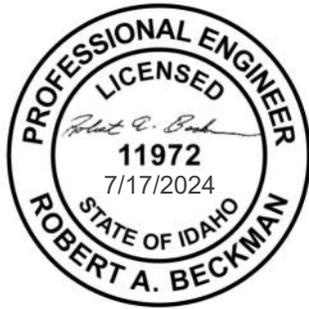


TRIP GENERATION REVIEW

# BOISE BIBLE COLLEGE MULTI-FAMILY DEVELOPMENT

GARDEN CITY, IDAHO



*Prepared for:*  
**Rennison Companies**  
2025 E. Riverside Drive, Ste.200  
Eagle, ID 83616

*Prepared by:*  
**Kimley»»Horn**

July 2024  
193178000  
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***Prepared by:***

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## 1. EXECUTIVE SUMMARY

### 1.1. Project Description

The proposed Boise Bible College Multi- Family development includes 236 units in two four-story buildings. Access to the site will be provided by one access point along W Marigold Street. The development is located west of Glenwood Street, between Marigold Street and US 20/26/Chinden Boulevard, in Garden City, Idaho. This project is anticipated to be completed in 2026.

The purpose of this traffic review is to identify trip generation characteristics of the proposed development, evaluate high-level traffic related impacts on the adjacent street system, and recommend measures to mitigate impacts, if evident. Study area intersections and roadway segments are shown in **Figure ES-1**.

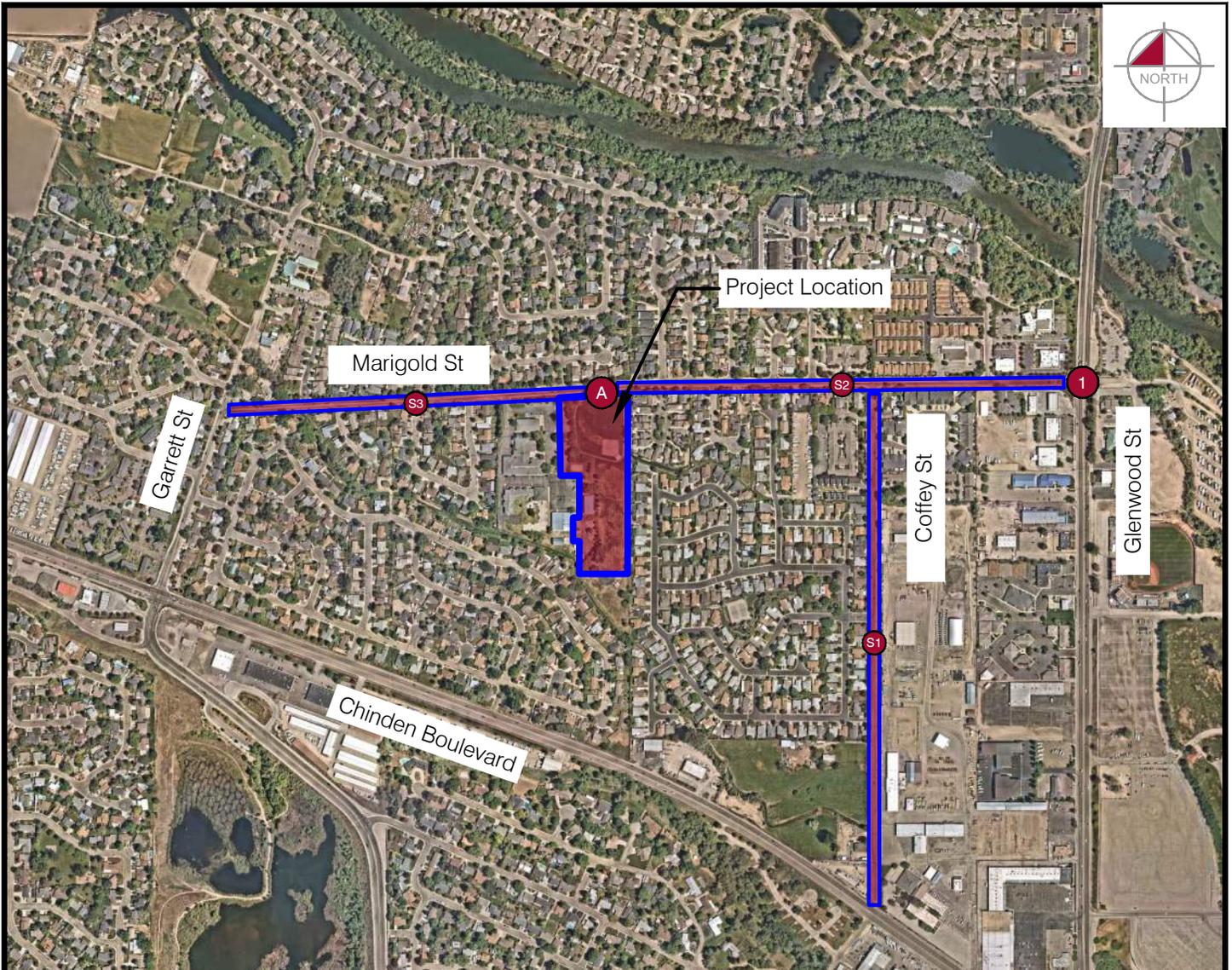


Image Source: Nearmap US, INC.

- Study Area Intersections:
- 1. Marigold St and Glendwood St
  - A. Marigold Street and Site Access

- Study Area Roadway Segments:
- 1. Coffey St from Chinden Blvd to Marigold St
  - 2. Marigold St from Glenwood St to Site Access A
  - 3. Marigold St from Garrett St to Site Access A

LEGEND	
	DRIVEWAYS

## 1.2. Findings and Recommendations

### 1.2.1. Trip Generation

Build-out of the proposed development is estimated to generate 1,071 new daily trips, with 92 trips occurring in the AM peak hour and 92 trips in the PM peak hour on a typical weekday.

### 1.2.2. Analysis Findings and Mitigation Recommendations

Operational analysis results are shown in **Table ES-1** and **Table ES-2**. Analysis findings and mitigation recommendations are presented in **Table ES-3**.

**Table ES-1 – Operational Analysis Results**

Operational Analysis Results – LOS (Delay)				
Intersection				
Number		1	A	
Name		Glenwood Street and Marigold Street	Marigold and Site Access A	
Control/Classification		Signalized	TWSC	
Analysis Scenario	2024 Background	AM	LOS C (33) V/C: 0.89 EB Queue: 188 ft	-
		PM	LOS F (42) V/C: 1.13 EB Queue: 253 ft	-
	Mitigated 2024 Background	AM	LOS B (19) V/C: 0.78 EB Queue: 203 ft	-
		PM	LOS F (28) V/C: 1.05 EB Queue: 263 ft	-
	2026 Background	AM	LOS C (22) V/C: 0.83 EB Queue: 215 ft	-
		PM	LOS F (33) V/C: 1.12 EB Queue: 275 ft	-
	2026 Plus Project	AM	LOS C (25) V/C: 0.85 EB Queue: 245 ft	LOS B (11) V/C: 0.12 (NBL/R) LOS A (8) V/C: 0.02 (WBL)
		PM	LOS F (43) V/C: 1.12 EB Queue: 405 ft	LOS B (12) V/C: 0.08 (NBL/R) LOS A (9) V/C: 0.05 (WBL)

Notes:  
 1. LOS and V/C ratio are reported for overall intersection for signalized intersections.  
 2. LOS and V/C ratio are reported for worst movement at TWSC intersections.

**Table ES-2 – Operational Analysis Results Continued**

Operational Analysis Results - LOS					
Intersection			Roadway Segment		
Number			1	2	3
Name			Coffey Street, Chinden Boulevard to Marigold Street	Marigold Street, Glenwood Street to Site Access	Marigold Street, Garrett Street to Site Access
Control/Classification			Collector	Collector	Collector
Analysis Scenario	2024 Background	AM	Not Exceeded	Not Exceeded	Not Exceeded
		PM	Not Exceeded	Not Exceeded	Not Exceeded
	2026 Background	AM	Not Exceeded	Not Exceeded	Not Exceeded
		PM	Not Exceeded	Not Exceeded	Not Exceeded
	2026 Plus Project	AM	Not Exceeded	Not Exceeded	Not Exceeded
		PM	Not Exceeded	Not Exceeded	Not Exceeded

Notes:  
1. Roadway Segment results show if ACHD LOS thresholds are exceeded.

**Table ES-3 – Findings and Recommendations**

2024 Existing Conditions	
<b>Findings</b>	<ul style="list-style-type: none"> <li>• All study area intersections and roadway segments operate at acceptable levels of service except the following:</li> <li>• Marigold Street and Glenwood Street Intersection                             <ul style="list-style-type: none"> <li>○ PM Peak Hour                                     <ul style="list-style-type: none"> <li>▪ Intersection V/C ratio 1.13</li> <li>▪ Southbound through/right: V/C ratio 1.01</li> </ul> </li> </ul> </li> </ul>
<b>Possible Mitigations</b>	<ul style="list-style-type: none"> <li>• Marigold Street and Glenwood Street Intersection                             <ul style="list-style-type: none"> <li>○ Add southbound dedicated right turn lane</li> <li>○ Due to the five-lane restriction at the Glenwood Bridge, no additional northbound and southbound through lanes are recommended</li> </ul> </li> </ul>
<b>Planned Improvements</b>	<ul style="list-style-type: none"> <li>• None. Improvements recommended are consistent with Glenwood Corridor Plan, Chinden Boulevard to Marigold Street, May 2024 prepared for Idaho Transportation Department.</li> </ul>
2026 Background Conditions	
<b>Findings</b>	<ul style="list-style-type: none"> <li>• All study area intersections and roadway segments operate at acceptable levels of service except the following:</li> <li>• Marigold Street and Glenwood Street Intersection                             <ul style="list-style-type: none"> <li>○ PM Peak Hour                                     <ul style="list-style-type: none"> <li>▪ Intersection V/C ratio 1.12</li> </ul> </li> </ul> </li> </ul>
<b>Possible Mitigations</b>	<ul style="list-style-type: none"> <li>• None, due to restrictions at the Glenwood Bridge</li> </ul>
<b>Planned Improvements</b>	<ul style="list-style-type: none"> <li>• Improvements with no construction date provided in the ACHD IFYWP.                             <ul style="list-style-type: none"> <li>○ A new bikeway corridor on Marigold Street. The concept phase is planned for FY2024-2025. Construction year is not provided.</li> <li>○ Enhanced crossing installation across US 20/26 Chinden Boulevard at Coffey Street in future years, design and construction years are not provided.</li> <li>○ Enhanced sidewalk installation on Glenwood Street from Spaulding Ranch Park to US 20/26/ Chinden Boulevard. Concept design is planned to be complete in FY2024-2026. Construction year is no provided.</li> </ul> </li> </ul>
2026 Plus Project Conditions	
<b>Findings</b>	<ul style="list-style-type: none"> <li>• All study area intersections and roadway segments operate at acceptable levels of service except the following:</li> <li>• Marigold Street and Glenwood Street Intersection                             <ul style="list-style-type: none"> <li>○ PM Peak Hour                                     <ul style="list-style-type: none"> <li>▪ Intersection V/C ratio 1.12</li> </ul> </li> </ul> </li> </ul>
<b>Possible Mitigations</b>	<ul style="list-style-type: none"> <li>• None, due to restrictions at the Glenwood Bridge</li> </ul>
<b>Turn Lane Analysis</b>	<ul style="list-style-type: none"> <li>• No turn lanes warranted</li> </ul>

## 2. INTRODUCTION

Kimley-Horn and Associates, Inc. was retained by Rennison Companies to prepare a trip generation review for a proposed multi-family development on parcel S0525233602, located west of Glenwood Street, between Marigold Street and US 20/26/Chinden Boulevard, in Garden City, Idaho. The location of the Boise Bible College Multi-Family Development within Garden City is shown in **Figure 1**.

The proposed multi-family development includes 236 units in two four-story buildings. The project is anticipated to be completed in 2026. A conceptual site plan of the development is shown in **Figure 2**. A full site plan is provided in **Appendix A**.

Access to the site will be provided at one point on West Marigold Street.

The purpose of this review is to identify trip generation characteristics of the proposed development, evaluate high-level traffic related impacts on the adjacent street system, and recommend measures to mitigate impacts.

This study was completed in accordance with Ada County Highway District (ACHD) *Policy 7106* where applicable.

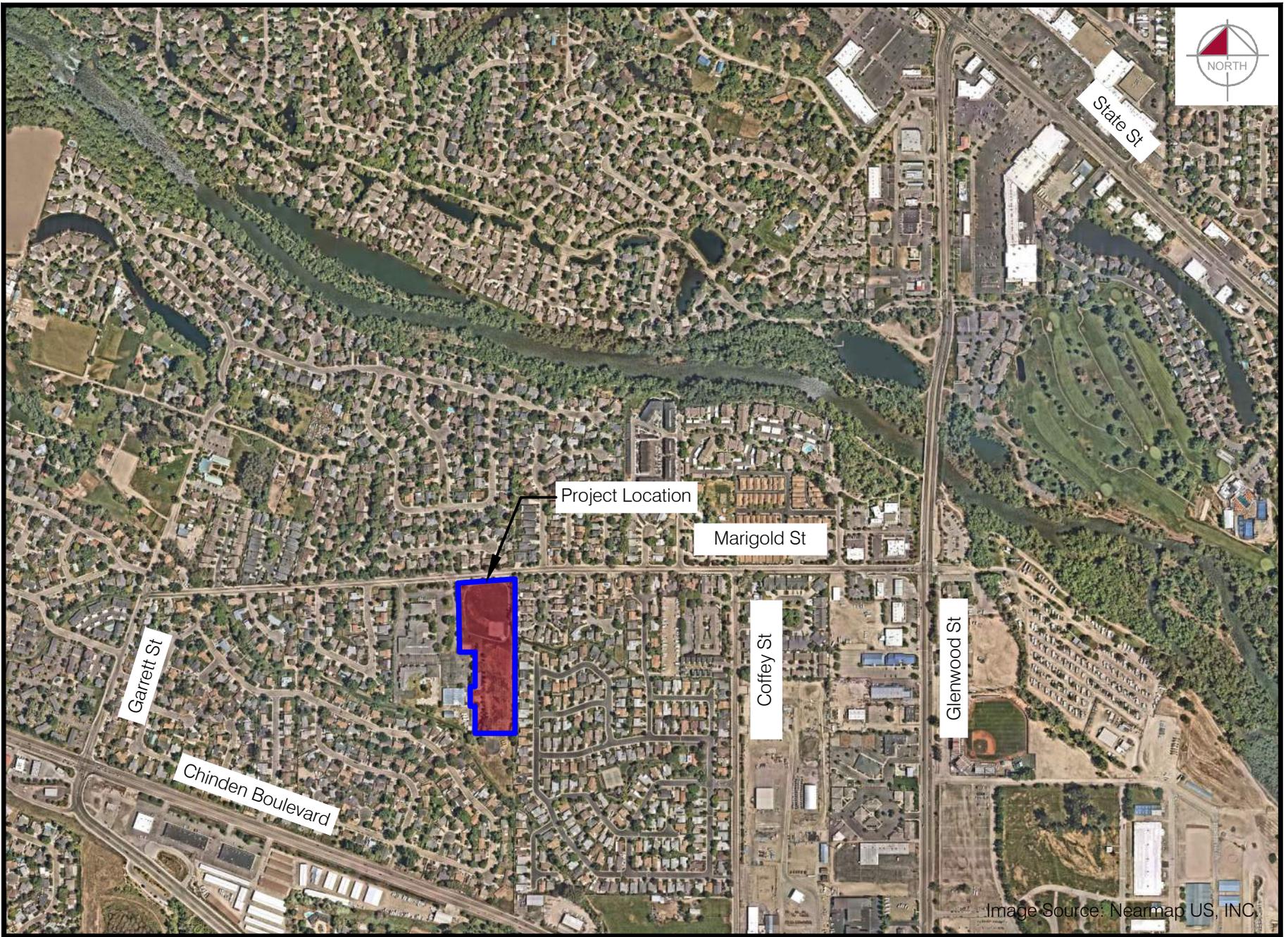




Image Source: Nearmap US, INC.

### 3. EXISTING CONDITIONS

This section of the report details existing conditions adjacent to the project site.

#### 3.1. Study Area Intersections and Roadway Segments

The following intersections were identified for analysis:

1. Marigold Street and Glenwood Street
2. Marigold Street and Site Access A

In addition to the above intersections, the following project roadway segments:

- S1. Coffey Street from Chinden Boulevard to Marigold Street
- S2. Marigold Street from Glenwood Street to Site Access A
- S3. Marigold Street from Garrett Street to Site Access A

#### 3.2. Existing Land Uses

The site is located on parcel S0525233602, totaling approximately 13.32 acres. The site is zoned R-3 Residential. The area adjacent to the site is primarily residential.

#### 3.3. Existing Lane Configurations and Control

Regional access to the Boise Bible College development will be provided by Glenwood Street and Garrett Street. Direct access will be provided by Access A on Marigold Street.

**Marigold Street** is an ACHD maintained roadway with one lane in each direction. The roadway is classified as a Residential Collector in the Ada County Master Street Map (June 2023). The posted speed limit is 30 mph in the study area.

**Coffey Street** is an ACHD maintained roadway with one lane in each direction. The roadway is classified as a Residential Collector in the Ada County Master Street Map (June 2023). The posted speed limit is 25 mph in the study area.

**Garrett Street** is an ACHD maintained roadway with one lane in each direction. The roadway is classified as a Residential Collector in the Ada County Master Street Map (June 2023). The posted speed limit is 25 mph in the study area.

**Glenwood Street** is an Idaho State maintained roadway with two lanes in each direction. The roadway is classified as a Principal Arterial in the Idaho Statewide Functional Classification Map. The posted speed limit is 35 mph in the study area.

**US 20/26 Chinden Boulevard** is an Idaho State maintained roadway with two lanes in each direction. The roadway is classified as a Principal Arterial in the Idaho Statewide Functional Classification Map. The posted speed limit is 50 mph in the study area.

Existing speed limits, lane configurations, and traffic control at the time of this study are illustrated in **Figure 3**.

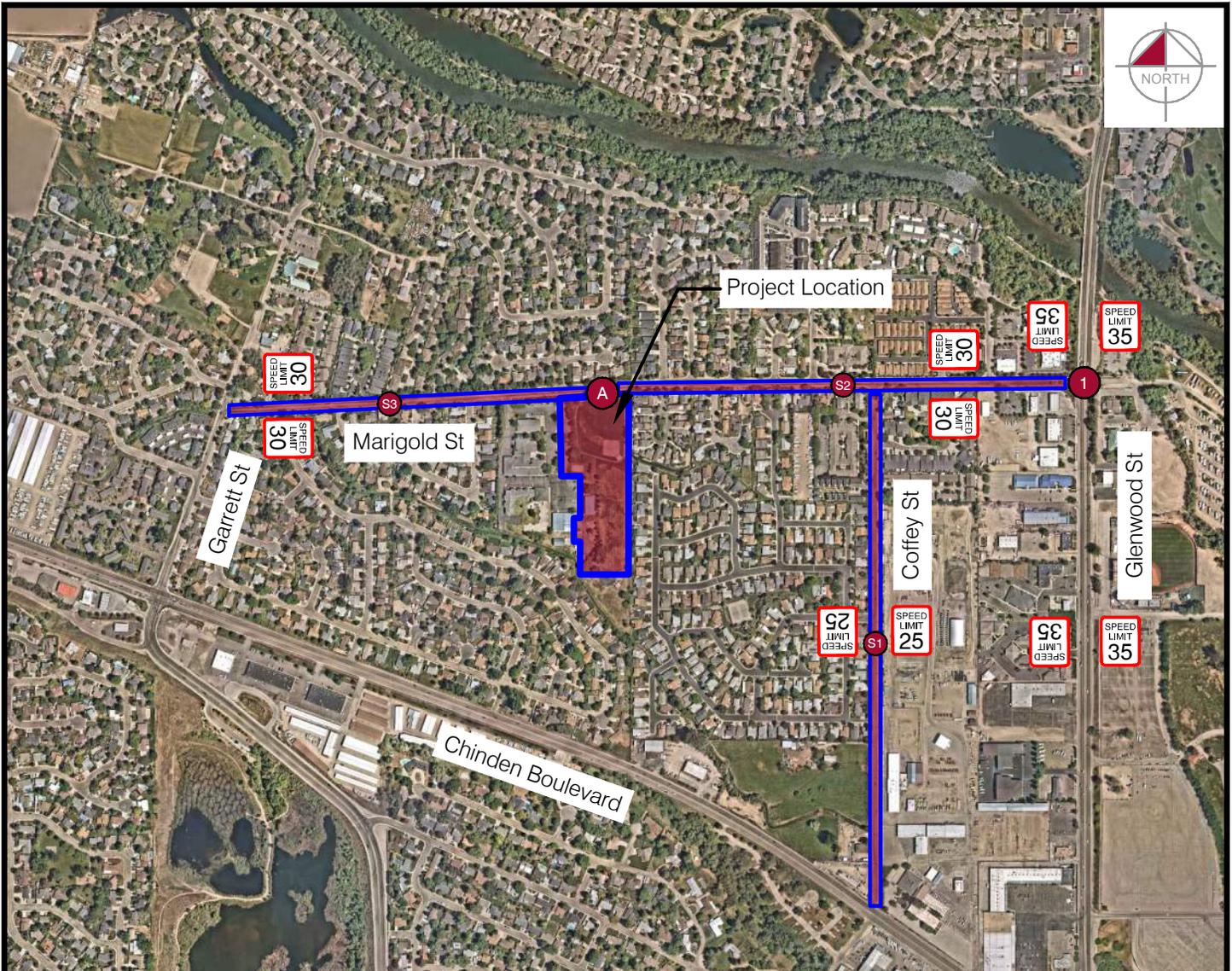
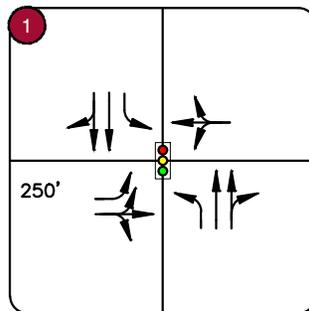


Image Source: Nearmap US, INC.

LEGEND	
	SPEED LIMIT
	LANE USE
	STORAGE LENGTH
	DROP LANE
	INTERSECTION CONTROL



### 3.4. Existing Traffic Volumes

Existing AM (7:00-9:00) and PM (4:00-6:00) peak period turning movement count data that was collected on Thursday, October 11, 2023:

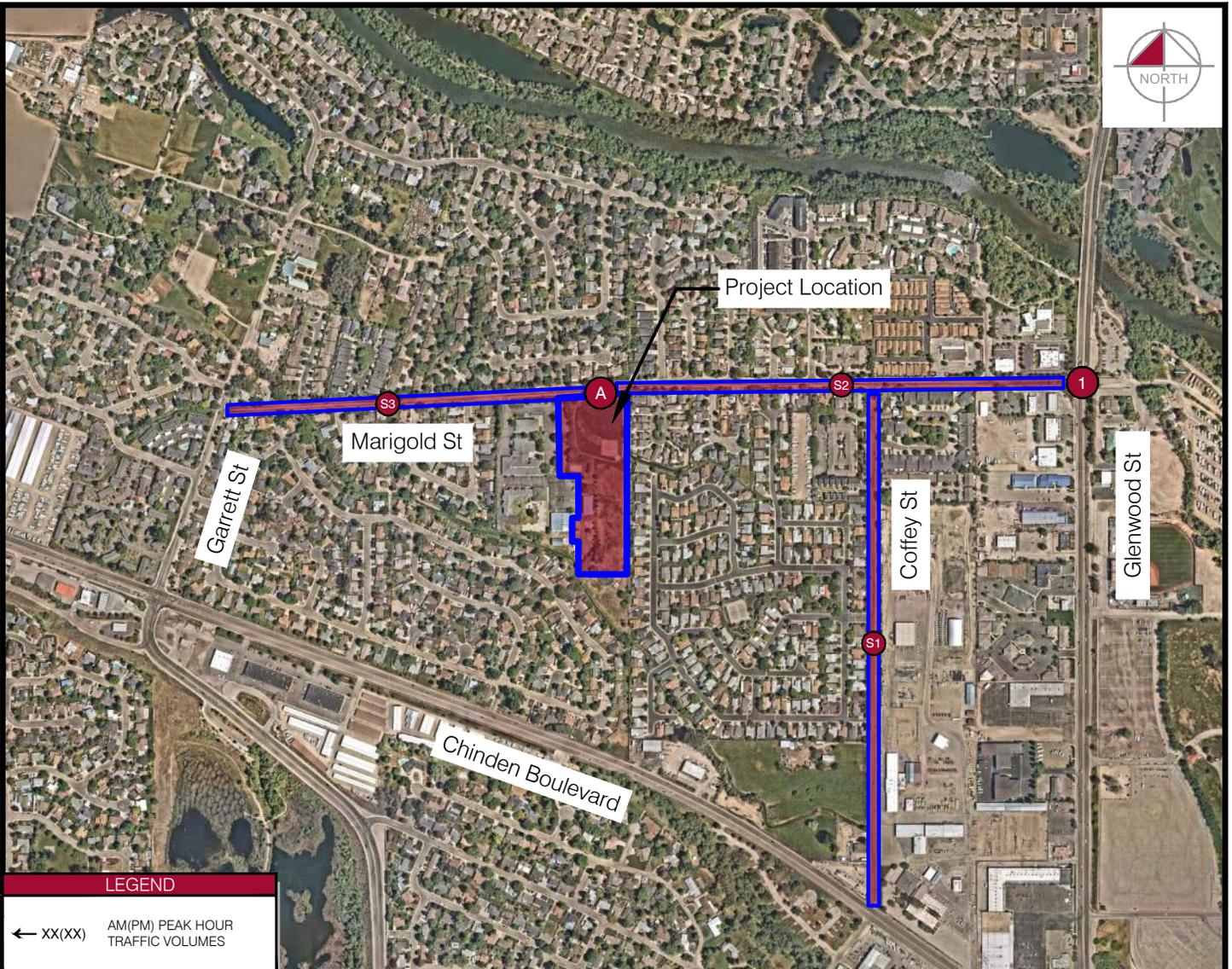
- Marigold Street & Glenwood Street

Existing roadway count data available through ACHD on-line records was used for the following roadways:

- Coffey Street, north of Chinden Boulevard - August 22, 2023
- Marigold Street, west of Glenwood - March 16, 2022
- Marigold Street, east of Garrett Street - April 05, 2022

2024 volumes were forecasted by applying growth rate of 3% per year to collected traffic volumes.

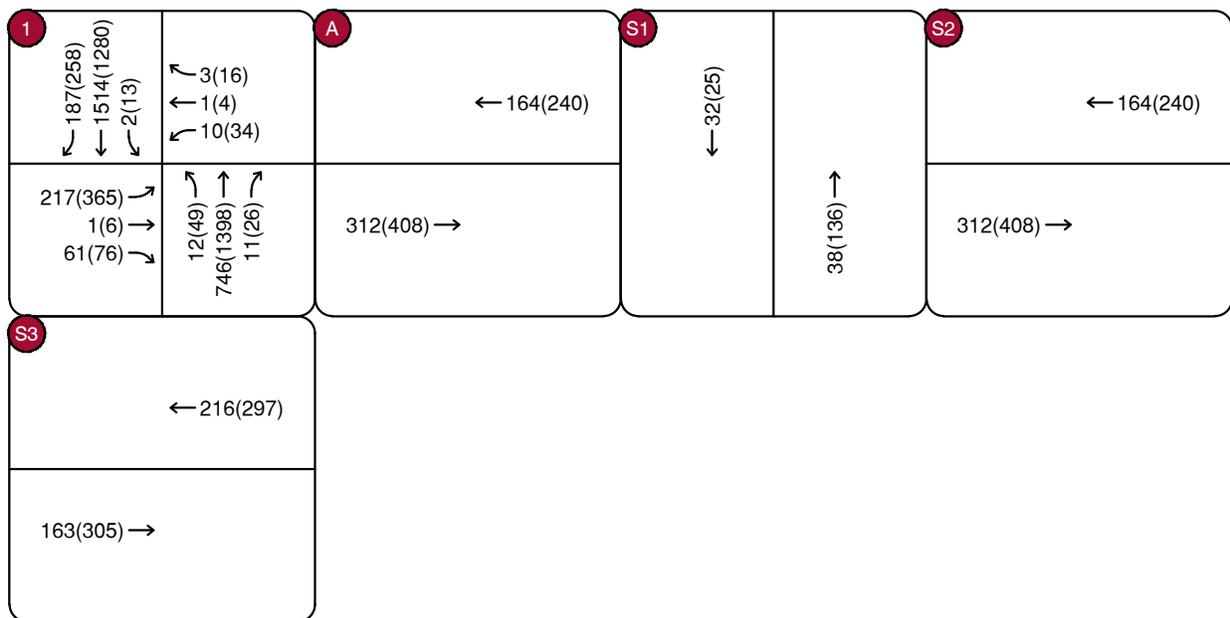
A summary of the traffic data at the existing study area intersections is shown in **Figure 4**. The field counted data sheets are provided in **Appendix B**.



