total traffic conditions with and without the proposed access on Main Street
  - Expected to have adequate intersection sight distance
    - Ensure landscape design does not obstruct intersection sight distance

- Proposed access on Main Street intersection
  - Aligns with Brown Street to the north
  - Anticipated to operate acceptably under 2025 and 2030 total traffic conditions
  - Anticipated to warrant an eastbound right-turn lane under 2025 total traffic conditions based on ITD right-turn lane guidelines
  - Expected to have adequate intersection sight distance
    - Ensure landscape design does not obstruct intersection sight distance

2.0 2021 Existing Traffic Conditions

2.1 With 2021 existing traffic conditions, all study area intersections currently meet minimum operational thresholds analyzed with the existing intersection control and lane configuration:

- Friends Road and Main Street: LOS B / LOS C (northbound / southbound approach)
- Brown Street and Main Street: LOS B (southbound approach)

2.2 The study area intersections do not have apparent safety issues based on the latest five-year (2015-2019) crash history:

- Friends Road and Main Street intersection: One reported crash
- Brown Street and Main Street intersection: Two reported crashes

2.3 None of the study area intersections warrant turn lanes under 2021 existing traffic conditions.

2.4 Based on the analysis results and crash history, no intersection improvements are needed to mitigate 2021 existing traffic operations.

3.0 2025 Build-Out Year Background Traffic Conditions

3.1 2025 build-out year background traffic was estimated by extrapolating the existing traffic counts with the following annual growth rates:

- Friends Road – 2.0%
- Brown Street – 2.0%
- Main Street – 4.0%
  - Based on historical traffic data from the ITD Automatic Traffic Recorder (ATR) Station 009 "Caldwell" on SH 19 4.5 miles west of Caldwell

3.2 With 2025 build-out year background traffic, all study area intersections are anticipated to continue to meet minimum operational thresholds analyzed with the existing intersection control and lane configuration:

- Friends Road and Main Street: LOS C / LOS C (northbound / southbound approach)
- Brown Street and Main Street: LOS B (southbound approach)

3.3 None of the study area intersections are anticipated to require turn lanes under 2025 build-out year background traffic conditions.

3.4 No intersection improvements are needed to mitigate 2025 build-out year background traffic operations.

4.0 2025 Build-Out Year Total Traffic Conditions

4.1 With 2025 build-out total traffic, all study area intersections are anticipated to continue to meet minimum operational thresholds analyzed with the existing intersection control and lane configuration with and without the proposed access on Main Street:

- Friends Road and Main Street: LOS C / LOS C (northbound / southbound approach)
- Brown Street and Main Street: LOS D / LOS C (northbound / southbound approach)
- West Access and Friends Road: LOS A (westbound approach)

4.2 One study area intersection is anticipated to require a turn lane under 2025 build-out year total traffic conditions based on ITD right-turn lane guidelines:

- Brown Street and Main Street intersection
  - Eastbound right-turn lane

4.3 Without the proposed access on Main Street, one study area intersection is anticipated to require a turn lane under 2025 build-out year total traffic conditions based on ITD right-turn lane guidelines:

- Friends Road and Main Street intersection
  - Eastbound right-turn lane

5.0 2030 Horizon Year Background Traffic Conditions

5.1 2030 horizon year background traffic was estimated by extrapolating the 2025 build-out year background traffic volumes with the following annual growth rates:

- Friends Road – 2.0%
- Brown Street – 2.0%
- Main Street – 2.0%
  - Based on the long-term historical traffic data from the ITD ATR Station 009

5.2 With 2030 horizon year background traffic conditions, all study area intersections are anticipated to continue to meet minimum operational thresholds analyzed with the existing intersection control and lane configuration:

- Friends Road and Main Street: LOS C / LOS C (northbound / southbound approach)
- Brown Street and Main Street: LOS B (southbound approach)

5.3 None of the study area intersections are anticipated to require turn lanes under 2030 horizon year background traffic conditions

5.4 No intersection improvements are needed to mitigate 2030 horizon year background traffic operations

6.0 2030 Horizon Year Total Traffic Conditions

6.1 With 2030 horizon year total traffic, all study area intersections are anticipated to continue to meet minimum operational thresholds analyzed with the existing intersection control and lane configuration or with the turn lane needed under 2025 total traffic conditions:

- Friends Road and Main Street: LOS C / LOS D (northbound / southbound approach)
- Brown Street and Main Street: LOS D / LOS D (northbound / southbound approach)
- West Access and Friends Road: LOS A (westbound approach)

6.2 Without the proposed access on Main Street, all study area intersections are anticipated to meet minimum operational thresholds under 2030 horizon year total traffic conditions:

- Friends Road and Main Street: LOS E / LOS E (northbound / southbound approach)
  - The northbound and southbound approaches are anticipated to operate under capacity with volume to capacity (v/c) ratios of 0.62 or less
- Brown Street and Main Street: LOS B (southbound approach)
- West Access and Friends Road: LOS A (westbound approach)

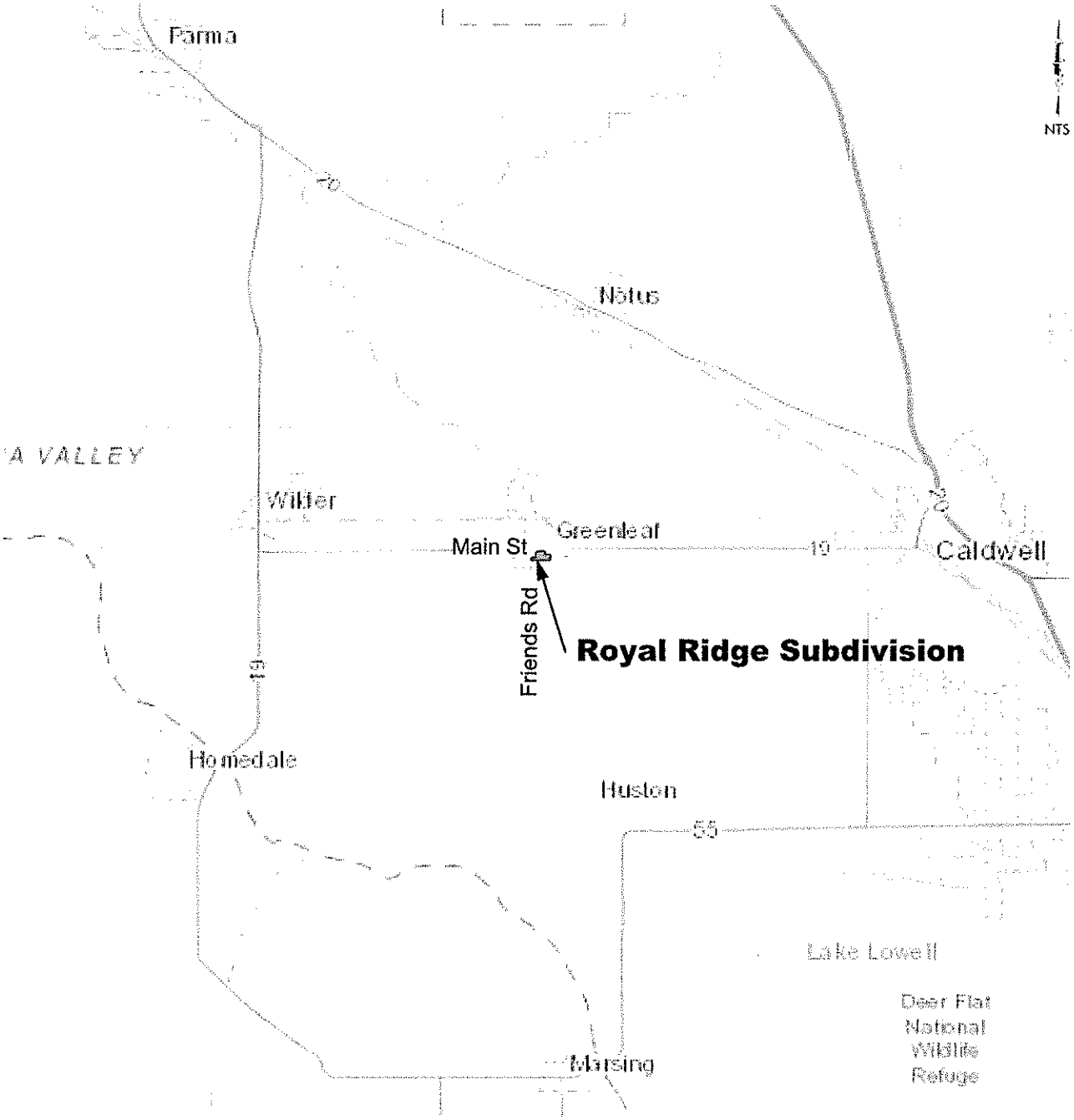
6.3 Without the proposed access on Main Street, one study area intersection is anticipated to require a turn lane based on ITD right-turn lane guidelines:

- Friends Road and Main Street intersection
  - Eastbound right-turn lane

1.0 INTRODUCTION

CR Engineering, Inc. has been retained to prepare a traffic impact study (TIS) for the proposed Royal Ridge Subdivision located southeast of the Friends Road and Main Street (SH 19) intersection in Greenleaf, Idaho. **Figure 1.1** shows the site location and its vicinity. The TIS evaluates the potential traffic impacts resulting from background traffic growth and the proposed development, and identifies improvements to mitigate the impacts if needed. The scope of this report was determined through coordination with the Idaho Transportation Department (ITD), the City of Greenleaf, and the Golden Gate Highway District No. 3 (GGHD3) and was prepared in accordance with their requirements.

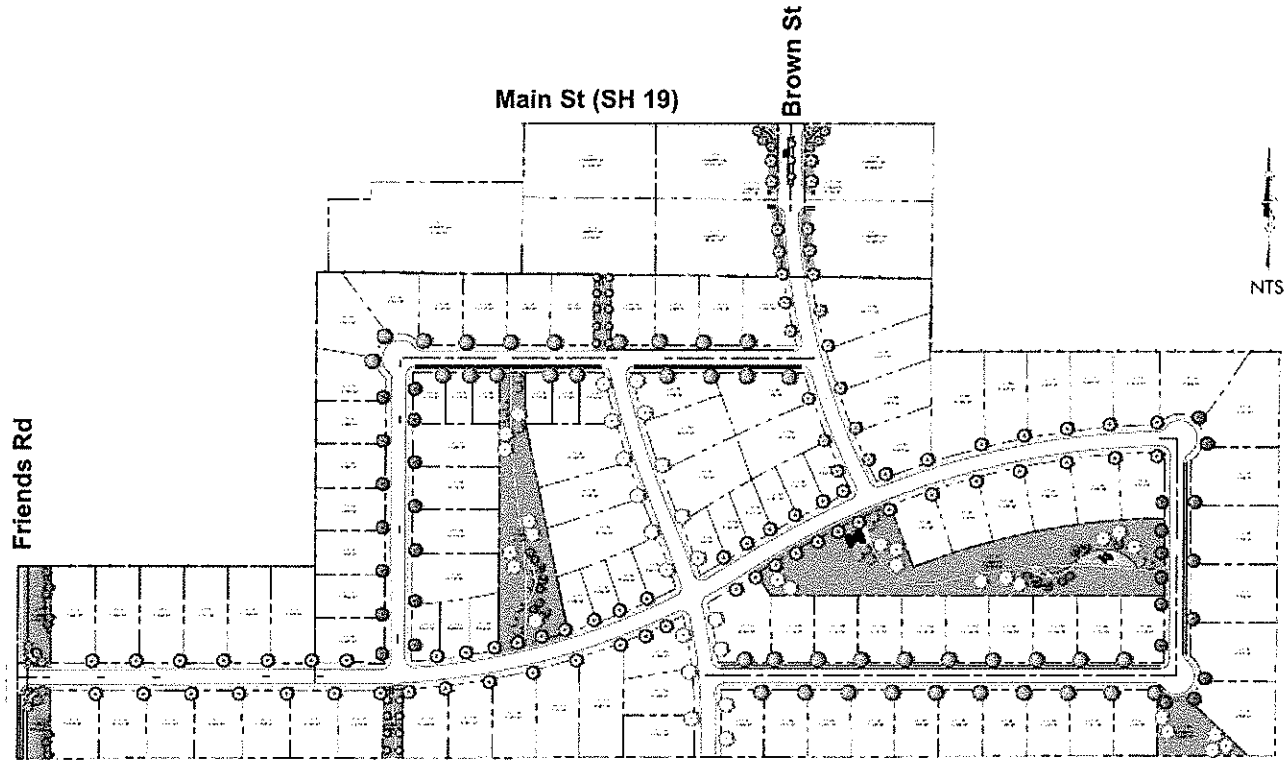
Figure 1.1 – Site Location and Vicinity



1.1 Proposed Development

Figure 1.2 shows the preliminary site plan with the proposed site access locations. Royal Ridge Subdivision is a proposed mixed-use development estimated to contain 111 single-family lots and 7 commercial lots. The development is proposing to construct one access on Friends Road located approximately 1,200 feet south of Main Street. In addition, the development is proposed on access on Main Street aligning with Brown Street to the north. The estimated build-out year is 2025 but may change depending on the market conditions.

Figure 1.2 – Preliminary Site Plan



1.2 Study Approach

The study area, specific parameters, and requirements for the study were coordinated with ITD, the City of Greenleaf, and GGHD3. The TIS Scope of Work Memorandum is included in the appendix.

1.3 Study Area

Based on the development proposed land use and anticipated trip generation, the following study area intersections adjacent to the site were included in the traffic impact analysis:

- Friends Road and Main Street intersection
- Brown Street and Main Street intersection

1.4 Study Period

The analysis peak periods are general weekday (Tuesday-Thursday) AM and PM peak hours of operation of the transportation system. The analysis years and traffic conditions are:

- 2021 Existing traffic
- 2025 Build-out year background traffic
- 2025 Build-out year total traffic
- 2030 Horizon year background traffic
- 2030 Horizon year total traffic

1.5 Analysis Methods and Performance Measure Thresholds

Intersection capacity analysis was performed using the Synchro 10 (Version 10.3.151.0), which utilizes the HCM 6th Edition (HCM6) methodologies. All parameters used in the analysis were based on existing data when available or Synchro default values, when not available. The level of service (LOS) for intersections is based on the average delay of vehicles traveling through the intersection on a scale of A (best) to F (worst).

The study area roadways and intersections fall under the jurisdiction of the City and ITD. For this study, the minimum operational thresholds for ITD intersections are LOS E with a v/c of 0.90 for the overall intersection and critical movement based on District 3 Operational Procedures Memo No. 39. Mitigation improvements are required for any individual movement exceeding LOS F or v/c of 0.90. For the remaining intersections under City's jurisdiction, the minimum acceptable level of service is LOS D for the worst movement.

2.0 EXISTING CONDITIONS

2.1 Roadway Network, Intersection Control, and Lane Configuration

A brief description of the existing roadways within the study area is summarized in **Table 2.1** below. The roadway functional classification is based on the GGHD3 Functional Classification Map and the ITD Access Control Map. **Figure 2.1** summarizes the existing intersection control and lane configuration at the study area intersections.

Table 2.1 – Existing Roadway Characteristics

Roadway	Functional Classification	Number of Lanes	Posted Speed Limit (mph)	Additional Information
Friends Rd	Local Road north / Collector south of Main St	2	35 north / 50 south of access	• No sidewalks or bicycle lanes
Brown St	Local Road	2	25	• No sidewalks or bicycle lanes
Main St (SH 19)	Principal Arterial (Regional Route)	3	35	• No sidewalks or bicycle lanes

2.2 Existing Traffic Volumes

Weekday AM and PM peak hour traffic counts were collected at the study area intersections on May 25, 2021. The peak hour intersection turning movement counts were collected on a weekday for a 2-hour period at 15-minute intervals between 7:00 and 9:00 during the AM peak hour and between 4:00 and 6:00 PM during the PM peak hour. Existing turning movement counts are included in the appendix. Existing AM and PM peak hour traffic volumes are summarized in **Figure 2.2**.

Review of the available historical counts show no major discrepancies in the traffic volumes. As a result, no adjustments were made to the 2021 traffic counts.

2.3 Intersection Crash Data

The most current five-year crash data (2015-2019) for the study area intersections was obtained from the Local Highway Technical Assistance Council (LHTAC) website (http://gis.lhtac.org/safety/). **Table 2.2** summarizes the intersection crash data over the five-year period. No safety concerns are apparent at the study area intersections at this time. Main Street was widened with a continuous two-way left-turn lane in 2019, which may reduce the propensity of angle-turning and rear-end crashes.

Table 2.2 – Intersection Crash Data (2015-2019)

Intersection		Total Crashes	*Crash Severity*			Notes
			PDO	*Injury*	*Fatal*	
①	Friends Rd and Main St	1	*0*	*1*	*0*	• Angle-turning crash due to failure to obey stop sign
②	Brown St and Main St	2	*1*	*1*	*0*	• 1 lane departure due to driver falling asleep • 1 rear-end crash with no reported contributing factor

Figure 2.1 – Existing Intersection Control and Lane Configuration

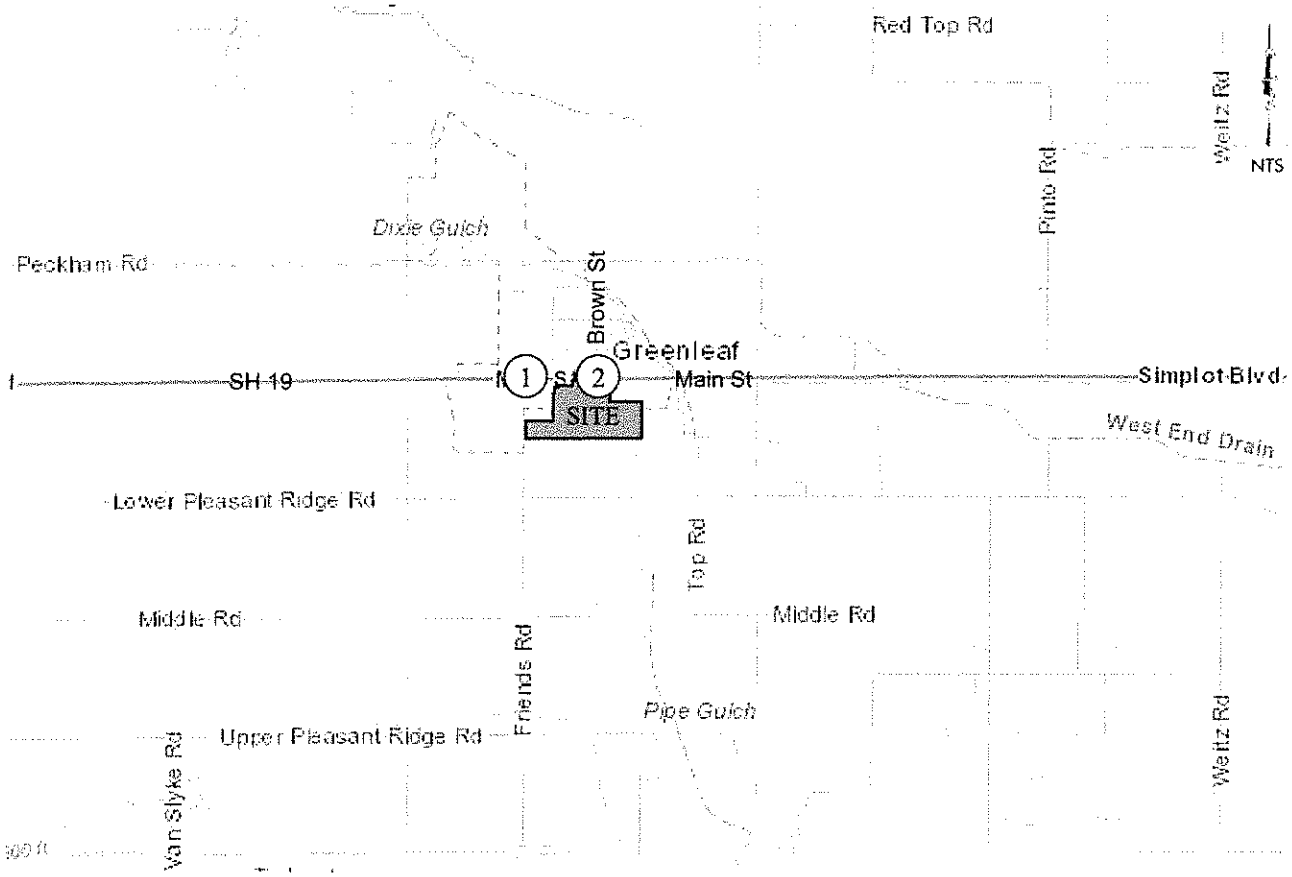
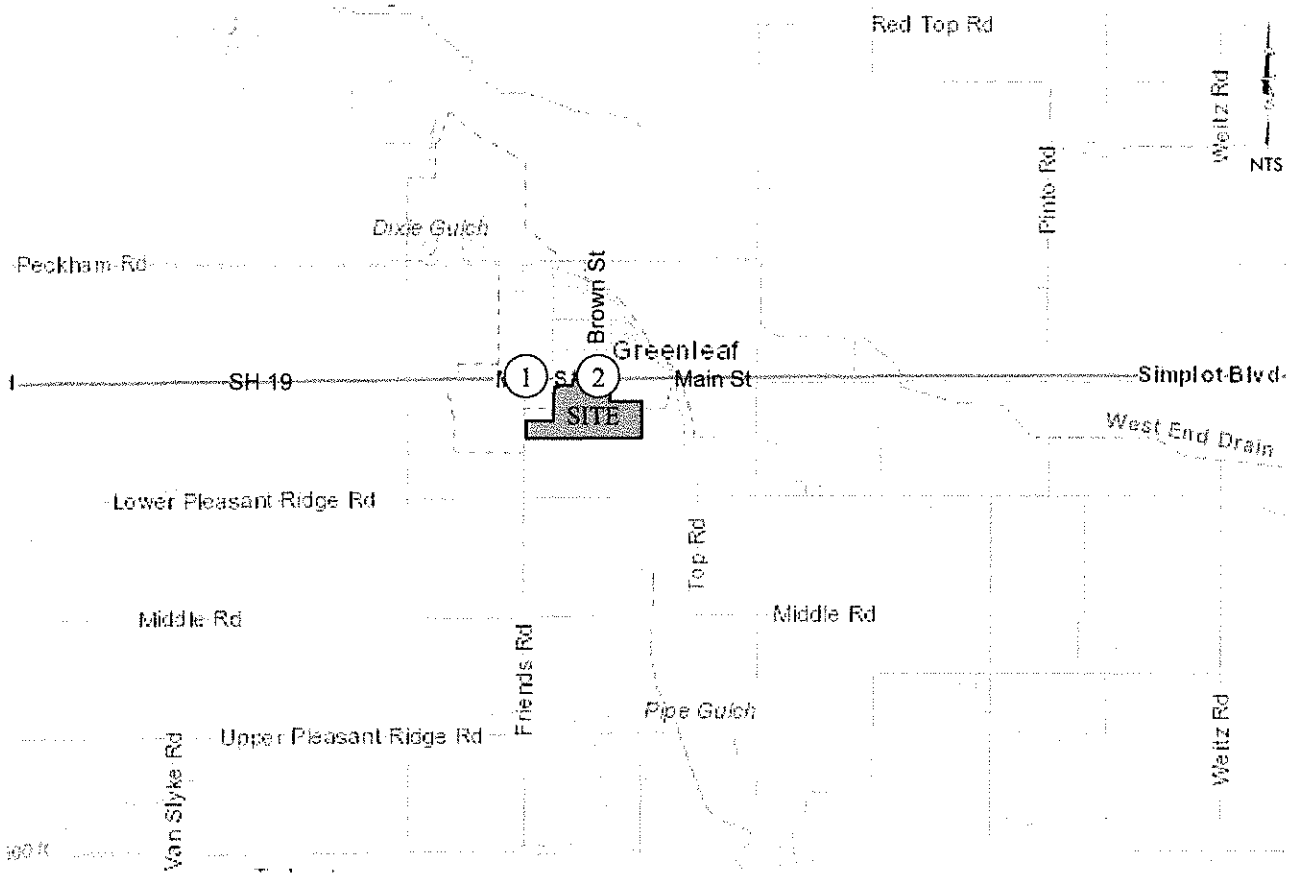
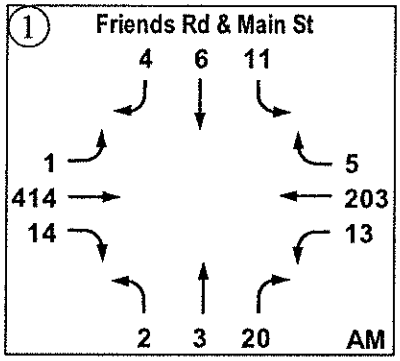
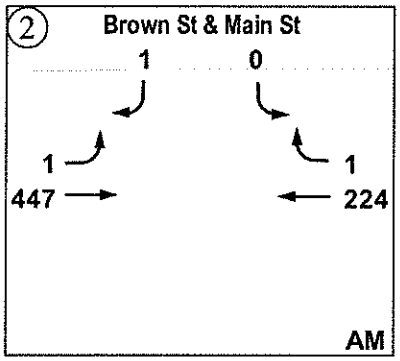
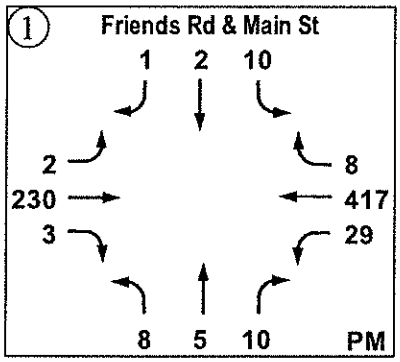


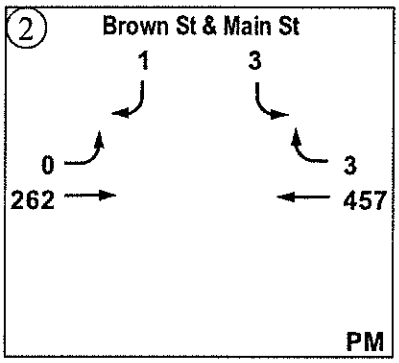
Figure 2.2 – 2021 Existing Peak Hour Traffic







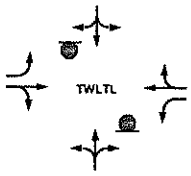




2.4 Intersection Operations

To determine the 2021 existing traffic operations, the study area intersections were analyzed with the existing intersection control and lane configuration with the existing peak hour traffic. Copies of the analysis reports are included in the appendix. **Table 2.3** summarizes the intersection capacity analysis results. All study area intersections currently meet minimum operational thresholds.

Table 2.3 – 2021 Intersection Operations – 2021 Existing Traffic

Intersection		Control / Lane	Intersection or Lane Group	AM Peak Hour			PM Peak Hour		
				LOS	Delay [s/veh]	v/c Ratio	LOS	Delay [s/veh]	v/c Ratio
1	Friends Rd and Main St		EBL	A	8	< 0.01	A	8	< 0.01
			EBTR	-	-	-	-	-	-
			WBL	A	9	0.01	A	8	0.02
			WBTR	-	-	-	-	-	-
			NB	B	12	0.05	B	14	0.06
			SB	C	16	0.07	C	17	0.04
2	Brown St and Main St		EBL	A	8	< 0.01	-	-	-
			EBT	-	-	-	-	-	-
			WB	-	-	-	-	-	-
			SB	A	10	< 0.01	B	12	0.01

2.5 Intersection Mitigation

All study area intersections currently meet minimum operational thresholds under 2021 existing traffic conditions analyzed with the existing intersection control and lane configuration. In addition, no study area intersection currently warrants a right-turn lane based on ITD right-turn lane guidelines. As a result, no improvements are proposed to mitigate existing traffic operations.

3.0 2025 BUILD-OUT YEAR BACKGROUND TRAFFIC CONDITIONS

3.1 Roadway Network

The 2025 roadway network is expected to remain the same as the existing conditions. There are no planned improvements for the study area roadways or intersections.

3.2 Background Traffic

Background traffic growth from 2021 to 2025 was estimated by extrapolating the existing traffic counts with the following annual growth rates:

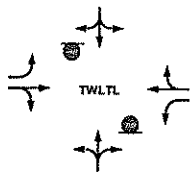
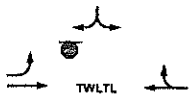
- 2.0% on Friends Road and Brown Street
- 4.0% on Main Street

The annual growth rate on Main Street was based on data from ITD Automatic Traffic Recorder (ATR) Station 009, "Caldwell", located on SH 19 4.5 miles west of Caldwell. A 2% annual growth rate was assumed on Friends Road and Brown Street. No off-site traffic was included from 2021 to 2025, as no in-process developments are known at this time that would not be already accounted for in the annual traffic growth. **Figure 3.1** shows the 2025 background traffic for the AM and PM peak hours.

3.3 Intersection Operations

To determine the 2025 background traffic operations, the study area intersections were analyzed with the existing intersection control and lane configuration and 2025 background traffic volumes. Copies of the analysis reports are included in the appendix. **Table 3.1** summarizes the intersection capacity analysis results. All study area intersections are expected to continue to meet minimum operational thresholds under 2025 background traffic conditions.

