



TRAFFIC IMPACT STUDY

QUIKTRIP 4201

Commerce City, CO

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DATE:
January 24, 2023
REVISED: May 17, 2023
REVISED: September 8, 2023
REVISED: January 5, 2024



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- A. Full Sized Conceptual Site Plan
- B. LOS Descriptions
- C. Crash Data & Traffic Counts
- D. Existing Synchro Outputs
- E. Background (without site development) Synchro Outputs
- F. Future (with site development) Synchro Outputs

Executive Summary

Site Location and Study Area

The property that comprises the application area for the proposed development is approximately 2.4 acres in size and is identified as Adams County Parcel Number 0172128300113. It is located north of the CO-2/Quebec Parkway/Rosemary Street intersection in Commerce City, CO. It is zoned Agricultural District (AG) and is currently occupied by a residential building.

The study area is generally bounded by CO-2 to the east, Rosemary Street to the west and south, and property lines to the north. The study area for the project includes those intersections identified by Staff that could be affected by the proposed development:

- CO-2/Quebec Parkway/Rosemary Street
- 80th Avenue/Rosemary Street
- Proposed site accesses

Description of Proposed Development

The Applicant, QuikTrip, seeks to develop the property with a gas station with convenience store use. Site access is proposed via one right-in/right-out (RIRO) access and one full movement access on Rosemary Street.

Conclusions and Recommendations

Conclusions

Based on the results of this traffic impact study, the following may be concluded:

- Under existing traffic conditions, the intersections within the study area currently operate at overall acceptable levels of service (LOS) “C” or better during the weekday AM and PM peak hours, and queues remain within their respective storage lengths.
- Under background future 2025 and 2045 traffic conditions, without the development of the subject site, delays would increase slightly at study intersections due to regional traffic growth. The intersections are still forecasted to operate at LOS “D” or better.
- In the background future 2045 scenario, the SBL queue at the CO-2/Quebec Parkway/Rosemary Street intersection is expected to exceed its storage length during the AM peak hour.
- The proposed site development would generate, upon completion and full occupancy, 104 net new weekday AM and 91 net new weekday PM peak hour vehicle trips as well as 1,029 net new weekday daily trips.
- Under total future 2025 and 2045 traffic conditions with development of the site, the intersections within the study area would operate consistent with background conditions.

Recommendations

- It is recommended that the Applicant provide access consistent with the site plan contained herein.

I. Introduction

Overview

This report presents the results of a Traffic Impact Study (TIS) conducted in support of a site plan to develop a gas station with convenience store use in Commerce City, CO. Currently the site vacant.

Per the requirements of the City of Commerce City Engineering Construction Standards and Specifications, a Transportation Impact Study is required to support the proposed development.

Site Location and Study Area

The property that comprises the application area for the proposed development is approximately 2.4 acres in size and is identified as Adams County Parcel Number 0172128300113. It is located north of the CO-2/Quebec Parkway/Rosemary Street intersection in Commerce City, CO, as shown on Figure 1-1. It is zoned Agricultural District (AG) and is currently occupied by a residential building. Site access is proposed via one right-in/right-out (RIRO) access and one full movement access on Rosemary Street.

The Applicant, QuikTrip, seeks to develop the property with a gas station with convenience store use. A reduction of the Applicant's proposed conceptual site plan is provided on Figure 1-2. A full-size copy of the plan is provided in Appendix A.

The study area is generally bounded by CO-2 to the east, Rosemary Street to the west and south, and property lines to the north

Tasks undertaken in the course of this study included the following:

1. Reviewed the Applicant's proposed development plans and other background data.
2. Conducted a virtual field reconnaissance of existing roadway and intersection geometries, traffic controls, and speed limits.
3. Conducted peak hour turning movement counts at the key intersections.
4. Analyzed existing levels of service at each of the key study intersections based on the methodologies set forth in the Highway Capacity Guidelines (HCM) 6th Edition as reported by Synchro version 11.
5. Forecasted background future traffic volumes based on baseline traffic counts and regional traffic growth for 2025 (build-out) and 2045 (long-range) conditions.
6. Calculated background levels of service at each of the key study intersections for the projected build-out years based on background future traffic forecasts, and the existing lane use and traffic controls.
7. Estimated the number of AM and PM peak hour trips that would be generated by the proposed use based on the Institute of Transportation Engineers (ITE) Trip Generation 11th Edition rates/equations and methodologies
8. Prepared AM and PM peak hour total future traffic forecasts based on background traffic forecasts plus site traffic assignments for the 2025 (build-out), as well as 2045 (long-range) conditions.

9. Calculated total future levels of service for each of the key study intersections based on projected total future traffic forecasts, existing/future traffic controls and intersection geometries.
10. Identified roadway improvements required to accommodate future traffic volumes as necessary.

Sources of data for this analysis included the Institute of Transportation Engineers (ITE), Trip Generation, 11th edition, the Highway Capacity Guidelines HCM 6th, QuikTrip, City of Commerce City, Colorado and the files/library of Galloway.

Site Description and Access

Site Conditions

The terrain proximate to and surrounding the site is generally classified as “level”.

Hazardous Conditions

Based on the field reconnaissance in the vicinity of the subject site, no hazardous features or constraints were identified.

Proposed Site Access

Access to the site is being proposed via one right-in/right-out (RIRO) access and one full movement access on Rosemary Street.

Existing Zoning

The subject site is currently zoned Agricultural District (AG) and is currently occupied by a residential building. Figure 1-3 depicts the existing zoning associated with the subject property, as well as neighboring properties as shown on the City of Commerce City zoning map.

Nearby Uses

The properties surrounding the subject site are generally developed with a mix of industrial and commercial uses.



FIGURE 1-1
SITE LOCATION



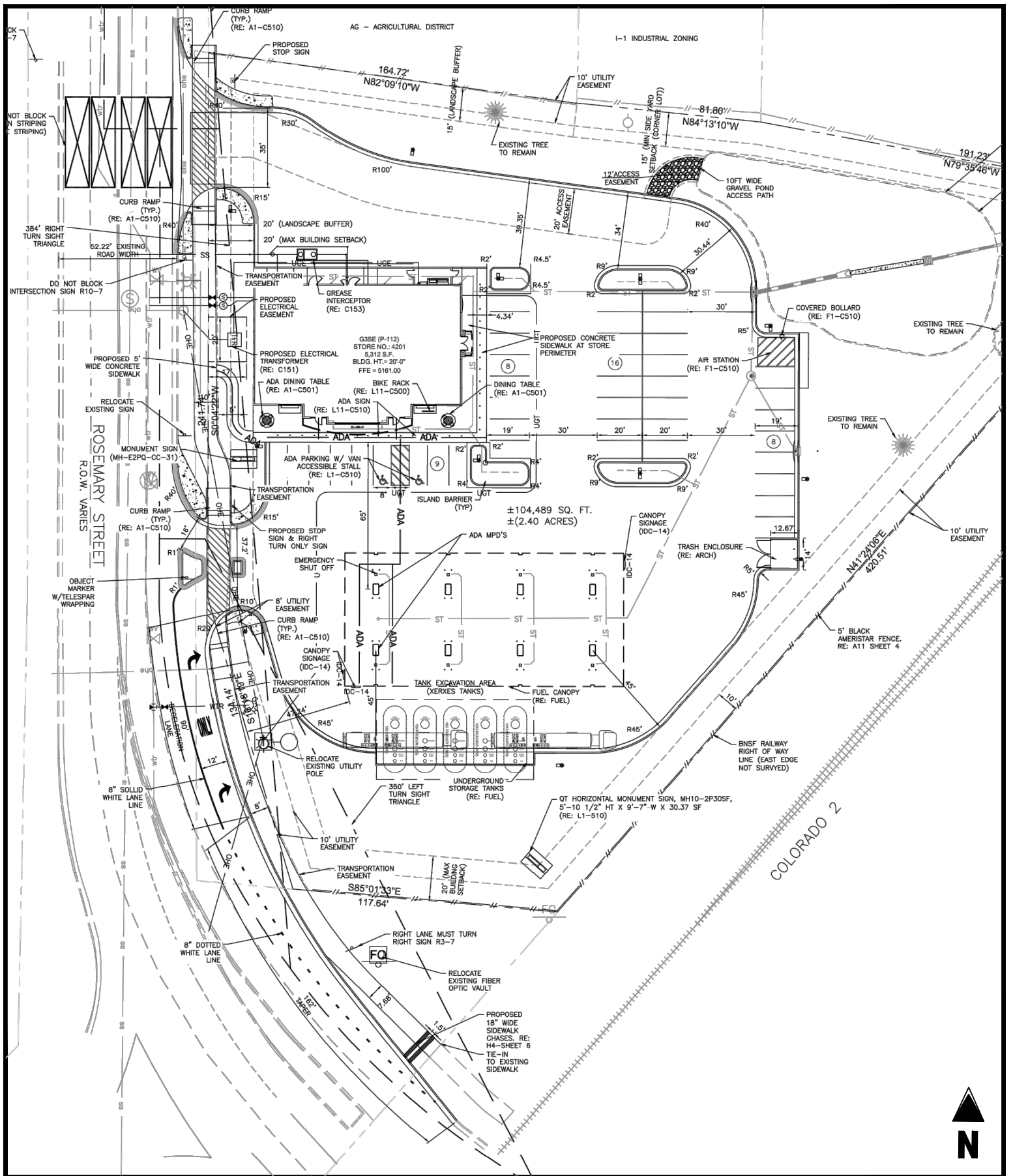


FIGURE 1-2
SITE PLAN



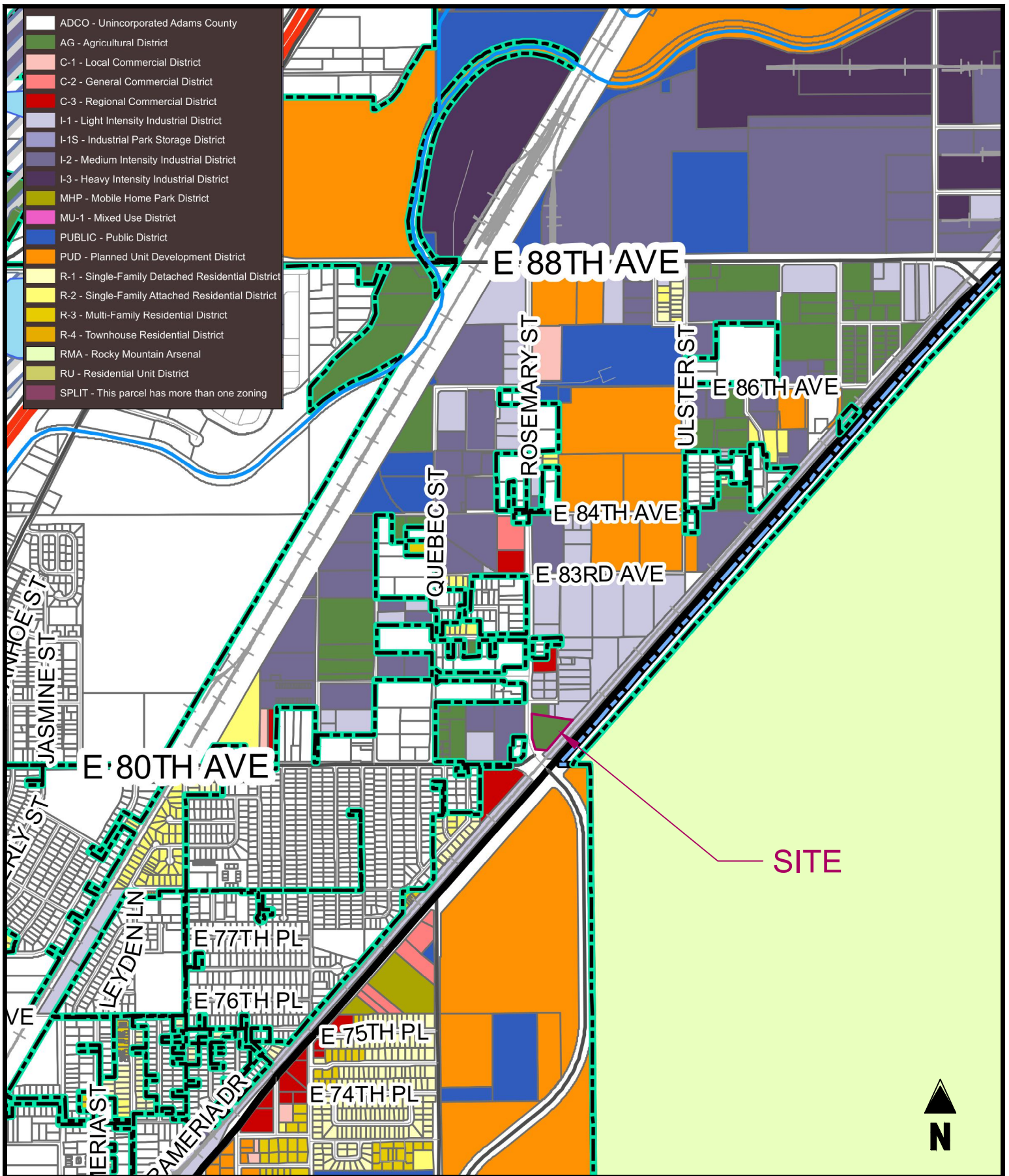


FIGURE 1-3
EXISTING ZONING



II. Background Information

Study Area

The study area was determined by a review of intersections that would experience a significant portion of turning movement volumes generated by the site. As such, the traffic study focuses primarily on the following intersections:

Study Intersections

- CO-2/Quebec Parkway/Rosemary Street
- 80th Avenue/Rosemary Street
- Proposed site accesses

Study Assumptions

For purposes of this analysis only, the proposed uses are assumed to be built and occupied in one distinct phase. It was assumed that the use would be built and operational in study year 2025. A long-term analysis of 2045 is also provided.

Study Methodology

Synchro software version 11 was used to evaluate levels of service at each of the study intersections during the weekday AM and PM peak hours. Synchro is a macroscopic model used for optimizing traffic signal timing and performing capacity analyses. The software can model existing traffic signal timings or optimize splits, offsets, and cycle lengths for individual intersections, an arterial, or a complete network. Synchro allows the user to evaluate the effects of changing intersection geometrics, traffic demands, traffic control, and/or traffic signal settings as well as optimize traffic signal timings.

The levels of service reported for the signalized and unsignalized intersections analyzed herein were taken from the Highway Capacity Manual (HCM) 6th reports generated by Synchro 11. Level of service descriptions are included in Appendix B.

In order to maintain a conservative analysis a default percent heavy vehicle (%HV) factor of 6% was used for all movements in the study area consistent with collected data.

Existing Roadway Network

Regional access to the subject site is provided via CO-2 and Quebec Parkway, and local access is provided via Rosemary Street. Figure 2-1 depicts existing lane use and traffic controls in the vicinity of the subject site. The following provides a description of each of the roadways within the study network.

CO-2

CO-2 is constructed as an east/west four-lane highway with turn lanes at major intersections and a posted speed limit of 45 mph in the vicinity of the subject site. The City of Commerce City classifies the road as a Principal Arterial. The intersection with the Quebec Parkway/Rosemary Street operates under signalized control.

Quebec Parkway

Quebec Parkway is constructed as a north/south four-lane divided section with turn lanes at major intersections and a posted speed limit of 45 mph in the vicinity of the subject site. The City of Commerce City classifies the road as a Principal Arterial. The intersection with the CO-2/Rosemary Street operates under signalized control.

Rosemary Street

Rosemary Street is constructed as a north/south four-lane divided section with a posted speed limit of 35 mph in the vicinity of the subject site. The City of Commerce City classifies the road as a Major Collector. The intersection with the CO-2/Quebec Parkway operates under signalized control.

Crash Data

Crash data for traffic incidents that occurred between 2018-2022 in the vicinity of the subject site were obtained from the City. The data shows a total of 74 crashes reported at or near the CO-2/Quebec Parkway/Rosemary Street intersection and 63 crashes reported at various location along Rosemary Street over the 5 year period.

| # of Crashes: (2018-2022) | CO-2/Quebec Parkway/Rosemary Street: |
|------------------------------|--------------------------------------|
| 45 | At Intersection/Intersection Related |
| 29 | Non-Intersection |
| 74 | TOTAL |

This represents 9 at intersection crashes per year.

The provided data reports a total of 63 crashes at the following locations along Rosemary Street:

| # of Crashes: (2018-2022) | Location: |
|------------------------------|---|
| 2 | 80 th Avenue/Rosemary Street |
| 12 | 81 st Avenue/Rosemary Street |
| 4 | 82 nd Avenue/Rosemary Street |
| 2 | 83 rd Avenue/Rosemary Street |
| 20 | 84 th Avenue/Rosemary Street |
| 19 | 86 th Avenue/Rosemary Street |
| 4 | Rosemary Street |
| 63 | TOTAL |

This represents an average of 1.8 crashes per year at each intersection.

No specific safety issue was identified related to the reported crash data. Reduced data set provided within Appendix C.

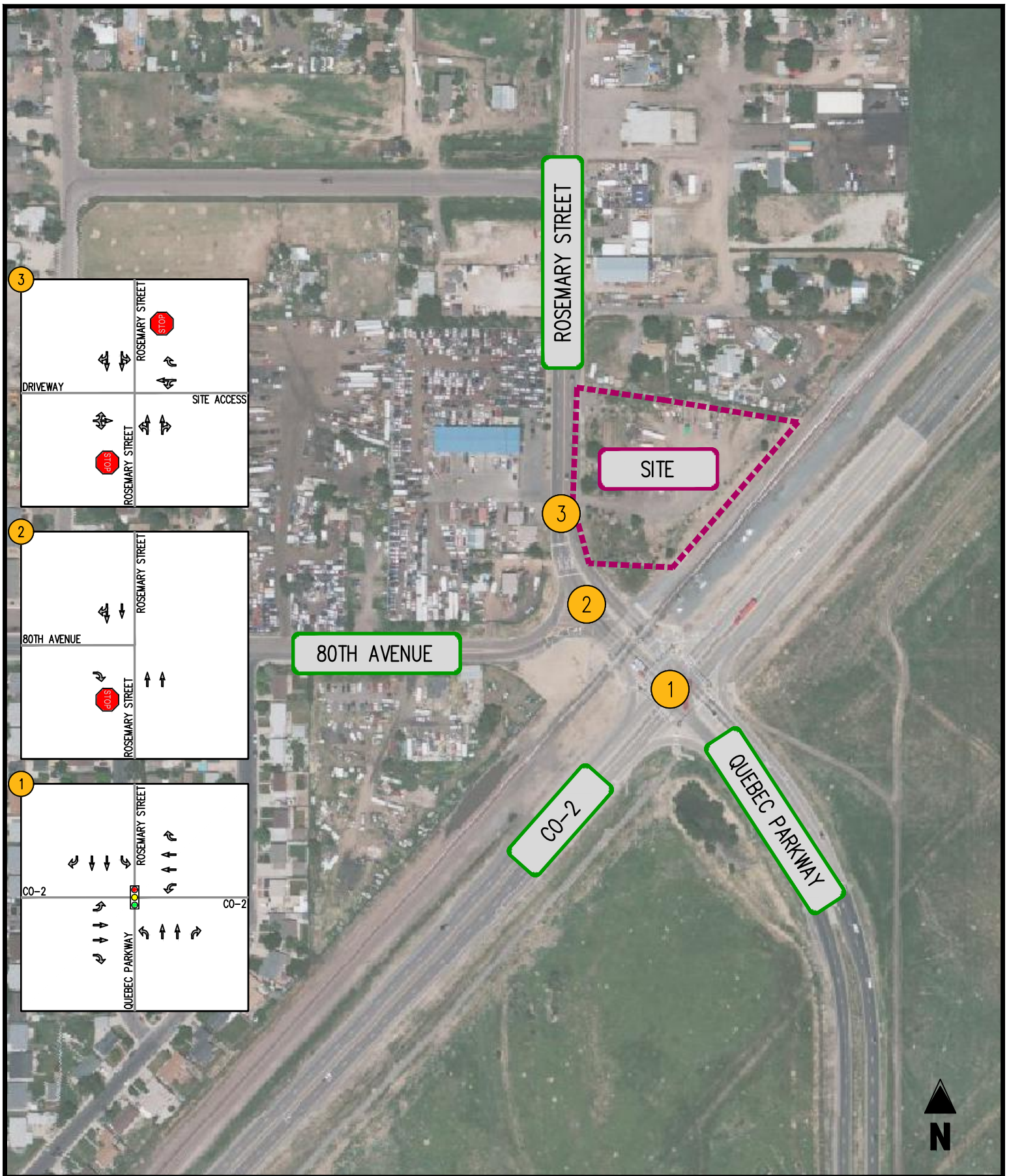


FIGURE 2-1
EXISTING LANE USE AND TRAFFIC CONTROL



III. Analysis of Existing Conditions

Traffic Volumes

Weekday AM and PM peak hour traffic volumes counts were conducted on Wednesday November 02, 2022 from 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM at the study intersections by IDAX Data Solutions.

For purposes of this study, peak hour of the network was selected based on a review of the intersection volumes. These volumes were balanced to the greatest volumes observed to provide a conservative analysis.

The existing volumes are summarized on Figure 3-1. Copies of traffic counts are included in Appendix C. Existing peak hour factors (PHF) were also computed by approach from the traffic counts and applied to the analysis with a minimum of 0.85 and a maximum of 0.92.

Operational Analysis

Capacity/level of service (LOS) analyses were conducted at the study intersections based on the existing lane use and traffic controls shown on Figure 2-1 and existing baseline vehicular traffic volumes shown on Figure 3-1. The capacity analysis results are presented in Appendix D and summarized in Table 3-1 and on Figure 3-2.

As shown in Table 3-1, the signalized intersections in the study area currently operate at overall acceptable levels of service (LOS) "C" or better during the weekday peak hours. The stop control intersections operate at LOS "B" or better during the weekday peak hours.

Existing Intersection Queues

An analysis of intersection 95th-percentile queues was performed at key locations. The results of the queuing analysis, as reported by Synchro, are summarized in Table 3-2. As shown in the table, queues are contained within their effective storage.

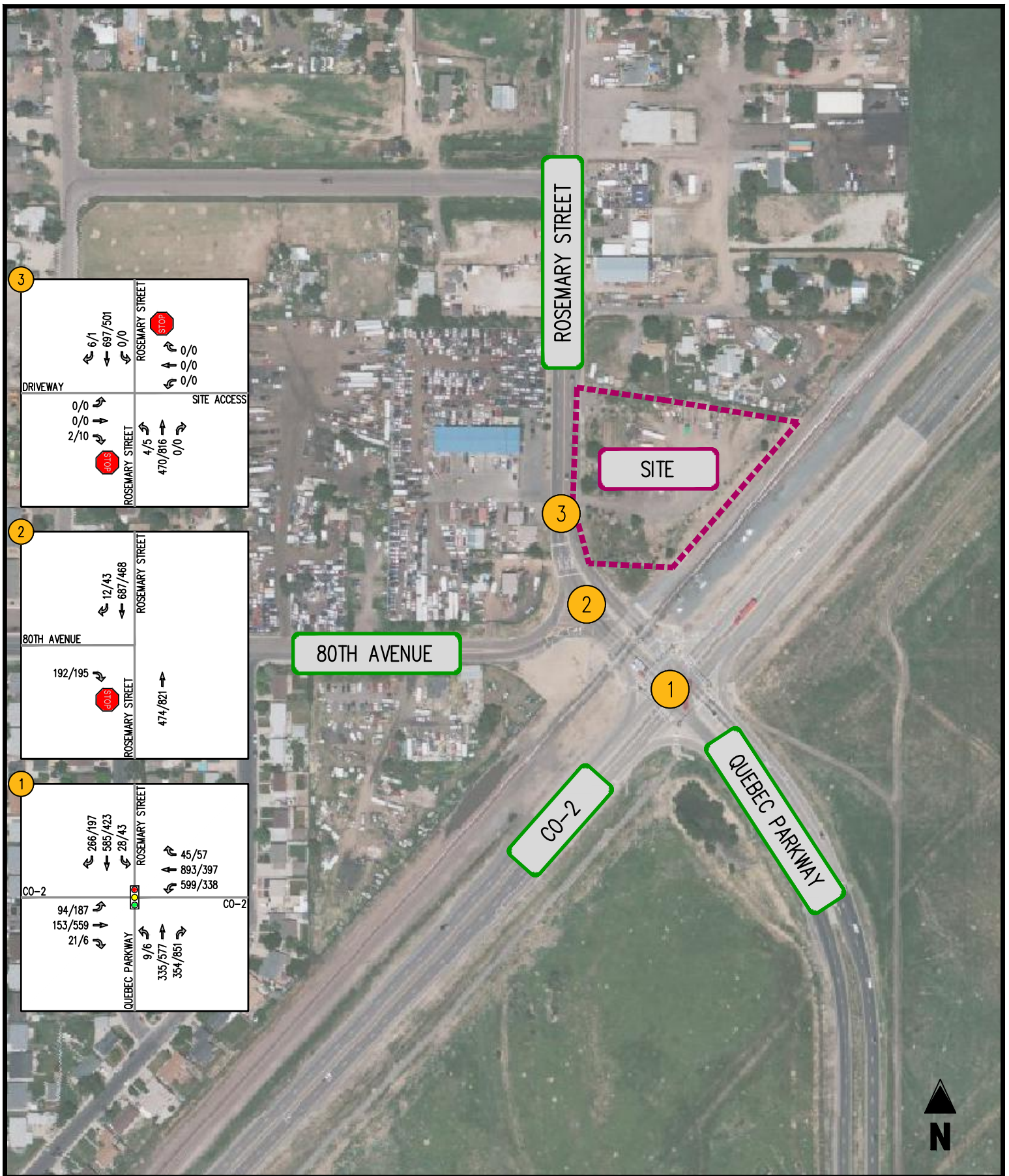


FIGURE 3-1
EXISTING VOLUMES

A/A INTERSECTION LOS
0000/0000 (AM PEAK HOUR/PM PEAK HOUR)

- ← MOVEMENT
- 🚦 SIGNALIZED INTERSECTION
- 🛑 STOP SIGN
- 🚧 YIELD SIGN



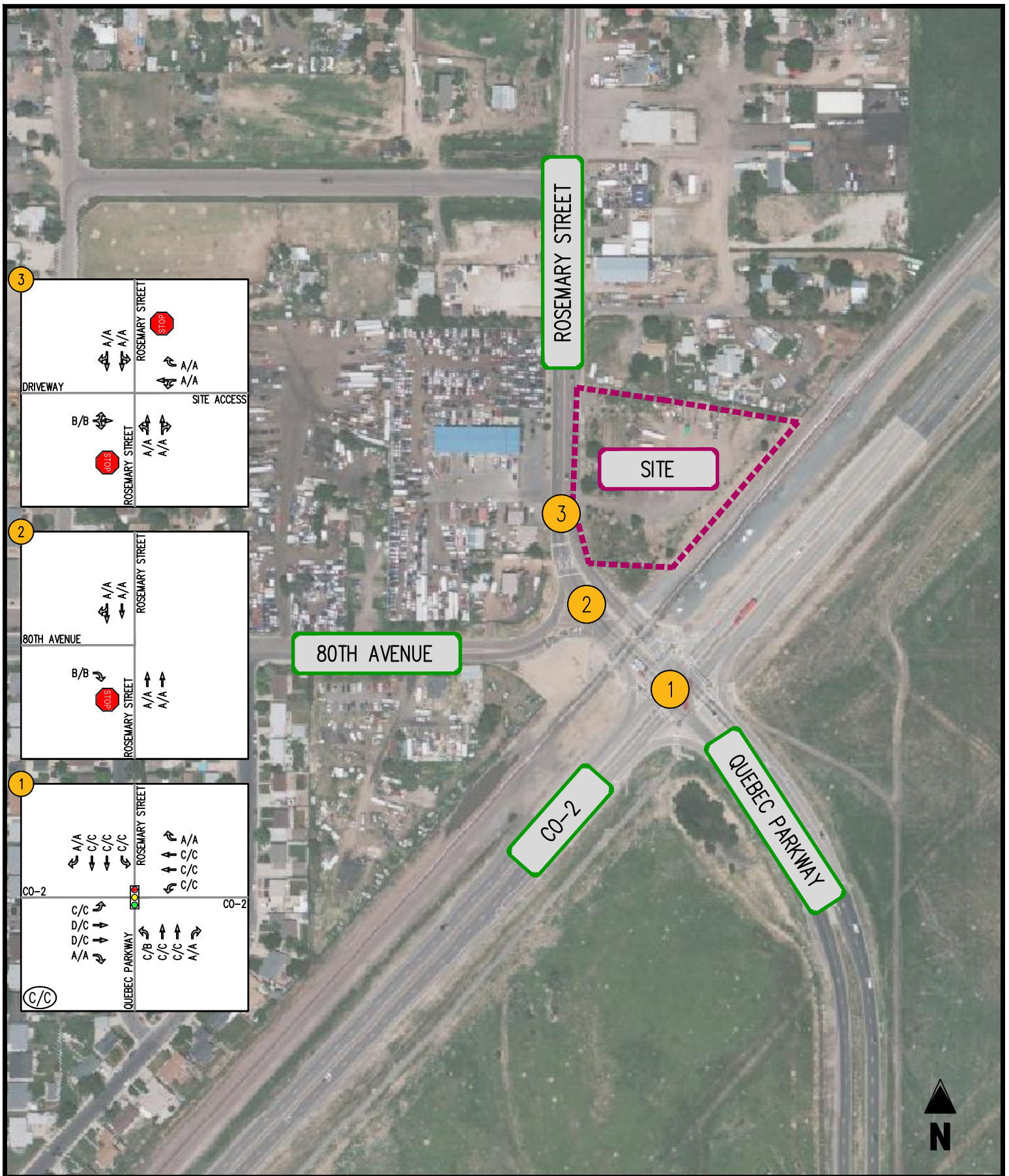


FIGURE 3-2
EXISTING LOS

QUIKTRIP 4201
COMMERCE CITY, CO

(A/A) INTERSECTION LOS
0000/0000 (AM PEAK HOUR/PM PEAK HOUR)

- ← MOVEMENT
- 🚦 SIGNALIZED INTERSECTION
- 🛑 STOP SIGN
- ⚠️ YIELD SIGN



Table 3-1
 QuikTrip 4201 - Commerce City, CO
 Existing Intersection Level of Service Summary (1) (2)

| Intersection | Operating Condition | Street Name | Approach/ Movement | Existing 2022 | |
|---------------------------------------|---------------------|-----------------|-----------------------|-----------------|-----------------|
| | | | | AM Peak Hour | PM Peak Hour |
| 1 Rosemary Street/Quebec Parkway/CO-2 | SIGNAL | Rosemary Street | EBL | C (23.4) | C (21.9) |
| | | | EBT | D (37.0) | C (27.6) |
| | | | EBR | A (0.0) | A (0.0) |
| | | Quebec Parkway | WBL | C (24.0) | C (20.4) |
| | | | WBT | C (30.1) | C (30.1) |
| | | | WBR | A (0.0) | A (0.0) |
| | | | NBL | C (27.3) | B (20.0) |
| | | CO-2 | NBT | C (31.6) | C (30.0) |
| | | | NBR | A (0.0) | A (0.0) |
| | | | SBL | C (35.0) | C (29.2) |
| | | CO-2 | SBT | C (24.0) | C (22.9) |
| | | | SBR | <u>A (0.0)</u> | <u>A (0.0)</u> |
| | | Overall | | | C (30.5) |
| 2 80th Avenue/Rosemary Street | STOP | 80th Avenue | EBR | B [14.3] | B [12.3] |
| | | | NBT | A [0.0] | A [0.0] |
| | | Rosemary Street | SBTR | A [0.0] | A [0.0] |
| 3 Site Access/Rosemary Street | STOP | Driveway | EBLR | B [11.0] | B [10.3] |
| | | | WBR | A [0.0] | A [0.0] |
| | | Site Access | NBLT | A [9.4] | A [8.8] |
| | | Rosemary Street | NBTR | A [0.0] | A [0.0] |
| | | Rosemary Street | SBTR | A [0.0] | A [0.0] |

Notes : (1) Numbers in brackets [] represent delay at unsignalized intersections in seconds per vehicle.
 (2) Numbers in parenthesis () represent delay at signalized intersections in seconds per vehicle.

Table 3-2
 QuikTrip 4201 - Commerce City, CO
 Existing Intersection Queueing Summary (1)

| Intersection | Operating Condition | Street Name | Approach/ Movement | Available Storage | Existing 2022 | |
|--|---------------------|-----------------|--------------------|-------------------|---------------|--------------|
| | | | | | AM Peak Hour | PM Peak Hour |
| 1 Rosemary Street/Quebec Parkway/CO-2 ⁽¹⁾ | SIGNAL | Rosemary Street | EBL | 250 | 38 | 42 |
| | | | EBT | - | 342 | 184 |
| | | | EBR | 150 | 74 | 53 |
| | | Quebec Parkway | WBL | 550 | 18 | 12 |
| | | | WBT | - | 181 | 264 |
| | | | WBR | 400 | 0 | 0 |
| | | CO-2 | NBL | 400 | 58 | 133 |
| | | | NBT | - | 73 | 256 |
| | | | NBR | 550 | 0 | 0 |
| | | CO-2 | SBL | 650 | 568 | 384 |
| | | | SBT | - | 385 | 178 |
| | | | SBR | 450 | 0 | 0 |
| 2 80th Avenue/Rosemary Street ⁽¹⁾ | STOP | 80th Avenue | EBR | - | 42.5 | 32.5 |
| | | | NBT | - | 0 | 0 |
| | | Rosemary Street | SBTR | - | 0 | 0 |
| 3 Site Access/Rosemary Street ⁽¹⁾ | STOP | Driveway | EBLR | - | 0 | 2.5 |
| | | | WBR | - | 0 | 0 |
| | | Site Access | NBLT | - | 0 | 0 |
| | | | NBTR | - | 0 | 0 |
| | | Rosemary Street | SBTR | - | 0 | 0 |

Notes : (1) Queue length is based on the 95th percentile queue as reported by Synchro, Version 11.

IV. Analysis of Future Conditions without Site Development

Methodology

The future traffic forecasts, without the proposed new use, were developed for 2025 and 2045 conditions based on a composite of existing baseline traffic volumes and regional traffic. A 1.0% growth factor per year was applied to existing traffic on CO-2 and Quebec Parkway.

Regional Growth

Increases in traffic associated with regional growth were estimated at 1.0 percent per year compounded for movements along CO-2 and Quebec Parkway up to 2025 as well as to 2045. This growth accounts for increases in traffic resulting from influences outside of the immediate study area. The resulting increases in volumes within the study area are reflected on Figure 4-1 for 2025 conditions and Figure 4-2 for 2045 conditions.

Background Traffic Forecasts

The existing traffic forecasts depicted on Figure 3-1 and the regional growth shown on Figure 4-1 (2025) and Figure 4-2 (2045) were added together to yield the background future traffic forecasts shown on Figure 4-3 for 2025 conditions and Figure 4-4 for 2045 conditions.

Background Future Levels of Service

Capacity analyses of 2025 and 2045 future traffic conditions without the proposed development are provided in Appendix F and summarized in Table 4-2. The forecasted levels of service are also depicted graphically on Figure 4-5 for 2025 conditions and Figure 4-6 for 2045 conditions.

As shown on Table 4-1, the intersections within the study area would continue to operate at overall acceptable LOS "D" or better during the AM and PM peak hours for background future conditions.

Background Future Queueing

An analysis of intersection queues was performed at key locations under background future traffic conditions. The results of the queueing analysis are summarized in Table 4-3.

As shown in the table, queues within the study network will increase due to regional traffic growth. Forecasted queues are consistent with existing conditions. All queues are expected to be contained in their effective storage with the exception of the SBL movement at the CO-2/Quebec Parkway/Rosemary Street intersection during the AM peak hour under 2045 future traffic conditions.