**LEGEND**

← XX(XX) AM(PM) PEAK HOUR TRAFFIC VOLUMES

Image Source: Nearmap US, INC.



## 4. FUTURE CONDITIONS

This section summarizes conditions that are expected in the future 2026 background and 2026 plus project conditions.

### 4.1. Proposed Development

The proposed Boise Bible College Multi-Family Development includes 236 units in two four-story buildings. Access to the site will be provided by one access point on Marigold Street along the northern edge of the site. The project is anticipated to be completed in 2026.

### 4.2. Planned Improvements

According to the ITD FY2024-2030 approved ITIP, there are no future improvement projects near the Boise Bible College Multifamily Development.

A review of the ACHD Integrated Five-Year Work Plan (IFYWP) shows these future improvements:

- A project establishing a new bikeway corridor on Marigold Street. The concept phase is planned for FY2024-2025. Construction year is not provided.
- Enhanced crossing installation across US 20/26 Chinden Boulevard at Coffey Street in future years, design and construction years are not provided.
- Enhanced sidewalk installation on Glenwood Street from Spaulding Ranch Park to US 20/26/ Chinden Boulevard. Concept design is planned to be complete in FY2024-2026. Year of construction is not provided.

### 4.3. 2026 Background Traffic Volumes

To determine the impact of project traffic, the first step is to estimate future baseline traffic volumes on roadways in the vicinity of proposed development site. 2026 existing traffic volumes were forecasted by applying a 3% growth rates per year to the 2024 traffic volumes.

Speed limits, anticipated future lane configurations, and traffic control are illustrated in **Figure 5**. 2026 background traffic volumes at the study area intersections are illustrated in **Figure 6**.

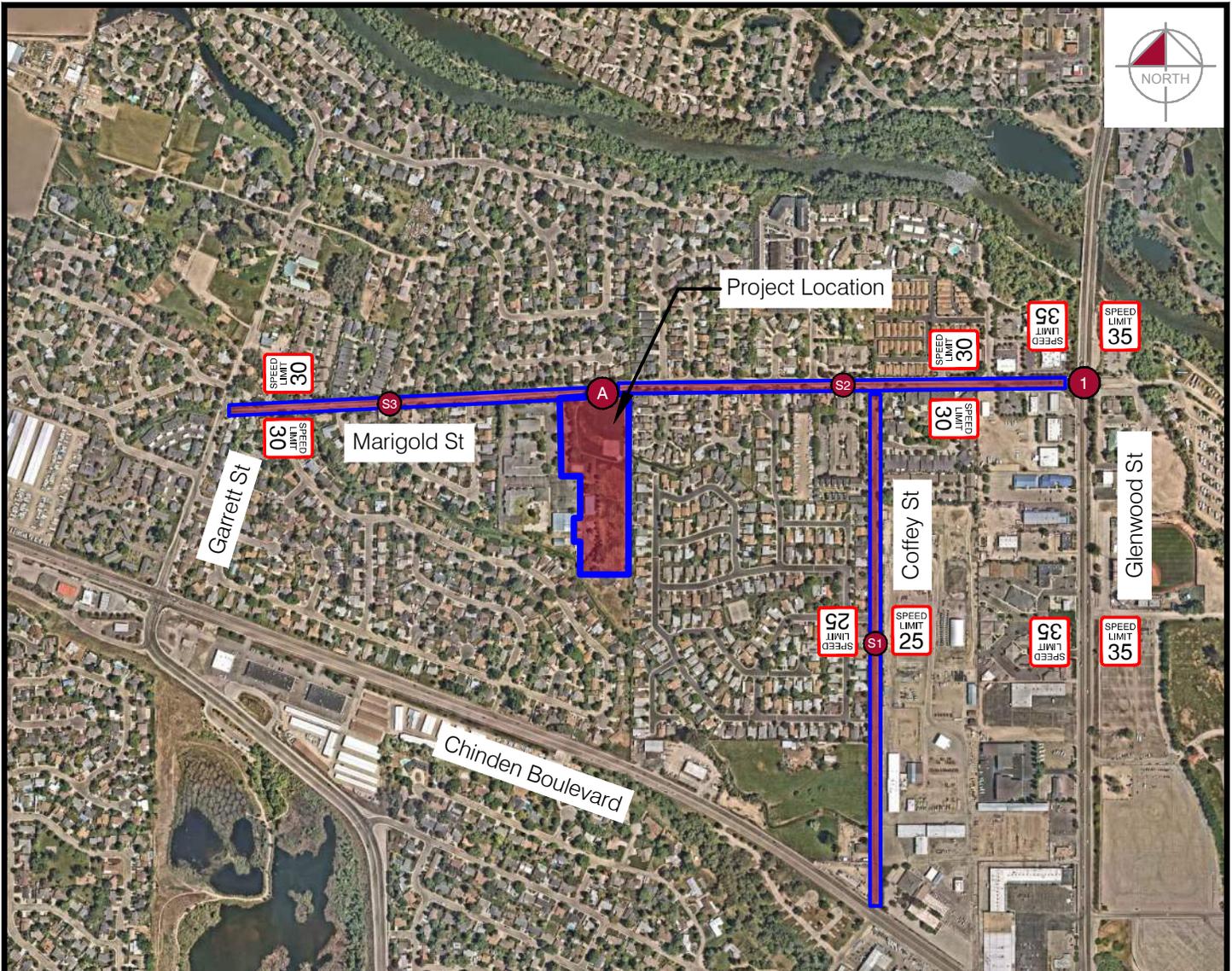
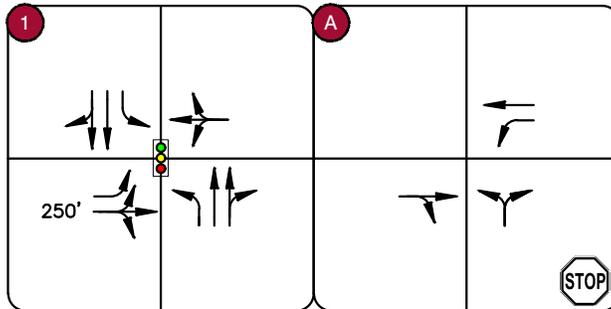
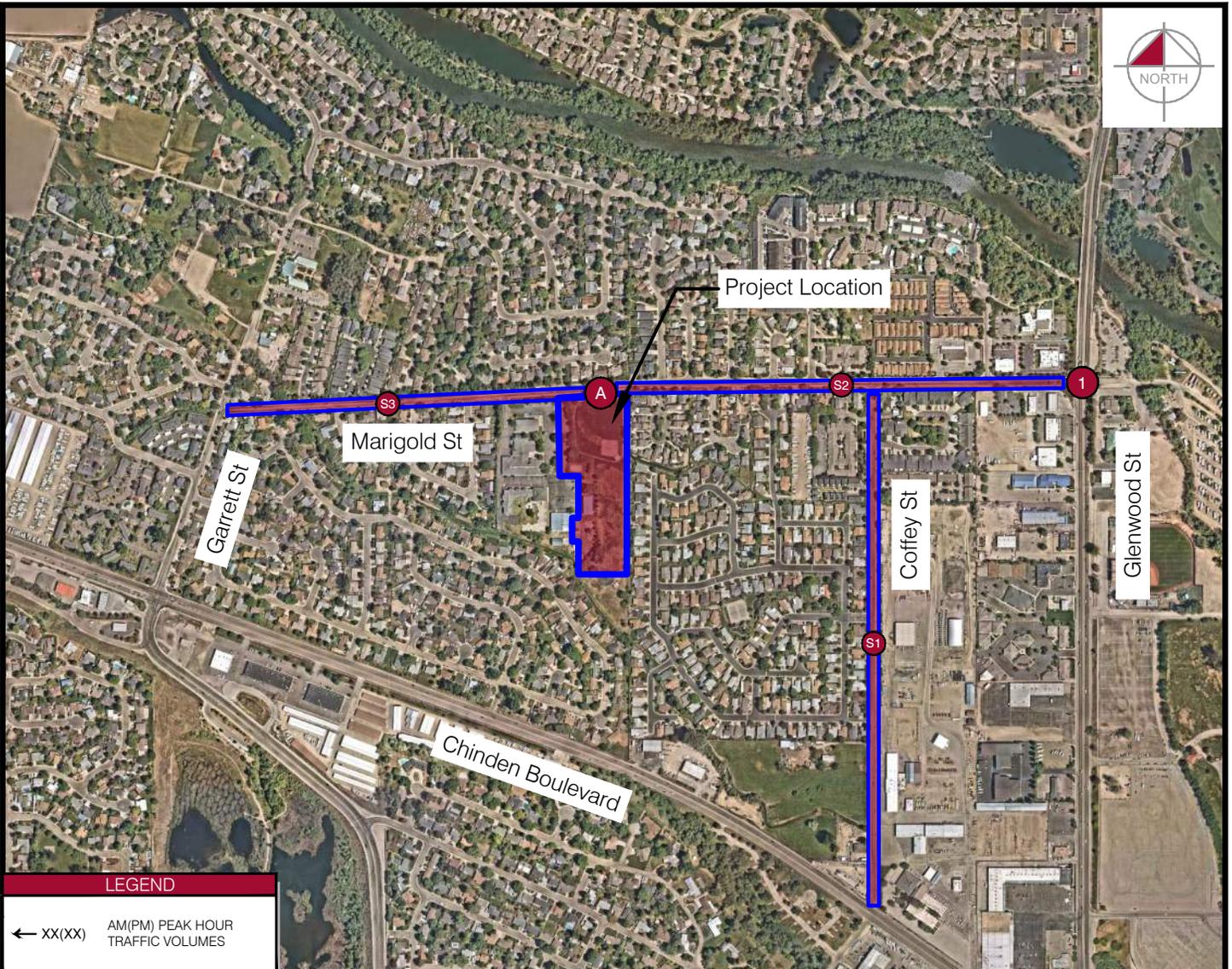


Image Source: Nearmap US, INC.

LEGEND	
	SPEED LIMIT
	LANE USE
	STORAGE LENGTH
	DROP LANE
	INTERSECTION CONTROL

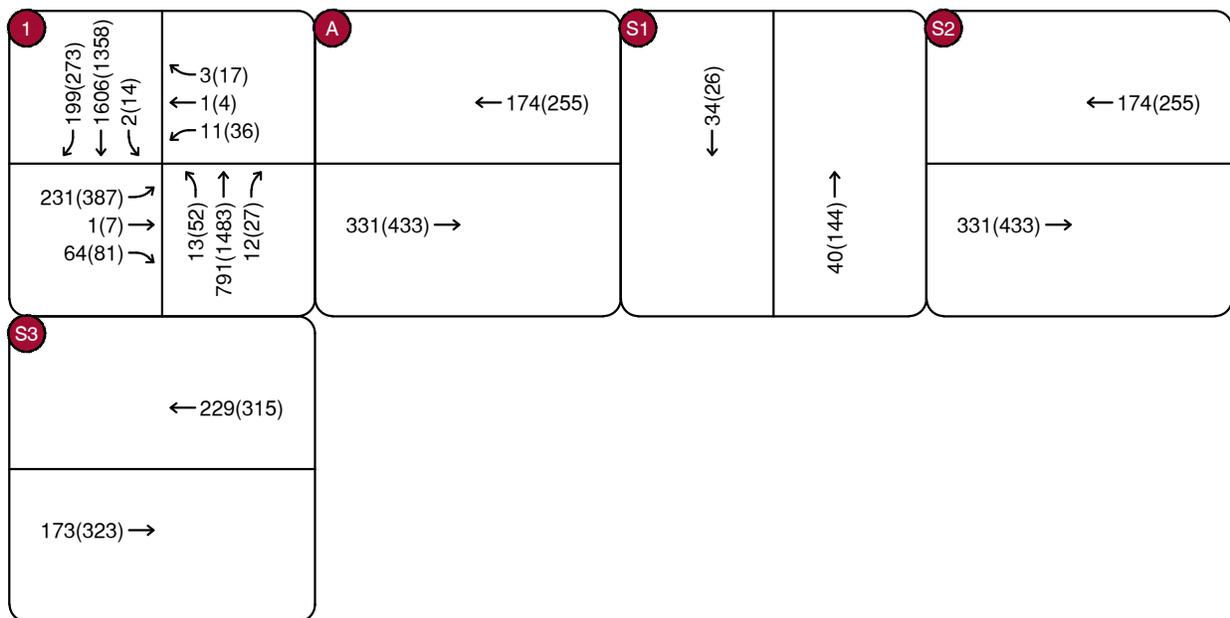




**LEGEND**

← XX(XX) AM(PM) PEAK HOUR TRAFFIC VOLUMES

Image Source: Nearmap US, INC.



#### 4.4. Project Trip Generation

The Institute of Transportation Engineers’ (ITE) *Trip Generation Manual, 11th Edition*, was used to obtain daily and peak hour trip generation equations or rates and inbound-outbound percentages, which were then used to estimate the number of daily and peak hour trips that can be attributed to the proposed development. The process outlined in the *ITE Trip Generation Handbook, 3rd Edition*, was used to determine whether average rates or equations should be used in calculating each land use’s trip generation.

Daily and peak hour trips, shown in **Table 1**, were calculated using applicable regression equations/rates from the *ITE Trip Generation Manual*. The *ITE Trip Generation Manual* information is provided in **Appendix C**.

**Table 1 – Project Trip Generation**

Land Use Type	ITE Land Use Code	Quantity	Units	Daily Total	AM Peak			PM Peak		
					In	Out	Total	In	Out	Total
Multifamily Housing (Mid-Rise)	221	236	Dwelling Units	1,071	21	71	92	56	36	92

The proposed development is expected to generate 1,071 new daily trips, with 92 trips occurring in the AM peak hour and 92 trips in the PM peak hour.

#### 4.5. Project Trip Distribution

The distribution of site generated trips onto the roadway system is based on the proposed access locations, surrounding street network, and historical traffic counts from ITD and ACHD. **Figure 7** shows estimated project trip distribution to and from the study area.

#### 4.6. Project Trip Assignment

Trips generated by the proposed development were assigned to the roadway network based on the trip distribution and likely travel patterns to and from the project site. Project trip assignment is illustrated in **Figure 8**.

It should be noted that slight rounding discrepancies may exist between trip generation and trip assignment values.



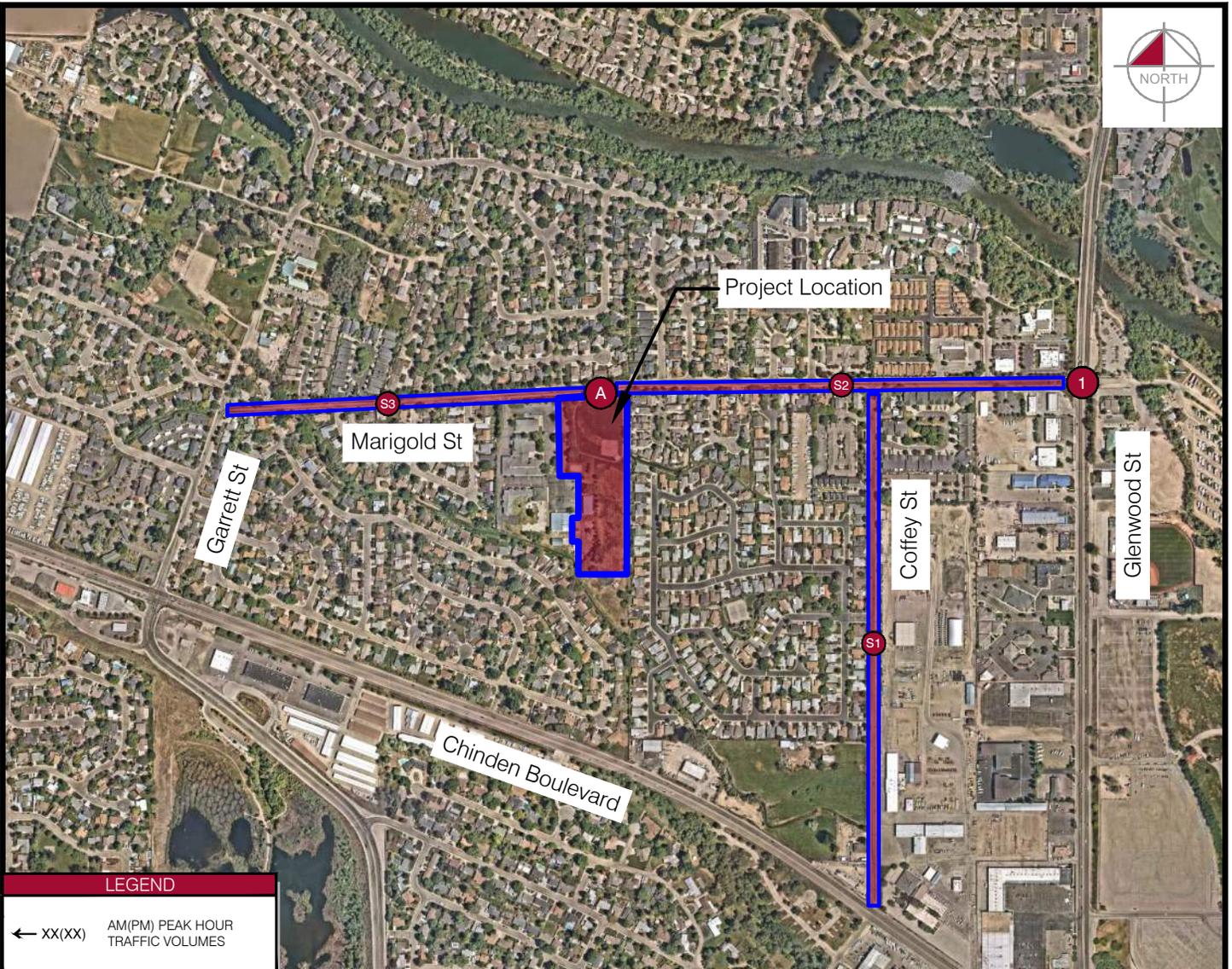
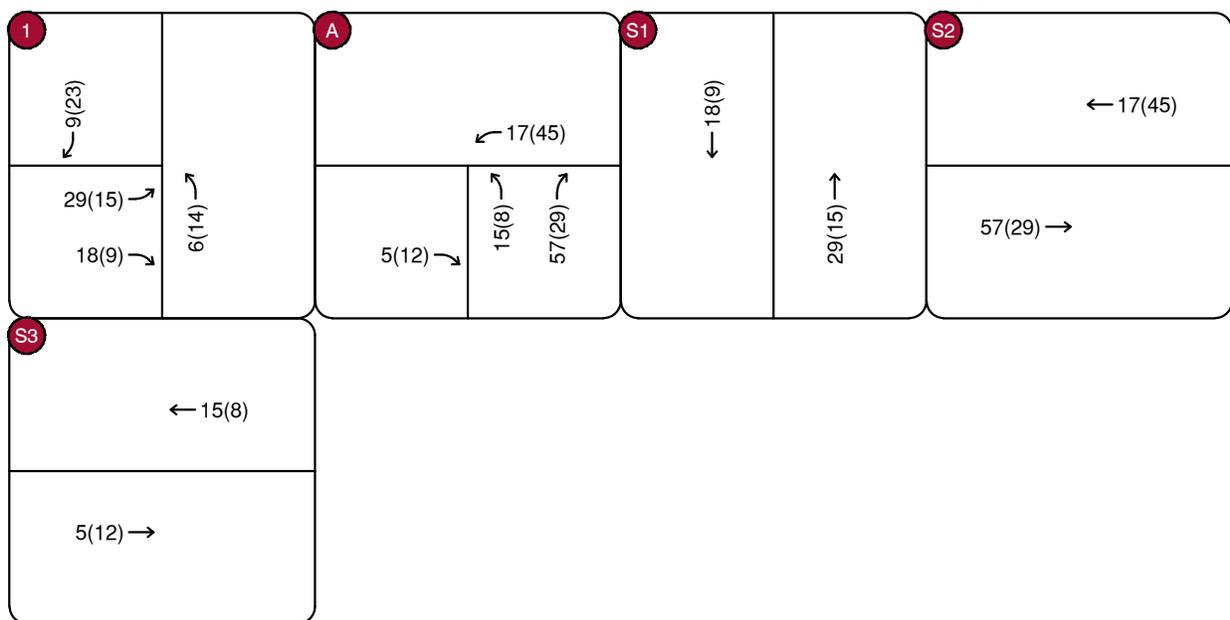


Image Source: Nearmap US, INC.



#### 4.7. 2026 Plus Project Traffic Volumes

The project trip assignment (**Figure 8**) was added to 2026 background traffic volumes (**Figure 6**) to calculate plus project traffic volumes for study area intersections in 2026.

The 2026 Plus Project peak hour traffic volumes are illustrated in **Figure 9**.

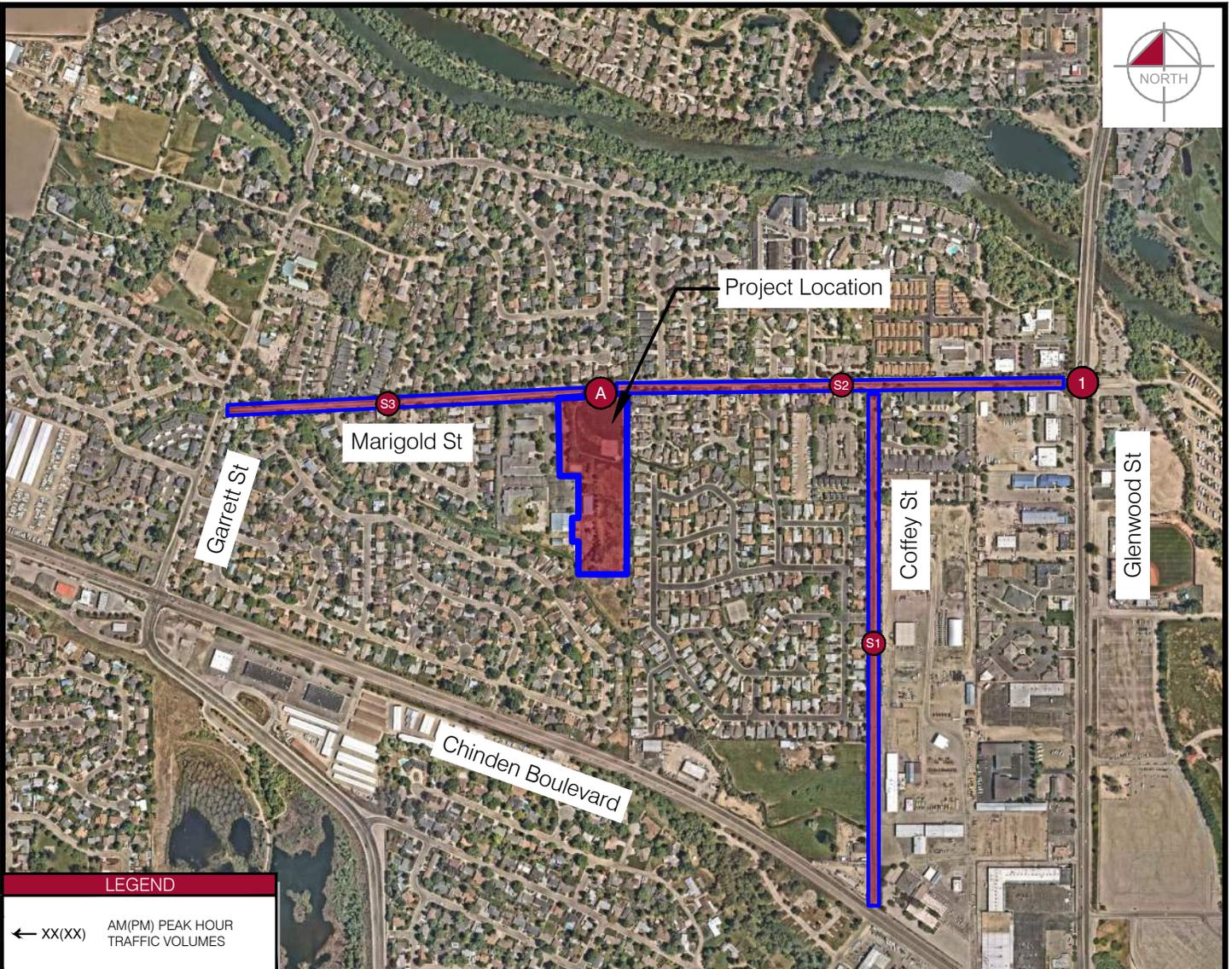
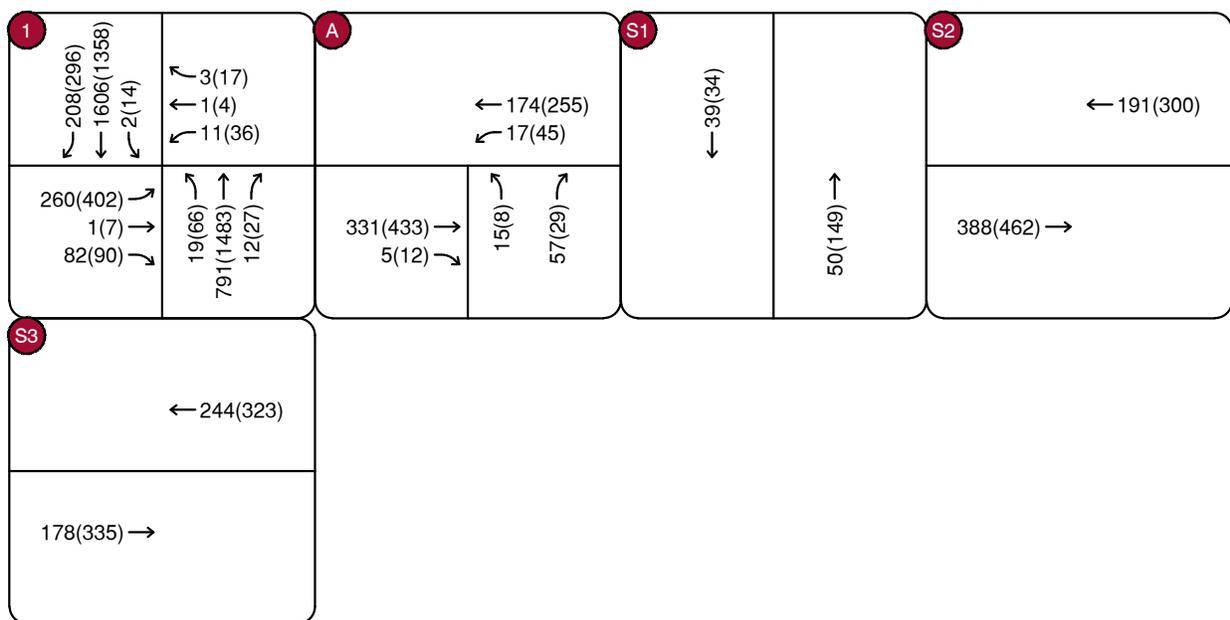


Image Source: Nearmap US, INC.



## 5. ANALYSIS

Traffic scenarios analyzed as part of this study to identify existing and/or future deficiencies in the street network are:

- 2024 Existing
- 2026 Background
- 2026 Plus Project

Each scenario’s AM and PM peak hours are analyzed in this section.

### 5.1. Analysis Methodology

Study area intersections were analyzed based on average total delay for signalized and unsignalized intersections as presented in the Transportation Research Board’s *Highway Capacity Manual, 7<sup>th</sup> Edition* (HCM 7).

Under the signalized analysis, the level of service (LOS) for a 4-legged signalized intersection is determined by the computed or measured control delay and is defined for each minor movement. LOS for a signalized intersection, four-way stop controlled intersections. **Table 2** shows the definition of LOS for intersections.

**Table 2 – LOS Definitions**

Level of Service	Signalized Intersection Average Total Delay (sec/veh)	Unsignalized Intersection Average Total Delay (sec/veh)
A	≤10	10
B	>10 and ≤20	>10 and ≤15
C	>20 and ≤35	>15 and ≤25
D	>35 and ≤55	>25 and ≤35
E	>55 and ≤80	>35 and ≤50
F	>80	>50

*Definitions provided from the Highway Capacity Manual, 7<sup>th</sup> Edition, Transportation Research Board.*

*Synchro 12* were used to analyze the study area intersections for LOS and total delay. This analysis was performed in accordance with methodologies state in *ACHD Policy 7106.6*.