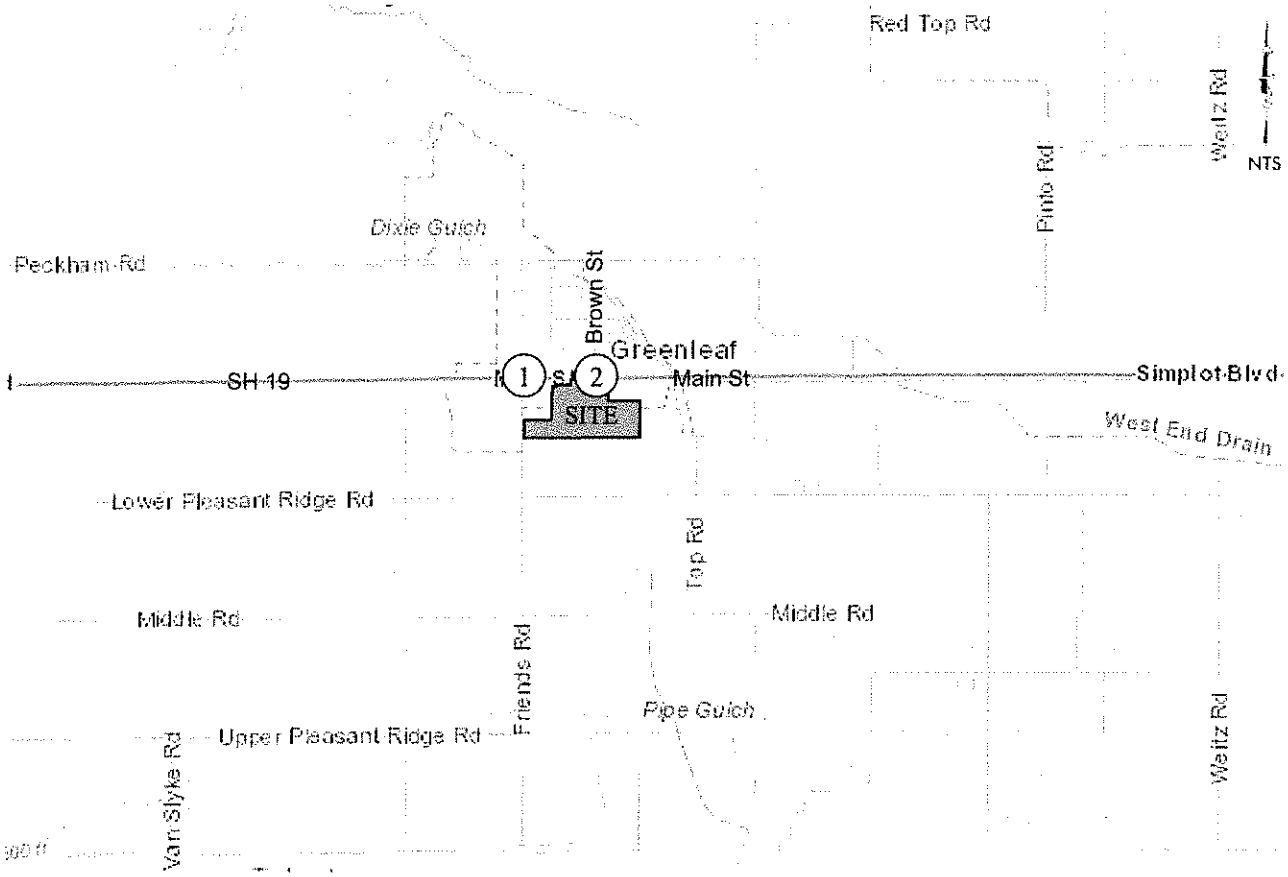
Table 3.1 – Intersection Operations – 2025 Build-Out Year Background Traffic

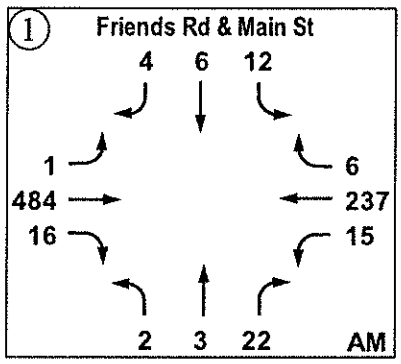
Intersection		Control / Lane	Intersection Or Lane Group	AM Peak Hour			PM Peak Hour		
				LOS	Delay [s/veh]	v/c Ratio	LOS	Delay [s/veh]	v/c Ratio
①	Friends Rd and Main St		EBL	A	8	< 0.01	A	9	< 0.01
			EBTR	-	-	-	-	-	-
			WBL	A	9	0.02	A	8	0.03
			WBTR	-	-	-	-	-	-
			NB	B	13	0.07	C	16	0.07
			SB	C	18	0.08	C	20	0.06
②	Brown St and Main St		EBL	A	8	< 0.01	-	-	-
			EBT	-	-	-	-	-	-
			WB	-	-	-	-	-	-
			SB	A	10	< 0.01	B	13	0.01

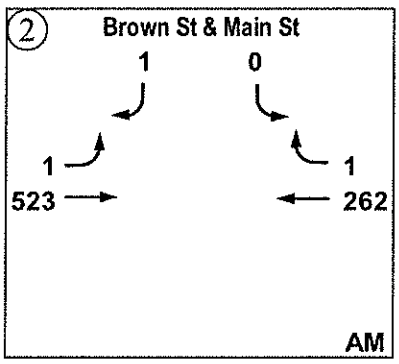
3.4 Intersection Mitigation

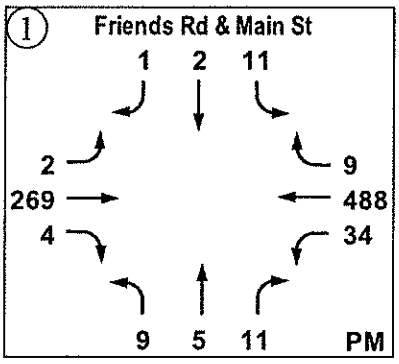
All study area intersections are expected to continue to meet the City and ITD minimum operational thresholds under 2025 background traffic conditions analyzed with the existing lane configuration and intersection control. In addition, no study area intersection is expected to warrant a right-turn lane based on ITD right-turn lane guidelines. As a result, no improvements are proposed to mitigate 2025 build-out year background traffic operations.

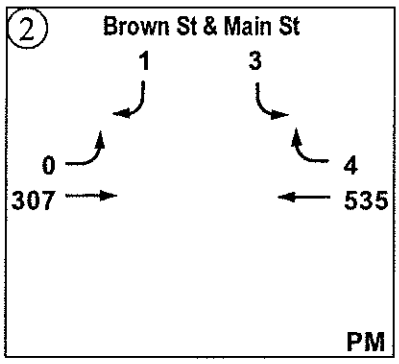
Figure 3.1 – 2025 Build-Out Year Peak Hour Background Traffic











4.0 2025 BUILD-OUT YEAR TOTAL TRAFFIC CONDITIONS

4.1 Site Traffic

4.1.1 Trip Generation

Site trip generation is estimated using the procedures recommended in the latest edition of the Trip Generation Manual (10th Edition), published by the Institute of Transportation Engineers (ITE). **Table 4.1** summarizes the site trip generation for the full build-out of Royal Ridge Subdivision. The proposed development is estimated to generate 3,997 trips per weekday, 294 trips during the AM peak hour, and 357 trips during the PM peak hour.

Table 4.1 – Site Trip Generation Summary

Land Use	ITE Code	Size	Unit	Total Trips	Capture Trips	Pass-by Rate	Pass-by Trips	Primary Trips				
								Total	Entering		Exiting	
Weekday Daily (vpd)												
Single-Family Detached Housing	210	111	DU	1,145	228	–	–	917	50%	459	50%	458
General Office	710	18	TSF	201	37	–	–	164	50%	82	50%	82
General Retail	820	30	TSF	2,651	305	17%	400	1,946	50%	973	50%	973
Weekday Daily Total Trips				**3,997**	**570**		**400**	**3,027**		**1,514**		**1,513**
Weekday AM Peak Hour (vph)												
Single-Family Detached Housing	210	111	DU	84	2	–	–	82	25%	21	75%	61
General Office	710	18	TSF	43	4	–	–	39	86%	34	14%	5
General Retail	820	30	TSF	167	4	–	–	163	62%	101	38%	62
Weekday AM Peak Hour Total Trips				**294**	**10**		**0**	**284**		**156**		**128**
Weekday PM Peak Hour (vph)												
Single-Family Detached Housing	210	111	DU	112	42	–	–	70	63%	44	37%	26
General Office	710	18	TSF	22	6	–	–	16	16%	2	84%	14
General Retail	820	30	TSF	223	46	34%	62	115	48%	55	52%	60
Weekday PM Peak Hour Total Trips				**357**	**94**		**62**	**201**		**101**		**100**

4.1.2 Trip Capture

Based on ITE methodology, the development is estimated to retain 3% (10 trips) of the AM peak hour trips and 26% (94 trips) of the PM peak hour trips internally within the site.

4.1.3 Pass-By Trips

Based on ITE pass-by rates, the commercial development is estimated to generate 62 pass-by trips during the PM peak hour. No weekday daily or AM peak hour pass-by rate is available for the proposed land uses.

4.1.4 Modal Split

For traffic analysis purposes, all trips generated by the development were assumed to be made by personal and commercial vehicles. The site could generate some pedestrian and bicycle trips.

4.1.5 Trip Distribution and Assignment

Site traffic was distributed and assigned to the external roadway system based on current travel patterns, site layout, and the general location of the site within the area. The proposed commercial development is expected to primarily serve the City of Greenleaf and its surrounding area. **Figure 4.1** summarizes the expected site traffic distribution patterns. **Figure 4.2** summarizes the estimated build-out AM and PM peak hour site traffic at the study area intersections. The negative numbers represent the net results of the primary trips and pass-by trips.

4.2 Total Traffic

The build-out site traffic is then added to the 2025 background traffic as determined in Section 3.2 to obtain the 2025 build-out year total traffic. **Figure 4.3** summarizes the estimated 2025 peak hour total traffic at the study area intersections during the AM and PM peak hours. **Table 4.2** summarizes the build-out year site traffic percentage estimate at each study area intersection in the 2025 build-out year.

Table 4.2 – Site Traffic Percentage of 2025 Build-Out Year Total Traffic

Intersection		% Site Traffic of 2025 Build-Out Year Total Traffic		
		AM Peak	PM Peak	Average
(1)	Friends Rd and Main St	12.2%	8.6%	10.4%
(2)	Brown St and Main St	22.6%	18.5%	20.6%

Figure 4.1 – Site Traffic Distribution Patterns

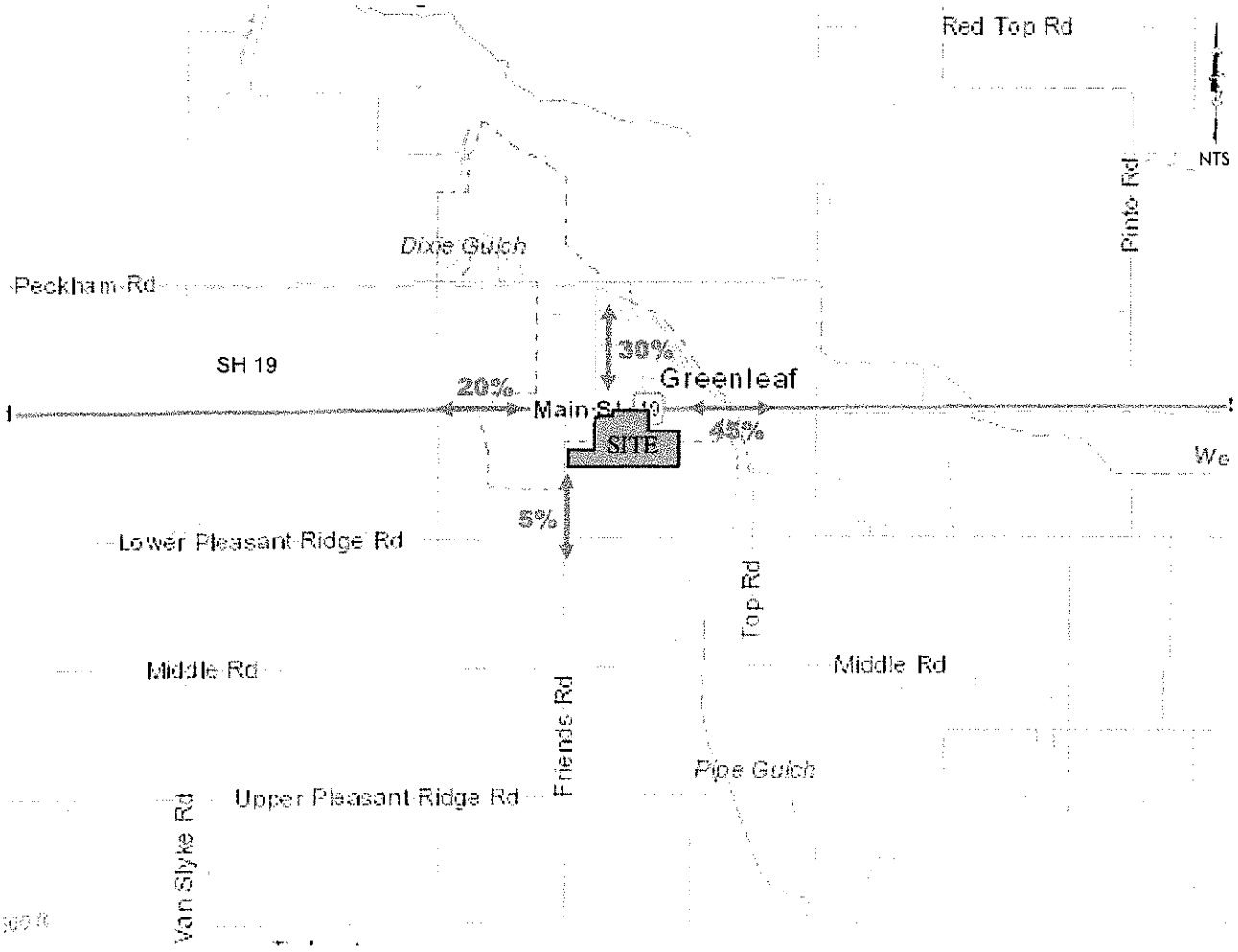
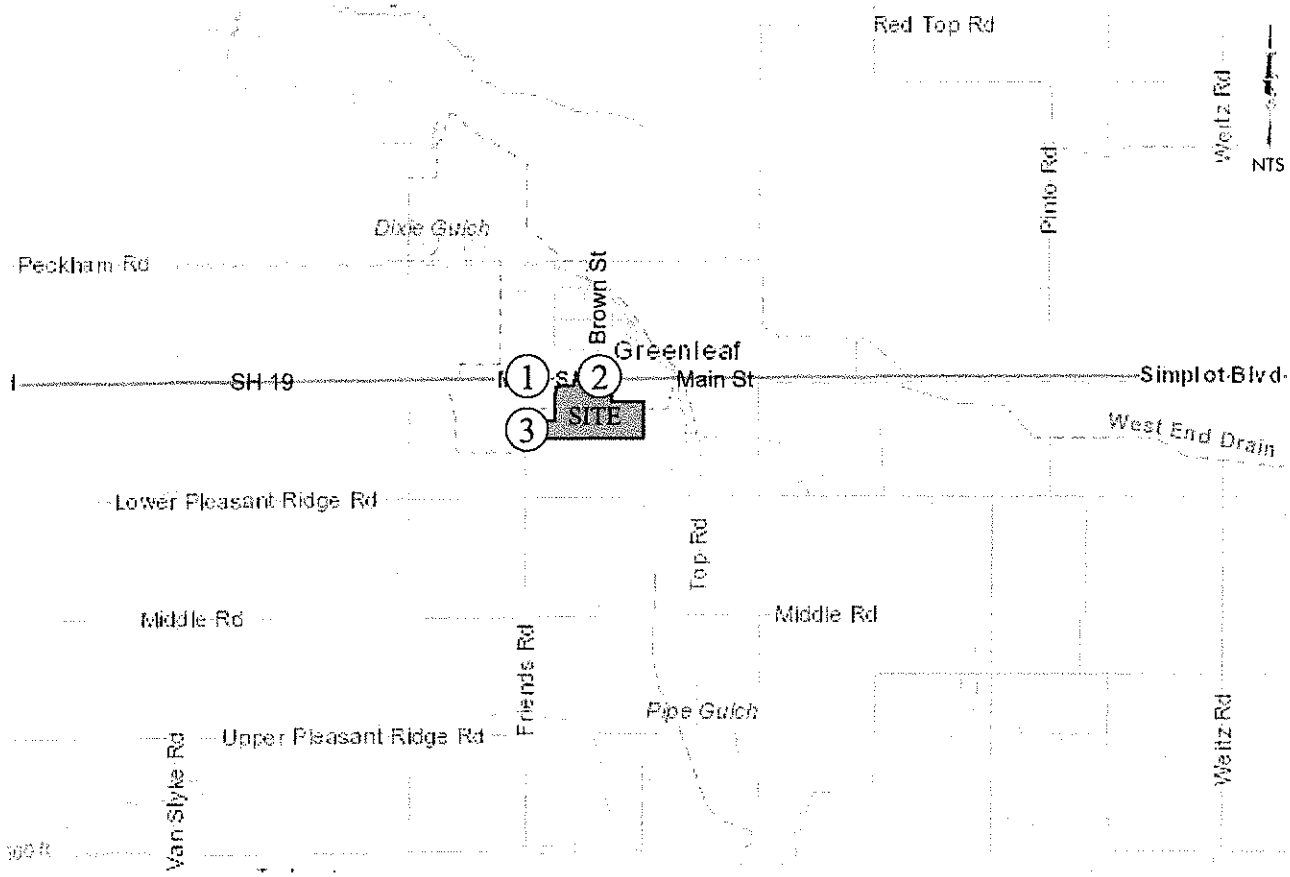


Figure 4.2 – 2025 Build-Out Year Peak Hour Site Traffic



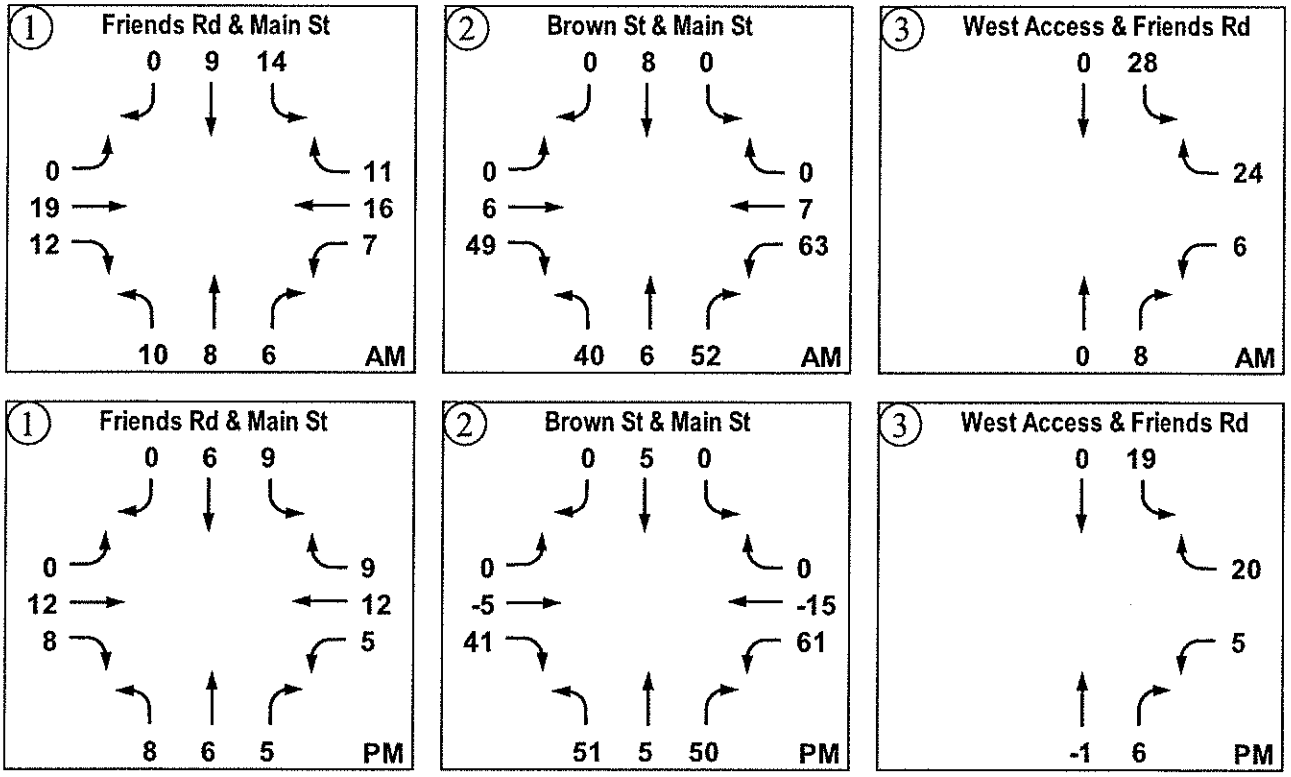
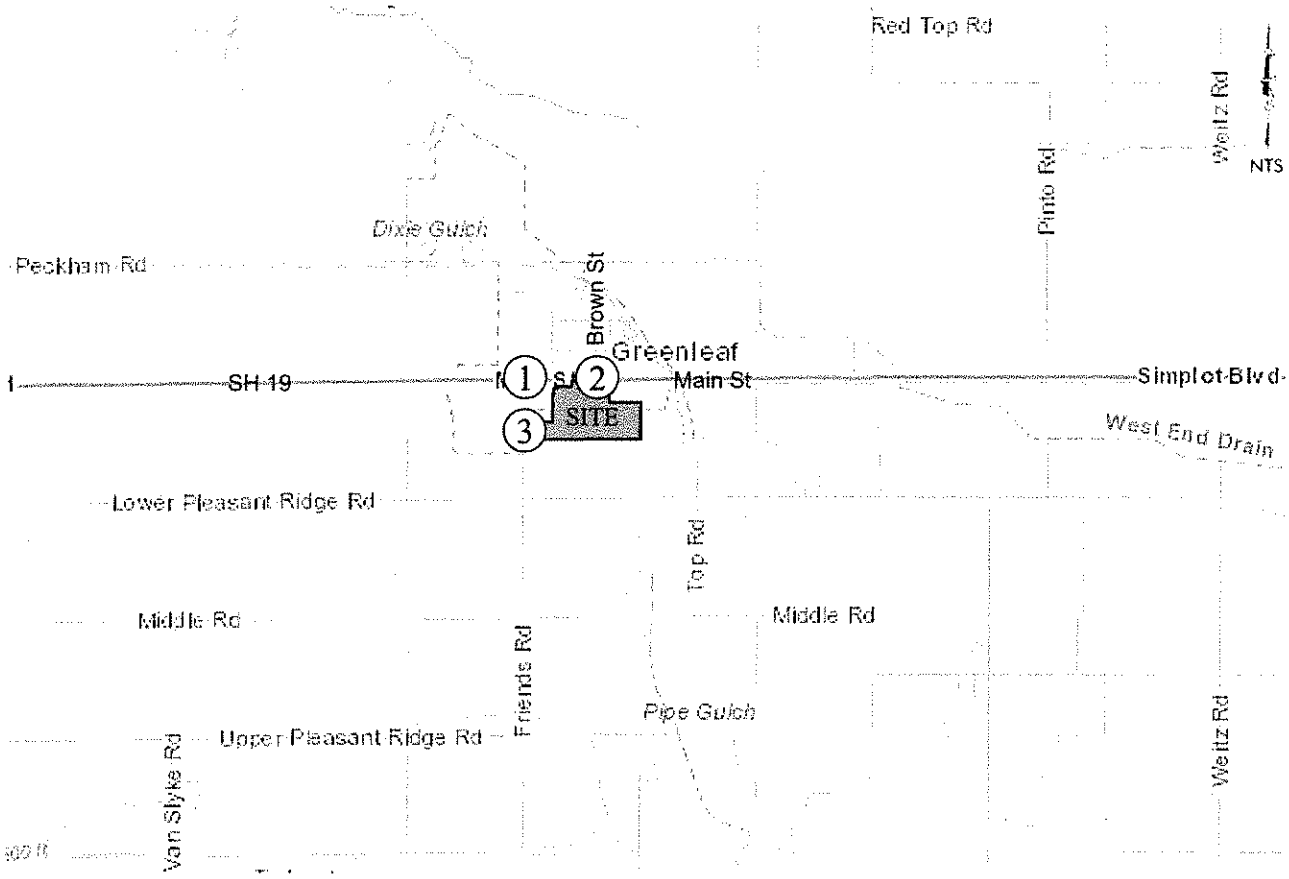
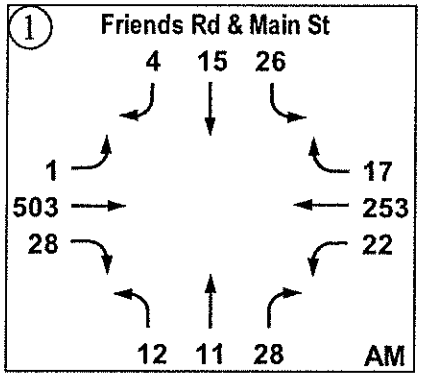
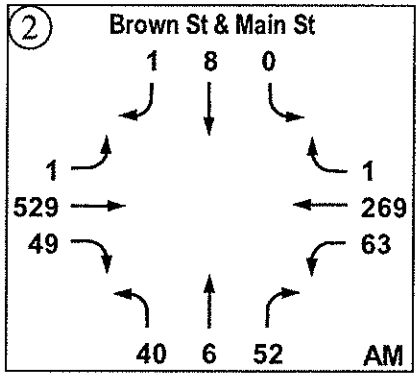
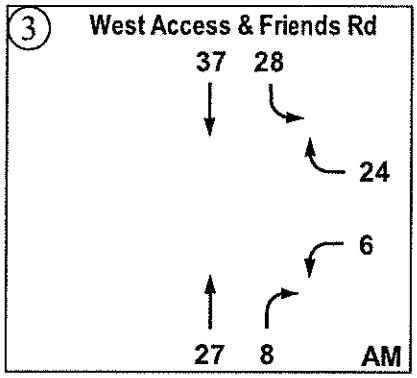


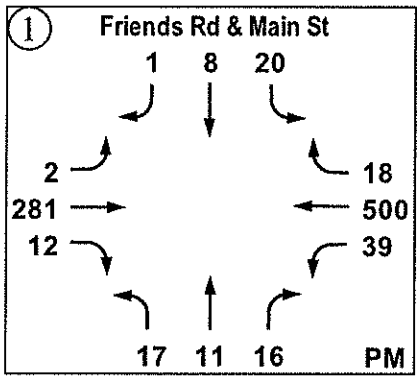
Figure 4.3 – 2025 Build-Out Year Peak Hour Total Traffic

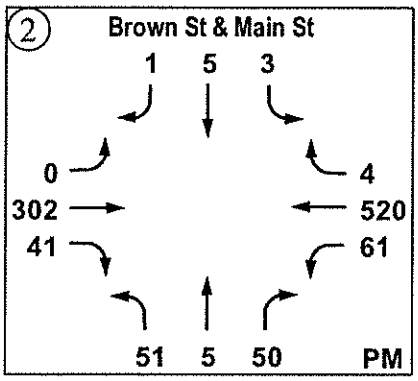


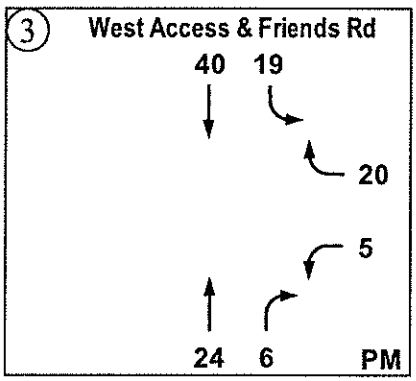








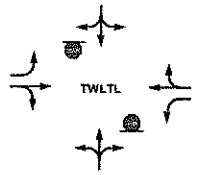
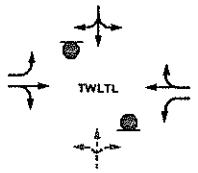




4.3 Intersection Operations

To determine the 2025 total traffic operations, the study area intersections were analyzed with the existing intersection control and lane configuration and with the construction of the south leg of the Brown Street and Main Street intersection to serve as a site access. Copies of the calculations are included in the appendix. **Table 4.3** summarizes the intersection capacity analysis results. All study area intersections are anticipated to continue to meet the minimum operational thresholds under 2025 build-out year total traffic conditions.

Table 4.3 – Intersection Operations – 2025 Build-Out Year Total Traffic

Intersection		Control / Lane Site Improvements	Intersection Or Lane Group	AM Peak Hour			PM Peak Hour		
				LOS	Delay [s/veh]	v/c Ratio	LOS	Delay [s/veh]	v/c Ratio
①	Friends Rd and Main St		EBL	A	8	< 0.01	A	9	< 0.01
			EBTR	-	-	-	-	-	-
			WBL	A	9	0.03	A	8	0.03
			WBTR	-	-	-	-	-	-
			NB	C	18	0.16	C	19	0.15
			SB	C	24	0.21	C	23	0.14
②	Brown St and Main St		EBL	A	8	< 0.01	-	-	-
			EBTR	-	-	-	-	-	-
			WBL	A	9	0.07	A	8	0.06
			WBTR	-	-	-	-	-	-
			NB	D	26	0.39	D	26	0.41
			SB	C	22	0.05	C	24	0.05

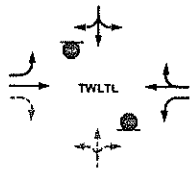
4.4 Intersection Mitigation

All study area intersections are anticipated to meet minimum operational thresholds under 2025 total traffic analyzed with the existing lane configuration and intersection control. One study area intersection is expected to warrant a turn lane based on ITD right-turn lane guidelines:

- Brown Street and Main Street intersection
  - Eastbound right-turn lane

Table 4.4 summarizes the mitigation analysis results. The additional eastbound right-turn lane is not expected to significantly reduce the intersection delay. The eastbound right-turn lane is expected to reduce vehicle conflicts on Main Street.