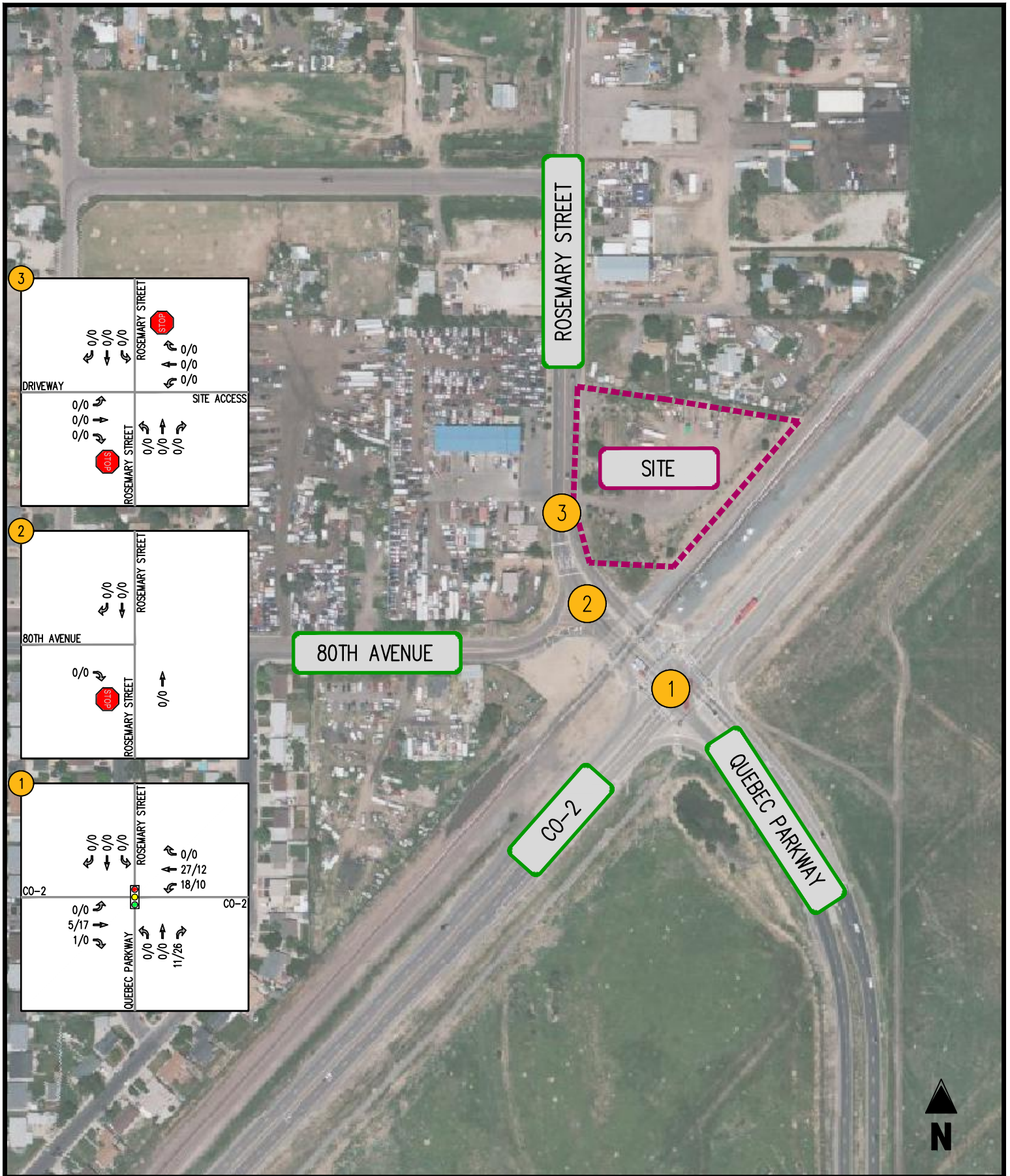


FIGURE 4-1
BACKGROUND 2025 GROWTH

(A/A) INTERSECTION LOS
0000/0000 (AM PEAK HOUR/PM PEAK HOUR)

- ← MOVEMENT
- 🚦 SIGNALIZED INTERSECTION
- 🛑 STOP SIGN
- 🚧 YIELD SIGN



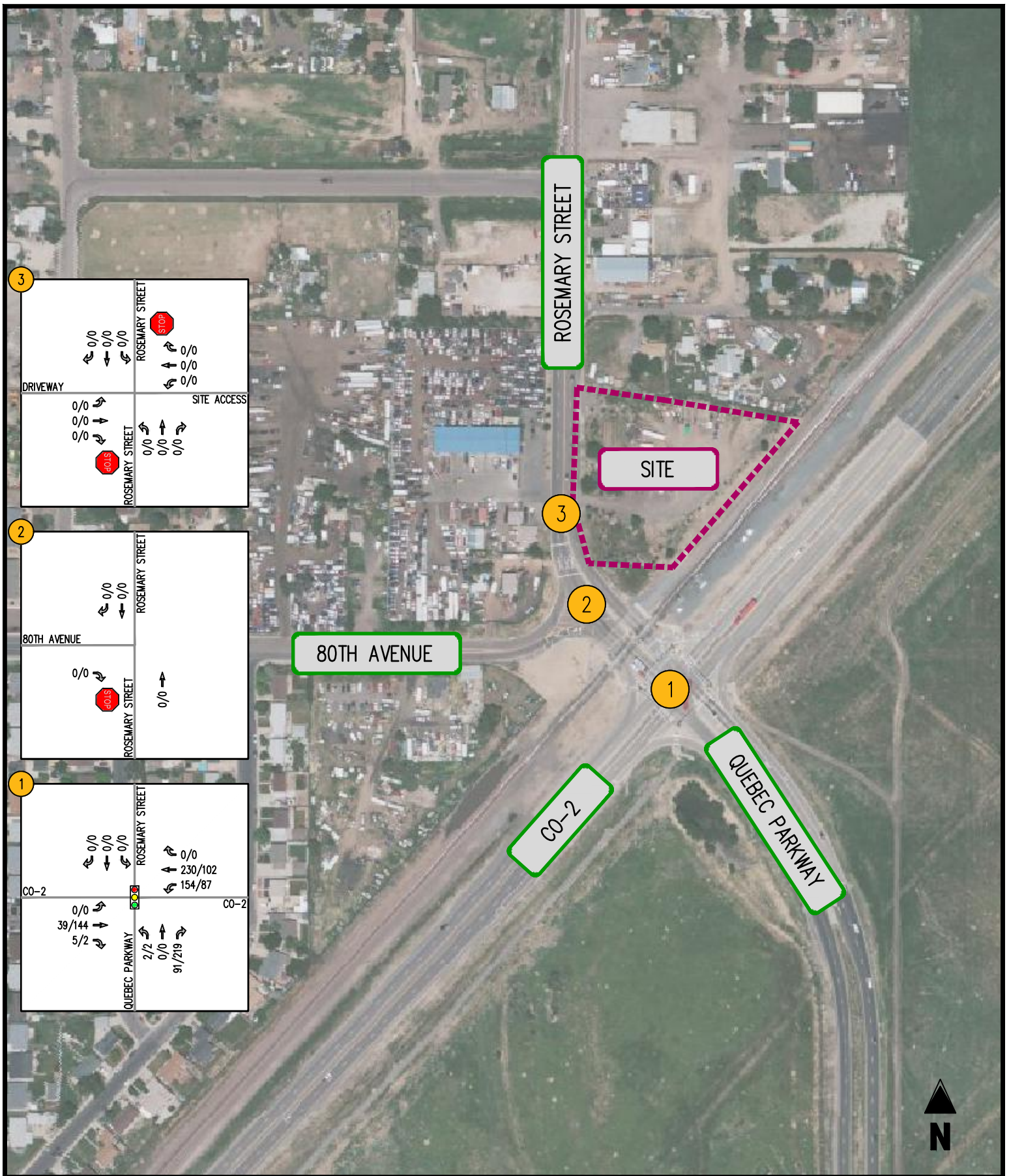


FIGURE 4-2
BACKGROUND 2045 GROWTH

(A/A) INTERSECTION LOS
0000/0000 (AM PEAK HOUR/PM PEAK HOUR)

- ← MOVEMENT
- 🚦 SIGNALIZED INTERSECTION
- 🛑 STOP SIGN
- 🚧 YIELD SIGN



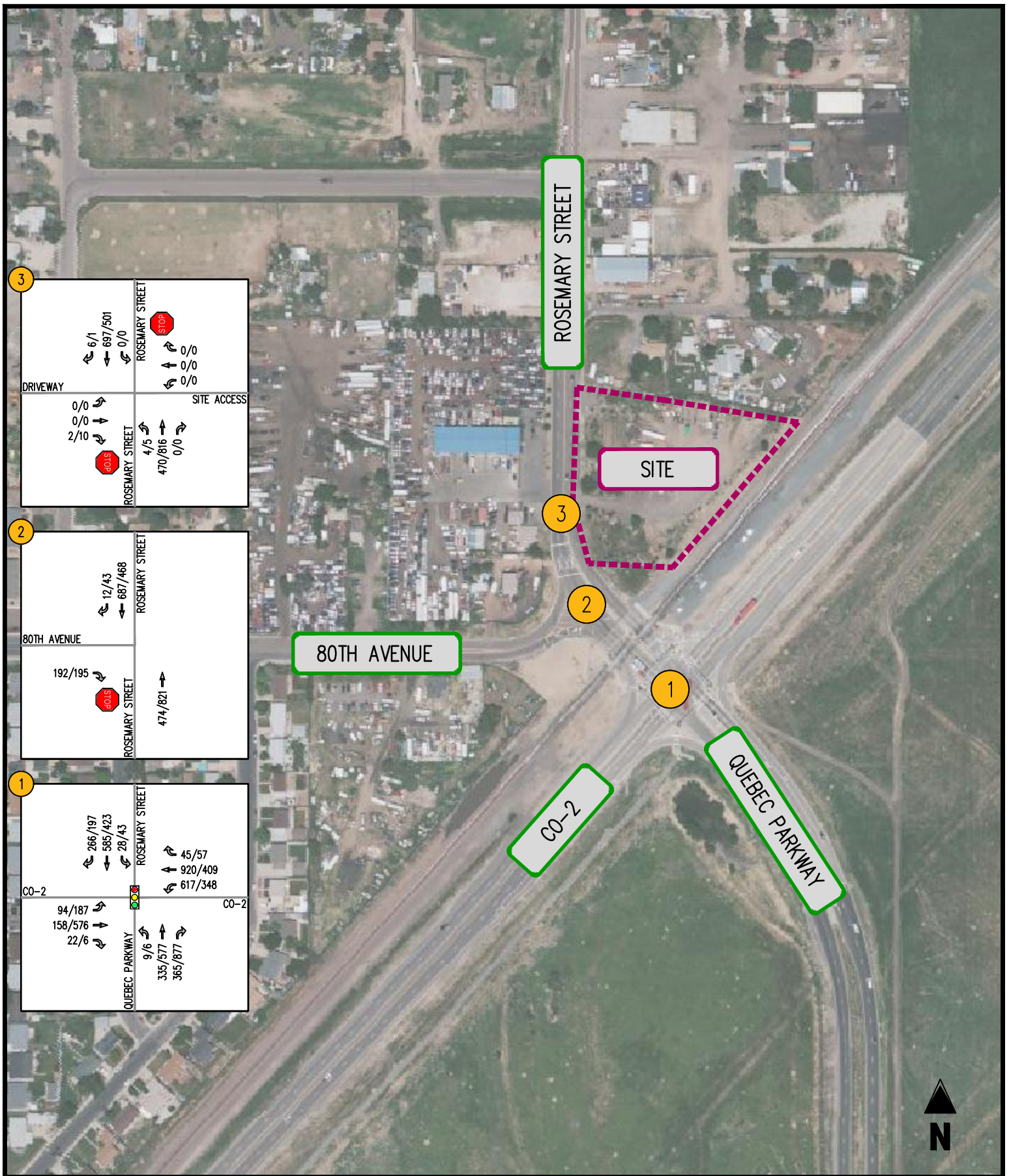


FIGURE 4-3
BACKGROUND 2025 FORECASTS

(A/A) INTERSECTION LOS
0000/0000 (AM PEAK HOUR/PM PEAK HOUR)

- ← MOVEMENT
- 🚦 SIGNALIZED INTERSECTION
- 🛑 STOP SIGN
- ⚠️ YIELD SIGN



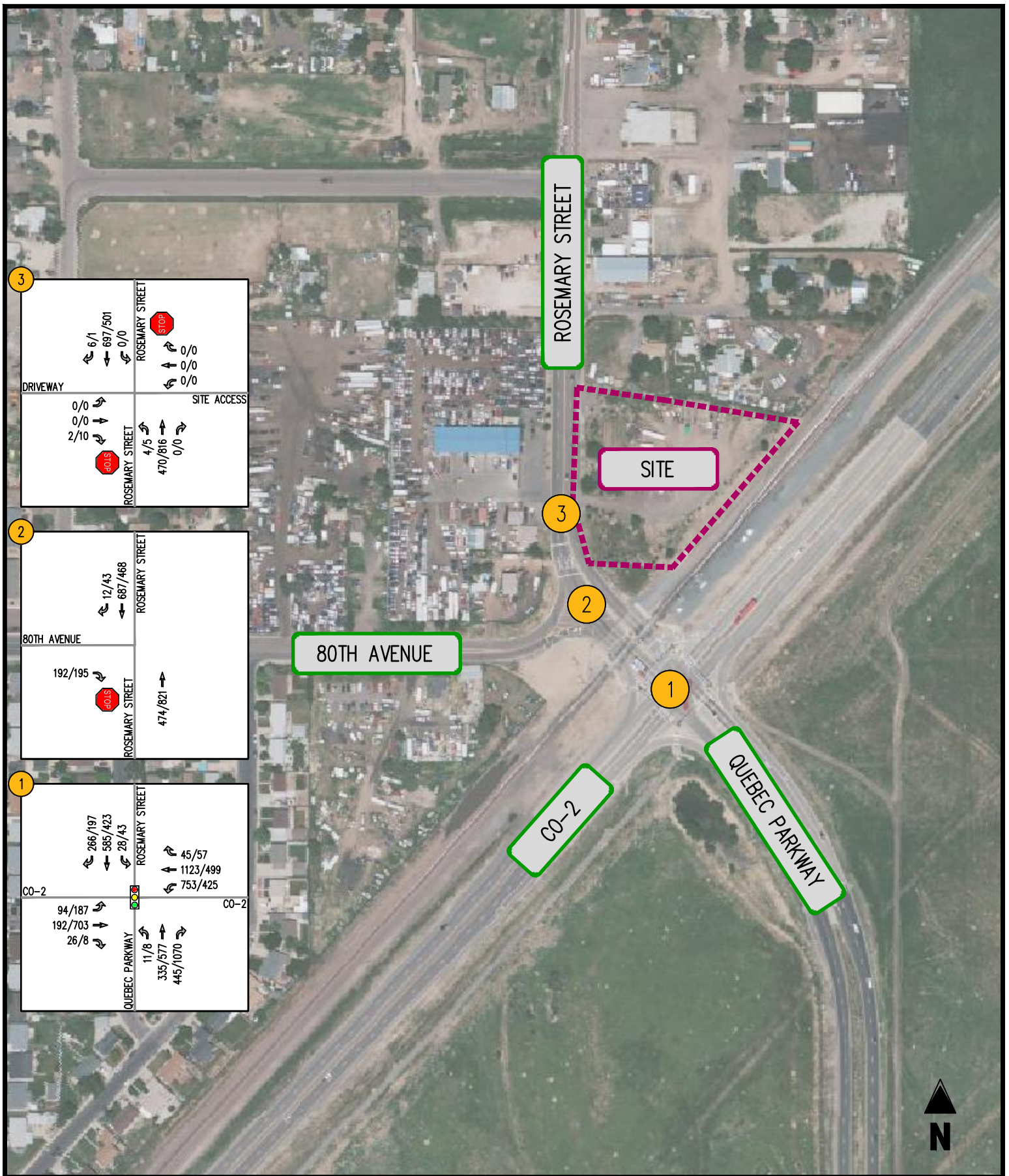


FIGURE 4-4
BACKGROUND 2045 FORECASTS

(A/A) INTERSECTION LOS
0000/0000 (AM PEAK HOUR/PM PEAK HOUR)

- ← MOVEMENT
- 🚦 SIGNALIZED INTERSECTION
- 🛑 STOP SIGN
- ⚠️ YIELD SIGN



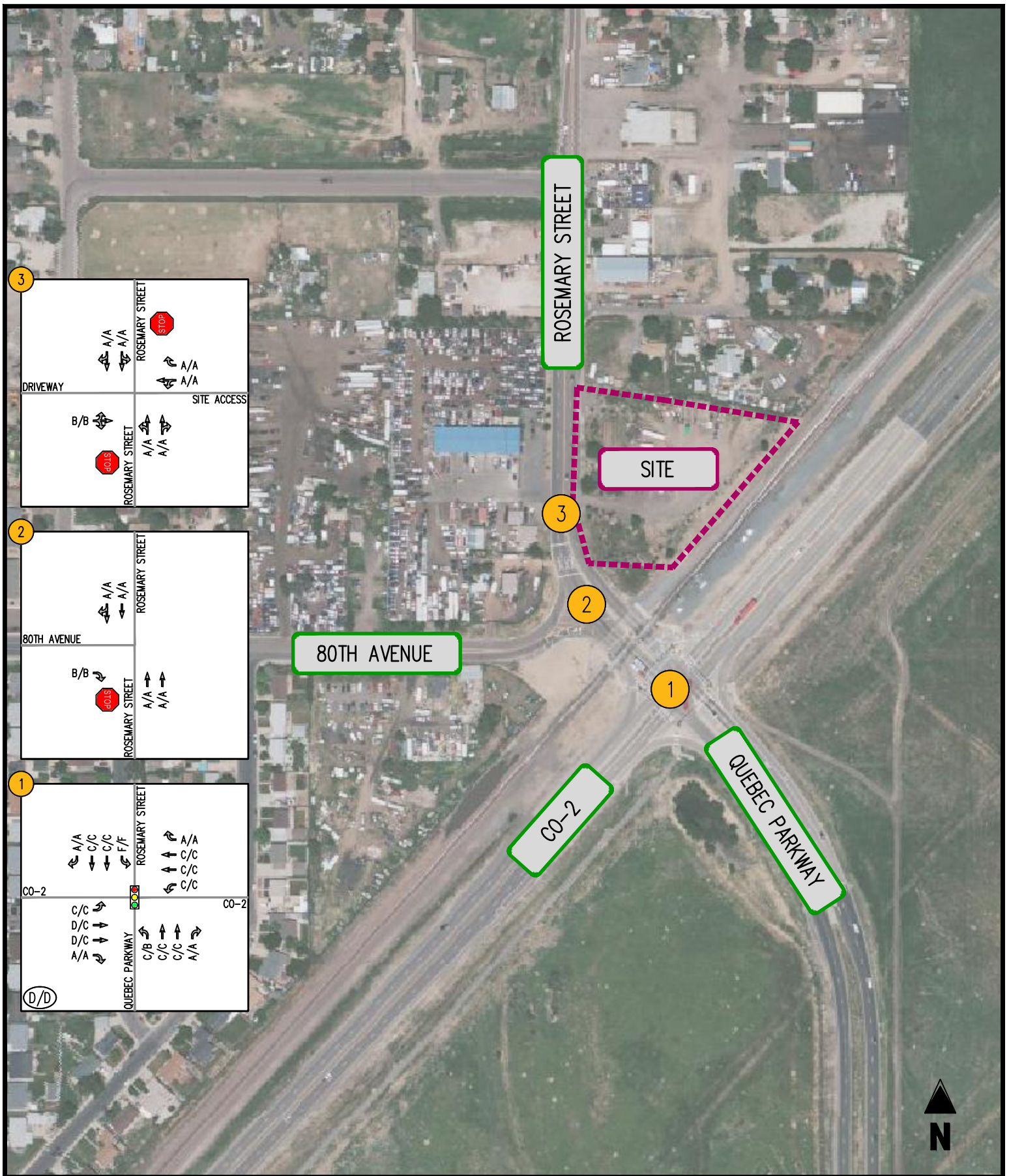


FIGURE 4-6
BACKGROUND 2045 LOS

(A/A) INTERSECTION LOS
0000/0000 (AM PEAK HOUR/PM PEAK HOUR)

- ← MOVEMENT
- 🚦 SIGNALIZED INTERSECTION
- 🛑 STOP SIGN
- ⚠️ YIELD SIGN



Table 4-1
 QuikTrip 4201 - Commerce City, CO
 Background Future Intersection Level of Service Summary (1) (2)

| Intersection | Operating Condition | Street Name | Approach/Movement | Existing 2022 | | Background 2025 | | Background 2045 | |
|---------------------------------------|---------------------|-----------------|-------------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|
| | | | | AM Peak Hour | PM Peak Hour | AM Peak Hour | PM Peak Hour | AM Peak Hour | PM Peak Hour |
| 1 Rosemary Street/Quebec Parkway/CO-2 | SIGNAL | Rosemary Street | EBL | C (23.4) | C (21.9) | C (23.3) | C (22.2) | C (26.4) | C (24.5) |
| | | | EBT | D (37.0) | C (27.6) | D (37.0) | C (28.0) | D (42.8) | C (30.4) |
| | | | EBR | A (0.0) | A (0.0) | A (0.0) | A (0.0) | A (0.0) | A (0.0) |
| | | Quebec Parkway | WBL | C (24.0) | C (20.4) | C (24.0) | C (20.7) | C (27.2) | C (22.8) |
| | | | WBT | C (30.1) | C (30.1) | C (29.7) | C (30.5) | C (33.1) | C (33.2) |
| | | | WBR | A (0.0) | A (0.0) | A (0.0) | A (0.0) | A (0.0) | A (0.0) |
| | | CO-2 | NBL | C (27.3) | B (20.0) | C (27.4) | B (20.0) | C (27.2) | B (19.5) |
| | | | NBT | C (31.6) | C (30.0) | C (31.7) | C (30.1) | C (30.2) | C (30.6) |
| | | | NBR | A (0.0) | A (0.0) | A (0.0) | A (0.0) | A (0.0) | A (0.0) |
| | | CO-2 | SBL | C (35.0) | C (29.2) | D (40.2) | C (32.0) | F (97.6) | F (95.1) |
| | | | SBT | C (24.0) | C (22.9) | C (24.4) | C (22.9) | C (27.8) | C (23.0) |
| | | | SBR | <u>A (0.0)</u> | <u>A (0.0)</u> | <u>A (0.0)</u> | <u>A (0.0)</u> | <u>A (0.0)</u> | <u>A (0.0)</u> |
| Overall | | | C (30.5) | C (27.5) | C (31.8) | C (28.1) | D (48.1) | D (38.5) | |
| 2 80th Avenue/Rosemary Street | STOP | 80th Avenue | EBR | B [14.3] | B [12.3] | B [13.9] | B [11.9] | B [13.9] | B [11.9] |
| | | | NBT | A [0.0] | A [0.0] | A [0.0] | A [0.0] | A [0.0] | A [0.0] |
| | | | SBTR | A [0.0] | A [0.0] | A [0.0] | A [0.0] | A [0.0] | A [0.0] |
| 3 Site Access/Rosemary Street | STOP | Driveway | EBLR | B [11.0] | B [10.3] | B [11.0] | B [10.1] | B [11.0] | B [10.1] |
| | | | WBR | A [0.0] | A [0.0] | A [0.0] | A [0.0] | A [0.0] | A [0.0] |
| | | Site Access | NBLT | A [9.4] | A [8.8] | A [9.4] | A [8.6] | A [9.4] | A [8.6] |
| | | | NBTR | A [0.0] | A [0.0] | A [0.0] | A [0.0] | A [0.0] | A [0.0] |
| | | Rosemary Street | SBTR | A [0.0] | A [0.0] | A [0.0] | A [0.0] | A [0.0] | A [0.0] |

Notes : (1) Numbers in brackets [] represent delay at unsignalized intersections in seconds per vehicle.
 (2) Numbers in parenthesis () represent delay at signalized intersections in seconds per vehicle.

Table 4-2
 QuikTrip 4201 - Commerce City, CO
 Background Future Intersection Queueing Summary (1)

| Intersection | Operating Condition | Street Name | Approach/Movement | Available Storage | Existing 2022 | | Background 2025 | | Background 2045 | |
|--|---------------------|-----------------|-------------------|-------------------|---------------|--------------|-----------------|--------------|-----------------|--------------|
| | | | | | AM Peak Hour | PM Peak Hour | AM Peak Hour | PM Peak Hour | AM Peak Hour | PM Peak Hour |
| 1 Rosemary Street/Quebec Parkway/CO-2 ⁽¹⁾ | SIGNAL | Rosemary Street | EBL | 250 | 38 | 42 | 39 | 43 | 39 | 47 |
| | | | EBT | - | 342 | 184 | 356 | 186 | 363 | 203 |
| | | | EBR | 150 | 74 | 53 | 75 | 54 | 76 | 56 |
| | | Quebec Parkway | WBL | 550 | 18 | 12 | 18 | 12 | 21 | 15 |
| | | | WBT | - | 181 | 264 | 182 | 267 | 185 | 290 |
| | | | WBR | 400 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | CO-2 | NBL | 400 | 58 | 133 | 57 | 133 | 57 | 134 |
| | | | NBT | - | 73 | 256 | 75 | 266 | 89 | 336 |
| | | | NBR | 550 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | CO-2 | SBL | 650 | 568 | 384 | 604 | 410 | 976 | 627 |
| | | | SBT | - | 385 | 178 | 398 | 184 | 534 | 228 |
| SBR | 450 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| 2 80th Avenue/Rosemary Street ⁽¹⁾ | STOP | 80th Avenue | EBR | - | 42.5 | 32.5 | 37.5 | 30 | 37.5 | 30 |
| | | Rosemary Street | NBT | - | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Rosemary Street | SBTR | - | 0 | 0 | 0 | 0 | 0 | 0 |
| 3 Site Access/Rosemary Street ⁽¹⁾ | STOP | Driveway | EBLR | - | 0 | 2.5 | 0 | 0 | 0 | 0 |
| | | Site Access | WBR | - | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Rosemary Street | NBLT | - | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Rosemary Street | NBTR | - | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Rosemary Street | SBTR | - | 0 | 0 | 0 | 0 | 0 | 0 |

Notes : (1) Queue length is based on the 95th percentile queue as reported by Synchro, Version 11.

V. Site Analysis

Overview

The Applicant is proposing to develop the approximately 2.4 acre site with a gas station with convenience store use. For purposes of this study, the site will be developed in one phase. For analysis purposes it was assumed that the development would be complete and occupied in 2025. The following use and development program was analyzed:

Proposed:

16 FP Gas Station with Convenience Store

Proposed Site Access

As shown on the Applicant's conceptual plan (Figure 1-2), access to the development is being proposed via on right-in/right-out (RIRO) access and one full movement access on Rosemary Street. Proposed lane use and traffic control is provided on Figure 5-1.

Trip Generation

Overview

Trip generation estimates for the weekday AM and PM peak hours, as well as the weekday average daily traffic (ADT), were derived from the standard Institute of Transportation Engineers (ITE) Trip Generation Manual rates/equations, as published in the 11th edition. The trip generation analysis is presented in Table 5-1.

Pass-by Trips

According to ITE, in some cases the driveway volumes at a particular land use are different from the amount of traffic added to the adjacent street system. Uses such as retail establishments attract a portion of their trips from traffic that is already present on the road network. Pass-by trip are those trips which are made as intermediate stops on the way to a primary destination. An example of a pass-by trip would be one in which a driver stops at a gas station on his/her way home from work.

The proposed use would experience pass-by trips consistent with the primary uses located on site. In recognition of this phenomenon and consistent with ITE published data, the following pass-by reductions were applied to the trip generation analysis:

- Gas Station with convenience store: 76% AM/ 75% PM

As shown in Table 5-1, the site in total is anticipated to generate 329 weekday AM, and 273 weekday PM peak hour pass-by trips. Therefore, these trips would be drawn from the existing road network and assigned to the future site entrances accordingly. Pass-by trip assignments at key study intersections are shown on Figure 5-2.

Net Site Trips

The vehicle trips that would be generated by the proposed development plan are summarized in Table 5-1. As shown in Table 5-1, the site would generate upon completion and full occupancy 104 net new weekday AM and 91 net new weekday PM peak hour vehicle trips, as well as 1,029 net new weekday daily trips.

Site Trip Distributions

The distribution of the anticipated trips generated by the completion of the proposed development was based on an examination of existing traffic counts and local knowledge. Existing travel patterns indicate the following distribution is appropriate in the forecasting of future site traffic:

- To/from the east on CO-2: 20%
- To/from the west on CO-2: 20%
- To/from the south on Quebec Street: 35%
- To/from the north on Rosemary Street: 25%

Site Trip Assignments

The assignment of the new vehicle trips generated upon the future build-out of the development project was based on the above distribution. The trips assignments are depicted on Figure 5-3.

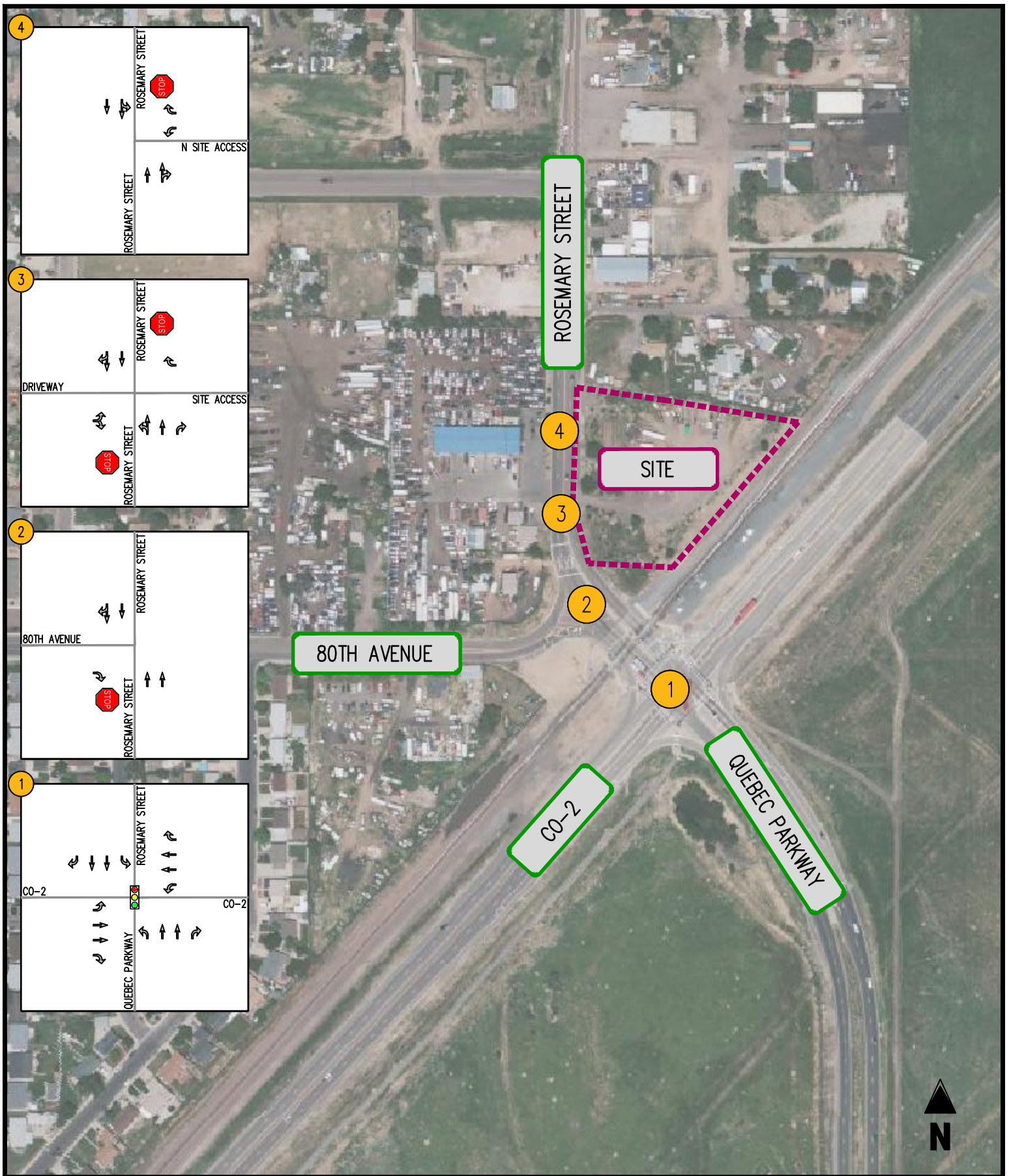


FIGURE 5-1
TOTAL FUTURE LANE USE AND TRAFFIC CONTROL



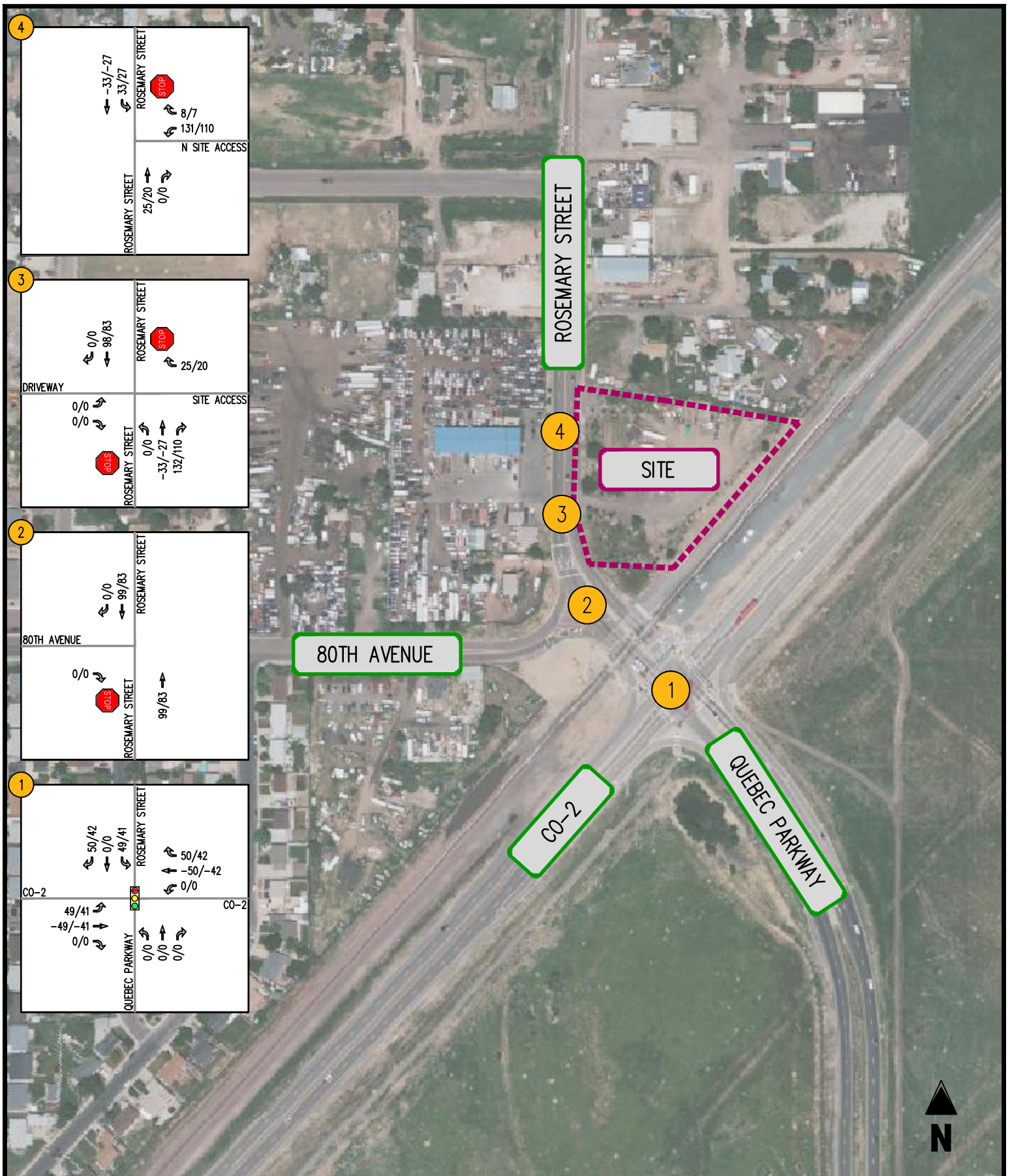


FIGURE 5-2
PASS-BY TRIPS

(A/A) INTERSECTION LOS
0000/0000 (AM PEAK HOUR/PM PEAK HOUR)