### 5.2. Analysis Thresholds

ACHD requires that signalized intersections operate at a minimum of LOS D for collectors, based on a maximum intersection volume-to-capacity ratio (v/c) of 0.90. The acceptable v/c is 1.00 for each lane group at a signalized intersection and for the critical lane group at unsignalized intersections.

ITD District 3 operational procedures state that mitigation improvements are required for any individual movement exceeding LOS D or a v/c of 0.9 or greater. Roadway mitigation improvements are required for any roadway segment analysis exceeding LOS E.

HCM 7<sup>th</sup> does not produce intersection v/c ratios, HCM 2000 methodology is used to report intersection v/c ratios.

ACHD planning thresholds for roadway segments are presented in ACHD *Policy 7106.4*. The policy sets the minimum acceptable projected LOS at LOS E for principal and minor arterials and LOS D for collectors.

### 5.3. Operational Analysis

Analysis of existing conditions is based on the lane geometry and intersection control shown in **Figure 3**. All background and plus project analyses are based on the lane geometry and intersection control shown in **Figure 5**.

Synchro 12 reports for operational analyses along with signal timing sheets for each scenario are provided in **Appendix D**. Site generated traffic percentages out total traffic are provided in **Appendix E**.

#### 5.3.1. 2024 Existing Operational Analysis

Operational analysis results for the 2024 Existing AM and PM peak hours are shown in **Table 3**. All study area intersections results exceeding acceptable thresholds are highlighted. All study area intersections are anticipated to operate at acceptable levels of service except the following:

- Glenwood Street & Marigold Street
  - PM Peak Hour
    - Overall intersection: V/C ratio 1.13
    - Southbound right: V/C ratio 1.01

**Table 3 – 2024 Existing LOS Analysis**

Movement	AM				PM			
	LOS	Delay	V/C Ratio	95 <sup>th</sup> Percentile Queue (FT)	LOS	Delay	V/C Ratio	95 <sup>th</sup> Percentile Queue (FT)
<b>Intersection 1: Glenwood Street &amp; Marigold Street</b>								
Intersection	C	32.9	0.89	-	F	41.8	1.13	-
EBL	D	37.8	0.65	148	D	43.0	0.82	253
EBL/EBT/R	D	40.0	0.80	188	D	43.0	0.82	253
WBL/T/R	D	52.3	0.44	18	D	53.1	0.76	73
NBL	C	22.6	0.12	8	C	24.5	0.40	28
NBT/R	B	11.6	0.42	193	C	30.2	0.86	585
SBL	A	8.8	0.01	0	B	18.7	0.10	8
SBT/R	D	44.9	0.99	803	F	56.9	1.01	875

#### 5.3.1. Mitigation - 2024 Existing Operational Analysis

An extensive review was completed for ITD recently under the Glenwood Corridor Plan. The recommended option included an additional southbound right-turn lane, but due to the five-lane restriction at the Glenwood Bridge, no additional northbound and southbound through lanes are recommended at Glenwood Street and Marigold Street. Operational results with this configuration are summarized in **Table 4**. The intersection v/c ratio still exceed ACHD desired thresholds.

**Table 4 – Mitigated 2024 Existing LOS Analysis**

Movement	AM				PM			
	LOS	Delay	V/C Ratio	95 <sup>th</sup> Percentile Queue (FT)	LOS	Delay	V/C Ratio	95 <sup>th</sup> Percentile Queue (FT)
<b>Intersection 1: Glenwood Street &amp; Marigold Street</b>								
Intersection	B	19.2	0.78	-	F	27.9	1.05	-
EBL	D	41.3	0.66	163	D	45.1	0.83	263
EBL/EBT/R	D	43.8	0.81	203	D	45.1	0.83	263
WBL/T/R	E	56.5	0.44	20	E	55.9	0.78	78
NBL	B	16.1	0.09	5	B	18.6	0.30	25
NBT/R	B	11.1	0.40	205	C	28.7	0.84	610
SBL	A	8.6	0.01	0	B	18.5	0.10	8
SBT	B	19.4	0.84	513	C	23.1	0.80	500
SBR	A	9.5	0.23	88	B	15.0	0.36	175

**5.3.2. 2026 Background Operational Analysis**

Operational analysis results for 2026 Background AM and PM peak hours with a southbound right-turn lane are shown in **Table 5**. The mitigation provided in the previous scenario are carried forward for this review.

**Table 5 – 2026 Background LOS Analysis**

Movement	AM				PM			
	LOS	Delay	V/C Ratio	95 <sup>th</sup> Percentile Queue (FT)	LOS	Delay	V/C Ratio	95 <sup>th</sup> Percentile Queue (FT)
<b>Intersection 1: Glenwood Street &amp; Marigold Street</b>								
Intersection	C	21.9	0.83	-	F	32.9	1.12	-
EBL	D	41.3	0.66	175	D	44.8	0.84	275
EBL/EBT/R	D	43.9	0.82	215	D	44.8	0.84	275
WBL/T/R	E	56.7	0.45	23	E	55.7	0.78	80
NBL	B	19.4	0.11	8	C	22.2	0.36	30
NBT/R	B	11.9	0.43	225	D	36.7	0.91	728
SBL	A	9.1	0.01	0	C	21.9	0.13	8
SBT	C	23.8	0.90	605	C	27.5	0.87	578
SBR	B	10.1	0.25	98	B	16.1	0.39	195

**5.3.3. 2026 Plus Project Operational Analysis**

Operational analysis results for 2026 Plus Project AM and PM peak hours with a dedicated southbound right-turn lane is shown in **Table 6**. The mitigation provided in the previous scenario are carried forward for this review.

**Table 6 – 2026 Plus Project LOS Analysis**

Movement	AM				PM			
	LOS	Delay	V/C Ratio	95 <sup>th</sup> Percentile Queue (FT)	LOS	Delay	V/C Ratio	95 <sup>th</sup> Percentile Queue (FT)
<b>Intersection 1: Glenwood Street &amp; Marigold Street</b>								
Intersection	C	24.8	0.85	-	F	43.4	1.12	-
EBL	D	41.7	0.69	203	D	43.6	0.70	303
EBL/EBT/R	D	44.6	0.84	245	E	55.1	0.87	405
WBL/T/R	E	58.7	0.45	23	E	60.5	0.78	88
NBL	C	22.1	0.17	13	C	27.7	0.51	45
NBT/R	B	12.9	0.44	237	D	50.8	0.97	898
SBL	B	10.0	0.01	0	C	27.4	0.16	10
SBT	C	27.9	0.92	665	D	37.7	0.93	708
SBR	B	11.3	0.27	115	C	20.5	0.45	245
<b>Intersection A: Marigold Street &amp; Site Access A</b>								
NBL/R	B	11.4	0.12	10	B	12.2	0.08	5
WBL	A	8.1	0.02	0	A	8.5	0.05	3

## 5.4. Roadway Segment Analysis

ACHD planning thresholds for roadway segments are presented in ACHD *Policy 7106.4*. The policy sets the minimum acceptable projected LOS at LOS E for principal and minor arterials and LOS D for collectors.

### 5.4.1. 2024 Existing Roadway Segment Analysis

Peak hour, peak direction roadway segment volumes for the highest volume of each roadway segment and LOS per ACHD Policy Manual 7106.4.1 for ACHD roadway facilities are shown below in **Table 7**. All roadway segments are anticipated to operate at acceptable levels of service.

**Table 7 –2024 Existing Roadway Segment LOS Analysis**

Roadway Segment	Classification	Travel Lanes	ACHD Peak Hour Std. Volume (One-Way)	AM Peak Hour	PM Peak Hour
				One-Way Volume/Direction	One-Way Volume/Direction
Coffey Street, Chinden Boulevard to Marigold Street	2-lane, No Left-Turn Lane	1	425/D	38/NB	136/NB
Marigold Street, from Glenwood Street to Site Access A	2-lane, Continuous Left-Turn Lane	1	530/D	312/EB	408/EB
Marigold Street, from Garrett Street to Site Access A	2-lane, Continuous Left-Turn Lane	1	530/D	216/WB	305/EB

### 5.4.2. 2026 Background Roadway Segment Analysis

Peak hour, peak direction roadway segment volumes for the highest volume of each roadway segment and LOS per ACHD Policy Manual 7106.4.1 for ACHD roadway facilities are shown below in **Table 8**. All roadway segments are anticipated to operate at acceptable levels of service.

**Table 8 – 2026 Background Roadway Segment LOS Analysis**

Roadway Segment	Classification	Travel Lanes	ACHD Peak Hour Std. Volume (One-Way)	AM Peak Hour	PM Peak Hour
				One-Way Volume/Direction	One-Way Volume/Direction
Coffey Street, Chinden Boulevard to Marigold Street	2-lane, No Left-Turn Lane	1	425/D	40/NB	144/NB
Marigold Street, from Glenwood Street to Site Access A	2-lane, Continuous Left-Turn Lane	1	530/D	331/EB	433/EB
Marigold Street, from Garrett Street to Site Access A	2-lane, Continuous Left-Turn Lane	1	530/D	229/WB	323/EB

### 5.4.3. 2026 Plus Project Roadway Segment Analysis

Peak hour, peak direction roadway segment volumes for the highest volume of each roadway segment and LOS per ACHD Policy Manual 7106.4.1 for ACHD roadway facilities are shown below in **Table 9**. All roadway segments are anticipated to operate at acceptable levels of service.

**Table 9– 2026 Plus Project Roadway Segment LOS Analysis**

Roadway Segment	Classification	Travel Lanes	ACHD Peak Hour Std. Volume (One-Way)	AM Peak Hour	PM Peak Hour
				One-Way Volume/Direction	One-Way Volume/Direction
Coffey Street, Chinden Boulevard to Marigold Street	2-lane, No Left-Turn Lane	1	425/D	50/NB	149/NB
Marigold Street, from Glenwood Street to Site Access A	2-lane, Continuous Left-Turn Lane	1	530/D	388/EB	462/EB
Marigold Street, from Garrett Street to Site Access A	2-lane, Continuous Left-Turn Lane	1	530/D	244/WB	335/EB

## 5.5. Turn Lane Analysis

A turn lane analysis was conducted for the intersection of Marigold Street & Site Access A consistent with *ACHD Policy 7106.4.4.* for 2026 plus project AM and PM peak hour volumes. **Appendix F** contains the figures used in the turn lane analyses and results.

### 5.5.1. Marigold Street & Site Access A

Warrants were not met in any scenario.

A left turn lane warrant review was excluded because there is an existing TWLTL along Marigold Street.

## 6. RECOMMENDATIONS AND MITIGATIONS

This section describes potential traffic mitigations to mitigate movements, intersections, and roadways exceeding thresholds. Mitigated analyses are based on the lane geometry and intersection control shown in **Figure 10**.

### 6.1. 2024 Existing Conditions Mitigations

#### 6.1.1. Mitigation - Marigold Street & Glenwood Street

A dedicated southbound right-turn lane at the Glenwood Street and Marigold Street 4-legged signalized intersection would significantly improve intersections operations through each scenario. This improvement is consistent with the ITD Glenwood Corridor Plan due to the restriction of the five lane Glenwood Bridge. It should be further noted that the Boise Bible College Multi-Family Development results in minimal impact to operation of this intersection as the percent site traffic to total traffic is 2.1% in the AM peak hour and 1.6% in the PM peak hour.

### 6.2. Eastbound Queue and Storage Capacity

The storage length of the marked eastbound left-turn lane at the Glenwood Street and Marigold Street intersection is currently 100 feet. With an additional 700 feet storage available in the two way left-turn lane before impacting the Marigold Street and Coffey Street intersection. The projected 95th percentile queue length for the 2026 Plus Project is 405 feet, well within the available storage capacity of the combined eastbound left turn lane and two-way left turn lane.

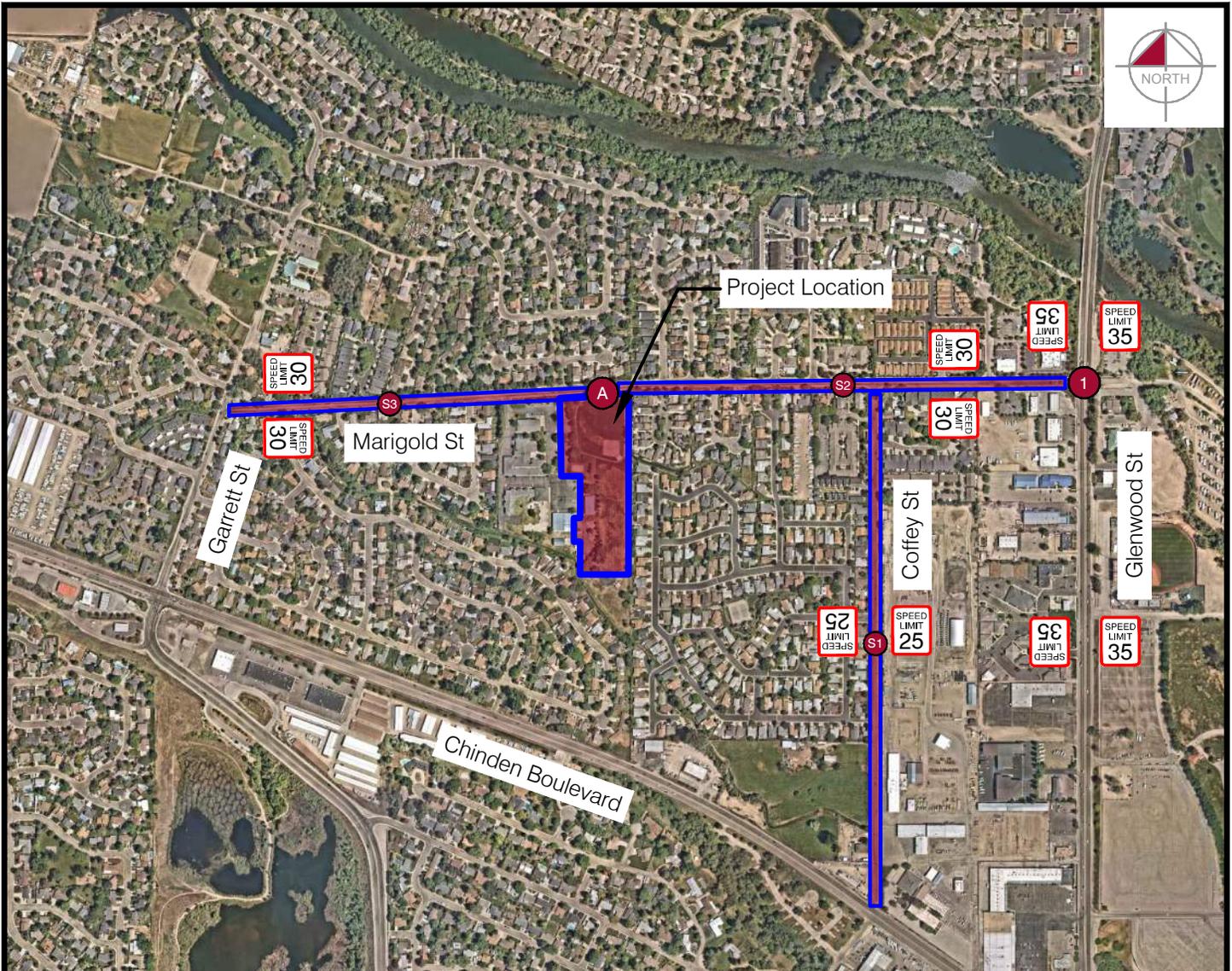
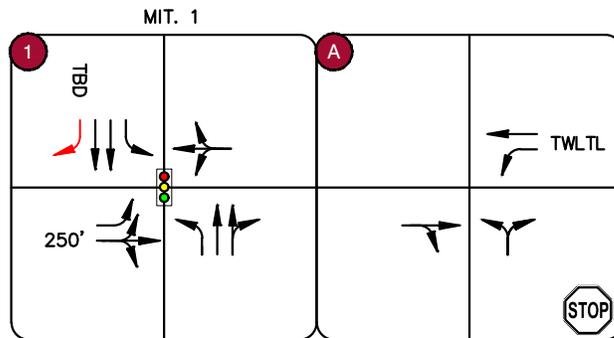


Image Source: Nearmap US, INC.

LEGEND	
	SPEED LIMIT
	LANE USE
	2026 BACKGROUND MIT.
	STORAGE LENGTH
	DROP LANE
	INTERSECTION CONTROL



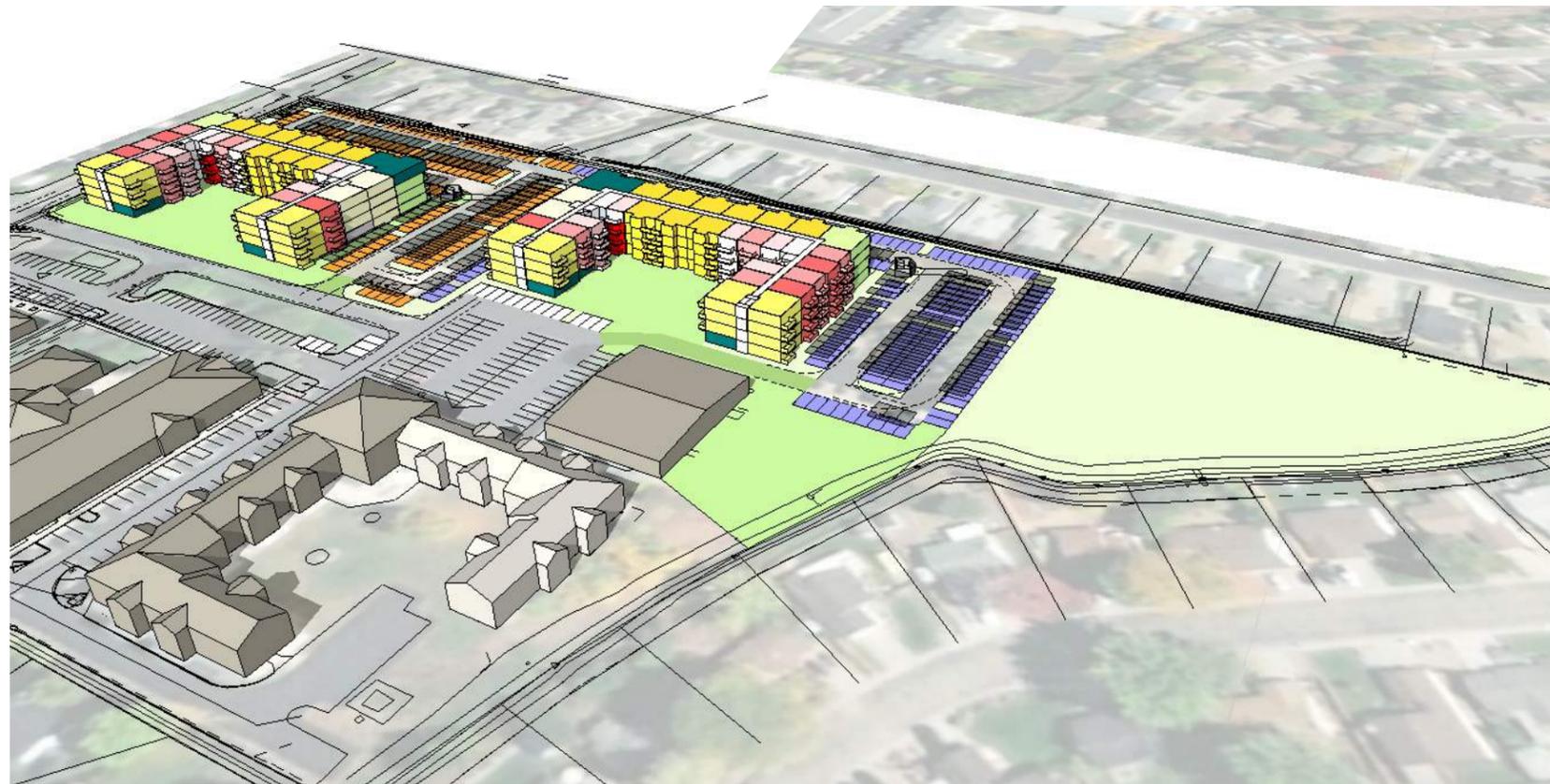
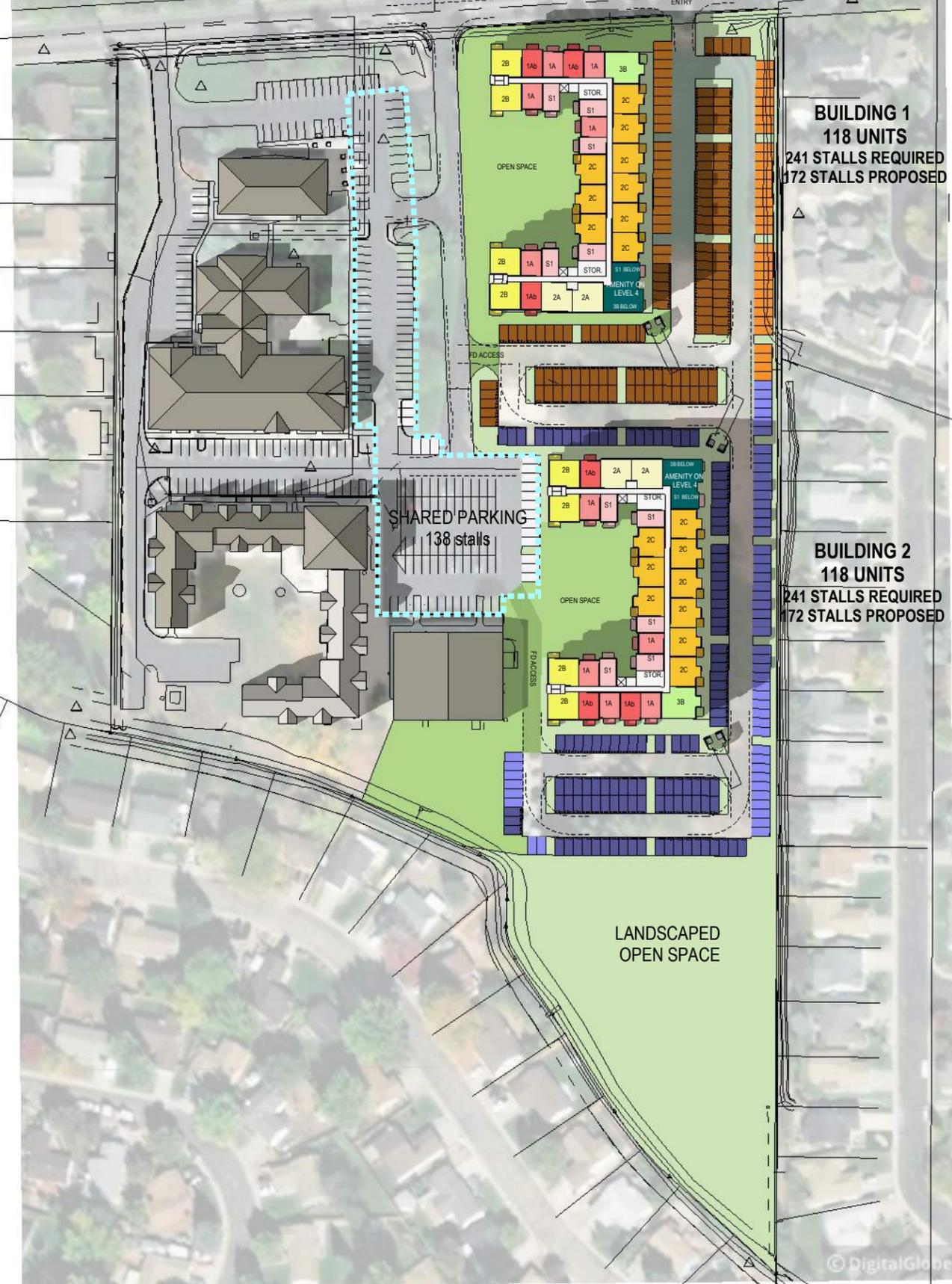
MITIGATION 1 :Dedicated southbound right turn lane



**APPENDIX A**  
**FULL SITE PLAN**

4-STORY SLAB-ON-GRADE

W. MARIGOLD ST.



PROPOSED SITE 4-story type V slab-on-grade Pivot North Architecture 12/08/2022

Unit Summary:					
	#	NSF*	DECK	NSF + DECK	SUBTOTAL %
1 open	46	546	80	626	
Subtotal Studio	46	546			25,116 19.5%
1A	38	614	80	694	
1A.2	24	658	80	738	
Subtotal 1- bedroom	62	631			39,124 26.3%
2A	14	1,015	80	1,095	
2B	28	958	80	1,038	
2C	72	964	80	1,044	
Subtotal 2- bedroom	114	969			110,442 48.3%
3A	0	1,491	80	1,571	
3B	14	1,293	80	1,373	
Subtotal 3-bedroom:	14	1,293			18,102 5.9%
<b>TOTAL:</b>	<b>236</b>	<b>817 ave.</b>			<b>192,784 SF</b>

\*Note: Data taken to inside face of exterior walls excluding exterior wall / corridor /partii walls

Parking Summary:				Parking Required:		Parking Proposed:	
	#	ratio	total				total
G C						Standard A:	10x20 54
11/9/2022	46	1	46			Standard B:	10x20 54
1-bed:	62	1	62			Carport A:	10x20 118
2-bed:	114	2	228			Carport B:	10x20 118
3-bed:	14	2	28				
Guest:	236	0.5	118				
<b>Subtotal Required:</b>			<b>482</b>	2.04		<b>Subtotal Provided:</b>	<b>344</b>
Covered Required:			236			Covered Provided:	236
						Shared:	138
<b>Total Required with 0.5 stall reduction:</b>			<b>364</b>			<b>Total Provided:</b>	<b>482</b>

Bike Parking Summary:				Bike Parking Proposed:	
	#	ratio	total		total
<b>Bike Parking Required:</b>					
Units:	236	1:6	40	Covered/Secured:	40
Retail:	15 stalls	1/20 req.	0	Covered/Secured:	0
<b>Total Required:</b>			<b>40</b>	<b>Total Proposed:</b>	<b>40</b>
Parking Summary:				Common Open Space Proposed:	
	#	ratio	total		total
Units <500 sf:	0	150	-	Ground Site 1:	69,323
Units 500<1200 sf:	236	250	59,000		
Units >1200 sf:	0	350	-		
<b>Subtotal Required:</b>			<b>59,000 sf</b>	<b>Subtotal Provided:</b>	<b>69,323</b>

CONCEPT SITE PLAN

SCALE: N.T.S. @ 1"=150'

BOISE BIBLE COLLEGE MULTIFAMILY

12.08.2022

8695 W. Marigold St., Garden City ID 83714

PNA JOB 2022-017



**APPENDIX B**  
**TRAFFIC COUNT DATA**

**Glenwood & Marigold - TMC**

Wed Oct 11, 2023

Full Length (7 AM-9 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1193064, Location: 43.659298, -116.279748

Provided by: Kimley-Horn and Associates, Inc.  
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US