Table 4.4 – Brown Street and Main Street Intersection Mitigation – 2025 Build-Out Year Total Traffic

Intersection		Control / Lane Site Improvements	Intersection Or Lane Group	AM Peak Hour			PM Peak Hour		
				LOS	Delay [s/veh]	v/c Ratio	LOS	Delay [s/veh]	v/c Ratio
②	Brown St and Main St		EBL	A	8	< 0.01	-	-	-
			EBT	-	-	-	-	-	-
			EBR	-	-	-	-	-	-
			WBL	A	9	0.07	A	8	0.06
			WBTR	-	-	-	-	-	-
			NB	C	25	0.38	C	25	0.39
			SB	C	22	0.05	C	24	0.05

4.5 Site Access and Circulation

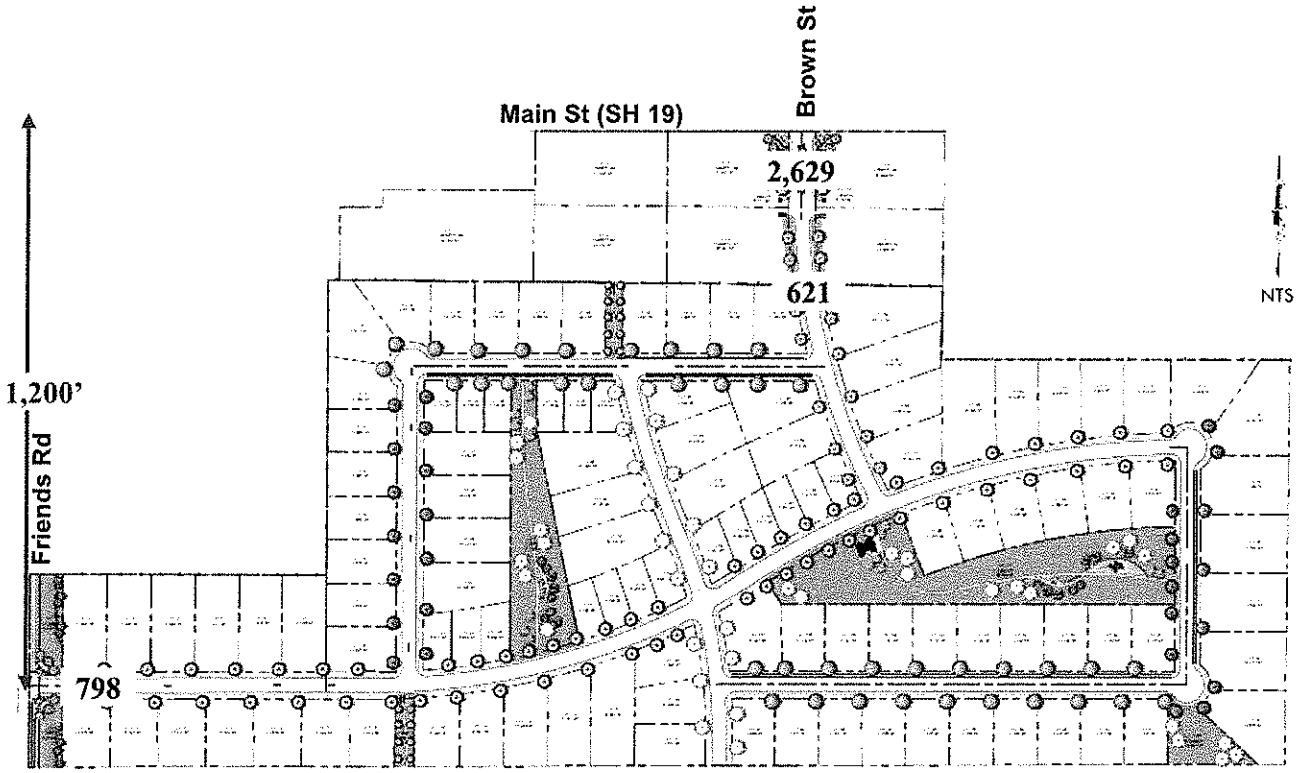
Figure 4.5 shows the site access location and internal circulation. Royal Ridge Subdivision is proposing to construct one full-movement approach on Friends Road located approximately 1,200 feet south of Main Street. In addition, the development is proposing one full-movement approach on Main Street aligning with Brown Street to the north. Field review was conducted at both proposed site access locations. Field review photos are included in the appendix. Adequate sight distance was confirmed in excess of 390 feet for the posted 35-mph speed limits on Main Street and Friends Road north of the access and in excess of 550 feet for the West Access looking south for the posted 50-mph speed limit on Friends Road south of the access.

Table 4.5 summarizes the intersection capacity analysis results for the proposed West Access on Friends Road under 2025 build-out year total traffic conditions. The intersection is anticipated to meet minimum operational thresholds. No turn lanes are warranted based on NCHRP Report 457 *Evaluating Intersection Improvements: An Engineering Study Guide* turn lane guidelines.

Table 4.5 – Site Access Intersection Operations – 2025 Build-Out Year Total Traffic

Intersection		Control / Lane Site Improvements	Intersection Or Lane Group	AM Peak Hour			PM Peak Hour		
				LOS	Delay [s/veh]	v/c Ratio	LOS	Delay [s/veh]	v/c Ratio
③	West Access and Friends Rd		WB	A	9	0.03	A	9	0.03
			NB	-	-	-	-	-	-
			SB	A	7	0.02	A	7	0.01

Figure 4.4 – Site Access, Internal Circulation, and ADT

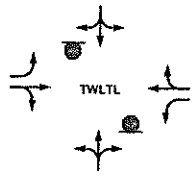
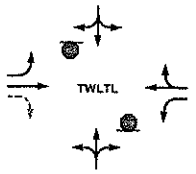
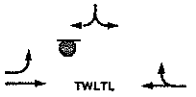


4.6 Alternate Site Access Scenario

ITD has requested analysis of the site traffic impacts with and without the proposed access on Main Street south of Brown Street. **Table 4.5** summarizes the intersection capacity analysis results under 2025 build-out year total traffic conditions without the proposed access on Main Street. All intersections are anticipated to continue to meet minimum operational thresholds. The Friends Road and Main Street intersection is anticipated to require an eastbound right-turn lane based on ITD right-turn lane guidelines.

Without an access on Main Street, site traffic generated by the commercial development would have to travel on internal local streets through the residential area. Some segments of the internal local streets may carry over 3,000 vehicles per day, which exceeds the typical traffic volume on a local street. Therefore, additional access on Main Street is needed to adequately serve the development.

Table 4.6 – Intersection Operations – 2025 Build-Out Year Total Traffic (No Access on SH 19)

Intersection		Control / Lane Site Improvements	Intersection Or Lane Group	AM Peak Hour			PM Peak Hour		
				LOS	Delay [s/veh]	v/c Ratio	LOS	Delay [s/veh]	v/c Ratio
1	Friends Rd and Main St		EBL	A	8	< 0.01	A	8	< 0.01
			EBTR	-	-	-	-	-	-
			WBL	A	9	0.12	A	8	0.10
			WBTR	-	-	-	-	-	-
			NB	D	29	0.53	D	30	0.53
			SB	D	34	0.29	D	30	0.18
			EBL	A	8	< 0.01	A	8	< 0.01
			EBT	-	-	-	-	-	-
			EBR	-	-	-	-	-	-
			WBL	A	9	0.12	A	8	0.10
			WBTR	-	-	-	-	-	-
			NB	D	28	0.52	D	28	0.52
			SB	D	34	0.29	D	30	0.18
2	Brown St and Main St		EBL	A	8	<0.01	A	9	0.01
			EBT	-	-	-	-	-	-
			WB	-	-	-	-	-	-
			SB	B	10	< 0.01	B	13	0.02
3	West Access and Friends Rd		WB	A	9	0.14	A	9	0.14
			NB	-	-	-	-	-	-
			SB	A	8	0.01	A	8	0.09

5.0 2030 HORIZON YEAR BACKGROUND TRAFFIC CONDITIONS

5.1 Roadway Network

The study area roadways and intersections are expected to remain the same as the 2021 existing lane configuration and intersection control. No roadway or intersection capacity improvements were assumed by 2030.

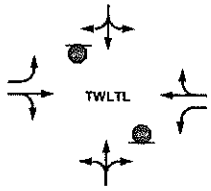
5.2 Background Traffic

2030 background traffic was calculated by increasing the 2025 background traffic volumes with a 2.0% annual growth rate on all study area roadways from 2025 to 2030. No off-site traffic was included from 2025 to 2030, as no in-process developments are known at this time that would not be already accounted for in the annual traffic growth. **Figure 5.1** summarizes the estimated 2030 peak hour background traffic.

5.3 Intersection Operations

To determine the 2030 background traffic operations, the study area intersections were analyzed with the existing intersection control and lane configuration. Copies of the analysis reports are included in the appendix. **Table 5.1** summarizes the intersection capacity analysis results. Based on traffic analysis results, all study area intersections are expected to continue to meet minimum operational thresholds under 2030 background traffic operations.

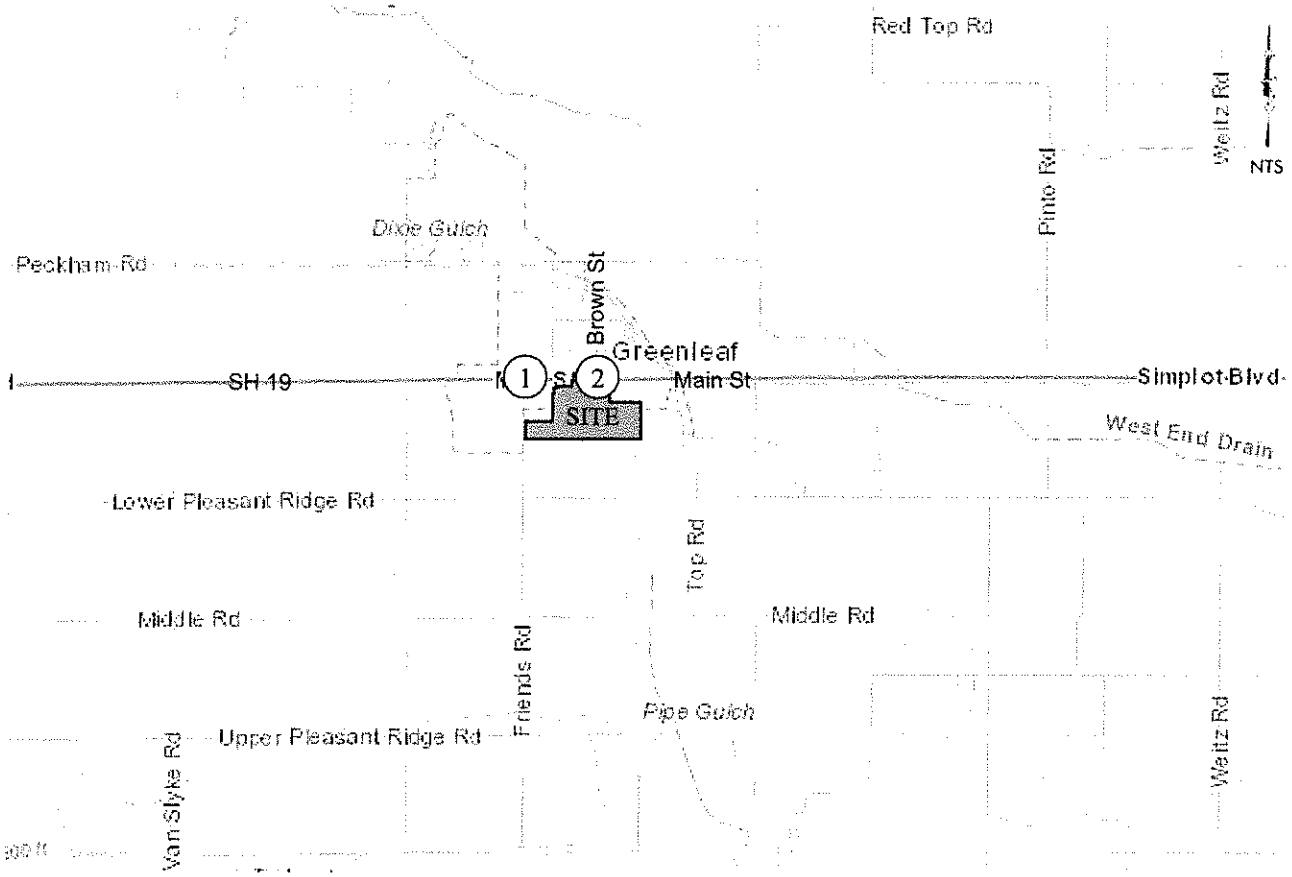
Table 5.1 – Intersection Operations – 2030 Horizon Year Background Traffic

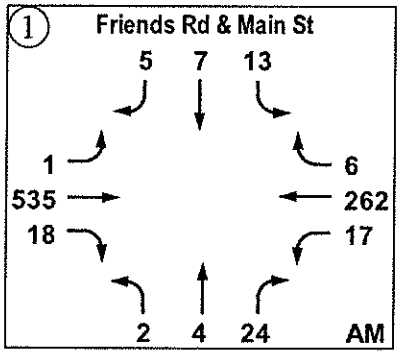
Intersection		Control / Lane	Intersection Or Lane Group	AM Peak Hour			PM Peak Hour		
				LOS	Delay [s/veh]	v/c Ratio	LOS	Delay [s/veh]	v/c Ratio
①	Friends Rd and Main St		EBL	A	8	< 0.01	A	9	< 0.01
			EBTR	-	-	-	-	-	-
			WBL	A	9	0.02	A	8	0.03
			WBTR	-	-	-	-	-	-
			NB	B	15	0.08	C	18	0.10
			SB	C	20	0.11	C	23	0.07
②	Brown St and Main St		EBL	A	8	< 0.01	-	-	-
			EBT	-	-	-	-	-	-
			WB	-	-	-	-	-	-
			SB	B	10	< 0.01	B	14	0.01

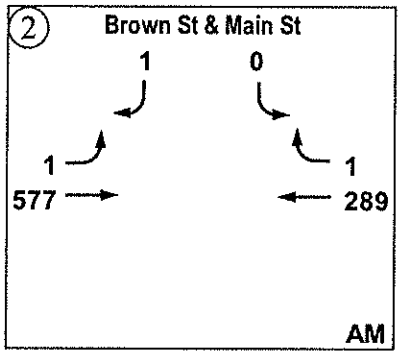
5.4 Intersection Mitigation

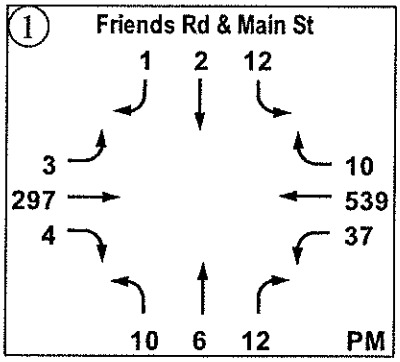
All study area intersections are expected to continue to meet the City and ITD minimum operational thresholds under 2030 background traffic conditions analyzed with the existing lane configuration and intersection control. In addition, no study area intersection is expected to warrant a right-turn lane based on ITD right-turn lane guidelines. As a result, no improvements are proposed to mitigate 2030 horizon year background traffic operations.

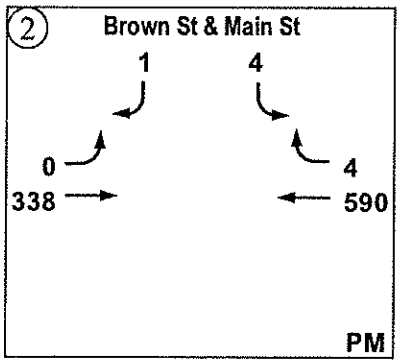
Figure 5.1 – 2030 Horizon Year Peak Hour Background Traffic











6.0 2030 HORIZON YEAR TOTAL TRAFFIC CONDITIONS

6.1 Roadway Network

The study area roadways and intersections are expected to remain the same as the 2021 existing lane configuration and intersection control. No roadway or intersection capacity improvements were assumed by 2030. As stated under 2025 total traffic conditions, Royal Ridge Subdivision is proposing to construct the south leg of the Brown Street and SH 19 intersection for site access as well as an access on Friends Road 1,200 feet south of Main Street.

6.2 Site Traffic

Site traffic under 2030 horizon year conditions is expected to remain the same as discussed in Section 4.1.

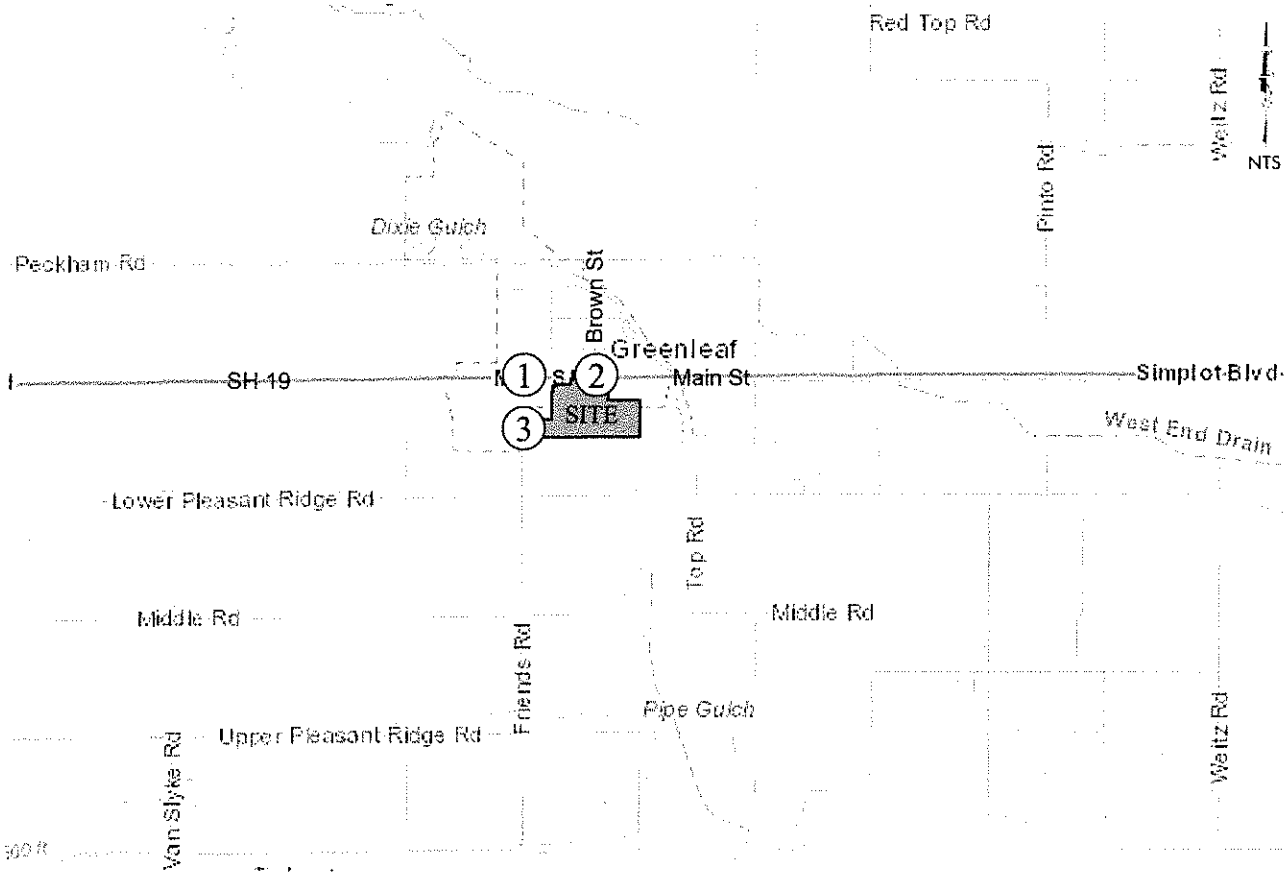
6.3 Total Traffic

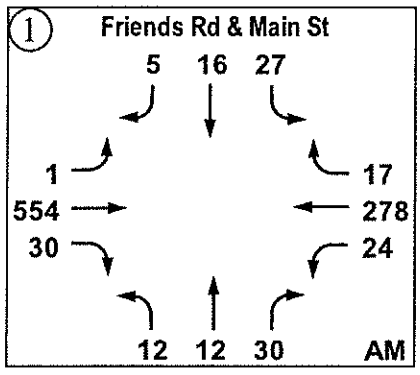
The 2025 build-out site traffic is added to the 2030 background traffic as determined above to obtain the 2030 horizon year total traffic. **Figure 6.1** summarizes the estimated 2030 peak hour total traffic at the study area intersections during the AM and PM peak hours. **Table 6.1** summarizes the build-out year site traffic percentage estimate at each study area intersection in the 2030 horizon year.

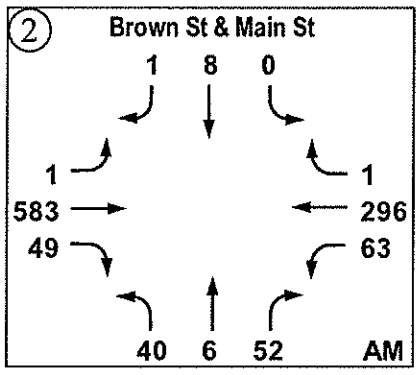
Table 6.1 – Site Traffic Percentage of 2030 Horizon Year Total Traffic

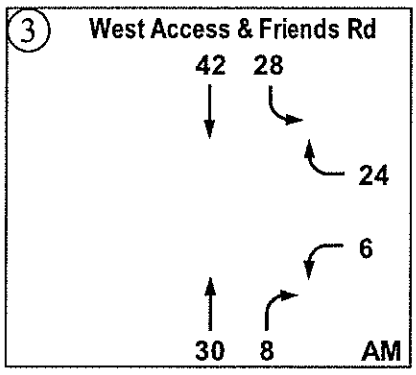
Intersection		% Site Traffic of 2030 Horizon Year Total Traffic		
		AM Peak	PM Peak	Average
(1)	Friends Rd and Main St	11.1%	7.9%	9.5%
(2)	Brown St and Main St	21.0%	17.1%	19.0%

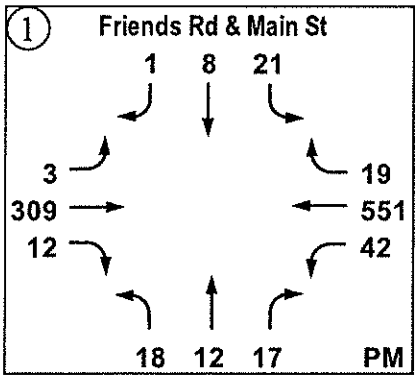
Figure 6.1 – 2030 Horizon Year Peak Hour Total Traffic

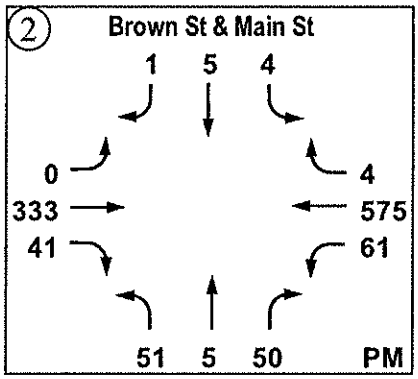


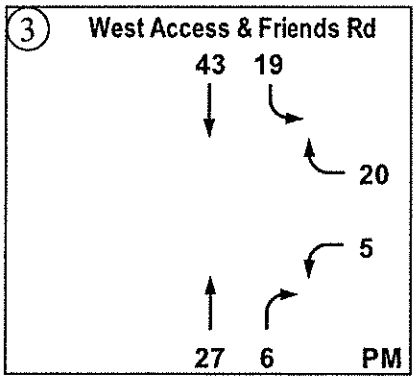








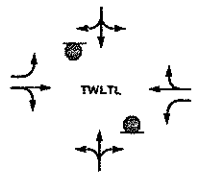
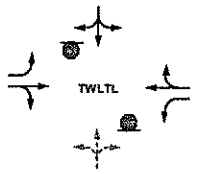
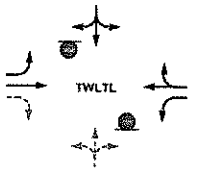




6.4 Intersection Operations

To determine the 2030 total traffic operations, the study area intersections were analyzed with the existing intersection control and lane configuration and with the construction of the south leg of the Brown Street and SH 19 intersection to serve as a site access. The eastbound right-turn lane needed under 2025 total traffic conditions was also included in the analysis. Copies of the calculations are included in the appendix. **Table 6.2** summarizes the intersection capacity analysis results. All study area intersections are expected to continue to meet the City and ITD minimum operational thresholds under 2030 horizon year total traffic operations.

Table 6.2 – Intersection Operations – 2030 Horizon Year Total Traffic

Intersection		Control / Lane Site Improvements	Intersection Or Lane Group	AM Peak Hour			PM Peak Hour		
				LOS	Delay [s/veh]	v/c Ratio	LOS	Delay [s/veh]	v/c Ratio
1	Friends Rd and Main St		EBL	A	8	< 0.01	A	9	< 0.01
			EBTR	-	-	-	-	-	-
			WBL	A	9	0.03	A	8	0.04
			WBTR	-	-	-	-	-	-
			NB	C	20	0.20	C	21	0.18
			SB	C	28	0.25	D	27	0.16
2	Brown St and Main St		EBL	A	8	< 0.01	-	-	-
			EBTR	-	-	-	-	-	-
			WBL	A	9	0.08	A	8	0.06
			WBTR	-	-	-	-	-	-
			NB	D	31	0.44	D	31	0.46
			SB	C	25	0.05	D	28	0.06
			EBL	A	8	< 0.01	-	-	-
			EBT	-	-	-	-	-	-
			EBR	-	-	-	-	-	-
			WBL	A	9	0.08	A	8	0.06
			WBTR	-	-	-	-	-	-
			NB	D	29	0.43	D	29	0.45
			SB	C	25	0.05	D	27	0.06
3	West Access and Friends Rd		WB	A	9	0.03	A	9	0.03
			NB	-	-	-	-	-	-
			SB	A	7	0.02	A	7	0.01

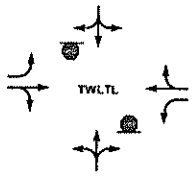
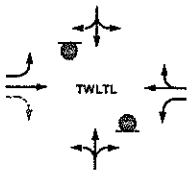
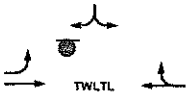
6.5 Intersection Mitigation

All study area intersections are expected to continue to meet the City and ITD minimum operational thresholds under 2030 total traffic analyzed with the existing lane configuration and intersection control. In addition, no study area intersection is expected to warrant additional turn lanes based on ITD right-turn lane and NCHRP Report 457 guidelines. As a result, no additional improvements are needed to mitigate the 2030 horizon year total traffic operations.

6.6 Alternate Site Access Scenario

Table 6.3 summarizes the intersection capacity analysis results under 2030 horizon year total traffic conditions without the proposed access on Main Street. All study area intersections meet the City and ITD thresholds. The northbound and southbound lane groups at the Friends Road and Main Street intersection are anticipated to operate at LOS E with v/c ratios less than 0.90, which is within ITD's acceptable thresholds. An eastbound right-turn lane is warranted at the Friends Road and Main Street intersection based on ITD right-turn lane guidelines, as it was warranted under 2025 build-out total traffic conditions when no access is permitted on Main Street.

Table 6.3 – Intersection Operations – 2030 Horizon Year Total Traffic (No Access on SH 19)

Intersection		Control / Lane Site Improvements	Intersection Or Lane Group	AM Peak Hour			PM Peak Hour		
				LOS	Delay [s/veh]	v/c Ratio	LOS	Delay [s/veh]	v/c Ratio
1	Friends Rd and Main St		EBL	A	8	< 0.01	A	9	< 0.01
			EBTR	-	-	-	-	-	-
			WBL	A	10	0.13	A	8	0.11
			WBTR	-	-	-	-	-	-
			NB	E	37	0.62	E	39	0.62
			SB	E	42	0.36	E	36	0.22
			EBL	A	8	< 0.01	A	9	< 0.01
			EBT	-	-	-	-	-	-
			EBR	-	-	-	-	-	-
			WBL	A	10	0.13	A	8	0.11
			WBTR	-	-	-	-	-	-
			NB	D	35	0.60	E	37	0.61
			SB	E	42	0.36	E	36	0.22
2	Brown St and Main St		EBL	A	8	<0.01	A	9	0.01
			EBT	-	-	-	-	-	-
			WBTR	-	-	-	-	-	-
			SB	B	11	< 0.01	B	14	0.03
3	West Access and Friends Rd		WB	A	9	0.14	A	9	0.14
			NB	-	-	-	-	-	-
			SB	A	8	0.10	A	8	0.09

APPENDIX A: Scope of Work

CR ENGINEERING, INC.
181 E 50th Street
Garden City, ID 83714
(208) 841-4996

MEMORANDUM – TIS SCOPE

DATE: April 16, 2021

TO: Erika Bowen, P.E., ITD (District 3)
Gordon Bates, P.E., Golden Gate Highway District No. 3

FROM: Chhang Ream, P.E., PTOE
CR Engineering, Inc.