- ← MOVEMENT
- 🚦 SIGNALIZED INTERSECTION
- 🛑 STOP SIGN
- ⚠️ YIELD SIGN



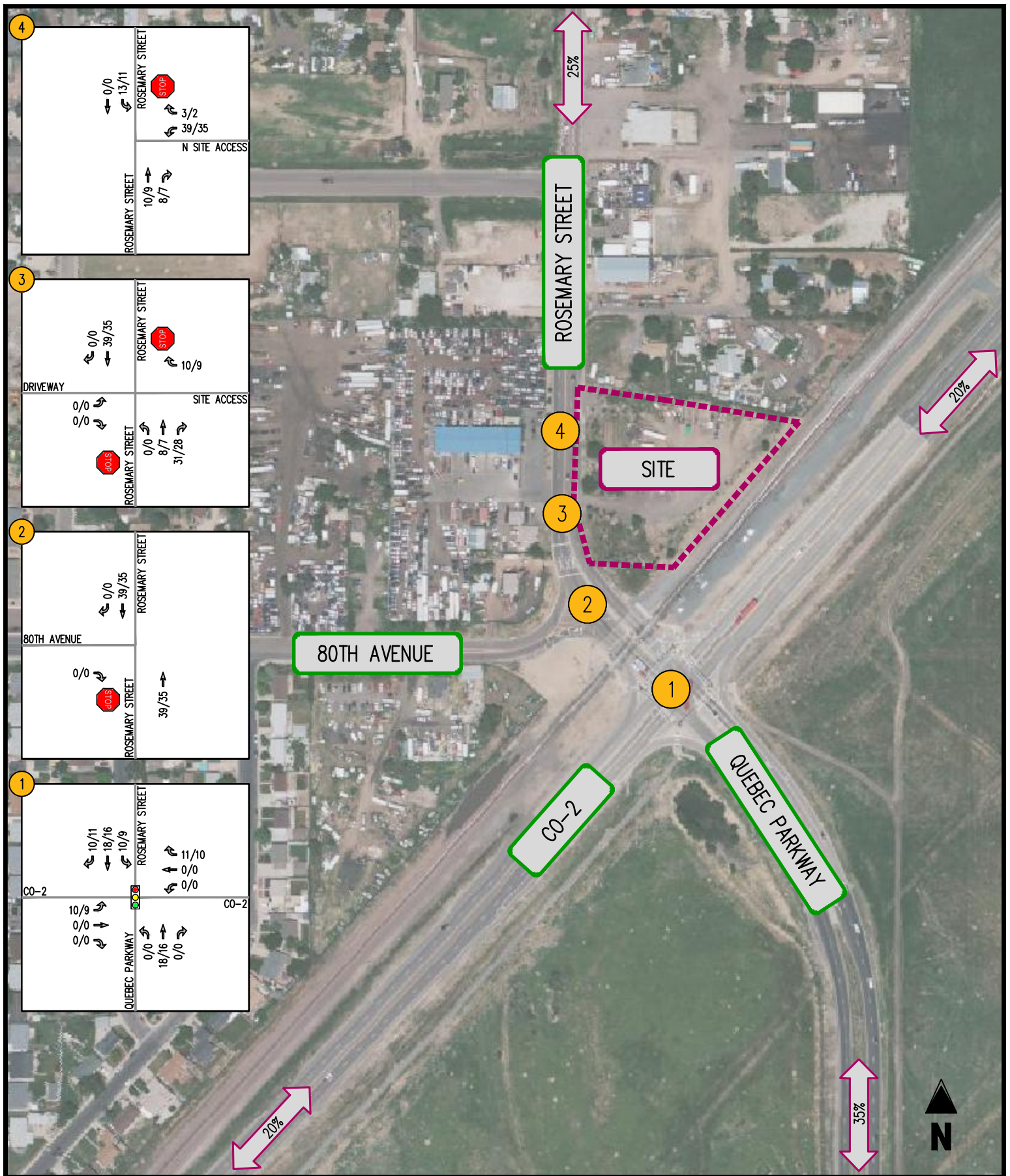


FIGURE 5-3
SITE TRIPS

QUIKTRIP 4201
COMMERCE CITY, CO

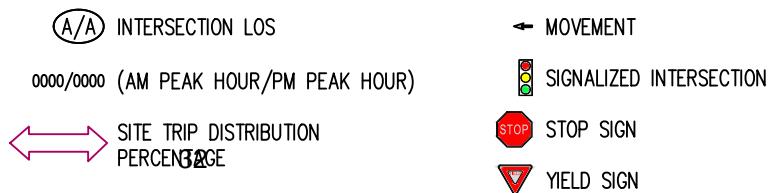


Table 5-1

QuikTrip 4201 - Commerce City, CO

Site Trip Generation

| Land Use | Land Use Code | Amount | Units | AM Peak Hour | | | PM Peak Hour | | | Average Daily Trips |
|----------------------------------|---------------|--------|-------|--------------|--------------|--------------|--------------|--------------|--------------|---------------------|
| | | | | In | Out | Total | In | Out | Total | |
| <i>Proposed ⁽¹⁾</i> | | | | | | | | | | |
| Convenience Store/Gas Station | 945 | 16 | FP | 217 | 216 | 433 | 182 | 182 | 364 | 4,114 |
| <i>Pass-by's (76%AM / 75%PM)</i> | | | | <i>(165)</i> | <i>(164)</i> | <i>(329)</i> | <i>(137)</i> | <i>(137)</i> | <i>(273)</i> | <i>(3,086)</i> |
| Net New Trips | | | | 52 | 52 | 104 | 46 | 46 | 91 | 1,029 |

Note(s):

(1) Trip generation based on the Institute of Transportation Engineers' Trip Generation Manual, 11th Edition

VI. Analysis of Future Conditions with Site Development

Total Future Traffic Forecasts

The 2025 and 2045 total future traffic forecasts associated with the proposed development were developed by combining the background future forecasts shown on Figure 4-3 (2025) and Figure 4-4 (2045), the pass-by trips shown on Figure 5-2, and the site trip assignments shown on Figure 5-3. The resulting total future traffic forecasts are provided on Figure 6-1 for 2025 (build-out), Figure 6-2 for 2045 (long-range) conditions.

Total Future Levels of Service with Proposed Development

Future levels of service with the proposed development plan were estimated at key study intersections based on the future traffic volumes shown on Figures 6-1 and Figure 6-2, the future lane use on Figure 5-1, and the HCM 6th methodologies for signalized and unsignalized intersections. The results of these analyses are provided in Appendix H and presented in Table 6-1. Total future levels of service are also presented graphically on Figure 6-3 (2025) and Figure 6-4 (2045).

As shown in Table 6-1, levels of service under future site development conditions would remain generally consistent with future background conditions (i.e., without site development). Overall delays would experience minor increase due to site trips. The signalized intersections within the study area would continue to operate at acceptable overall LOS “D” or better in the AM and PM peak hours in all future scenarios, consistent with background future conditions.

The proposed site entrances are forecasted to operate at LOS “B” or better during the AM and PM peak hours, with the exception of the WB left movement at the North Site Access. Synchro, a macrosimulation, does not take into account platooning effects from nearby signals such as the signal south of the site at the CO-2/Quebec Parkway/Rosemary Street intersection, which would provide platoons in traffic and create gaps for the WB left turning movements. SimTraffic is a microsimulation software that more realistically models traffic through a network including platooning from nearby signals. Utilizing SimTraffic, the WB left movement at the North Site Access is forecasted to operate at acceptable LOS “D” during the AM and PM peak hours.

The majority of site generated traffic is assumed to access the site from the CO-2/Quebec Parkway/Rosemary Street intersection. This requires a left turn out of the site to re-enter the CO-2/Quebec Parkway/Rosemary Street intersection. Restricting access to RIRO only would result in an increase of out of direction travel and illegal U-turns for vehicles heading back to CO-2 and Quebec Parkway. As shown in the next section, no queuing issues are expected along Rosemary Street.

Total Future Queuing

Total future queues were forecasted using Synchro/SimTraffic software. The results of the queuing analysis are summarized in Table 6-2. The forecasted queues are expected to remain consistent with background conditions.

Auxiliary Lanes

The City of Commerce City Department of Public Works Engineering Construction Standards and Specifications (Standards) was referenced to determine the need for a right-turn deceleration lanes for the proposed Site Accesses along Rosemary Street.

With a forecasted right turn volume of 163 vehicles per hour in the AM peak hour, the southern RIRO site access warrants a right-turn deceleration lane for northbound right turning movements into the site.

TABLE 3-6 RIGHT-TURN DECELERATION LANES

| | Minimum # of Major Street Right Turns to Require Right-Turn Deceleration Lane on Major Street (vph) | Deceleration Lane Length (ft) | Taper Rate | Taper Length (ft) for 12' Lane |
|----------------------------------|--|--------------------------------------|-------------------|---------------------------------------|
| Principal Arterial | 15 | 185 | 18.5:1 | 222 |
| Minor/Multimodal Arterial | 20 | 135 | 15:1 | 180 |
| Major Collector | 25 | 90 | 13.5:1 | 162 |
| Minor Collector | 30 | 50 | 12:1 | 144 |

As Rosemary Street is classified as a Major Collector, per Table 3-6. Right-Turn Deceleration Lanes of the Standards, the deceleration lane should provide a deceleration distance of 90 feet and 162 foot taper.

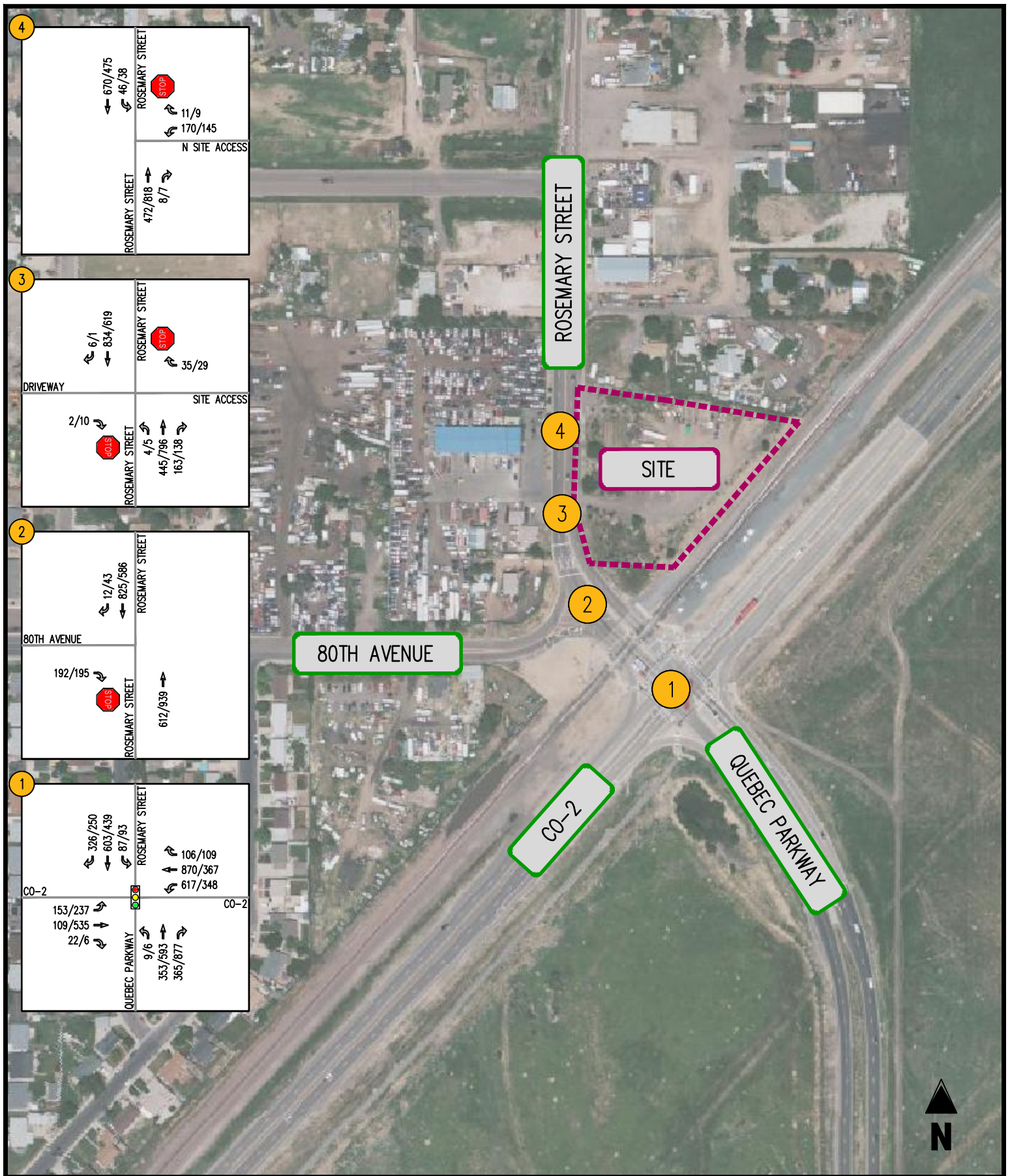


FIGURE 6-1
TOTAL FUTURE 2025 FORECASTS

(A/A) INTERSECTION LOS
0000/0000 (AM PEAK HOUR/PM PEAK HOUR)

- ← MOVEMENT
- 🚦 SIGNALIZED INTERSECTION
- 🛑 STOP SIGN
- 🚧 YIELD SIGN



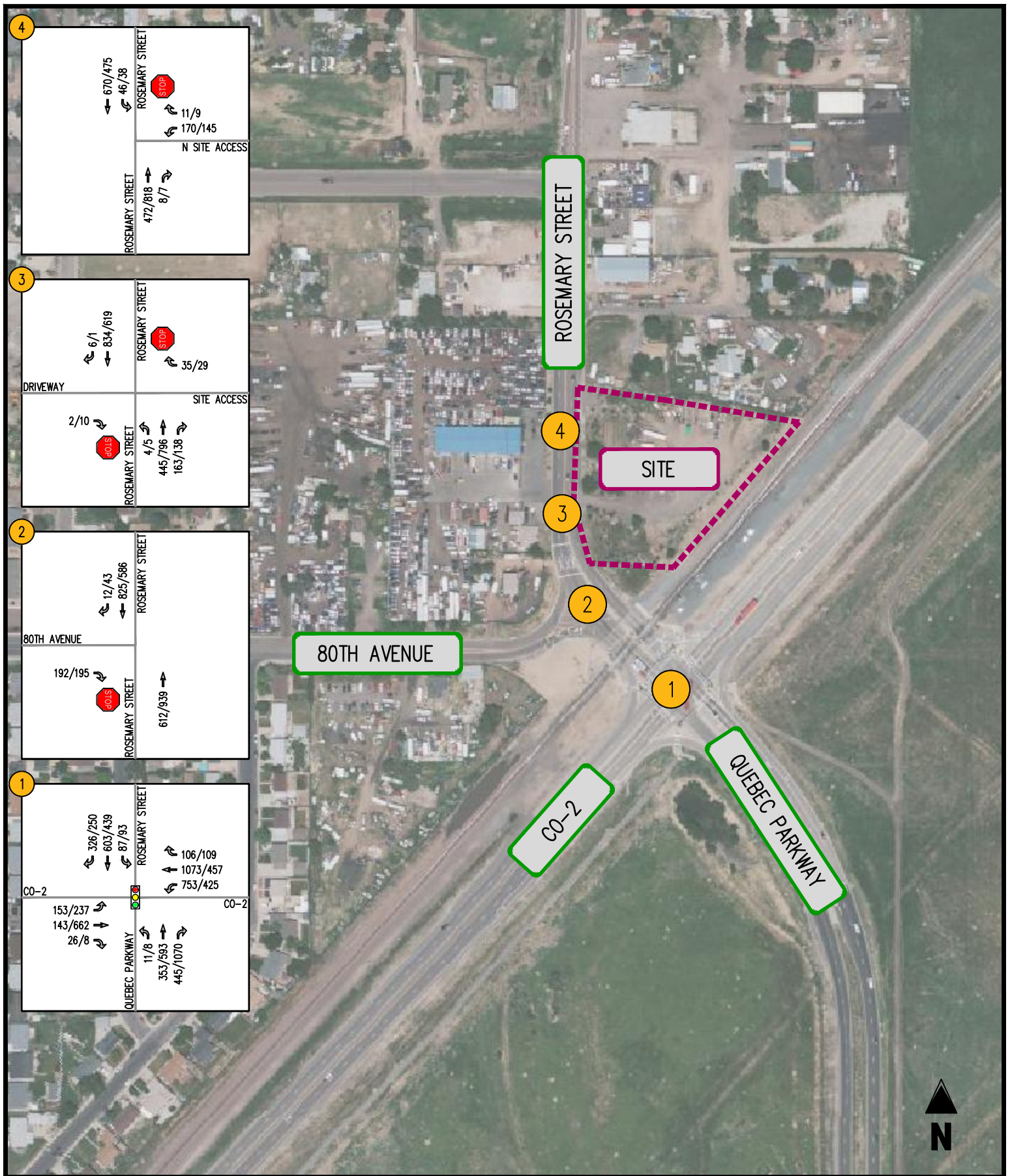


FIGURE 6-2
TOTAL FUTURE 2045 FORECASTS

(A/A) INTERSECTION LOS
0000/0000 (AM PEAK HOUR/PM PEAK HOUR)

- ← MOVEMENT
- 🚦 SIGNALIZED INTERSECTION
- 🛑 STOP SIGN
- ⚠️ YIELD SIGN



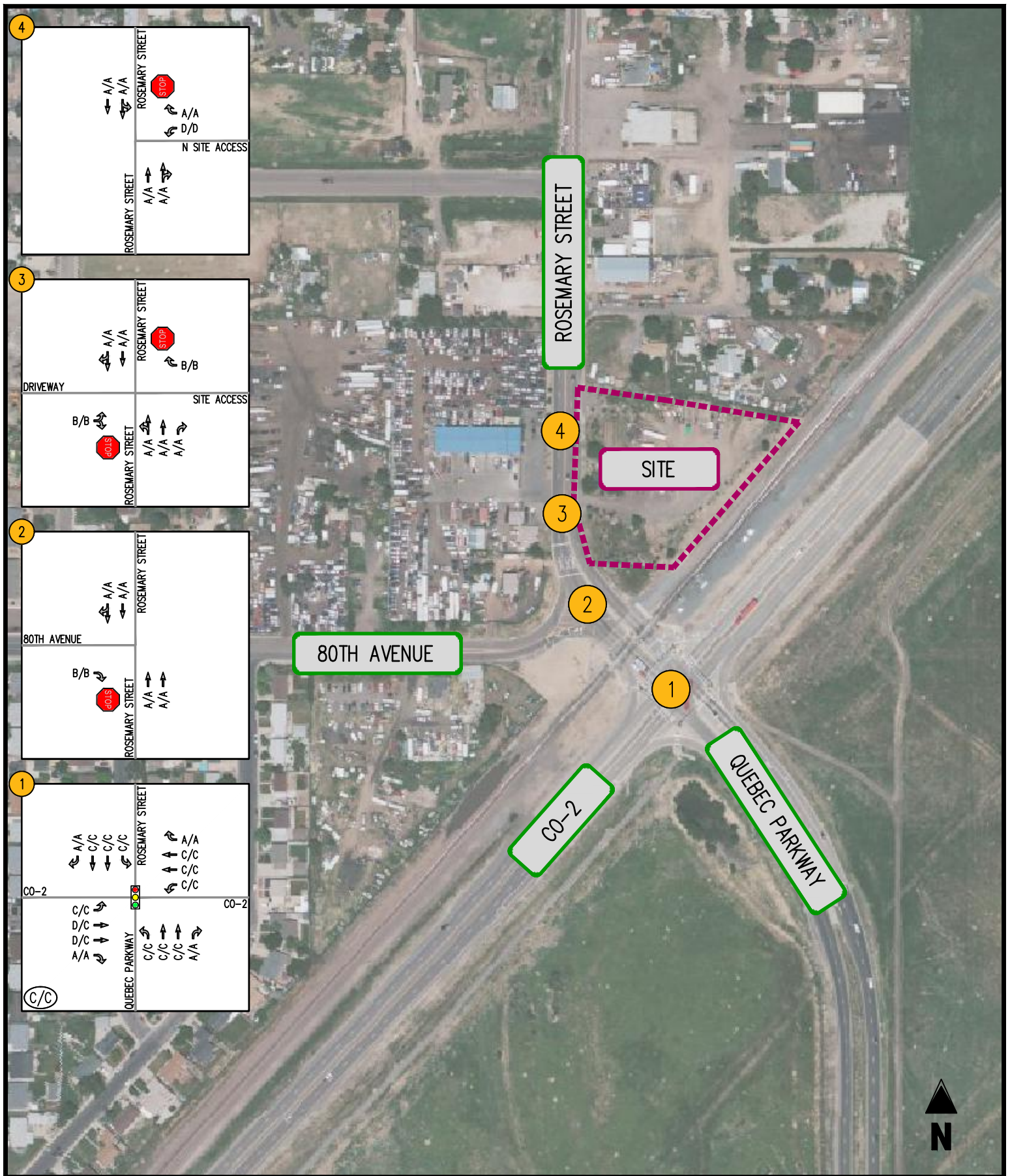


FIGURE 6-3
TOTAL FUTURE 2025 LOS

QUIKTRIP 4201
COMMERCE CITY, CO

(A/A) INTERSECTION LOS
0000/0000 (AM PEAK HOUR/PM PEAK HOUR)

- ← MOVEMENT
- 🚦 SIGNALIZED INTERSECTION
- 🛑 STOP SIGN
- 🚧 YIELD SIGN



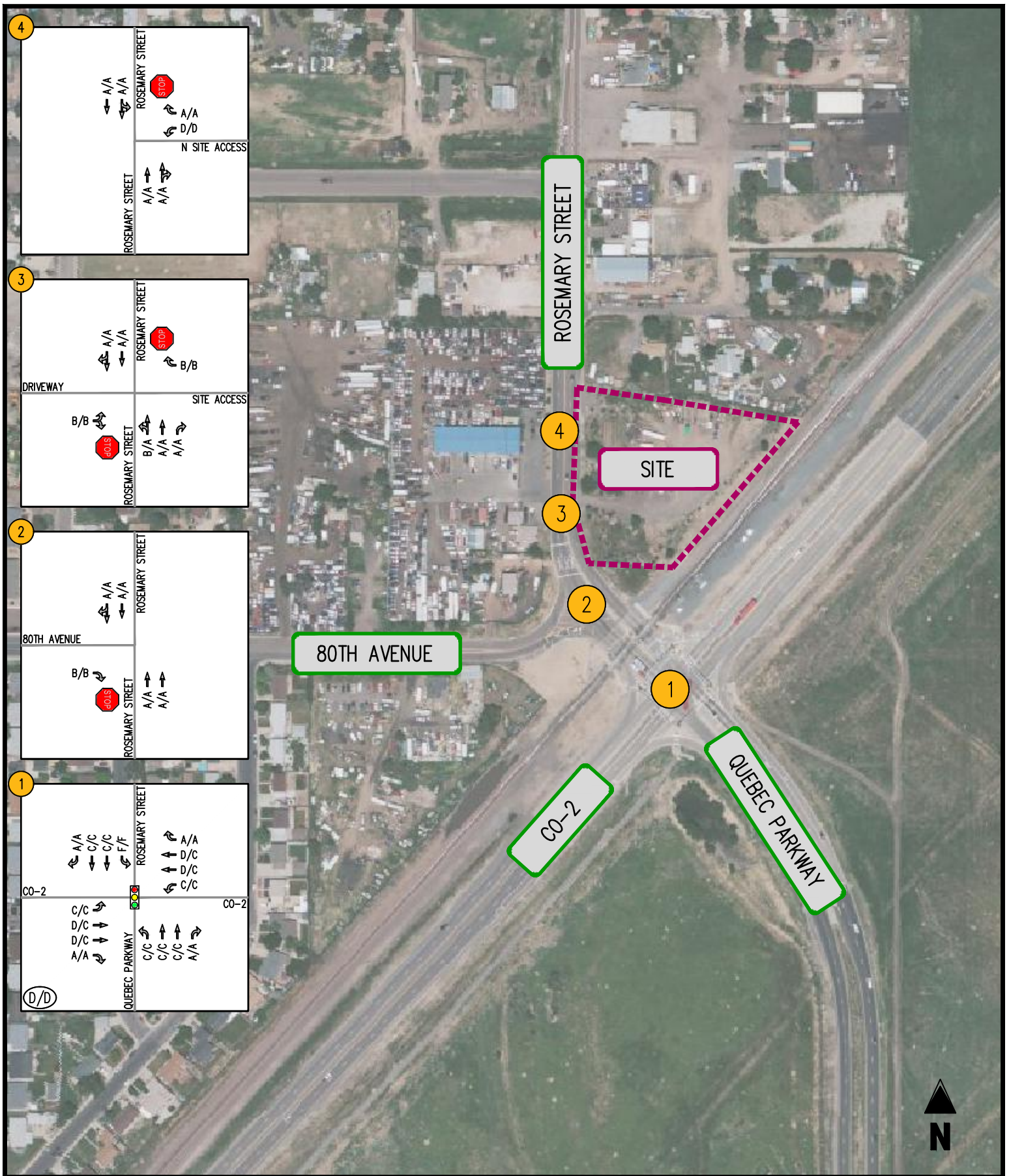


FIGURE 6-4
TOTAL FUTURE 2045 LOS

QUIKTRIP 4201
COMMERCE CITY, CO

(A/A) INTERSECTION LOS
0000/0000 (AM PEAK HOUR/PM PEAK HOUR)

- ← MOVEMENT
- 🚦 SIGNALIZED INTERSECTION
- 🛑 STOP SIGN
- ⚠️ YIELD SIGN



Table 6-1
 QuikTrip 4201 - Commerce City, CO
 Total Future Intersection Level of Service Summary (1) (2)

| Intersection | Operating Condition | Street Name | Approach/ Movement | Background 2025 | | Background 2045 | | Total Future 2025 | | Total Future 2045 | |
|---------------------------------------|---------------------|-----------------|--------------------|-----------------|-----------------|-----------------|-----------------|-------------------|-----------------|-------------------|-----------------|
| | | | | AM Peak Hour | PM Peak Hour | AM Peak Hour | PM Peak Hour | AM Peak Hour | PM Peak Hour | AM Peak Hour | PM Peak Hour |
| 1 Rosemary Street/Quebec Parkway/CO-2 | SIGNAL | Rosemary Street | EBL | C (23.3) | C (22.2) | C (26.4) | C (24.5) | C (24.6) | C (22.8) | C (28.9) | C (25.2) |
| | | | EBT | D (37.0) | C (28.0) | D (42.8) | C (30.4) | D (36.7) | C (27.1) | D (45.8) | C (29.4) |
| | | | EBR | A (0.0) | A (0.0) | A (0.0) | A (0.0) | A (0.0) | A (0.0) | A (0.0) | A (0.0) |
| | | Quebec Parkway | WBL | C (24.0) | C (20.7) | C (27.2) | C (22.8) | C (24.3) | C (20.3) | C (28.8) | C (22.5) |
| | | | WBT | C (29.7) | C (30.5) | C (33.1) | C (33.2) | C (30.3) | C (30.1) | D (35.4) | C (33.0) |
| | | | WBR | A (0.0) | A (0.0) | A (0.0) | A (0.0) | A (0.0) | A (0.0) | A (0.0) | A (0.0) |
| | | CO-2 | NBL | C (27.4) | B (20.0) | C (27.2) | B (19.5) | C (26.8) | C (20.3) | C (27.5) | C (20.2) |
| | | | NBT | C (31.7) | C (30.1) | C (30.2) | C (30.6) | C (31.0) | C (30.7) | C (29.3) | C (31.1) |
| | | | NBR | A (0.0) | A (0.0) | A (0.0) | A (0.0) | A (0.0) | A (0.0) | A (0.0) | A (0.0) |
| | | CO-2 | SBL | D (40.2) | C (32.0) | F (97.6) | F (95.1) | C (31.0) | C (33.1) | F (81.8) | F (97.8) |
| | | | SBT | C (24.4) | C (22.9) | C (27.8) | C (23.0) | C (25.7) | C (25.2) | C (29.7) | C (25.4) |
| | | | SBR | <u>A (0.0)</u> | <u>A (0.0)</u> | <u>A (0.0)</u> | <u>A (0.0)</u> | <u>A (0.0)</u> | <u>A (0.0)</u> | <u>A (0.0)</u> | <u>A (0.0)</u> |
| Overall | | | | C (31.8) | C (28.1) | D (48.1) | D (38.5) | C (30.1) | C (28.3) | D (45.6) | D (39.0) |
| 2 80th Avenue/Rosemary Street | STOP | 80th Avenue | EBR | B [13.9] | B [11.9] | B [13.9] | B [11.9] | C [15.3] | B [12.9] | C [15.6] | B [12.9] |
| | | Rosemary Street | NBT | A [0.0] | A [0.0] | A [0.0] | A [0.0] | A [0.0] | A [0.0] | A [0.0] | A [0.0] |
| | | Rosemary Street | SBTR | A [0.0] | A [0.0] | A [0.0] | A [0.0] | A [0.0] | A [0.0] | A [0.0] | A [0.0] |
| 3 Site Access/Rosemary Street | STOP | Driveway | EBLR | B [11.0] | B [10.1] | B [11.0] | B [10.1] | N/A | N/A | N/A | N/A |
| | | | WBR | A [0.0] | A [0.0] | A [0.0] | A [0.0] | N/A | N/A | N/A | N/A |
| | | Site Access | NBLT | A [9.4] | A [8.6] | A [9.4] | A [8.6] | N/A | N/A | N/A | N/A |
| | | | NBTR | A [0.0] | A [0.0] | A [0.0] | A [0.0] | N/A | N/A | N/A | N/A |
| | | Rosemary Street | SBTR | A [0.0] | A [0.0] | A [0.0] | A [0.0] | N/A | N/A | N/A | N/A |
| | | | | | | | | | | | |
| | STOP | Driveway | EBLR | N/A | N/A | N/A | N/A | B [11.6] | B [10.7] | B [11.7] | B [10.7] |
| | | | WBR | N/A | N/A | N/A | N/A | B [10.1] | B [11.8] | B [10.1] | B [11.8] |
| | | Site Access | NBLT | N/A | N/A | N/A | N/A | A [9.9] | A [9.1] | B [10.1] | A [9.1] |
| | | | NBT | N/A | N/A | N/A | N/A | A [0.0] | A [0.1] | A [0.0] | A [0.1] |
| | | Rosemary Street | NBR | N/A | N/A | N/A | N/A | A [0.0] | A [0.0] | A [0.0] | A [0.0] |
| | | | SBTR | N/A | N/A | N/A | N/A | A [0.0] | A [0.0] | A [0.0] | A [0.0] |
| 4 N Site Access/Rosemary Street | STOP | N Site Access | WBL | N/A | N/A | N/A | N/A | <i>D [30.1]</i> | <i>D [30.6]</i> | <i>D [33.1]</i> | <i>D [31.4]</i> |
| | | Rosemary Street | WBR | N/A | N/A | N/A | N/A | <i>A [7.8]</i> | <i>A [8.2]</i> | <i>A [8.0]</i> | <i>A [8.0]</i> |
| | | Rosemary Street | NBTR | N/A | N/A | N/A | N/A | <i>A [0.4]</i> | <i>A [0.6]</i> | <i>A [0.4]</i> | <i>A [0.6]</i> |
| Rosemary Street | SBLT | N/A | N/A | N/A | N/A | <i>A [2.3]</i> | <i>A [3.9]</i> | <i>A [3.7]</i> | <i>A [4.4]</i> | | |
| | SBT | N/A | N/A | N/A | N/A | <i>A [0.9]</i> | <i>A [0.6]</i> | <i>A [0.9]</i> | <i>A [0.6]</i> | | |

Notes : (1) Numbers in brackets [] represent delay at unsignalized intersections in seconds per vehicle.
 (2) Numbers in parenthesis () represent delay at signalized intersections in seconds per vehicle.
 (3) Numbers in *italics* represent delay as reported by SimTraffic, Version 11

Table 6-2
 QuikTrip 4201 - Commerce City, CO
 Total Future Intersection Queueing Summary (1)

| Intersection | Operating Condition | Street Name | Approach/ Movement | Available Storage | Background 2025 | | Background 2045 | | Total Future 2025 | | Total Future 2045 | | |
|--|---|-----------------|--------------------|-------------------|-----------------|--------------|-----------------|--------------|-------------------|--------------|-------------------|--------------|-----|
| | | | | | AM Peak Hour | PM Peak Hour | AM Peak Hour | PM Peak Hour | AM Peak Hour | PM Peak Hour | AM Peak Hour | PM Peak Hour | |
| 1 Rosemary Street/Quebec Parkway/CO-2 ⁽¹⁾ | SIGNAL | Rosemary Street | EBL | 250 | 39 | 43 | 39 | 47 | 91 | 75 | 96 | 85 | |
| | | | EBT | - | 356 | 186 | 363 | 203 | 346 | 186 | 375 | 204 | |
| | | | EBR | 150 | 75 | 54 | 76 | 56 | 80 | 57 | 84 | 61 | |
| | | Quebec Parkway | WBL | 550 | 18 | 12 | 21 | 15 | 18 | 11 | 21 | 14 | |
| | | | WBT | - | 182 | 267 | 185 | 290 | 186 | 265 | 195 | 290 | |
| | | | WBR | 400 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | | CO-2 | NBL | 400 | 57 | 133 | 57 | 134 | 88 | 170 | 124 | 172 | |
| | | | NBT | - | 75 | 266 | 89 | 336 | 54 | 245 | 69 | 315 | |
| | | | NBR | 550 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | | CO-2 | SBL | 650 | 604 | 410 | 976 | 627 | 539 | 392 | 966 | 608 | |
| | | | SBT | - | 398 | 184 | 534 | 228 | 367 | 166 | 503 | 209 | |
| SBR | 450 | | 0 | 0 | 0 | 0 | 30 | 38 | 29 | 37 | | | |
| 2 80th Avenue/Rosemary Street ⁽¹⁾ | STOP | 80th Avenue | EBR | - | 37.5 | 30 | 37.5 | 30 | 42.5 | 35 | 45 | 35 | |
| | | | NBT | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | | | SBTR | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 3 Site Access/Rosemary Street ⁽¹⁾ | STOP | Driveway | EBLR | - | 0 | 0 | 0 | 0 | N/A | N/A | N/A | N/A | |
| | | | WBR | - | 0 | 0 | 0 | 0 | N/A | N/A | N/A | N/A | |
| | | Site Access | NBLT | - | 0 | 0 | 0 | 0 | N/A | N/A | N/A | N/A | |
| | | | NBTR | - | 0 | 0 | 0 | 0 | N/A | N/A | N/A | N/A | |
| | | Rosemary Street | SBTR | - | 0 | 0 | 0 | 0 | N/A | N/A | N/A | N/A | |
| | <i>NB right deceleration lane added</i> | STOP | Driveway | EBLR | - | N/A | N/A | N/A | N/A | 0 | 2.5 | 0 | 2.5 |
| | | | | WBR | - | N/A | N/A | N/A | N/A | 5 | 5 | 5 | 5 |
| | | | Site Access | NBLT | - | N/A | N/A | N/A | N/A | 0 | 0 | 0 | 0 |
| | | | | NBTR | - | N/A | N/A | N/A | N/A | 0 | 0 | 0 | 0 |
| | | | Rosemary Street | NBR | - | N/A | N/A | N/A | N/A | 0 | 0 | 0 | 0 |
| | | | | SBTR | - | N/A | N/A | N/A | N/A | 0 | 0 | 0 | 0 |
| 4 N Site Access/Rosemary Street ⁽²⁾ | STOP | N Site Access | WBL | - | N/A | N/A | N/A | N/A | 161 | 148 | 163 | 144 | |
| | | | WBR | - | N/A | N/A | N/A | N/A | 42 | 39 | 42 | 37 | |
| | | Rosemary Street | NBTR | - | N/A | N/A | N/A | N/A | 7 | 5 | 4 | 12 | |
| | | | SBLT | - | N/A | N/A | N/A | N/A | 42 | 48 | 51 | 56 | |
| | | Rosemary Street | SBT | - | N/A | N/A | N/A | N/A | 0 | 8 | 5 | 0 | |

Notes : (1) Queue length is based on the 95th percentile queue as reported by Synchro, Version 11.
 (2) Queue length is based on the 95th percentile queue as reported by SimTraffic, Version 11.