Leg Direction	Glenwood St Northbound						Glenwood St Southbound						Marigold St Eastbound						Marigold St Westbound						
Time	L	T	R	U	RR	App	L	T	R	U	RR	App	L	T	R	U	RR	App	L	T	R	U	RR	App	Int
2023-10-11 7:00AM	3	112	3	0	0	118	1	235	21	0	1	258	28	0	5	0	7	40	2	0	0	0	0	2	418
7:15AM	0	146	1	0	0	147	1	349	40	0	1	391	47	0	11	0	4	62	1	0	0	0	0	1	601
7:30AM	3	177	3	0	0	183	0	417	42	0	3	462	60	0	14	0	4	78	4	0	0	0	2	6	729
7:45AM	5	209	4	0	0	218	0	394	52	0	2	448	54	0	11	0	2	67	1	1	0	0	1	3	736
Hourly Total	11	644	11	0	0	666	2	1395	155	0	7	1559	189	0	41	0	17	247	8	1	0	0	3	12	2484
8:00AM	4	192	3	0	0	199	1	310	40	0	2	353	50	1	8	0	5	64	4	0	0	0	0	4	620
8:15AM	4	172	2	0	0	178	0	268	19	0	3	290	54	0	13	0	5	72	1	0	0	0	2	3	543
8:30AM	7	213	1	0	0	221	1	325	39	0	4	369	49	0	8	0	7	64	3	0	0	0	1	4	658
8:45AM	5	196	4	0	0	205	5	292	41	0	2	340	70	2	25	0	4	101	4	1	0	0	2	7	653
Hourly Total	20	773	10	0	0	803	7	1195	139	0	11	1352	223	3	54	0	21	301	12	1	0	0	5	18	2474
<b>Total</b>	31	1417	21	0	0	1469	9	2590	294	0	18	2911	412	3	95	0	38	548	20	2	0	0	8	30	4958
<b>% Approach</b>	2.1%	96.5%	1.4%	0%	0%	-	0.3%	89.0%	10.1%	0%	0.6%	-	75.2%	0.5%	17.3%	0%	6.9%	-	66.7%	6.7%	0%	0%	26.7%	-	-
<b>% Total</b>	0.6%	28.6%	0.4%	0%	0%	29.6%	0.2%	52.2%	5.9%	0%	0.4%	58.7%	8.3%	0.1%	1.9%	0%	0.8%	11.1%	0.4%	0%	0%	0%	0.2%	0.6%	-
<b>Lights</b>	30	1349	21	0	0	1400	9	2542	288	0	18	2857	406	3	93	0	36	538	19	2	0	0	8	29	4824
<b>% Lights</b>	96.8%	95.2%	100%	0%	0%	95.3%	100%	98.1%	98.0%	0%	100%	98.1%	98.5%	100%	97.9%	0%	94.7%	98.2%	95.0%	100%	0%	0%	100%	96.7%	97.3%
<b>Articulated Trucks</b>	0	12	0	0	0	12	0	7	0	0	0	7	1	0	0	0	0	1	1	0	0	0	0	1	21
<b>% Articulated Trucks</b>	0%	0.8%	0%	0%	0%	0.8%	0%	0.3%	0%	0%	0%	0.2%	0.2%	0%	0%	0%	0%	0.2%	5.0%	0%	0%	0%	0%	3.3%	0.4%
<b>Buses and Single-Unit Trucks</b>	1	56	0	0	0	57	0	41	6	0	0	47	5	0	2	0	2	9	0	0	0	0	0	0	113
<b>% Buses and Single-Unit Trucks</b>	3.2%	4.0%	0%	0%	0%	3.9%	0%	1.6%	2.0%	0%	0%	1.6%	1.2%	0%	2.1%	0%	5.3%	1.6%	0%	0%	0%	0%	0%	0%	2.3%

\*L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

# Glenwood & Marigold - TMC

Wed Oct 11, 2023

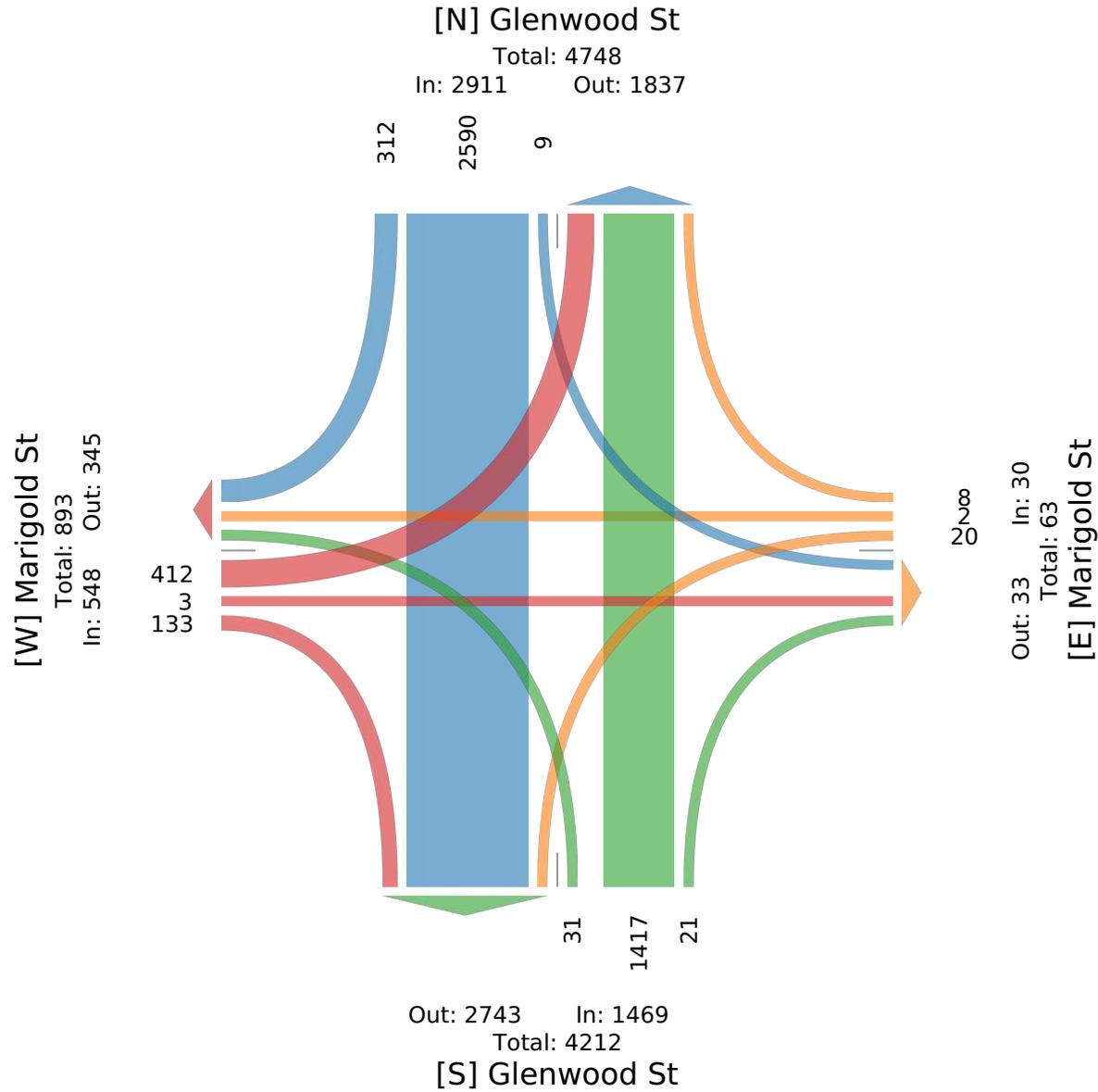
Full Length (7 AM-9 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1193064, Location: 43.659298, -116.279748

Provided by: Kimley-Horn and Associates, Inc.  
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US



**Glenwood & Marigold - TMC**

Wed Oct 11, 2023

AM Peak (7:15 AM - 8:15 AM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1193064, Location: 43.659298, -116.279748

Provided by: Kimley-Horn and Associates, Inc.  
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US

Leg Direction	Glenwood St Northbound						Glenwood St Southbound						Marigold St Eastbound						Marigold St Westbound						
Time	L	T	R	U	RR	App	L	T	R	U	RR	App	L	T	R	U	RR	App	L	T	R	U	RR	App	Int
2023-10-11 7:15AM	0	146	1	0	0	147	1	349	40	0	1	391	47	0	11	0	4	62	1	0	0	0	0	1	601
7:30AM	3	177	3	0	0	183	0	417	42	0	3	462	60	0	14	0	4	78	4	0	0	0	2	6	729
7:45AM	5	209	4	0	0	218	0	394	52	0	2	448	54	0	11	0	2	67	1	1	0	0	1	3	736
8:00AM	4	192	3	0	0	199	1	310	40	0	2	353	50	1	8	0	5	64	4	0	0	0	0	4	620
<b>Total</b>	12	724	11	0	0	747	2	1470	174	0	8	1654	211	1	44	0	15	271	10	1	0	0	3	14	2686
<b>% Approach</b>	1.6%	96.9%	1.5%	0%	0%	-	0.1%	88.9%	10.5%	0%	0.5%	-	77.9%	0.4%	16.2%	0%	5.5%	-	71.4%	7.1%	0%	0%	21.4%	-	-
<b>% Total</b>	0.4%	27.0%	0.4%	0%	0%	27.8%	0.1%	54.7%	6.5%	0%	0.3%	61.6%	7.9%	0%	1.6%	0%	0.6%	10.1%	0.4%	0%	0%	0%	0.1%	0.5%	-
<b>PHF</b>	0.600	0.866	0.688	-	-	0.857	0.500	0.881	0.837	-	0.667	0.895	0.879	0.250	0.786	-	0.750	0.869	0.625	0.250	-	-	0.375	0.583	0.912
<b>Lights</b>	11	692	11	0	0	714	2	1440	171	0	8	1621	207	1	42	0	15	265	10	1	0	0	3	14	2614
<b>% Lights</b>	91.7%	95.6%	100%	0%	0%	95.6%	100%	98.0%	98.3%	0%	100%	98.0%	98.1%	100%	95.5%	0%	100%	97.8%	100%	100%	0%	0%	100%	100%	97.3%
<b>Articulated Trucks</b>	0	5	0	0	0	5	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	10
<b>% Articulated Trucks</b>	0%	0.7%	0%	0%	0%	0.7%	0%	0.3%	0%	0%	0%	0.3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.4%
<b>Buses and Single-Unit Trucks</b>	1	27	0	0	0	28	0	25	3	0	0	28	4	0	2	0	0	6	0	0	0	0	0	0	62
<b>% Buses and Single-Unit Trucks</b>	8.3%	3.7%	0%	0%	0%	3.7%	0%	1.7%	1.7%	0%	0%	1.7%	1.9%	0%	4.5%	0%	0%	2.2%	0%	0%	0%	0%	0%	0%	2.3%

\*L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

# Glenwood & Marigold - TMC

Wed Oct 11, 2023

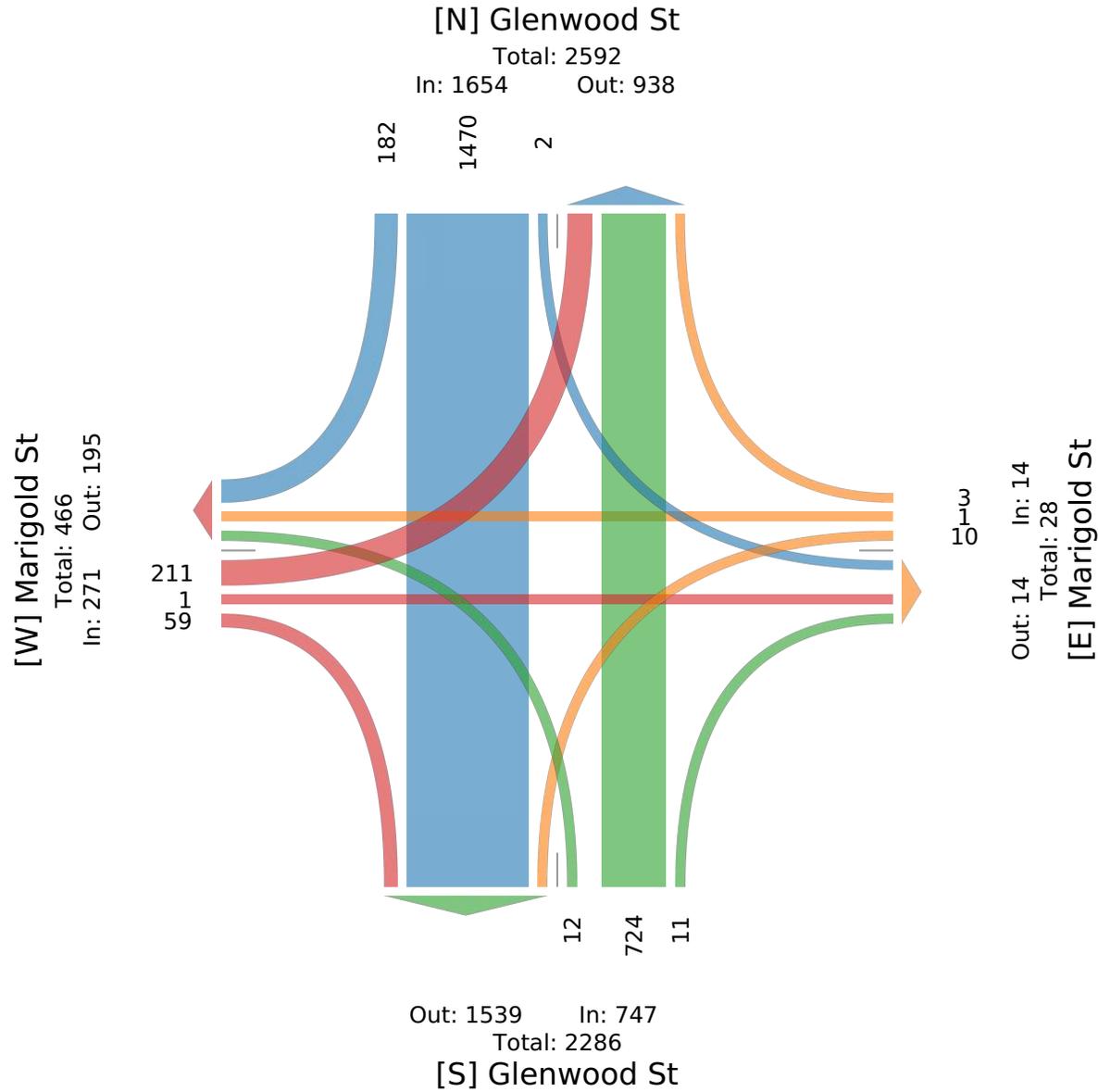
AM Peak (7:15 AM - 8:15 AM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1193064, Location: 43.659298, -116.279748

Provided by: Kimley-Horn and Associates, Inc.  
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US



Study Name TMC00000-01273\_GlenwoodSt&MarigoldSt\_1010\_2023sp  
 Start Date Wednesday, October 11, 2023 12:00 AM  
 End Date Thursday, October 12, 2023 1:00 PM  
 Site Code

## Report Summary

Time Period	Class.	Southbound				Westbound				Northbound				Eastbound				Total	Direction	Crosswalk										
		R	T	L	U	I	O	R	T	L	U	I	O	R	T	L	U			I	O	on	Cr	destr	Total					
Peak 1	Motorcycles	1	0	0	0	1	5	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	1	6	SB	1	0	1		
Specified Period	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		100%	0%			
12:00 AM - 12:00 PM	Cars	186	972	3	1	1162	993	11	2	13	0	26	15	11	799	40	0	850	1055	70	1	182	0	253	228	2291	WB	1	4	5
One Hour Peak	%	84%	81%	100%	100%	82%	74%	73%	100%	93%	0%	84%	79%	79%	74%	87%	0%	74%	82%	86%	50%	78%	0%	80%	84%	79%		20%	80%	
11:00 AM - 12:00 PM	Int Goods Vehi	35	196	0	0	231	298	2	0	1	0	3	4	3	250	5	0	258	207	10	1	46	0	57	40	549	NB	1	1	2
	%	16%	16%	0%	0%	16%	22%	13%	0%	7%	0%	10%	21%	21%	23%	11%	0%	23%	16%	12%	50%	20%	0%	18%	15%	19%		50%	50%	
	Buses	0	3	0	0	3	4	0	0	0	0	0	0	0	4	0	0	4	3	0	0	0	0	0	0	7	EB	1	2	3
	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		33%	67%	
	Single-Unit Truc	0	25	0	0	25	23	1	0	0	0	1	0	0	18	1	0	19	26	1	0	4	0	5	1	50		4	7	11
	%	0%	2%	0%	0%	2%	2%	7%	0%	0%	0%	3%	0%	0%	2%	2%	0%	2%	2%	1%	0%	2%	0%	2%	0%	2%				
	Articulated Truc	0	0	0	0	0	10	0	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	0	0	10				
	%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%				
	Motorcycles on Road	0	0	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1				
	%	0%	0%	0%	0%	0%	0%	7%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%				
	Total	222	1196	3	1	1422	1334	15	2	14	0	31	19	14	1086	46	0	1146	1291	81	2	232	0	315	270	2914				
	PHF	0.92	0.98	0.38	0.25	0.97	0.96	0.54	0.5	0.7	0	0.78	0.79	0.88	0.95	0.72	0	0.93	0.98	0.84	0.5	0.83	0	0.85	0.89	0.96				
	Approach %					49%	46%					1%	1%					39%	44%					11%	9%					
Peak 2	Motorcycles	0	1	0	0	1	6	0	0	1	0	1	0	0	4	0	0	4	3	1	0	2	0	3	0	9	SB	0	0	0
Specified Period	%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	2%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	0%	1%	0%	0%		0%	0%	
12:00 PM - 12:00 AM	Cars	199	1116	11	0	1326	1447	14	3	21	0	38	35	18	1132	42	0	1192	1196	59	6	301	0	366	244	2922	WB	0	0	0
One Hour Peak	%	80%	90%	85%	0%	88%	84%	88%	75%	64%	0%	72%	80%	72%	83%	88%	0%	83%	89%	80%	100%	85%	0%	84%	81%	85%		0%	0%	
4:30 PM - 5:30 PM	Int Goods Vehi	48	94	2	0	144	262	2	1	9	0	12	8	6	210	6	0	222	116	13	0	50	0	63	55	441	NB	0	0	0
	%	19%	8%	15%	0%	10%	15%	13%	25%	27%	0%	23%	18%	24%	15%	13%	0%	16%	9%	18%	0%	14%	0%	15%	18%	13%		0%	0%	
	Buses	0	4	0	0	4	3	0	0	0	0	0	0	0	3	0	0	3	4	0	0	0	0	0	0	7	EB	0	1	1
	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		0%	100%	
	Single-Unit Truc	1	24	0	0	25	7	0	0	1	0	1	1	1	6	0	0	7	25	0	0	1	0	1	1	34		0	1	1
	%	0%	2%	0%	0%	2%	0%	0%	0%	3%	0%	2%	2%	4%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	1%				
	Articulated Truc	1	4	0	0	5	2	0	0	0	0	0	0	0	2	0	0	2	4	0	0	0	0	0	1	7				
	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%				
	Motorcycles on Road	1	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	0	2	1	0	0	0	1	1	3				
	%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	2%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%				
	Total	250	1243	13	0	1506	1727	16	4	33	0	53	44	25	1357	48	0	1430	1350	74	6	354	0	434	302	3423				
	PHF	0.84	0.92	0.65	0	0.95	0.98	0.5	0.33	0.69	0	0.58	0.85	0.69	0.95	0.63	0	0.96	0.91	0.74	0.75	0.9	0	0.87	0.86	0.96				
	Approach %					44%	50%					2%	1%					42%	39%					13%	9%					



**APPENDIX C**  
**ITE TRIP GENERATION INFORMATION**

# Multifamily Housing (Mid-Rise) Not Close to Rail Transit (221)

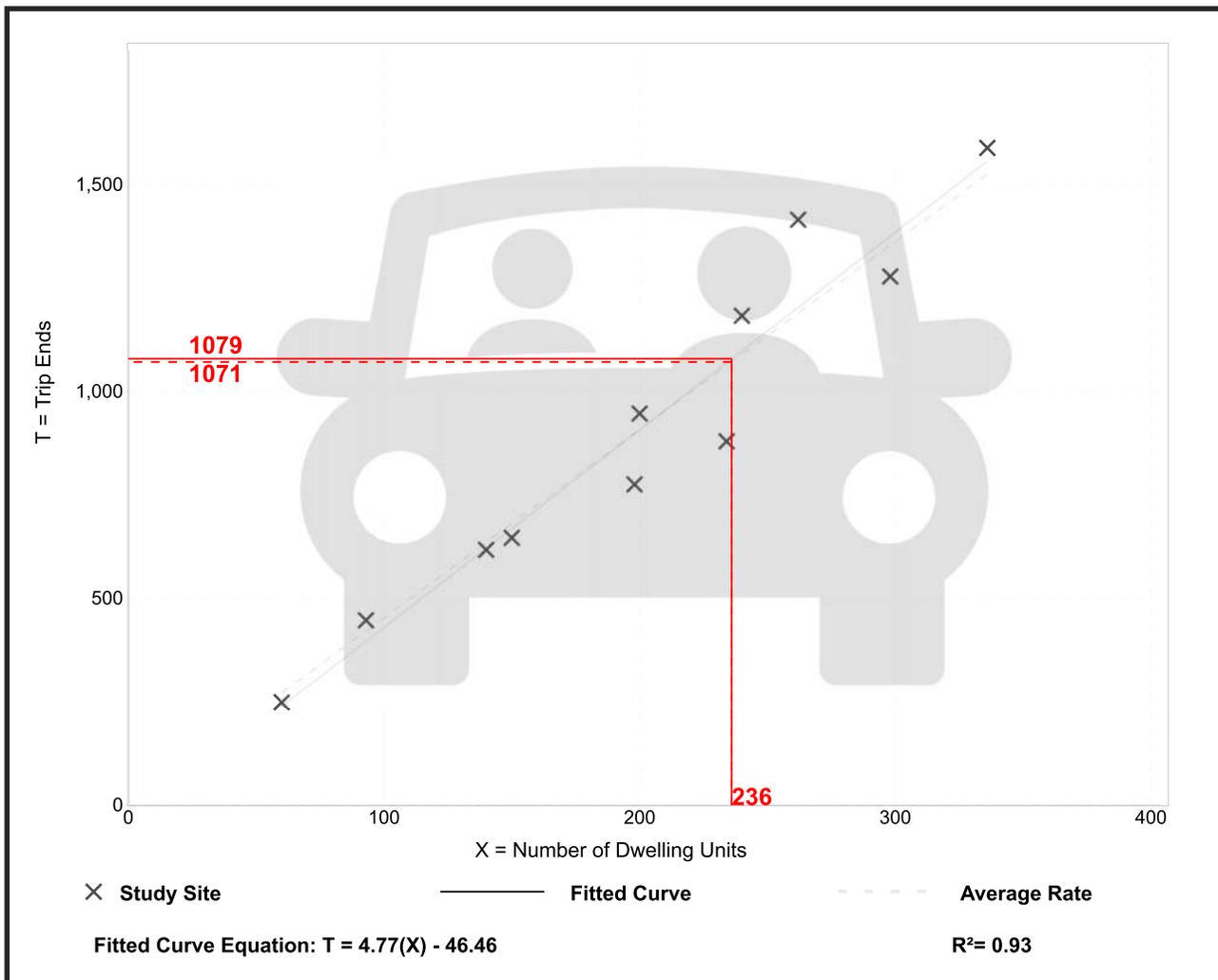
Vehicle Trip Ends vs: Dwelling Units  
On a: Weekday

Setting/Location: General Urban/Suburban  
Number of Studies: 11  
Avg. Num. of Dwelling Units: 201  
Directional Distribution: 50% entering, 50% exiting

## Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
4.54	3.76 - 5.40	0.51

## Data Plot and Equation



## Multifamily Housing (Mid-Rise) Not Close to Rail Transit (221)

**Vehicle Trip Ends vs: Dwelling Units**  
**On a: Weekday,**  
**Peak Hour of Adjacent Street Traffic,**  
**One Hour Between 7 and 9 a.m.**

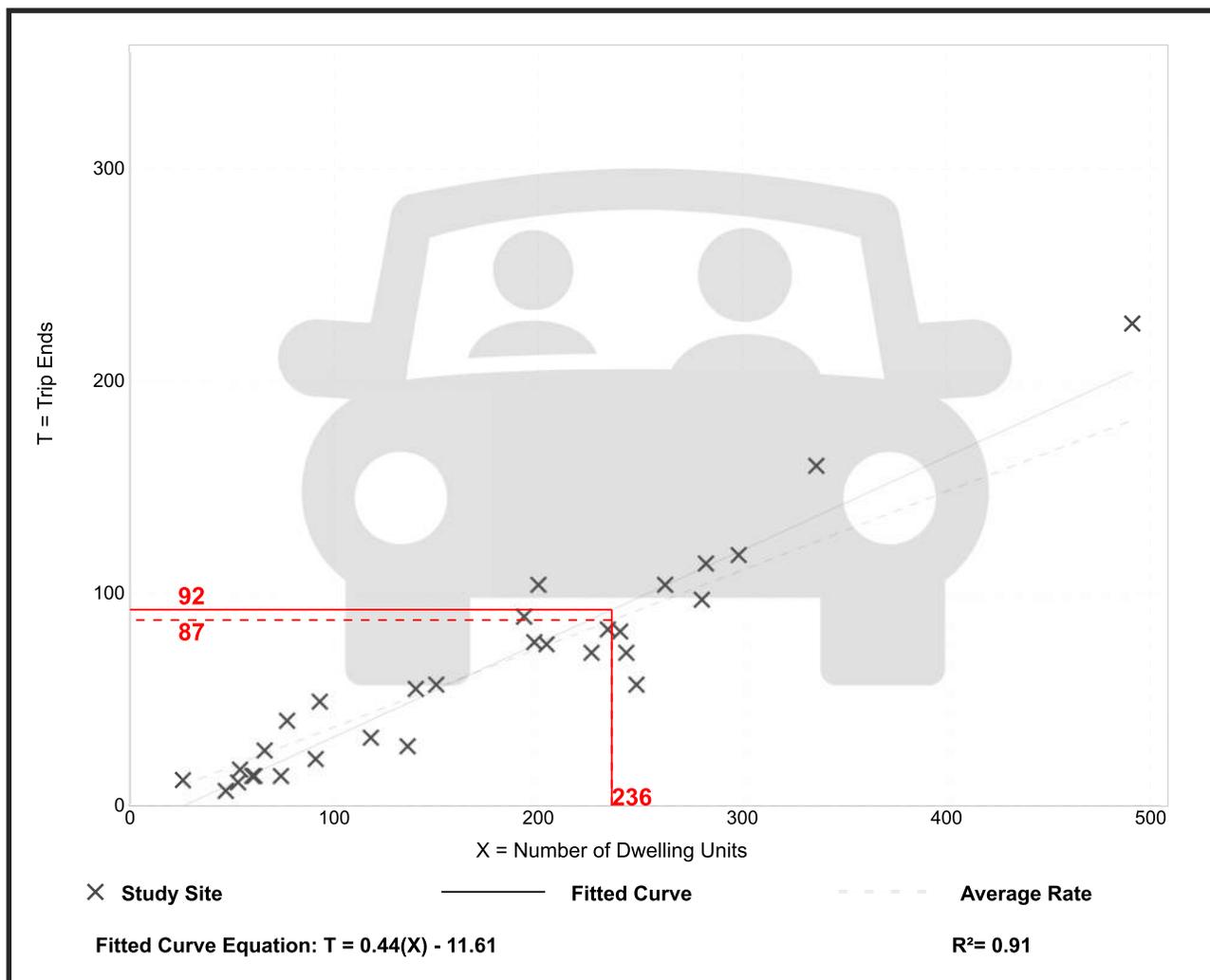
**Setting/Location: General Urban/Suburban**

Number of Studies: 30  
 Avg. Num. of Dwelling Units: 173  
 Directional Distribution: 23% entering, 77% exiting

### Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.37	0.15 - 0.53	0.09

### Data Plot and Equation



## Multifamily Housing (Mid-Rise) Not Close to Rail Transit (221)

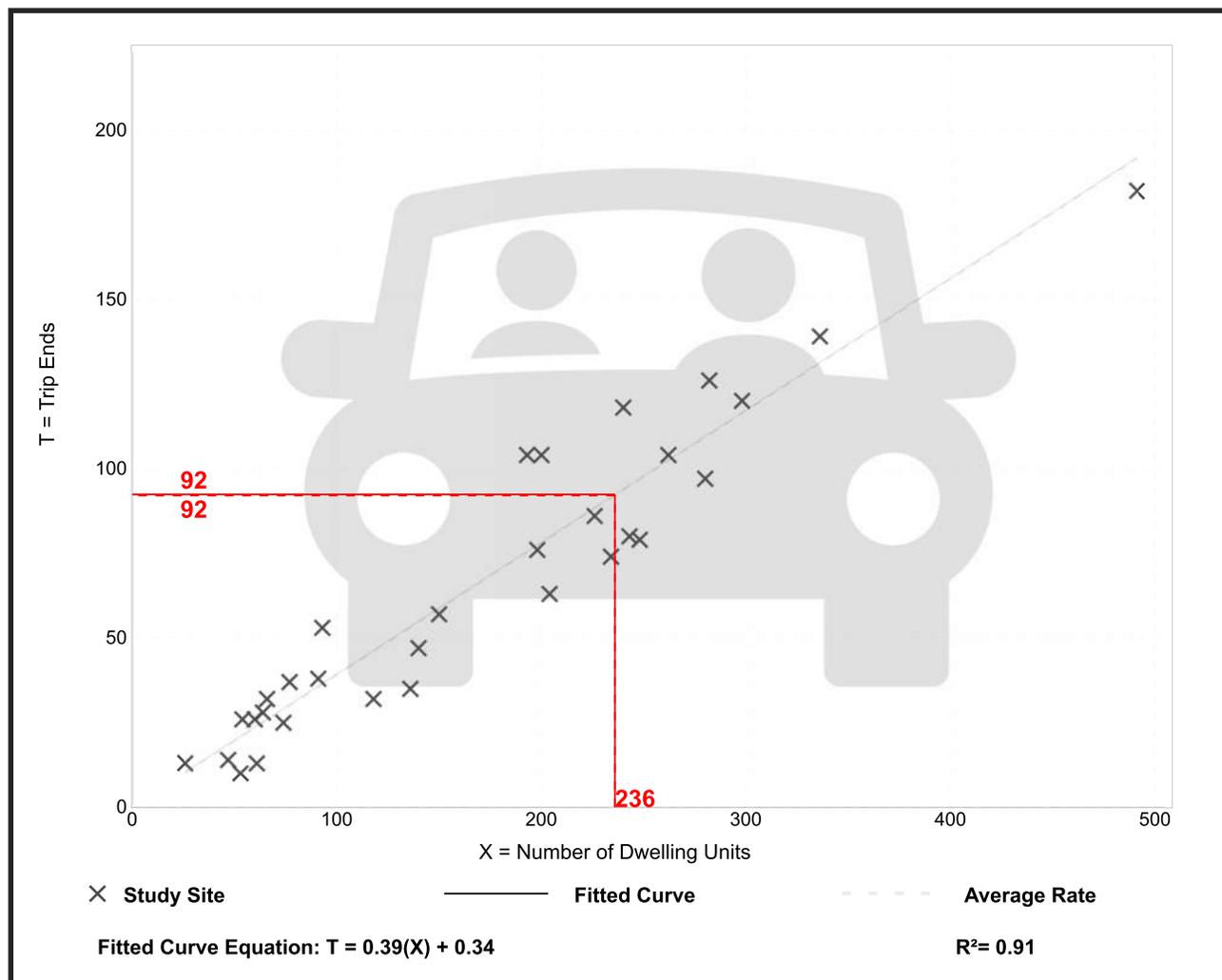
**Vehicle Trip Ends vs: Dwelling Units**  
**On a: Weekday,**  
**Peak Hour of Adjacent Street Traffic,**  
**One Hour Between 4 and 6 p.m.**