PROJECT: Royal Ridge Subdivision
Greenleaf, Idaho

SUBJECT: Scope of Work for Traffic Impact Study

Royal Ridge Subdivision is a proposed residential development located south Main Street (ID-19) between Friends Road and Antrim Drive in Greenleaf, Idaho. This memorandum summarizes the TIS scope of work which includes and addresses the following items:

A. PROPOSED DEVELOPMENT AND ACCESS (preliminary site plan is attached)
- Residential development with 149 residential lots
- One full access approach on Friends Road

B. SITE TRIP GENERATION, MODE SPLIT, TRIP DISTRIBUTION AND ASSIGNMENT
- Site trip generation will be based one ITE Trip Generation Manual (10th Edition)
- Mode split will be passenger and commercial vehicles with some pedestrian trips walking to/from school
- Traffic distribution and assignment will be based on the existing traffic patterns

C. STUDY AREA INTERSECTIONS
1. Friends Road and Main Street intersection
2. Brown Street and Main Street intersection
3. All proposed site access intersections

D. TRAFFIC DATA COLLECTION
- Intersection peak hour turning movement counts will be collected on a typical weekday (Tuesday-Thursday) for the AM peak period (7:00-9:00 am) and PM peak period (4:00-6:00 pm)
  - Review counts and adjust for COVID-19 reduced travel if needed

E. ANALYSIS YEARS
- 2020 existing traffic
- 2025 build-out year background traffic
- 2025 build-out year total traffic
- 2030 horizon year background traffic
- 2030 horizon year total traffic

F. ANALYSIS PERIODS
- Weekday AM peak hour of the adjacent transportation system (7:00-9:00 am)
- Weekday PM peak hour of the adjacent transportation system (4:00-6:00 pm)

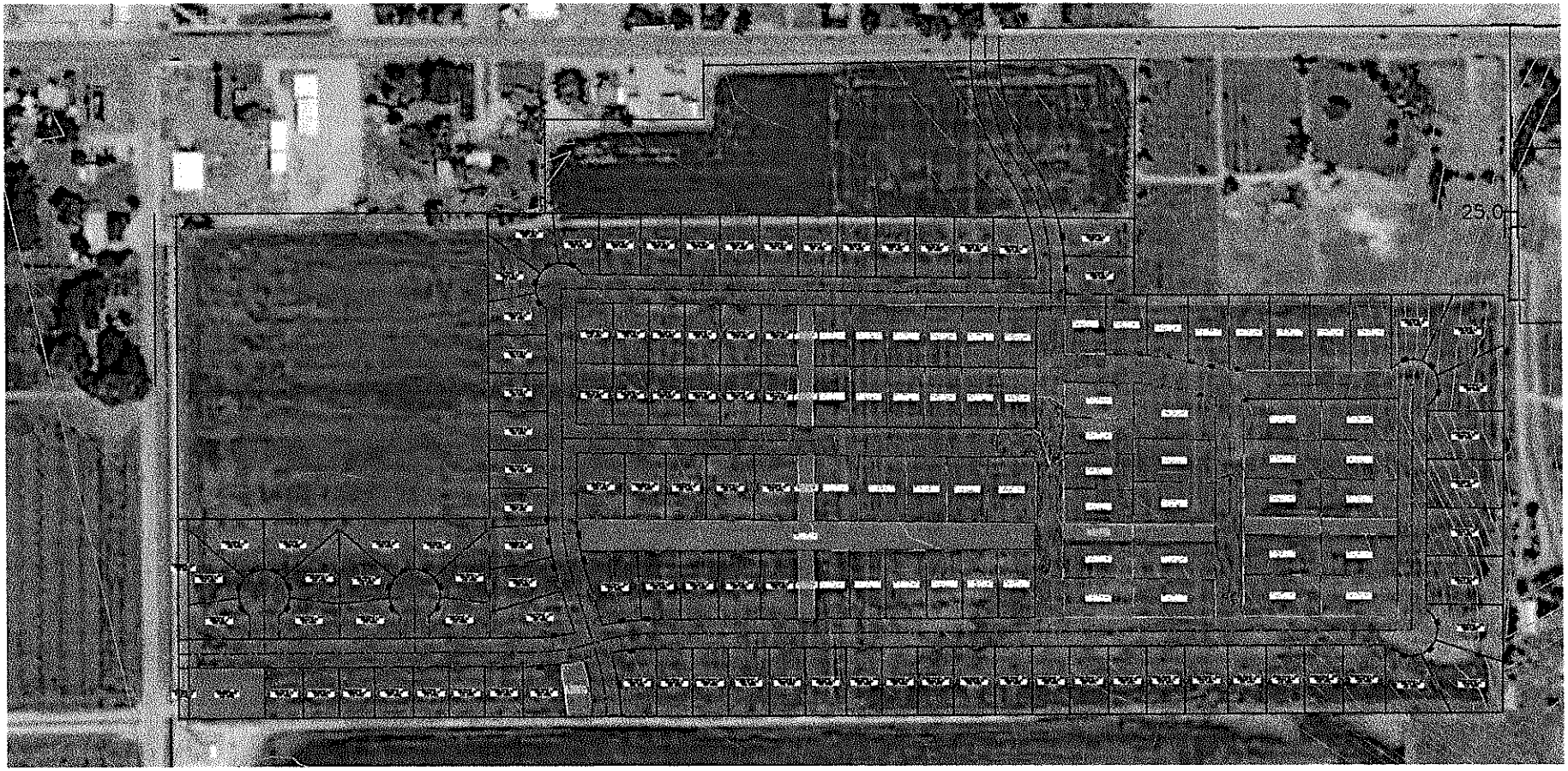
G. BACKGROUND TRAFFIC ESTIMATE
- Background traffic growth will be estimated based on historical traffic growth in the area

H. ANALYSIS TOOLS AND METHODOLOGIES
- Intersection capacity analysis will be performed using Synchro 10 (version 10.3.151.0) with 2016 Highway Capacity Manual (HCM6) methodologies

I. MINIMUM OPERATIONAL THRESHOLDS
- Unsignalized and signalized intersections – LOS D for the worst movement

J. TRAFFIC IMPACT ANALYSIS
- Review intersection crash data
- Conduct intersection capacity analysis for the analysis years traffic conditions
- Conduct turn lane warrant analysis using ITD turn lane guidelines
- Verify intersection sight distance
- Review school routes and crossings
- Recommend improvements needed to mitigate the impacts if necessary
- Conduct phasing analysis to determine when mitigation improvements are needed
- Review school routes and crossings

K. PREPARE A REPORT SUMMARIZING THE RESULTS AND RECOMMENDATIONS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APPENDIX B: Traffic Counts + ITD ATR Data

Friends St & HWY 19
Greenleaf Idaho
25 May, 2021

Time	Southbound Friends St						Westbound HWY 19						Northbound Friends St						Eastbound HWY 19						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
7:00 AM	0	3	1	1	0	*5*	0	2	46	2	0	*50*	0	0	0	4	0	*4*	0	0	83	2	0	*85*	144
7:15 AM	0	3	2	1	0	*6*	0	4	53	1	0	*58*	0	0	1	9	0	*10*	0	0	116	2	0	*120*	194
7:30 AM	0	3	3	1	0	*7*	0	1	64	2	0	*67*	0	1	1	6	0	*8*	0	0	110	2	0	*112*	194
7:45 AM	0	2	0	1	0	*3*	0	6	40	0	0	*46*	0	1	1	1	0	*3*	0	1	103	8	0	*112*	164
Hourly Total	0	11	6	4	0	*21*	0	13	203	5	0	*221*	0	2	3	20	0	*25*	0	1	414	14	0	*429*	696
8:00 AM	0	0	0	0	0	*0*	0	6	37	1	0	*44*	0	2	2	2	0	*6*	0	0	69	1	0	*70*	120
8:15 AM	0	6	0	1	0	*7*	0	3	32	1	0	*36*	0	1	1	8	0	*10*	0	0	72	1	0	*73*	126
8:30 AM	0	4	1	0	0	*5*	0	4	47	0	0	*51*	0	0	0	4	0	*4*	0	0	70	1	0	*71*	131
8:45 AM	0	1	1	0	0	*2*	0	4	41	3	0	*48*	0	1	0	2	0	*3*	0	0	84	0	0	*84*	137
Hourly Total	0	11	2	1	0	*14*	0	17	157	5	0	*179*	0	4	3	16	0	*23*	0	0	295	3	0	*298*	514

Friends St & HWY 19
Greenleaf Idaho
25 May, 2021

Time	Southbound Friends St						Westbound HWY 19						Northbound Friends St						Eastbound HWY 19						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
4:00 PM	0	2	0	0	0	*2*	0	3	82	8	0	*93*	0	0	1	6	0	*7*	0	0	68	2	0	*70*	172
4:15 PM	0	3	0	1	0	*4*	0	5	98	2	0	*105*	0	0	0	4	0	*4*	0	0	58	3	0	*61*	174
4:30 PM	0	2	0	0	0	*2*	0	4	81	2	0	*87*	0	0	1	2	0	*3*	0	2	71	0	0	*73*	165
4:45 PM	0	1	1	0	0	*2*	0	4	90	2	0	*96*	0	0	2	1	0	*3*	0	0	38	0	0	*38*	139
Hourly Total	0	8	1	1	0	*10*	0	16	351	14	0	*381*	0	0	4	13	0	*17*	0	2	235	5	0	*242*	650
5:00 PM	0	2	0	0	0	*2*	0	11	116	1	0	*128*	0	3	1	1	0	*5*	0	1	57	2	0	*60*	195
5:15 PM	0	2	0	0	0	*2*	0	7	99	3	0	*109*	0	1	1	2	0	*4*	0	0	77	0	0	*77*	192
5:30 PM	0	2	2	0	0	*4*	0	3	97	2	0	*102*	0	2	1	5	0	*8*	0	0	55	1	0	*56*	170
5:45 PM	0	4	0	1	0	*5*	0	8	105	2	0	*115*	0	2	2	2	0	*6*	0	1	41	0	0	*42*	168
Hourly Total	0	10	2	1	0	*13*	0	29	417	8	0	*454*	0	8	5	10	0	*23*	0	2	230	3	0	*235*	725
DAILY TOTAL	**0**	**40**	**11**	**7**	**0**	***58***	**0**	**75**	**1126**	**32**	**0**	***1235***	**0**	**14**	**15**	**59**	**0**	***88***	**0**	**5**	**1174**	**25**	**0**	***1204***	**2585**
Cars	0	38	10	7	0	*55*	0	71	1091	30	0	*1192*	0	14	15	59	0	*88*	0	5	1129	25	0	*1159*	**2494**
Heavy Vehicles	0	2	1	0	0	*3*	0	4	37	2	0	*43*	0	0	0	0	0	*0*	0	0	45	0	0	*45*	**91**
Heavy Vehicle %	0.00%	5.00%	9.09%	0.00%	0.00%	*5.17%*	0.00%	5.33%	3.28%	6.25%	0.00%	*3.48%*	0.00%	0.00%	0.00%	0.00%	0.00%	*0.00%*	0.00%	0.00%	3.83%	0.00%	0.00%	*3.74%*	**3.52%**

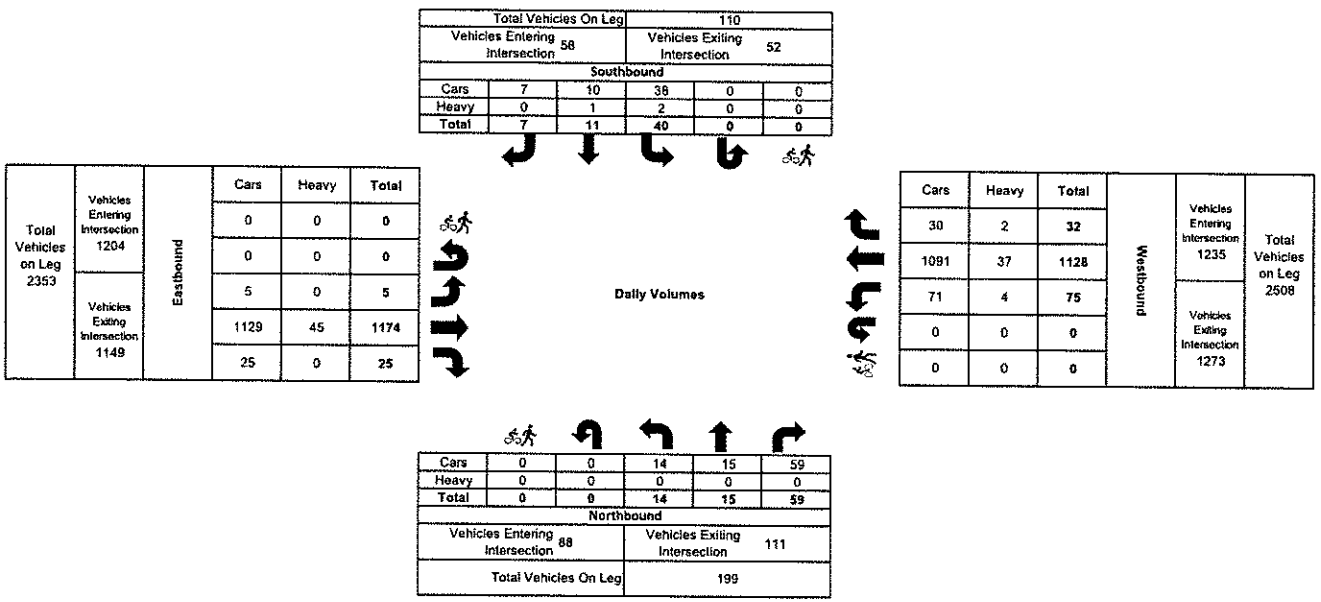
Friends St & HWY 19
Greenleaf Idaho
25 May, 2021

AM Peak Hour

Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
7:00 AM	0	3	1	1	0	*5*	0	2	46	2	0	*50*	0	0	0	4	0	*4*	0	0	83	2	0	*85*	144
7:15 AM	0	3	2	1	0	*6*	0	4	53	1	0	*58*	0	0	1	9	0	*10*	0	0	118	2	0	*120*	194
7:30 AM	0	3	3	1	0	*7*	0	1	64	2	0	*67*	0	1	1	6	0	*8*	0	0	110	2	0	*112*	194
7:45 AM	0	2	0	1	0	*3*	0	6	40	0	0	*46*	0	1	1	1	0	*3*	0	1	103	6	0	*112*	164
Peak Hour Total	0	11	6	4	0	*21*	0	13	203	5	0	*221*	0	2	3	20	0	*25*	0	1	414	14	0	*429*	696
PHF	0.000	0.917	0.500	1.000	0.000	*0.750*	0.000	0.542	0.793	0.625	0.000	*0.825*	0.000	0.500	0.750	0.556	0.000	*0.625*	0.000	0.250	0.877	0.438	0.000	*0.894*	0.897
Heavy Vehicle %	0.00%	9.09%	0.00%	0.00%	0.00%	**4.8%**	0.00%	15.38%	6.90%	20.00%	0.00%	**7.7%**	0.00%	0.00%	0.00%	0.00%	0.00%	**0.0%**	0.00%	0.00%	3.38%	0.00%	0.00%	**3.3%**	**4.60%**

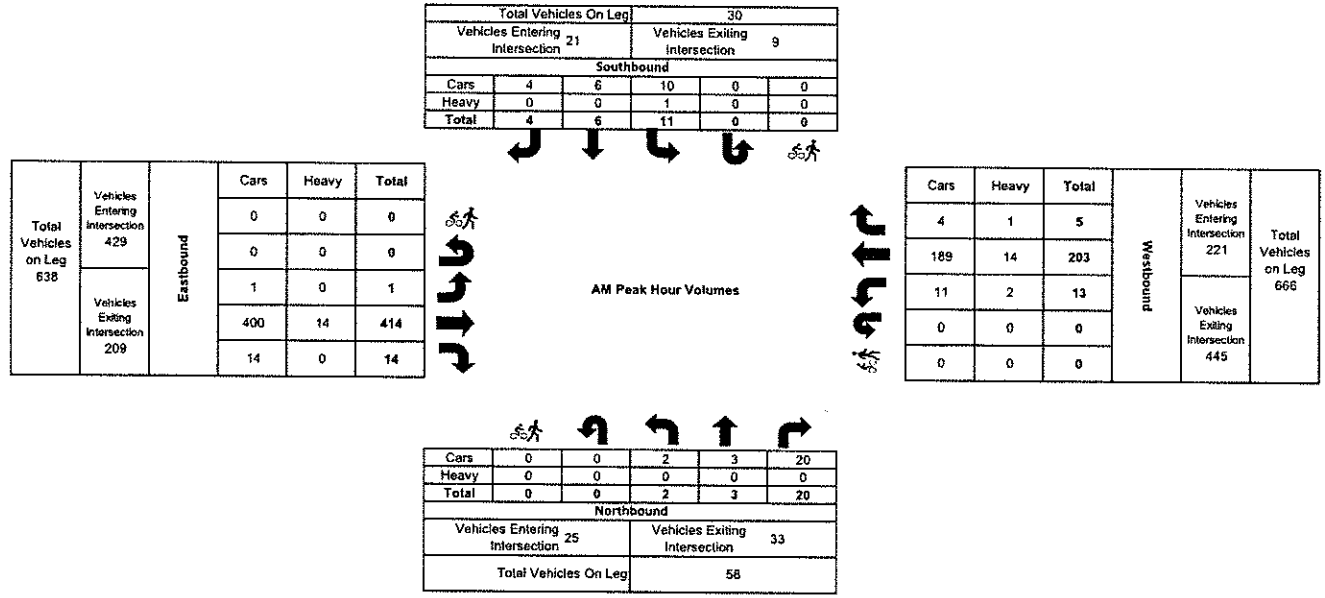
PM Peak Hour

Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
5:00 PM	0	2	0	0	0	*2*	0	11	116	1	0	*128*	0	3	1	1	0	*5*	0	1	57	2	0	*60*	195
5:15 PM	0	2	0	0	0	*2*	0	7	99	3	0	*109*	0	1	1	2	0	*4*	0	0	77	0	0	*77*	192
5:30 PM	0	2	2	0	0	*4*	0	3	97	2	0	*102*	0	2	1	5	0	*8*	0	0	55	1	0	*56*	170
5:45 PM	0	4	0	1	0	*5*	0	8	105	2	0	*115*	0	2	2	2	0	*6*	0	1	41	0	0	*42*	168
Peak Hour Total	0	10	2	1	0	*13*	0	29	417	8	0	*454*	0	8	5	10	0	*23*	0	2	230	3	0	*235*	725
PHF	0.000	0.625	0.250	0.250	0.000	*0.650*	0.000	0.659	0.899	0.667	0.000	*0.887*	0.000	0.667	0.625	0.500	0.000	*0.719*	0.000	0.500	0.747	0.375	0.000	*0.763*	0.929
Heavy Vehicle %	0.00%	0.00%	0.00%	0.00%	0.00%	**0.0%**	0.00%	0.00%	0.96%	0.00%	0.00%	**0.9%**	0.00%	0.00%	0.00%	0.00%	0.00%	**0.0%**	0.00%	0.00%	1.74%	0.00%	0.00%	**1.7%**	**1.10%**



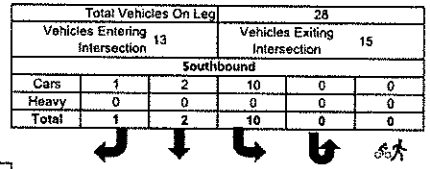
Friends St & HWY 19
Greenleaf Idaho
Tuesday, May 25, 2021
AM Peak Hour

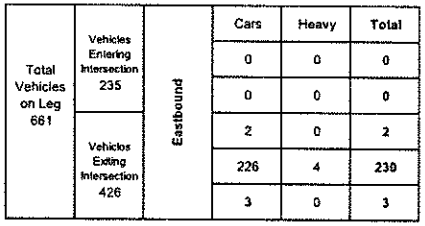
Time	Friends St Southbound						HWY 19 Westbound						Friends St Northbound						HWY 19 Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
7:00 AM	0	3	1	1	0	*5*	0	2	46	2	0	*50*	0	0	0	4	0	*4*	0	0	83	2	0	*85*	144
7:15 AM	0	3	2	1	0	6	0	4	53	1	0	*58*	0	0	1	9	0	*10*	0	0	118	2	0	*120*	194
7:30 AM	0	3	3	1	0	*7*	0	1	64	2	0	*67*	0	1	1	6	0	*8*	0	0	110	2	0	*112*	194
7:45 AM	0	2	0	1	0	*3*	0	6	40	0	0	*46*	0	1	1	1	0	*3*	0	1	103	8	0	*112*	164
Peak Hour Total	0	11	6	4	0	*21*	0	13	203	5	0	*221*	0	2	3	20	0	*25*	0	1	414	14	0	*429*	696
PHF	0.000	0.917	0.500	1.000	0.000	*0.750*	0.000	0.542	0.793	0.625	0.000	*0.825*	0.000	0.500	0.750	0.556	0.000	*0.625*	0.000	0.250	0.877	0.438	0.000	*0.894*	0.897
Heavy Vehicle %	0.00%	9.09%	0.00%	0.00%	0.00%	4.76%	0.00%	15.38%	6.90%	20.00%	0.00%	7.69%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.38%	0.00%	0.00%	3.26%	4.6%

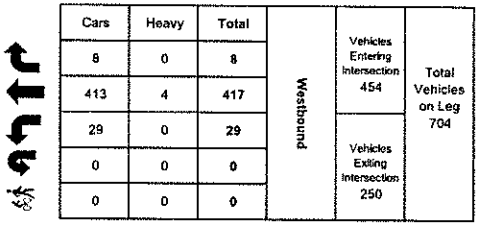


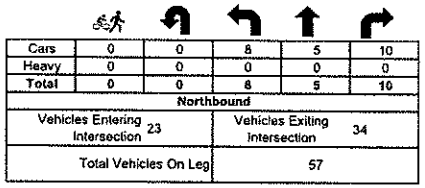
Friends St & HWY 19
Greenleaf Idaho
Tuesday, May 25, 2021
PM Peak Hour

Time	Friends St Southbound						HWY 19 Westbound						Friends St Northbound						HWY 19 Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
5:00 PM	0	2	0	0	0	2	0	11	116	1	0	*128*	0	3	1	1	0	*5*	0	1	57	2	0	*60*	195
5:15 PM	0	2	0	0	0	2	0	7	99	3	0	*109*	0	1	1	2	0	*4*	0	0	77	0	0	*77*	192
5:30 PM	0	2	2	0	0	*4*	0	3	97	2	0	*102*	0	2	1	5	0	*8*	0	0	55	1	0	*56*	170
5:45 PM	0	4	0	1	0	5	0	8	105	2	0	*115*	0	2	2	2	0	*6*	0	1	41	0	0	*42*	168
Peak Hour Total	0	10	2	1	0	*13*	0	29	417	8	0	*454*	0	8	5	10	0	*23*	0	2	230	3	0	*235*	725
PHF	0.000	0.625	0.250	0.250	0.000	*0.650*	0.000	0.659	0.899	0.667	0.000	*0.887*	0.000	0.667	0.625	0.500	0.000	*0.719*	0.000	0.500	0.747	0.375	0.000	*0.763*	0.929
Heavy Vehicle %	0.00%	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.96%	0.00%	0.00%	**0.88%**	0.00%	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	1.74%	0.00%	0.00%	**1.70%**	1.1%









Brown St & HWY 19
Greenleaf Idaho
25 May, 2021

Time	Southbound Brown St						Westbound HWY 19						Northbound Brown St						Eastbound HWY 19						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
7:00 AM	0	0	0	0	0	*0*	0	0	48	0	0	*48*	0	0	0	0	0	*0*	0	0	85	0	0	*85*	133
7:15 AM	0	0	0	0	0	*0*	0	0	60	0	0	*60*	0	0	0	0	0	*0*	0	1	131	0	0	*132*	192
7:30 AM	0	0	0	1	1	*1*	0	0	67	0	0	*67*	0	0	0	0	0	*0*	0	0	117	0	0	*117*	185
7:45 AM	0	0	0	0	0	*0*	0	0	49	1	0	*50*	0	0	0	0	0	*0*	0	0	114	0	0	*114*	164
Hourly Total	0	0	0	1	1	*1*	0	0	224	1	0	*225*	0	0	0	0	0	*0*	0	1	447	0	0	*448*	674
8:00 AM	0	2	0	0	0	*2*	0	0	43	0	0	*43*	0	0	0	0	0	*0*	0	0	77	0	0	*77*	122
8:15 AM	0	0	0	0	0	*0*	0	0	33	0	0	*33*	0	0	0	0	0	*0*	0	0	89	0	0	*89*	122
8:30 AM	0	0	0	0	0	*0*	0	0	52	0	0	*52*	0	0	0	0	0	*0*	0	0	81	0	0	*81*	133
8:45 AM	0	1	0	0	0	*1*	0	0	52	0	0	*52*	0	0	0	0	0	*0*	0	0	83	0	0	*83*	136
Hourly Total	0	3	0	0	0	*3*	0	0	180	0	0	*180*	0	0	0	0	0	*0*	0	0	330	0	0	*330*	513

Brown St & HWY 19
Greenleaf Idaho
25 May, 2021

Time	Southbound Brown St						Westbound HWY 19						Northbound Brown St						Eastbound HWY 19						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
4:00 PM	0	0	0	0	0	*0*	0	0	98	1	0	*99*	0	0	0	0	0	*0*	0	0	84	0	0	*84*	183
4:15 PM	0	0	0	0	1	*0*	0	0	108	1	0	*109*	0	0	0	0	0	*0*	0	0	62	0	0	*62*	171
4:30 PM	0	0	0	0	2	*0*	0	0	92	0	0	*92*	0	0	0	0	0	*0*	0	0	67	0	0	*67*	159
4:45 PM	0	1	0	0	0	*1*	0	0	103	2	0	*105*	0	0	0	0	0	*0*	0	0	52	0	0	*52*	158
Hourly Total	0	1	0	0	3	*1*	0	0	401	4	0	*405*	0	0	0	0	0	*0*	0	0	265	0	0	*265*	671
5:00 PM	0	0	0	0	0	*0*	0	0	127	0	0	*127*	0	0	0	0	0	*0*	0	0	68	0	0	*68*	195
5:15 PM	0	2	0	1	0	*3*	0	0	116	0	0	*116*	0	0	0	0	0	*0*	0	0	80	0	0	*80*	199
5:30 PM	0	0	0	0	0	*0*	0	0	111	1	0	*112*	0	0	0	0	0	*0*	0	0	62	0	0	*62*	174
5:45 PM	0	0	0	1	0	*1*	0	0	106	0	0	*106*	0	0	0	0	0	*0*	0	1	50	0	0	*51*	158
Hourly Total	0	2	0	2	0	*4*	0	0	460	1	0	*461*	0	0	0	0	0	*0*	0	1	260	0	0	*261*	726
DAILY TOTAL	**0**	**6**	**0**	**3**	**4**	**9**	**0**	**0**	**1265**	**6**	**0**	*1271*	**0**	**0**	**0**	**0**	**0**	*0*	**0**	**2**	**1302**	**0**	**0**	*1304*	**2584**
Cars	0	6	0	3	4	9	0	0	1206	6	0	*1212*	0	0	0	0	0	*0*	0	2	1256	0	0	*1258*	2479
Heavy Vehicles	0	0	0	0	0	*0*	0	0	59	0	0	*59*	0	0	0	0	0	*0*	0	0	46	0	0	*46*	105
Heavy Vehicle %	0.00%	0.00%	0.00%	0.00%	0.00%	*0.00%*	0.00%	0.00%	4.66%	0.00%	0.00%	*4.64%*	0.00%	0.00%	0.00%	0.00%	0.00%	*0.00%*	0.00%	0.00%	3.53%	0.00%	0.00%	*3.53%*	4.06%

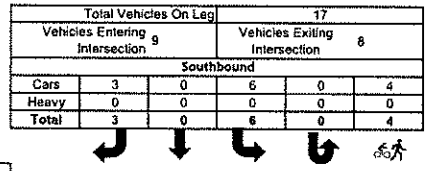
Brown St & HWY 19
Greenleaf Idaho
25 May, 2021