VII. Conclusions and Recommendations

Conclusions

Based on the results of this traffic impact study, the following may be concluded:

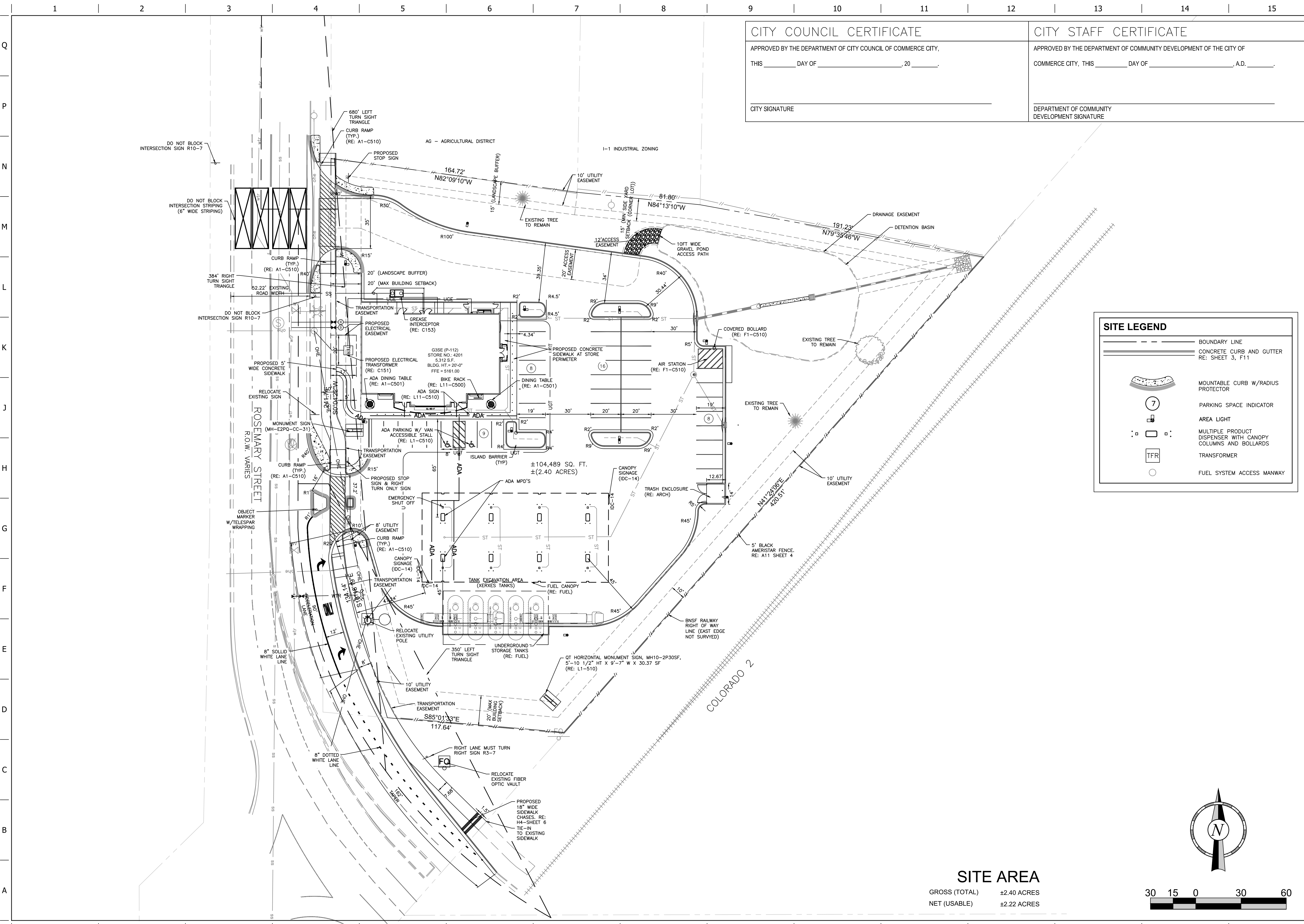
- Under existing traffic conditions, the intersections within the study area currently operate at overall acceptable levels of service (LOS) “C” or better during the weekday AM and PM peak hours, and queues remain within their respective storage lengths.
- Under background future 2025 and 2045 traffic conditions, without the development of the subject site, delays would increase slightly at study intersections due to regional traffic growth. The intersections are still forecasted to operate at LOS “D” or better.
- In the background future 2045 scenario, the SBL queue at the CO-2/Quebec Parkway/Rosemary Street intersection is expected to exceed their storage length during the AM peak hour.
- The proposed site development would generate, upon completion and full occupancy, 104 net new weekday AM and 91 net new weekday PM peak hour vehicle trips as well as 1,029 net new weekday daily trips.
- Under total future 2025 and 2045 traffic conditions with development of the site, the intersections within the study area would operate consistent with background conditions.

Recommendations

- It is recommended that the Applicant provide access consistent with the site plan contained herein.

APPENDIX A – Full Sized Conceptual Plan

FILE LOCATION: \\H:\QuikTrip\QK4201-Commerce City, CO\001\2-Plan\QK4201_Civil.dwg TAB NAME: Site Plan (DP) USER: Stephen_Crebocky SAVED: 1/3/2024 3:59 PM PLOTTED: 1/3/2024 4:21 PM



| | |
|--|--|
| <p>CITY COUNCIL CERTIFICATE</p> <p>APPROVED BY THE DEPARTMENT OF CITY COUNCIL OF COMMERCE CITY,</p> <p>THIS _____ DAY OF _____, 20____.</p> <p>CITY SIGNATURE _____</p> | <p>CITY STAFF CERTIFICATE</p> <p>APPROVED BY THE DEPARTMENT OF COMMUNITY DEVELOPMENT OF THE CITY OF</p> <p>COMMERCE CITY, THIS _____ DAY OF _____, A.D. _____.</p> <p>DEPARTMENT OF COMMUNITY DEVELOPMENT SIGNATURE _____</p> |
|--|--|

PROJECT NO.: QKT004201

5500 Greenwood Plaza Boulevard, Suite 200
Greenwood Village, CO 80111
303.770.8884
GallowayUS.com

QuikTrip No. 4201
8040 ROSEMARY STREET
COMMERCE CITY, CO

SITE LEGEND

- BOUNDARY LINE
- CONCRETE CURB AND GUTTER RE: SHEET 3, F11
- MOUNTABLE CURB W/RADIUS PROTECTOR
- PARKING SPACE INDICATOR
- AREA LIGHT
- MULTIPLE PRODUCT DISPENSER WITH CANOPY COLUMNS AND BOLLARDS
- TRANSFORMER
- FUEL SYSTEM ACCESS MANWAY

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PROTOTYPE: P-112 (11/01/22)
DIVISION: 83
VERSION: 001
DESIGNED BY: SGO
DRAWN BY: SGO
REVIEWED BY: ACJ

| REV | DATE | DESCRIPTION |
|-----|---------|------------------|
| 1 | 6/14/23 | 2ND DP SUBMITTAL |
| 2 | 9/8/23 | 3RD DP SUBMITTAL |
| 3 | 1/9/24 | 4TH DP SUBMITTAL |

ORIGINAL ISSUE DATE: 01/05/2024

SITE AREA
GROSS (TOTAL) ±2.40 ACRES
NET (USABLE) ±2.22 ACRES

Scale: 30 15 0 30 60

SHEET TITLE:
SITE PLAN

SHEET NUMBER:
3

APPENDIX B – LOS Descriptions

Level of Service for Signalized Intersections

Level of service for signalized intersections is defined in terms of delay, which is a measure of driver discomfort and frustration, fuel consumption, and lost travel time. Specifically, level-of-service (LOS) criteria are stated in terms of the average stopped delay per vehicle for a 15-min analysis period. The criteria are given in Exhibit 16-2. Delay may be measured in the field or estimated using procedures presented later in this chapter. Delay is a complex measure and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group in question.

LOS A describes operations with very low delay, up to 10 sec per vehicle. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

LOS B describes operations with delay greater than 10 and up to 20 sec per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of average delay.

Exhibit 16-2. Level-of-Service Criteria for Signalized Intersections

| LEVEL OF SERVICE | STOPPED DELAY PER VEHICLE (SEC) |
|------------------|---------------------------------|
| A | ≤ 10.0 |
| B | > 10.0 and ≤ 20.0 |
| C | > 20.0 and ≤ 35.0 |
| D | > 35.0 and ≤ 55.0 |
| E | > 55.0 and ≤ 80.0 |
| F | > 80.0 |

LOS C describes operations with delay greater than 20 and up to 35 sec per vehicle. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.

LOS D describes operations with delay greater than 35 and up to 55 sec per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

LOS E describes operations with delay greater than 55 and up to 80 sec per vehicle. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.

LOS F describes operations with delay in excess of 80 sec per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

Source: [Highway Capacity Manual, 2000](#). Transportation Research Board, National Research Council

Level of Service Criteria for Stop Sign Controlled Intersections

The level of service criteria are given in Table 17-2. As used here, control delay is defined as the total elapsed time from the time a vehicle stops at the end of the queue until the vehicle departs from the stop line; this time includes the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position, including deceleration of vehicles from free-flow speed to the speed of vehicles in queue.

The average total delay for any particular minor movement is a function of the service rate or capacity of the approach and the degree of saturation. . . .

Table 17-2. Level of Service Criteria for TWSC Intersections

| LEVEL OF SERVICE | AVERAGE CONTROL DELAY (sec/veh) |
|------------------|------------------------------------|
| A | ≤ 10 |
| B | > 10 and ≤ 15 |
| C | > 15 and ≤ 25 |
| D | > 25 and ≤ 35 |
| E | > 35 and ≤ 50 |
| F | > 50 |

Average total delay less than 10 sec/veh is defined as Level of Service (LOS) A. Follow-up times of less than 5 sec have been measured when there is no conflicting traffic for a minor street movement, so control delays of less than 10 sec/veh are appropriate for low flow conditions. To remain consistent with the AWSC intersection analysis procedure described later in this chapter, a total delay of 50 sec/veh is assumed as the break point between LOS E and F.

The proposed level of service criteria for TWSC intersections are somewhat different from the criteria used in Chapter 16 for signalized intersections. The primary reason for this difference is that drivers expect different levels of performance from different kinds of transportation facilities. The expectation is that a signalized intersection is designed to carry higher traffic volumes than an unsignalized intersection. Additionally, several driver behavior considerations combine to make delays at signalized intersections less onerous than at unsignalized intersections. For example, drivers at signalized intersections are able to relax during the red interval, where drivers on the minor approaches to unsignalized intersections must remain attentive to the task of identifying acceptable gaps and vehicle conflicts. Also, there is often much more variability in the amount of delay experienced by individual drivers at unsignalized than signalized intersections. For these reasons, it is considered that the total delay threshold for any given level of service is less for an unsignalized intersection than for a signalized intersection. . . .

LOS F exists when there are insufficient gaps of suitable size to allow a side street demand to cross safely through a major street traffic stream. This level of service is generally evident from extremely long total delays experienced by side street traffic and by queueing on the minor approaches. The method, however, is based on a constant critical gap size - that is, the critical gap remains constant, no matter how long the side street motorist waits. LOS F may also appear in the form of side street vehicles' selecting smaller-than-usual gaps. In such cases, safety may be a problem and some disruption to the major traffic stream may result. It is important to note that LOS F may not always result in long queues but may result in adjustments to normal gap acceptance behavior. The latter is more difficult to observe on the field than queueing, which is more obvious.

Source: Highway Capacity Manual, 2000. Transportation Research Board, National Research Council

APPENDIX C – Crash Data & Traffic Counts

| Accident Date Time | Crash First Harmful Event | Crash Lighting Condition | Crash Location | Crash Most Harmful Event | Crash Road Condition | Crash Road Description | Crash Weather Condition | Street Location1 | Street Location2 | Full Address |
|--------------------|--|--------------------------|---------------------|-----------------------------|----------------------|---------------------------|-------------------------|---------------------------|--------------------------|---|
| 10/12/2022 16:39 | Front to Front | Daylight | On Roadway | Front to Front | Dry | At Intersection | Clear | E 81st Pl / Rosemary St | | E 81st Pl / Rosemary St, COMMERCE CITY, COLORADO, 80022 |
| 10/1/2022 12:35 | Curb | Daylight | Ran Off Left Side | Curb | Dry | At Intersection | Clear | E 80TH AVE | ROSEMARY ST | E 80TH AVE, COMMERCE CITY, COLORADO, 80022 |
| 9/26/2022 12:56 | Front to Rear | Daylight | On Roadway | Front to Rear | Dry | Non-Intersection | Clear | ROSEMARY ST | E 81ST PL | ROSEMARY ST, COMMERCE CITY, COLORADO, 80022 |
| 9/20/2022 17:00 | Front to Rear | Daylight | On Roadway | Front to Rear | Dry | Non-Intersection | Clear | ROSEMARY ST & E 82ND AVE | E 82ND AVE/E 83RD AVE | ROSEMARY ST & E 82ND AVE, COMMERCE CITY, COLORADO, 80022 |
| 8/27/2022 12:38 | Front to Rear | Daylight | On Roadway | Front to Rear | Dry | Non-Intersection | Clear | ROSEMARY ST | E 86TH AVE | ROSEMARY ST, COMMERCE CITY, COLORADO, 80022 |
| 7/29/2022 10:54 | Light Pole/Utility Pole | Daylight | Ran Off Right Side | Light Pole/Utility Pole | Dry | At Intersection | Clear | E 84TH AVE / ROSEMARY ST | | E 84TH AVE / ROSEMARY ST, COMMERCE CITY, COLORADO, 80022 |
| 7/25/2022 16:00 | Front to Side | Daylight | On Roadway | Front to Side | Dry | At Intersection | Clear | E 84th Ave / Rosemary St | | E 84th Ave / Rosemary St, COMMERCE CITY, COLORADO, 80022 |
| 7/24/2022 0:13 | Front to Side | Dark - Lighted | On Roadway | Light Pole/Utility Pole | Dry | At Intersection | Clear | E 84TH AVE | ROSEMARY ST | E 84TH AVE, COMMERCE CITY, COLORADO, 80022 |
| 7/12/2022 7:37 | Front to Rear | Daylight | On Roadway | Front to Rear | Dry | At Intersection | Clear | ROSEMARY ST | E 84TH AVE | ROSEMARY ST, COMMERCE CITY, COLORADO, 80022 |
| 6/5/2022 9:22 | Side to Side-Opposite Direction | Daylight | On Roadway | Overtuning/Rollover | Dry | Non-Intersection | Clear | Rosemary St | E 83RD AVE | Rosemary St, COMMERCE CITY, COLORADO, 80022 |
| 5/10/2022 20:44 | Front to Rear | Dark - Lighted | On Roadway | Front to Rear | Dry | At Intersection | Clear | QUEBEC PKWY | HWY 2 | QUEBEC PKWY, COMMERCE CITY, COLORADO, 80022 |
| 5/8/2022 7:08 | Light Pole/Utility Pole | Daylight | Ran Off Left Side | Light Pole/Utility Pole | Dry | Non-Intersection | Clear | ROSEMARY ST | E 83RD AVE | ROSEMARY ST, COMMERCE CITY, COLORADO, 80022 |
| 5/7/2022 9:37 | Front to Rear | Daylight | On Roadway | Front to Rear | Dry | Non-Intersection | Clear | Rosemary St | E 84TH AVE | Rosemary St, UNINCORPORATED ADAMS COUNTY, COLORADO, 80022 |
| 4/24/2022 16:01 | Front to Side | Daylight | On Roadway | Front to Side | Dry | Intersection Related | Cloudy | ROSEMARY ST | E 82ND AVE | ROSEMARY ST, COMMERCE CITY, COLORADO, 80022 |
| 3/14/2022 13:40 | Front to Rear | Daylight | On Roadway | Front to Rear | Dry | At Intersection | Clear | QUEBEC PARKWAY | HIGHWAY 2 | QUEBEC PARKWAY, COMMERCE CITY, COLORADO, 80022 |
| 2/28/2022 0:16 | Ditch | Dark - Unlighted | On Roadway | Sign | Dry | Non-Intersection | Clear | ROSEMARY ST & E 86TH AVE | | ROSEMARY ST & E 86TH AVE, COMMERCE CITY, COLORADO, 80022 |
| 2/26/2022 11:46 | Front to Rear | Daylight | On Roadway | Front to Rear | Dry | At Intersection | Clear | ROSEMARY ST | E 84TH AVE | ROSEMARY ST, COMMERCE CITY, COLORADO, 80022 |
| 2/11/2022 11:57 | Front to Rear | Daylight | On Roadway | Front to Rear | Dry | Non-Intersection | Snow | Rosemary St / E 86th Ave | | Rosemary St / E 86th Ave, COMMERCE CITY, COLORADO, 80022 |
| 12/27/2021 7:06 | Pedestrian | Daylight | On Private Property | Pedestrian | Dry | Auxillary Lane | Clear | 8602 Rosemary St | | 8602 Rosemary St, COMMERCE CITY, COLORADO, 80022 |
| 12/23/2021 7:03 | Front to Side | Daylight | On Roadway | Front to Side | Dry | Non-Intersection | Clear | ROSEMARY ST | E 84TH AVE | ROSEMARY ST, COMMERCE CITY, COLORADO, 80022 |
| 11/23/2021 9:41 | Front to Side | Daylight | On Roadway | Front to Side | Dry | Driveway Access Related | Clear | 8450 Rosemary St | Rosemary St & E 84th ave | 8450 Rosemary St, COMMERCE CITY, COLORADO, 80022 |
| 10/28/2021 18:35 | Front to Rear | Dawn or Dusk | On Roadway | Front to Rear | Dry | Non-Intersection | Clear | ROSEMARY ST | E 81ST PL | ROSEMARY ST, COMMERCE CITY, COLORADO, 80022 |
| 10/19/2021 8:14 | Front to Rear | Daylight | On Roadway | Front to Rear | Dry | Non-Intersection | Clear | ROSEMARY ST | HIGHWAY 2 | ROSEMARY ST, COMMERCE CITY, COLORADO, 80022 |
| 10/19/2021 7:04 | Front to Side | Dawn or Dusk | On Roadway | Front to Side | Dry | At Intersection | Clear | Rosemary St | E 86TH AVE | Rosemary St, COMMERCE CITY, COLORADO, 80022 |
| 9/29/2021 15:55 | Front to Rear | Daylight | On Roadway | Front to Rear | Wet | Non-Intersection | Clear | 8400 Rosemary St | E 84TH AVE/E 86TH AVE | 8400 Rosemary St, COMMERCE CITY, COLORADO, 80022 |
| 9/29/2021 15:40 | Front to Rear | Daylight | On Roadway | Front to Rear | Wet | Non-Intersection | Clear | ROSEMARY ST | E 84TH AVE | ROSEMARY ST, COMMERCE CITY, COLORADO, 80022 |
| 9/22/2021 7:28 | Front to Rear | Daylight | On Roadway | Front to Rear | Dry | Non-Intersection | Clear | ROSEMARY ST & E 81ST AVE | E 80TH AVE/E 81ST AVE | ROSEMARY ST & E 81ST AVE, COMMERCE CITY, COLORADO, 80022 |
| 9/22/2021 7:28 | Front to Rear | Daylight | On Roadway | Front to Rear | Dry | Railroad Crossing Related | Clear | ROSEMARY ST | E 81ST PLACE | ROSEMARY ST, COMMERCE CITY, COLORADO, 80022 |
| 8/5/2021 14:44 | Overhead Structure (Not Bridge) | Daylight | On Private Property | | Dry | Driveway Access Related | Clear | 8602 Rosemary St | PRIVATE PROPERTY | 8602 Rosemary St, COMMERCE CITY, COLORADO, 80022 |
| 6/27/2021 18:54 | Other Non-Fixed Object (Describe in Narrative) | Daylight | Ran Off Left Side | Fence | Dry | Non-Intersection | Clear | E 81ST AVE & ROSEMARY ST | | E 81ST AVE & ROSEMARY ST, COMMERCE CITY, COLORADO, 80022 |
| 5/23/2021 19:17 | Front to Side | Daylight | On Roadway | Front to Side | Dry | At Intersection | Clear | E 84TH AVE | ROSEMARY ST | E 84TH AVE, COMMERCE CITY, COLORADO, 80022 |
| 5/23/2021 13:46 | Side to Side-Opposite Direction | Daylight | On Roadway | Side to Side-Same Direction | Dry | Non-Intersection | Clear | ROSEMARY ST | E 82ND AVE | ROSEMARY ST, COMMERCE CITY, COLORADO, 80022 |
| 5/23/2021 11:42 | Front to Side | Daylight | On Roadway | Front to Side | Dry | At Intersection | Clear | ROSEMARY ST & E 84TH AVE | E 83RD AVE/E 84TH AVE | ROSEMARY ST & E 84TH AVE, COMMERCE CITY, COLORADO, 80022 |
| 5/21/2021 1:15 | Ditch | Dark - Unlighted | On Roadway | Ditch | Dry | Non-Intersection | Clear | 8500 ROSEMARY ST | E 86TH AVE | 8500 ROSEMARY ST, COMMERCE CITY, COLORADO, 80022 |
| 4/12/2021 8:14 | Side to Side-Same Direction | Daylight | On Roadway | Side to Side-Same Direction | Dry | Intersection Related | Clear | ROSEMARY ST & E 84TH AVE | E 83RD AVE/E 84TH AVE | ROSEMARY ST & E 84TH AVE, COMMERCE CITY, COLORADO, 80022 |
| 1/19/2021 10:07 | | | | | | | | E 82ND AVE / ROSEMARY ST | | E 82ND AVE / ROSEMARY ST, COMMERCE CITY, COLORADO, 80022 |
| 11/20/2020 15:35 | OTHER FIXED OBJECT | DAYLIGHT | RAN OFF RIGHT SIDE | OTHER FIXED OBJECT | DRY | NON-INTERSECTION | NONE | E 86TH AVE & ROSEMARY ST | | E 86TH AVE & ROSEMARY ST, COMMERCE CITY, COLORADO, 80022 |
| 10/12/2020 11:50 | CONCRETE HIGHWAY BARRIER | DAYLIGHT | ON ROADWAY | CONCRETE HIGHWAY BARRIER | DRY | NON-INTERSECTION | NONE | E 80th Ave / Rosemary St | | E 80th Ave / Rosemary St, COMMERCE CITY, COLORADO, 80022 |
| 8/26/2020 18:18 | FRONT TO REAR | DAYLIGHT | ON ROADWAY | FRONT TO REAR | WET | NON-INTERSECTION | RAIN | ROSEMARY ST & E 84TH AVE | E 84TH AVE/E 86TH AVE | ROSEMARY ST & E 84TH AVE, COMMERCE CITY, COLORADO, 80022 |
| 8/22/2020 13:48 | OTHER FIXED OBJECT | DAYLIGHT | ON ROADWAY | OTHER FIXED OBJECT | DRY | NON-INTERSECTION | NONE | ROSEMARY ST & E 86TH AVE | E 86TH AVE/E 87TH AVE | ROSEMARY ST & E 86TH AVE, COMMERCE CITY, COLORADO, 80022 |
| 8/8/2020 10:37 | OTHER FIXED OBJECT | | ON ROADWAY | OTHER FIXED OBJECT | DRY | DRIVEWAY ACCESS RELATED | | SYRACUSE ST & E 81ST AVE | ROSEMARY ST/SYRACUSE ST | SYRACUSE ST & E 81ST AVE, COMMERCE CITY, COLORADO, 80022 |
| 8/6/2020 13:02 | OVERTURN | DAYLIGHT | ON ROADWAY | OVERTURN | DRY | AT INTERSECTION | NONE | E 81ST AVE & ROSEMARY ST | | E 81ST AVE & ROSEMARY ST, COMMERCE CITY, COLORADO, 80022 |
| 8/5/2020 13:55 | FRONT TO REAR | DAYLIGHT | ON ROADWAY | FRONT TO REAR | DRY | AT INTERSECTION | NONE | E 84TH AVE & ROSEMARY ST | | E 84TH AVE & ROSEMARY ST, COMMERCE CITY, COLORADO, 80022 |
| 7/17/2020 15:07 | FRONT TO REAR | DAYLIGHT | ON ROADWAY | FRONT TO REAR | DRY | NON-INTERSECTION | NONE | ROSEMARY ST & E 86TH AVE | E 86TH AVE/E 87TH AVE | ROSEMARY ST & E 86TH AVE, COMMERCE CITY, COLORADO, 80022 |
| 5/29/2020 6:51 | FENCE | DAYLIGHT | RAN OFF RIGHT SIDE | FENCE | DRY | NON-INTERSECTION | NONE | ROSEMARY ST & E. 81ST AVE | E 80TH AVE/E 81ST AVE | ROSEMARY ST & E. 81ST AVE, COMMERCE CITY, COLORADO, 80022 |
| 12/12/2019 12:25 | FRONT TO REAR | DAYLIGHT | ON ROADWAY | FRONT TO REAR | DRY | NON-INTERSECTION | NONE | ROSEMARY ST & E 86TH AVE | | ROSEMARY ST & E 86TH AVE, COMMERCE CITY, COLORADO, 80022 |
| 12/3/2019 9:59 | FRONT TO SIDE | DAYLIGHT | ON ROADWAY | FRONT TO SIDE | DRY | AT INTERSECTION | NONE | E 84TH AVE & ROSEMARY ST | | E 84TH AVE & ROSEMARY ST, COMMERCE CITY, COLORADO, 80022 |
| 10/22/2019 15:50 | FRONT TO SIDE | DAYLIGHT | ON ROADWAY | FRONT TO SIDE | DRY | AT INTERSECTION | NONE | ROSEMARY ST & E 86TH AVE | E 84TH AVE/E 86TH AVE | ROSEMARY ST & E 86TH AVE, COMMERCE CITY, COLORADO, 80022 |
| 9/23/2019 17:50 | SIDE TO SIDE-SAME DIRECTION | DAYLIGHT | ON ROADWAY | SIDE TO SIDE-SAME DIRECTION | DRY | AT INTERSECTION | NONE | ROSEMARY ST & E 81ST AVE | | ROSEMARY ST & E 81ST AVE, COMMERCE CITY, COLORADO, 80022 |
| 8/18/2019 12:17 | FRONT TO REAR | DAYLIGHT | ON ROADWAY | FRONT TO REAR | DRY | NON-INTERSECTION | NONE | ROSEMARY ST & E 86TH AVE | | ROSEMARY ST & E 86TH AVE, COMMERCE CITY, COLORADO, 80022 |
| 8/6/2019 15:50 | FRONT TO REAR | DAYLIGHT | ON ROADWAY | FRONT TO REAR | DRY | NON-INTERSECTION | NONE | ROSEMARY ST & E 81ST AVE | E 81ST PL/E 82ND AVE | ROSEMARY ST & E 81ST AVE, COMMERCE CITY, COLORADO, 80022 |
| 7/25/2019 17:02 | FRONT TO REAR | DAYLIGHT | ON ROADWAY | FRONT TO REAR | DRY | NON-INTERSECTION | NONE | ROSEMARY ST & E 84TH AVE | | ROSEMARY ST & E 84TH AVE, COMMERCE CITY, COLORADO, 80022 |
| 7/22/2019 17:04 | FRONT TO REAR | DAYLIGHT | ON ROADWAY | FRONT TO REAR | DRY | NON-INTERSECTION | NONE | ROSEMARY ST & E 84TH AVE | E 84TH AVE/E 86TH AVE | ROSEMARY ST & E 84TH AVE, COMMERCE CITY, COLORADO, 80022 |
| 7/10/2019 9:28 | LARGE ROCKS OR BOULDER | DAYLIGHT | RAN OFF LEFT SIDE | LARGE ROCKS OR BOULDER | DRY | NON-INTERSECTION | NONE | ROSEMARY ST & E 86TH AVE | Dead End/E 86TH AVE | ROSEMARY ST & E 86TH AVE, COMMERCE CITY, CO, 80022 |
| 6/21/2019 15:30 | FRONT TO REAR | DAYLIGHT | ON ROADWAY | FRONT TO REAR | WET | NON-INTERSECTION | RAIN | ROSEMARY ST & E 86TH AVE | E 84TH AVE/E 86TH AVE | ROSEMARY ST & E 86TH AVE, COMMERCE CITY, COLORADO, 80022 |
| 5/28/2019 7:03 | FRONT TO SIDE | DAYLIGHT | ON ROADWAY | FRONT TO SIDE | DRY | AT INTERSECTION | NONE | ROSEMARY ST & E 84TH AVE | E 87TH AVE/E 88TH AVE | ROSEMARY ST & E 84TH AVE, COMMERCE CITY, COLORADO, 80022 |
| 5/3/2019 16:50 | FRONT TO REAR | DAYLIGHT | ON ROADWAY | FRONT TO REAR | DRY | NON-INTERSECTION | NONE | ROSEMARY ST & E 81ST AVE | | ROSEMARY ST & E 81ST AVE, COMMERCE CITY, COLORADO, 80022 |
| 4/29/2019 15:23 | FRONT TO REAR | DAYLIGHT | ON ROADWAY | FRONT TO REAR | DRY | NON-INTERSECTION | NONE | ROSEMARY ST & E 86TH AVE | | ROSEMARY ST & E 86TH AVE, COMMERCE CITY, COLORADO, 80022 |
| 3/30/2019 16:56 | FRONT TO REAR | DAYLIGHT | ON ROADWAY | FRONT TO REAR | DRY | NON-INTERSECTION | NONE | ROSEMARY ST & E 84TH AVE | E 83RD AVE/E 84TH AVE | ROSEMARY ST & E 84TH AVE, COMMERCE CITY, COLORADO, 80022 |
| 3/29/2019 15:45 | FRONT TO REAR | DAYLIGHT | ON ROADWAY | FRONT TO REAR | DRY | NON-INTERSECTION | NONE | ROSEMARY ST & E 86TH AVE | | ROSEMARY ST & E 86TH AVE, COMMERCE CITY, COLORADO, 80022 |
| 3/27/2019 9:23 | SIGN | DAYLIGHT | ON PRIVATE PROPERTY | SIGN | DRY | PARKING LOT | NONE | 8210 Rosemary St | E 82ND AVE/E 83RD AVE | 8210 Rosemary St, COMMERCE CITY, COLORADO, 80022 |
| 2/13/2019 18:42 | FRONT TO REAR | DARK - LIGHTED | ON ROADWAY | FRONT TO REAR | DRY | NON-INTERSECTION | NONE | ROSEMARY ST & E 86TH AVE | | ROSEMARY ST & E 86TH AVE, COMMERCE CITY, COLORADO, 80022 |
| 12/14/2018 14:06 | FRONT TO REAR | DAYLIGHT | ON ROADWAY | FRONT TO REAR | DRY | NON-INTERSECTION | NONE | 8600 & ROSEMARY ST | | 8600 & ROSEMARY ST, COMMERCE CITY, COLORADO, 80022 |
| 11/17/2018 11:26 | FRONT TO REAR | DAYLIGHT | ON ROADWAY | FRONT TO REAR | WET | NON-INTERSECTION | RAIN | ROSEMARY ST & E 86TH AVE | E 86TH AVE/E 87TH AVE | ROSEMARY ST & E 86TH AVE, COMMERCE CITY, COLORADO, 80022 |
| 11/5/2018 8:39 | FRONT TO REAR | DAYLIGHT | ON ROADWAY | FRONT TO REAR | DRY | NON-INTERSECTION | NONE | ROSEMARY ST & E 86TH AVE | | ROSEMARY ST & E 86TH AVE, COMMERCE CITY, COLORADO, 80022 |
| 11/5/2018 8:39 | FRONT TO REAR | DAYLIGHT | ON ROADWAY | FRONT TO REAR | DRY | NON-INTERSECTION | NONE | ROSEMARY ST & E 86TH AVE | | ROSEMARY ST & E 86TH AVE, COMMERCE CITY, COLORADO, 80022 |