**Setting/Location: General Urban/Suburban**  
 Number of Studies: 31  
 Avg. Num. of Dwelling Units: 169  
 Directional Distribution: 61% entering, 39% exiting

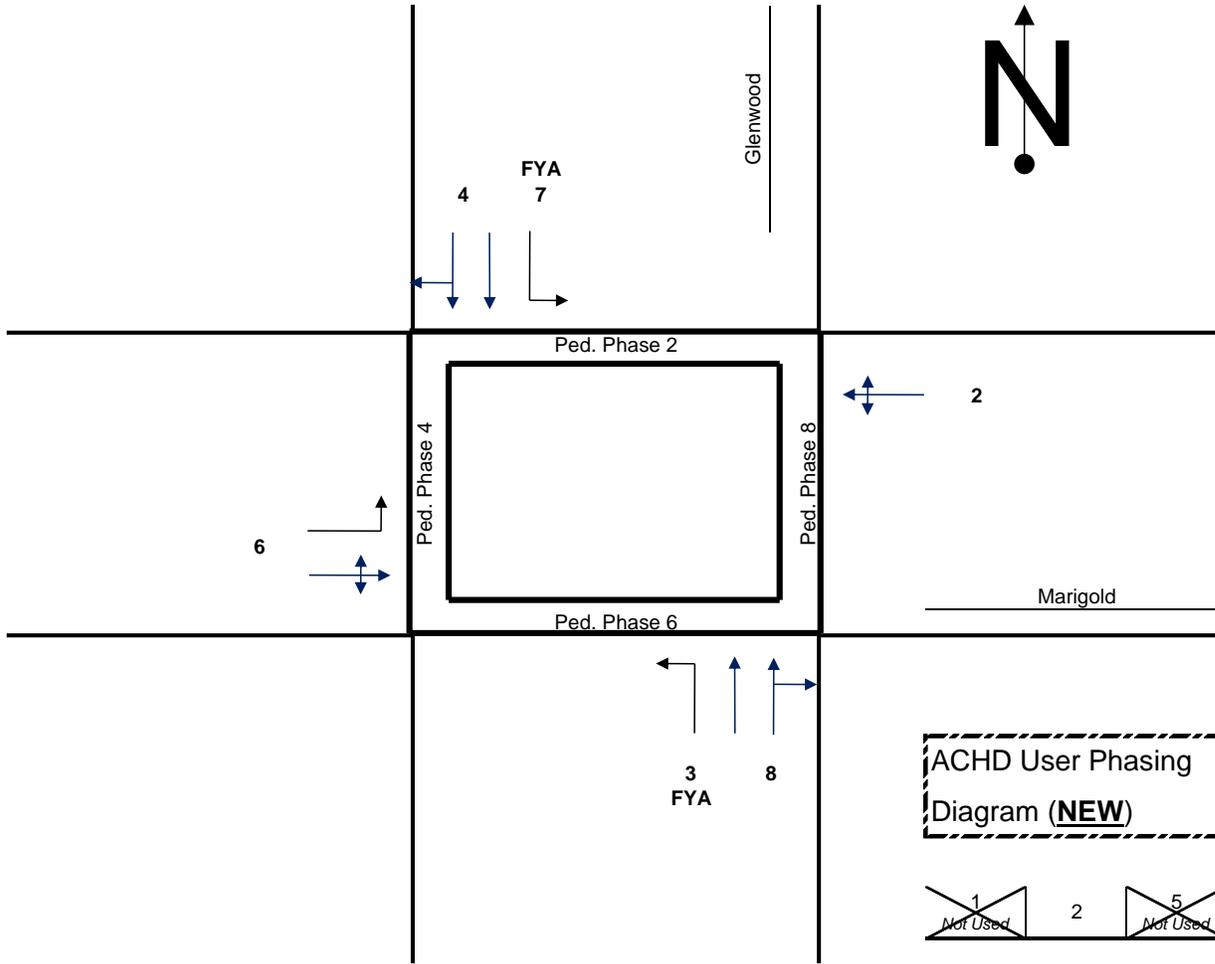
### Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.39	0.19 - 0.57	0.08

### Data Plot and Equation



**APPENDIX D**  
**SYNCHRO REPORTS AND SIGNAL TIMING SHEETS FOR OPERATIONAL ANALYSES**



ACHD User Phasing  
Diagram (**NEW**)

<del>1</del> Not Used	2	<del>5</del> Not Used	6	3 FYA	4
				7 FYA	8

Location: Glenwood & Marigold (#233)

# Controller Database Timing Sheet



**Station:** 233 - Glenwood & Marigold ( Standard-8/21/2023 1:52:00 PM)

**Type:** NTCIP 76.x ATC Ethernet

**Firmware:** 76.15t

**Created By:** ntdomain\schowdhury  
**Modified By:**

**Reviewed By:**

Actions																																		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	
Table - 1																																		
Pattern	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	254	
Aux 1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aux 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aux 3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Pre1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pre2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Special 1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Adv Schedule

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Table - 1																				
Jan	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Feb	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Mar	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Apr	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
May	X	X	X	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.
Jun	X	X	X	X	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.
Jul	X	X	X	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.
Aug	X	X	X	.	X	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.
Sep	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Oct	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Nov	X	X	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dec	X	X	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.
01	X	X	X	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.
02	X	X	X	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.
03	X	X	X	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.
04	X	X	X	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.
05	X	X	X	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.
06	X	X	X	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.
07	X	X	X	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.
08	X	X	X	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.
09	X	X	X	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.
10	X	X	X	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.
11	X	X	X	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.
12	X	X	X	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.
13	X	X	X	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.
14	X	X	X	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.
15	X	X	X	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.
16	X	X	X	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.
17	X	X	X	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.
18	X	X	X	.	X	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.
19	X	X	X	.	X	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.
20	X	X	X	.	X	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.
21	X	X	X	.	X	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.
22	X	X	X	.	X	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.
23	X	X	X	.	X	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.

Adv Schedule																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
24	X	X	X	.	X	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.
25	X	X	X	X	X	X	X	.	.	.	X	.	.	.	.	.	.	.	.	.
26	X	X	X	.	X	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.
27	X	X	X	.	X	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.
28	X	X	X	.	.	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.
29	X	X	X	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.
30	X	X	X	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.
31	X	X	X	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.
Sun	.	.	X	.	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.
Mon	X	.	.	.	X	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.
Tue	X	.	.	.	X	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.
Wed	X	.	.	.	X	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.
Thu	X	.	.	.	X	X	X	.	.	.	X	.	.	.	.	.	.	.	.	.
Fri	X	.	.	.	X	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.
Sat	.	X	.	X	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.
Plan	1	11	11	4	5	3	3	1	1	1	11	1	1	1	1	1	1	1	1	1

Day Plan

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Table - 1																
Hour	0	10	15	18	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	30	45	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	2	3	8	0	0	0	0	0	0	0	0	0	0	0	0
Table - 2																
Hour	0	10	18	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	2	33	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 3																
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 4																
Hour	0	9	22	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	30	55	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	8	33	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 5																
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Day Plan																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

**Overlap Programming**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Table - 1																
Included P1	0	0	0	3	0	0	0	7	0	0	0	0	0	0	0	0
Included P2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P1	0	0	0	4	0	0	0	8	0	0	0	0	0	0	0	0
Modify P2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Type	NORMA L	NORMA L	NORMA L	FYA-4	NORMA L	NORMA L	NORMA L	FYA-4	NORMA L							
Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yellow	3.5	3.5	3.5	4	3.5	3.5	3.5	4	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Red	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5

**Overlap+**

	4								8							
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**Table - 1**

Conflict P1	0								0							
Conflict P2	0								0							
Conflict P3	0								0							
Conflict P4	0								0							
Conflict P5	0								0							
Conflict P6	0								0							
Conflict P7	0								0							
Conflict P8	0								0							
Conflict O1	0								0							
Conflict O2	0								0							
Conflict O3	0								0							

Overlap+		
	4	8
Conflict O4	0	0
Conflict O5	0	0
Conflict O6	0	0
Conflict O7	0	0
Conflict O8	0	0
Conflict Ped 1	4	8
Conflict Ped 2	0	0
Conflict Ped 3	0	0
Conflict Ped 4	0	0
Conflict Ped 5	0	0
Conflict Ped 6	0	0
Conflict Ped 7	0	0
Conflict Ped 8	0	0
OverlapB+		
	4	8
Table - 1		
Leading Green	.	.
FYA MCE Disable	.	.
FYA After Preempt	.	.
FYA Skip Red	.	.
PedCallClear	.	.
FYA ImmedReturn	X	X
FYARedB4Ped	X	X
Transit Input	0	0
FYA Delay Time	5	5
FYA Ext Overlap	0	0
GrnExtInh 1	0	0
GrnExtInh 2	0	0
GrnExtInh 3	0	0
GrnExtInh 4	0	0
GrnExtInh 5	0	0
GrnExtInh 6	0	0
GrnExtInh 7	0	0
GrnExtInh 8	0	0
Ped Clear Time	0	0
FYAGapMin	0	0

OverlapB+																											
	4														8												
FYAGapMax	0														0												
FYAGapExt	0														0												
FYAGapDet1	0														0												
FYAGapDet2	0														0												
FYAGapDet3	0														0												
FYAGapDet4	0														0												

Patterns																																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Table - 1																																
Cycle Time	0	130	160	0	150	0	0	0	0	0	0	0	160	0	0	0	0	0	0	0	0	130	0	0	0	180	0	0	0	0	0	0
Offset Time	0	45	150	0	11	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0	18	0	0	0	22	0	0	0	0	0	0	
Split Number	0	2	3	0	5	0	0	8	9	10	11	12	13	0	0	0	0	0	0	20	0	2	0	0	26	0	0	0	0	0	32	
Seq Number	1	5	5	1	9	1	1	1	1	1	1	5	9	1	1	1	1	1	1	1	1	5	1	1	1	1	1	1	1	1	5	

Phase Times and Options								
	1	2	3	4	5	6	7	8
Table - 1								
Walk	0	5	0	5	0	5	0	5
Ped Clearance	0	29	0	16	0	29	0	16
Min Green	0	6	5	10	0	5	5	10
Gap Ext	0	3	2	4	0	2	2	4
Max1	0	20	20	80	0	30	20	80
Max2	0	25	15	100	0	40	20	100
Yellow Clr	0	4	4	4	0	4	4	4
Red Clr	0	2	1.5	1	0	2	1.5	1
Red Revert	0	0	0	0	0	0	0	0
Added Initial	0	0	0	0	0	0	0	0
Max Initial	0	0	0	0	0	0	0	0
Time Before Reduce	0	0	0	30	0	0	0	30
Cars Before Reduce	0	0	0	0	0	0	0	0
Time To Reduce	0	0	0	15	0	0	0	15
Reduce By	0	0	0	0	0	0	0	0
Min Gap	0	0	0	3	0	0	0	3
Dynamic Max Limit	0	0	0	130	0	0	0	130
Dynamic Max Step	0	0	0	15	0	0	0	15
Startup	RED	RED	RED	WALK	RED	RED	RED	WALK

**Phase Times and Options**

	1	2	3	4	5	6	7	8
Enable	.	X	X	X	.	X	X	X
Auto Flash Entry	.	.	.	X	.	.	.	X
Auto Flash Exit	.	.	.	X	.	.	.	X
Non-Actuated 1	.	.	.	.	.	.	.	.
Non-Actuated 2	.	.	.	.	.	.	.	.
Lock Call	.	.	.	.	.	.	.	.
Min Recall	.	.	.	.	.	.	.	.
Max Recall	.	.	.	X	.	.	.	X
Ped Recall	.	.	.	.	.	.	.	.
Soft Recall	.	.	.	.	.	.	.	.
Dual Entry	.	.	.	X	.	.	.	X
Sim Gap Enable	X	X	X	X	X	X	X	X
Guar Passage	.	.	.	.	.	.	.	.
Rest In Walk	.	.	.	.	.	.	.	.
Cond Service	.	.	.	.	.	.	.	.
Add Init Calc	.	.	.	.	.	.	.	.
Ring	1	1	1	1	1	1	2	2
Concur 1	0	0	7	7	0	0	3	3
Concur 2	0	0	8	8	0	0	4	4
Concur 3	0	0	0	0	0	0	0	0
Concur 4	0	0	0	0	0	0	0	0
Concur 5	0	0	0	0	0	0	0	0
Concur 6	0	0	0	0	0	0	0	0
Concur 7	0	0	0	0	0	0	0	0
Concur 8	0	0	0	0	0	0	0	0

**Ring Sequences**

	1	2
--	---	---

Table - 1

Ring P1	1	7
Ring P2	2	8
Ring P3	5	0
Ring P4	6	0
Ring P5	3	0
Ring P6	4	0
Ring P7	0	0
Ring P8	0	0

**Ring Sequences**

	1	2
--	---	---

**Table - 2**

Ring P1	1	7
Ring P2	2	8
Ring P3	6	0
Ring P4	5	0
Ring P5	3	0
Ring P6	4	0
Ring P7	0	0
Ring P8	0	0

**Table - 3**

Ring P1	2	7
Ring P2	1	8
Ring P3	5	0
Ring P4	6	0
Ring P5	3	0
Ring P6	4	0
Ring P7	0	0
Ring P8	0	0

**Table - 4**

Ring P1	2	7
Ring P2	1	8
Ring P3	6	0
Ring P4	5	0
Ring P5	3	0
Ring P6	4	0
Ring P7	0	0
Ring P8	0	0

**Table - 5**

Ring P1	5	7
Ring P2	6	8
Ring P3	1	0
Ring P4	2	0
Ring P5	3	0
Ring P6	4	0
Ring P7	0	0
Ring P8	0	0

**Table - 6**

Ring P1	5	7
Ring P2	6	8
Ring P3	1	0
Ring P4	2	0
Ring P5	3	0
Ring P6	4	0
Ring P7	0	0
Ring P8	0	0

Ring Sequences		
	1	2
Ring P1	6	7
Ring P2	5	8
Ring P3	1	0
Ring P4	2	0
Ring P5	3	0
Ring P6	4	0
Ring P7	0	0
Ring P8	0	0
Table - 7		
Ring P1	5	7
Ring P2	6	8
Ring P3	2	0
Ring P4	1	0
Ring P5	3	0
Ring P6	4	0
Ring P7	0	0
Ring P8	0	0
Table - 8		
Ring P1	6	7
Ring P2	5	8
Ring P3	2	0
Ring P4	1	0
Ring P5	3	0
Ring P6	4	0
Ring P7	0	0
Ring P8	0	0
Table - 9		
Ring P1	1	7
Ring P2	2	8
Ring P3	5	0
Ring P4	6	0
Ring P5	4	0
Ring P6	3	0
Ring P7	0	0
Ring P8	0	0
Splits Expanded		

	1	2	3	4	5	6	7	8
Table - 1								
Time	0	0	0	0	0	0	0	0
Mode	NON							
Coord Phase	.	.	.	.	.	.	.	.
Table - 2								
Time	0	41	18	30	0	41	18	30
Mode	NON	NON	NON	MAX	NON	NON	NON	MAX
Coord Phase	.	.	.	.	.	.	.	X
Table - 3								
Time	0	41	21	57	0	41	21	57
Mode	NON	NON	NON	MAX	NON	NON	NON	MAX
Coord Phase	.	.	.	.	.	.	.	X
Table - 4								
Time	0	0	0	0	0	0	0	0
Mode	NON							
Coord Phase	.	.	.	.	.	.	.	.
Table - 5								
Time	0	41	21	47	0	41	21	47
Mode	NON	NON	NON	MAX	NON	NON	NON	MAX
Coord Phase	.	.	.	.	.	.	.	X
Table - 6								
Time	0	0	0	0	0	0	0	0
Mode	NON							
Coord Phase	.	.	.	.	.	.	.	.
Table - 7								
Time	0	0	0	0	0	0	0	0
Mode	NON							
Coord Phase	.	.	.	.	.	.	.	.
Table - 8								
Time	0	20	20	120	0	60	20	120
Mode	NON	NON	NON	MAX	NON	NON	NON	MAX
Coord Phase	.	.	.	.	.	.	.	.
Table - 9								
Time	0	20	20	90	0	60	20	140
Mode	NON	NON	NON	MAX	NON	NON	NON	MAX
Coord Phase	.	.	.	.	.	.	.	.
Table - 10								
Time	0	20	20	100	0	40	20	100

Splits Expanded								
	1	2	3	4	5	6	7	8
Mode	NON	NON	NON	MIN	NON	NON	NON	MIN
Coord Phase	.	.	.	.	.	.	.	.
Table - 11								
Time	0	20	20	120	0	40	20	120
Mode	NON	NON	NON	MIN	NON	NON	NON	MIN
Coord Phase	.	.	.	.	.	.	.	.
Table - 12								
Time	0	20	15	65	0	50	15	65
Mode	NON	NON	NON	MIN	NON	NON	NON	MIN
Coord Phase	.	.	.	.	.	.	.	.
Table - 13								
Time	0	41	21	57	0	41	21	57
Mode	NON	NON	NON	MAX	NON	NON	NON	MAX
Coord Phase	.	.	.	X	.	.	.	.
Table - 14								
Time	0	0	0	0	0	0	0	0
Mode	NON							
Coord Phase	.	.	.	.	.	.	.	.
Table - 15								
Time	0	0	0	0	0	0	0	0
Mode	NON							
Coord Phase	.	.	.	.	.	.	.	.
Table - 16								
Time	0	0	0	0	0	0	0	0
Mode	NON							
Coord Phase	.	.	.	.	.	.	.	.
Table - 17								
Time	0	0	0	0	0	0	0	0
Mode	NON							
Coord Phase	.	.	.	.	.	.	.	.
Table - 18								
Time	0	0	0	0	0	0	0	0
Mode	NON							
Coord Phase	.	.	.	.	.	.	.	.
Table - 19								
Time	0	0	0	0	0	0	0	0
Mode	NON							

Splits Expanded								
	1	2	3	4	5	6	7	8
Coord Phase	.	.	.	.	.	.	.	.
Table - 20								
Time	0	20	20	40	0	20	20	40
Mode	NON	NON	OMT	MIN	NON	NON	OMT	MIN
Coord Phase	.	.	.	.	.	.	.	.
Table - 21								
Time	0	0	0	0	0	0	0	0
Mode	NON							
Coord Phase	.	.	.	.	.	.	.	.
Table - 22								
Time	0	0	0	0	0	0	0	0
Mode	NON							
Coord Phase	.	.	.	.	.	.	.	.
Table - 23								
Time	0	0	0	0	0	0	0	0
Mode	NON							
Coord Phase	.	.	.	.	.	.	.	.
Table - 24								
Time	0	0	0	0	0	0	0	0
Mode	NON							
Coord Phase	.	.	.	.	.	.	.	.
Table - 26								
Time	20	40	25	95	20	40	25	95
Mode	NON	NON	NON	MIN	NON	NON	NON	MIN
Coord Phase	.	.	.	X	.	.	.	.
Table - 32								
Time	0	41	50	80	0	41	21	57
Mode	NON	NON	NON	MAX	NON	NON	OMT	OMT
Coord Phase	.	.	.	.	.	.	.	X



**2024 EXISTING**

# HCM Signalized Intersection Capacity Analysis

## 1: Glenwood Street & Marigold Street

06/24/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	217	1	61	10	1	3	12	746	11	2	1514	187
Future Volume (vph)	217	1	61	10	1	3	12	746	11	2	1514	187
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0			6.0		5.5	5.0		5.5	5.0	
Lane Util. Factor	0.95	0.95			1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.93			0.95		1.00	0.99		1.00	0.98	
Flt Protected	0.95	0.97			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1593	1522			1640		1676	3346		1676	3298	
Flt Permitted	0.95	0.97			0.11		0.05	1.00		0.06	1.00	
Satd. Flow (perm)	1593	1522			201		88	3346		115	3298	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	241	1	68	11	1	3	13	829	12	2	1682	208
RTOR Reduction (vph)	0	13	0	0	12	0	0	0	0	0	7	0
Lane Group Flow (vph)	159	138	0	0	3	0	13	841	0	2	1883	0
Turn Type	Split	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	2	2			6		3	8		7	4	
Permitted Phases				6			8			4		
Actuated Green, G (s)	13.7	13.7			5.5		55.6	54.8		55.4	54.7	
Effective Green, g (s)	13.7	13.7			5.5		55.6	54.8		55.4	54.7	
Actuated g/C Ratio	0.14	0.14			0.06		0.57	0.56		0.57	0.56	
Clearance Time (s)	6.0	6.0			6.0		5.5	5.0		5.5	5.0	
Vehicle Extension (s)	2.0	2.0			3.0		2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)	224	214			11		63	1886		76	1855	
v/s Ratio Prot	c0.10	0.09					c0.00	0.25		0.00	c0.57	
v/s Ratio Perm					c0.01		0.12			0.01		
v/c Ratio	0.70	0.64			0.24		0.20	0.44		0.02	1.01	
Uniform Delay, d1	39.8	39.4			43.8		8.9	12.3		8.9	21.2	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.1	4.9			11.5		0.5	0.7		0.0	24.7	
Delay (s)	47.9	44.3			55.3		9.5	13.1		9.0	45.9	
Level of Service	D	D			E		A	B		A	D	
Approach Delay (s/veh)		46.2			55.3			13.0			45.9	
Approach LOS		D			E			B			D	

### Intersection Summary

HCM 2000 Control Delay (s/veh)	36.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	97.2	Sum of lost time (s)	22.5
Intersection Capacity Utilization	69.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

# HCM 7th Signalized Intersection Summary

## 1: Glenwood Street & Marigold Street

06/24/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	217	1	61	10	1	3	12	746	11	2	1514	187
Future Volume (veh/h)	217	1	61	10	1	3	12	746	11	2	1514	187
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1772	1772	1772	1772	1772	1772	1772	1772	1772	1772	1772	1772
Adj Flow Rate, veh/h	155	121	68	11	1	3	13	829	12	2	1682	208
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	239	151	85	25	2	7	109	1992	29	365	1734	210
Arrive On Green	0.14	0.14	0.14	0.02	0.02	0.02	0.02	0.59	0.59	0.00	0.57	0.57
Sat Flow, veh/h	1688	1065	599	1211	110	330	1688	3397	49	1688	3022	367
Grp Volume(v), veh/h	155	0	189	15	0	0	13	411	430	2	923	967
Grp Sat Flow(s),veh/h/ln	1688	0	1664	1652	0	0	1688	1683	1763	1688	1683	1706
Q Serve(g_s), s	7.9	0.0	10.0	0.8	0.0	0.0	0.3	12.1	12.1	0.0	46.9	50.6
Cycle Q Clear(g_c), s	7.9	0.0	10.0	0.8	0.0	0.0	0.3	12.1	12.1	0.0	46.9	50.6
Prop In Lane	1.00		0.36	0.73		0.20	1.00		0.03	1.00		0.22
Lane Grp Cap(c), veh/h	239	0	236	34	0	0	109	987	1034	365	966	979
V/C Ratio(X)	0.65	0.00	0.80	0.44	0.00	0.00	0.12	0.42	0.42	0.01	0.96	0.99
Avail Cap(c_a), veh/h	652	0	643	638	0	0	372	987	1034	649	966	979
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.7	0.0	37.6	43.9	0.0	0.0	22.4	10.3	10.3	8.8	18.2	19.0
Incr Delay (d2), s/veh	1.1	0.0	2.4	8.5	0.0	0.0	0.2	1.3	1.2	0.0	19.2	25.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.9	0.0	7.5	0.7	0.0	0.0	0.3	7.7	8.0	0.0	28.2	32.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	37.8	0.0	40.0	52.3	0.0	0.0	22.6	11.6	11.5	8.8	37.4	44.9
LnGrp LOS	D		D	D			C	B	B	A	D	D
Approach Vol, veh/h		344			15			854			1892	
Approach Delay, s/veh		39.1			52.3			11.7			41.2	
Approach LOS		D			D			B			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		18.9	6.9	57.0		7.9	5.7	58.2				
Change Period (Y+Rc), s		6.0	5.5	5.0		6.0	5.5	5.0				
Max Green Setting (Gmax), s		35.0	15.5	52.0		35.0	15.5	52.0				
Max Q Clear Time (g_c+I1), s		12.0	2.3	52.6		2.8	2.0	14.1				
Green Ext Time (p_c), s		0.9	0.0	0.0		0.0	0.0	8.9				
<b>Intersection Summary</b>												
HCM 7th Control Delay, s/veh			32.9									
HCM 7th LOS			C									
<b>Notes</b>												
User approved volume balancing among the lanes for turning movement.												