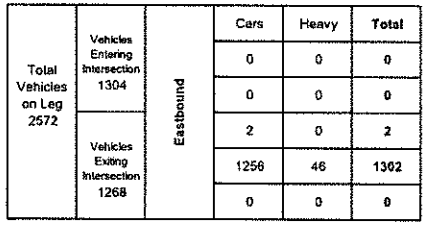
AM Peak Hour

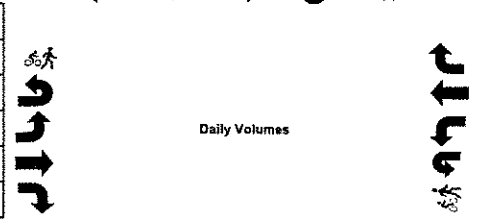
Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
7:00 AM	0	0	0	0	0	*0*	0	0	48	0	0	*48*	0	0	0	0	0	*0*	0	0	85	0	0	*85*	133
7:15 AM	0	0	0	0	0	*0*	0	0	60	0	0	*60*	0	0	0	0	0	*0*	0	1	131	0	0	*132*	192
7:30 AM	0	0	0	1	1	*1*	0	0	67	0	0	*67*	0	0	0	0	0	*0*	0	0	117	0	0	*117*	185
7:45 AM	0	0	0	0	0	*0*	0	0	49	1	0	*50*	0	0	0	0	0	*0*	0	0	114	0	0	*114*	164
Peak Hour Total	0	0	0	1	1	*1*	0	0	224	1	0	*225*	0	0	0	0	0	*0*	0	1	447	0	0	*448*	674
PHF	0.000	0.000	0.000	0.250	0.250	*0.250*	0.000	0.000	0.836	0.250	0.000	*0.840*	0.000	0.000	0.000	0.000	0.000	*0.000*	0.000	0.250	0.853	0.000	0.000	*0.848*	0.878
Heavy Vehicle %	0.00%	0.00%	0.00%	0.00%	0.00%	**0.0%**	0.00%	0.00%	8.48%	0.00%	0.00%	**8.4%**	0.00%	0.00%	0.00%	0.00%	0.00%	**0.0%**	0.00%	0.00%	3.36%	0.00%	0.00%	**3.3%**	5.04%

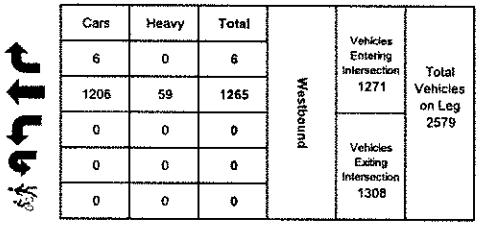
PM Peak Hour

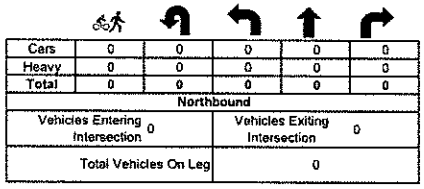
Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
4:45 PM	0	1	0	0	0	*1*	0	0	103	2	0	*105*	0	0	0	0	0	*0*	0	0	52	0	0	*52*	158
5:00 PM	0	0	0	0	0	*0*	0	0	127	0	0	*127*	0	0	0	0	0	*0*	0	0	68	0	0	*68*	195
5:15 PM	0	2	0	1	0	*3*	0	0	116	0	0	*116*	0	0	0	0	0	*0*	0	0	80	0	0	*80*	199
5:30 PM	0	0	0	0	0	*0*	0	0	111	1	0	*112*	0	0	0	0	0	*0*	0	0	62	0	0	*62*	174
Peak Hour Total	0	3	0	1	0	*4*	0	0	457	3	0	*460*	0	0	0	0	0	*0*	0	0	262	0	0	*262*	726
PHF	0.000	0.375	0.000	0.250	0.000	*0.333*	0.000	0.000	0.900	0.375	0.000	*0.905*	0.000	0.000	0.000	0.000	0.000	*0.000*	0.000	0.000	0.819	0.000	0.000	*0.819*	0.912
Heavy Vehicle %	0.00%	0.00%	0.00%	0.00%	0.00%	**0.0%**	0.00%	0.00%	1.75%	0.00%	0.00%	**1.7%**	0.00%	0.00%	0.00%	0.00%	0.00%	**0.0%**	0.00%	0.00%	1.91%	0.00%	0.00%	**1.9%**	1.79%











Brown St & HWY 19
Greenleaf Idaho
Tuesday, May 25, 2021
AM Peak Hour

Time	Brown St Southbound						HWY 19 Westbound						Brown St Northbound						HWY 19 Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
7:00 AM	0	0	0	0	0	*0*	0	0	48	0	0	*48*	0	0	0	0	0	*0*	0	0	85	0	0	*85*	133
7:15 AM	0	0	0	0	0	*0*	0	0	60	0	0	*60*	0	0	0	0	0	*0*	0	1	131	0	0	*132*	192
7:30 AM	0	0	0	1	1	*1*	0	0	67	0	0	*67*	0	0	0	0	0	*0*	0	0	117	0	0	*117*	185
7:45 AM	0	0	0	0	0	*0*	0	0	49	1	0	*50*	0	0	0	0	0	*0*	0	0	114	0	0	*114*	164
Peak Hour Total	0	0	0	1	1	*1*	0	0	224	1	0	*225*	0	0	0	0	0	*0*	0	1	447	0	0	*448*	674
PHF	0.000	0.000	0.000	0.250	0.250	*0.250*	0.000	0.000	0.836	0.250	0.000	*0.840*	0.000	0.000	0.000	0.000	0.000	*0.000*	0.000	0.250	0.853	0.000	0.000	*0.848*	0.878
Heavy Vehicle %	0.00%	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	8.48%	0.00%	0.00%	**8.44%**	0.00%	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	3.36%	0.00%	0.00%	**3.35%**	5.0%

Total Vehicles On Leg			3		
Vehicles Entering Intersection	1		Vehicles Exiting Intersection	2	
Southbound					
Cars	1	0	0	0	1
Heavy	0	0	0	0	0
Total	1	0	0	0	1

Total Vehicles on Leg 673	Vehicles Entering Intersection 448	Eastbound	Cars	Heavy	Total
			0	0	0
			0	0	0
	Vehicles Exiting Intersection 225		1	0	1
			432	15	447
			0	0	0

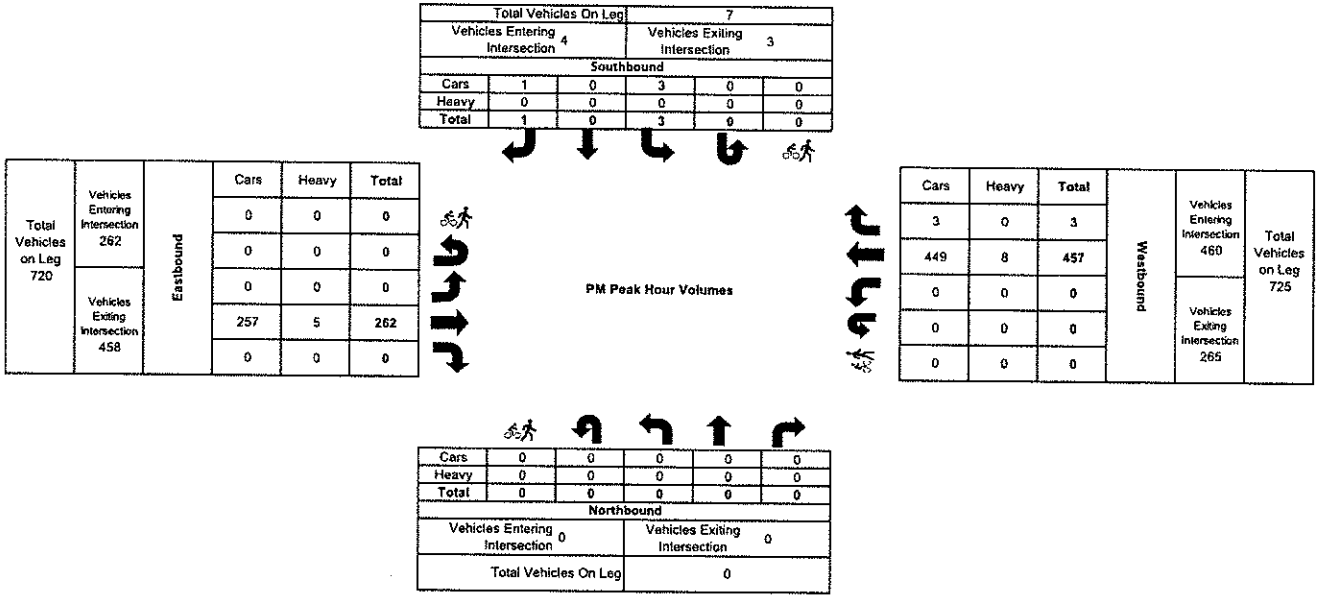
AM Peak Hour Volumes

Cars	Heavy	Total	Westbound	Vehicles Entering Intersection 225	Total Vehicles on Leg 672
1	0	1			
205	19	224			
0	0	0		Vehicles Exiting Intersection 447	
0	0	0			
0	0	0			

Cars	0	0	0	0	0
Heavy	0	0	0	0	0
Total	0	0	0	0	0
Northbound					
Vehicles Entering Intersection	0		Vehicles Exiting Intersection	0	
Total Vehicles On Leg			0		

Brown St & HWY 19
Greenleaf Idaho
Tuesday, May 25, 2021
PM Peak Hour

Time	Brown St Southbound						HWY 19 Westbound						Brown St Northbound						HWY 19 Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
4:45 PM	0	1	0	0	0	*1*	0	0	103	2	0	*105*	0	0	0	0	0	*0*	0	0	52	0	0	*52*	158
5:00 PM	0	0	0	0	0	*0*	0	0	127	0	0	*127*	0	0	0	0	0	*0*	0	0	68	0	0	*68*	195
5:15 PM	0	2	0	1	0	*3*	0	0	116	0	0	*116*	0	0	0	0	0	*0*	0	0	80	0	0	*80*	199
5:30 PM	0	0	0	0	0	*0*	0	0	111	1	0	*112*	0	0	0	0	0	*0*	0	0	62	0	0	*62*	174
Peak Hour Total	0	3	0	1	0	*4*	0	0	457	3	0	*460*	0	0	0	0	0	*0*	0	0	262	0	0	*262*	726
PHF	0.000	0.375	0.000	0.250	0.000	*0.333*	0.000	0.000	0.900	0.375	0.000	*0.906*	0.000	0.000	0.000	0.000	0.000	*0.000*	0.000	0.000	0.819	0.000	0.000	*0.819*	0.912
Heavy Vehicle %	0.00%	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	1.75%	0.00%	0.00%	**1.74%**	0.00%	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	1.91%	0.00%	0.00%	**1.91%**	**1.8%**



Royal Ridge Subbdivision
Greenleaf, Idaho

GR ENGINEERING, INC.

ATR 009 "Caldwell" Monthly Average ADT Data (SH 19 4.5 mi West of Caldwell)

Year	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	24-Hour Annual Avg.	% Annual Change
1990	4720	5100	5338	5473	5549	5444	5492	5631	5580	5584	5122	4691	5311	
1991	4374	5002	5250	5506	5540	5563	5387	5840	5790	5807	5172	4909	5346	0.66%
1992	4942	5236	5156	5090	5125	5372	5760	5955	6112	6022	5400	5353	5476	2.43%
1993	4908	5383	5636	6157	6237	6312	6182	6700	6651	6490	5906	5814	6034	10.19%
1994	5530	5159	5527	6038	6116	6189	6061	6569	6569	6438	5859	5768	5990	-0.73%
1995														
1996					6926	7061	6854	7335	7545	7132	6773	6265		
1997	6126	6731	7056	7369	7537	7644	7384	7624		7261	7139	6870		
1998	6405	6948	7303	7612	7568	7522	7385	7800	7782	7605	7233	6977	7345	
1999	6862	7022	7605	7841	7773	7702	7531	7900	8033	7640	7320	7086	7526	2.46%
2000	6867	7306	7675	7957	8137	7890	7576	8111	8077	7730	7433	7308	7672	1.94%
2001	6875	7330	7800	8020	7941	7970	7848	8377	8373	8056	7770	7517	7823	1.97%
2002	7401	7699	7801	8292	8494	8218	8140	8558	8480	8329	7806	7478	8058	3.00%
2003	7405	7733	7811	8164	8336	8202	8056	8263	8369	8166	7246	7399	7929	-1.60%
2004	6868	7525	8132	8260	8104	7876	7311	7978	8406	8036	7664	7590	7813	-1.46%
2005	7193	7797	8096	8247	8250	8329	8147	8475	8429	8211	7894	7607	8056	3.11%
2006	7660	8205	8567	8735	8993	8998	8580	9027	9071	8976	8625	8115	8629	7.11%
2007	7922	8309	8808	8838	8970	8958	8502	8928	8693	8604	8122	7667	8527	-1.18%
2008	7168	7722	8029	8395	9014	8208	7760	7839	8126	7989	7401	7172	7902	-7.33%
2009	6972	7461	7602	7993	7367	7627	7754	7847	8099	7695	7392	7184	7583	-4.04%
2010	6809	7321	7644	7776	7699	7780	7614	7844	8098	7709	7283	6873	7538	-0.59%
2011	6844	7151	7216	7586	7678	7625	7404	7749	7802	7085	7224	7009	7365	-2.30%
2012	6633	7148	7258	7812	7774	7765	7593	8048	8047	7849	7475	7192	7550	2.51%
2013	6871	7551	8017	8147	8418	8185	7519	7773	8108	8053	7648	7110	7783	3.09%
2014	6892	7399	8039	8335	8346	8189	8025	8257	8453	8356	7623	7564	7956	2.22%
2015	7436	8088	8551	8932	9056	9099	8790	8868	8866	8811	7985	8036	8543	7.38%
2016	7800	8348	8864	9239	9368	9170	8957	9271	9389	9234	8830	8232	8892	4.09%
2017	7410	8500	9430	9725	10282	10045	9803	10127	10177	10239	9611	8947	9525	7.12%
2018	8474	9065	9551	10013	10416	10107	9837	10191	10198	10008	9430	9008	9691	1.74%
2019	8997	9134	10066	10352	10436	10391	9153	10270	10420	10252	9541	9264	9856	1.70%
2020	9024	9802	9379	8223	9563	10217	9916	10312	10245	10318	9246	9052	9608	-2.52%
2021	9095	9508	10456	10691	10732									

5 year AGR	10 year AGR	15 year AGR%		
4.4%	2.7%	1.6%	1999 - 2019	1.4%

APPENDIX C: 2021 Synchro Reports

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	414	14	13	203	5	2	3	20	11	6	4
Future Vol, veh/h	1	414	14	13	203	5	2	3	20	11	6	4
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	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	3	2	15	7	20	2	2	2	9	2	2
Mvmt Flow	1	460	16	14	226	6	2	3	22	12	7	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	232	0	0	476	0	0	733	730	468	740	735	229
Stage 1	-	-	-	-	-	-	470	470	-	257	257	-
Stage 2	-	-	-	-	-	-	263	260	-	483	478	-
Critical Hdwy	4.12	-	-	4.25	-	-	7.12	6.52	6.22	7.19	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.19	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.19	5.52	-
Follow-up Hdwy	2.218	-	-	2.335	-	-	3.518	4.018	3.318	3.581	4.018	3.318
Pot Cap-1 Maneuver	1336	-	-	1022	-	-	336	349	595	324	347	810
Stage 1	-	-	-	-	-	-	574	560	-	732	695	-
Stage 2	-	-	-	-	-	-	742	693	-	552	556	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1336	-	-	1022	-	-	326	344	595	306	342	810
Mov Cap-2 Maneuver	-	-	-	-	-	-	326	344	-	306	342	-
Stage 1	-	-	-	-	-	-	573	559	-	731	685	-
Stage 2	-	-	-	-	-	-	721	683	-	528	555	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.5	12.4	15.7
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	516	1336	-	-	1022	-	-	359
HCM Lane V/C Ratio	0.054	0.001	-	-	0.014	-	-	0.065
HCM Control Delay (s)	12.4	7.7	-	-	8.6	-	-	15.7
HCM Lane LOS	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	447	224	1	0	1
Future Vol, veh/h	1	447	224	1	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	3	8	2	2	2
Mvmt Flow	1	508	255	1	0	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	256	0	-	0	766	256
Stage 1	-	-	-	-	256	-
Stage 2	-	-	-	-	510	-
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	1309	-	-	-	371	783
Stage 1	-	-	-	-	787	-
Stage 2	-	-	-	-	603	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1309	-	-	-	371	783
Mov Cap-2 Maneuver	-	-	-	-	474	-
Stage 1	-	-	-	-	786	-
Stage 2	-	-	-	-	603	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1309	-	-	-	783
HCM Lane V/C Ratio	0.001	-	-	-	0.001
HCM Control Delay (s)	7.8	-	-	-	9.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	230	3	29	417	8	8	5	10	10	2	1
Future Vol, veh/h	2	230	3	29	417	8	8	5	10	10	2	1
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	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	247	3	31	448	9	9	5	11	11	2	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	457	0	0	250	0	0	769	772	249	776	769	453
Stage 1	-	-	-	-	-	-	253	253	-	515	515	-
Stage 2	-	-	-	-	-	-	516	519	-	261	254	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1104	-	-	1316	-	-	318	330	790	315	332	607
Stage 1	-	-	-	-	-	-	751	698	-	543	535	-
Stage 2	-	-	-	-	-	-	542	533	-	744	697	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1104	-	-	1316	-	-	310	321	790	301	323	607
Mov Cap-2 Maneuver	-	-	-	-	-	-	310	321	-	301	323	-
Stage 1	-	-	-	-	-	-	749	697	-	542	522	-
Stage 2	-	-	-	-	-	-	526	520	-	727	696	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.5	14	16.9
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	426	1104	-	-	1316	-	-	317
HCM Lane V/C Ratio	0.058	0.002	-	-	0.024	-	-	0.044
HCM Control Delay (s)	14	8.3	-	-	7.8	-	-	16.9
HCM Lane LOS	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0.1

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	262	457	3	3	1
Future Vol, veh/h	0	262	457	3	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	288	502	3	3	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	505	0	-	0	792	504
Stage 1	-	-	-	-	504	-
Stage 2	-	-	-	-	288	-
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	1060	-	-	-	358	568
Stage 1	-	-	-	-	607	-
Stage 2	-	-	-	-	761	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1060	-	-	-	358	568
Mov Cap-2 Maneuver	-	-	-	-	467	-
Stage 1	-	-	-	-	607	-
Stage 2	-	-	-	-	761	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1060	-	-	-	489
HCM Lane V/C Ratio	-	-	-	-	0.009
HCM Control Delay (s)	0	-	-	-	12.4
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

APPENDIX D: 2025 Background Synchro Reports

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	484	16	15	237	6	2	3	22	12	6	4
Future Vol, veh/h	1	484	16	15	237	6	2	3	22	12	6	4
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	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	3	2	15	7	20	2	2	2	9	2	2
Mvmt Flow	1	538	18	17	263	7	2	3	24	13	7	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	270	0	0	556	0	0	855	853	547	864	859	267
Stage 1	-	-	-	-	-	-	549	549	-	301	301	-
Stage 2	-	-	-	-	-	-	306	304	-	563	558	-
Critical Hdwy	4.12	-	-	4.25	-	-	7.12	6.52	6.22	7.19	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.19	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.19	5.52	-
Follow-up Hdwy	2.218	-	-	2.335	-	-	3.518	4.018	3.318	3.581	4.018	3.318
Pot Cap-1 Maneuver	1293	-	-	953	-	-	278	296	537	267	294	772
Stage 1	-	-	-	-	-	-	520	516	-	693	665	-
Stage 2	-	-	-	-	-	-	704	663	-	499	512	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1293	-	-	953	-	-	268	290	537	249	288	772
Mov Cap-2 Maneuver	-	-	-	-	-	-	268	290	-	249	288	-
Stage 1	-	-	-	-	-	-	519	515	-	692	653	-
Stage 2	-	-	-	-	-	-	680	651	-	473	511	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.5	13.4	18.3
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	459	1293	-	-	953	-	-	296
HCM Lane V/C Ratio	0.065	0.001	-	-	0.017	-	-	0.083
HCM Control Delay (s)	13.4	7.8	-	-	8.8	-	-	18.3
HCM Lane LOS	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0.3

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	523	262	1	0	1
Future Vol, veh/h	1	523	262	1	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	3	8	2	2	2
Mvmt Flow	1	581	291	1	0	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	292	0	-	0	875	292
Stage 1	-	-	-	-	292	-
Stage 2	-	-	-	-	583	-
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	1270	-	-	-	320	747
Stage 1	-	-	-	-	758	-
Stage 2	-	-	-	-	558	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1270	-	-	-	320	747
Mov Cap-2 Maneuver	-	-	-	-	433	-
Stage 1	-	-	-	-	757	-
Stage 2	-	-	-	-	558	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1270	-	-	-	747
HCM Lane V/C Ratio	0.001	-	-	-	0.001
HCM Control Delay (s)	7.8	-	-	-	9.8
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	269	4	34	488	9	9	5	11	11	2	1
Future Vol, veh/h	2	269	4	34	488	9	9	5	11	11	2	1
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	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	289	4	37	525	10	10	5	12	12	2	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	535	0	0	293	0	0	901	904	291	908	901	530
Stage 1	-	-	-	-	-	-	295	295	-	604	604	-
Stage 2	-	-	-	-	-	-	606	609	-	304	297	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1033	-	-	1269	-	-	259	277	748	256	278	549
Stage 1	-	-	-	-	-	-	713	669	-	485	488	-
Stage 2	-	-	-	-	-	-	484	485	-	705	668	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1033	-	-	1269	-	-	251	268	748	242	269	549
Mov Cap-2 Maneuver	-	-	-	-	-	-	251	268	-	242	269	-
Stage 1	-	-	-	-	-	-	712	668	-	484	474	-
Stage 2	-	-	-	-	-	-	467	471	-	687	667	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.5	15.8	19.9
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	361	1033	-	-	1269	-	-	256
HCM Lane V/C Ratio	0.074	0.002	-	-	0.029	-	-	0.059
HCM Control Delay (s)	15.8	8.5	-	-	7.9	-	-	19.9
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0.2

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	307	535	4	3	1
Future Vol, veh/h	0	307	535	4	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	337	588	4	3	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	592	0	-	0	927	590
Stage 1	-	-	-	-	590	-
Stage 2	-	-	-	-	337	-
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	984	-	-	-	298	508
Stage 1	-	-	-	-	554	-
Stage 2	-	-	-	-	723	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	984	-	-	-	298	508
Mov Cap-2 Maneuver	-	-	-	-	418	-
Stage 1	-	-	-	-	554	-
Stage 2	-	-	-	-	723	-

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	984	-	-	-	437
HCM Lane V/C Ratio	-	-	-	-	0.01
HCM Control Delay (s)	0	-	-	-	13.3
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

APPENDIX E: 2025 Total Synchro Reports

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	503	28	22	253	17	12	11	28	26	15	4
Future Vol, veh/h	1	503	28	22	253	17	12	11	28	26	15	4
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	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	3	2	15	7	20	2	2	2	9	2	2
Mvmt Flow	1	559	31	24	281	19	13	12	31	29	17	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	300	0	0	590	0	0	926	925	575	937	931	291
Stage 1	-	-	-	-	-	-	577	577	-	339	339	-
Stage 2	-	-	-	-	-	-	349	348	-	598	592	-
Critical Hdwy	4.12	-	-	4.25	-	-	7.12	6.52	6.22	7.19	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.19	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.19	5.52	-
Follow-up Hdwy	2.218	-	-	2.335	-	-	3.518	4.018	3.318	3.581	4.018	3.318
Pot Cap-1 Maneuver	1261	-	-	925	-	-	249	269	518	238	267	748
Stage 1	-	-	-	-	-	-	502	502	-	661	640	-
Stage 2	-	-	-	-	-	-	667	634	-	477	494	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1261	-	-	925	-	-	231	262	518	211	260	748
Mov Cap-2 Maneuver	-	-	-	-	-	-	231	262	-	211	260	-
Stage 1	-	-	-	-	-	-	501	501	-	660	623	-
Stage 2	-	-	-	-	-	-	629	618	-	437	494	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.7	17.5	23.7
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	345	1261	-	-	925	-	-	242
HCM Lane V/C Ratio	0.164	0.001	-	-	0.026	-	-	0.207
HCM Control Delay (s)	17.5	7.9	-	-	9	-	-	23.7
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.6	0	-	-	0.1	-	-	0.8

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	529	49	63	269	1	40	6	52	0	8	1
Future Vol, veh/h	1	529	49	63	269	1	40	6	52	0	8	1
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	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	3	2	2	8	2	2	2	2	2	2	2
Mvmt Flow	1	588	54	70	299	1	44	7	58	0	9	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	300	0	0	642	0	0	1062	1057	615	1090	1084	300
Stage 1	-	-	-	-	-	-	617	617	-	440	440	-
Stage 2	-	-	-	-	-	-	445	440	-	650	644	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1261	-	-	943	-	-	201	225	491	193	217	740
Stage 1	-	-	-	-	-	-	477	481	-	596	578	-
Stage 2	-	-	-	-	-	-	592	578	-	458	468	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1261	-	-	943	-	-	183	208	491	157	201	740
Mov Cap-2 Maneuver	-	-	-	-	-	-	183	208	-	157	201	-
Stage 1	-	-	-	-	-	-	477	481	-	595	535	-
Stage 2	-	-	-	-	-	-	538	535	-	398	468	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.7	26.2	22.2
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	277	1261	-	-	943	-	-	219
HCM Lane V/C Ratio	0.393	0.001	-	-	0.074	-	-	0.046
HCM Control Delay (s)	26.2	7.9	-	-	9.1	-	-	22.2
HCM Lane LOS	D	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	1.8	0	-	-	0.2	-	-	0.1

Intersection	
Int Delay, s/veh	3.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	24	27	8	28	37
Future Vol, veh/h	6	24	27	8	28	37
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	27	30	9	31	41

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	138	35	0	0	39	0
Stage 1	35	-	-	-	-	-
Stage 2	103	-	-	-	-	-
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	855	1038	-	-	1571	-
Stage 1	987	-	-	-	-	-
Stage 2	921	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	838	1038	-	-	1571	-
Mov Cap-2 Maneuver	838	-	-	-	-	-
Stage 1	987	-	-	-	-	-
Stage 2	903	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	3.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	991	1571	-
HCM Lane V/C Ratio	-	-	0.034	0.02	-
HCM Control Delay (s)	-	-	8.8	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	281	12	39	500	18	17	11	16	20	8	1
Future Vol, veh/h	2	281	12	39	500	18	17	11	16	20	8	1
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	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	302	13	42	538	19	18	12	17	22	9	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	557	0	0	315	0	0	950	954	309	959	951	548
Stage 1	-	-	-	-	-	-	313	313	-	632	632	-
Stage 2	-	-	-	-	-	-	637	641	-	327	319	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1014	-	-	1245	-	-	240	259	731	237	260	536
Stage 1	-	-	-	-	-	-	698	657	-	468	474	-
Stage 2	-	-	-	-	-	-	465	469	-	686	653	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1014	-	-	1245	-	-	227	250	731	217	251	536
Mov Cap-2 Maneuver	-	-	-	-	-	-	227	250	-	217	251	-
Stage 1	-	-	-	-	-	-	697	656	-	467	458	-
Stage 2	-	-	-	-	-	-	440	453	-	656	652	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.6	18.5	23.1
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	313	1014	-	-	1245	-	-	230
HCM Lane V/C Ratio	0.151	0.002	-	-	0.034	-	-	0.136
HCM Control Delay (s)	18.5	8.6	-	-	8	-	-	23.1
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.5	0	-	-	0.1	-	-	0.5

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	302	41	61	520	4	51	5	50	3	5	1
Future Vol, veh/h	0	302	41	61	520	4	51	5	50	3	5	1
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	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	332	45	67	571	4	56	5	55	3	5	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	575	0	0	377	0	0	1065	1064	355	1092	1084	573
Stage 1	-	-	-	-	-	-	355	355	-	707	707	-
Stage 2	-	-	-	-	-	-	710	709	-	385	377	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	998	-	-	1181	-	-	200	223	689	192	217	519
Stage 1	-	-	-	-	-	-	662	630	-	426	438	-
Stage 2	-	-	-	-	-	-	424	437	-	638	616	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	998	-	-	1181	-	-	187	210	689	166	205	519
Mov Cap-2 Maneuver	-	-	-	-	-	-	187	210	-	166	205	-
Stage 1	-	-	-	-	-	-	662	630	-	426	413	-
Stage 2	-	-	-	-	-	-	394	412	-	582	616	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.9	25.9	23.6
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	287	998	-	-	1181	-	-	203
HCM Lane V/C Ratio	0.406	-	-	-	0.057	-	-	0.049
HCM Control Delay (s)	25.9	0	-	-	8.2	-	-	23.6
HCM Lane LOS	D	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	1.9	0	-	-	0.2	-	-	0.2

Intersection	
Int Delay, s/veh	3.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	20	24	6	19	40
Future Vol, veh/h	5	20	24	6	19	40
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	22	27	7	21	44

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	117	31	0	0	34	0
Stage 1	31	-	-	-	-	-
Stage 2	86	-	-	-	-	-
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	879	1043	-	-	1578	-
Stage 1	992	-	-	-	-	-
Stage 2	937	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	867	1043	-	-	1578	-
Mov Cap-2 Maneuver	867	-	-	-	-	-
Stage 1	992	-	-	-	-	-
Stage 2	924	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.7	0	2.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1002	1578	-
HCM Lane V/C Ratio	-	-	0.028	0.013	-
HCM Control Delay (s)	-	-	8.7	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	529	49	63	269	1	40	6	52	0	8	1
Future Vol, veh/h	1	529	49	63	269	1	40	6	52	0	8	1
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	100	-	100	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	3	2	2	8	2	2	2	2	2	2	2
Mvmt Flow	1	588	54	70	299	1	44	7	58	0	9	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	300	0	0	642	0	0	1035	1030	588	1090	1084	300
Stage 1	-	-	-	-	-	-	590	590	-	440	440	-
Stage 2	-	-	-	-	-	-	445	440	-	650	644	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1261	-	-	943	-	-	210	233	509	193	217	740
Stage 1	-	-	-	-	-	-	494	495	-	596	578	-
Stage 2	-	-	-	-	-	-	592	578	-	458	468	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1261	-	-	943	-	-	191	216	509	157	201	740
Mov Cap-2 Maneuver	-	-	-	-	-	-	191	216	-	157	201	-
Stage 1	-	-	-	-	-	-	494	495	-	595	535	-
Stage 2	-	-	-	-	-	-	538	535	-	400	468	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.7	24.8	22.2
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	289	1261	-	-	943	-	-	219
HCM Lane V/C Ratio	0.377	0.001	-	-	0.074	-	-	0.046
HCM Control Delay (s)	24.8	7.9	-	-	9.1	-	-	22.2
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	1.7	0	-	-	0.2	-	-	0.1