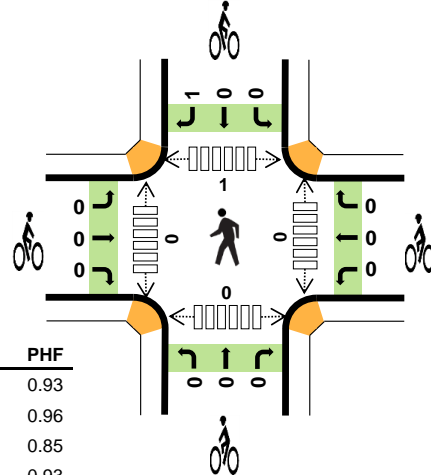
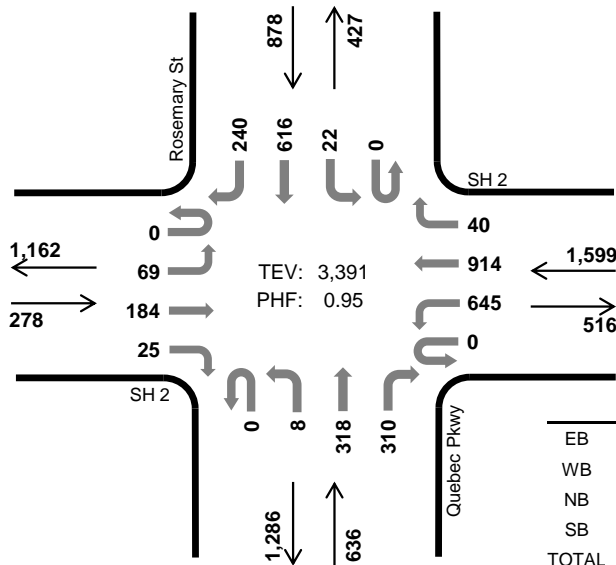
| Accident Date Time | Crash First Harmful Event | Crash Lighting Condition | Crash Location | Crash Most Harmful Event | Crash Road Condition | Crash Road Description | Crash Weather Condition | Street Location1 | Street Location2 | Full Address |
|--------------------|----------------------------------|--------------------------|--------------------|----------------------------------|------------------------------------|------------------------|-------------------------|----------------------------------|------------------------|--|
| 12/17/2022 3:33 | Front to Front | Dark - Lighted | On Roadway | Front to Front | Dry | At Intersection | Clear | HWY 2 | QUEBEC PKWY | HWY 2, COMMERCE CITY, COLORADO, 80022 |
| 10/31/2022 17:16 | Front to Side | Daylight | On Roadway | Front to Side | Dry | Non-Intersection | Clear | Quebec Pkwy / Highway 2 | | Quebec Pkwy / Highway 2, COMMERCE CITY, COLORADO, 80022 |
| 10/12/2022 7:39 | Front to Rear | Daylight | On Roadway | Front to Rear | Dry | Intersection Related | Clear | E 80TH AVE | HIGHWAY 2 | E 80TH AVE, COMMERCE CITY, COLORADO, 80022 |
| 8/30/2022 16:40 | Side to Side-Same Direction | Daylight | On Roadway | Side to Side-Same Direction | Dry | At Intersection | Clear | ROSEMARY ST & E 80TH AVE | | ROSEMARY ST & E 80TH AVE, COMMERCE CITY, COLORADO, 80022 |
| 7/11/2022 14:52 | Side to Side-Same Direction | Daylight | On Roadway | Side to Side-Same Direction | Dry | At Intersection | Clear | QUEBEC PKWY | HIGHWAY 2 | QUEBEC PKWY, COMMERCE CITY, COLORADO, 80022 |
| 6/29/2022 18:16 | Front to Rear | Daylight | On Roadway | Front to Rear | Dry | At Intersection | Clear | Quebec Pkwy / Highway 2 | | Quebec Pkwy / Highway 2, COMMERCE CITY, COLORADO, 80022 |
| 6/28/2022 22:19 | Front to Front | Dark - Lighted | On Roadway | Front to Front | Dry | At Intersection | Clear | COLORADO HIGHWAY 2 | E 80TH AVE | COLORADO HIGHWAY 2, COMMERCE CITY, COLORADO, 80022 |
| 6/9/2022 7:30 | Front to Side | Daylight | On Roadway | Front to Side | Dry | At Intersection | Clear | HWY 2 | QUEBEC PWKY | HWY 2, COMMERCE CITY, COLORADO, 80022 |
| 6/8/2022 0:36 | Overtuning/Rollover | Dark - Unlighted | On Roadway | Overtuning/Rollover | Dry | Non-Intersection | Clear | Quebec Pkwy / Highway 2 | | Quebec Pkwy / Highway 2, COMMERCE CITY, COLORADO, 80022 |
| 5/12/2022 14:35 | Front to Rear | Daylight | On Roadway | Front to Rear | Dry | At Intersection | Clear | Highway 2 / Quebec Pkwy | | Highway 2 / Quebec Pkwy, COMMERCE CITY, COLORADO, 80022 |
| 4/9/2022 22:18 | Front to Side | Dark - Lighted | On Roadway | Front to Side | Dry | At Intersection | Clear | HIGHWAY 2 & QUEBEC ST | | HIGHWAY 2 & QUEBEC ST, COMMERCE CITY, COLORADO, 80022 |
| 4/6/2022 14:49 | Overtuning/Rollover | Daylight | On Roadway | | Dry | Intersection Related | Wind,Clear | HIGHWAY 2 & QUEBEC PKWY | | HIGHWAY 2 & QUEBEC PKWY, COMMERCE CITY, COLORADO, 80022 |
| 4/6/2022 14:49 | Overtuning/Rollover | Daylight | On Roadway | | Dry | Intersection Related | Wind,Clear | HIGHWAY 2 & QUEBEC PKWY | | HIGHWAY 2 & QUEBEC PKWY, COMMERCE CITY, COLORADO, 80022 |
| 3/2/2022 8:23 | Side to Side-Same Direction | Daylight | On Roadway | Side to Side-Same Direction | Dry | Intersection Related | Clear | ROSEMARY ST | HWY 2 | ROSEMARY ST, COMMERCE CITY, COLORADO, 80022 |
| 2/28/2022 7:14 | Front to Rear | Daylight | On Roadway | Front to Rear | Dry | At Intersection | Clear | QUEBEC PKWY & HIGHWAY 2 | | QUEBEC PKWY & HIGHWAY 2, COMMERCE CITY, COLORADO, 80022 |
| 2/7/2022 8:19 | Front to Rear | Daylight | On Roadway | Front to Rear | Dry | Intersection Related | Clear | ROSEMARY ST | STATE HWY 2 | ROSEMARY ST, COMMERCE CITY, COLORADO, 80022 |
| 2/4/2022 10:39 | Front to Rear | Daylight | On Roadway | Front to Rear | Wet W/Visible Icy Road Treatment | At Intersection | Clear | ROSEMARY ST | HIGHWAY 2 | ROSEMARY ST, COMMERCE CITY, COLORADO, 80022 |
| 1/8/2022 19:35 | Front to Rear | Dark - Lighted | On Roadway | Front to Rear | Dry | Non-Intersection | Clear | E. 80th Ave | Highway 2 | E. 80th Ave, COMMERCE CITY, COLORADO, 80022 |
| 1/5/2022 7:23 | Front to Rear | Daylight | On Roadway | Front to Rear | Dry | Non-Intersection | Clear | STATE HIGHWAY 2 | E 80th Ave | STATE HIGHWAY 2, COMMERCE CITY, COLORADO, 80022 |
| 12/19/2021 3:24 | Side to Side-Opposite Direction | Dark - Unlighted | On Roadway | Side to Side-Opposite Direction | Dry | Non-Intersection | Clear | HWY 2 | QUEBEC ST | HWY 2, COMMERCE CITY, COLORADO, 80022 |
| 12/14/2021 6:58 | Front to Side | Dawn or Dusk | On Roadway | Front to Side | Dry | Intersection Related | Clear | HIGHWAY 2 | E 80TH AVE | HIGHWAY 2, COMMERCE CITY, COLORADO, 80022 |
| 12/14/2021 6:58 | Front to Side | Dawn or Dusk | On Roadway | Front to Side | Dry | Intersection Related | Clear | HIGHWAY 2 | E 80TH AVE | HIGHWAY 2, COMMERCE CITY, COLORADO, 80022 |
| 11/4/2021 17:40 | Front to Rear | Daylight | On Roadway | Front to Rear | Dry | At Intersection | Clear | ROSEMARY ST | E 80TH AVE | ROSEMARY ST, COMMERCE CITY, COLORADO, 80022 |
| 11/2/2021 7:51 | Side to Side-Same Direction | Daylight | On Roadway | Side to Side-Same Direction | Dry | Intersection Related | Cloudy | ROSEMARY ST | E 80TH AVE | ROSEMARY ST, COMMERCE CITY, COLORADO, 80022 |
| 10/18/2021 13:45 | Front to Side | Daylight | On Roadway | Front to Side | Dry | At Intersection | Clear | Highway 2 | E 80th AVE | Highway 2, COMMERCE CITY, COLORADO, 80022 |
| 9/23/2021 7:45 | Front to Rear | Daylight | On Roadway | Front to Rear | Dry | Non-Intersection | Clear | HIGHWAY 2 | E 80TH AVE | HIGHWAY 2, COMMERCE CITY, COLORADO, 80022 |
| 9/10/2021 7:50 | Front to Rear | Daylight | On Roadway | Front to Rear | Dry | At Intersection | Clear | ROSEMARY ST | HIGHWAY 2 | ROSEMARY ST, COMMERCE CITY, COLORADO, 80022 |
| 7/13/2021 14:56 | Front to Rear | Daylight | On Roadway | Front to Rear | Dry | Intersection Related | Clear | HIGHWAY 2 | QUEBEC PARKWAY | HIGHWAY 2, COMMERCE CITY, COLORADO, 80022 |
| 7/8/2021 12:39 | Embankment | Daylight | Ran Off Left Side | Overtuning/Rollover | Dry | Non-Intersection | Clear | HIGHWAY 2 | QUEBEC PKWY | HIGHWAY 2, COMMERCE CITY, COLORADO, 80022 |
| 3/2/2021 17:23 | FRONT TO FRONT | DAYLIGHT | ON ROADWAY | FRONT TO FRONT | DRY | NON-INTERSECTION | NONE | STATE HIGHWAY 2 & QUEBEC PKWY | QUEBEC ST/E 80TH AVE | STATE HIGHWAY 2 & QUEBEC PKWY, COMMERCE CITY, COLORADO, 80022 |
| 2/17/2021 14:47 | FRONT TO REAR | DAYLIGHT | ON ROADWAY | FRONT TO REAR | DRY | NON-INTERSECTION | NONE | E 80TH AVE & ROSEMARY ST | | E 80TH AVE & ROSEMARY ST, COMMERCE CITY, COLORADO, 80022 |
| 1/25/2021 17:39 | FRONT TO REAR | DARK - LIGHTED | ON ROADWAY | FRONT TO REAR | DRY | INTERSECTION RELATED | NONE | ROSEMARY ST & HWY 2 | E 80TH AVE/QUEBEC PKWY | ROSEMARY ST & HWY 2, COMMERCE CITY, COLORADO, 80022 |
| 1/11/2021 15:26 | FRONT TO FRONT | DAYLIGHT | ON ROADWAY | FRONT TO FRONT | DRY | AT INTERSECTION | NONE | STATE HIGHWAY 2 & QUEBEC PKWY | | STATE HIGHWAY 2 & QUEBEC PKWY, COMMERCE CITY, COLORADO, 80022 |
| 1/7/2021 16:53 | FRONT TO REAR | DAWN OR DUSK | ON ROADWAY | FRONT TO REAR | DRY | NON-INTERSECTION | NONE | QUEBEC PKWY & STATE HIGHWAY 2 | | QUEBEC PKWY & STATE HIGHWAY 2, COMMERCE CITY, COLORADO, 80022 |
| 10/12/2020 11:50 | CONCRETE HIGHWAY BARRIER | DAYLIGHT | ON ROADWAY | CONCRETE HIGHWAY BARRIER | DRY | NON-INTERSECTION | NONE | E 80th Ave / Rosemary St | | E 80th Ave / Rosemary St, COMMERCE CITY, COLORADO, 80022 |
| 10/6/2020 11:46 | FRONT TO FRONT | DAYLIGHT | ON ROADWAY | FRONT TO FRONT | DRY | AT INTERSECTION | NONE | HIGHWAY 2 & QUEBEC PKWY | | HIGHWAY 2 & QUEBEC PKWY, COMMERCE CITY, COLORADO, 80022 |
| 9/17/2020 12:13 | FRONT TO SIDE | DAYLIGHT | ON ROADWAY | FRONT TO SIDE | DRY | AT INTERSECTION | NONE | QUEBEC PKWY & STATE HIGHWAY 2 | | QUEBEC PKWY & STATE HIGHWAY 2, COMMERCE CITY, COLORADO, 80022 |
| 8/25/2020 16:19 | FRONT TO REAR | DAYLIGHT | ON ROADWAY | FRONT TO REAR | DRY | NON-INTERSECTION | NONE | QUEBEC PKWY & STATE HIGHWAY 2 | | QUEBEC PKWY & STATE HIGHWAY 2, COMMERCE CITY, COLORADO, 80022 |
| 8/1/2020 1:10 | SIDE TO SIDE -OPPOSITE DIRECTION | DARK - UNLIGHTED | ON ROADWAY | SIDE TO SIDE -OPPOSITE DIRECTION | DRY | NON-INTERSECTION | NONE | STATE HIGHWAY 2 & E 80TH AVE | | STATE HIGHWAY 2 & E 80TH AVE, COMMERCE CITY, COLORADO, 80022 |
| 4/3/2020 12:30 | OVERTURN | DAYLIGHT | RAN OFF RIGHT SIDE | OVERTURN | DRY | NON-INTERSECTION | NONE | HWY 2 & Quebec Pkwy | | HWY 2 & Quebec Pkwy, COMMERCE CITY, COLORADO, 80022 |
| 3/24/2020 21:39 | EMBANKMENT | DARK - LIGHTED | ON ROADWAY | EMBANKMENT | DRY | NON-INTERSECTION | NONE | STATE HIGHWAY 2 & QUEBEC ST | | STATE HIGHWAY 2 & QUEBEC ST, CCPD, COLORADO, 80022 |
| 2/28/2020 8:01 | FRONT TO REAR | DAYLIGHT | ON ROADWAY | FRONT TO REAR | DRY | NON-INTERSECTION | NONE | E 80TH AVE & ROSEMARY ST | | E 80TH AVE & ROSEMARY ST, ADAMS COUNTY, COLORADO, 80022 |
| 2/25/2020 18:28 | FRONT TO REAR | DARK - LIGHTED | ON ROADWAY | FRONT TO REAR | DRY | AT INTERSECTION | NONE | Rosemary St / E 80th Ave | | Rosemary St / E 80th Ave, UNINCORPORATED ADAMS COUNTY, COLORADO, 80022 |
| 2/14/2020 12:12 | FRONT TO REAR | DAYLIGHT | ON ROADWAY | FRONT TO REAR | DRY | AT INTERSECTION | NONE | STATE HIGHWAY 2 / QUEBEC PKWY | | STATE HIGHWAY 2 / QUEBEC PKWY, COMMERCE CITY, COLORADO, 80022 |
| 2/12/2020 6:49 | FRONT TO REAR | DAYLIGHT | ON ROADWAY | FRONT TO REAR | ICY | AT INTERSECTION | NONE | QUEBEC PKWY & STATE HIGHWAY 2 | | QUEBEC PKWY & STATE HIGHWAY 2, COMMERCE CITY, COLORADO, 80022 |
| 1/9/2020 18:08 | FRONT TO REAR | DARK - LIGHTED | ON ROADWAY | FRONT TO REAR | DRY | NON-INTERSECTION | NONE | STATE HIGHWAY 2 & QUEBEC PKWY | | STATE HIGHWAY 2 & QUEBEC PKWY, COMMERCE CITY, COLORADO, 80022 |
| 12/10/2019 13:48 | FRONT TO SIDE | DAYLIGHT | ON ROADWAY | FRONT TO SIDE | DRY | AT INTERSECTION | NONE | STATE HIGHWAY 2 & QUEBEC PKWY | | STATE HIGHWAY 2 & QUEBEC PKWY, COMMERCE CITY, COLORADO, 80022 |
| 12/7/2019 4:04 | CURB | DARK - UNLIGHTED | RAN OFF RIGHT SIDE | SIGN | ICY W/VISIBLE ICY ROAD TREATMENT | NON-INTERSECTION | NONE | Quebec Pkwy & State Highway 2 | | Quebec Pkwy & State Highway 2, COMMERCE CITY, COLORADO, 80022 |
| 11/22/2019 5:43 | CURB | DARK - LIGHTED | ON ROADWAY | FRONT TO SIDE | SNOWY W/VISIBLE ICY ROAD TREATMENT | NON-INTERSECTION | SNOW/SLEET/HAIL | QUEBEC PARKWAY & STATE HIGHWAY 2 | | QUEBEC PARKWAY & STATE HIGHWAY 2, COMMERCE CITY, COLORADO, 80022 |
| 11/20/2019 14:57 | FRONT TO REAR | DAYLIGHT | ON ROADWAY | FRONT TO REAR | DRY | INTERSECTION RELATED | NONE | STATE HIGHWAY 2 & ROSEMARY ST | | STATE HIGHWAY 2 & ROSEMARY ST, COMMERCE CITY, COLORADO, 80022 |
| 11/1/2019 8:27 | FRONT TO REAR | DAYLIGHT | ON ROADWAY | FRONT TO REAR | DRY | NON-INTERSECTION | NONE | E 80TH AVE & ROSEMARY ST | | E 80TH AVE & ROSEMARY ST, ADAMS COUNTY, COLORADO, 80022 |
| 10/23/2019 7:04 | FRONT TO REAR | DAYLIGHT | ON ROADWAY | FRONT TO REAR | DRY | NON-INTERSECTION | NONE | STATE HIGHWAY 2 & ROSEMARY ST | | STATE HIGHWAY 2 & ROSEMARY ST, COMMERCE CITY, COLORADO, 80022 |
| 9/22/2019 15:03 | FRONT TO REAR | DAYLIGHT | ON ROADWAY | FRONT TO REAR | DRY | NON-INTERSECTION | NONE | E 80TH AVE & ROSEMARY ST | | E 80TH AVE & ROSEMARY ST, ADAMS COUNTY, COLORADO, 80022 |
| 9/19/2019 15:02 | FRONT TO REAR | DAYLIGHT | ON ROADWAY | FRONT TO REAR | DRY | INTERSECTION RELATED | NONE | QUEBEC PKWY & STATE HIGHWAY 2 | | QUEBEC PKWY & STATE HIGHWAY 2, COMMERCE CITY, COLORADO, 80022 |
| 8/31/2019 8:49 | FRONT TO SIDE | DAYLIGHT | ON ROADWAY | FRONT TO SIDE | DRY | AT INTERSECTION | NONE | STATE HIGHWAY 2 & QUEBEC ST | | STATE HIGHWAY 2 & QUEBEC ST, COMMERCE CITY, COLORADO, 80022 |
| 8/1/2019 16:45 | FRONT TO REAR | DAYLIGHT | ON ROADWAY | FRONT TO REAR | DRY | INTERSECTION RELATED | NONE | State Highway 2 & Rosemary St | | State Highway 2 & Rosemary St, COMMERCE CITY, COLORADO, 80022 |
| 7/18/2019 1:25 | OTHER OBJECT | DARK - LIGHTED | RAN OFF RIGHT SIDE | CURB | DRY | NON-INTERSECTION | NONE | QUEBEC PKWY & HIGHWAY 2 | | QUEBEC PKWY & HIGHWAY 2, COMMERCE CITY, COLORADO, 80022 |
| 7/2/2019 11:26 | FRONT TO SIDE | DAYLIGHT | ON ROADWAY | FRONT TO SIDE | DRY | AT INTERSECTION | NONE | Quebec Pkwy / State Highway 2 | | Quebec Pkwy / State Highway 2, COMMERCE CITY, COLORADO, 80022 |
| 6/6/2019 6:07 | SIDE TO SIDE-SAME DIRECTION | DAYLIGHT | ON ROADWAY | SIDE TO SIDE-SAME DIRECTION | DRY | NON-INTERSECTION | NONE | ROSEMARY ST & E 80TH AVE | | ROSEMARY ST & E 80TH AVE, COMMERCE CITY, COLORADO, 80022 |
| 4/24/2019 15:22 | FRONT TO FRONT | DAYLIGHT | ON ROADWAY | FRONT TO FRONT | DRY | AT INTERSECTION | NONE | STATE HIGHWAY 2 & QUEBEC ST | | STATE HIGHWAY 2 & QUEBEC ST, COMMERCE CITY, COLORADO, 80022 |
| 4/12/2019 15:42 | FRONT TO REAR | DAYLIGHT | ON ROADWAY | FRONT TO REAR | DRY | NON-INTERSECTION | NONE | QUEBEC ST & STATE HIGHWAY 2 | | QUEBEC ST & STATE HIGHWAY 2, COMMERCE CITY, COLORADO, 80022 |
| 3/13/2019 11:21 | FRONT TO FRONT | DAYLIGHT | ON ROADWAY | FRONT TO FRONT | SNOWY,SLUSHY,WET | NON-INTERSECTION | SNOW/SLEET/HAIL | STATE HIGHWAY 2 & QUEBEC ST | | STATE HIGHWAY 2 & QUEBEC ST, COMMERCE CITY, COLORADO, 80022 |
| 3/11/2019 15:47 | FRONT TO REAR | DAYLIGHT | ON ROADWAY | FRONT TO REAR | DRY | INTERSECTION RELATED | NONE | ROSEMARY ST & HIGHWAY 2 | | ROSEMARY ST & HIGHWAY 2, COMMERCE CITY, COLORADO, 80022 |
| 2/1/2019 18:49 | FRONT TO SIDE | DARK - LIGHTED | ON ROADWAY | FRONT TO SIDE | DRY | NON-INTERSECTION | NONE | STATE HIGHWAY 2 & QUEBEC PKWY | | STATE HIGHWAY 2 & QUEBEC PKWY, COMMERCE CITY, COLORADO, 80022 |
| 2/1/2019 6:01 | FRONT TO REAR | DARK - LIGHTED | ON ROADWAY | FRONT TO REAR | DRY | HIGHWAY INTERCHANGE | NONE | E 80TH AVE & STATE HIGHWAY 2 | | E 80TH AVE & STATE HIGHWAY 2, COMMERCE CITY, COLORADO, 80022 |
| 1/4/2019 6:33 | FRONT TO FRONT | DAWN OR DUSK | ON ROADWAY | FRONT TO FRONT | DRY | AT INTERSECTION | NONE | ROSEMARY ST & STATE HIGHWAY 2 | | ROSEMARY ST & STATE HIGHWAY 2, COMMERCE CITY, COLORADO, 80022 |
| 12/14/2018 18:23 | FRONT TO SIDE | DARK - LIGHTED | ON ROADWAY | FRONT TO SIDE | DRY | AT INTERSECTION | NONE | QUEBEC PKWY & STATE HIGHWAY 2 | | QUEBEC PKWY & STATE HIGHWAY 2, COMMERCE CITY, COLORADO, 80022 |
| 12/13/2018 7:43 | FRONT TO REAR | DAYLIGHT | ON ROADWAY | FRONT TO REAR | DRY | NON-INTERSECTION | NONE | ROSEMARY ST & STATE HIGHWAY 2 | | ROSEMARY ST & STATE HIGHWAY 2, COMMERCE CITY, COLORADO, 80022 |
| 11/7/2018 8:28 | FRONT TO REAR | DAYLIGHT | ON ROADWAY | FRONT TO REAR | DRY | AT INTERSECTION | NONE | Rosemary St. & State Highway 2 | | Rosemary St. & State Highway 2, COMMERCE CITY, COLORADO, 80022 |
| 10/26/2018 6:39 | FRONT TO REAR | DARK - LIGHTED | ON ROADWAY | FRONT TO REAR | DRY | INTERSECTION RELATED | NONE | QUEBEC PKWY & HIGHWAY 2 | | QUEBEC PKWY & HIGHWAY 2, COMMERCE CITY, COLORADO, 80022 |
| 10/24/2018 9:28 | FRONT TO REAR | DAYLIGHT | ON ROADWAY | FRONT TO REAR | DRY | INTERSECTION RELATED | NONE | QUEBEC PKWY & HIGHWAY 2 | | QUEBEC PKWY & HIGHWAY 2, COMMERCE CITY, COLORADO, 80022 |

Rosemary St SH 2



Peak Hour

Date: 11/02/2022
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00 AM to 8:00 AM



| | HV %: | PHF |
|-------|-------|------|
| EB | 6.1% | 0.93 |
| WB | 6.4% | 0.96 |
| NB | 9.4% | 0.85 |
| SB | 6.7% | 0.93 |
| TOTAL | 7.0% | 0.95 |

Two-Hour Count Summaries

| Interval Start | SH 2 Eastbound | | | | SH 2 Westbound | | | | Quebec Pkwy Northbound | | | | Rosemary St Southbound | | | | 15-min Total | Rolling One Hour | |
|----------------|----------------|-----|-----|-----|----------------|-------|-------|-----|------------------------|----|-----|-----|------------------------|----|-------|-----|--------------|------------------|---|
| | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | | | |
| 7:00 AM | 0 | 10 | 60 | 5 | 0 | 174 | 198 | 6 | 0 | 0 | 74 | 50 | 0 | 2 | 170 | 41 | 790 | 0 | |
| 7:15 AM | 0 | 18 | 33 | 15 | 0 | 175 | 229 | 12 | 0 | 2 | 85 | 86 | 0 | 5 | 167 | 63 | 890 | 0 | |
| 7:30 AM | 0 | 24 | 50 | 1 | 0 | 127 | 250 | 10 | 0 | 4 | 93 | 90 | 0 | 6 | 144 | 61 | 860 | 0 | |
| 7:45 AM | 0 | 17 | 41 | 4 | 0 | 169 | 237 | 12 | 0 | 2 | 66 | 84 | 0 | 9 | 135 | 75 | 851 | 3,391 | |
| 8:00 AM | 0 | 35 | 29 | 1 | 0 | 128 | 177 | 11 | 0 | 1 | 91 | 94 | 0 | 8 | 130 | 63 | 768 | 3,369 | |
| 8:15 AM | 0 | 36 | 35 | 2 | 0 | 136 | 154 | 7 | 0 | 2 | 66 | 82 | 0 | 9 | 126 | 46 | 701 | 3,180 | |
| 8:30 AM | 0 | 39 | 36 | 3 | 0 | 120 | 128 | 6 | 0 | 2 | 62 | 64 | 0 | 4 | 117 | 35 | 616 | 2,936 | |
| 8:45 AM | 0 | 21 | 32 | 1 | 0 | 98 | 77 | 6 | 0 | 2 | 57 | 59 | 0 | 5 | 101 | 37 | 496 | 2,581 | |
| Count Total | 0 | 200 | 316 | 32 | 0 | 1,127 | 1,450 | 70 | 0 | 15 | 594 | 609 | 0 | 48 | 1,090 | 421 | 5,972 | 0 | |
| Peak Hour | All | 0 | 69 | 184 | 25 | 0 | 645 | 914 | 40 | 0 | 8 | 318 | 310 | 0 | 22 | 616 | 240 | 3,391 | 0 |
| | HV | 0 | 0 | 16 | 1 | 0 | 71 | 27 | 5 | 0 | 2 | 21 | 37 | 0 | 2 | 43 | 14 | 239 | 0 |
| | HV% | - | 0% | 9% | 4% | - | 11% | 3% | 13% | - | 25% | 7% | 12% | - | 9% | 7% | 6% | 7% | 0 |

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

| Interval Start | Heavy Vehicle Totals | | | | | Bicycles | | | | | Pedestrians (Crossing Leg) | | | | |
|----------------|----------------------|-----|-----|-----|-------|----------|----|----|----|-------|----------------------------|------|-------|-------|-------|
| | EB | WB | NB | SB | Total | EB | WB | NB | SB | Total | East | West | North | South | Total |
| 7:00 AM | 7 | 23 | 10 | 18 | 58 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:15 AM | 2 | 20 | 20 | 19 | 61 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| 7:30 AM | 5 | 29 | 19 | 13 | 66 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:45 AM | 3 | 31 | 11 | 9 | 54 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 8:00 AM | 4 | 28 | 25 | 10 | 67 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:15 AM | 5 | 36 | 19 | 9 | 69 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:30 AM | 8 | 31 | 24 | 14 | 77 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 |
| 8:45 AM | 4 | 22 | 14 | 9 | 49 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Count Total | 38 | 220 | 142 | 101 | 501 | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 1 | 0 | 3 |
| Peak Hour | 17 | 103 | 60 | 59 | 239 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |

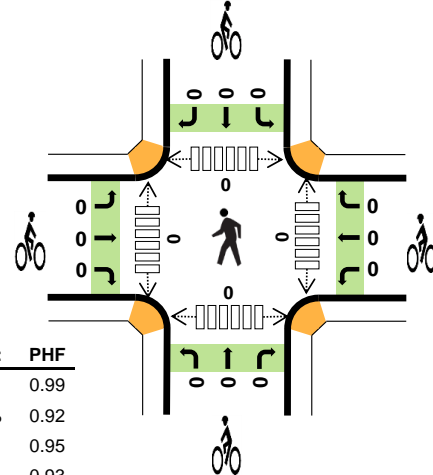
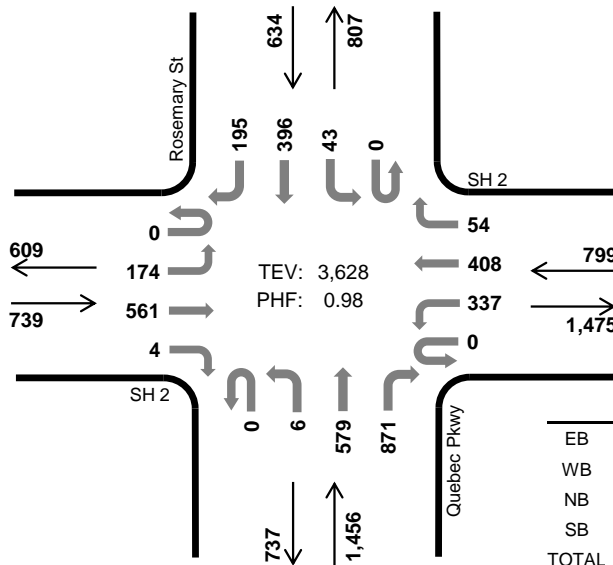
| Two-Hour Count Summaries - Heavy Vehicles | | | | | | | | | | | | | | | | | | |
|--|-----------|----|----|-----------|-----------|-----|-------------|----|-------------|-------------|----|----|--------------|------------------|----|----|--------------|------------------|
| Interval Start | SH 2 | | | | SH 2 | | | | Quebec Pkwy | | | | Rosemary St | | | | 15-min Total | Rolling One Hour |
| | Eastbound | | | | Westbound | | | | Northbound | | | | Southbound | | | | | |
| | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | | |
| 7:00 AM | 0 | 0 | 6 | 1 | 0 | 19 | 3 | 1 | 0 | 0 | 6 | 4 | 0 | 0 | 13 | 5 | 58 | 0 |
| 7:15 AM | 0 | 0 | 2 | 0 | 0 | 14 | 4 | 2 | 0 | 1 | 10 | 9 | 0 | 0 | 14 | 5 | 61 | 0 |
| 7:30 AM | 0 | 0 | 5 | 0 | 0 | 20 | 9 | 0 | 0 | 0 | 3 | 16 | 0 | 1 | 9 | 3 | 66 | 0 |
| 7:45 AM | 0 | 0 | 3 | 0 | 0 | 18 | 11 | 2 | 0 | 1 | 2 | 8 | 0 | 1 | 7 | 1 | 54 | 239 |
| 8:00 AM | 0 | 0 | 4 | 0 | 0 | 17 | 11 | 0 | 0 | 0 | 5 | 20 | 0 | 0 | 8 | 2 | 67 | 248 |
| 8:15 AM | 0 | 4 | 1 | 0 | 0 | 24 | 12 | 0 | 0 | 0 | 4 | 15 | 0 | 0 | 6 | 3 | 69 | 256 |
| 8:30 AM | 0 | 3 | 4 | 1 | 0 | 24 | 7 | 0 | 0 | 0 | 7 | 17 | 0 | 0 | 11 | 3 | 77 | 267 |
| 8:45 AM | 0 | 0 | 4 | 0 | 0 | 13 | 8 | 1 | 0 | 0 | 5 | 9 | 0 | 0 | 6 | 3 | 49 | 262 |
| Count Total | 0 | 7 | 29 | 2 | 0 | 149 | 65 | 6 | 0 | 2 | 42 | 98 | 0 | 2 | 74 | 25 | 501 | 0 |
| Peak Hour | 0 | 0 | 16 | 1 | 0 | 71 | 27 | 5 | 0 | 2 | 21 | 37 | 0 | 2 | 43 | 14 | 239 | 0 |
| Two-Hour Count Summaries - Bikes | | | | | | | | | | | | | | | | | | |
| Interval Start | SH 2 | | | SH 2 | | | Quebec Pkwy | | | Rosemary St | | | 15-min Total | Rolling One Hour | | | | |
| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | | | | | | | |
| | LT | TH | RT | LT | TH | RT | LT | TH | RT | LT | TH | RT | | | | | | |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 8:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Count Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 |
| Peak Hour | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 |
| <i>Note: U-Turn volumes for bikes are included in Left-Turn, if any.</i> | | | | | | | | | | | | | | | | | | |

Rosemary St SH 2



Peak Hour

Date: 11/02/2022
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:15 PM to 5:15 PM



| | HV %: | PHF |
|-------|-------|------|
| EB | 3.9% | 0.99 |
| WB | 10.5% | 0.92 |
| NB | 6.3% | 0.95 |
| SB | 4.3% | 0.93 |
| TOTAL | 6.4% | 0.98 |

Two-Hour Count Summaries

| Interval Start | SH 2 Eastbound | | | | SH 2 Westbound | | | | Quebec Pkwy Northbound | | | | Rosemary St Southbound | | | | 15-min Total | Rolling One Hour | |
|----------------|----------------|-----|-------|-----|----------------|-----|-----|-----|------------------------|----|-------|-------|------------------------|-----|-----|-----|--------------|------------------|---|
| | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | | | |
| 4:00 PM | 0 | 43 | 119 | 4 | 0 | 72 | 110 | 18 | 0 | 2 | 147 | 243 | 0 | 23 | 77 | 52 | 910 | 0 | |
| 4:15 PM | 0 | 38 | 144 | 1 | 0 | 81 | 94 | 9 | 0 | 1 | 148 | 235 | 0 | 15 | 92 | 51 | 909 | 0 | |
| 4:30 PM | 0 | 47 | 138 | 2 | 0 | 95 | 107 | 14 | 0 | 3 | 138 | 203 | 0 | 8 | 92 | 44 | 891 | 0 | |
| 4:45 PM | 0 | 43 | 143 | 0 | 0 | 77 | 107 | 16 | 0 | 1 | 139 | 205 | 0 | 10 | 113 | 48 | 902 | 3,612 | |
| 5:00 PM | 0 | 46 | 136 | 1 | 0 | 84 | 100 | 15 | 0 | 1 | 154 | 228 | 0 | 10 | 99 | 52 | 926 | 3,628 | |
| 5:15 PM | 0 | 49 | 142 | 3 | 0 | 82 | 83 | 12 | 1 | 0 | 142 | 215 | 0 | 15 | 114 | 51 | 909 | 3,628 | |
| 5:30 PM | 0 | 25 | 120 | 3 | 0 | 93 | 86 | 12 | 0 | 1 | 143 | 211 | 0 | 9 | 114 | 53 | 870 | 3,607 | |
| 5:45 PM | 0 | 47 | 102 | 2 | 0 | 73 | 73 | 3 | 0 | 2 | 155 | 186 | 0 | 10 | 93 | 47 | 793 | 3,498 | |
| Count Total | 0 | 338 | 1,044 | 16 | 0 | 657 | 760 | 99 | 1 | 11 | 1,166 | 1,726 | 0 | 100 | 794 | 398 | 7,110 | 0 | |
| Peak Hour | All | 0 | 174 | 561 | 4 | 0 | 337 | 408 | 54 | 0 | 6 | 579 | 871 | 0 | 43 | 396 | 195 | 3,628 | 0 |
| | HV | 0 | 4 | 25 | 0 | 0 | 43 | 35 | 6 | 0 | 0 | 21 | 70 | 0 | 2 | 19 | 6 | 231 | 0 |
| | HV% | - | 2% | 4% | 0% | - | 13% | 9% | 11% | - | 0% | 4% | 8% | - | 5% | 5% | 3% | 6% | 0 |

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

| Interval Start | Heavy Vehicle Totals | | | | | Bicycles | | | | | Pedestrians (Crossing Leg) | | | | |
|----------------|----------------------|-----|-----|----|-------|----------|----|----|----|-------|----------------------------|------|-------|-------|-------|
| | EB | WB | NB | SB | Total | EB | WB | NB | SB | Total | East | West | North | South | Total |
| 4:00 PM | 8 | 16 | 27 | 6 | 57 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:15 PM | 11 | 29 | 24 | 4 | 68 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:30 PM | 7 | 26 | 28 | 5 | 66 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:45 PM | 5 | 14 | 19 | 11 | 49 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:00 PM | 6 | 15 | 20 | 7 | 48 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:15 PM | 8 | 12 | 25 | 4 | 49 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:30 PM | 5 | 11 | 22 | 0 | 38 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 2 | 6 | 20 | 2 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Count Total | 52 | 129 | 185 | 39 | 405 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour | 29 | 84 | 91 | 27 | 231 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Two-Hour Count Summaries - Heavy Vehicles | | | | | | | | | | | | | | | | | | |
|--|-----------|----|----|-----------|-----------|----|-------------|----|-------------|-------------|----|-----|--------------|------------------|----|----|--------------|------------------|
| Interval Start | SH 2 | | | | SH 2 | | | | Quebec Pkwy | | | | Rosemary St | | | | 15-min Total | Rolling One Hour |
| | Eastbound | | | | Westbound | | | | Northbound | | | | Southbound | | | | | |
| | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | | |
| 4:00 PM | 0 | 1 | 7 | 0 | 0 | 9 | 5 | 2 | 0 | 0 | 9 | 18 | 0 | 0 | 5 | 1 | 57 | 0 |
| 4:15 PM | 0 | 2 | 9 | 0 | 0 | 16 | 13 | 0 | 0 | 0 | 5 | 19 | 0 | 0 | 2 | 2 | 68 | 0 |
| 4:30 PM | 0 | 0 | 7 | 0 | 0 | 12 | 11 | 3 | 0 | 0 | 3 | 25 | 0 | 1 | 3 | 1 | 66 | 0 |
| 4:45 PM | 0 | 2 | 3 | 0 | 0 | 4 | 7 | 3 | 0 | 0 | 9 | 10 | 0 | 1 | 8 | 2 | 49 | 240 |
| 5:00 PM | 0 | 0 | 6 | 0 | 0 | 11 | 4 | 0 | 0 | 0 | 4 | 16 | 0 | 0 | 6 | 1 | 48 | 231 |
| 5:15 PM | 0 | 2 | 6 | 0 | 0 | 7 | 4 | 1 | 0 | 0 | 4 | 21 | 0 | 0 | 3 | 1 | 49 | 212 |
| 5:30 PM | 0 | 2 | 3 | 0 | 0 | 6 | 4 | 1 | 0 | 0 | 6 | 16 | 0 | 0 | 0 | 0 | 38 | 184 |
| 5:45 PM | 0 | 1 | 1 | 0 | 0 | 2 | 3 | 1 | 0 | 0 | 5 | 15 | 0 | 0 | 2 | 0 | 30 | 165 |
| Count Total | 0 | 10 | 42 | 0 | 0 | 67 | 51 | 11 | 0 | 0 | 45 | 140 | 0 | 2 | 29 | 8 | 405 | 0 |
| Peak Hour | 0 | 4 | 25 | 0 | 0 | 43 | 35 | 6 | 0 | 0 | 21 | 70 | 0 | 2 | 19 | 6 | 231 | 0 |
| Two-Hour Count Summaries - Bikes | | | | | | | | | | | | | | | | | | |
| Interval Start | SH 2 | | | SH 2 | | | Quebec Pkwy | | | Rosemary St | | | 15-min Total | Rolling One Hour | | | | |
| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | | | | | | | |
| | LT | TH | RT | LT | TH | RT | LT | TH | RT | LT | TH | RT | | | | | | |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Count Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| <i>Note: U-Turn volumes for bikes are included in Left-Turn, if any.</i> | | | | | | | | | | | | | | | | | | |