Lanes, Volumes, Timings  
1: Glenwood Street & Marigold Street

06/24/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	217	1	61	10	1	3	12	746	11	2	1514	187
Future Volume (vph)	217	1	61	10	1	3	12	746	11	2	1514	187
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	200		0	0		0	200		0	100		0
Storage Lanes	1		0	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Fr <sub>t</sub>		0.932			*0.958			0.998			0.983	
Fl <sub>t</sub> Protected	0.950	0.974			*0.970		0.950			0.950		
Satd. Flow (prot)	1593	1522	0	0	1640	0	1676	3346	0	1676	3296	0
Fl <sub>t</sub> Permitted	0.950	0.974			*0.119		*0.050			*0.065		
Satd. Flow (perm)	1593	1522	0	0	201	0	88	3346	0	115	3296	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		*15			*13			*1			*16	
Link Speed (mph)		30			25			35			35	
Link Distance (ft)		1956			351			1874			564	
Travel Time (s)		44.5			9.6			36.5			11.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	241	1	68	11	1	3	13	829	12	2	1682	208
Shared Lane Traffic (%)	34%											
Lane Group Flow (vph)	159	151	0	0	15	0	13	841	0	2	1890	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes						Yes			Yes	
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	2	2			6		3	8		7	4	
Permitted Phases				6			8			4		

# Lanes, Volumes, Timings

## 1: Glenwood Street & Marigold Street

06/24/2024

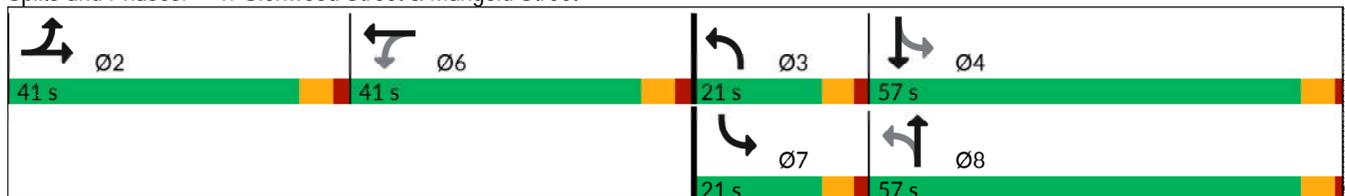


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2		6	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		6.0	6.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		10.5	26.0		10.5	26.0	
Total Split (s)	41.0	41.0		41.0	41.0		21.0	57.0		21.0	57.0	
Total Split (%)	25.6%	25.6%		25.6%	25.6%		13.1%	35.6%		13.1%	35.6%	
Maximum Green (s)	35.0	35.0		35.0	35.0		15.5	52.0		15.5	52.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.5	1.0		1.5	1.0	
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0			6.0		5.5	5.0		5.5	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	2.0		3.0	3.0		2.0	4.0		2.0	4.0	
Minimum Gap (s)	0.2	0.2		0.2	0.2		0.2	3.0		0.2	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	30.0		0.0	30.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	15.0		0.0	15.0	
Recall Mode	None	None		None	None		None	Max		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Flash Dont Walk (s)	29.0	29.0		29.0	29.0			16.0			16.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
Act Effct Green (s)	13.7	13.7			9.9		55.1	54.8		54.8	54.7	
Actuated g/C Ratio	0.15	0.15			0.11		0.62	0.62		0.62	0.62	
v/c Ratio	0.64	0.61			0.45		0.08	0.40		0.01	0.92	
Control Delay (s/veh)	50.8	45.1			62.2		13.9	14.0		14.0	29.5	
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	50.8	45.1			62.2		13.9	14.0		14.0	29.5	
LOS	D	D			E		B	B		B	C	
Approach Delay (s/veh)		48.1			62.3			14.0			29.5	
Approach LOS		D			E			B			C	

### Intersection Summary

Area Type:	Other
Cycle Length:	160
Actuated Cycle Length:	88.9
Natural Cycle:	150
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.93
Intersection Signal Delay (s/veh):	27.2
Intersection LOS:	C
Intersection Capacity Utilization:	69.4%
ICU Level of Service:	C
Analysis Period (min):	15
* User Entered Value	

### Splits and Phases: 1: Glenwood Street & Marigold Street



# HCM Signalized Intersection Capacity Analysis

## 1: Glenwood Street & Marigold Street

06/24/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	365	6	76	34	4	16	49	1398	26	13	1280	258
Future Volume (vph)	365	6	76	34	4	16	49	1398	26	13	1280	258
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0			6.0		5.5	5.0		5.5	5.0	
Lane Util. Factor	0.95	0.95			1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.94			0.95		1.00	0.99		1.00	0.97	
Flt Protected	0.95	0.96			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1593	1542			1640		1676	3344		1676	3268	
Flt Permitted	0.95	0.96			0.11		0.05	1.00		0.06	1.00	
Satd. Flow (perm)	1593	1542			201		88	3344		115	3268	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	406	7	84	38	4	18	54	1553	29	14	1422	287
RTOR Reduction (vph)	0	12	0	0	10	0	0	1	0	0	10	0
Lane Group Flow (vph)	252	233	0	0	50	0	54	1581	0	14	1699	0
Turn Type	Split	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	2	2			6		3	8		7	4	
Permitted Phases				6			8			4		
Actuated Green, G (s)	27.2	27.2			35.3		64.7	58.5		56.7	54.5	
Effective Green, g (s)	27.2	27.2			35.3		64.7	58.5		56.7	54.5	
Actuated g/C Ratio	0.19	0.19			0.24		0.44	0.40		0.39	0.37	
Clearance Time (s)	6.0	6.0			6.0		5.5	5.0		5.5	5.0	
Vehicle Extension (s)	3.0	3.0			2.0		2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)	297	287			48		106	1342		68	1222	
v/s Ratio Prot	c0.16	0.15					c0.02	c0.47		0.00	c0.52	
v/s Ratio Perm					c0.25		0.20			0.08		
v/c Ratio	0.84	0.81			1.04		0.50	1.17		0.20	1.39	
Uniform Delay, d1	57.2	56.7			55.2		23.2	43.6		27.4	45.5	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	19.6	15.8			143.2		1.4	88.3		0.5	180.7	
Delay (s)	76.8	72.5			198.4		24.6	131.9		27.9	226.3	
Level of Service	E	E			F		C	F		C	F	
Approach Delay (s/veh)		74.7			198.4			128.3			224.7	
Approach LOS		E			F			F			F	

### Intersection Summary

HCM 2000 Control Delay (s/veh)	165.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	145.7	Sum of lost time (s)	22.5
Intersection Capacity Utilization	72.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

# HCM 7th Signalized Intersection Summary

## 1: Glenwood Street & Marigold Street

06/24/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	365	6	76	34	4	16	49	1398	26	13	1280	258
Future Volume (veh/h)	365	6	76	34	4	16	49	1398	26	13	1280	258
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1772	1772	1772	1772	1772	1772	1772	1772	1772	1772	1772	1772
Adj Flow Rate, veh/h	489	0	0	38	4	18	54	1553	29	14	1422	287
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	595	312	0	50	5	24	136	1815	34	142	1441	285
Arrive On Green	0.18	0.00	0.00	0.05	0.05	0.05	0.04	0.54	0.54	0.02	0.51	0.51
Sat Flow, veh/h	3375	1772	0	1034	109	490	1688	3381	63	1688	2801	554
Grp Volume(v), veh/h	489	0	0	60	0	0	54	772	810	14	843	866
Grp Sat Flow(s),veh/h/ln	1688	1772	0	1632	0	0	1688	1683	1761	1688	1683	1672
Q Serve(g_s), s	14.1	0.0	0.0	3.7	0.0	0.0	1.5	39.7	39.9	0.4	49.3	52.0
Cycle Q Clear(g_c), s	14.1	0.0	0.0	3.7	0.0	0.0	1.5	39.7	39.9	0.4	49.3	52.0
Prop In Lane	1.00		0.00	0.63		0.30	1.00		0.04	1.00		0.33
Lane Grp Cap(c), veh/h	595	312	0	79	0	0	136	904	945	142	866	860
V/C Ratio(X)	0.82	0.00	0.00	0.76	0.00	0.00	0.40	0.85	0.86	0.10	0.97	1.01
Avail Cap(c_a), veh/h	1168	613	0	565	0	0	330	904	945	374	866	860
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.1	0.0	0.0	47.5	0.0	0.0	23.8	20.0	20.1	18.6	23.9	24.6
Incr Delay (d2), s/veh	2.9	0.0	0.0	5.5	0.0	0.0	0.7	10.1	9.9	0.1	24.4	32.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	10.1	0.0	0.0	2.9	0.0	0.0	1.1	23.4	24.3	0.3	31.7	35.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	43.0	0.0	0.0	53.1	0.0	0.0	24.5	30.2	30.0	18.7	48.3	56.9
LnGrp LOS	D			D			C	C	C	B	D	F
Approach Vol, veh/h		489			60			1636			1723	
Approach Delay, s/veh		43.0			53.1			29.9			52.4	
Approach LOS		D			D			C			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		23.8	9.4	57.0		10.9	7.1	59.3				
Change Period (Y+Rc), s		6.0	5.5	5.0		6.0	5.5	5.0				
Max Green Setting (Gmax), s		35.0	15.5	52.0		35.0	15.5	52.0				
Max Q Clear Time (g_c+I1), s		16.1	3.5	54.0		5.7	2.4	41.9				
Green Ext Time (p_c), s		1.7	0.0	0.0		0.2	0.0	8.2				

### Intersection Summary

HCM 7th Control Delay, s/veh	41.8
HCM 7th LOS	D

### Notes

User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings  
1: Glenwood Street & Marigold Street

06/24/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	365	6	76	34	4	16	49	1398	26	13	1280	258
Future Volume (vph)	365	6	76	34	4	16	49	1398	26	13	1280	258
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	200		0	0		0	200		0	100		0
Storage Lanes	1		0	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Fr <sub>t</sub>		0.949			*0.958			0.997			0.975	
Fl <sub>t</sub> Protected	0.950	0.970			*0.970		0.950			0.950		
Satd. Flow (prot)	1593	1543	0	0	1640	0	1676	3343	0	1676	3269	0
Fl <sub>t</sub> Permitted	0.950	0.970			*0.119		*0.050			*0.065		
Satd. Flow (perm)	1593	1543	0	0	201	0	88	3343	0	115	3269	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		*15			*13			*1			*16	
Link Speed (mph)		30			25			35			35	
Link Distance (ft)		1956			351			1874			564	
Travel Time (s)		44.5			9.6			36.5			11.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	406	7	84	38	4	18	54	1553	29	14	1422	287
Shared Lane Traffic (%)	38%											
Lane Group Flow (vph)	252	245	0	0	60	0	54	1582	0	14	1709	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes						Yes			Yes	
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	2	2			6		3	8		7	4	
Permitted Phases				6			8			4		

# Lanes, Volumes, Timings

## 1: Glenwood Street & Marigold Street

06/24/2024

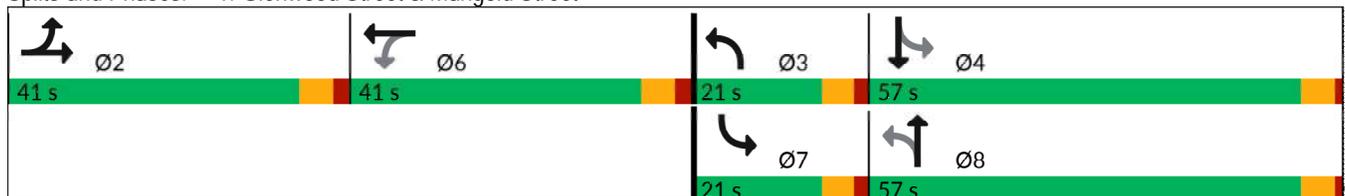


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2		6	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		6.0	6.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		10.5	26.0		10.5	26.0	
Total Split (s)	41.0	41.0		41.0	41.0		21.0	57.0		21.0	57.0	
Total Split (%)	25.6%	25.6%		25.6%	25.6%		13.1%	35.6%		13.1%	35.6%	
Maximum Green (s)	35.0	35.0		35.0	35.0		15.5	52.0		15.5	52.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.5	1.0		1.5	1.0	
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0			6.0		5.5	5.0		5.5	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		2.0	2.0		2.0	4.0		2.0	4.0	
Minimum Gap (s)	0.2	0.2		0.2	0.2		0.2	3.0		0.2	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	30.0		0.0	30.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	15.0		0.0	15.0	
Recall Mode	None	None		None	None		None	Max		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Flash Dont Walk (s)	29.0	29.0		29.0	29.0			16.0			16.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
Act Effct Green (s)	27.2	27.2			35.3		61.5	58.5		56.2	52.4	
Actuated g/C Ratio	0.19	0.19			0.25		0.43	0.41		0.39	0.37	
v/c Ratio	0.82	0.79			1.01		0.45	1.15		0.13	1.41	
Control Delay (s/veh)	78.2	71.4			165.9		38.9	115.2		27.4	223.8	
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	78.2	71.4			165.9		38.9	115.2		27.4	223.8	
LOS	E	E			F		D	F		C	F	
Approach Delay (s/veh)		74.9			166.0			112.7			222.3	
Approach LOS		E			F			F			F	

### Intersection Summary

Area Type:	Other
Cycle Length:	160
Actuated Cycle Length:	142.4
Natural Cycle:	150
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.41
Intersection Signal Delay (s/veh):	156.9
Intersection LOS:	F
Intersection Capacity Utilization:	72.6%
ICU Level of Service:	C
Analysis Period (min):	15
* User Entered Value	

### Splits and Phases: 1: Glenwood Street & Marigold Street





**MITIGATED 2024 EXISTING**

# HCM Signalized Intersection Capacity Analysis

## 1: Glenwood Street & Marigold Street

06/24/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	217	1	61	10	1	3	12	746	11	2	1514	187
Future Volume (vph)	217	1	61	10	1	3	12	746	11	2	1514	187
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0			6.0		5.5	5.0		5.5	5.0	5.0
Lane Util. Factor	0.95	0.95			1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.93			0.95		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	0.97			0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1593	1522			1640		1676	3346		1676	3353	1500
Flt Permitted	0.95	0.97			0.11		0.05	1.00		0.06	1.00	1.00
Satd. Flow (perm)	1593	1522			201		88	3346		115	3353	1500
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	241	1	68	11	1	3	13	829	12	2	1682	208
RTOR Reduction (vph)	0	13	0	0	12	0	0	0	0	0	7	41
Lane Group Flow (vph)	159	138	0	0	3	0	13	841	0	2	1675	167
Turn Type	Split	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	2	2			6		3	8		7	4	
Permitted Phases				6			8			4		4
Actuated Green, G (s)	14.6	14.6			5.8		66.7	65.0		64.7	64.0	64.0
Effective Green, g (s)	14.6	14.6			5.8		66.7	65.0		64.7	64.0	64.0
Actuated g/C Ratio	0.13	0.13			0.05		0.61	0.60		0.60	0.59	0.59
Clearance Time (s)	6.0	6.0			6.0		5.5	5.0		5.5	5.0	5.0
Vehicle Extension (s)	2.0	2.0			3.0		2.0	4.0		2.0	4.0	4.0
Lane Grp Cap (vph)	214	204			10		78	2002		78	1975	883
v/s Ratio Prot	c0.10	0.09					c0.00	0.25		0.00	c0.50	
v/s Ratio Perm					c0.01		0.10			0.02		0.11
v/c Ratio	0.74	0.67			0.26		0.16	0.41		0.02	0.84	0.18
Uniform Delay, d1	45.1	44.7			49.3		8.1	11.6		8.8	18.3	10.3
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	11.5	6.8			14.0		0.3	0.6		0.0	3.7	0.1
Delay (s)	56.6	51.5			63.3		8.5	12.3		8.9	22.0	10.4
Level of Service	E	D			E		A	B		A	C	B
Approach Delay (s/veh)		54.1			63.3			12.2			20.7	
Approach LOS		D			E			B			C	

### Intersection Summary

HCM 2000 Control Delay (s/veh)	22.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	108.6	Sum of lost time (s)	22.5
Intersection Capacity Utilization	63.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

# HCM 7th Signalized Intersection Summary

## 1: Glenwood Street & Marigold Street

06/24/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	217	1	61	10	1	3	12	746	11	2	1514	187
Future Volume (veh/h)	217	1	61	10	1	3	12	746	11	2	1514	187
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1772	1772	1772	1772	1772	1772	1772	1772	1772	1772	1772	1772
Adj Flow Rate, veh/h	155	121	68	11	1	3	13	829	12	2	1682	208
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	235	149	84	25	2	7	143	2069	30	377	2008	896
Arrive On Green	0.14	0.14	0.14	0.02	0.02	0.02	0.02	0.61	0.61	0.00	0.60	0.60
Sat Flow, veh/h	1688	1065	599	1211	110	330	1688	3397	49	1688	3367	1502
Grp Volume(v), veh/h	155	0	189	15	0	0	13	411	430	2	1682	208
Grp Sat Flow(s),veh/h/ln	1688	0	1664	1652	0	0	1688	1683	1763	1688	1683	1502
Q Serve(g_s), s	8.6	0.0	10.9	0.9	0.0	0.0	0.3	12.4	12.4	0.0	39.7	6.4
Cycle Q Clear(g_c), s	8.6	0.0	10.9	0.9	0.0	0.0	0.3	12.4	12.4	0.0	39.7	6.4
Prop In Lane	1.00		0.36	0.73		0.20	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	235	0	232	34	0	0	143	1025	1074	377	2008	896
V/C Ratio(X)	0.66	0.00	0.81	0.44	0.00	0.00	0.09	0.40	0.40	0.01	0.84	0.23
Avail Cap(c_a), veh/h	582	0	574	570	0	0	280	1025	1074	535	2050	914
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.2	0.0	41.2	47.7	0.0	0.0	16.0	10.0	10.0	8.6	16.0	9.3
Incr Delay (d2), s/veh	1.2	0.0	2.6	8.8	0.0	0.0	0.1	1.2	1.1	0.0	3.3	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.5	0.0	8.1	0.8	0.0	0.0	0.2	7.9	8.2	0.0	20.5	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	41.3	0.0	43.8	56.5	0.0	0.0	16.1	11.1	11.1	8.6	19.4	9.5
LnGrp LOS	D		D	E			B	B	B	A	B	A
Approach Vol, veh/h		344			15			854			1892	
Approach Delay, s/veh		42.7			56.5			11.2			18.3	
Approach LOS		D			E			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		19.7	7.0	63.8		8.0	5.8	65.0				
Change Period (Y+Rc), s		6.0	5.5	5.0		6.0	5.5	5.0				
Max Green Setting (Gmax), s		34.0	9.5	60.0		34.0	9.5	60.0				
Max Q Clear Time (g_c+I1), s		12.9	2.3	41.7		2.9	2.0	14.4				
Green Ext Time (p_c), s		0.9	0.0	14.9		0.0	0.0	9.2				

### Intersection Summary

HCM 7th Control Delay, s/veh	19.2
HCM 7th LOS	B

### Notes

User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings  
1: Glenwood Street & Marigold Street

06/24/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	217	1	61	10	1	3	12	746	11	2	1514	187
Future Volume (vph)	217	1	61	10	1	3	12	746	11	2	1514	187
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	200		0	0		0	200		0	100		100
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.932			*0.958			0.998				0.850
Flt Protected	0.950	0.974			*0.970		0.950			0.950		
Satd. Flow (prot)	1593	1522	0	0	1640	0	1676	3346	0	1676	3353	1500
Flt Permitted	0.950	0.974			*0.119		*0.050			*0.065		
Satd. Flow (perm)	1593	1522	0	0	201	0	88	3346	0	115	3353	1500
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		*15			*13			*1			*16	99
Link Speed (mph)		30			25			35			35	
Link Distance (ft)		1956			351			1874			564	
Travel Time (s)		44.5			9.6			36.5			11.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	241	1	68	11	1	3	13	829	12	2	1682	208
Shared Lane Traffic (%)	34%											
Lane Group Flow (vph)	159	151	0	0	15	0	13	841	0	2	1682	208
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes						Yes			Yes	
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	2	2			6		3	8		7	4	
Permitted Phases				6			8			4		4

# Lanes, Volumes, Timings

## 1: Glenwood Street & Marigold Street

06/24/2024

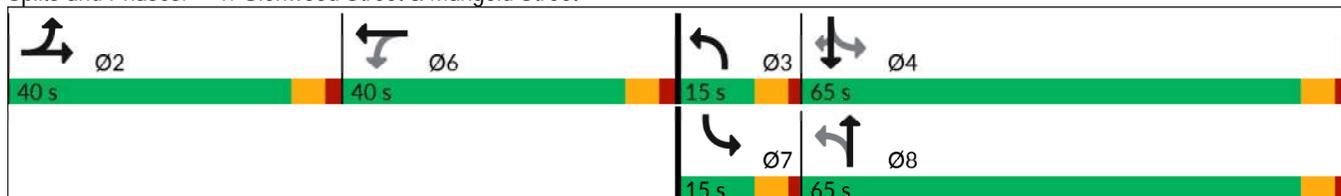


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2		6	6		3	8		7	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0		6.0	6.0		5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	40.0	40.0		40.0	40.0		15.0	26.0		15.0	26.0	26.0
Total Split (s)	40.0	40.0		40.0	40.0		15.0	65.0		15.0	65.0	65.0
Total Split (%)	25.0%	25.0%		25.0%	25.0%		9.4%	40.6%		9.4%	40.6%	40.6%
Maximum Green (s)	34.0	34.0		34.0	34.0		9.5	60.0		9.5	60.0	60.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		1.5	1.0		1.5	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0			6.0		5.5	5.0		5.5	5.0	5.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0		3.0	3.0		2.0	4.0		2.0	4.0	4.0
Minimum Gap (s)	0.2	0.2		0.2	0.2		0.2	3.0		0.2	3.0	3.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	30.0		0.0	30.0	30.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	15.0		0.0	15.0	15.0
Recall Mode	None	None		None	None		None	Max		None	None	None
Walk Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	5.0
Flash Dont Walk (s)	29.0	29.0		29.0	29.0			16.0			16.0	16.0
Pedestrian Calls (#/hr)	0	0		0	0			0			0	0
Act Effct Green (s)	14.6	14.6			10.3		65.4	65.1		64.2	63.2	63.2
Actuated g/C Ratio	0.15	0.15			0.10		0.65	0.65		0.64	0.63	0.63
v/c Ratio	0.68	0.64			0.46		0.09	0.38		0.01	0.79	0.21
Control Delay (s/veh)	59.3	52.4			69.2		13.5	13.2		13.5	23.1	8.7
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	59.3	52.4			69.2		13.5	13.2		13.5	23.1	8.7
LOS	E	D			E		B	B		B	C	A
Approach Delay (s/veh)		56.0			69.3			13.3			21.6	
Approach LOS		E			E			B			C	

### Intersection Summary

Area Type:	Other
Cycle Length:	160
Actuated Cycle Length:	100.4
Natural Cycle:	145
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.80
Intersection Signal Delay (s/veh):	23.0
Intersection LOS:	C
Intersection Capacity Utilization:	63.1%
ICU Level of Service:	B
Analysis Period (min):	15
* User Entered Value	

### Splits and Phases: 1: Glenwood Street & Marigold Street



# HCM Signalized Intersection Capacity Analysis

## 1: Glenwood Street & Marigold Street

06/24/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	365	6	76	34	4	16	49	1398	26	13	1280	258
Future Volume (vph)	365	6	76	34	4	16	49	1398	26	13	1280	258
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0			6.0		5.5	5.0		5.5	5.0	5.0
Lane Util. Factor	0.95	0.95			1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.94			0.95		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	0.96			0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1593	1542			1640		1676	3344		1676	3353	1500
Flt Permitted	0.95	0.96			0.11		0.05	1.00		0.06	1.00	1.00
Satd. Flow (perm)	1593	1542			201		88	3344		115	3353	1500
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	406	7	84	38	4	18	54	1553	29	14	1422	287
RTOR Reduction (vph)	0	12	0	0	10	0	0	1	0	0	10	59
Lane Group Flow (vph)	252	233	0	0	50	0	54	1581	0	14	1412	228
Turn Type	Split	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	2	2			6		3	8		7	4	
Permitted Phases				6			8			4		4
Actuated Green, G (s)	28.1	28.1			34.2		70.3	64.3		62.9	60.6	60.6
Effective Green, g (s)	28.1	28.1			34.2		70.3	64.3		62.9	60.6	60.6
Actuated g/C Ratio	0.19	0.19			0.23		0.46	0.42		0.42	0.40	0.40
Clearance Time (s)	6.0	6.0			6.0		5.5	5.0		5.5	5.0	5.0
Vehicle Extension (s)	3.0	3.0			2.0		2.0	4.0		2.0	4.0	4.0
Lane Grp Cap (vph)	295	286			45		103	1420		71	1342	600
v/s Ratio Prot	c0.16	0.15					c0.02	c0.47		0.00	0.42	
v/s Ratio Perm					c0.25		0.22			0.08		0.15
v/c Ratio	0.85	0.81			1.10		0.52	1.11		0.19	1.05	0.37
Uniform Delay, d1	59.6	59.1			58.6		22.4	43.5		26.0	45.4	32.1
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	20.6	16.0			168.1		2.2	61.4		0.4	39.6	0.5
Delay (s)	80.3	75.2			226.7		24.6	105.0		26.5	85.0	32.6
Level of Service	F	E			F		C	F		C	F	C
Approach Delay (s/veh)		77.8			226.7			102.3			75.8	
Approach LOS		E			F			F			E	

### Intersection Summary

HCM 2000 Control Delay (s/veh)	89.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	151.4	Sum of lost time (s)	22.5
Intersection Capacity Utilization	69.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

# HCM 7th Signalized Intersection Summary

## 1: Glenwood Street & Marigold Street

06/24/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	365	6	76	34	4	16	49	1398	26	13	1280	258
Future Volume (veh/h)	365	6	76	34	4	16	49	1398	26	13	1280	258
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1772	1772	1772	1772	1772	1772	1772	1772	1772	1772	1772	1772
Adj Flow Rate, veh/h	489	0	0	38	4	18	54	1553	29	14	1422	287
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	590	310	0	49	5	23	181	1856	35	146	1775	792
Arrive On Green	0.17	0.00	0.00	0.05	0.05	0.05	0.04	0.55	0.55	0.02	0.53	0.53
Sat Flow, veh/h	3375	1772	0	1034	109	490	1688	3381	63	1688	3367	1502
Grp Volume(v), veh/h	489	0	0	60	0	0	54	772	810	14	1422	287
Grp Sat Flow(s),veh/h/ln	1688	1772	0	1632	0	0	1688	1683	1761	1688	1683	1502
Q Serve(g_s), s	14.8	0.0	0.0	3.8	0.0	0.0	1.5	40.4	40.6	0.4	36.5	11.8
Cycle Q Clear(g_c), s	14.8	0.0	0.0	3.8	0.0	0.0	1.5	40.4	40.6	0.4	36.5	11.8
Prop In Lane	1.00		0.00	0.63		0.30	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	590	310	0	77	0	0	181	924	966	146	1775	792
V/C Ratio(X)	0.83	0.00	0.00	0.78	0.00	0.00	0.30	0.84	0.84	0.10	0.80	0.36
Avail Cap(c_a), veh/h	1150	604	0	525	0	0	269	924	966	270	1848	824
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.1	0.0	0.0	49.8	0.0	0.0	18.2	19.9	19.9	18.4	20.4	14.6
Incr Delay (d2), s/veh	3.1	0.0	0.0	6.2	0.0	0.0	0.3	8.9	8.6	0.1	2.7	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	10.5	0.0	0.0	3.1	0.0	0.0	1.0	23.4	24.4	0.3	20.0	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	45.1	0.0	0.0	55.9	0.0	0.0	18.6	28.7	28.5	18.5	23.1	15.0
LnGrp LOS	D			E			B	C	C	B	C	B
Approach Vol, veh/h		489			60			1636			1723	
Approach Delay, s/veh		45.1			55.9			28.3			21.8	
Approach LOS		D			E			C			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		24.5	9.5	60.7		11.0	7.2	63.0				
Change Period (Y+Rc), s		6.0	5.5	5.0		6.0	5.5	5.0				
Max Green Setting (Gmax), s		36.0	9.5	58.0		34.0	9.5	58.0				
Max Q Clear Time (g_c+I1), s		16.8	3.5	38.5		5.8	2.4	42.6				
Green Ext Time (p_c), s		1.7	0.0	14.2		0.2	0.0	11.7				

### Intersection Summary

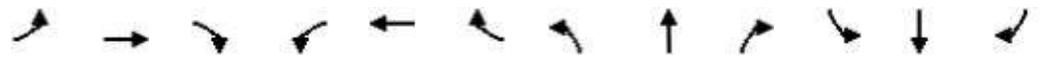
HCM 7th Control Delay, s/veh	27.9
HCM 7th LOS	C

### Notes

User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings  
1: Glenwood Street & Marigold Street

06/24/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	365	6	76	34	4	16	49	1398	26	13	1280	258
Future Volume (vph)	365	6	76	34	4	16	49	1398	26	13	1280	258
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	200		0	0		0	200		0	100		100
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.949			*0.958			0.997				0.850
Flt Protected	0.950	0.970			*0.970		0.950			0.950		
Satd. Flow (prot)	1593	1543	0	0	1640	0	1676	3343	0	1676	3353	1500
Flt Permitted	0.950	0.970			*0.119		*0.050			*0.065		
Satd. Flow (perm)	1593	1543	0	0	201	0	88	3343	0	115	3353	1500
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		*15			*13			*1			*16	99
Link Speed (mph)		30			25			35			35	
Link Distance (ft)		1956			351			1874			564	
Travel Time (s)		44.5			9.6			36.5			11.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	406	7	84	38	4	18	54	1553	29	14	1422	287
Shared Lane Traffic (%)	38%											
Lane Group Flow (vph)	252	245	0	0	60	0	54	1582	0	14	1422	287
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes						Yes			Yes	
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	2	2			6		3	8		7	4	
Permitted Phases				6			8			4		4