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	302	41	61	520	4	51	5	50	3	5	1
Future Vol, veh/h	0	302	41	61	520	4	51	5	50	3	5	1
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	100	-	100	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	332	45	67	571	4	56	5	55	3	5	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	575	0	0	377	0	0	1042	1041	332	1092	1084	573
Stage 1	-	-	-	-	-	-	332	332	-	707	707	-
Stage 2	-	-	-	-	-	-	710	709	-	385	377	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	998	-	-	1181	-	-	208	230	710	192	217	519
Stage 1	-	-	-	-	-	-	681	644	-	426	438	-
Stage 2	-	-	-	-	-	-	424	437	-	638	616	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	998	-	-	1181	-	-	194	217	710	166	205	519
Mov Cap-2 Maneuver	-	-	-	-	-	-	194	217	-	166	205	-
Stage 1	-	-	-	-	-	-	681	644	-	426	413	-
Stage 2	-	-	-	-	-	-	394	412	-	584	616	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.9	24.7	23.6
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	297	998	-	-	1181	-	-	203
HCM Lane V/C Ratio	0.392	-	-	-	0.057	-	-	0.049
HCM Control Delay (s)	24.7	0	-	-	8.2	-	-	23.6
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	1.8	0	-	-	0.2	-	-	0.2

Intersection												
Int Delay, s/veh	6.4											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	484	47	101	237	6	28	22	99	12	29	4
Future Vol, veh/h	1	484	47	101	237	6	28	22	99	12	29	4
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	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	3	2	15	7	20	2	2	2	9	2	2
Mvmt Flow	1	538	52	112	263	7	31	24	110	13	32	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	270	0	0	590	0	0	1075	1060	564	1124	1083	267
Stage 1	-	-	-	-	-	-	566	566	-	491	491	-
Stage 2	-	-	-	-	-	-	509	494	-	633	592	-
Critical Hdwy	4.12	-	-	4.25	-	-	7.12	6.52	6.22	7.19	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.19	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.19	5.52	-
Follow-up Hdwy	2.218	-	-	2.335	-	-	3.518	4.018	3.318	3.581	4.018	3.318
Pot Cap-1 Maneuver	1293	-	-	925	-	-	197	224	525	177	217	772
Stage 1	-	-	-	-	-	-	509	507	-	546	548	-
Stage 2	-	-	-	-	-	-	547	546	-	456	494	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1293	-	-	925	-	-	155	197	525	115	191	772
Mov Cap-2 Maneuver	-	-	-	-	-	-	155	197	-	115	191	-
Stage 1	-	-	-	-	-	-	508	506	-	545	482	-
Stage 2	-	-	-	-	-	-	446	480	-	343	494	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	2.8	29.2	34.3
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	310	1293	-	-	925	-	-	172
HCM Lane V/C Ratio	0.534	0.001	-	-	0.121	-	-	0.291
HCM Control Delay (s)	29.2	7.8	-	-	9.4	-	-	34.3
HCM Lane LOS	D	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	3	0	-	-	0.4	-	-	1.1

Intersection												
Int Delay, s/veh	6.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	484	47	101	237	6	28	22	99	12	29	4
Future Vol, veh/h	1	484	47	101	237	6	28	22	99	12	29	4
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	100	-	100	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	3	2	15	7	20	2	2	2	9	2	2
Mvmt Flow	1	538	52	112	263	7	31	24	110	13	32	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	270	0	0	590	0	0	1049	1034	538	1124	1083	267
Stage 1	-	-	-	-	-	-	540	540	-	491	491	-
Stage 2	-	-	-	-	-	-	509	494	-	633	592	-
Critical Hdwy	4.12	-	-	4.25	-	-	7.12	6.52	6.22	7.19	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.19	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.19	5.52	-
Follow-up Hdwy	2.218	-	-	2.335	-	-	3.518	4.018	3.318	3.581	4.018	3.318
Pot Cap-1 Maneuver	1293	-	-	925	-	-	205	232	543	177	217	772
Stage 1	-	-	-	-	-	-	526	521	-	546	548	-
Stage 2	-	-	-	-	-	-	547	546	-	456	494	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1293	-	-	925	-	-	161	204	543	116	191	772
Mov Cap-2 Maneuver	-	-	-	-	-	-	161	204	-	116	191	-
Stage 1	-	-	-	-	-	-	525	520	-	545	482	-
Stage 2	-	-	-	-	-	-	446	480	-	346	494	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	2.8	27.6	34.1
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	321	1293	-	-	925	-	-	173
HCM Lane V/C Ratio	0.516	0.001	-	-	0.121	-	-	0.289
HCM Control Delay (s)	27.6	7.8	-	-	9.4	-	-	34.1
HCM Lane LOS	D	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	2.8	0	-	-	0.4	-	-	1.1

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	581	332	1	0	1
Future Vol, veh/h	7	581	332	1	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	3	8	2	2	2
Mvmt Flow	8	646	369	1	0	1

Major/Minor	Major1			Major2		Minor2	
Conflicting Flow All	370	0	-	0	1032	370	
Stage 1	-	-	-	-	370	-	
Stage 2	-	-	-	-	662	-	
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	1189	-	-	-	258	676	
Stage 1	-	-	-	-	699	-	
Stage 2	-	-	-	-	513	-	
Platoon blocked, %			-	-	-		
Mov Cap-1 Maneuver	1189	-	-	-	256	676	
Mov Cap-2 Maneuver	-	-	-	-	382	-	
Stage 1	-	-	-	-	694	-	
Stage 2	-	-	-	-	513	-	

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	10.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1189	-	-	-	676
HCM Lane V/C Ratio	0.007	-	-	-	0.002
HCM Control Delay (s)	8	-	-	-	10.3
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	6.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	122	27	8	140	37
Future Vol, veh/h	6	122	27	8	140	37
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	136	30	9	156	41

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	388	35	0	0	39	0
Stage 1	35	-	-	-	-	-
Stage 2	353	-	-	-	-	-
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	616	1038	-	-	1571	-
Stage 1	987	-	-	-	-	-
Stage 2	711	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	553	1038	-	-	1571	-
Mov Cap-2 Maneuver	553	-	-	-	-	-
Stage 1	987	-	-	-	-	-
Stage 2	638	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	997	1571	-
HCM Lane V/C Ratio	-	-	0.143	0.099	-
HCM Control Delay (s)	-	-	9.2	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.3	-

Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	259	34	115	468	9	49	20	81	11	17	1
Future Vol, veh/h	2	259	34	115	468	9	49	20	81	11	17	1
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	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	278	37	124	503	10	53	22	87	12	18	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	513	0	0	315	0	0	1067	1062	297	1111	1075	508
Stage 1	-	-	-	-	-	-	301	301	-	756	756	-
Stage 2	-	-	-	-	-	-	766	761	-	355	319	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1052	-	-	1245	-	-	200	223	742	186	220	565
Stage 1	-	-	-	-	-	-	708	665	-	400	416	-
Stage 2	-	-	-	-	-	-	395	414	-	662	653	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1052	-	-	1245	-	-	171	200	742	139	198	565
Mov Cap-2 Maneuver	-	-	-	-	-	-	171	200	-	139	198	-
Stage 1	-	-	-	-	-	-	707	664	-	399	374	-
Stage 2	-	-	-	-	-	-	338	373	-	564	652	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.6	29.6	30.2
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	303	1052	-	-	1245	-	-	174
HCM Lane V/C Ratio	0.532	0.002	-	-	0.099	-	-	0.179
HCM Control Delay (s)	29.6	8.4	-	-	8.2	-	-	30.2
HCM Lane LOS	D	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	2.9	0	-	-	0.3	-	-	0.6

Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	259	34	115	468	9	49	20	81	11	17	1
Future Vol, veh/h	2	259	34	115	468	9	49	20	81	11	17	1
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	100	-	100	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	278	37	124	503	10	53	22	87	12	18	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	513	0	0	315	0	0	1048	1043	278	1111	1075	508
Stage 1	-	-	-	-	-	-	282	282	-	756	756	-
Stage 2	-	-	-	-	-	-	766	761	-	355	319	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1052	-	-	1245	-	-	206	229	761	186	220	565
Stage 1	-	-	-	-	-	-	725	678	-	400	416	-
Stage 2	-	-	-	-	-	-	395	414	-	662	653	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1052	-	-	1245	-	-	177	206	761	140	198	565
Mov Cap-2 Maneuver	-	-	-	-	-	-	177	206	-	140	198	-
Stage 1	-	-	-	-	-	-	724	677	-	399	374	-
Stage 2	-	-	-	-	-	-	338	373	-	567	652	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.6	28.3	30.2
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	312	1052	-	-	1245	-	-	174
HCM Lane V/C Ratio	0.517	0.002	-	-	0.099	-	-	0.179
HCM Control Delay (s)	28.3	8.4	-	-	8.2	-	-	30.2
HCM Lane LOS	D	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	2.8	0	-	-	0.3	-	-	0.6

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	352	581	4	3	6
Future Vol, veh/h	5	352	581	4	3	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	387	638	4	3	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	642	0	-	0	1037	640
Stage 1	-	-	-	-	640	-
Stage 2	-	-	-	-	397	-
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	943	-	-	-	256	475
Stage 1	-	-	-	-	525	-
Stage 2	-	-	-	-	679	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	943	-	-	-	255	475
Mov Cap-2 Maneuver	-	-	-	-	382	-
Stage 1	-	-	-	-	522	-
Stage 2	-	-	-	-	679	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	13.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	943	-	-	-	439
HCM Lane V/C Ratio	0.006	-	-	-	0.023
HCM Control Delay (s)	8.8	-	-	-	13.4
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	6.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	126	24	6	126	40
Future Vol, veh/h	5	126	24	6	126	40
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	140	27	7	140	44

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	355	31	0	0	34	0
Stage 1	31	-	-	-	-	-
Stage 2	324	-	-	-	-	-
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	643	1043	-	-	1578	-
Stage 1	992	-	-	-	-	-
Stage 2	733	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	584	1043	-	-	1578	-
Mov Cap-2 Maneuver	584	-	-	-	-	-
Stage 1	992	-	-	-	-	-
Stage 2	666	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	5.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1013	1578	-
HCM Lane V/C Ratio	-	-	0.144	0.089	-
HCM Control Delay (s)	-	-	9.1	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.3	-

APPENDIX F: 2030 Background Synchro Reports

Intersection												
Int Delay, s/veh	1.2											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	535	18	17	262	6	2	4	24	13	7	5
Future Vol, veh/h	1	535	18	17	262	6	2	4	24	13	7	5
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	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	3	2	15	7	20	2	2	2	9	2	2
Mvmt Flow	1	594	20	19	291	7	2	4	27	14	8	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	298	0	0	614	0	0	946	942	604	955	949	295
Stage 1	-	-	-	-	-	-	606	606	-	333	333	-
Stage 2	-	-	-	-	-	-	340	336	-	622	616	-
Critical Hdwy	4.12	-	-	4.25	-	-	7.12	6.52	6.22	7.19	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.19	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.19	5.52	-
Follow-up Hdwy	2.218	-	-	2.335	-	-	3.518	4.018	3.318	3.581	4.018	3.318
Pot Cap-1 Maneuver	1263	-	-	905	-	-	241	263	498	231	260	744
Stage 1	-	-	-	-	-	-	484	487	-	666	644	-
Stage 2	-	-	-	-	-	-	675	642	-	463	482	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1263	-	-	905	-	-	230	257	498	212	254	744
Mov Cap-2 Maneuver	-	-	-	-	-	-	230	257	-	212	254	-
Stage 1	-	-	-	-	-	-	484	487	-	665	630	-
Stage 2	-	-	-	-	-	-	648	629	-	434	482	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.5	14.5	20.4
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	414	1263	-	-	905	-	-	262
HCM Lane V/C Ratio	0.081	0.001	-	-	0.021	-	-	0.106
HCM Control Delay (s)	14.5	7.9	-	-	9.1	-	-	20.4
HCM Lane LOS	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	0.4

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	577	289	1	0	1
Future Vol, veh/h	1	577	289	1	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	3	8	2	2	2
Mvmt Flow	1	641	321	1	0	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	322	0	-	0	965	322
Stage 1	-	-	-	-	322	-
Stage 2	-	-	-	-	643	-
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	1238	-	-	-	283	719
Stage 1	-	-	-	-	735	-
Stage 2	-	-	-	-	523	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	1238	-	-	-	283	719
Mov Cap-2 Maneuver	-	-	-	-	401	-
Stage 1	-	-	-	-	734	-
Stage 2	-	-	-	-	523	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1238	-	-	-	719
HCM Lane V/C Ratio	0.001	-	-	-	0.002
HCM Control Delay (s)	7.9	-	-	-	10
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	297	4	37	539	10	10	6	12	12	2	1
Future Vol, veh/h	3	297	4	37	539	10	10	6	12	12	2	1
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	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	319	4	40	580	11	11	6	13	13	2	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	591	0	0	323	0	0	994	998	321	1003	995	586
Stage 1	-	-	-	-	-	-	327	327	-	666	666	-
Stage 2	-	-	-	-	-	-	667	671	-	337	329	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	985	-	-	1237	-	-	224	244	720	221	245	510
Stage 1	-	-	-	-	-	-	686	648	-	449	457	-
Stage 2	-	-	-	-	-	-	448	455	-	677	646	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	985	-	-	1237	-	-	216	235	720	207	236	510
Mov Cap-2 Maneuver	-	-	-	-	-	-	216	235	-	207	236	-
Stage 1	-	-	-	-	-	-	684	646	-	448	442	-
Stage 2	-	-	-	-	-	-	430	440	-	656	644	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.5	17.6	22.7
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	316	985	-	-	1237	-	-	219
HCM Lane V/C Ratio	0.095	0.003	-	-	0.032	-	-	0.074
HCM Control Delay (s)	17.6	8.7	-	-	8	-	-	22.7
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	0.2

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	338	590	4	4	1
Future Vol, veh/h	0	338	590	4	4	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	371	648	4	4	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	652	0	-	0	1021	650
Stage 1	-	-	-	-	650	-
Stage 2	-	-	-	-	371	-
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	935	-	-	-	262	469
Stage 1	-	-	-	-	520	-
Stage 2	-	-	-	-	698	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	935	-	-	-	262	469
Mov Cap-2 Maneuver	-	-	-	-	387	-
Stage 1	-	-	-	-	520	-
Stage 2	-	-	-	-	698	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	14.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	935	-	-	-	401
HCM Lane V/C Ratio	-	-	-	-	0.014
HCM Control Delay (s)	0	-	-	-	14.1
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

APPENDIX G: 2030 Total Synchro Reports

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	554	30	24	278	17	12	12	30	27	16	5
Future Vol, veh/h	1	554	30	24	278	17	12	12	30	27	16	5
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	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	3	2	15	7	20	2	2	2	9	2	2
Mvmt Flow	1	616	33	27	309	19	13	13	33	30	18	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	328	0	0	649	0	0	1020	1017	633	1031	1024	319
Stage 1	-	-	-	-	-	-	635	635	-	373	373	-
Stage 2	-	-	-	-	-	-	385	382	-	658	651	-
Critical Hdwy	4.12	-	-	4.25	-	-	7.12	6.52	6.22	7.19	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.19	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.19	5.52	-
Follow-up Hdwy	2.218	-	-	2.335	-	-	3.518	4.018	3.318	3.581	4.018	3.318
Pot Cap-1 Maneuver	1232	-	-	878	-	-	215	238	480	205	235	722
Stage 1	-	-	-	-	-	-	467	472	-	634	618	-
Stage 2	-	-	-	-	-	-	638	613	-	442	465	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1232	-	-	878	-	-	196	230	480	178	227	722
Mov Cap-2 Maneuver	-	-	-	-	-	-	196	230	-	178	227	-
Stage 1	-	-	-	-	-	-	467	472	-	633	599	-
Stage 2	-	-	-	-	-	-	595	594	-	399	465	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.7	19.6	27.9
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	307	1232	-	-	878	-	-	210
HCM Lane V/C Ratio	0.195	0.001	-	-	0.03	-	-	0.254
HCM Control Delay (s)	19.6	7.9	-	-	9.2	-	-	27.9
HCM Lane LOS	C	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	0.7	0	-	-	0.1	-	-	1

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	583	49	63	296	1	40	6	52	0	8	1
Future Vol, veh/h	1	583	49	63	296	1	40	6	52	0	8	1
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	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	3	2	2	8	2	2	2	2	2	2	2
Mvmt Flow	1	648	54	70	329	1	44	7	58	0	9	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	330	0	0	702	0	0	1152	1147	675	1180	1174	330
Stage 1	-	-	-	-	-	-	677	677	-	470	470	-
Stage 2	-	-	-	-	-	-	475	470	-	710	704	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1229	-	-	895	-	-	175	199	454	167	192	712
Stage 1	-	-	-	-	-	-	443	452	-	574	560	-
Stage 2	-	-	-	-	-	-	570	560	-	424	440	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1229	-	-	895	-	-	158	183	454	133	177	712
Mov Cap-2 Maneuver	-	-	-	-	-	-	158	183	-	133	177	-
Stage 1	-	-	-	-	-	-	443	452	-	573	516	-
Stage 2	-	-	-	-	-	-	516	516	-	364	440	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.6	30.9	24.7
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	245	1229	-	-	895	-	-	193
HCM Lane V/C Ratio	0.444	0.001	-	-	0.078	-	-	0.052
HCM Control Delay (s)	30.9	7.9	-	-	9.4	-	-	24.7
HCM Lane LOS	D	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	2.1	0	-	-	0.3	-	-	0.2

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	583	49	63	296	1	40	6	52	0	8	1
Future Vol, veh/h	1	583	49	63	296	1	40	6	52	0	8	1
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	100	-	100	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	3	2	2	8	2	2	2	2	2	2	2
Mvmt Flow	1	648	54	70	329	1	44	7	58	0	9	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	330	0	0	702	0	0	1125	1120	648	1180	1174	330
Stage 1	-	-	-	-	-	-	650	650	-	470	470	-
Stage 2	-	-	-	-	-	-	475	470	-	710	704	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1229	-	-	895	-	-	182	206	470	167	192	712
Stage 1	-	-	-	-	-	-	458	465	-	574	560	-
Stage 2	-	-	-	-	-	-	570	560	-	424	440	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1229	-	-	895	-	-	164	190	470	134	177	712
Mov Cap-2 Maneuver	-	-	-	-	-	-	164	190	-	134	177	-
Stage 1	-	-	-	-	-	-	458	465	-	573	516	-
Stage 2	-	-	-	-	-	-	516	516	-	366	440	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.6	29.4	24.7
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	254	1229	-	-	895	-	-	193
HCM Lane V/C Ratio	0.429	0.001	-	-	0.078	-	-	0.052
HCM Control Delay (s)	29.4	7.9	-	-	9.4	-	-	24.7
HCM Lane LOS	D	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	2	0	-	-	0.3	-	-	0.2

Intersection	
Int Delay, s/veh	3.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	24	30	8	28	42
Future Vol, veh/h	6	24	30	8	28	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	27	33	9	31	47

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	147	38	0	0	42	0
Stage 1	38	-	-	-	-	-
Stage 2	109	-	-	-	-	-
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	845	1034	-	-	1567	-
Stage 1	984	-	-	-	-	-
Stage 2	916	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	828	1034	-	-	1567	-
Mov Cap-2 Maneuver	828	-	-	-	-	-
Stage 1	984	-	-	-	-	-
Stage 2	898	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	2.9
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	985	1567	-
HCM Lane V/C Ratio	-	-	0.034	0.02	-
HCM Control Delay (s)	-	-	8.8	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

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	3	309	12	42	551	19	18	12	17	21	8	1
Future Vol, veh/h	3	309	12	42	551	19	18	12	17	21	8	1
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	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	332	13	45	592	20	19	13	18	23	9	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	612	0	0	345	0	0	1042	1047	339	1052	1043	602
Stage 1	-	-	-	-	-	-	345	345	-	692	692	-
Stage 2	-	-	-	-	-	-	697	702	-	360	351	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	967	-	-	1214	-	-	208	228	703	204	229	500
Stage 1	-	-	-	-	-	-	671	636	-	434	445	-
Stage 2	-	-	-	-	-	-	431	440	-	658	632	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	967	-	-	1214	-	-	195	219	703	184	220	500
Mov Cap-2 Maneuver	-	-	-	-	-	-	195	219	-	184	220	-
Stage 1	-	-	-	-	-	-	669	634	-	433	429	-
Stage 2	-	-	-	-	-	-	406	424	-	626	630	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.6	21.1	26.8
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	274	967	-	-	1214	-	-	197
HCM Lane V/C Ratio	0.184	0.003	-	-	0.037	-	-	0.164
HCM Control Delay (s)	21.1	8.7	-	-	8.1	-	-	26.8
HCM Lane LOS	C	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	0.7	0	-	-	0.1	-	-	0.6

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	333	41	61	575	4	51	5	50	4	5	1
Future Vol, veh/h	0	333	41	61	575	4	51	5	50	4	5	1
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	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	366	45	67	632	4	56	5	55	4	5	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	636	0	0	411	0	0	1160	1159	389	1187	1179	634
Stage 1	-	-	-	-	-	-	389	389	-	768	768	-
Stage 2	-	-	-	-	-	-	771	770	-	419	411	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	947	-	-	1148	-	-	172	196	659	165	190	479
Stage 1	-	-	-	-	-	-	635	608	-	394	411	-
Stage 2	-	-	-	-	-	-	393	410	-	612	595	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	947	-	-	1148	-	-	160	185	659	141	179	479
Mov Cap-2 Maneuver	-	-	-	-	-	-	160	185	-	141	179	-
Stage 1	-	-	-	-	-	-	635	608	-	394	387	-
Stage 2	-	-	-	-	-	-	364	386	-	556	595	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.8	31.2	27.5
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	251	947	-	-	1148	-	-	171
HCM Lane V/C Ratio	0.464	-	-	-	0.058	-	-	0.064
HCM Control Delay (s)	31.2	0	-	-	8.3	-	-	27.5
HCM Lane LOS	D	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	2.3	0	-	-	0.2	-	-	0.2

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	333	41	61	575	4	51	5	50	4	5	1
Future Vol, veh/h	0	333	41	61	575	4	51	5	50	4	5	1
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	100	-	100	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	366	45	67	632	4	56	5	55	4	5	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	636	0	0	411	0	0	1137	1136	366	1187	1179	634
Stage 1	-	-	-	-	-	-	366	366	-	768	768	-
Stage 2	-	-	-	-	-	-	771	770	-	419	411	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	947	-	-	1148	-	-	179	202	679	165	190	479
Stage 1	-	-	-	-	-	-	653	623	-	394	411	-
Stage 2	-	-	-	-	-	-	393	410	-	612	595	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	947	-	-	1148	-	-	167	190	679	142	179	479
Mov Cap-2 Maneuver	-	-	-	-	-	-	167	190	-	142	179	-
Stage 1	-	-	-	-	-	-	653	623	-	394	387	-
Stage 2	-	-	-	-	-	-	364	386	-	558	595	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.8	29.3	27.4
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	262	947	-	-	1148	-	-	172
HCM Lane V/C Ratio	0.445	-	-	-	0.058	-	-	0.064
HCM Control Delay (s)	29.3	0	-	-	8.3	-	-	27.4
HCM Lane LOS	D	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	2.1	0	-	-	0.2	-	-	0.2

Intersection	
Int Delay, s/veh	2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	20	27	6	19	43
Future Vol, veh/h	5	20	27	6	19	43
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	22	30	7	21	48

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	124	34	0	0	37	0
Stage 1	34	-	-	-	-	-
Stage 2	90	-	-	-	-	-
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	871	1039	-	-	1574	-
Stage 1	988	-	-	-	-	-
Stage 2	934	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	859	1039	-	-	1574	-
Mov Cap-2 Maneuver	859	-	-	-	-	-
Stage 1	988	-	-	-	-	-
Stage 2	921	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.7	0	2.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	997	1574	-
HCM Lane V/C Ratio	-	-	0.028	0.013	-
HCM Control Delay (s)	-	-	8.7	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	7.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	535	49	103	262	6	28	23	101	13	30	5
Future Vol, veh/h	1	535	49	103	262	6	28	23	101	13	30	5
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	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	3	2	15	7	20	2	2	2	9	2	2
Mvmt Flow	1	594	54	114	291	7	31	26	112	14	33	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	298	0	0	648	0	0	1165	1149	621	1215	1173	295
Stage 1	-	-	-	-	-	-	623	623	-	523	523	-
Stage 2	-	-	-	-	-	-	542	526	-	692	650	-
Critical Hdwy	4.12	-	-	4.25	-	-	7.12	6.52	6.22	7.19	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.19	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.19	5.52	-
Follow-up Hdwy	2.218	-	-	2.335	-	-	3.518	4.018	3.318	3.581	4.018	3.318
Pot Cap-1 Maneuver	1263	-	-	879	-	-	171	198	487	153	192	744
Stage 1	-	-	-	-	-	-	474	478	-	525	530	-
Stage 2	-	-	-	-	-	-	525	529	-	423	465	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1263	-	-	879	-	-	130	172	487	94	167	744
Mov Cap-2 Maneuver	-	-	-	-	-	-	130	172	-	94	167	-
Stage 1	-	-	-	-	-	-	474	478	-	524	461	-
Stage 2	-	-	-	-	-	-	421	460	-	308	465	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	2.7	37.4	42.4
HCM LOS			E	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	273	1263	-	-	879	-	-	148
HCM Lane V/C Ratio	0.619	0.001	-	-	0.13	-	-	0.36
HCM Control Delay (s)	37.4	7.9	-	-	9.7	-	-	42.4
HCM Lane LOS	E	A	-	-	A	-	-	E
HCM 95th %tile Q(veh)	3.8	0	-	-	0.4	-	-	1.5

Intersection	
Int Delay, s/veh	7.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	535	49	103	262	6	28	23	101	13	30	5
Future Vol, veh/h	1	535	49	103	262	6	28	23	101	13	30	5
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	100	-	100	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	3	2	15	7	20	2	2	2	9	2	2
Mvmt Flow	1	594	54	114	291	7	31	26	112	14	33	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	298	0	0	648	0	0	1138	1122	594	1215	1173	295
Stage 1	-	-	-	-	-	-	596	596	-	523	523	-
Stage 2	-	-	-	-	-	-	542	526	-	692	650	-
Critical Hdwy	4.12	-	-	4.25	-	-	7.12	6.52	6.22	7.19	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.19	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.19	5.52	-
Follow-up Hdwy	2.218	-	-	2.335	-	-	3.518	4.018	3.318	3.581	4.018	3.318
Pot Cap-1 Maneuver	1263	-	-	879	-	-	179	206	505	153	192	744
Stage 1	-	-	-	-	-	-	490	492	-	525	530	-
Stage 2	-	-	-	-	-	-	525	529	-	423	465	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1263	-	-	879	-	-	136	179	505	96	167	744
Mov Cap-2 Maneuver	-	-	-	-	-	-	136	179	-	96	167	-
Stage 1	-	-	-	-	-	-	490	492	-	524	461	-
Stage 2	-	-	-	-	-	-	421	460	-	312	465	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	2.7	34.7	42.1
HCM LOS			D	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	284	1263	-	-	879	-	-	149
HCM Lane V/C Ratio	0.595	0.001	-	-	0.13	-	-	0.358
HCM Control Delay (s)	34.7	7.9	-	-	9.7	-	-	42.1
HCM Lane LOS	D	A	-	-	A	-	-	E
HCM 95th %tile Q(veh)	3.5	0	-	-	0.4	-	-	1.5

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	635	359	1	0	1
Future Vol, veh/h	7	635	359	1	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	3	8	2	2	2
Mvmt Flow	8	706	399	1	0	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	400	0	-	0	1122	400
Stage 1	-	-	-	-	400	-
Stage 2	-	-	-	-	722	-
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	1159	-	-	-	228	650
Stage 1	-	-	-	-	677	-
Stage 2	-	-	-	-	481	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1159	-	-	-	226	650
Mov Cap-2 Maneuver	-	-	-	-	354	-
Stage 1	-	-	-	-	672	-
Stage 2	-	-	-	-	481	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	10.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1159	-	-	-	650
HCM Lane V/C Ratio	0.007	-	-	-	0.002
HCM Control Delay (s)	8.1	-	-	-	10.5
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	6.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	122	30	8	140	42
Future Vol, veh/h	6	122	30	8	140	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	136	33	9	156	47

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	397	38	0	0	42	0
Stage 1	38	-	-	-	-	-
Stage 2	359	-	-	-	-	-
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	608	1034	-	-	1567	-
Stage 1	984	-	-	-	-	-
Stage 2	707	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	546	1034	-	-	1567	-
Mov Cap-2 Maneuver	546	-	-	-	-	-
Stage 1	984	-	-	-	-	-
Stage 2	635	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	5.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	992	1567	-
HCM Lane V/C Ratio	-	-	0.143	0.099	-
HCM Control Delay (s)	-	-	9.2	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.3	-