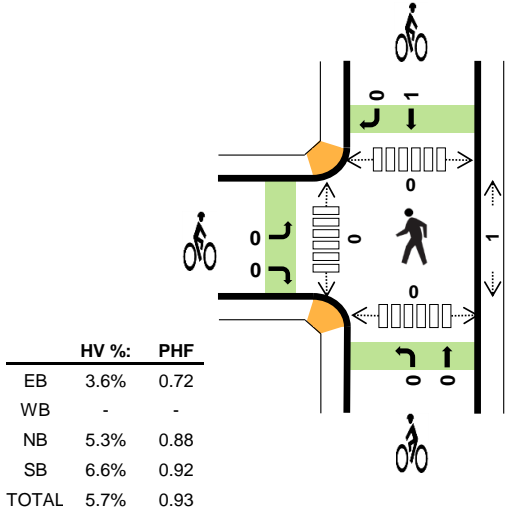
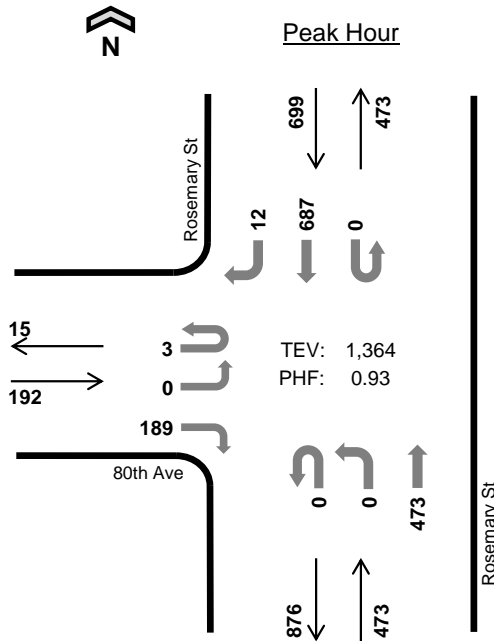


Rosemary St 80th Ave

Date: 11/02/2022

Count Period: 7:00 AM to 9:00 AM

Peak Hour: 7:15 AM to 8:15 AM



Two-Hour Count Summaries

| Interval Start | 80th Ave | | | | N/A | | | | Rosemary St | | | | Rosemary St | | | | 15-min Total | Rolling One Hour | |
|----------------|-----------|----|-----------|-----|------------|---|------------|---|-------------|---|-----|-----|-------------|---|-------|-----|--------------|------------------|---|
| | Eastbound | | Westbound | | Northbound | | Southbound | | UT | | LT | | TH | | RT | | | | |
| 7:00 AM | 1 | 0 | 0 | 35 | 0 | 0 | 0 | 0 | 0 | 0 | 87 | 0 | 0 | 0 | 175 | 2 | 300 | 0 | |
| 7:15 AM | 0 | 0 | 0 | 67 | 0 | 0 | 0 | 0 | 0 | 0 | 115 | 0 | 0 | 0 | 169 | 2 | 353 | 0 | |
| 7:30 AM | 1 | 0 | 0 | 45 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 0 | 189 | 0 | 365 | 0 | |
| 7:45 AM | 1 | 0 | 0 | 41 | 0 | 0 | 0 | 0 | 0 | 0 | 94 | 0 | 0 | 0 | 162 | 2 | 300 | 1,318 | |
| 8:00 AM | 1 | 0 | 0 | 36 | 0 | 0 | 0 | 0 | 0 | 0 | 134 | 0 | 0 | 0 | 167 | 8 | 346 | 1,364 | |
| 8:15 AM | 0 | 0 | 0 | 50 | 0 | 0 | 0 | 0 | 0 | 0 | 110 | 0 | 0 | 0 | 128 | 7 | 295 | 1,306 | |
| 8:30 AM | 0 | 0 | 0 | 37 | 0 | 0 | 0 | 0 | 0 | 0 | 112 | 0 | 0 | 0 | 118 | 4 | 271 | 1,212 | |
| 8:45 AM | 0 | 0 | 0 | 32 | 0 | 0 | 0 | 0 | 0 | 0 | 84 | 0 | 0 | 0 | 106 | 8 | 230 | 1,142 | |
| Count Total | 4 | 0 | 0 | 343 | 0 | 0 | 0 | 0 | 0 | 0 | 866 | 0 | 0 | 0 | 1,214 | 33 | 2,460 | 0 | |
| Peak Hour | All | 3 | 0 | 0 | 189 | 0 | 0 | 0 | 0 | 0 | 0 | 473 | 0 | 0 | 0 | 687 | 12 | 1,364 | 0 |
| | HV | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 42 | 4 | 78 | 0 |
| | HV% | 0% | - | - | 4% | - | - | - | - | - | - | 5% | - | - | - | 6% | 33% | 6% | 0 |

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

| Interval Start | Heavy Vehicle Totals | | | | | Bicycles | | | | | Pedestrians (Crossing Leg) | | | | |
|----------------|----------------------|----|----|----|-------|----------|----|----|----|-------|----------------------------|------|-------|-------|-------|
| | EB | WB | NB | SB | Total | EB | WB | NB | SB | Total | East | West | North | South | Total |
| 7:00 AM | 2 | 0 | 6 | 16 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:15 AM | 4 | 0 | 14 | 14 | 32 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 7:30 AM | 2 | 0 | 3 | 10 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:45 AM | 1 | 0 | 3 | 11 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:00 AM | 0 | 0 | 5 | 11 | 16 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 8:15 AM | 1 | 0 | 8 | 9 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:30 AM | 2 | 0 | 10 | 15 | 27 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 8:45 AM | 1 | 0 | 6 | 10 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Count Total | 13 | 0 | 55 | 96 | 164 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 2 |
| Peak Hr | 7 | 0 | 25 | 46 | 78 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |

| Two-Hour Count Summaries - Heavy Vehicles | | | | | | | | | | | | | | | | | | |
|--|-----------|----|----|----|-----------|----|----|----|-------------|----|----|----|-------------|----|----|----|--------------|------------------|
| Interval Start | 80th Ave | | | | N/A | | | | Rosemary St | | | | Rosemary St | | | | 15-min Total | Rolling One Hour |
| | Eastbound | | | | Westbound | | | | Northbound | | | | Southbound | | | | | |
| | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | | |
| 7:00 AM | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 16 | 0 | 24 | 0 |
| 7:15 AM | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 14 | 0 | 32 | 0 |
| 7:30 AM | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 10 | 0 | 15 | 0 |
| 7:45 AM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 10 | 1 | 15 | 86 |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 8 | 3 | 16 | 78 |
| 8:15 AM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 9 | 0 | 18 | 64 |
| 8:30 AM | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 13 | 2 | 27 | 76 |
| 8:45 AM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 8 | 2 | 17 | 78 |
| Count Total | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 55 | 0 | 0 | 0 | 88 | 8 | 164 | 0 |
| Peak Hour | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 42 | 4 | 78 | 0 |

| Two-Hour Count Summaries - Bikes | | | | | | | | | | | | | | | | | |
|---|-----------|----|----|-----------|----|----|-------------|----|----|-------------|----|----|--------------|------------------|---|---|---|
| Interval Start | 80th Ave | | | N/A | | | Rosemary St | | | Rosemary St | | | 15-min Total | Rolling One Hour | | | |
| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | | | | | | |
| | LT | TH | RT | LT | TH | RT | LT | TH | RT | LT | TH | RT | | | | | |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 8:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Count Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| Peak Hour | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

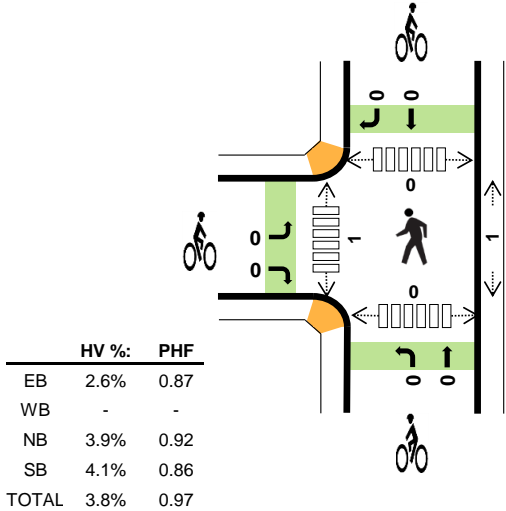
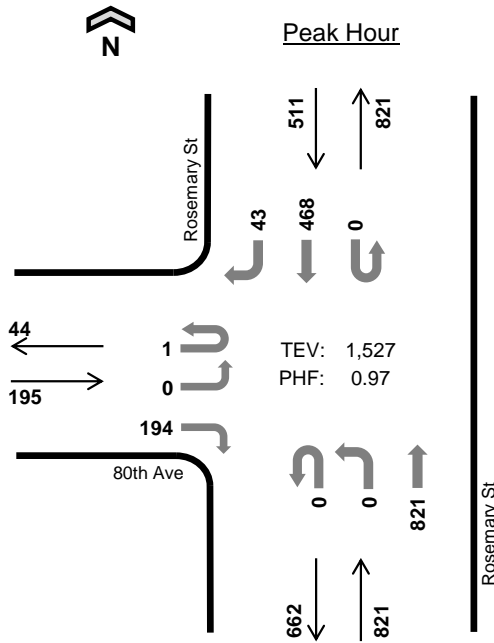


Rosemary St 80th Ave

Date: 11/02/2022

Count Period: 4:00 PM to 6:00 PM

Peak Hour: 4:30 PM to 5:30 PM



Two-Hour Count Summaries

| Interval Start | 80th Ave | | | | N/A | | | | Rosemary St | | | | Rosemary St | | | | 15-min Total | Rolling One Hour |
|----------------|-----------|----|-----------|-----|-----------|----|------------|----|-------------|----|------------|----|-------------|----|-----|----|--------------|------------------|
| | Eastbound | | Westbound | | Westbound | | Northbound | | Southbound | | Southbound | | Southbound | | | | | |
| | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | | |
| 4:00 PM | 0 | 0 | 0 | 72 | 0 | 0 | 0 | 0 | 0 | 0 | 213 | 0 | 0 | 0 | 84 | 18 | 387 | 0 |
| 4:15 PM | 0 | 0 | 0 | 50 | 0 | 0 | 0 | 0 | 0 | 0 | 191 | 0 | 0 | 0 | 103 | 11 | 355 | 0 |
| 4:30 PM | 0 | 0 | 0 | 54 | 0 | 0 | 0 | 0 | 0 | 0 | 205 | 0 | 0 | 0 | 95 | 16 | 370 | 0 |
| 4:45 PM | 0 | 0 | 0 | 56 | 0 | 0 | 0 | 0 | 0 | 0 | 191 | 0 | 0 | 0 | 120 | 8 | 375 | 1,487 |
| 5:00 PM | 1 | 0 | 0 | 43 | 0 | 0 | 0 | 0 | 0 | 0 | 222 | 0 | 0 | 0 | 113 | 11 | 390 | 1,490 |
| 5:15 PM | 0 | 0 | 0 | 41 | 0 | 0 | 0 | 0 | 0 | 0 | 203 | 0 | 0 | 0 | 140 | 8 | 392 | 1,527 |
| 5:30 PM | 0 | 0 | 0 | 54 | 0 | 0 | 0 | 0 | 0 | 0 | 181 | 0 | 0 | 0 | 121 | 8 | 364 | 1,521 |
| 5:45 PM | 0 | 0 | 0 | 49 | 0 | 0 | 0 | 0 | 0 | 0 | 199 | 0 | 0 | 0 | 99 | 6 | 353 | 1,499 |
| Count Total | 1 | 0 | 0 | 419 | 0 | 0 | 0 | 0 | 0 | 0 | 1,605 | 0 | 0 | 0 | 875 | 86 | 2,986 | 0 |
| Peak Hour | All | 1 | 0 | 0 | 194 | 0 | 0 | 0 | 0 | 0 | 821 | 0 | 0 | 0 | 468 | 43 | 1,527 | 0 |
| | HV | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 32 | 0 | 0 | 0 | 18 | 3 | 58 | 0 |
| | HV% | 0% | - | - | 3% | - | - | - | - | - | 4% | - | - | - | 4% | 7% | 4% | 0 |

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

| Interval Start | Heavy Vehicle Totals | | | | | Bicycles | | | | | Pedestrians (Crossing Leg) | | | | |
|----------------|----------------------|----|----|----|-------|----------|----|----|----|-------|----------------------------|------|-------|-------|-------|
| | EB | WB | NB | SB | Total | EB | WB | NB | SB | Total | East | West | North | South | Total |
| 4:00 PM | 1 | 0 | 11 | 5 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:15 PM | 0 | 0 | 7 | 6 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:30 PM | 1 | 0 | 6 | 5 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:45 PM | 3 | 0 | 13 | 5 | 21 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 2 |
| 5:00 PM | 1 | 0 | 5 | 7 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:15 PM | 0 | 0 | 8 | 4 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:30 PM | 1 | 0 | 8 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 3 | 0 | 8 | 2 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Count Total | 10 | 0 | 66 | 34 | 110 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 2 |
| Peak Hr | 5 | 0 | 32 | 21 | 58 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 2 |

| Two-Hour Count Summaries - Heavy Vehicles | | | | | | | | | | | | | | | | | | |
|--|-----------|----|----|----|-----------|----|----|----|-------------|----|----|----|-------------|----|----|----|--------------|------------------|
| Interval Start | 80th Ave | | | | N/A | | | | Rosemary St | | | | Rosemary St | | | | 15-min Total | Rolling One Hour |
| | Eastbound | | | | Westbound | | | | Northbound | | | | Southbound | | | | | |
| | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | | |
| 4:00 PM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 4 | 1 | 17 | 0 |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 5 | 1 | 13 | 0 |
| 4:30 PM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 3 | 2 | 12 | 0 |
| 4:45 PM | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 5 | 0 | 21 | 63 |
| 5:00 PM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 6 | 1 | 13 | 59 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 4 | 0 | 12 | 58 |
| 5:30 PM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 9 | 55 |
| 5:45 PM | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 1 | 1 | 13 | 47 |
| Count Total | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 66 | 0 | 0 | 0 | 28 | 6 | 110 | 0 |
| Peak Hour | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 32 | 0 | 0 | 0 | 18 | 3 | 58 | 0 |

| Two-Hour Count Summaries - Bikes | | | | | | | | | | | | | | | | | |
|---|-----------|----|----|-----------|----|----|-------------|----|----|-------------|----|----|--------------|------------------|---|---|---|
| Interval Start | 80th Ave | | | N/A | | | Rosemary St | | | Rosemary St | | | 15-min Total | Rolling One Hour | | | |
| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | | | | | | |
| | LT | TH | RT | LT | TH | RT | LT | TH | RT | LT | TH | RT | | | | | |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Count Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

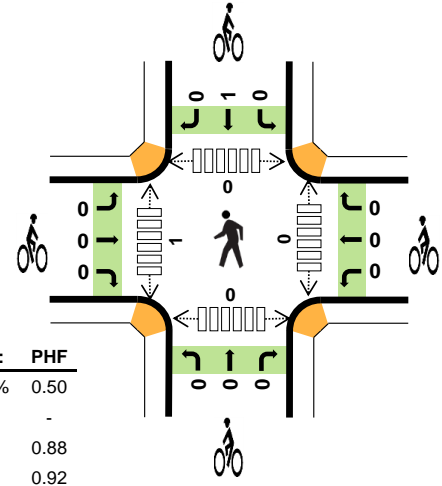
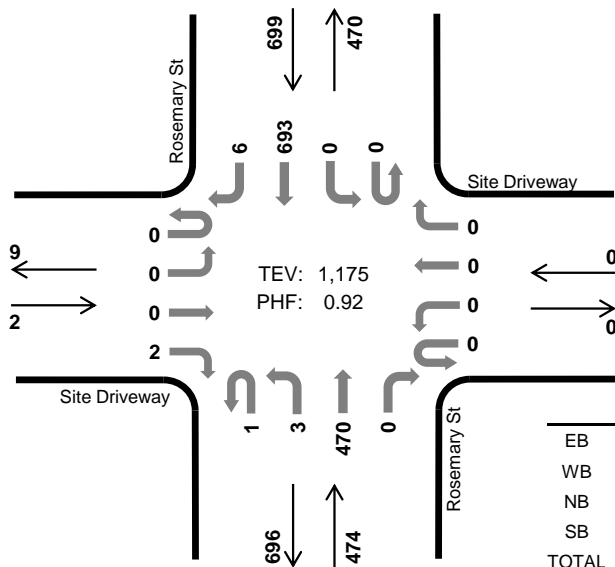
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Rosemary St Site Driveway



Peak Hour

Date: 11/02/2022
 Count Period: 7:00 AM to 9:00 AM
 Peak Hour: 7:15 AM to 8:15 AM



| | HV %: | PHF |
|-------|--------|------|
| EB | 100.0% | 0.50 |
| WB | - | - |
| NB | 5.5% | 0.88 |
| SB | 6.4% | 0.92 |
| TOTAL | 6.2% | 0.92 |

Two-Hour Count Summaries

| Interval Start | Site Driveway Eastbound | | | | Site Driveway Westbound | | | | Rosemary St Northbound | | | | Rosemary St Southbound | | | | 15-min Total | Rolling One Hour | |
|----------------|-------------------------|----|----|----|-------------------------|----|----|----|------------------------|----|-----|-----|------------------------|----|-------|-----|--------------|------------------|---|
| | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | | | |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 89 | 0 | 0 | 0 | 176 | 2 | 267 | 0 | |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 113 | 0 | 0 | 0 | 166 | 1 | 282 | 0 | |
| 7:30 AM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 129 | 0 | 0 | 0 | 188 | 1 | 320 | 0 | |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 94 | 0 | 0 | 0 | 166 | 3 | 264 | 1,133 | |
| 8:00 AM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 134 | 0 | 0 | 0 | 173 | 1 | 309 | 1,175 | |
| 8:15 AM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 107 | 0 | 0 | 0 | 135 | 4 | 248 | 1,141 | |
| 8:30 AM | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 1 | 110 | 0 | 0 | 0 | 122 | 0 | 236 | 1,057 | |
| 8:45 AM | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 85 | 0 | 0 | 0 | 114 | 1 | 202 | 995 | |
| Count Total | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 2 | 5 | 861 | 0 | 0 | 0 | 1,240 | 13 | 2,128 | 0 | |
| Peak Hour | All | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 3 | 470 | 0 | 0 | 0 | 693 | 6 | 1,175 | 0 |
| | HV | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 45 | 0 | 73 | 0 |
| | HV% | - | - | - | 100% | - | - | - | - | 0% | 0% | 6% | - | - | - | 6% | 0% | 6% | 0 |

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

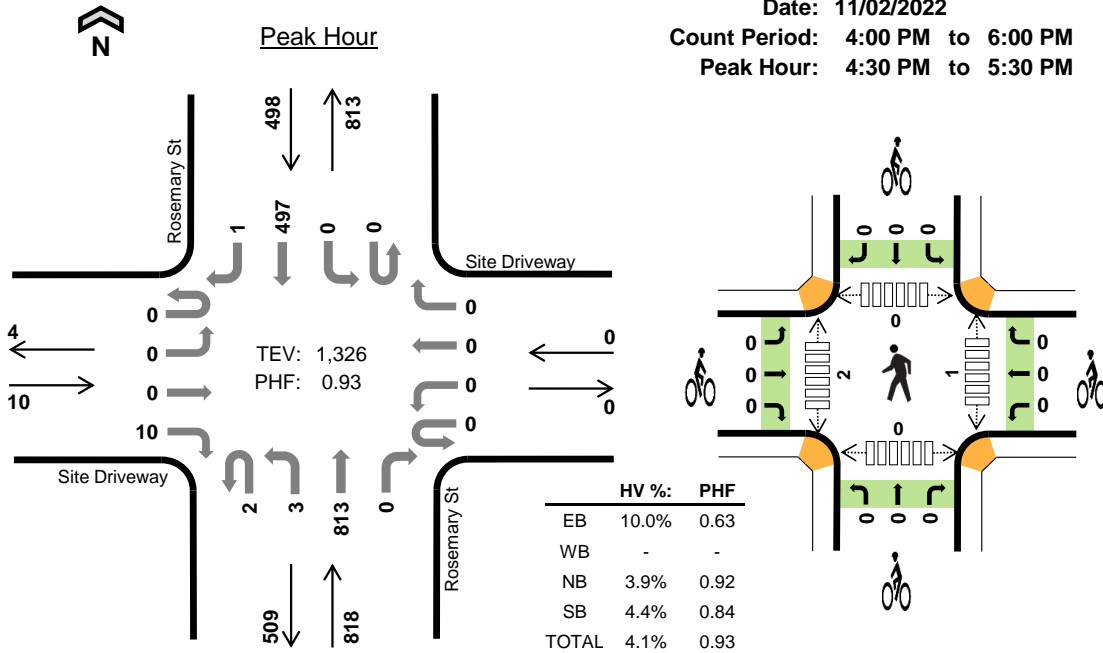
| Interval Start | Heavy Vehicle Totals | | | | | Bicycles | | | | | Pedestrians (Crossing Leg) | | | | |
|----------------|----------------------|----|----|----|-------|----------|----|----|----|-------|----------------------------|------|-------|-------|-------|
| | EB | WB | NB | SB | Total | EB | WB | NB | SB | Total | East | West | North | South | Total |
| 7:00 AM | 0 | 0 | 6 | 16 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:15 AM | 0 | 0 | 12 | 14 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| 7:30 AM | 1 | 0 | 4 | 10 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:45 AM | 0 | 0 | 4 | 11 | 15 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 8:00 AM | 1 | 0 | 6 | 10 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:15 AM | 0 | 0 | 8 | 10 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:30 AM | 1 | 0 | 9 | 14 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:45 AM | 1 | 0 | 5 | 10 | 16 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| Count Total | 4 | 0 | 54 | 95 | 153 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 2 |
| Peak Hour | 2 | 0 | 26 | 45 | 73 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 |

| Two-Hour Count Summaries - Heavy Vehicles | | | | | | | | | | | | | | | | | | |
|--|---------------|----|----|---------------|---------------|----|-------------|----|-------------|-------------|----|----|--------------|------------------|----|----|--------------|------------------|
| Interval Start | Site Driveway | | | | Site Driveway | | | | Rosemary St | | | | Rosemary St | | | | 15-min Total | Rolling One Hour |
| | Eastbound | | | | Westbound | | | | Northbound | | | | Southbound | | | | | |
| | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | | |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 16 | 0 | 22 | 0 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 14 | 0 | 26 | 0 |
| 7:30 AM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 10 | 0 | 15 | 0 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 11 | 0 | 15 | 78 |
| 8:00 AM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 10 | 0 | 17 | 73 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 8 | 2 | 18 | 65 |
| 8:30 AM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 14 | 0 | 24 | 74 |
| 8:45 AM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 10 | 0 | 16 | 75 |
| Count Total | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 54 | 0 | 0 | 0 | 93 | 2 | 153 | 0 |
| Peak Hour | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 45 | 0 | 73 | 0 |
| Two-Hour Count Summaries - Bikes | | | | | | | | | | | | | | | | | | |
| Interval Start | Site Driveway | | | Site Driveway | | | Rosemary St | | | Rosemary St | | | 15-min Total | Rolling One Hour | | | | |
| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | | | | | | | |
| | LT | TH | RT | LT | TH | RT | LT | TH | RT | LT | TH | RT | | | | | | |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 8:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Count Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 |
| Peak Hour | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
| <i>Note: U-Turn volumes for bikes are included in Left-Turn, if any.</i> | | | | | | | | | | | | | | | | | | |

Rosemary St Site Driveway



Date: 11/02/2022
 Count Period: 4:00 PM to 6:00 PM
 Peak Hour: 4:30 PM to 5:30 PM



Two-Hour Count Summaries

| Interval Start | Site Driveway Eastbound | | | | Site Driveway Westbound | | | | Rosemary St Northbound | | | | Rosemary St Southbound | | | | 15-min Total | Rolling One Hour | |
|----------------|-------------------------|----|----|----|-------------------------|----|----|----|------------------------|----|-------|-----|------------------------|----|-----|-----|--------------|------------------|---|
| | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | | | |
| 4:00 PM | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 211 | 0 | 0 | 0 | 103 | 3 | 319 | 0 | |
| 4:15 PM | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 192 | 0 | 0 | 0 | 111 | 0 | 306 | 0 | |
| 4:30 PM | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 1 | 1 | 203 | 0 | 0 | 0 | 107 | 0 | 316 | 0 | |
| 4:45 PM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 185 | 0 | 0 | 0 | 122 | 0 | 309 | 1,250 | |
| 5:00 PM | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 1 | 1 | 220 | 0 | 0 | 0 | 120 | 0 | 346 | 1,277 | |
| 5:15 PM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 205 | 0 | 0 | 0 | 148 | 1 | 355 | 1,326 | |
| 5:30 PM | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 178 | 0 | 0 | 0 | 133 | 0 | 314 | 1,324 | |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 206 | 0 | 0 | 0 | 98 | 0 | 305 | 1,320 | |
| Count Total | 0 | 2 | 0 | 15 | 0 | 0 | 0 | 0 | 2 | 5 | 1,600 | 0 | 0 | 0 | 942 | 4 | 2,570 | 0 | |
| Peak Hour | All | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 2 | 3 | 813 | 0 | 0 | 0 | 497 | 1 | 1,326 | 0 |
| | HV | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 32 | 0 | 0 | 0 | 21 | 1 | 55 | 0 |
| | HV% | - | - | - | 10% | - | - | - | - | 0% | 0% | 4% | - | - | - | 4% | 100% | 4% | 0 |

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

| Interval Start | Heavy Vehicle Totals | | | | | Bicycles | | | | | Pedestrians (Crossing Leg) | | | | |
|----------------|----------------------|----|----|----|-------|----------|----|----|----|-------|----------------------------|------|-------|-------|-------|
| | EB | WB | NB | SB | Total | EB | WB | NB | SB | Total | East | West | North | South | Total |
| 4:00 PM | 0 | 0 | 11 | 6 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:15 PM | 0 | 0 | 7 | 6 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:30 PM | 1 | 0 | 8 | 4 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:45 PM | 0 | 0 | 11 | 6 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 |
| 5:00 PM | 0 | 0 | 6 | 7 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:15 PM | 0 | 0 | 7 | 5 | 12 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 5:30 PM | 1 | 0 | 8 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 8 | 1 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Count Total | 2 | 0 | 66 | 35 | 103 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 3 |
| Peak Hour | 1 | 0 | 32 | 22 | 55 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 3 |

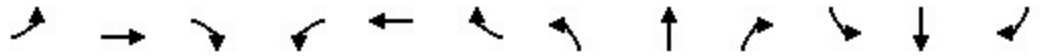
| Two-Hour Count Summaries - Heavy Vehicles | | | | | | | | | | | | | | | | | | |
|--|---------------|----|----|---------------|---------------|----|-------------|----|-------------|-------------|----|----|--------------|------------------|----|----|--------------|------------------|
| Interval Start | Site Driveway | | | | Site Driveway | | | | Rosemary St | | | | Rosemary St | | | | 15-min Total | Rolling One Hour |
| | Eastbound | | | | Westbound | | | | Northbound | | | | Southbound | | | | | |
| | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | | |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 5 | 1 | 17 | 0 |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 6 | 0 | 13 | 0 |
| 4:30 PM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 4 | 0 | 13 | 0 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 6 | 0 | 17 | 60 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 7 | 0 | 13 | 56 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 4 | 1 | 12 | 55 |
| 5:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 7 | 0 | 0 | 0 | 0 | 0 | 9 | 51 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 1 | 0 | 9 | 43 |
| Count Total | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 65 | 0 | 0 | 0 | 33 | 2 | 103 | 0 |
| Peak Hour | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 32 | 0 | 0 | 0 | 21 | 1 | 55 | 0 |
| Two-Hour Count Summaries - Bikes | | | | | | | | | | | | | | | | | | |
| Interval Start | Site Driveway | | | Site Driveway | | | Rosemary St | | | Rosemary St | | | 15-min Total | Rolling One Hour | | | | |
| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | | | | | | | |
| | LT | TH | RT | LT | TH | RT | LT | TH | RT | LT | TH | RT | | | | | | |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Count Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| <i>Note: U-Turn volumes for bikes are included in Left-Turn, if any.</i> | | | | | | | | | | | | | | | | | | |

APPENDIX D – Existing Synchro Outputs

Timings

1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY

11/15/2023

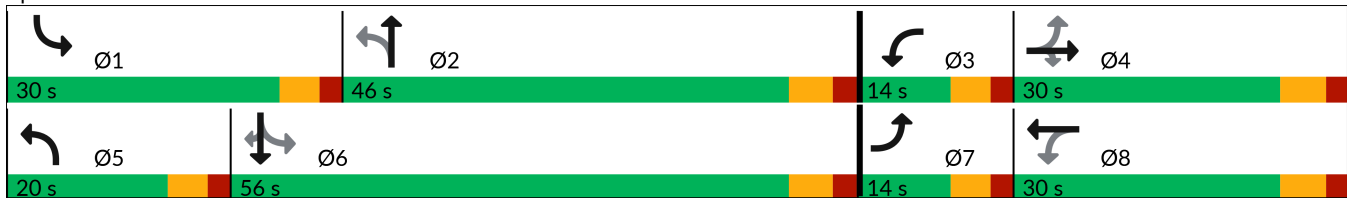


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|-------|-------|-------|-------|-------|------|-------|-------|------|-------|-------|-------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 28 | 585 | 266 | 9 | 335 | 354 | 94 | 153 | 21 | 599 | 893 | 45 |
| Future Volume (vph) | 28 | 585 | 266 | 9 | 335 | 354 | 94 | 153 | 21 | 599 | 893 | 45 |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | Free | pm+pt | NA | Free | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | Free | 2 | | Free | 6 | | 6 |
| Detector Phase | 7 | 4 | 4 | 3 | 8 | | 5 | 2 | | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 15.0 | | 5.0 | 15.0 | 15.0 |
| Minimum Split (s) | 23.5 | 24.0 | 24.0 | 23.5 | 24.0 | | 23.5 | 24.0 | | 23.5 | 24.0 | 24.0 |
| Total Split (s) | 14.0 | 30.0 | 30.0 | 14.0 | 30.0 | | 20.0 | 46.0 | | 30.0 | 56.0 | 56.0 |
| Total Split (%) | 11.7% | 25.0% | 25.0% | 11.7% | 25.0% | | 16.7% | 38.3% | | 25.0% | 46.7% | 46.7% |
| Yellow Time (s) | 3.5 | 4.0 | 4.0 | 3.5 | 4.0 | | 3.5 | 4.0 | | 3.5 | 4.0 | 4.0 |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.5 | 6.0 | 6.0 | 5.5 | 6.0 | | 5.5 | 6.0 | | 5.5 | 6.0 | 6.0 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes |
| Recall Mode | None | None | None | None | None | | None | Min | | None | Min | Min |
| Act Effct Green (s) | 26.8 | 25.0 | 25.0 | 23.7 | 19.7 | 89.9 | 30.1 | 20.6 | 89.9 | 51.2 | 39.0 | 39.0 |
| Actuated g/C Ratio | 0.30 | 0.28 | 0.28 | 0.26 | 0.22 | 1.00 | 0.33 | 0.23 | 1.00 | 0.57 | 0.43 | 0.43 |
| v/c Ratio | 0.11 | 0.67 | 0.46 | 0.05 | 0.53 | 0.27 | 0.35 | 0.21 | 0.02 | 0.88 | 0.66 | 0.07 |
| Control Delay (s/veh) | 24.8 | 34.8 | 6.7 | 24.8 | 36.5 | 0.4 | 15.9 | 29.3 | 0.0 | 31.1 | 25.1 | 0.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 24.8 | 34.8 | 6.7 | 24.8 | 36.5 | 0.4 | 15.9 | 29.3 | 0.0 | 31.1 | 25.1 | 0.2 |
| LOS | C | C | A | C | D | A | B | C | A | C | C | A |
| Approach Delay (s/veh) | | 26.0 | | | 18.1 | | | 22.3 | | | 26.8 | |
| Approach LOS | | C | | | B | | | C | | | C | |

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 89.9
 Natural Cycle: 105
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay (s/veh): 24.3
 Intersection LOS: C
 Intersection Capacity Utilization 83.5%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY



Queues

1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY

11/15/2023



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 30 | 636 | 289 | 11 | 394 | 416 | 102 | 166 | 23 | 651 | 971 | 49 |
| v/c Ratio | 0.11 | 0.67 | 0.46 | 0.05 | 0.53 | 0.27 | 0.35 | 0.21 | 0.02 | 0.88 | 0.66 | 0.07 |
| Control Delay (s/veh) | 24.8 | 34.8 | 6.7 | 24.8 | 36.5 | 0.4 | 15.9 | 29.3 | 0.0 | 31.1 | 25.1 | 0.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 24.8 | 34.8 | 6.7 | 24.8 | 36.5 | 0.4 | 15.9 | 29.3 | 0.0 | 31.1 | 25.1 | 0.2 |
| Queue Length 50th (ft) | 11 | 148 | 0 | 4 | 104 | 0 | 25 | 40 | 0 | 244 | 237 | 0 |
| Queue Length 95th (ft) | 38 | #342 | 74 | 18 | 181 | 0 | 58 | 73 | 0 | #568 | 385 | 0 |
| Internal Link Dist (ft) | | 163 | | | 1049 | | | 779 | | | 969 | |
| Turn Bay Length (ft) | | | | 550 | | 400 | 400 | | 550 | 650 | | 450 |
| Base Capacity (vph) | 303 | 1020 | 659 | 255 | 933 | 1524 | 406 | 1556 | 1524 | 745 | 1945 | 925 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.10 | 0.62 | 0.44 | 0.04 | 0.42 | 0.27 | 0.25 | 0.11 | 0.02 | 0.87 | 0.50 | 0.05 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY

11/15/2023



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 28 | 585 | 266 | 9 | 335 | 354 | 94 | 153 | 21 | 599 | 893 | 45 |
| Future Volume (veh/h) | 28 | 585 | 266 | 9 | 335 | 354 | 94 | 153 | 21 | 599 | 893 | 45 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 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 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 |
| Adj Flow Rate, veh/h | 30 | 636 | 0 | 11 | 394 | 0 | 102 | 166 | 0 | 651 | 971 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.85 | 0.85 | 0.85 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Cap, veh/h | 301 | 773 | | 219 | 773 | | 284 | 593 | | 722 | 1314 | |
| Arrive On Green | 0.06 | 0.22 | 0.00 | 0.06 | 0.22 | 0.00 | 0.07 | 0.17 | 0.00 | 0.28 | 0.38 | 0.00 |
| Sat Flow, veh/h | 1725 | 3441 | 1535 | 1725 | 3441 | 1535 | 1725 | 3441 | 1535 | 1725 | 3441 | 1535 |
| Grp Volume(v), veh/h | 30 | 636 | 0 | 11 | 394 | 0 | 102 | 166 | 0 | 651 | 971 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1725 | 1721 | 1535 | 1725 | 1721 | 1535 | 1725 | 1721 | 1535 | 1725 | 1721 | 1535 |
| Q Serve(g_s), s | 1.1 | 15.3 | 0.0 | 0.4 | 8.7 | 0.0 | 4.1 | 3.7 | 0.0 | 24.5 | 21.2 | 0.0 |
| Cycle Q Clear(g_c), s | 1.1 | 15.3 | 0.0 | 0.4 | 8.7 | 0.0 | 4.1 | 3.7 | 0.0 | 24.5 | 21.2 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 301 | 773 | | 219 | 773 | | 284 | 593 | | 722 | 1314 | |
| V/C Ratio(X) | 0.10 | 0.82 | | 0.05 | 0.51 | | 0.36 | 0.28 | | 0.90 | 0.74 | |
| Avail Cap(c_a), veh/h | 370 | 948 | | 289 | 948 | | 448 | 1581 | | 722 | 1976 | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 23.3 | 32.1 | 0.0 | 23.9 | 29.5 | 0.0 | 26.5 | 31.3 | 0.0 | 20.4 | 23.2 | 0.0 |
| Incr Delay (d2), s/veh | 0.1 | 4.9 | 0.0 | 0.1 | 0.5 | 0.0 | 0.8 | 0.3 | 0.0 | 14.6 | 0.8 | 0.0 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.4 | 6.6 | 0.0 | 0.2 | 3.4 | 0.0 | 1.7 | 1.5 | 0.0 | 12.4 | 7.9 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 23.4 | 37.0 | 0.0 | 24.0 | 30.1 | 0.0 | 27.3 | 31.6 | 0.0 | 35.0 | 24.0 | 0.0 |
| LnGrp LOS | C | D | | C | C | | C | C | | C | C | |
| Approach Vol, veh/h | | 666 | | | 405 | | | 268 | | | 1622 | |
| Approach Delay, s/veh | | 36.4 | | | 29.9 | | | 29.9 | | | 28.4 | |
| Approach LOS | | D | | | C | | | C | | | C | |
| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Phs Duration (G+Y+Rc), s | 30.0 | 21.0 | 10.5 | 25.6 | 11.8 | 39.2 | 10.5 | 25.6 | | | | |
| Change Period (Y+Rc), s | 5.5 | 6.0 | 5.5 | 6.0 | 5.5 | 6.0 | 5.5 | 6.0 | | | | |
| Max Green Setting (Gmax), s | 24.5 | 40.0 | 8.5 | 24.0 | 14.5 | 50.0 | 8.5 | 24.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 26.5 | 5.7 | 2.4 | 17.3 | 6.1 | 23.2 | 3.1 | 10.7 | | | | |
| Green Ext Time (p_c), s | 0.0 | 1.0 | 0.0 | 2.3 | 0.1 | 7.0 | 0.0 | 1.9 | | | | |