# Lanes, Volumes, Timings

## 1: Glenwood Street & Marigold Street

06/24/2024

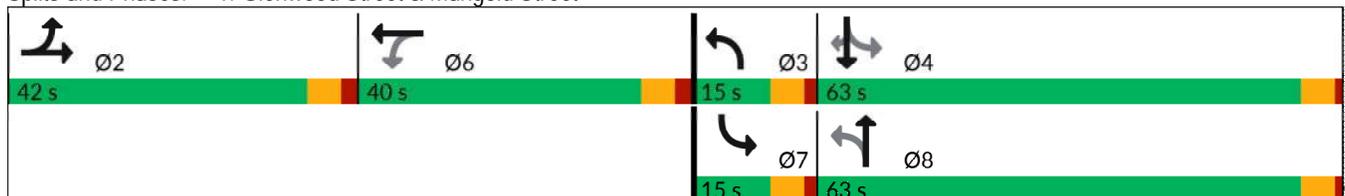


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2		6	6		3	8		7	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0		6.0	6.0		5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	40.0	40.0		40.0	40.0		15.0	26.0		15.0	26.0	26.0
Total Split (s)	42.0	42.0		40.0	40.0		15.0	63.0		15.0	63.0	63.0
Total Split (%)	26.3%	26.3%		25.0%	25.0%		9.4%	39.4%		9.4%	39.4%	39.4%
Maximum Green (s)	36.0	36.0		34.0	34.0		9.5	58.0		9.5	58.0	58.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		1.5	1.0		1.5	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0			6.0		5.5	5.0		5.5	5.0	5.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		2.0	2.0		2.0	4.0		2.0	4.0	4.0
Minimum Gap (s)	0.2	0.2		0.2	0.2		0.2	3.0		0.2	3.0	3.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	30.0		0.0	30.0	30.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	15.0		0.0	15.0	15.0
Recall Mode	None	None		None	None		None	Max		None	None	None
Walk Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	5.0
Flash Dont Walk (s)	29.0	29.0		29.0	29.0			16.0			16.0	16.0
Pedestrian Calls (#/hr)	0	0		0	0			0			0	0
Act Effct Green (s)	28.1	28.1			34.3		67.2	64.3		62.2	58.4	58.4
Actuated g/C Ratio	0.19	0.19			0.23		0.45	0.43		0.42	0.39	0.39
v/c Ratio	0.83	0.80			1.07		0.46	1.08		0.13	1.06	0.44
Control Delay (s/veh)	81.4	74.3			185.7		39.5	91.1		26.4	87.2	25.0
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	81.4	74.3			185.7		39.5	91.1		26.4	87.2	25.0
LOS	F	E			F		D	F		C	F	C
Approach Delay (s/veh)		78.0			185.7			89.5			76.4	
Approach LOS		E			F			F			E	

### Intersection Summary

Area Type: Other  
 Cycle Length: 160  
 Actuated Cycle Length: 148.1  
 Natural Cycle: 145  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.09  
 Intersection Signal Delay (s/veh): 83.7  
 Intersection LOS: F  
 Intersection Capacity Utilization 69.6%  
 ICU Level of Service C  
 Analysis Period (min) 15  
 \* User Entered Value

### Splits and Phases: 1: Glenwood Street & Marigold Street





**2026 BACKGROUND**

# HCM Signalized Intersection Capacity Analysis

## 1: Glenwood Street & Marigold Street

06/24/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	231	1	64	11	1	3	13	791	12	2	1606	199
Future Volume (vph)	231	1	64	11	1	3	13	791	12	2	1606	199
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0			6.0		5.5	5.0		5.5	5.0	5.0
Lane Util. Factor	0.95	0.95			1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.93			0.95		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	0.97			0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1593	1523			1640		1676	3346		1676	3353	1500
Flt Permitted	0.95	0.97			0.11		0.05	1.00		0.06	1.00	1.00
Satd. Flow (perm)	1593	1523			201		88	3346		115	3353	1500
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	257	1	71	12	1	3	14	879	13	2	1784	221
RTOR Reduction (vph)	0	13	0	0	12	0	0	0	0	0	7	41
Lane Group Flow (vph)	170	146	0	0	4	0	14	892	0	2	1777	180
Turn Type	Split	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	2	2			6		3	8		7	4	
Permitted Phases				6			8			4		4
Actuated Green, G (s)	15.4	15.4			6.0		66.9	65.2		64.9	64.2	64.2
Effective Green, g (s)	15.4	15.4			6.0		66.9	65.2		64.9	64.2	64.2
Actuated g/C Ratio	0.14	0.14			0.05		0.61	0.59		0.59	0.58	0.58
Clearance Time (s)	6.0	6.0			6.0		5.5	5.0		5.5	5.0	5.0
Vehicle Extension (s)	2.0	2.0			3.0		2.0	4.0		2.0	4.0	4.0
Lane Grp Cap (vph)	223	213			10		78	1986		77	1960	877
v/s Ratio Prot	c0.11	0.10					c0.00	0.27		0.00	c0.53	
v/s Ratio Perm					c0.02		0.11			0.02		0.12
v/c Ratio	0.76	0.68			0.37		0.17	0.44		0.02	0.90	0.20
Uniform Delay, d1	45.4	44.8			50.0		8.4	12.3		9.1	20.1	10.7
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	12.9	7.0			21.6		0.4	0.7		0.0	6.6	0.1
Delay (s)	58.3	51.9			71.7		8.8	13.0		9.2	26.7	10.9
Level of Service	E	D			E		A	B		A	C	B
Approach Delay (s/veh)		55.2			71.7			13.0			25.0	
Approach LOS		E			E			B			C	

### Intersection Summary

HCM 2000 Control Delay (s/veh)	25.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	109.8	Sum of lost time (s)	22.5
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

# HCM 7th Signalized Intersection Summary

## 1: Glenwood Street & Marigold Street

06/24/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	231	1	64	11	1	3	13	791	12	2	1606	199	
Future Volume (veh/h)	231	1	64	11	1	3	13	791	12	2	1606	199	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No			No			No			No		
Adj Sat Flow, veh/h/ln	1772	1772	1772	1772	1772	1772	1772	1772	1772	1772	1772	1772	
Adj Flow Rate, veh/h	165	131	71	12	1	3	14	879	13	2	1784	221	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	
Cap, veh/h	248	159	86	27	2	7	125	2046	30	351	1984	885	
Arrive On Green	0.15	0.15	0.15	0.02	0.02	0.02	0.02	0.60	0.60	0.00	0.59	0.59	
Sat Flow, veh/h	1688	1081	586	1241	103	310	1688	3396	50	1688	3367	1502	
Grp Volume(v), veh/h	165	0	202	16	0	0	14	436	456	2	1784	221	
Grp Sat Flow(s),veh/h/ln	1688	0	1666	1654	0	0	1688	1683	1763	1688	1683	1502	
Q Serve(g_s), s	9.2	0.0	11.7	1.0	0.0	0.0	0.3	13.8	13.8	0.0	46.1	7.1	
Cycle Q Clear(g_c), s	9.2	0.0	11.7	1.0	0.0	0.0	0.3	13.8	13.8	0.0	46.1	7.1	
Prop In Lane	1.00		0.35	0.75		0.19	1.00		0.03	1.00		1.00	
Lane Grp Cap(c), veh/h	248	0	245	36	0	0	125	1014	1062	351	1984	885	
V/C Ratio(X)	0.66	0.00	0.82	0.45	0.00	0.00	0.11	0.43	0.43	0.01	0.90	0.25	
Avail Cap(c_a), veh/h	576	0	569	565	0	0	259	1014	1062	507	2029	905	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	40.1	0.0	41.2	48.1	0.0	0.0	19.3	10.6	10.6	9.1	17.9	9.9	
Incr Delay (d2), s/veh	1.1	0.0	2.7	8.6	0.0	0.0	0.1	1.3	1.3	0.0	6.0	0.2	
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(95%),veh/ln	7.0	0.0	8.6	0.9	0.0	0.0	0.3	8.7	9.0	0.0	24.2	3.9	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d), s/veh	41.3	0.0	43.9	56.7	0.0	0.0	19.4	11.9	11.9	9.1	23.8	10.1	
LnGrp LOS	D		D	E			B	B	B	A	C	B	
Approach Vol, veh/h	367						16		906		2007		
Approach Delay, s/veh	42.7						56.7		12.0		22.3		
Approach LOS	D						E		B		C		
Timer - Assigned Phs	2		3		4		6		7		8		
Phs Duration (G+Y+Rc), s	20.7		7.1		63.7		8.1		5.8		65.0		
Change Period (Y+Rc), s	6.0		5.5		5.0		6.0		5.5		5.0		
Max Green Setting (Gmax), s	34.0		9.5		60.0		34.0		9.5		60.0		
Max Q Clear Time (g_c+I1), s	13.7		2.3		48.1		3.0		2.0		15.8		
Green Ext Time (p_c), s	0.9		0.0		10.5		0.0		0.0		10.0		

### Intersection Summary

HCM 7th Control Delay, s/veh	21.9
HCM 7th LOS	C

### Notes

User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings  
1: Glenwood Street & Marigold Street

06/24/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	231	1	64	11	1	3	13	791	12	2	1606	199
Future Volume (vph)	231	1	64	11	1	3	13	791	12	2	1606	199
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	200		0	0		0	200		0	100		100
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Fr <sub>t</sub>		0.933			*0.958			0.998				0.850
Fl <sub>t</sub> Protected	0.950	0.973			*0.970		0.950			0.950		
Satd. Flow (prot)	1593	1522	0	0	1640	0	1676	3346	0	1676	3353	1500
Fl <sub>t</sub> Permitted	0.950	0.973			*0.119		*0.050			*0.065		
Satd. Flow (perm)	1593	1522	0	0	201	0	88	3346	0	115	3353	1500
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		*15			*13			*1			*16	99
Link Speed (mph)		30			25			35			35	
Link Distance (ft)		1956			351			1874			564	
Travel Time (s)		44.5			9.6			36.5			11.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	257	1	71	12	1	3	14	879	13	2	1784	221
Shared Lane Traffic (%)	34%											
Lane Group Flow (vph)	170	159	0	0	16	0	14	892	0	2	1784	221
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes						Yes			Yes	
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	2	2			6		3	8		7	4	
Permitted Phases				6			8			4		4

# Lanes, Volumes, Timings

## 1: Glenwood Street & Marigold Street

06/24/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2		6	6		3	8		7	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0		6.0	6.0		5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	40.0	40.0		40.0	40.0		15.0	26.0		15.0	26.0	26.0
Total Split (s)	40.0	40.0		40.0	40.0		15.0	65.0		15.0	65.0	65.0
Total Split (%)	25.0%	25.0%		25.0%	25.0%		9.4%	40.6%		9.4%	40.6%	40.6%
Maximum Green (s)	34.0	34.0		34.0	34.0		9.5	60.0		9.5	60.0	60.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		1.5	1.0		1.5	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0			6.0		5.5	5.0		5.5	5.0	5.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0		3.0	3.0		2.0	4.0		2.0	4.0	4.0
Minimum Gap (s)	0.2	0.2		0.2	0.2		0.2	3.0		0.2	3.0	3.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	30.0		0.0	30.0	30.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	15.0		0.0	15.0	15.0
Recall Mode	None	None		None	None		None	Max		None	None	None
Walk Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	5.0
Flash Dont Walk (s)	29.0	29.0		29.0	29.0			16.0			16.0	16.0
Pedestrian Calls (#/hr)	0	0		0	0			0			0	0
Act Effct Green (s)	15.4	15.4			10.7		65.6	65.2		64.3	63.3	63.3
Actuated g/C Ratio	0.15	0.15			0.11		0.65	0.64		0.63	0.62	0.62
v/c Ratio	0.70	0.65			0.50		0.09	0.41		0.01	0.85	0.22
Control Delay (s/veh)	60.1	52.7			73.2		14.1	14.2		14.0	25.9	9.5
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	60.1	52.7			73.2		14.1	14.2		14.0	25.9	9.5
LOS	E	D			E		B	B		B	C	A
Approach Delay (s/veh)		56.6			73.2			14.2			24.1	
Approach LOS		E			E			B			C	

### Intersection Summary

Area Type:	Other
Cycle Length:	160
Actuated Cycle Length:	101.6
Natural Cycle:	145
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.85
Intersection Signal Delay (s/veh):	24.9
Intersection LOS:	C
Intersection Capacity Utilization:	66.2%
ICU Level of Service:	C
Analysis Period (min):	15
* User Entered Value	

### Splits and Phases: 1: Glenwood Street & Marigold Street



# HCM Signalized Intersection Capacity Analysis

## 1: Glenwood Street & Marigold Street

06/24/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	387	7	81	36	4	17	52	1483	27	14	1358	273
Future Volume (vph)	387	7	81	36	4	17	52	1483	27	14	1358	273
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0			6.0		5.5	5.0		5.5	5.0	5.0
Lane Util. Factor	0.95	0.95			1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.94			0.95		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	0.96			0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1593	1541			1640		1676	3344		1676	3353	1500
Flt Permitted	0.95	0.96			0.11		0.05	1.00		0.06	1.00	1.00
Satd. Flow (perm)	1593	1541			201		88	3344		115	3353	1500
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	430	8	90	40	4	19	58	1648	30	16	1509	303
RTOR Reduction (vph)	0	12	0	0	10	0	0	1	0	0	10	61
Lane Group Flow (vph)	271	245	0	0	53	0	58	1677	0	16	1499	242
Turn Type	Split	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	2	2			6		3	8		7	4	
Permitted Phases				6			8			4		4
Actuated Green, G (s)	29.7	29.7			35.2		69.6	63.4		61.8	59.5	59.5
Effective Green, g (s)	29.7	29.7			35.2		69.6	63.4		61.8	59.5	59.5
Actuated g/C Ratio	0.19	0.19			0.23		0.45	0.41		0.40	0.39	0.39
Clearance Time (s)	6.0	6.0			6.0		5.5	5.0		5.5	5.0	5.0
Vehicle Extension (s)	3.0	3.0			2.0		2.0	4.0		2.0	4.0	4.0
Lane Grp Cap (vph)	309	298			46		104	1384		69	1303	582
v/s Ratio Prot	c0.17	0.16					c0.02	c0.50		0.00	0.45	
v/s Ratio Perm					c0.26		0.23			0.09		0.16
v/c Ratio	0.87	0.82			1.15		0.55	1.21		0.23	1.15	0.41
Uniform Delay, d1	59.9	59.1			58.9		23.5	44.8		27.4	46.8	34.1
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	23.1	16.4			180.6		3.6	102.3		0.6	77.0	0.6
Delay (s)	83.1	75.6			239.6		27.2	147.1		28.1	123.8	34.8
Level of Service	F	E			F		C	F		C	F	C
Approach Delay (s/veh)		79.4			239.6			143.1			108.2	
Approach LOS		E			F			F			F	

### Intersection Summary

HCM 2000 Control Delay (s/veh)	121.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	153.1	Sum of lost time (s)	22.5
Intersection Capacity Utilization	73.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

# HCM 7th Signalized Intersection Summary

## 1: Glenwood Street & Marigold Street

06/24/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	387	7	81	36	4	17	52	1483	27	14	1358	273
Future Volume (veh/h)	387	7	81	36	4	17	52	1483	27	14	1358	273
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1772	1772	1772	1772	1772	1772	1772	1772	1772	1772	1772	1772
Adj Flow Rate, veh/h	520	0	0	40	4	19	58	1648	30	16	1509	303
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	623	327	0	52	5	24	163	1814	33	124	1736	774
Arrive On Green	0.18	0.00	0.00	0.05	0.05	0.05	0.04	0.54	0.54	0.02	0.52	0.52
Sat Flow, veh/h	3375	1772	0	1036	104	492	1688	3383	61	1688	3367	1502
Grp Volume(v), veh/h	520	0	0	63	0	0	58	819	859	16	1509	303
Grp Sat Flow(s),veh/h/ln	1688	1772	0	1632	0	0	1688	1683	1761	1688	1683	1502
Q Serve(g_s), s	15.8	0.0	0.0	4.1	0.0	0.0	1.7	46.7	47.0	0.5	41.8	13.0
Cycle Q Clear(g_c), s	15.8	0.0	0.0	4.1	0.0	0.0	1.7	46.7	47.0	0.5	41.8	13.0
Prop In Lane	1.00		0.00	0.63		0.30	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	623	327	0	81	0	0	163	903	944	124	1736	774
V/C Ratio(X)	0.84	0.00	0.00	0.78	0.00	0.00	0.36	0.91	0.91	0.13	0.87	0.39
Avail Cap(c_a), veh/h	1143	600	0	537	0	0	248	903	944	245	1806	805
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.8	0.0	0.0	49.9	0.0	0.0	21.7	22.2	22.3	21.7	22.6	15.6
Incr Delay (d2), s/veh	3.0	0.0	0.0	5.8	0.0	0.0	0.5	14.4	14.2	0.2	4.9	0.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	11.0	0.0	0.0	3.2	0.0	0.0	1.2	27.9	29.1	0.3	23.1	7.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	44.8	0.0	0.0	55.7	0.0	0.0	22.2	36.7	36.5	21.9	27.5	16.1
LnGrp LOS	D			E			C	D	D	C	C	B
Approach Vol, veh/h		520			63			1736			1828	
Approach Delay, s/veh		44.8			55.7			36.1			25.6	
Approach LOS		D			E			D			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		25.6	9.6	59.8		11.3	7.4	62.0				
Change Period (Y+Rc), s		6.0	5.5	5.0		6.0	5.5	5.0				
Max Green Setting (Gmax), s		36.0	9.5	57.0		35.0	9.5	57.0				
Max Q Clear Time (g_c+I1), s		17.8	3.7	43.8		6.1	2.5	49.0				
Green Ext Time (p_c), s		1.8	0.0	10.8		0.2	0.0	6.9				

### Intersection Summary

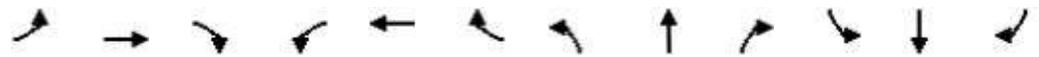
HCM 7th Control Delay, s/veh	32.9
HCM 7th LOS	C

### Notes

User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings  
1: Glenwood Street & Marigold Street

06/24/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	387	7	81	36	4	17	52	1483	27	14	1358	273
Future Volume (vph)	387	7	81	36	4	17	52	1483	27	14	1358	273
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	200		0	0		0	200		0	100		100
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.947			*0.958			0.997				0.850
Flt Protected	0.950	0.970			*0.970		0.950			0.950		
Satd. Flow (prot)	1593	1540	0	0	1640	0	1676	3343	0	1676	3353	1500
Flt Permitted	0.950	0.970			*0.119		*0.050			*0.065		
Satd. Flow (perm)	1593	1540	0	0	201	0	88	3343	0	115	3353	1500
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		*15			*13			*1			*16	99
Link Speed (mph)		30			25			35			35	
Link Distance (ft)		1956			351			1874			564	
Travel Time (s)		44.5			9.6			36.5			11.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	430	8	90	40	4	19	58	1648	30	16	1509	303
Shared Lane Traffic (%)	37%											
Lane Group Flow (vph)	271	257	0	0	63	0	58	1678	0	16	1509	303
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes						Yes			Yes	
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	2	2			6		3	8		7	4	
Permitted Phases				6			8			4		4

# Lanes, Volumes, Timings

## 1: Glenwood Street & Marigold Street

06/24/2024

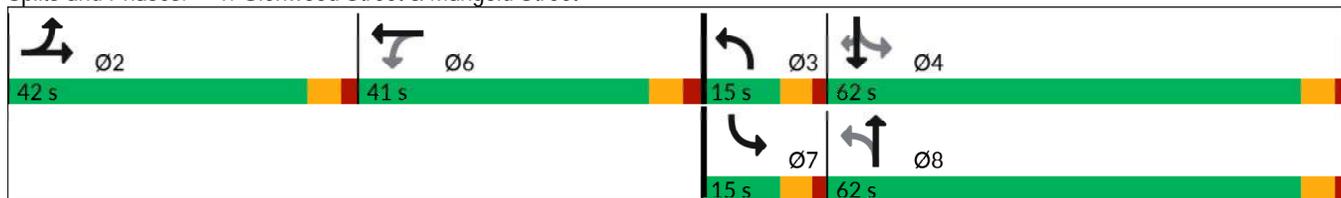


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2		6	6		3	8		7	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0		6.0	6.0		5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	40.0	40.0		40.0	40.0		15.0	26.0		15.0	26.0	26.0
Total Split (s)	42.0	42.0		41.0	41.0		15.0	62.0		15.0	62.0	62.0
Total Split (%)	26.3%	26.3%		25.6%	25.6%		9.4%	38.8%		9.4%	38.8%	38.8%
Maximum Green (s)	36.0	36.0		35.0	35.0		9.5	57.0		9.5	57.0	57.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		1.5	1.0		1.5	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0			6.0		5.5	5.0		5.5	5.0	5.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		2.0	2.0		2.0	4.0		2.0	4.0	4.0
Minimum Gap (s)	0.2	0.2		0.2	0.2		0.2	3.0		0.2	3.0	3.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	30.0		0.0	30.0	30.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	15.0		0.0	15.0	15.0
Recall Mode	None	None		None	None		None	Max		None	None	None
Walk Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	5.0
Flash Dont Walk (s)	29.0	29.0		29.0	29.0			16.0			16.0	16.0
Pedestrian Calls (#/hr)	0	0		0	0			0			0	0
Act Effct Green (s)	29.7	29.7			35.2		66.3	63.4		61.2	57.4	57.4
Actuated g/C Ratio	0.20	0.20			0.23		0.44	0.42		0.41	0.38	0.38
v/c Ratio	0.86	0.81			1.10		0.50	1.18		0.15	1.16	0.47
Control Delay (s/veh)	83.5	74.3			195.7		43.0	129.6		27.9	124.5	27.2
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	83.5	74.3			195.7		43.0	129.6		27.9	124.5	27.2
LOS	F	E			F		D	F		C	F	C
Approach Delay (s/veh)		79.1			195.7			126.7			107.6	
Approach LOS		E			F			F			F	

### Intersection Summary

Area Type:	Other
Cycle Length:	160
Actuated Cycle Length:	149.8
Natural Cycle:	145
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.19
Intersection Signal Delay (s/veh):	113.3
Intersection LOS:	F
Intersection Capacity Utilization:	73.2%
ICU Level of Service:	D
Analysis Period (min):	15
* User Entered Value	

### Splits and Phases: 1: Glenwood Street & Marigold Street





**2026 PLUS PROJECT**

# HCM Signalized Intersection Capacity Analysis

## 1: Glenwood Street & Marigold Street

06/24/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	260	1	82	11	1	3	19	791	12	2	1606	208
Future Volume (vph)	260	1	82	11	1	3	19	791	12	2	1606	208
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0			6.0		5.5	5.0		5.5	5.0	5.0
Lane Util. Factor	0.95	0.95			1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.92			0.95		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	0.97			0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1593	1514			1640		1676	3346		1676	3353	1500
Flt Permitted	0.95	0.97			0.11		0.05	1.00		0.06	1.00	1.00
Satd. Flow (perm)	1593	1514			201		88	3346		115	3353	1500
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	289	1	91	12	1	3	21	879	13	2	1784	231
RTOR Reduction (vph)	0	13	0	0	12	0	0	0	0	0	7	42
Lane Group Flow (vph)	197	171	0	0	4	0	21	892	0	2	1777	189
Turn Type	Split	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	2	2			6		3	8		7	4	
Permitted Phases				6			8			4		4
Actuated Green, G (s)	17.7	17.7			6.1		67.4	65.5		65.0	64.3	64.3
Effective Green, g (s)	17.7	17.7			6.1		67.4	65.5		65.0	64.3	64.3
Actuated g/C Ratio	0.16	0.16			0.05		0.60	0.58		0.58	0.57	0.57
Clearance Time (s)	6.0	6.0			6.0		5.5	5.0		5.5	5.0	5.0
Vehicle Extension (s)	2.0	2.0			3.0		2.0	4.0		2.0	4.0	4.0
Lane Grp Cap (vph)	250	238			10		79	1948		76	1916	857
v/s Ratio Prot	c0.12	0.11					c0.00	0.27		0.00	c0.53	
v/s Ratio Perm					c0.02		0.15			0.02		0.13
v/c Ratio	0.78	0.72			0.37		0.26	0.45		0.02	0.92	0.22
Uniform Delay, d1	45.5	45.0			51.3		9.1	13.3		10.0	21.9	11.8
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	14.0	8.7			21.6		0.6	0.7		0.0	8.4	0.1
Delay (s)	59.5	53.7			72.9		9.8	14.1		10.0	30.4	11.9
Level of Service	E	D			E		A	B		B	C	B
Approach Delay (s/veh)		56.7			72.9			14.0			28.3	
Approach LOS		E			E			B			C	

### Intersection Summary

HCM 2000 Control Delay (s/veh)	27.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	112.5	Sum of lost time (s)	22.5
Intersection Capacity Utilization	67.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

# HCM 7th Signalized Intersection Summary

## 1: Glenwood Street & Marigold Street

06/24/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	260	1	82	11	1	3	19	791	12	2	1606	208
Future Volume (veh/h)	260	1	82	11	1	3	19	791	12	2	1606	208
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1772	1772	1772	1772	1772	1772	1772	1772	1772	1772	1772	1772
Adj Flow Rate, veh/h	191	139	91	12	1	3	21	879	13	2	1784	231
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	278	165	108	27	2	7	126	2014	30	341	1932	862
Arrive On Green	0.16	0.16	0.16	0.02	0.02	0.02	0.02	0.59	0.59	0.00	0.57	0.57
Sat Flow, veh/h	1688	1000	654	1241	103	310	1688	3396	50	1688	3367	1502
Grp Volume(v), veh/h	191	0	230	16	0	0	21	436	456	2	1784	231
Grp Sat Flow(s),veh/h/ln	1688	0	1654	1654	0	0	1688	1683	1763	1688	1683	1502
Q Serve(g_s), s	11.0	0.0	13.9	1.0	0.0	0.0	0.5	14.7	14.7	0.1	49.6	8.0
Cycle Q Clear(g_c), s	11.0	0.0	13.9	1.0	0.0	0.0	0.5	14.7	14.7	0.1	49.6	8.0
Prop In Lane	1.00		0.40	0.75		0.19	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	278	0	273	35	0	0	126	998	1046	341	1932	862
V/C Ratio(X)	0.69	0.00	0.84	0.45	0.00	0.00	0.17	0.44	0.44	0.01	0.92	0.27
Avail Cap(c_a), veh/h	556	0	545	545	0	0	244	998	1046	492	1958	873
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.6	0.0	41.8	49.9	0.0	0.0	21.8	11.5	11.5	10.0	19.9	11.1
Incr Delay (d2), s/veh	1.1	0.0	2.8	8.8	0.0	0.0	0.2	1.4	1.3	0.0	8.0	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.1	0.0	9.8	0.9	0.0	0.0	0.5	9.2	9.5	0.0	26.6	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	41.7	0.0	44.6	58.7	0.0	0.0	22.1	12.9	12.9	10.0	27.9	11.3
LnGrp LOS	D		D	E			C	B	B	B	C	B
Approach Vol, veh/h		421			16			913			2017	
Approach Delay, s/veh		43.3			58.7			13.1			26.0	
Approach LOS		D			E			B			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		23.0	7.8	64.2		8.2	5.8	66.2				
Change Period (Y+Rc), s		6.0	5.5	5.0		6.0	5.5	5.0				
Max Green Setting (Gmax), s		34.0	9.5	60.0		34.0	9.5	60.0				
Max Q Clear Time (g_c+I1), s		15.9	2.5	51.6		3.0	2.1	16.7				
Green Ext Time (p_c), s		1.1	0.0	7.7		0.0	0.0	9.9				

### Intersection Summary

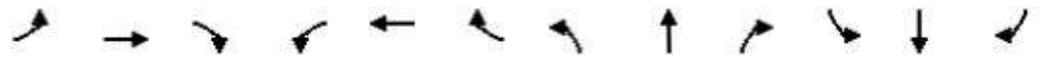
HCM 7th Control Delay, s/veh	24.8
HCM 7th LOS	C

### Notes

User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings  
1: Glenwood Street & Marigold Street

06/24/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	260	1	82	11	1	3	19	791	12	2	1606	208
Future Volume (vph)	260	1	82	11	1	3	19	791	12	2	1606	208
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	200		0	0		0	200		0	100		100
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.926			*0.958			0.998				0.850
Flt Protected	0.950	0.976			*0.970		0.950			0.950		
Satd. Flow (prot)	1593	1515	0	0	1640	0	1676	3346	0	1676	3353	1500
Flt Permitted	0.950	0.976			*0.119		*0.050			*0.065		
Satd. Flow (perm)	1593	1515	0	0	201	0	88	3346	0	115	3353	1500
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		*15			*13			*1			*16	99
Link Speed (mph)		30			25			35			35	
Link Distance (ft)		1956			351			1874			564	
Travel Time (s)		44.5			9.6			36.5			11.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	289	1	91	12	1	3	21	879	13	2	1784	231
Shared Lane Traffic (%)	32%											
Lane Group Flow (vph)	197	184	0	0	16	0	21	892	0	2	1784	231
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes						Yes			Yes	
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	2	2			6		3	8		7	4	
Permitted Phases				6			8			4		4