Intersection	
Int Delay, s/veh	7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	287	34	118	519	10	50	21	82	12	17	1
Future Vol, veh/h	3	287	34	118	519	10	50	21	82	12	17	1
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	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	309	37	127	558	11	54	23	88	13	18	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	569	0	0	346	0	0	1161	1157	328	1207	1170	564
Stage 1	-	-	-	-	-	-	334	334	-	818	818	-
Stage 2	-	-	-	-	-	-	827	823	-	389	352	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1003	-	-	1213	-	-	172	196	713	160	193	525
Stage 1	-	-	-	-	-	-	680	643	-	370	390	-
Stage 2	-	-	-	-	-	-	366	388	-	635	632	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1003	-	-	1213	-	-	145	175	713	116	172	525
Mov Cap-2 Maneuver	-	-	-	-	-	-	145	175	-	116	172	-
Stage 1	-	-	-	-	-	-	678	641	-	369	349	-
Stage 2	-	-	-	-	-	-	310	347	-	535	630	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.5	38.8	36.2
HCM LOS			E	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	264	1003	-	-	1213	-	-	147
HCM Lane V/C Ratio	0.623	0.003	-	-	0.105	-	-	0.219
HCM Control Delay (s)	38.8	8.6	-	-	8.3	-	-	36.2
HCM Lane LOS	E	A	-	-	A	-	-	E
HCM 95th %tile Q(veh)	3.8	0	-	-	0.3	-	-	0.8

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	287	34	118	519	10	50	21	82	12	17	1
Future Vol, veh/h	3	287	34	118	519	10	50	21	82	12	17	1
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	100	-	100	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	309	37	127	558	11	54	23	88	13	18	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	569	0	0	346	0	0	1142	1138	309	1207	1170	564
Stage 1	-	-	-	-	-	-	315	315	-	818	818	-
Stage 2	-	-	-	-	-	-	827	823	-	389	352	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1003	-	-	1213	-	-	177	201	731	160	193	525
Stage 1	-	-	-	-	-	-	696	656	-	370	390	-
Stage 2	-	-	-	-	-	-	366	388	-	635	632	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1003	-	-	1213	-	-	149	179	731	117	172	525
Mov Cap-2 Maneuver	-	-	-	-	-	-	149	179	-	117	172	-
Stage 1	-	-	-	-	-	-	694	654	-	369	349	-
Stage 2	-	-	-	-	-	-	310	347	-	538	630	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.5	36.9	36
HCM LOS			E	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	271	1003	-	-	1213	-	-	148
HCM Lane V/C Ratio	0.607	0.003	-	-	0.105	-	-	0.218
HCM Control Delay (s)	36.9	8.6	-	-	8.3	-	-	36
HCM Lane LOS	E	A	-	-	A	-	-	E
HCM 95th %tile Q(veh)	3.6	0	-	-	0.3	-	-	0.8

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	383	636	4	4	6
Future Vol, veh/h	5	383	636	4	4	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	421	699	4	4	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	703	0	-	0	1132	701
Stage 1	-	-	-	-	701	-
Stage 2	-	-	-	-	431	-
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	895	-	-	-	225	439
Stage 1	-	-	-	-	492	-
Stage 2	-	-	-	-	655	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	895	-	-	-	224	439
Mov Cap-2 Maneuver	-	-	-	-	354	-
Stage 1	-	-	-	-	489	-
Stage 2	-	-	-	-	655	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	14.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	895	-	-	-	401
HCM Lane V/C Ratio	0.006	-	-	-	0.027
HCM Control Delay (s)	9	-	-	-	14.2
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	6.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	126	27	6	126	43
Future Vol, veh/h	5	126	27	6	126	43
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	140	30	7	140	48

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	362	34	0	0	37	0
Stage 1	34	-	-	-	-	-
Stage 2	328	-	-	-	-	-
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	637	1039	-	-	1574	-
Stage 1	988	-	-	-	-	-
Stage 2	730	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	579	1039	-	-	1574	-
Mov Cap-2 Maneuver	579	-	-	-	-	-
Stage 1	988	-	-	-	-	-
Stage 2	664	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	5.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1008	1574	-
HCM Lane V/C Ratio	-	-	0.144	0.089	-
HCM Control Delay (s)	-	-	9.2	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.3	-

APPENDIX H: Turn Lane Worksheets

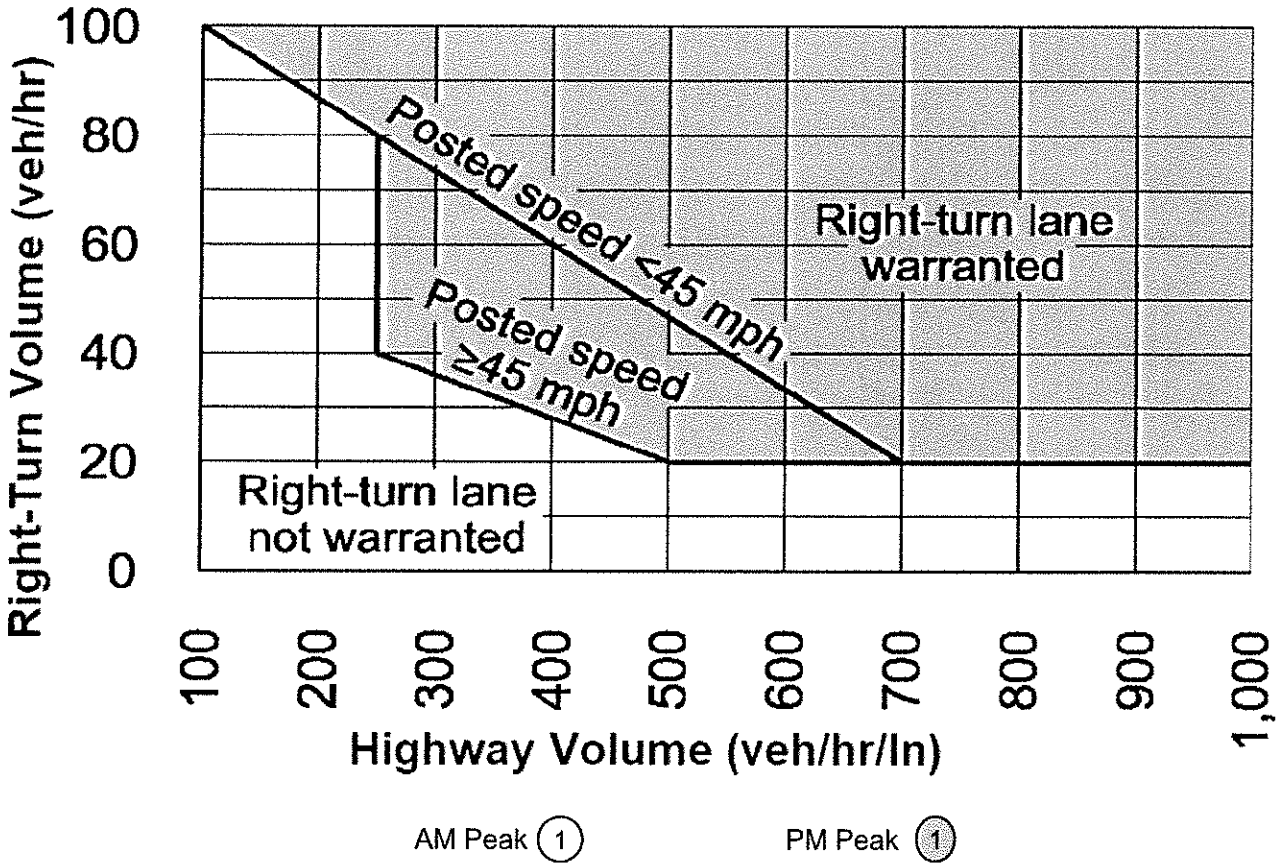
GR ENGINEERING, INC.

Royal Ridge Subdivision
Greenleaf, Idaho

ITD Right-Turn Lane Analysis
2021 Existing Traffic

Intersection	Approach	Speed Limit (mph)	Peak Hour	Right-Turn Volume (vph)	Major Road Volume (vphpl)	Meet Warrant?
(1) Friends Road & SH 19	EB	35	AM	14	429	No*
			PM	3	235	No*
(2) Friends Road & SH 19	WB	35	AM	5	221	No*
			PM	8	454	No*
(3) Brown Street & SH 19	WB	35	AM	1	225	No*
			PM	3	460	No*

* Right-turn volume less than 20 vph or approach volume less than 100 vphpl - Not Warranted



AM Peak (1) PM Peak (1)

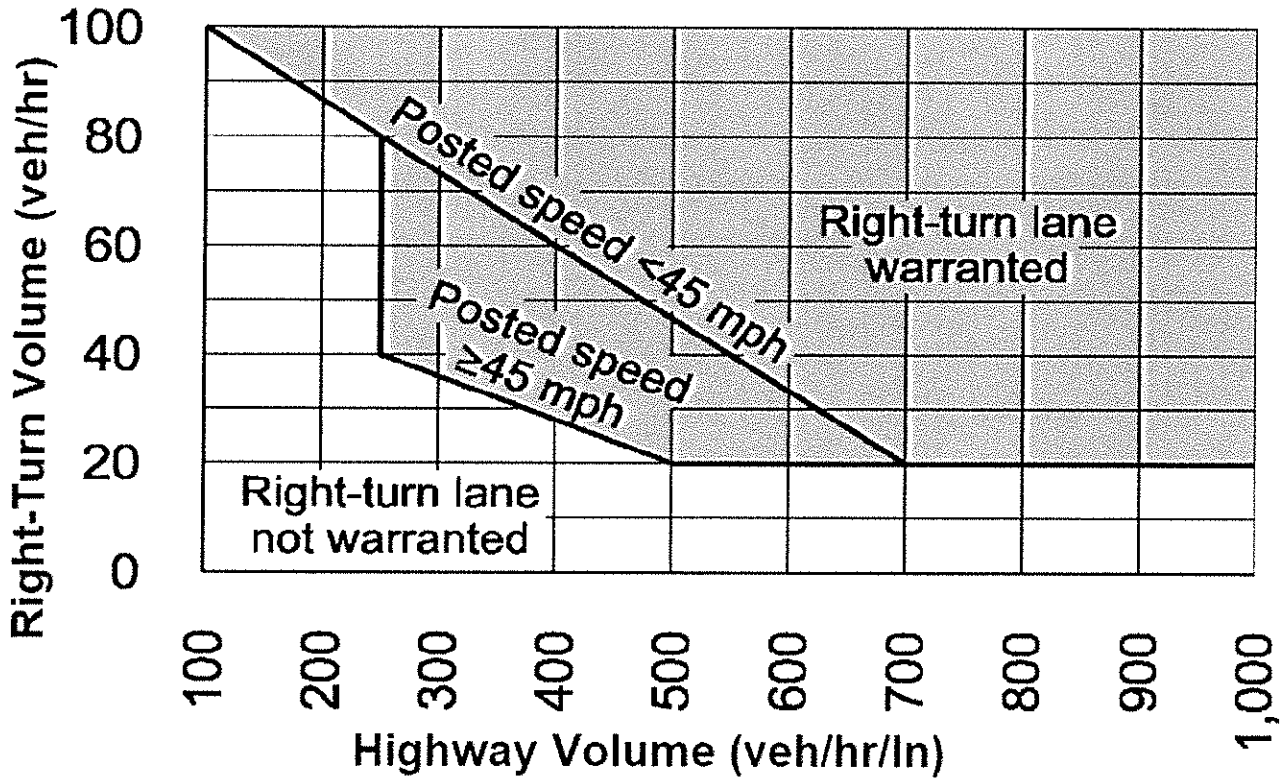
GR ENGINEERING, INC.

Royal Ridge Subdivision
Greenleaf, Idaho

ITD Right-Turn Lane Analysis
2025 Background Traffic

Intersection	Approach	Speed Limit (mph)	Peak Hour	Right-Turn Volume (vph)	Major Road Volume (vphpl)	Meet Warrant?
(1) Friends Road & SH 19	EB	35	AM	16	501	No*
			PM	4	275	No*
(2) Friends Road & SH 19	WB	35	AM	6	258	No*
			PM	9	531	No*
(3) Brown Street & SH 19	WB	35	AM	1	263	No*
			PM	4	539	No*

* Right-turn volume less than 20 vph or approach volume less than 100 vphpl - Not Warranted



AM Peak (1) PM Peak (1)

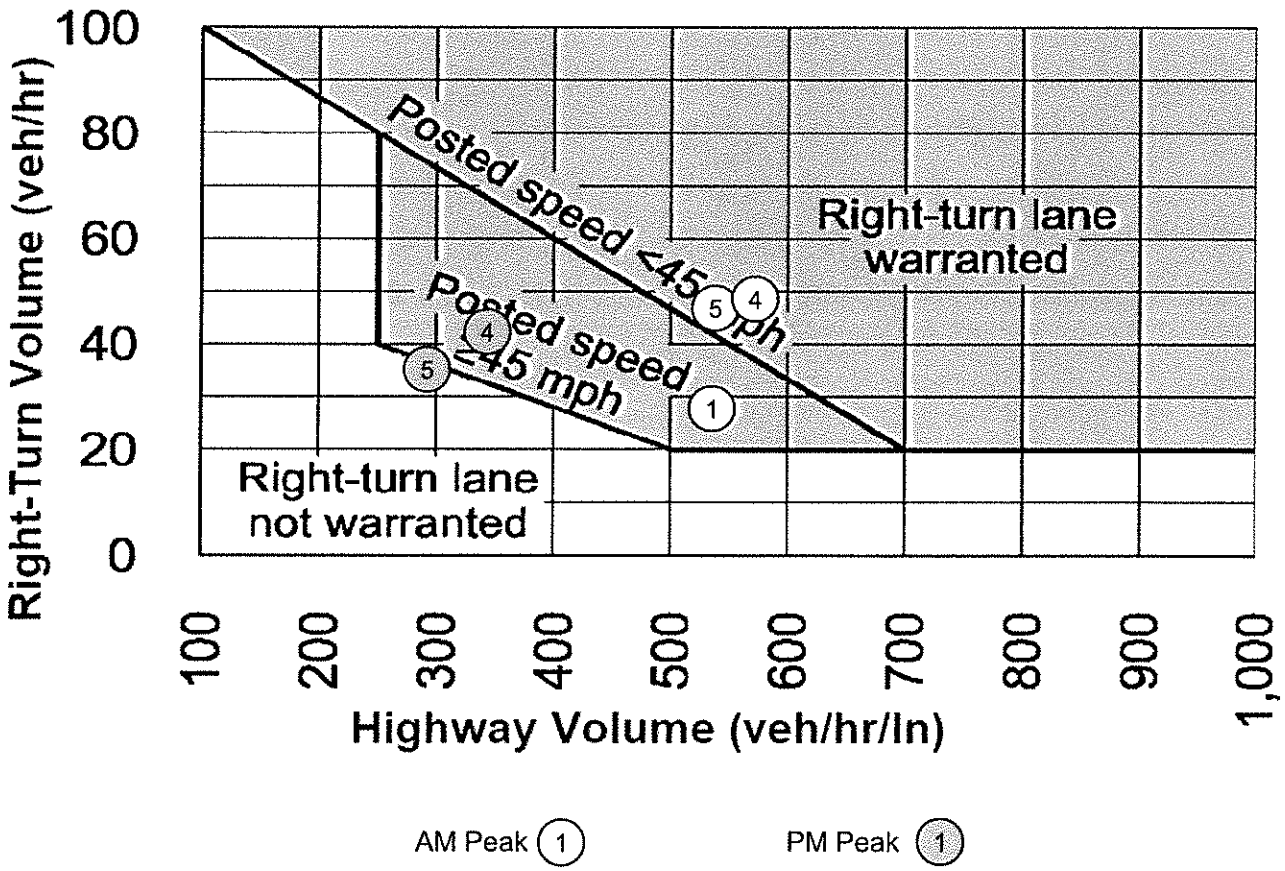
GR ENGINEERING, INC.

Royal Ridge Subdivision
Greenleaf, Idaho

ITD Right-Turn Lane Analysis
2025 Total Traffic

Intersection	Approach	Speed Limit (mph)	Peak Hour	Right-Turn Volume (vph)	Major Road Volume (vphpl)	Meet Warrant?
(1) Friends Road & SH 19	EB	35	AM	28	532	No
			PM	12	295	No*
(2) Friends Road & SH 19	WB	35	AM	17	292	No*
			PM	18	557	No*
(3) Brown Street & SH 19	WB	35	AM	1	333	No*
			PM	4	585	No*
(4) Brown Street & SH 19	EB	35	AM	49	579	Yes
			PM	41	343	No
(5) Friends Road & SH 19 (No Access on SH 19)	EB	35	AM	47	532	Yes
			PM	34	295	No
(6) Friends Road & SH 19 (No Access on SH 19)	WB	35	AM	6	344	No*
			PM	9	592	No*

* Right-turn volume less than 20 vph or approach volume less than 100 vphpl - Not Warranted



AM Peak (1) PM Peak (1)

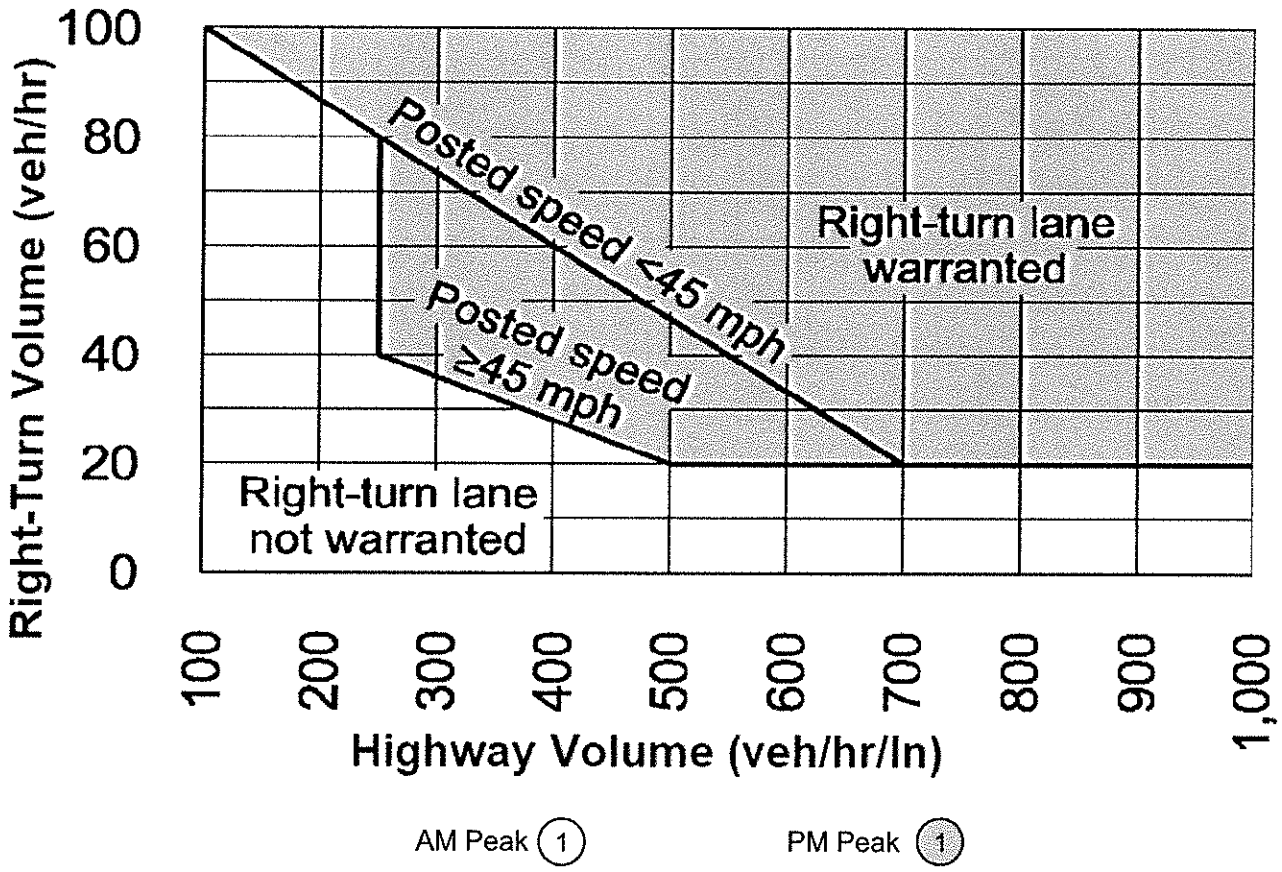
GR ENGINEERING, INC.

Royal Ridge Subdivision
Greenleaf, Idaho

ITD Right-Turn Lane Analysis
2030 Background Traffic

Intersection	Approach	Speed Limit (mph)	Peak Hour	Right-Turn Volume (vph)	Major Road Volume (vphpl)	Meet Warrant?
(1) Friends Road & SH 19	EB	35	AM	18	554	No*
			PM	4	304	No*
(2) Friends Road & SH 19	WB	35	AM	6	285	No*
			PM	10	586	No*
(3) Brown Street & SH 19	WB	35	AM	1	290	No*
			PM	4	594	No*

* Right-turn volume less than 20 vph or approach volume less than 100 vphpl - Not Warranted



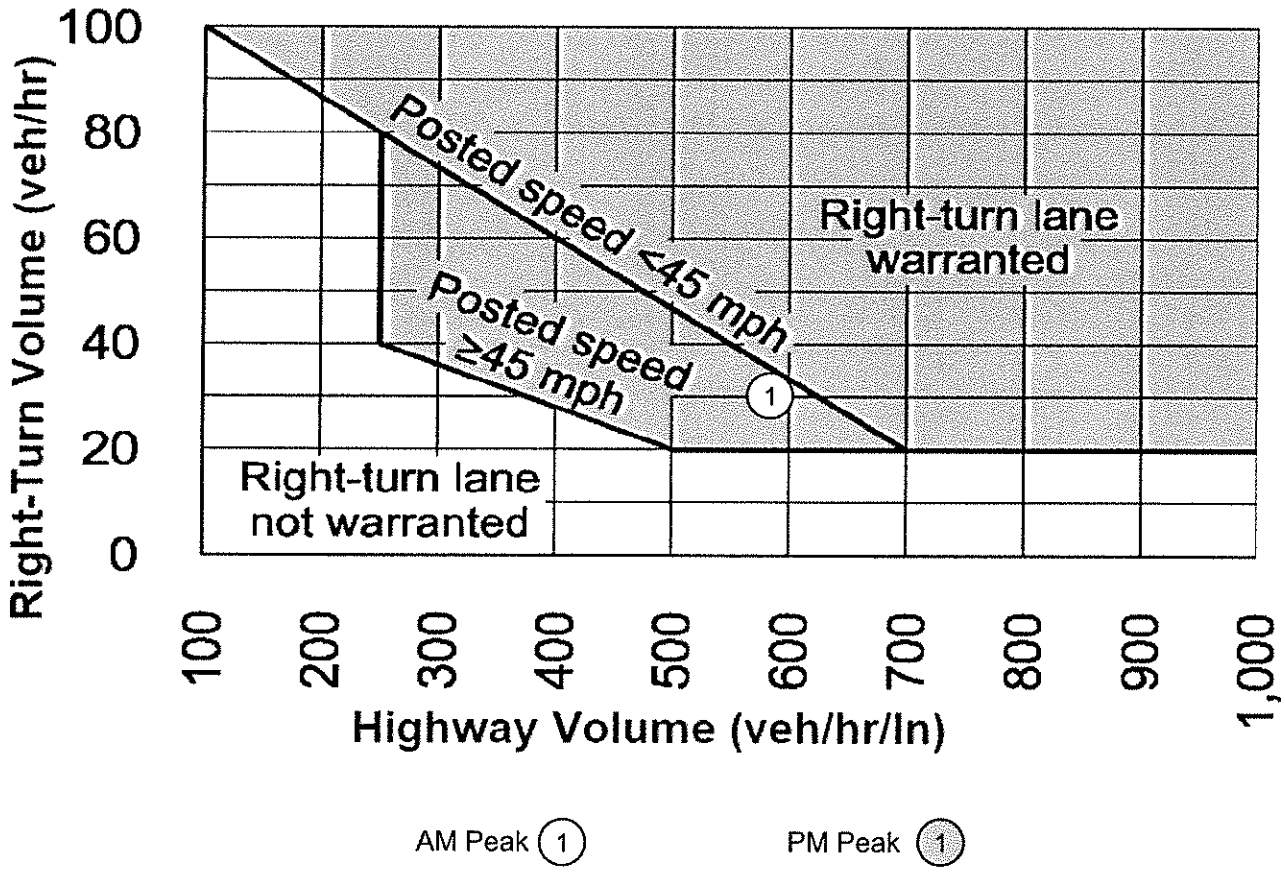
AM Peak (1) PM Peak (1)

Royal Ridge Subdivision
Greenleaf, Idaho

ITD Right-Turn Lane Analysis
2030 Total Traffic

Intersection	Approach	Speed Limit (mph)	Peak Hour	Right-Turn Volume (vph)	Major Road Volume (vphpl)	Meet Warrant?
(1) Friends Road & SH 19	EB	35	AM	30	585	No
			PM	12	324	No*
(2) Friends Road & SH 19	WB	35	AM	17	319	No*
			PM	19	612	No*
(3) Brown Street & SH 19	WB	35	AM	1	360	No*
			PM	4	640	No*
(4) Brown Street & SH 19	EB	35	AM	**Warranted under 2025 Total Traffic**		
			PM			
(5) Friends Road & SH 19 (No Access on SH 19)	EB	35	AM	**Warranted under 2025 Total Traffic**		
			PM			
(6) Friends Road & SH 19 (No Access on SH 19)	WB	35	AM	6	371	No*
			PM	10	647	No*

* Right-turn volume less than 20 vph or approach volume less than 100vphpl - Not Warranted



AM Peak (1) PM Peak (1)

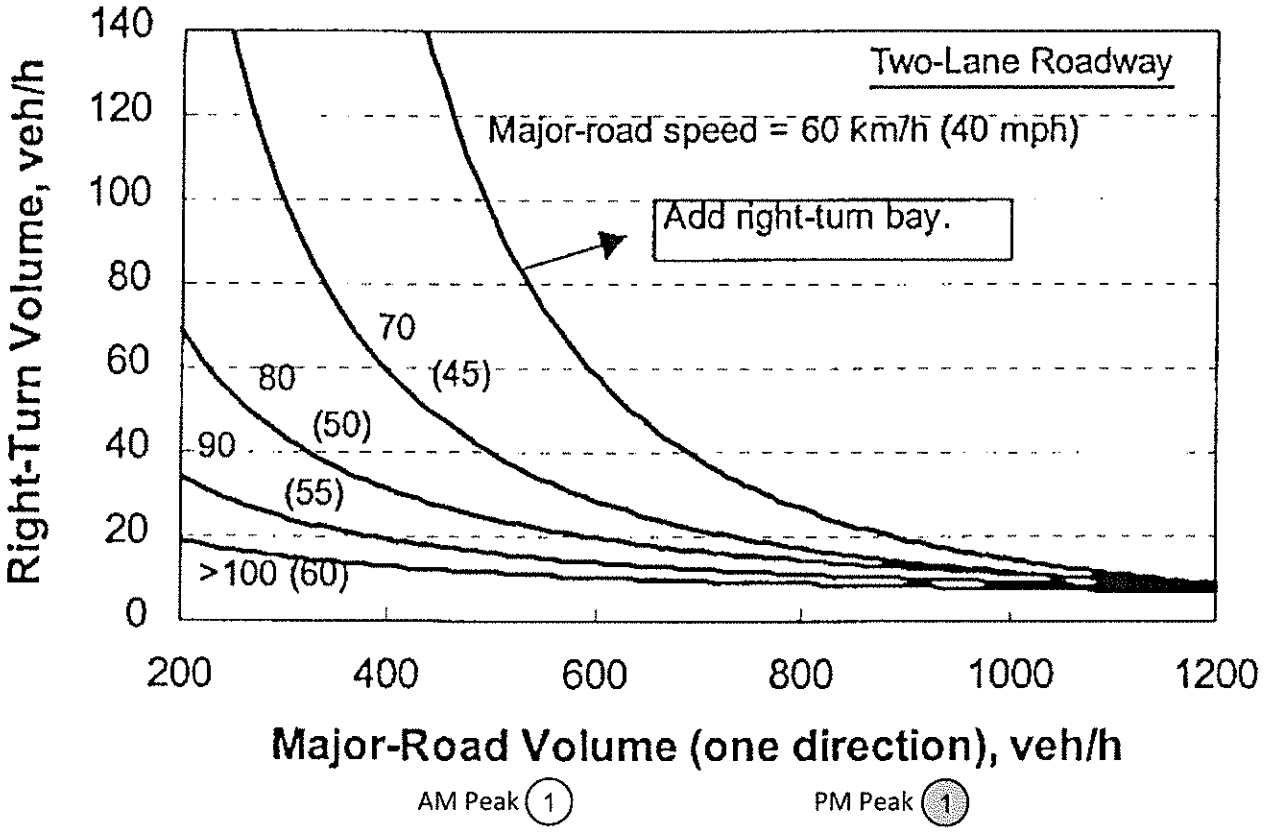
GR ENGINEERING, INC.