Intersection Summary

| | |
|---------------------------|------|
| HCM 6th Ctrl Delay, s/veh | 30.5 |
| HCM 6th LOS | C |

Notes

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

HCM 6th TWSC
 2: ROSEMARY STREET & 80TH AVENUE

11/15/2023

Intersection

Int Delay, s/veh 2.1

Movement EBL EBR NBL NBT SBT SBR

| | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations | | ↗ | | ↑↑ | ↑↑ | |
| Traffic Vol, veh/h | 0 | 192 | 0 | 474 | 687 | 12 |
| Future Vol, veh/h | 0 | 192 | 0 | 474 | 687 | 12 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | Stop | - | None | - | Free |
| Storage Length | - | 0 | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 85 | 85 | 88 | 88 | 92 | 92 |
| Heavy Vehicles, % | 6 | 6 | 6 | 6 | 6 | 6 |
| Mvmt Flow | 0 | 226 | 0 | 539 | 747 | 13 |

Major/Minor Minor2 Major1 Major2

| | | | | | | |
|----------------------|---|------|---|---|---|---|
| Conflicting Flow All | - | 374 | - | 0 | - | 0 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | 7.02 | - | - | - | - |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | 3.36 | - | - | - | - |
| Pot Cap-1 Maneuver | 0 | 612 | 0 | - | - | 0 |
| Stage 1 | 0 | - | 0 | - | - | 0 |
| Stage 2 | 0 | - | 0 | - | - | 0 |
| Platoon blocked, % | | | | - | - | |
| Mov Cap-1 Maneuver | - | 612 | - | - | - | - |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

Approach EB NB SB

| | | | |
|------------------------|------|---|---|
| HCM Control Delay, s/v | 14.3 | 0 | 0 |
| HCM LOS | B | | |

Minor Lane/Major Mvmt NBT EBLn1 SBT

| | | | |
|---------------------------|---|-------|---|
| Capacity (veh/h) | - | 612 | - |
| HCM Lane V/C Ratio | - | 0.369 | - |
| HCM Control Delay (s/veh) | - | 14.3 | - |
| HCM Lane LOS | - | B | - |
| HCM 95th %tile Q (veh) | - | 1.7 | - |

HCM 6th TWSC
 3: ROSEMARY STREET & DRIVEWAY/SITE ACCESS

11/15/2023

| Intersection | | | | | | | | | | | | |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh | 0.1 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | ↗ | | | ↗ | ↔ | ↔ | | | ↕ | ↕ |
| Traffic Vol, veh/h | 0 | 0 | 2 | 0 | 0 | 0 | 4 | 470 | 0 | 0 | 697 | 6 |
| Future Vol, veh/h | 0 | 0 | 2 | 0 | 0 | 0 | 4 | 470 | 0 | 0 | 697 | 6 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | 0 | - | - | 0 | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 85 | 85 | 85 | 85 | 85 | 85 | 88 | 88 | 88 | 92 | 92 | 92 |
| Heavy Vehicles, % | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Mvmt Flow | 0 | 0 | 2 | 0 | 0 | 0 | 5 | 534 | 0 | 0 | 758 | 7 |

| Major/Minor | Minor2 | Minor1 | Major1 | Major2 |
|----------------------|--------|--------|--------|--------|
| Conflicting Flow All | - | - | 383 | - |
| Stage 1 | - | - | - | - |
| Stage 2 | - | - | - | - |
| Critical Hdwy | - | - | 7.02 | 4.22 |
| Critical Hdwy Stg 1 | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - |
| Follow-up Hdwy | - | - | 3.36 | 2.26 |
| Pot Cap-1 Maneuver | 0 | 0 | 604 | 0 |
| Stage 1 | 0 | 0 | - | - |
| Stage 2 | 0 | 0 | - | - |
| Platoon blocked, % | - | - | - | - |
| Mov Cap-1 Maneuver | - | - | 604 | 719 |
| Mov Cap-2 Maneuver | - | - | - | - |
| Stage 1 | - | - | - | - |
| Stage 2 | - | - | - | - |

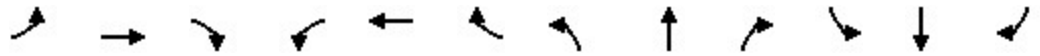
| Approach | EB | WB | NB | SB |
|------------------------|----|----|-----|----|
| HCM Control Delay, s/v | 11 | 0 | 0.1 | 0 |
| HCM LOS | B | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBT | SBR |
|---------------------------|-------|-----|-----|-------|-------|-----|-----|
| Capacity (veh/h) | 818 | - | - | 604 | - | - | - |
| HCM Lane V/C Ratio | 0.006 | - | - | 0.004 | - | - | - |
| HCM Control Delay (s/veh) | 9.4 | 0 | - | 11 | 0 | - | - |
| HCM Lane LOS | A | A | - | B | A | - | - |
| HCM 95th %tile Q (veh) | 0 | - | - | 0 | - | - | - |

Timings

1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY

11/15/2023



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|-------|-------|-------|-------|-------|------|-------|-------|------|-------|-------|-------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 43 | 423 | 197 | 6 | 577 | 851 | 187 | 559 | 6 | 338 | 397 | 57 |
| Future Volume (vph) | 43 | 423 | 197 | 6 | 577 | 851 | 187 | 559 | 6 | 338 | 397 | 57 |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | Free | pm+pt | NA | Free | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | Free | 2 | | Free | 6 | | 6 |
| Detector Phase | 7 | 4 | 4 | 3 | 8 | | 5 | 2 | | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 15.0 | | 5.0 | 15.0 | 15.0 |
| Minimum Split (s) | 23.5 | 24.0 | 24.0 | 23.5 | 24.0 | | 23.5 | 24.0 | | 23.5 | 24.0 | 24.0 |
| Total Split (s) | 14.0 | 40.0 | 40.0 | 14.0 | 40.0 | | 20.0 | 46.0 | | 20.0 | 46.0 | 46.0 |
| Total Split (%) | 11.7% | 33.3% | 33.3% | 11.7% | 33.3% | | 16.7% | 38.3% | | 16.7% | 38.3% | 38.3% |
| Yellow Time (s) | 3.5 | 4.0 | 4.0 | 3.5 | 4.0 | | 3.5 | 4.0 | | 3.5 | 4.0 | 4.0 |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.5 | 6.0 | 6.0 | 5.5 | 6.0 | | 5.5 | 6.0 | | 5.5 | 6.0 | 6.0 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes |
| Recall Mode | None | None | None | None | None | | None | Min | | None | Min | Min |
| Act Effct Green (s) | 29.6 | 27.7 | 27.7 | 26.1 | 22.4 | 85.7 | 35.0 | 22.5 | 85.7 | 41.2 | 25.8 | 25.8 |
| Actuated g/C Ratio | 0.35 | 0.32 | 0.32 | 0.30 | 0.26 | 1.00 | 0.41 | 0.26 | 1.00 | 0.48 | 0.30 | 0.30 |
| v/c Ratio | 0.18 | 0.42 | 0.34 | 0.02 | 0.70 | 0.61 | 0.42 | 0.68 | 0.00 | 0.86 | 0.42 | 0.11 |
| Control Delay (s/veh) | 19.7 | 24.3 | 5.2 | 18.0 | 34.6 | 1.8 | 17.5 | 34.0 | 0.0 | 41.0 | 28.1 | 0.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 19.7 | 24.3 | 5.2 | 18.0 | 34.6 | 1.8 | 17.5 | 34.0 | 0.0 | 41.0 | 28.1 | 0.4 |
| LOS | B | C | A | B | C | A | B | C | A | D | C | A |
| Approach Delay (s/veh) | | 18.3 | | | 15.1 | | | 29.6 | | | 31.6 | |
| Approach LOS | | B | | | B | | | C | | | C | |

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 85.7
 Natural Cycle: 95
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay (s/veh): 22.3 Intersection LOS: C
 Intersection Capacity Utilization 73.5% ICU Level of Service D
 Analysis Period (min) 15

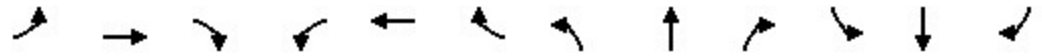
Splits and Phases: 1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY

| | | | |
|------------|------------|------------|------------|
| Ø1 20 s | Ø2 46 s | Ø3 14 s | Ø4 40 s |
| Ø5 20 s | Ø6 46 s | Ø7 14 s | Ø8 40 s |

Queues

1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY

11/15/2023



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 47 | 460 | 214 | 7 | 627 | 925 | 203 | 608 | 7 | 367 | 432 | 62 |
| v/c Ratio | 0.18 | 0.42 | 0.34 | 0.02 | 0.70 | 0.61 | 0.42 | 0.68 | 0.00 | 0.86 | 0.42 | 0.11 |
| Control Delay (s/veh) | 19.7 | 24.3 | 5.2 | 18.0 | 34.6 | 1.8 | 17.5 | 34.0 | 0.0 | 41.0 | 28.1 | 0.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 19.7 | 24.3 | 5.2 | 18.0 | 34.6 | 1.8 | 17.5 | 34.0 | 0.0 | 41.0 | 28.1 | 0.4 |
| Queue Length 50th (ft) | 16 | 94 | 0 | 2 | 173 | 0 | 66 | 167 | 0 | 136 | 107 | 0 |
| Queue Length 95th (ft) | 42 | 184 | 53 | 12 | 264 | 0 | 133 | 256 | 0 | #384 | 178 | 0 |
| Internal Link Dist (ft) | | 163 | | | 1049 | | | 779 | | | 969 | |
| Turn Bay Length (ft) | | | | 550 | | 400 | 400 | | 550 | 650 | | 450 |
| Base Capacity (vph) | 279 | 1474 | 781 | 362 | 1418 | 1524 | 544 | 1668 | 1524 | 426 | 1668 | 811 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.17 | 0.31 | 0.27 | 0.02 | 0.44 | 0.61 | 0.37 | 0.36 | 0.00 | 0.86 | 0.26 | 0.08 |

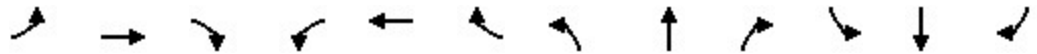
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY

11/15/2023



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 43 | 423 | 197 | 6 | 577 | 851 | 187 | 559 | 6 | 338 | 397 | 57 |
| Future Volume (veh/h) | 43 | 423 | 197 | 6 | 577 | 851 | 187 | 559 | 6 | 338 | 397 | 57 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 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 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 |
| Adj Flow Rate, veh/h | 47 | 460 | 0 | 7 | 627 | 0 | 203 | 608 | 0 | 367 | 432 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Cap, veh/h | 250 | 824 | | 306 | 824 | | 471 | 813 | | 453 | 1032 | |
| Arrive On Green | 0.06 | 0.24 | 0.00 | 0.06 | 0.24 | 0.00 | 0.11 | 0.24 | 0.00 | 0.18 | 0.30 | 0.00 |
| Sat Flow, veh/h | 1725 | 3441 | 1535 | 1725 | 3441 | 1535 | 1725 | 3441 | 1535 | 1725 | 3441 | 1535 |
| Grp Volume(v), veh/h | 47 | 460 | 0 | 7 | 627 | 0 | 203 | 608 | 0 | 367 | 432 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1725 | 1721 | 1535 | 1725 | 1721 | 1535 | 1725 | 1721 | 1535 | 1725 | 1721 | 1535 |
| Q Serve(g_s), s | 1.6 | 9.5 | 0.0 | 0.2 | 13.7 | 0.0 | 7.0 | 13.3 | 0.0 | 12.4 | 8.1 | 0.0 |
| Cycle Q Clear(g_c), s | 1.6 | 9.5 | 0.0 | 0.2 | 13.7 | 0.0 | 7.0 | 13.3 | 0.0 | 12.4 | 8.1 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 250 | 824 | | 306 | 824 | | 471 | 813 | | 453 | 1032 | |
| V/C Ratio(X) | 0.19 | 0.56 | | 0.02 | 0.76 | | 0.43 | 0.75 | | 0.81 | 0.42 | |
| Avail Cap(c_a), veh/h | 324 | 1447 | | 381 | 1447 | | 583 | 1702 | | 455 | 1702 | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 21.5 | 27.0 | 0.0 | 20.4 | 28.6 | 0.0 | 19.4 | 28.6 | 0.0 | 18.6 | 22.7 | 0.0 |
| Incr Delay (d2), s/veh | 0.4 | 0.6 | 0.0 | 0.0 | 1.5 | 0.0 | 0.6 | 1.4 | 0.0 | 10.5 | 0.3 | 0.0 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.6 | 3.8 | 0.0 | 0.1 | 5.3 | 0.0 | 2.6 | 5.2 | 0.0 | 5.6 | 3.0 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 21.9 | 27.6 | 0.0 | 20.4 | 30.1 | 0.0 | 20.0 | 30.0 | 0.0 | 29.2 | 22.9 | 0.0 |
| LnGrp LOS | C | C | | C | C | | C | C | | C | C | |
| Approach Vol, veh/h | | 507 | | | 634 | | | 811 | | | 799 | |
| Approach Delay, s/veh | | 27.1 | | | 30.0 | | | 27.5 | | | 25.8 | |
| Approach LOS | | C | | | C | | | C | | | C | |
| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Phs Duration (G+Y+Rc), s | 19.9 | 25.1 | 10.5 | 25.4 | 14.7 | 30.2 | 10.5 | 25.4 | | | | |
| Change Period (Y+Rc), s | 5.5 | 6.0 | 5.5 | 6.0 | 5.5 | 6.0 | 5.5 | 6.0 | | | | |
| Max Green Setting (Gmax), s | 14.5 | 40.0 | 8.5 | 34.0 | 14.5 | 40.0 | 8.5 | 34.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 14.4 | 15.3 | 2.2 | 11.5 | 9.0 | 10.1 | 3.6 | 15.7 | | | | |
| Green Ext Time (p_c), s | 0.0 | 3.9 | 0.0 | 3.0 | 0.2 | 2.7 | 0.0 | 3.7 | | | | |

Intersection Summary

| | |
|---------------------------|------|
| HCM 6th Ctrl Delay, s/veh | 27.5 |
| HCM 6th LOS | C |

Notes

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

HCM 6th TWSC
 2: ROSEMARY STREET & 80TH AVENUE

11/15/2023

Intersection

Int Delay, s/veh 1.7

Movement EBL EBR NBL NBT SBT SBR

| | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations | | ↗ | | ↑↑ | ↑↑ | |
| Traffic Vol, veh/h | 0 | 195 | 0 | 821 | 468 | 43 |
| Future Vol, veh/h | 0 | 195 | 0 | 821 | 468 | 43 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | Stop | - | None | - | Free |
| Storage Length | - | 0 | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 87 | 87 | 92 | 92 | 86 | 86 |
| Heavy Vehicles, % | 6 | 6 | 6 | 6 | 6 | 6 |
| Mvmt Flow | 0 | 224 | 0 | 892 | 544 | 50 |

Major/Minor Minor2 Major1 Major2

| | | | | | | |
|----------------------|---|------|---|---|---|---|
| Conflicting Flow All | - | 272 | - | 0 | - | 0 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | 7.02 | - | - | - | - |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | 3.36 | - | - | - | - |
| Pot Cap-1 Maneuver | 0 | 714 | 0 | - | - | 0 |
| Stage 1 | 0 | - | 0 | - | - | 0 |
| Stage 2 | 0 | - | 0 | - | - | 0 |
| Platoon blocked, % | | | | - | - | |
| Mov Cap-1 Maneuver | - | 714 | - | - | - | - |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

Approach EB NB SB

| | | | |
|------------------------|------|---|---|
| HCM Control Delay, s/v | 12.3 | 0 | 0 |
| HCM LOS | B | | |

Minor Lane/Major Mvmt NBT EBLn1 SBT

| | | | |
|---------------------------|---|-------|---|
| Capacity (veh/h) | - | 714 | - |
| HCM Lane V/C Ratio | - | 0.314 | - |
| HCM Control Delay (s/veh) | - | 12.3 | - |
| HCM Lane LOS | - | B | - |
| HCM 95th %tile Q (veh) | - | 1.3 | - |

HCM 6th TWSC
 3: ROSEMARY STREET & DRIVEWAY/SITE ACCESS

11/15/2023

| Intersection | | | | | | | | | | | | |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh | 0.1 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | ↗ | | | ↗ | | ↔ | | | ↕ | |
| Traffic Vol, veh/h | 0 | 0 | 10 | 0 | 0 | 0 | 5 | 816 | 0 | 0 | 501 | 1 |
| Future Vol, veh/h | 0 | 0 | 10 | 0 | 0 | 0 | 5 | 816 | 0 | 0 | 501 | 1 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | 0 | - | - | 0 | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 85 | 85 | 85 | 85 | 85 | 85 | 92 | 92 | 92 | 85 | 85 | 85 |
| Heavy Vehicles, % | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Mvmt Flow | 0 | 0 | 12 | 0 | 0 | 0 | 5 | 887 | 0 | 0 | 589 | 1 |

| Major/Minor | Minor2 | Minor1 | Major1 | Major2 |
|----------------------|--------|--------|--------|--------|
| Conflicting Flow All | - | - | 295 | - |
| Stage 1 | - | - | - | - |
| Stage 2 | - | - | - | - |
| Critical Hdwy | - | - | 7.02 | 4.22 |
| Critical Hdwy Stg 1 | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - |
| Follow-up Hdwy | - | - | 3.36 | 2.26 |
| Pot Cap-1 Maneuver | 0 | 0 | 690 | 551 |
| Stage 1 | 0 | 0 | - | - |
| Stage 2 | 0 | 0 | - | - |
| Platoon blocked, % | - | - | - | - |
| Mov Cap-1 Maneuver | - | - | 690 | 551 |
| Mov Cap-2 Maneuver | - | - | - | - |
| Stage 1 | - | - | - | - |
| Stage 2 | - | - | - | - |

| Approach | EB | WB | NB | SB |
|------------------------|------|----|-----|----|
| HCM Control Delay, s/v | 10.3 | 0 | 0.1 | 0 |
| HCM LOS | B | A | | |

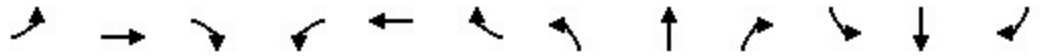
| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBT | SBR |
|---------------------------|-------|-----|-----|-------|-------|-----|-----|
| Capacity (veh/h) | 955 | - | - | 690 | - | - | - |
| HCM Lane V/C Ratio | 0.006 | - | - | 0.017 | - | - | - |
| HCM Control Delay (s/veh) | 8.8 | 0 | - | 10.3 | 0 | - | - |
| HCM Lane LOS | A | A | - | B | A | - | - |
| HCM 95th %tile Q (veh) | 0 | - | - | 0.1 | - | - | - |

APPENDIX E – Background (without site development) Synchro Outputs

Timings

1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY

11/15/2023

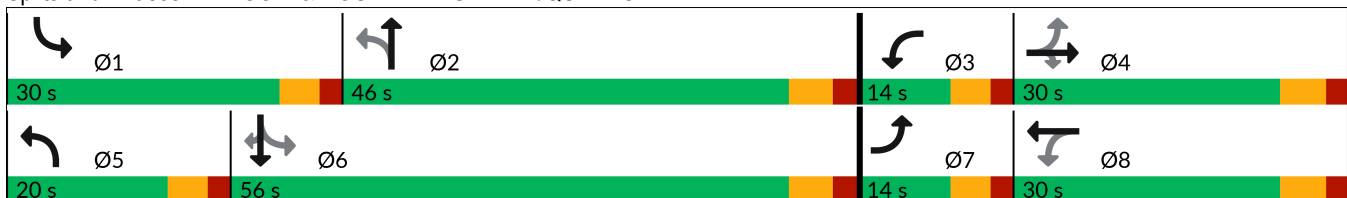


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|-------|-------|-------|-------|-------|------|-------|-------|------|-------|-------|-------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 28 | 585 | 266 | 9 | 335 | 365 | 94 | 158 | 22 | 617 | 920 | 45 |
| Future Volume (vph) | 28 | 585 | 266 | 9 | 335 | 365 | 94 | 158 | 22 | 617 | 920 | 45 |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | Free | pm+pt | NA | Free | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | Free | 2 | | Free | 6 | | 6 |
| Detector Phase | 7 | 4 | 4 | 3 | 8 | | 5 | 2 | | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 15.0 | | 5.0 | 15.0 | 15.0 |
| Minimum Split (s) | 23.5 | 24.0 | 24.0 | 23.5 | 24.0 | | 23.5 | 24.0 | | 23.5 | 24.0 | 24.0 |
| Total Split (s) | 14.0 | 30.0 | 30.0 | 14.0 | 30.0 | | 20.0 | 46.0 | | 30.0 | 56.0 | 56.0 |
| Total Split (%) | 11.7% | 25.0% | 25.0% | 11.7% | 25.0% | | 16.7% | 38.3% | | 25.0% | 46.7% | 46.7% |
| Yellow Time (s) | 3.5 | 4.0 | 4.0 | 3.5 | 4.0 | | 3.5 | 4.0 | | 3.5 | 4.0 | 4.0 |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.5 | 6.0 | 6.0 | 5.5 | 6.0 | | 5.5 | 6.0 | | 5.5 | 6.0 | 6.0 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes |
| Recall Mode | None | None | None | None | None | | None | Min | | None | Min | Min |
| Act Effct Green (s) | 26.5 | 24.7 | 24.7 | 23.4 | 19.4 | 90.7 | 30.6 | 21.1 | 90.7 | 52.3 | 39.9 | 39.9 |
| Actuated g/C Ratio | 0.29 | 0.27 | 0.27 | 0.26 | 0.21 | 1.00 | 0.34 | 0.23 | 1.00 | 0.58 | 0.44 | 0.44 |
| v/c Ratio | 0.10 | 0.69 | 0.46 | 0.05 | 0.50 | 0.26 | 0.35 | 0.22 | 0.02 | 0.90 | 0.67 | 0.07 |
| Control Delay (s/veh) | 25.4 | 35.8 | 6.9 | 25.6 | 36.8 | 0.4 | 15.6 | 28.9 | 0.0 | 32.7 | 25.0 | 0.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 25.4 | 35.8 | 6.9 | 25.6 | 36.8 | 0.4 | 15.6 | 28.9 | 0.0 | 32.7 | 25.0 | 0.2 |
| LOS | C | D | A | C | D | A | B | C | A | C | C | A |
| Approach Delay (s/veh) | | 26.7 | | | 17.9 | | | 22.0 | | | 27.3 | |
| Approach LOS | | C | | | B | | | C | | | C | |

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 90.7
 Natural Cycle: 105
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay (s/veh): 24.8
 Intersection LOS: C
 Intersection Capacity Utilization 84.5%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY



Queues

1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY

11/15/2023



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 30 | 636 | 289 | 10 | 364 | 397 | 102 | 172 | 24 | 671 | 1000 | 49 |
| v/c Ratio | 0.10 | 0.69 | 0.46 | 0.05 | 0.50 | 0.26 | 0.35 | 0.22 | 0.02 | 0.90 | 0.67 | 0.07 |
| Control Delay (s/veh) | 25.4 | 35.8 | 6.9 | 25.6 | 36.8 | 0.4 | 15.6 | 28.9 | 0.0 | 32.7 | 25.0 | 0.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 25.4 | 35.8 | 6.9 | 25.6 | 36.8 | 0.4 | 15.6 | 28.9 | 0.0 | 32.7 | 25.0 | 0.2 |
| Queue Length 50th (ft) | 11 | 150 | 0 | 4 | 96 | 0 | 25 | 41 | 0 | 251 | 243 | 0 |
| Queue Length 95th (ft) | 39 | #356 | 75 | 18 | 182 | 0 | 57 | 75 | 0 | #604 | 398 | 0 |
| Internal Link Dist (ft) | | 163 | | | 1049 | | | 779 | | | 969 | |
| Turn Bay Length (ft) | | | | 550 | | 400 | 400 | | 550 | 650 | | 450 |
| Base Capacity (vph) | 306 | 995 | 649 | 249 | 924 | 1524 | 401 | 1541 | 1524 | 748 | 1926 | 917 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.10 | 0.64 | 0.45 | 0.04 | 0.39 | 0.26 | 0.25 | 0.11 | 0.02 | 0.90 | 0.52 | 0.05 |

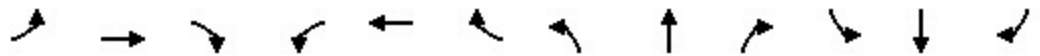
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY

11/15/2023



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 28 | 585 | 266 | 9 | 335 | 365 | 94 | 158 | 22 | 617 | 920 | 45 |
| Future Volume (veh/h) | 28 | 585 | 266 | 9 | 335 | 365 | 94 | 158 | 22 | 617 | 920 | 45 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 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 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 |
| Adj Flow Rate, veh/h | 30 | 636 | 0 | 10 | 364 | 0 | 102 | 172 | 0 | 671 | 1000 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Cap, veh/h | 313 | 773 | | 219 | 773 | | 277 | 593 | | 719 | 1314 | |
| Arrive On Green | 0.06 | 0.22 | 0.00 | 0.06 | 0.22 | 0.00 | 0.07 | 0.17 | 0.00 | 0.28 | 0.38 | 0.00 |
| Sat Flow, veh/h | 1725 | 3441 | 1535 | 1725 | 3441 | 1535 | 1725 | 3441 | 1535 | 1725 | 3441 | 1535 |
| Grp Volume(v), veh/h | 30 | 636 | 0 | 10 | 364 | 0 | 102 | 172 | 0 | 671 | 1000 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1725 | 1721 | 1535 | 1725 | 1721 | 1535 | 1725 | 1721 | 1535 | 1725 | 1721 | 1535 |
| Q Serve(g_s), s | 1.1 | 15.3 | 0.0 | 0.4 | 8.0 | 0.0 | 4.1 | 3.8 | 0.0 | 24.5 | 22.1 | 0.0 |
| Cycle Q Clear(g_c), s | 1.1 | 15.3 | 0.0 | 0.4 | 8.0 | 0.0 | 4.1 | 3.8 | 0.0 | 24.5 | 22.1 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 313 | 773 | | 219 | 773 | | 277 | 593 | | 719 | 1314 | |
| V/C Ratio(X) | 0.10 | 0.82 | | 0.05 | 0.47 | | 0.37 | 0.29 | | 0.93 | 0.76 | |
| Avail Cap(c_a), veh/h | 382 | 948 | | 289 | 948 | | 440 | 1581 | | 719 | 1976 | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 23.2 | 32.1 | 0.0 | 23.9 | 29.3 | 0.0 | 26.5 | 31.4 | 0.0 | 21.1 | 23.5 | 0.0 |
| Incr Delay (d2), s/veh | 0.1 | 4.9 | 0.0 | 0.1 | 0.4 | 0.0 | 0.8 | 0.3 | 0.0 | 19.1 | 1.0 | 0.0 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.4 | 6.6 | 0.0 | 0.1 | 3.1 | 0.0 | 1.7 | 1.5 | 0.0 | 13.8 | 8.2 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 23.3 | 37.0 | 0.0 | 24.0 | 29.7 | 0.0 | 27.4 | 31.7 | 0.0 | 40.2 | 24.4 | 0.0 |
| LnGrp LOS | C | D | | C | C | | C | C | | D | C | |
| Approach Vol, veh/h | | 666 | | | 374 | | | 274 | | | 1671 | |
| Approach Delay, s/veh | | 36.4 | | | 29.6 | | | 30.1 | | | 30.8 | |
| Approach LOS | | D | | | C | | | C | | | C | |
| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Phs Duration (G+Y+Rc), s | 30.0 | 21.0 | 10.5 | 25.6 | 11.8 | 39.2 | 10.5 | 25.6 | | | | |
| Change Period (Y+Rc), s | 5.5 | 6.0 | 5.5 | 6.0 | 5.5 | 6.0 | 5.5 | 6.0 | | | | |
| Max Green Setting (Gmax), s | 24.5 | 40.0 | 8.5 | 24.0 | 14.5 | 50.0 | 8.5 | 24.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 26.5 | 5.8 | 2.4 | 17.3 | 6.1 | 24.1 | 3.1 | 10.0 | | | | |
| Green Ext Time (p_c), s | 0.0 | 1.0 | 0.0 | 2.3 | 0.1 | 7.2 | 0.0 | 1.8 | | | | |

Intersection Summary

| | |
|---------------------------|------|
| HCM 6th Ctrl Delay, s/veh | 31.8 |
| HCM 6th LOS | C |

Notes

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

HCM 6th TWSC
 2: ROSEMARY STREET & 80TH AVENUE

11/15/2023

Intersection

Int Delay, s/veh 2

Movement EBL EBR NBL NBT SBT SBR

| | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations | | ↗ | | ↑↑ | ↑↑ | |
| Traffic Vol, veh/h | 0 | 192 | 0 | 474 | 687 | 12 |
| Future Vol, veh/h | 0 | 192 | 0 | 474 | 687 | 12 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | Stop | - | None | - | Free |
| Storage Length | - | 0 | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 6 | 6 | 6 | 6 | 6 | 6 |
| Mvmt Flow | 0 | 209 | 0 | 515 | 747 | 13 |

Major/Minor Minor2 Major1 Major2

| | | | | | | |
|----------------------|---|------|---|---|---|---|
| Conflicting Flow All | - | 374 | - | 0 | - | 0 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | 7.02 | - | - | - | - |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | 3.36 | - | - | - | - |
| Pot Cap-1 Maneuver | 0 | 612 | 0 | - | - | 0 |
| Stage 1 | 0 | - | 0 | - | - | 0 |
| Stage 2 | 0 | - | 0 | - | - | 0 |
| Platoon blocked, % | | | | - | - | |
| Mov Cap-1 Maneuver | - | 612 | - | - | - | - |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

Approach EB NB SB

| | | | |
|------------------------|------|---|---|
| HCM Control Delay, s/v | 13.9 | 0 | 0 |
| HCM LOS | B | | |

Minor Lane/Major Mvmt NBT EBLn1 SBT

| | | | |
|---------------------------|---|-------|---|
| Capacity (veh/h) | - | 612 | - |
| HCM Lane V/C Ratio | - | 0.341 | - |
| HCM Control Delay (s/veh) | - | 13.9 | - |
| HCM Lane LOS | - | B | - |
| HCM 95th %tile Q (veh) | - | 1.5 | - |

HCM 6th TWSC
 3: ROSEMARY STREET & DRIVEWAY/SITE ACCESS

11/15/2023

| Intersection | | | | | | | | | | | | |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh | 0.1 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | ↗ | | | ↗ | | ↔ | | | ↕ | |
| Traffic Vol, veh/h | 0 | 0 | 2 | 0 | 0 | 0 | 4 | 470 | 0 | 0 | 697 | 6 |
| Future Vol, veh/h | 0 | 0 | 2 | 0 | 0 | 0 | 4 | 470 | 0 | 0 | 697 | 6 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | 0 | - | - | 0 | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Mvmt Flow | 0 | 0 | 2 | 0 | 0 | 0 | 4 | 511 | 0 | 0 | 758 | 7 |

| Major/Minor | Minor2 | | Minor1 | | Major1 | | Major2 | | | | | |
|----------------------|--------|---|--------|---|--------|------|--------|---|---|---|---|---|
| Conflicting Flow All | - | - | 383 | - | - | 256 | 765 | 0 | 0 | - | - | 0 |
| Stage 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | - | - | - |
| Critical Hdwy | - | - | 7.02 | - | - | 7.02 | 4.22 | - | - | - | - | - |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | 3.36 | - | - | 3.36 | 2.26 | - | - | - | - | - |
| Pot Cap-1 Maneuver | 0 | 0 | 604 | 0 | 0 | 731 | 818 | - | - | 0 | - | - |
| Stage 1 | 0 | 0 | - | 0 | 0 | - | - | - | - | 0 | - | - |
| Stage 2 | 0 | 0 | - | 0 | 0 | - | - | - | - | 0 | - | - |
| Platoon blocked, % | - | - | - | - | - | - | - | - | - | - | - | - |
| Mov Cap-1 Maneuver | - | - | 604 | - | - | 731 | 818 | - | - | - | - | - |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | - | - | - |

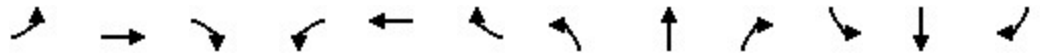
| Approach | EB | | WB | | NB | | SB | | | | |
|------------------------|----|--|----|--|-----|--|----|--|--|--|--|
| HCM Control Delay, s/v | 11 | | 0 | | 0.1 | | 0 | | | | |
| HCM LOS | B | | A | | | | | | | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBT | SBR |
|---------------------------|-------|-----|-----|-------|-------|-----|-----|
| Capacity (veh/h) | 818 | - | - | 604 | - | - | - |
| HCM Lane V/C Ratio | 0.005 | - | - | 0.004 | - | - | - |
| HCM Control Delay (s/veh) | 9.4 | 0 | - | 11 | 0 | - | - |
| HCM Lane LOS | A | A | - | B | A | - | - |
| HCM 95th %tile Q (veh) | 0 | - | - | 0 | - | - | - |

Timings

1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY

11/15/2023



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|-------|-------|-------|-------|-------|------|-------|-------|------|-------|-------|-------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 43 | 423 | 197 | 6 | 577 | 877 | 187 | 576 | 6 | 348 | 409 | 57 |
| Future Volume (vph) | 43 | 423 | 197 | 6 | 577 | 877 | 187 | 576 | 6 | 348 | 409 | 57 |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | Free | pm+pt | NA | Free | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | Free | 2 | | Free | 6 | | 6 |
| Detector Phase | 7 | 4 | 4 | 3 | 8 | | 5 | 2 | | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 15.0 | | 5.0 | 15.0 | 15.0 |
| Minimum Split (s) | 23.5 | 24.0 | 24.0 | 23.5 | 24.0 | | 23.5 | 24.0 | | 23.5 | 24.0 | 24.0 |
| Total Split (s) | 14.0 | 40.0 | 40.0 | 14.0 | 40.0 | | 20.0 | 46.0 | | 20.0 | 46.0 | 46.0 |
| Total Split (%) | 11.7% | 33.3% | 33.3% | 11.7% | 33.3% | | 16.7% | 38.3% | | 16.7% | 38.3% | 38.3% |
| Yellow Time (s) | 3.5 | 4.0 | 4.0 | 3.5 | 4.0 | | 3.5 | 4.0 | | 3.5 | 4.0 | 4.0 |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.5 | 6.0 | 6.0 | 5.5 | 6.0 | | 5.5 | 6.0 | | 5.5 | 6.0 | 6.0 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes |
| Recall Mode | None | None | None | None | None | | None | Min | | None | Min | Min |
| Act Effct Green (s) | 29.8 | 27.9 | 27.9 | 26.3 | 22.6 | 86.6 | 35.7 | 23.2 | 86.6 | 41.8 | 26.5 | 26.5 |
| Actuated g/C Ratio | 0.34 | 0.32 | 0.32 | 0.30 | 0.26 | 1.00 | 0.41 | 0.27 | 1.00 | 0.48 | 0.31 | 0.31 |
| v/c Ratio | 0.18 | 0.42 | 0.34 | 0.02 | 0.71 | 0.63 | 0.43 | 0.68 | 0.00 | 0.90 | 0.43 | 0.11 |
| Control Delay (s/veh) | 20.0 | 24.7 | 5.2 | 18.3 | 35.0 | 1.9 | 17.5 | 34.1 | 0.0 | 46.1 | 28.1 | 0.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 20.0 | 24.7 | 5.2 | 18.3 | 35.0 | 1.9 | 17.5 | 34.1 | 0.0 | 46.1 | 28.1 | 0.4 |
| LOS | C | C | A | B | C | A | B | C | A | D | C | A |
| Approach Delay (s/veh) | | 18.6 | | | 15.1 | | | 29.8 | | | 33.8 | |
| Approach LOS | | B | | | B | | | C | | | C | |