# Lanes, Volumes, Timings

## 1: Glenwood Street & Marigold Street

06/24/2024

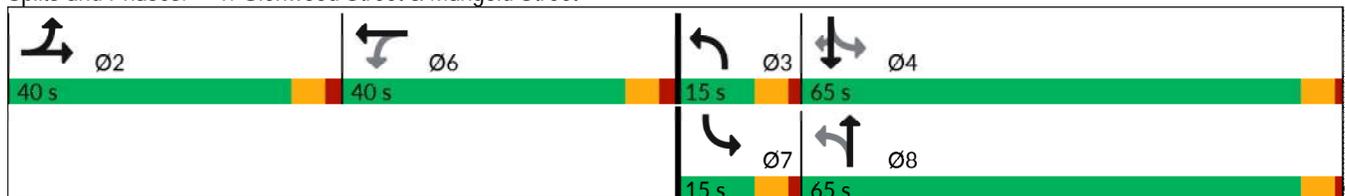


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2		6	6		3	8		7	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0		6.0	6.0		5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	40.0	40.0		40.0	40.0		15.0	26.0		15.0	26.0	26.0
Total Split (s)	40.0	40.0		40.0	40.0		15.0	65.0		15.0	65.0	65.0
Total Split (%)	25.0%	25.0%		25.0%	25.0%		9.4%	40.6%		9.4%	40.6%	40.6%
Maximum Green (s)	34.0	34.0		34.0	34.0		9.5	60.0		9.5	60.0	60.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		1.5	1.0		1.5	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0			6.0		5.5	5.0		5.5	5.0	5.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0		3.0	3.0		2.0	4.0		2.0	4.0	4.0
Minimum Gap (s)	0.2	0.2		0.2	0.2		0.2	3.0		0.2	3.0	3.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	30.0		0.0	30.0	30.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	15.0		0.0	15.0	15.0
Recall Mode	None	None		None	None		None	Max		None	None	None
Walk Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	5.0
Flash Dont Walk (s)	29.0	29.0		29.0	29.0			16.0			16.0	16.0
Pedestrian Calls (#/hr)	0	0		0	0			0			0	0
Act Effct Green (s)	17.7	17.7			10.9		66.0	65.5		64.5	63.4	63.4
Actuated g/C Ratio	0.17	0.17			0.10		0.63	0.63		0.62	0.61	0.61
v/c Ratio	0.72	0.68			0.50		0.15	0.42		0.01	0.87	0.24
Control Delay (s/veh)	59.8	53.2			75.6		15.7	15.5		15.5	28.2	10.6
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	59.8	53.2			75.6		15.7	15.5		15.5	28.2	10.6
LOS	E	D			E		B	B		B	C	B
Approach Delay (s/veh)		56.6			75.6			15.5			26.3	
Approach LOS		E			E			B			C	

### Intersection Summary

Area Type:	Other
Cycle Length:	160
Actuated Cycle Length:	104.4
Natural Cycle:	145
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.87
Intersection Signal Delay (s/veh):	27.0
Intersection LOS:	C
Intersection Capacity Utilization:	67.7%
ICU Level of Service:	C
Analysis Period (min):	15
* User Entered Value	

### Splits and Phases: 1: Glenwood Street & Marigold Street



HCM 7th TWSC  
2: Site Access & Marigold Street

06/24/2024

Intersection						
Int Delay, s/veh	1.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	331	5	17	174	15	57
Future Vol, veh/h	331	5	17	174	15	57
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	75	-	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	368	6	19	193	17	63

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	373	0	602 371
Stage 1	-	-	-	-	371 -
Stage 2	-	-	-	-	231 -
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	-	-	1185	-	463 675
Stage 1	-	-	-	-	698 -
Stage 2	-	-	-	-	807 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1185	-	455 675
Mov Cap-2 Maneuver	-	-	-	-	545 -
Stage 1	-	-	-	-	698 -
Stage 2	-	-	-	-	794 -

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.72	11.39
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	643	-	-	1185	-
HCM Lane V/C Ratio	0.124	-	-	0.016	-
HCM Control Delay (s/veh)	11.4	-	-	8.1	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0	-

# HCM Signalized Intersection Capacity Analysis

## 1: Glenwood Street & Marigold Street

06/24/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	402	7	90	36	4	17	66	1483	27	14	1358	296
Future Volume (vph)	402	7	90	36	4	17	66	1483	27	14	1358	296
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0			6.0		5.5	5.0		5.5	5.0	5.0
Lane Util. Factor	0.95	0.95			1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.94			0.95		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	0.97			0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1593	1538			1640		1676	3344		1676	3353	1500
Flt Permitted	0.95	0.97			0.11		0.05	1.00		0.06	1.00	1.00
Satd. Flow (perm)	1593	1538			201		88	3344		115	3353	1500
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	447	8	100	40	4	19	73	1648	30	16	1509	329
RTOR Reduction (vph)	0	12	0	0	10	0	0	1	0	0	10	61
Lane Group Flow (vph)	282	261	0	0	53	0	73	1677	0	16	1499	268
Turn Type	Split	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	2	2			6		3	8		7	4	
Permitted Phases				6			8			4		4
Actuated Green, G (s)	31.3	31.3			35.1		74.0	66.1		63.0	60.6	60.6
Effective Green, g (s)	31.3	31.3			35.1		74.0	66.1		63.0	60.6	60.6
Actuated g/C Ratio	0.20	0.20			0.22		0.47	0.42		0.40	0.39	0.39
Clearance Time (s)	6.0	6.0			6.0		5.5	5.0		5.5	5.0	5.0
Vehicle Extension (s)	3.0	3.0			2.0		2.0	4.0		2.0	4.0	4.0
Lane Grp Cap (vph)	316	305			44		121	1404		69	1290	577
v/s Ratio Prot	c0.18	0.17					c0.03	c0.50		0.00	0.45	
v/s Ratio Perm					c0.26		0.25			0.09		0.18
v/c Ratio	0.89	0.85			1.20		0.60	1.19		0.23	1.16	0.46
Uniform Delay, d1	61.4	60.8			61.1		23.1	45.6		28.5	48.4	36.2
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	25.4	20.2			201.0		5.7	94.8		0.6	81.8	0.8
Delay (s)	86.9	81.1			262.2		28.8	140.5		29.2	130.2	37.0
Level of Service	F	F			F		C	F		C	F	D
Approach Delay (s/veh)		84.0			262.2			135.8			112.8	
Approach LOS		F			F			F			F	

### Intersection Summary

HCM 2000 Control Delay (s/veh)	120.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	157.4	Sum of lost time (s)	22.5
Intersection Capacity Utilization	81.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

# HCM 7th Signalized Intersection Summary

## 1: Glenwood Street & Marigold Street

06/24/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	402	7	90	36	4	17	66	1483	27	14	1358	296
Future Volume (veh/h)	402	7	90	36	4	17	66	1483	27	14	1358	296
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1772	1772	1772	1772	1772	1772	1772	1772	1772	1772	1772	1772
Adj Flow Rate, veh/h	278	245	100	40	4	19	73	1648	30	16	1509	329
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	396	280	114	51	5	24	143	1709	31	100	1628	726
Arrive On Green	0.23	0.23	0.23	0.05	0.05	0.05	0.04	0.51	0.51	0.02	0.48	0.48
Sat Flow, veh/h	1688	1196	488	1036	104	492	1688	3383	61	1688	3367	1502
Grp Volume(v), veh/h	278	0	345	63	0	0	73	819	859	16	1509	329
Grp Sat Flow(s),veh/h/ln	1688	0	1684	1632	0	0	1688	1683	1761	1688	1683	1502
Q Serve(g_s), s	17.6	0.0	22.9	4.4	0.0	0.0	2.5	54.5	54.9	0.6	48.8	16.9
Cycle Q Clear(g_c), s	17.6	0.0	22.9	4.4	0.0	0.0	2.5	54.5	54.9	0.6	48.8	16.9
Prop In Lane	1.00		0.29	0.63		0.30	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	396	0	395	81	0	0	143	850	889	100	1628	726
V/C Ratio(X)	0.70	0.00	0.87	0.78	0.00	0.00	0.51	0.96	0.97	0.16	0.93	0.45
Avail Cap(c_a), veh/h	522	0	521	491	0	0	215	850	889	209	1649	736
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.8	0.0	42.9	54.7	0.0	0.0	26.7	27.7	27.8	27.1	28.1	19.9
Incr Delay (d2), s/veh	2.8	0.0	12.2	5.9	0.0	0.0	1.1	23.1	23.0	0.3	9.6	0.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	12.1	0.0	16.2	3.5	0.0	0.0	1.8	34.3	35.9	0.4	28.3	9.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	43.6	0.0	55.1	60.5	0.0	0.0	27.7	50.8	50.8	27.4	37.7	20.5
LnGrp LOS	D		E	E			C	D	D	C	D	C
Approach Vol, veh/h		623			63			1751			1854	
Approach Delay, s/veh		50.0			60.5			49.9			34.6	
Approach LOS		D			E			D			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		33.3	10.0	61.3		11.8	7.5	63.8				
Change Period (Y+Rc), s		6.0	5.5	5.0		6.0	5.5	5.0				
Max Green Setting (Gmax), s		36.0	9.5	57.0		35.0	9.5	57.0				
Max Q Clear Time (g_c+I1), s		24.9	4.5	50.8		6.4	2.6	56.9				
Green Ext Time (p_c), s		2.3	0.0	5.4		0.2	0.0	0.1				

### Intersection Summary

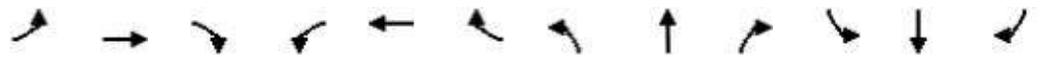
HCM 7th Control Delay, s/veh	43.4
HCM 7th LOS	D

### Notes

User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings  
1: Glenwood Street & Marigold Street

06/24/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	402	7	90	36	4	17	66	1483	27	14	1358	296
Future Volume (vph)	402	7	90	36	4	17	66	1483	27	14	1358	296
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	200		0	0		0	200		0	100		100
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Fr <sub>t</sub>		0.945			*0.958			0.997				0.850
Fl <sub>t</sub> Protected	0.950	0.971			*0.970		0.950			0.950		
Satd. Flow (prot)	1593	1538	0	0	1640	0	1676	3343	0	1676	3353	1500
Fl <sub>t</sub> Permitted	0.950	0.971			*0.119		*0.050			*0.065		
Satd. Flow (perm)	1593	1538	0	0	201	0	88	3343	0	115	3353	1500
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		*15			*13			*1			*16	99
Link Speed (mph)		30			25			35			35	
Link Distance (ft)		1956			351			1874			564	
Travel Time (s)		44.5			9.6			36.5			11.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	447	8	100	40	4	19	73	1648	30	16	1509	329
Shared Lane Traffic (%)	37%											
Lane Group Flow (vph)	282	273	0	0	63	0	73	1678	0	16	1509	329
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes						Yes			Yes	
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	2	2			6		3	8		7	4	
Permitted Phases				6			8			4		4

Lanes, Volumes, Timings  
1: Glenwood Street & Marigold Street

06/24/2024

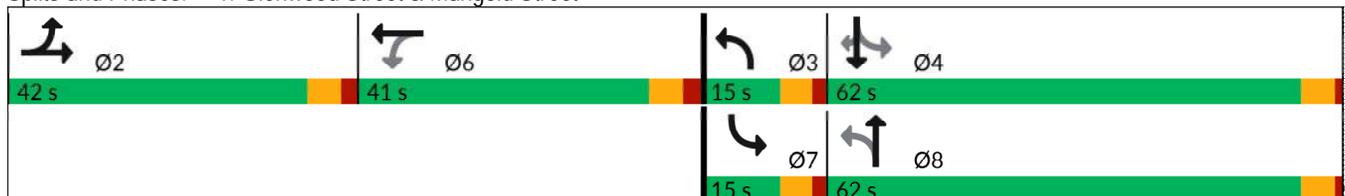


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2		6	6		3	8		7	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0		6.0	6.0		5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	40.0	40.0		40.0	40.0		15.0	26.0		15.0	26.0	26.0
Total Split (s)	42.0	42.0		41.0	41.0		15.0	62.0		15.0	62.0	62.0
Total Split (%)	26.3%	26.3%		25.6%	25.6%		9.4%	38.8%		9.4%	38.8%	38.8%
Maximum Green (s)	36.0	36.0		35.0	35.0		9.5	57.0		9.5	57.0	57.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		1.5	1.0		1.5	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0			6.0		5.5	5.0		5.5	5.0	5.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		2.0	2.0		2.0	4.0		2.0	4.0	4.0
Minimum Gap (s)	0.2	0.2		0.2	0.2		0.2	3.0		0.2	3.0	3.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	30.0		0.0	30.0	30.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	15.0		0.0	15.0	15.0
Recall Mode	None	None		None	None		None	Max		None	None	None
Walk Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	5.0
Flash Dont Walk (s)	29.0	29.0		29.0	29.0			16.0			16.0	16.0
Pedestrian Calls (#/hr)	0	0		0	0			0			0	0
Act Effct Green (s)	31.2	31.2			35.1		69.2	66.0		62.1	57.1	57.1
Actuated g/C Ratio	0.20	0.20			0.23		0.45	0.43		0.40	0.37	0.37
v/c Ratio	0.87	0.84			1.14		0.60	1.16		0.15	1.20	0.53
Control Delay (s/veh)	85.7	78.5			205.4		52.3	123.2		28.2	140.6	30.2
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	85.7	78.5			205.4		52.3	123.2		28.2	140.6	30.2
LOS	F	E			F		D	F		C	F	C
Approach Delay (s/veh)		82.2			205.4			120.3			120.1	
Approach LOS		F			F			F			F	

Intersection Summary

Area Type:	Other
Cycle Length:	160
Actuated Cycle Length:	153.9
Natural Cycle:	145
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.20
Intersection Signal Delay (s/veh):	116.5
Intersection LOS:	F
Intersection Capacity Utilization:	81.4%
ICU Level of Service:	D
Analysis Period (min):	15
* User Entered Value	

Splits and Phases: 1: Glenwood Street & Marigold Street



HCM 7th TWSC  
2: Site Access & Marigold Street

06/24/2024

Intersection						
Int Delay, s/veh	1.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑		↑	↑	↑	↑
Traffic Vol, veh/h	433	12	45	255	8	29
Future Vol, veh/h	433	12	45	255	8	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	75	-	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	481	13	50	283	9	32

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	494	0	871
Stage 1	-	-	-	-	488
Stage 2	-	-	-	-	383
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1069	-	321
Stage 1	-	-	-	-	617
Stage 2	-	-	-	-	689
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1069	-	306
Mov Cap-2 Maneuver	-	-	-	-	430
Stage 1	-	-	-	-	617
Stage 2	-	-	-	-	657

Approach	EB	WB	NB
HCM Control Delay, s/v	0	1.28	12.23
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	539	-	-	1069	-
HCM Lane V/C Ratio	0.076	-	-	0.047	-
HCM Control Delay (s/veh)	12.2	-	-	8.5	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-



**APPENDIX E**  
**SITE GENERATED TRAFFIC PERCENTAGES**

Trip Assignment AM													
INT	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total
1	6	0	0	0	0	9	29	0	18	0	0	0	62
A	15	0	57	0	0	0	0	0	5	17	0	0	94

Trip Assignment PM													
INT	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total
1	14	0	0	0	0	23	15	0	9	0	0	0	61
A	8	0	29	0	0	0	0	0	12	45	0	0	94

2026 Plus Project AM													
INT	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total
1	19	791	12	2	1,606	208	260	1	82	11	1	3	2,996
A	15	0	57	0	0	0	0	331	5	17	174	0	599

2026 Plus Project PM													
INT	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total
1	66	1,483	27	14	1,358	296	402	7	90	36	4	17	3,800
A	8	0	29	0	0	0	0	433	12	45	255	0	782

2026 Site Traffic Percentage AM													
INT	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total
1	31.6%	0.0%	0.0%	0.0%	0.0%	4.3%	11.2%	0.0%	22.0%	0.0%	0.0%	0.0%	2.1%
A	100.0%		100.0%					0.0%	100.0%	100.0%	0.0%		15.7%

2026 Site Traffic Percentage PM													
INT	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total
1	21.2%	0.0%	0.0%	0.0%	0.0%	7.8%	3.7%	0.0%	10.0%	0.0%	0.0%	0.0%	1.6%
A	100.0%		100.0%					0.0%	100.0%	100.0%	0.0%		12.0%



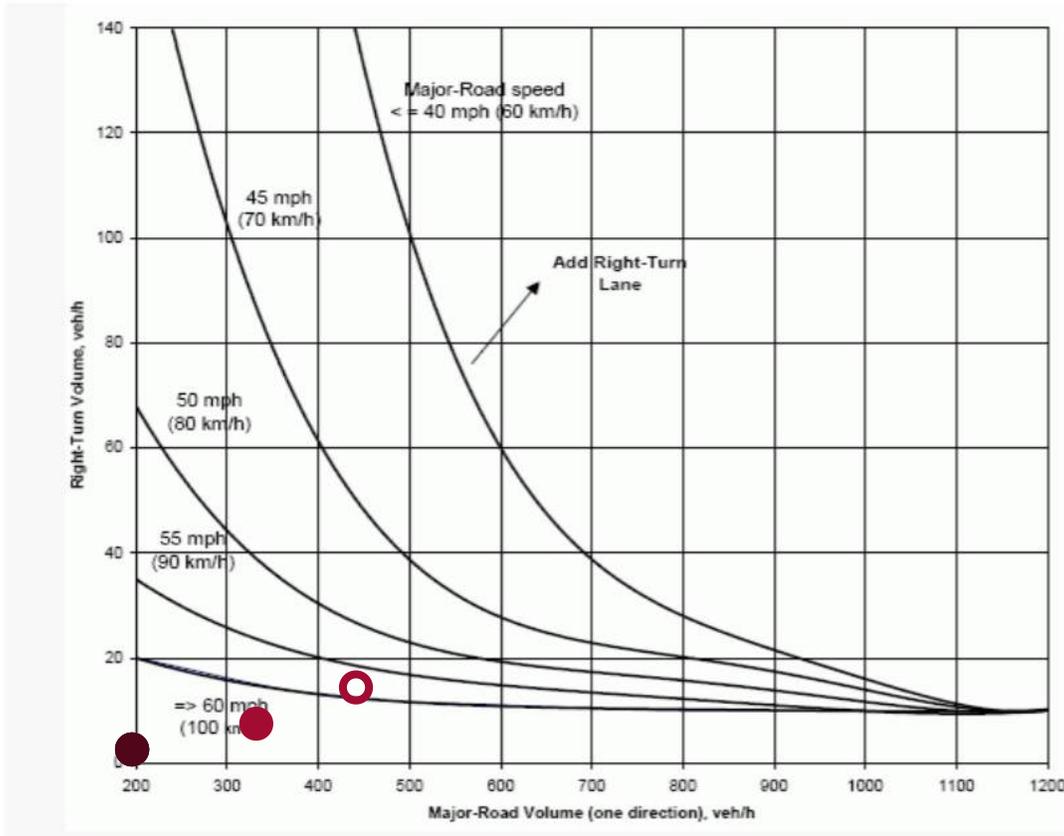
**APPENDIX F**  
**TURN LANE ANALYSES**

## ACHD Right-Turn Lane Analysis - Two-Lane Roadway

Major Road: Marigold Street  
 Minor Road: Driveway A  
 Direction: Eastbound

Speed: 30 mph

**Figure 6** – Right-Turn Lane Guidelines for Two-Lane Roadways



Result		AM	PM
Not Warranted	2026 Plus Project	●	○

**Needed Data:**

1. Advancing Volume (veh/hr) - The advancing volume is to include the right-turn, left-turn and through movements in the same direction as the right-turning vehicle.
2. Right-Turning Volume (veh/hr) - The right-turning volume is the number of advancing vehicles turning right.
3. Operating Speed (mph) - The greatest of anticipated operating speed, measured 85th percentile speed or posted speed.

Note: Right-turn lane is not needed for right-turn volume less than 10 vph. However, criteria other than volume, e.g. crash experience, may be used to justify a right-turn lane.

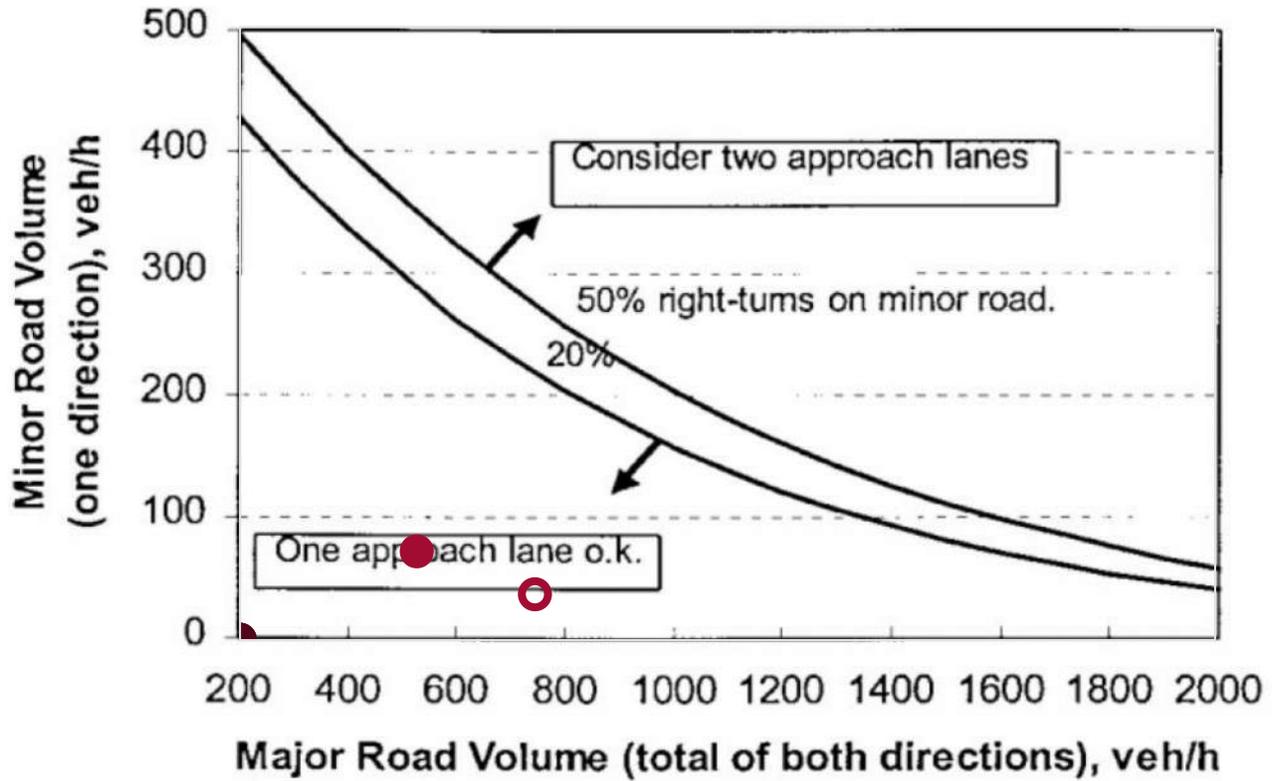
If the combination of major road approach volume and right-turn volume intersects above or to the right of the speed trend line corresponding to the major road operating speed, then a right-turn lane is appropriate.

Source: NCHRP Report 279 and 457

## Minor Road Approach Turn Lane Analysis

Major Road: Marigold Street  
 Minor Road: Driveway A  
 Direction: Northbound

Right Turns: 79 %



Result	2026 Plus Project	AM	PM
Not Warranted	●	●	○

Notes:



**APPENDIX G**  
**TIS SCOPING CORRESPONDENCE**

**From:** Beckman, Robert  
**Sent:** Wednesday, May 29, 2024 8:55 AM  
**To:** Brown, Olivia; Scheibner, Alec  
**Subject:** FW: Boise Bible College Multi-Family Development  
**Attachments:** [2022-1208-BBC.pdf](#); [BBC\\_2023.02.07.pdf](#)

Boise Bible #1

**Robert Beckman, P.E., PTOE**

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**From:** Beckman, Robert <[Robert.Beckman@kimley-horn.com](mailto:Robert.Beckman@kimley-horn.com)>  
**Sent:** Friday, May 17, 2024 9:26 AM  
**To:** Jenah Thornborrow <[jthorn@GARDENCITYIDAHO.ORG](mailto:jthorn@GARDENCITYIDAHO.ORG)>; Zach Turner <[zach@rennisoncompanies.com](mailto:zach@rennisoncompanies.com)>; Hanna Veal <[hveal@GARDENCITYIDAHO.ORG](mailto:hveal@GARDENCITYIDAHO.ORG)>  
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**Subject:** RE: Boise Bible College Multi-Family Development

Hi Jenah –

Thanks for clarify this. Per your comments we have revised our scope of work as indicated below. Also, copying ACHD and ITD for informational purposes. We expect to get started on this review early next week with Rennison approval. Let me know if anything further is needed.

## Scope of Services

Kimley-Horn will provide the traffic analysis services specifically set forth below.

### Assumptions

- A full Traffic Impact Study (TIS) prepared in accordance with ACHD and Idaho Transportation Department (ITD) standards will not be required.
- A scoping memorandum will not be prepared however the intended scope of work will be confirmed with Garden City, ACHD, and ITD prior to commencing the traffic review.
- A COMPASS Area of Influence Review model run is not anticipated as part of this review.
- Client to provide all site development information including anticipated land uses, sizes, and project phasing.
- New traffic counts will not be collected. Existing (2023) directional peak hour traffic data available through COMPASS will be used for review purposes.
- Any service not identified in this scope of work will be considered additional services and will be billed as additional services and performed at our then current hourly rates.

### Task 1 – Scoping Coordination

Garden City has indicated a full TIS is not required for purposes of this review. Instead, a trip generation and traffic distribution review will be completed. Kimley-Horn will furnish the intended scope of work to Garden City, ACHD, and ITD for approval before initiating the traffic review.

#### ***Task 2 – Analysis and Technical Memorandum***

This development is expected to be completed by 2026, therefore multiple phases and forecast scenarios will not be considered. COMPASS volumes will be grown by 3% per year to estimate 2026 background traffic conditions.

Trip generation estimates will be developed in accordance with ITE Trip Generation Manual procedures. Trip distribution will be determined based upon likely travel patterns, population densities and primary work locations. Site trips will be assigned to the network in accordance with these parameters. 2026 background peak hour volumes will be combined with the estimated full build site trips to arrive at 2026 plus project (total) traffic conditions.

An intersection traffic operations review will only be completed at Marigold Street and Glenwood Street using traffic counts available from a previous study. Additionally, a roadway segment review will be completed along 1) Coffey Street, south of Marigold Street and 2) Marigold Street, west of the development, and 3) Marigold Street, east of the development by comparing 2023 plus project volumes to ACHD Level-of-Service Planning Thresholds (based on functional classification and lane configuration). The percent contribution that Boise Bible College Multifamily site trips will have as compared to total traffic will also be assessed.

Potential mitigation measures will be identified where minimum acceptable conditions cannot be achieved. Glenwood Street and Marigold Street is known to be currently operating below acceptable LOS thresholds. Potential mitigation measures have been developed for the Glenwood Corridor Study being completed for ITD. These improvements will be assumed if appropriate for this review. Impacts to eastbound vehicle queuing will also be reviewed at this location. For all roadway segments the minimum acceptable projected level of service shall be LOS E for Principal Arterials and Minor Arterials and LOS D for Collectors. The acceptable level of service for intersections should be based on a maximum Volume to Capacity (V/C) ratio of 0.90.

Kimley-Horn will prepare a draft technical memorandum summarizing the traffic review and conclusions. The draft technical memorandum will be submitted to the Client for review and comment. The draft technical memorandum will undergo one round of appropriate revisions and then be submitted to Garden City and other necessary review agencies for acceptance. Additional comments resulting in significant re-analysis or analysis of additional scenarios beyond the agreed upon scope will require authorization of additional services.

The Client will be responsible for all agency submittal fees, if required.

#### ***Task 3 – Coordination Meetings***

Kimley-Horn will coordinate with the agencies identified in completion of this review. It is anticipated that coordination will be limited to phone and/or virtual meetings not to exceed a total of two hours.

**Robert Beckman, P.E., PTOE**

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**From:** Jenah Thornborrow <[jthorn@GARDENCITYIDAHO.ORG](mailto:jthorn@GARDENCITYIDAHO.ORG)>

**Sent:** Tuesday, May 14, 2024 7:08 PM

**To:** Zach Turner <[zach@rennisoncompanies.com](mailto:zach@rennisoncompanies.com)>; Beckman, Robert <