Royal Ridge Subdivision
Greenleaf, Idaho

NCHRP 457 Right-Turn Lane Analysis
2025 Total Traffic

Intersection	Approach	Speed Limit [mph]	Peak Hour	Right-Turn Volume [vph]	Major Road Volume [vph]	Meet Warrant?
(1) West Access & Friends Road	NB	50	AM	8	35	No*
			PM	6	30	No*

*Major approach volume < 200 vph or right-turn volume < 10 vph = Not Warranted



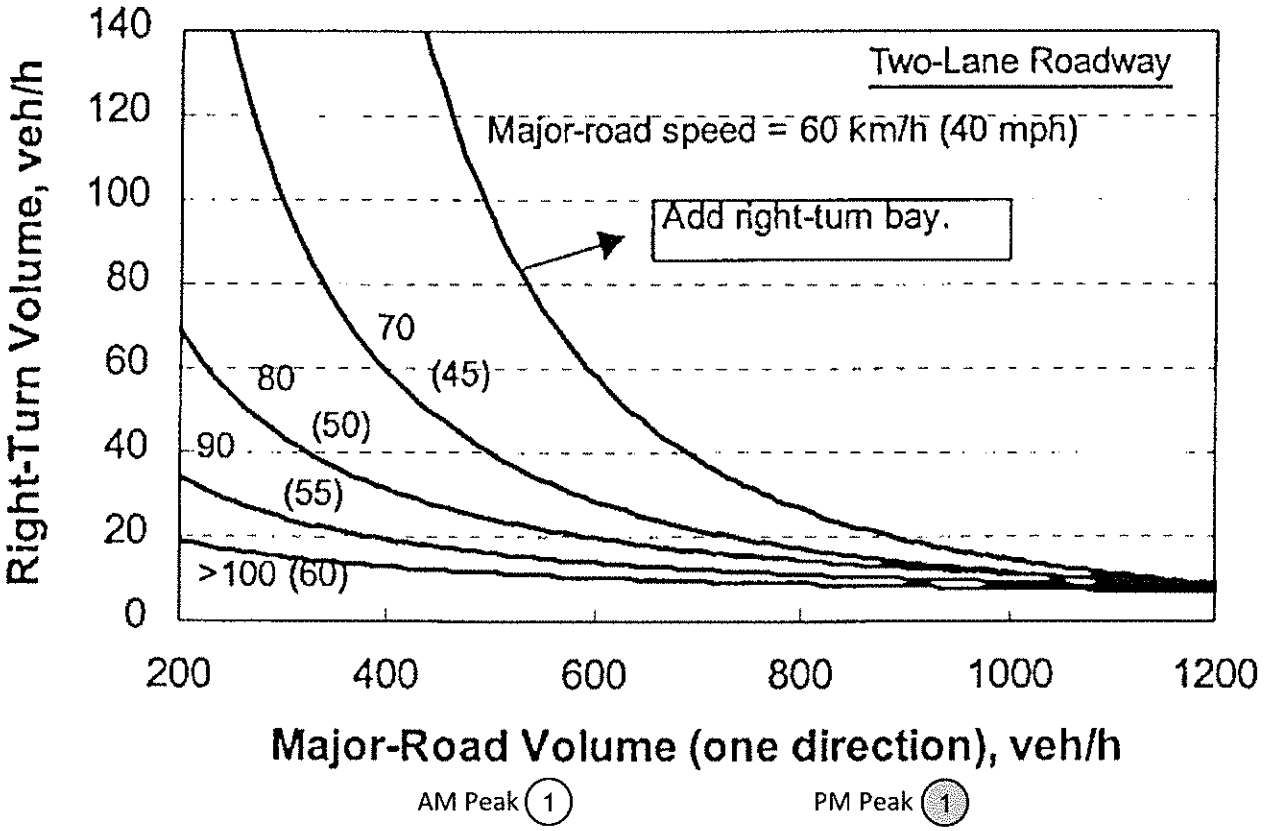
GR ENGINEERING, INC.

Royal Ridge Subdivision
Greenleaf, Idaho

NCHRP 457 Right-Turn Lane Analysis
2030 Total Traffic

Intersection	Approach	Speed Limit [mph]	Peak Hour	Right-Turn Volume [vph]	Major Road Volume [vph]	Meet Warrant?
(1) West Access & Friends Road	NB	50	AM	8	38	No*
			PM	6	33	No*

*Major approach volume < 200 vph or right-turn volume < 10 vph = Not Warranted



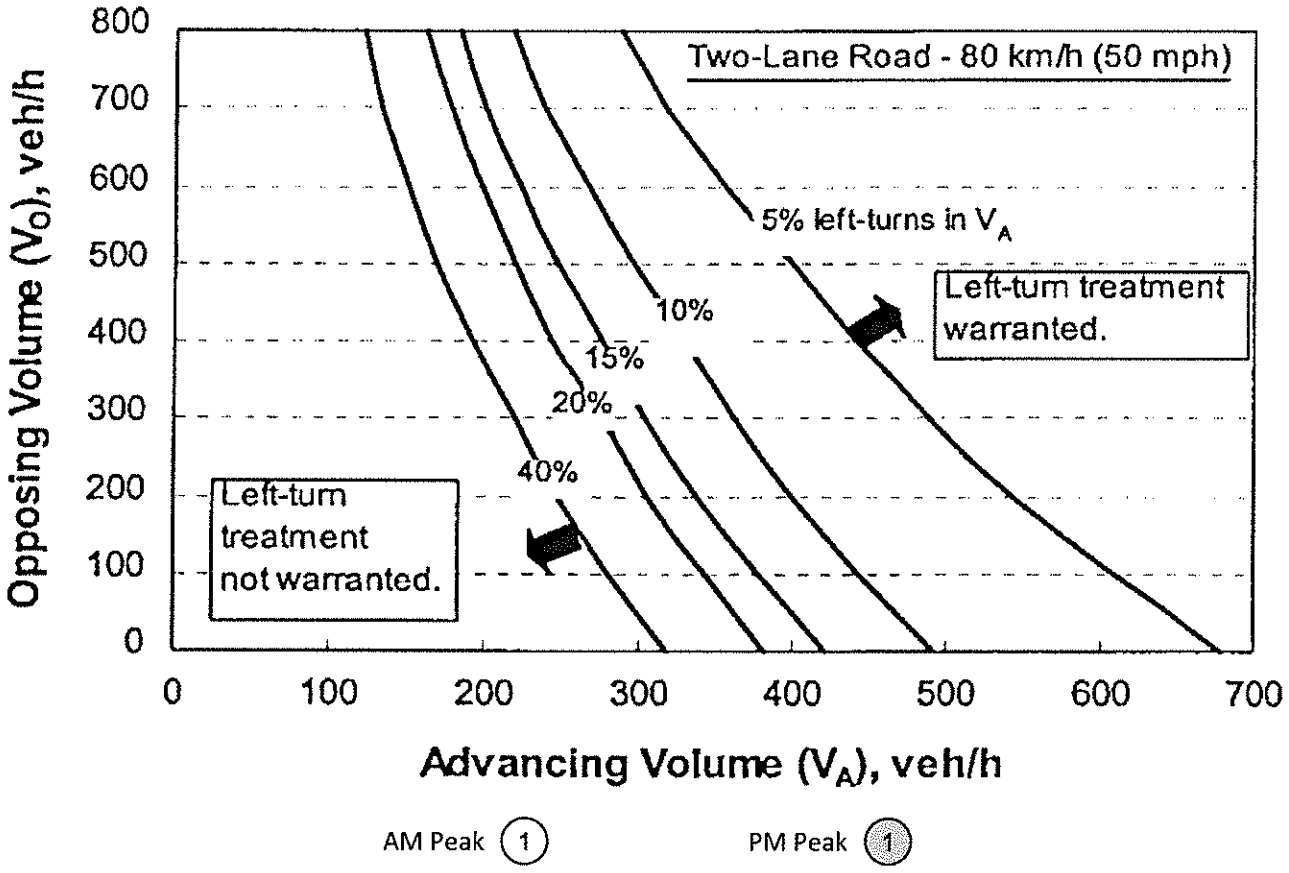
GR ENGINEERING, INC.

Royal Ridge Subdivision
Greenleaf, Idaho

NCHRP 457 Left-Turn Lane Analysis
2025 Total Traffic

Intersection	Approach	Speed Limit [mph]	Peak Hour	Advancing Volume [vph]	Opposing Volume [vph]	Left-Turn Volume (%)	Meet Warrant?
(1) West Access & Friends Road	SB	50	AM	65	35	43.1%	No*
			PM	59	30	32.2%	No*
(2) West Access & Friends Road (No Access on SH 19	SB	50	AM	177	35	79.0%	No*
			PM	166	30	75.9%	No*

*Advancing and Opposing Volume < 200 vph = Not Warranted

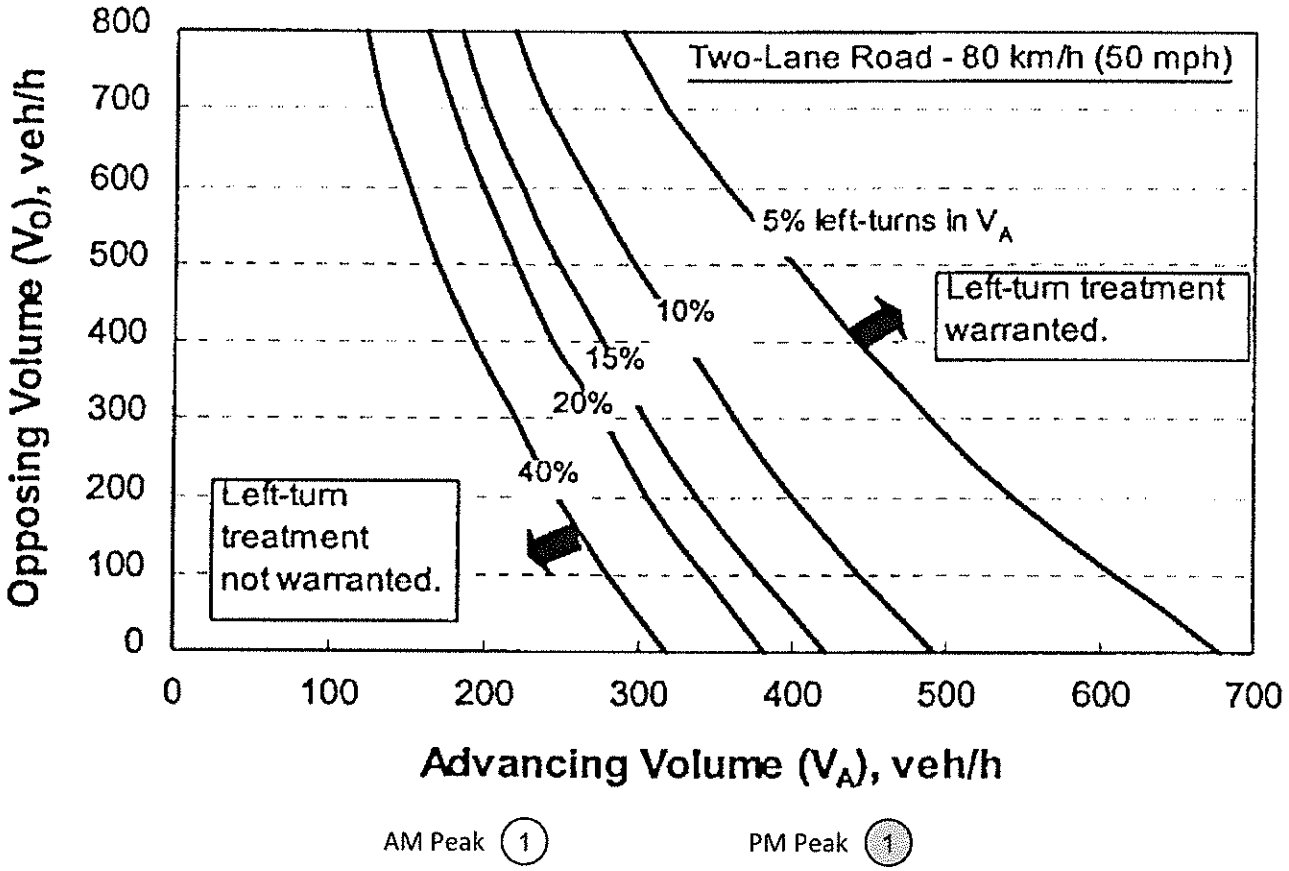


Royal Ridge Subdivision
Greenleaf, Idaho

NCHRP 457 Left-Turn Lane Analysis
2030 Total Traffic

Intersection	Approach	Speed Limit [mph]	Peak Hour	Advancing Volume [vph]	Opposing Volume [vph]	Left-Turn Volume (%)	Meet Warrant?
(1) West Access & Friends Road	SB	50	AM	70	38	40.0%	No*
			PM	62	33	30.6%	No*
(2) West Access & Friends Road (No Access on SH 19)	SB	50	AM	182	38	76.9%	No*
			PM	169	33	74.6%	No*

*Advancing and Opposing Volume < 200 vph = Not Warranted



APPENDIX I: Trip Generation Data

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Royal Ridge Subdivision	**Organization:**	CR Engineering, Inc.
Project Location:	Greenleaf, Idaho	**Performed By:**	CR
Scenario Description:	Build-Out	**Date:**	28-May-21
Analysis Year:	2025 Total	**Checked By:**	BA
Analysis Period:	AM Street Peak Hour	**Date:**	2-Jul-21

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	18	TSF	43	37	6
Retail	820	30	TSF	167	103	64
Restaurant				0		
Cinema/Entertainment				0		
Residential	210	111	DU	84	21	63
Hotel				0		
All Other Land Uses[2]				0		
				294	161	133

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		2	0	0	0	0
Retail	1		0	0	0	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	1	1	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	294	161	133
Internal Capture Percentage	3%	3%	4%
External Vehicle-Trips[5]	284	156	128
External Transit-Trips[6]	0	0	0
External Non-Motorized Trips[5]	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	5%	33%
Retail	3%	2%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	0%	3%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Project Name:	Royal Ridge Subdivision
Analysis Period:	AM Street Peak Hour

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	37	37	1.00	6	6
Retail	1.00	103	103	1.00	64	64
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	21	21	1.00	63	63
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		2	4	0	0	0
Retail	19		8	0	9	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	1	1	13	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		33	0	0	0	0
Retail	1		0	0	0	0
Restaurant	5	8		0	1	0
Cinema/Entertainment	0	0	0		0	0
Residential	1	18	0	0		0
Hotel	1	4	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	2	35	37	35	0	0
Retail	3	100	103	100	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	21	21	21	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	2	4	6	4	0	0
Retail	1	63	64	63	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	2	61	63	61	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Royal Ridge Subdivision	**Organization:**	CR Engineering, Inc.
Project Location:	Greenleaf, Idaho	**Performed By:**	CR
Scenario Description:	Build-Out	**Date:**	28-May-21
Analysis Year:	2025 Total	**Checked By:**	BA
Analysis Period:	PM Street Peak Hour	**Date:**	2-Jul-21

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	18	TSF	22	3	19
Retail	820	30	TSF	223	107	116
Restaurant				0		
Cinema/Entertainment				0		
Residential	210	111	DU	112	71	41
Hotel				0		
All Other Land Uses[2]				0		
				357	181	176

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		4	0	0	0	0
Retail	1		0	0	30	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	1	11	0	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	357	181	176
Internal Capture Percentage	26%	26%	27%
External Vehicle-Trips[5]	263	134	129
External Transit-Trips[6]	0	0	0
External Non-Motorized Trips[6]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	67%	21%
Retail	14%	27%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	42%	29%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Project Name:	Royal Ridge Subdivision
Analysis Period:	PM Street Peak Hour

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	3	3	1.00	19	19
Retail	1.00	107	107	1.00	116	116
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	71	71	1.00	41	41
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		4	1	0	0	0
Retail	2		34	5	30	6
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	17	9	0		1
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		9	0	0	3	0
Retail	1		0	0	33	0
Restaurant	1	54		0	11	0
Cinema/Entertainment	0	4	0		3	0
Residential	2	11	0	0		0
Hotel	0	2	0	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	2	1	3	1	0	0
Retail	15	92	107	92	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	30	41	71	41	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	4	15	19	15	0	0
Retail	31	85	116	85	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	12	29	41	29	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

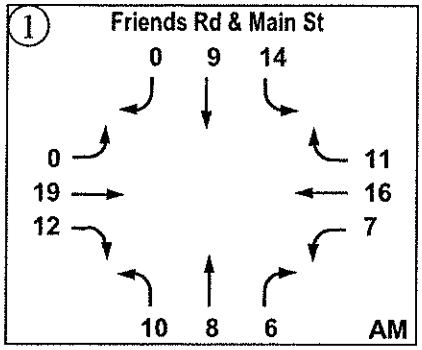
[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

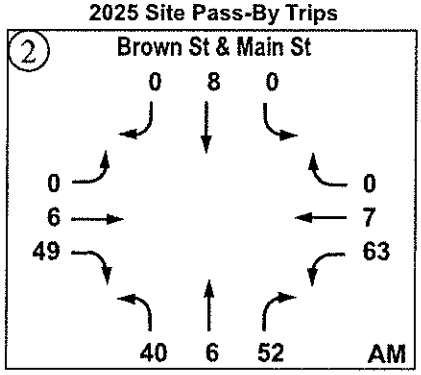
[2]Person-Trips

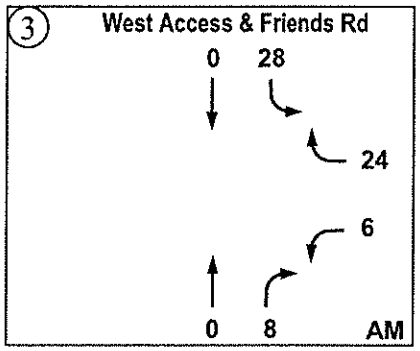
[3]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

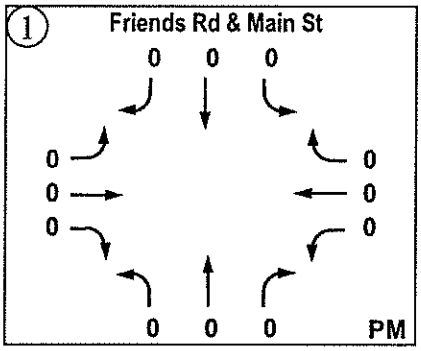
*Indicates computation that has been rounded to the nearest whole number.

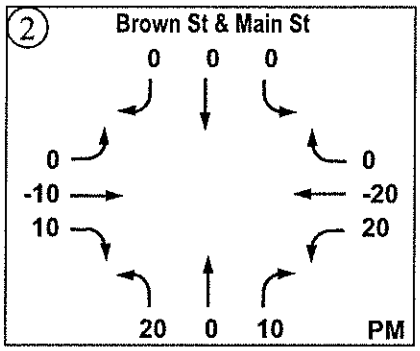
2025 Site Pass-By Trips

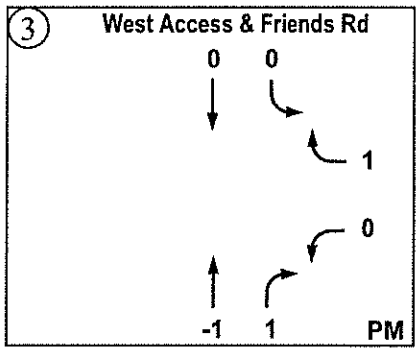




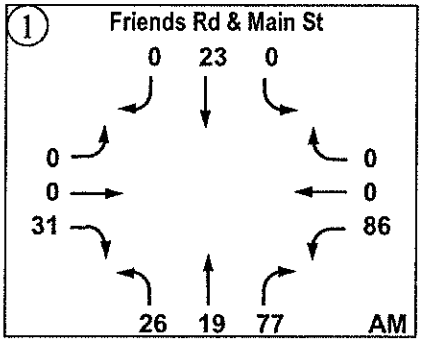


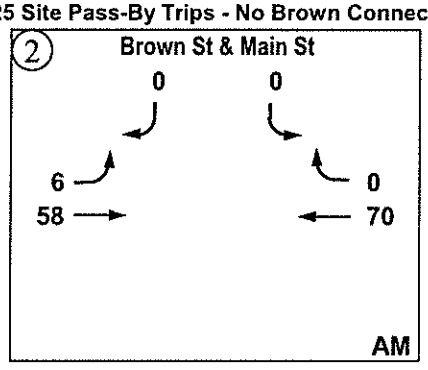


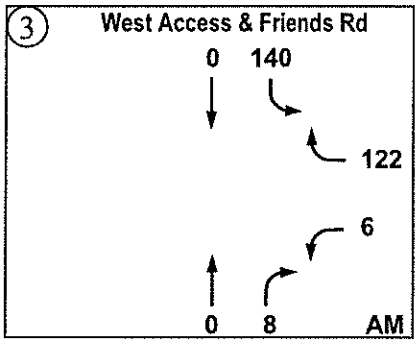


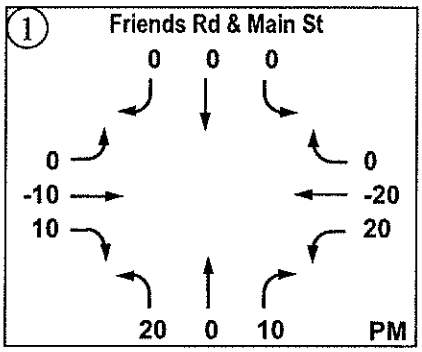


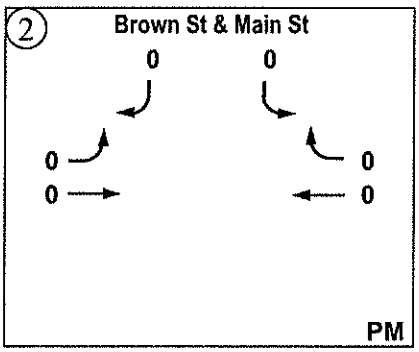
2025 Site Pass-By Trips - No Brown Connection

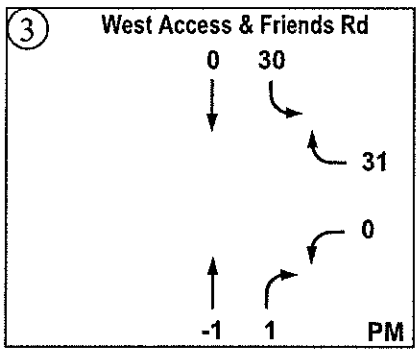






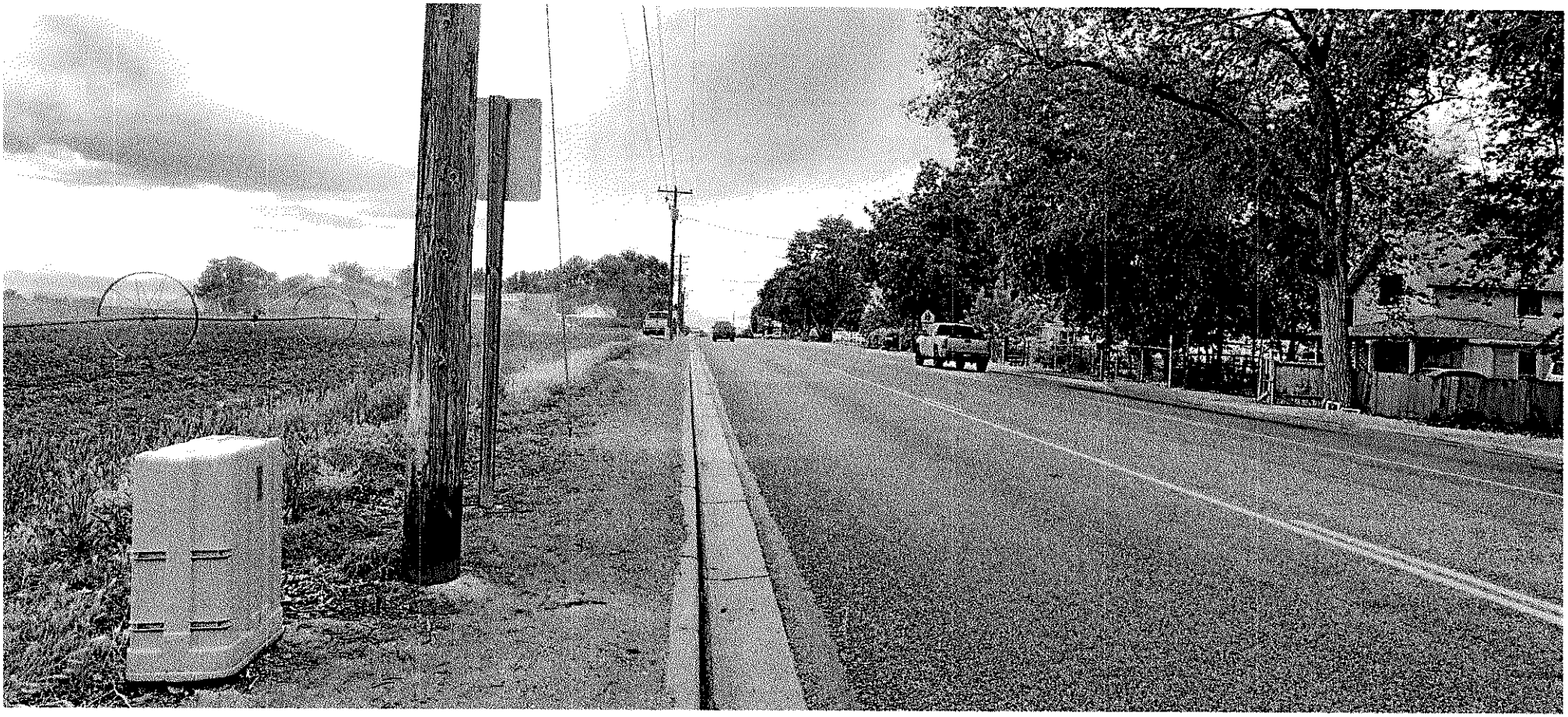




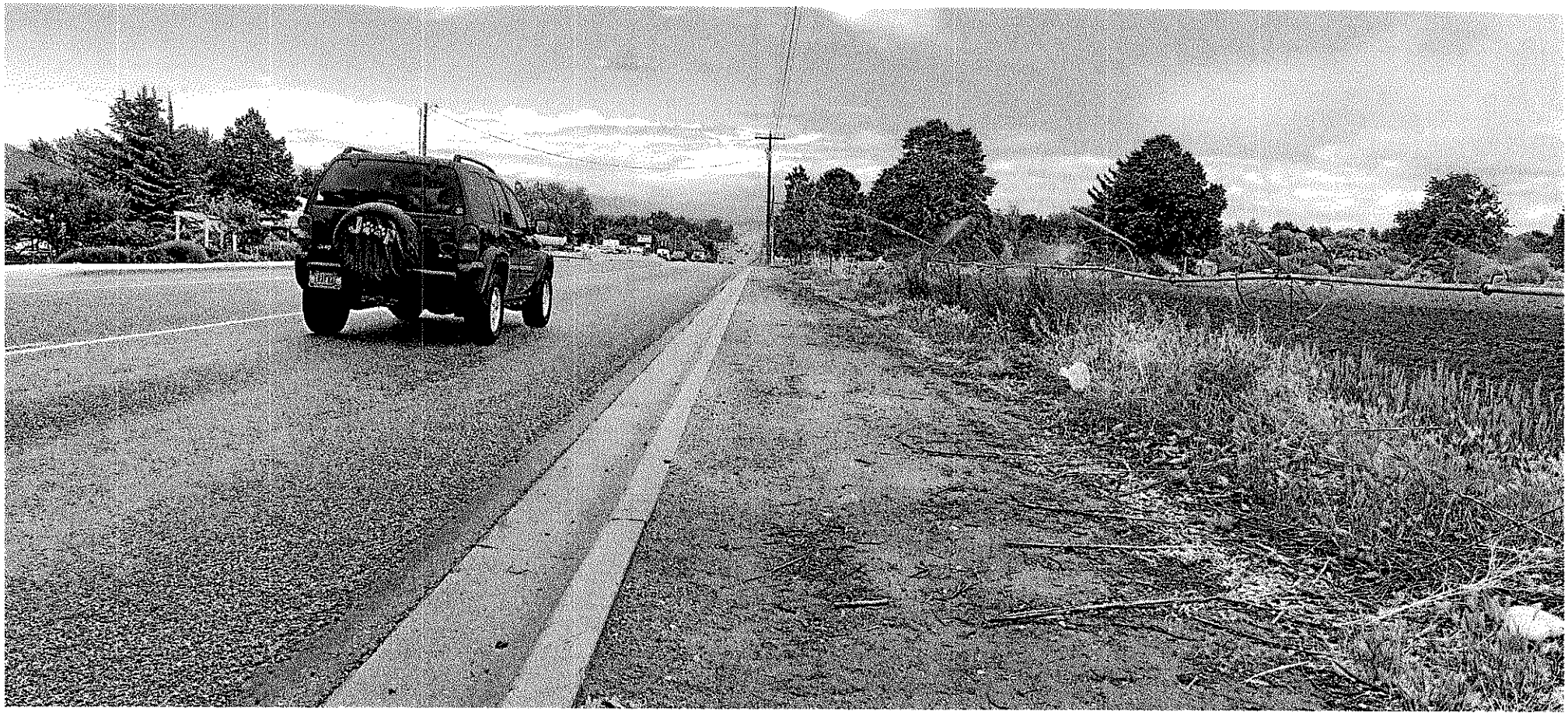


APPENDIX J: Field Review Photos

Brown Street Access Looking West



Brown Street Access Looking East



West Access Looking North

West Access Looking South