Intersection Summary

| | |
|---|------------------------|
| Cycle Length: 120 | |
| Actuated Cycle Length: 86.6 | |
| Natural Cycle: 95 | |
| Control Type: Actuated-Uncoordinated | |
| Maximum v/c Ratio: 0.90 | |
| Intersection Signal Delay (s/veh): 22.9 | Intersection LOS: C |
| Intersection Capacity Utilization 74.5% | ICU Level of Service D |
| Analysis Period (min) 15 | |

Splits and Phases: 1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY

| | | | |
|------------|------------|------------|------------|
| Ø1 20 s | Ø2 46 s | Ø3 14 s | Ø4 40 s |
| Ø5 20 s | Ø6 46 s | Ø7 14 s | Ø8 40 s |

Queues

1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY

11/15/2023



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 47 | 460 | 214 | 7 | 627 | 953 | 203 | 626 | 7 | 378 | 445 | 62 |
| v/c Ratio | 0.18 | 0.42 | 0.34 | 0.02 | 0.71 | 0.63 | 0.43 | 0.68 | 0.00 | 0.90 | 0.43 | 0.11 |
| Control Delay (s/veh) | 20.0 | 24.7 | 5.2 | 18.3 | 35.0 | 1.9 | 17.5 | 34.1 | 0.0 | 46.1 | 28.1 | 0.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 20.0 | 24.7 | 5.2 | 18.3 | 35.0 | 1.9 | 17.5 | 34.1 | 0.0 | 46.1 | 28.1 | 0.4 |
| Queue Length 50th (ft) | 16 | 95 | 0 | 2 | 174 | 0 | 66 | 173 | 0 | 146 | 112 | 0 |
| Queue Length 95th (ft) | 43 | 186 | 54 | 12 | 267 | 0 | 133 | 266 | 0 | #410 | 184 | 0 |
| Internal Link Dist (ft) | | 163 | | | 1049 | | | 779 | | | 969 | |
| Turn Bay Length (ft) | | | | 550 | | 400 | 400 | | 550 | 650 | | 450 |
| Base Capacity (vph) | 276 | 1463 | 777 | 360 | 1403 | 1524 | 538 | 1650 | 1524 | 422 | 1650 | 804 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.17 | 0.31 | 0.28 | 0.02 | 0.45 | 0.63 | 0.38 | 0.38 | 0.00 | 0.90 | 0.27 | 0.08 |

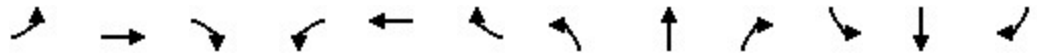
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY

11/15/2023



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 43 | 423 | 197 | 6 | 577 | 877 | 187 | 576 | 6 | 348 | 409 | 57 |
| Future Volume (veh/h) | 43 | 423 | 197 | 6 | 577 | 877 | 187 | 576 | 6 | 348 | 409 | 57 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 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 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 |
| Adj Flow Rate, veh/h | 47 | 460 | 0 | 7 | 627 | 0 | 203 | 626 | 0 | 378 | 445 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Cap, veh/h | 247 | 821 | | 303 | 821 | | 469 | 832 | | 450 | 1051 | |
| Arrive On Green | 0.06 | 0.24 | 0.00 | 0.06 | 0.24 | 0.00 | 0.11 | 0.24 | 0.00 | 0.18 | 0.31 | 0.00 |
| Sat Flow, veh/h | 1725 | 3441 | 1535 | 1725 | 3441 | 1535 | 1725 | 3441 | 1535 | 1725 | 3441 | 1535 |
| Grp Volume(v), veh/h | 47 | 460 | 0 | 7 | 627 | 0 | 203 | 626 | 0 | 378 | 445 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1725 | 1721 | 1535 | 1725 | 1721 | 1535 | 1725 | 1721 | 1535 | 1725 | 1721 | 1535 |
| Q Serve(g_s), s | 1.6 | 9.6 | 0.0 | 0.2 | 13.9 | 0.0 | 7.0 | 13.8 | 0.0 | 12.9 | 8.4 | 0.0 |
| Cycle Q Clear(g_c), s | 1.6 | 9.6 | 0.0 | 0.2 | 13.9 | 0.0 | 7.0 | 13.8 | 0.0 | 12.9 | 8.4 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 247 | 821 | | 303 | 821 | | 469 | 832 | | 450 | 1051 | |
| V/C Ratio(X) | 0.19 | 0.56 | | 0.02 | 0.76 | | 0.43 | 0.75 | | 0.84 | 0.42 | |
| Avail Cap(c_a), veh/h | 321 | 1430 | | 377 | 1430 | | 579 | 1683 | | 450 | 1683 | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 21.9 | 27.4 | 0.0 | 20.7 | 29.0 | 0.0 | 19.4 | 28.7 | 0.0 | 18.8 | 22.7 | 0.0 |
| Incr Delay (d2), s/veh | 0.4 | 0.6 | 0.0 | 0.0 | 1.5 | 0.0 | 0.6 | 1.4 | 0.0 | 13.2 | 0.3 | 0.0 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.6 | 3.8 | 0.0 | 0.1 | 5.4 | 0.0 | 2.6 | 5.4 | 0.0 | 6.1 | 3.2 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 22.2 | 28.0 | 0.0 | 20.7 | 30.5 | 0.0 | 20.0 | 30.1 | 0.0 | 32.0 | 22.9 | 0.0 |
| LnGrp LOS | C | C | | C | C | | B | C | | C | C | |
| Approach Vol, veh/h | | 507 | | | 634 | | | 829 | | | 823 | |
| Approach Delay, s/veh | | 27.4 | | | 30.4 | | | 27.7 | | | 27.1 | |
| Approach LOS | | C | | | C | | | C | | | C | |
| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Phs Duration (G+Y+Rc), s | 20.0 | 25.8 | 10.5 | 25.5 | 14.8 | 31.0 | 10.5 | 25.5 | | | | |
| Change Period (Y+Rc), s | 5.5 | 6.0 | 5.5 | 6.0 | 5.5 | 6.0 | 5.5 | 6.0 | | | | |
| Max Green Setting (Gmax), s | 14.5 | 40.0 | 8.5 | 34.0 | 14.5 | 40.0 | 8.5 | 34.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 14.9 | 15.8 | 2.2 | 11.6 | 9.0 | 10.4 | 3.6 | 15.9 | | | | |
| Green Ext Time (p_c), s | 0.0 | 4.0 | 0.0 | 3.0 | 0.2 | 2.8 | 0.0 | 3.6 | | | | |

Intersection Summary

| | |
|---------------------------|------|
| HCM 6th Ctrl Delay, s/veh | 28.1 |
| HCM 6th LOS | C |

Notes

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

HCM 6th TWSC
 2: ROSEMARY STREET & 80TH AVENUE

11/15/2023

Intersection

Int Delay, s/veh 1.6

Movement EBL EBR NBL NBT SBT SBR

| | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations | | ↗ | | ↑↑ | ↑↑ | |
| Traffic Vol, veh/h | 0 | 195 | 0 | 821 | 468 | 43 |
| Future Vol, veh/h | 0 | 195 | 0 | 821 | 468 | 43 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | Stop | - | None | - | Free |
| Storage Length | - | 0 | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 6 | 6 | 6 | 6 | 6 | 6 |
| Mvmt Flow | 0 | 212 | 0 | 892 | 509 | 47 |

Major/Minor Minor2 Major1 Major2

| | | | | | | |
|----------------------|---|------|---|---|---|---|
| Conflicting Flow All | - | 255 | - | 0 | - | 0 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | 7.02 | - | - | - | - |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | 3.36 | - | - | - | - |
| Pot Cap-1 Maneuver | 0 | 732 | 0 | - | - | 0 |
| Stage 1 | 0 | - | 0 | - | - | 0 |
| Stage 2 | 0 | - | 0 | - | - | 0 |
| Platoon blocked, % | | | | - | - | |
| Mov Cap-1 Maneuver | - | 732 | - | - | - | - |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

Approach EB NB SB

HCM Control Delay, s/v 11.9 0 0
 HCM LOS B

Minor Lane/Major Mvmt NBT EBLn1 SBT

| | | | |
|---------------------------|---|------|---|
| Capacity (veh/h) | - | 732 | - |
| HCM Lane V/C Ratio | - | 0.29 | - |
| HCM Control Delay (s/veh) | - | 11.9 | - |
| HCM Lane LOS | - | B | - |
| HCM 95th %tile Q (veh) | - | 1.2 | - |

HCM 6th TWSC
 3: ROSEMARY STREET & DRIVEWAY/SITE ACCESS

11/15/2023

| Intersection | | | | | | | | | | | | |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh | 0.1 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | ↗ | | | ↗ | | ↔ | | | ↕ | |
| Traffic Vol, veh/h | 0 | 0 | 10 | 0 | 0 | 0 | 5 | 816 | 0 | 0 | 501 | 1 |
| Future Vol, veh/h | 0 | 0 | 10 | 0 | 0 | 0 | 5 | 816 | 0 | 0 | 501 | 1 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | 0 | - | - | 0 | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Mvmt Flow | 0 | 0 | 11 | 0 | 0 | 0 | 5 | 887 | 0 | 0 | 545 | 1 |

| Major/Minor | Minor2 | Minor1 | Major1 | Major2 |
|----------------------|--------|--------|--------|--------|
| Conflicting Flow All | - | - | 273 | - |
| Stage 1 | - | - | - | - |
| Stage 2 | - | - | - | - |
| Critical Hdwy | - | - | 7.02 | 4.22 |
| Critical Hdwy Stg 1 | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - |
| Follow-up Hdwy | - | - | 3.36 | 2.26 |
| Pot Cap-1 Maneuver | 0 | 0 | 713 | 0 |
| Stage 1 | 0 | 0 | - | - |
| Stage 2 | 0 | 0 | - | - |
| Platoon blocked, % | - | - | - | - |
| Mov Cap-1 Maneuver | - | - | 713 | 551 |
| Mov Cap-2 Maneuver | - | - | - | - |
| Stage 1 | - | - | - | - |
| Stage 2 | - | - | - | - |

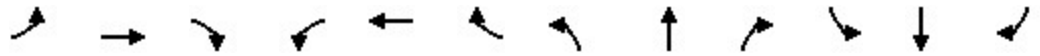
| Approach | EB | WB | NB | SB |
|------------------------|------|----|-----|----|
| HCM Control Delay, s/v | 10.1 | 0 | 0.1 | 0 |
| HCM LOS | B | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBT | SBR |
|---------------------------|-------|-----|-----|-------|-------|-----|-----|
| Capacity (veh/h) | 992 | - | - | 713 | - | - | - |
| HCM Lane V/C Ratio | 0.005 | - | - | 0.015 | - | - | - |
| HCM Control Delay (s/veh) | 8.6 | 0 | - | 10.1 | 0 | - | - |
| HCM Lane LOS | A | A | - | B | A | - | - |
| HCM 95th %tile Q (veh) | 0 | - | - | 0 | - | - | - |

Timings

1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY

11/15/2023

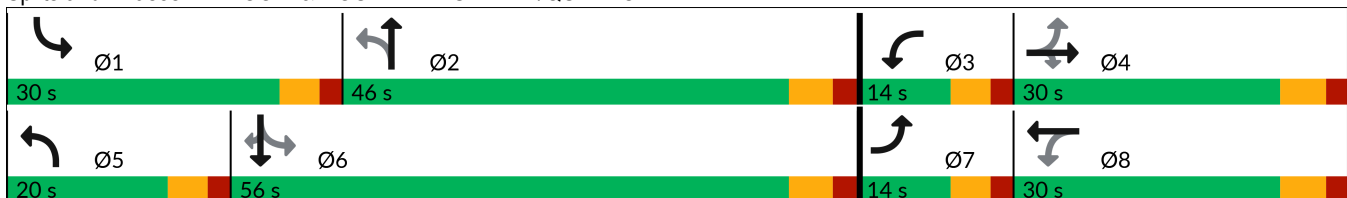


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|-------|-------|-------|-------|-------|------|-------|-------|------|-------|-------|-------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 28 | 585 | 266 | 11 | 335 | 445 | 94 | 192 | 26 | 753 | 1123 | 45 |
| Future Volume (vph) | 28 | 585 | 266 | 11 | 335 | 445 | 94 | 192 | 26 | 753 | 1123 | 45 |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | Free | pm+pt | NA | Free | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | Free | 2 | | Free | 6 | | 6 |
| Detector Phase | 7 | 4 | 4 | 3 | 8 | | 5 | 2 | | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 15.0 | | 5.0 | 15.0 | 15.0 |
| Minimum Split (s) | 23.5 | 24.0 | 24.0 | 23.5 | 24.0 | | 23.5 | 24.0 | | 23.5 | 24.0 | 24.0 |
| Total Split (s) | 14.0 | 30.0 | 30.0 | 14.0 | 30.0 | | 20.0 | 46.0 | | 30.0 | 56.0 | 56.0 |
| Total Split (%) | 11.7% | 25.0% | 25.0% | 11.7% | 25.0% | | 16.7% | 38.3% | | 25.0% | 46.7% | 46.7% |
| Yellow Time (s) | 3.5 | 4.0 | 4.0 | 3.5 | 4.0 | | 3.5 | 4.0 | | 3.5 | 4.0 | 4.0 |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.5 | 6.0 | 6.0 | 5.5 | 6.0 | | 5.5 | 6.0 | | 5.5 | 6.0 | 6.0 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes |
| Recall Mode | None | None | None | None | None | | None | Min | | None | Min | Min |
| Act Effct Green (s) | 27.5 | 25.6 | 25.6 | 24.7 | 20.6 | 98.1 | 37.6 | 27.2 | 98.1 | 58.6 | 45.5 | 45.5 |
| Actuated g/C Ratio | 0.28 | 0.26 | 0.26 | 0.25 | 0.21 | 1.00 | 0.38 | 0.28 | 1.00 | 0.60 | 0.46 | 0.46 |
| v/c Ratio | 0.11 | 0.72 | 0.47 | 0.06 | 0.51 | 0.32 | 0.41 | 0.22 | 0.02 | 1.08 | 0.77 | 0.06 |
| Control Delay (s/veh) | 28.7 | 40.1 | 7.3 | 28.8 | 40.3 | 0.5 | 17.2 | 27.7 | 0.0 | 77.4 | 28.5 | 0.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 28.7 | 40.1 | 7.3 | 28.8 | 40.3 | 0.5 | 17.2 | 27.7 | 0.0 | 77.4 | 28.5 | 0.2 |
| LOS | C | D | A | C | D | A | B | C | A | E | C | A |
| Approach Delay (s/veh) | | 29.8 | | | 17.8 | | | 22.2 | | | 47.0 | |
| Approach LOS | | C | | | B | | | C | | | D | |

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 98.1
 Natural Cycle: 135
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.08
 Intersection Signal Delay (s/veh): 35.2
 Intersection LOS: D
 Intersection Capacity Utilization 92.1%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY



Queues

1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY

11/15/2023



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 30 | 636 | 289 | 12 | 364 | 484 | 102 | 209 | 28 | 818 | 1221 | 49 |
| v/c Ratio | 0.11 | 0.72 | 0.47 | 0.06 | 0.51 | 0.32 | 0.41 | 0.22 | 0.02 | 1.08 | 0.77 | 0.06 |
| Control Delay (s/veh) | 28.7 | 40.1 | 7.3 | 28.8 | 40.3 | 0.5 | 17.2 | 27.7 | 0.0 | 77.4 | 28.5 | 0.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 28.7 | 40.1 | 7.3 | 28.8 | 40.3 | 0.5 | 17.2 | 27.7 | 0.0 | 77.4 | 28.5 | 0.2 |
| Queue Length 50th (ft) | 14 | 186 | 0 | 5 | 115 | 0 | 26 | 52 | 0 | ~455 | 350 | 0 |
| Queue Length 95th (ft) | 39 | #363 | 76 | 21 | 185 | 0 | 57 | 89 | 0 | #976 | 534 | 0 |
| Internal Link Dist (ft) | | 163 | | | 1049 | | | 779 | | | 969 | |
| Turn Bay Length (ft) | | | | 550 | | 400 | 400 | | 550 | 650 | | 450 |
| Base Capacity (vph) | 288 | 936 | 628 | 228 | 856 | 1524 | 337 | 1427 | 1524 | 754 | 1784 | 859 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.10 | 0.68 | 0.46 | 0.05 | 0.43 | 0.32 | 0.30 | 0.15 | 0.02 | 1.08 | 0.68 | 0.06 |

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY

11/15/2023



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 28 | 585 | 266 | 11 | 335 | 445 | 94 | 192 | 26 | 753 | 1123 | 45 |
| Future Volume (veh/h) | 28 | 585 | 266 | 11 | 335 | 445 | 94 | 192 | 26 | 753 | 1123 | 45 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 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 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 |
| Adj Flow Rate, veh/h | 30 | 636 | 0 | 12 | 364 | 0 | 102 | 209 | 0 | 818 | 1221 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Cap, veh/h | 290 | 749 | | 197 | 749 | | 236 | 794 | | 725 | 1451 | |
| Arrive On Green | 0.05 | 0.22 | 0.00 | 0.05 | 0.22 | 0.00 | 0.07 | 0.23 | 0.00 | 0.26 | 0.42 | 0.00 |
| Sat Flow, veh/h | 1725 | 3441 | 1535 | 1725 | 3441 | 1535 | 1725 | 3441 | 1535 | 1725 | 3441 | 1535 |
| Grp Volume(v), veh/h | 30 | 636 | 0 | 12 | 364 | 0 | 102 | 209 | 0 | 818 | 1221 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1725 | 1721 | 1535 | 1725 | 1721 | 1535 | 1725 | 1721 | 1535 | 1725 | 1721 | 1535 |
| Q Serve(g_s), s | 1.2 | 16.9 | 0.0 | 0.5 | 8.8 | 0.0 | 4.2 | 4.7 | 0.0 | 24.5 | 30.3 | 0.0 |
| Cycle Q Clear(g_c), s | 1.2 | 16.9 | 0.0 | 0.5 | 8.8 | 0.0 | 4.2 | 4.7 | 0.0 | 24.5 | 30.3 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 290 | 749 | | 197 | 749 | | 236 | 794 | | 725 | 1451 | |
| V/C Ratio(X) | 0.10 | 0.85 | | 0.06 | 0.49 | | 0.43 | 0.26 | | 1.13 | 0.84 | |
| Avail Cap(c_a), veh/h | 353 | 868 | | 261 | 868 | | 384 | 1446 | | 725 | 1807 | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 26.2 | 35.7 | 0.0 | 27.0 | 32.6 | 0.0 | 26.0 | 30.0 | 0.0 | 23.0 | 24.7 | 0.0 |
| Incr Delay (d2), s/veh | 0.2 | 7.1 | 0.0 | 0.1 | 0.5 | 0.0 | 1.2 | 0.2 | 0.0 | 74.6 | 3.1 | 0.0 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.5 | 7.6 | 0.0 | 0.2 | 3.5 | 0.0 | 1.7 | 1.9 | 0.0 | 18.9 | 11.7 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 26.4 | 42.8 | 0.0 | 27.2 | 33.1 | 0.0 | 27.2 | 30.2 | 0.0 | 97.6 | 27.8 | 0.0 |
| LnGrp LOS | C | D | | C | C | | C | C | | F | C | |
| Approach Vol, veh/h | | 666 | | | 376 | | | 311 | | | 2039 | |
| Approach Delay, s/veh | | 42.1 | | | 32.9 | | | 29.2 | | | 55.8 | |
| Approach LOS | | D | | | C | | | C | | | E | |
| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Phs Duration (G+Y+Rc), s | 30.0 | 28.0 | 10.5 | 26.7 | 11.8 | 46.1 | 10.5 | 26.7 | | | | |
| Change Period (Y+Rc), s | 5.5 | 6.0 | 5.5 | 6.0 | 5.5 | 6.0 | 5.5 | 6.0 | | | | |
| Max Green Setting (Gmax), s | 24.5 | 40.0 | 8.5 | 24.0 | 14.5 | 50.0 | 8.5 | 24.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 26.5 | 6.7 | 2.5 | 18.9 | 6.2 | 32.3 | 3.2 | 10.8 | | | | |
| Green Ext Time (p_c), s | 0.0 | 1.2 | 0.0 | 1.9 | 0.1 | 7.8 | 0.0 | 1.7 | | | | |

Intersection Summary

| | |
|---------------------------|------|
| HCM 6th Ctrl Delay, s/veh | 48.1 |
| HCM 6th LOS | D |

Notes

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

HCM 6th TWSC
 2: ROSEMARY STREET & 80TH AVENUE

11/15/2023

Intersection

Int Delay, s/veh 2

Movement EBL EBR NBL NBT SBT SBR

| | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations | | ↗ | | ↑↑ | ↑↑ | |
| Traffic Vol, veh/h | 0 | 192 | 0 | 474 | 687 | 12 |
| Future Vol, veh/h | 0 | 192 | 0 | 474 | 687 | 12 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | Stop | - | None | - | Free |
| Storage Length | - | 0 | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 6 | 6 | 6 | 6 | 6 | 6 |
| Mvmt Flow | 0 | 209 | 0 | 515 | 747 | 13 |

Major/Minor Minor2 Major1 Major2

| | | | | | | |
|----------------------|---|------|---|---|---|---|
| Conflicting Flow All | - | 374 | - | 0 | - | 0 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | 7.02 | - | - | - | - |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | 3.36 | - | - | - | - |
| Pot Cap-1 Maneuver | 0 | 612 | 0 | - | - | 0 |
| Stage 1 | 0 | - | 0 | - | - | 0 |
| Stage 2 | 0 | - | 0 | - | - | 0 |
| Platoon blocked, % | | | | - | - | |
| Mov Cap-1 Maneuver | - | 612 | - | - | - | - |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

Approach EB NB SB

| | | | |
|------------------------|------|---|---|
| HCM Control Delay, s/v | 13.9 | 0 | 0 |
| HCM LOS | B | | |

Minor Lane/Major Mvmt NBT EBLn1 SBT

| | | | |
|---------------------------|---|-------|---|
| Capacity (veh/h) | - | 612 | - |
| HCM Lane V/C Ratio | - | 0.341 | - |
| HCM Control Delay (s/veh) | - | 13.9 | - |
| HCM Lane LOS | - | B | - |
| HCM 95th %tile Q (veh) | - | 1.5 | - |

HCM 6th TWSC
 3: ROSEMARY STREET & DRIVEWAY/SITE ACCESS

11/15/2023

| Intersection | | | | | | | | | | | | |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh | 0.1 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | ↗ | | | ↗ | ↔ | ↔ | | | ↕ | ↕ |
| Traffic Vol, veh/h | 0 | 0 | 2 | 0 | 0 | 0 | 4 | 470 | 0 | 0 | 697 | 6 |
| Future Vol, veh/h | 0 | 0 | 2 | 0 | 0 | 0 | 4 | 470 | 0 | 0 | 697 | 6 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | 0 | - | - | 0 | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Mvmt Flow | 0 | 0 | 2 | 0 | 0 | 0 | 4 | 511 | 0 | 0 | 758 | 7 |

| Major/Minor | Minor2 | | Minor1 | | Major1 | | Major2 | | | | | |
|----------------------|--------|---|--------|---|--------|------|--------|---|---|---|---|---|
| Conflicting Flow All | - | - | 383 | - | - | 256 | 765 | 0 | 0 | - | - | 0 |
| Stage 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | - | - | - |
| Critical Hdwy | - | - | 7.02 | - | - | 7.02 | 4.22 | - | - | - | - | - |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | 3.36 | - | - | 3.36 | 2.26 | - | - | - | - | - |
| Pot Cap-1 Maneuver | 0 | 0 | 604 | 0 | 0 | 731 | 818 | - | - | 0 | - | - |
| Stage 1 | 0 | 0 | - | 0 | 0 | - | - | - | - | 0 | - | - |
| Stage 2 | 0 | 0 | - | 0 | 0 | - | - | - | - | 0 | - | - |
| Platoon blocked, % | - | - | - | - | - | - | - | - | - | - | - | - |
| Mov Cap-1 Maneuver | - | - | 604 | - | - | 731 | 818 | - | - | - | - | - |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | - | - | - |

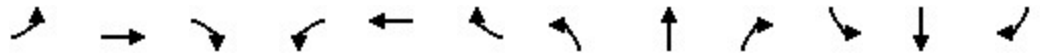
| Approach | EB | | WB | | NB | | SB | |
|------------------------|----|--|----|--|-----|--|----|--|
| HCM Control Delay, s/v | 11 | | 0 | | 0.1 | | 0 | |
| HCM LOS | B | | A | | | | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBT | SBR |
|---------------------------|-------|-----|-----|-------|-------|-----|-----|
| Capacity (veh/h) | 818 | - | - | 604 | - | - | - |
| HCM Lane V/C Ratio | 0.005 | - | - | 0.004 | - | - | - |
| HCM Control Delay (s/veh) | 9.4 | 0 | - | 11 | 0 | - | - |
| HCM Lane LOS | A | A | - | B | A | - | - |
| HCM 95th %tile Q (veh) | 0 | - | - | 0 | - | - | - |

Timings

1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY

11/15/2023



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|-------|-------|-------|-------|-------|------|-------|-------|------|-------|-------|-------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 43 | 423 | 197 | 8 | 577 | 1070 | 187 | 703 | 8 | 425 | 499 | 57 |
| Future Volume (vph) | 43 | 423 | 197 | 8 | 577 | 1070 | 187 | 703 | 8 | 425 | 499 | 57 |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | Free | pm+pt | NA | Free | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | Free | 2 | | Free | 6 | | 6 |
| Detector Phase | 7 | 4 | 4 | 3 | 8 | | 5 | 2 | | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 15.0 | | 5.0 | 15.0 | 15.0 |
| Minimum Split (s) | 23.5 | 24.0 | 24.0 | 23.5 | 24.0 | | 23.5 | 24.0 | | 23.5 | 24.0 | 24.0 |
| Total Split (s) | 14.0 | 40.0 | 40.0 | 14.0 | 40.0 | | 20.0 | 46.0 | | 20.0 | 46.0 | 46.0 |
| Total Split (%) | 11.7% | 33.3% | 33.3% | 11.7% | 33.3% | | 16.7% | 38.3% | | 16.7% | 38.3% | 38.3% |
| Yellow Time (s) | 3.5 | 4.0 | 4.0 | 3.5 | 4.0 | | 3.5 | 4.0 | | 3.5 | 4.0 | 4.0 |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.5 | 6.0 | 6.0 | 5.5 | 6.0 | | 5.5 | 6.0 | | 5.5 | 6.0 | 6.0 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes |
| Recall Mode | None | None | None | None | None | | None | Min | | None | Min | Min |
| Act Effct Green (s) | 31.0 | 29.2 | 29.2 | 27.6 | 23.9 | 93.1 | 40.8 | 28.3 | 93.1 | 47.0 | 31.5 | 31.5 |
| Actuated g/C Ratio | 0.33 | 0.31 | 0.31 | 0.30 | 0.26 | 1.00 | 0.44 | 0.30 | 1.00 | 0.50 | 0.34 | 0.34 |
| v/c Ratio | 0.20 | 0.43 | 0.34 | 0.03 | 0.72 | 0.76 | 0.46 | 0.74 | 0.01 | 1.21 | 0.47 | 0.10 |
| Control Delay (s/veh) | 22.8 | 27.4 | 5.6 | 21.0 | 38.1 | 3.7 | 17.8 | 35.1 | 0.0 | 142.5 | 28.1 | 0.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 22.8 | 27.4 | 5.6 | 21.0 | 38.1 | 3.7 | 17.8 | 35.1 | 0.0 | 142.5 | 28.1 | 0.4 |
| LOS | C | C | A | C | D | A | B | D | A | F | C | A |
| Approach Delay (s/veh) | | 20.6 | | | 15.8 | | | 31.2 | | | 76.0 | |
| Approach LOS | | C | | | B | | | C | | | E | |

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 93.1
 Natural Cycle: 115
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.21
 Intersection Signal Delay (s/veh): 33.9
 Intersection LOS: C
 Intersection Capacity Utilization 82.3%
 ICU Level of Service E
 Analysis Period (min) 15

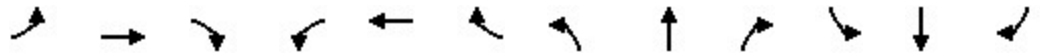
Splits and Phases: 1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY

| | | | |
|------------|------------|------------|------------|
| Ø1 20 s | Ø2 46 s | Ø3 14 s | Ø4 40 s |
| Ø5 20 s | Ø6 46 s | Ø7 14 s | Ø8 40 s |

Queues

1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY

11/15/2023



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|------|------|------|------|------|------|------|-------|------|------|
| Lane Group Flow (vph) | 47 | 460 | 214 | 9 | 627 | 1163 | 203 | 764 | 9 | 462 | 542 | 62 |
| v/c Ratio | 0.20 | 0.43 | 0.34 | 0.03 | 0.72 | 0.76 | 0.46 | 0.74 | 0.01 | 1.21 | 0.47 | 0.10 |
| Control Delay (s/veh) | 22.8 | 27.4 | 5.6 | 21.0 | 38.1 | 3.7 | 17.8 | 35.1 | 0.0 | 142.5 | 28.1 | 0.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 22.8 | 27.4 | 5.6 | 21.0 | 38.1 | 3.7 | 17.8 | 35.1 | 0.0 | 142.5 | 28.1 | 0.4 |
| Queue Length 50th (ft) | 18 | 106 | 0 | 3 | 191 | 0 | 69 | 228 | 0 | ~317 | 145 | 0 |
| Queue Length 95th (ft) | 47 | 203 | 56 | 15 | 290 | 0 | 134 | 336 | 0 | #627 | 228 | 0 |
| Internal Link Dist (ft) | | 163 | | | 1049 | | | 779 | | | 969 | |
| Turn Bay Length (ft) | | | | 550 | | 400 | 400 | | 550 | 650 | | 450 |
| Base Capacity (vph) | 260 | 1397 | 751 | 341 | 1312 | 1524 | 503 | 1543 | 1524 | 381 | 1543 | 760 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.18 | 0.33 | 0.28 | 0.03 | 0.48 | 0.76 | 0.40 | 0.50 | 0.01 | 1.21 | 0.35 | 0.08 |

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY

11/15/2023



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations | ↘ | ↑↑ | ↗ | ↘ | ↑↑ | ↗ | ↘ | ↑↑ | ↗ | ↘ | ↑↑ | ↗ |
| Traffic Volume (veh/h) | 43 | 423 | 197 | 8 | 577 | 1070 | 187 | 703 | 8 | 425 | 499 | 57 |
| Future Volume (veh/h) | 43 | 423 | 197 | 8 | 577 | 1070 | 187 | 703 | 8 | 425 | 499 | 57 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 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 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 |
| Adj Flow Rate, veh/h | 47 | 460 | 0 | 9 | 627 | 0 | 203 | 764 | 0 | 462 | 542 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Cap, veh/h | 229 | 805 | | 285 | 805 | | 448 | 970 | | 419 | 1170 | |
| Arrive On Green | 0.06 | 0.23 | 0.00 | 0.06 | 0.23 | 0.00 | 0.11 | 0.28 | 0.00 | 0.17 | 0.34 | 0.00 |
| Sat Flow, veh/h | 1725 | 3441 | 1535 | 1725 | 3441 | 1535 | 1725 | 3441 | 1535 | 1725 | 3441 | 1535 |
| Grp Volume(v), veh/h | 47 | 460 | 0 | 9 | 627 | 0 | 203 | 764 | 0 | 462 | 542 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1725 | 1721 | 1535 | 1725 | 1721 | 1535 | 1725 | 1721 | 1535 | 1725 | 1721 | 1535 |
| Q Serve(g_s), s | 1.7 | 10.4 | 0.0 | 0.3 | 15.0 | 0.0 | 7.2 | 18.0 | 0.0 | 14.5 | 10.8 | 0.0 |
| Cycle Q Clear(g_c), s | 1.7 | 10.4 | 0.0 | 0.3 | 15.0 | 0.0 | 7.2 | 18.0 | 0.0 | 14.5 | 10.8 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 229 | 805 | | 285 | 805 | | 448 | 970 | | 419 | 1170 | |
| V/C Ratio(X) | 0.21 | 0.57 | | 0.03 | 0.78 | | 0.45 | 0.79 | | 1.10 | 0.46 | |
| Avail Cap(c_a), veh/h | 298 | 1333 | | 354 | 1333 | | 548 | 1568 | | 419 | 1568 | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 24.0 | 29.7 | 0.0 | 22.8 | 31.5 | 0.0 | 18.8 | 29.1 | 0.0 | 20.6 | 22.7 | 0.0 |
| Incr Delay (d2), s/veh | 0.4 | 0.6 | 0.0 | 0.0 | 1.7 | 0.0 | 0.7 | 1.5 | 0.0 | 74.5 | 0.3 | 0.0 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.7 | 4.2 | 0.0 | 0.1 | 6.0 | 0.0 | 2.7 | 7.1 | 0.0 | 13.9 | 4.1 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 24.5 | 30.4 | 0.0 | 22.8 | 33.2 | 0.0 | 19.5 | 30.6 | 0.0 | 95.1 | 23.0 | 0.0 |
| LnGrp LOS | C | C | | C | C | | B | C | | F | C | |
| Approach Vol, veh/h | | 507 | | | 636 | | | 967 | | | 1004 | |
| Approach Delay, s/veh | | 29.8 | | | 33.0 | | | 28.2 | | | 56.2 | |
| Approach LOS | | C | | | C | | | C | | | E | |
| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Phs Duration (G+Y+Rc), s | 20.0 | 30.7 | 10.5 | 26.5 | 14.9 | 35.8 | 10.5 | 26.5 | | | | |
| Change Period (Y+Rc), s | 5.5 | 6.0 | 5.5 | 6.0 | 5.5 | 6.0 | 5.5 | 6.0 | | | | |
| Max Green Setting (Gmax), s | 14.5 | 40.0 | 8.5 | 34.0 | 14.5 | 40.0 | 8.5 | 34.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 16.5 | 20.0 | 2.3 | 12.4 | 9.2 | 12.8 | 3.7 | 17.0 | | | | |
| Green Ext Time (p_c), s | 0.0 | 4.8 | 0.0 | 2.9 | 0.2 | 3.4 | 0.0 | 3.6 | | | | |

| Intersection Summary | | | | | | | | | | | | |
|---------------------------|--|--|--|--|--|--|--|--|--|--|------|--|
| HCM 6th Ctrl Delay, s/veh | | | | | | | | | | | 38.5 | |
| HCM 6th LOS | | | | | | | | | | | D | |

Notes

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

HCM 6th TWSC
 2: ROSEMARY STREET & 80TH AVENUE

11/15/2023

Intersection

Int Delay, s/veh 1.6

Movement EBL EBR NBL NBT SBT SBR

| | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations | | ↗ | | ↑↑ | ↑↑ | |
| Traffic Vol, veh/h | 0 | 195 | 0 | 821 | 468 | 43 |
| Future Vol, veh/h | 0 | 195 | 0 | 821 | 468 | 43 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | Stop | - | None | - | Free |
| Storage Length | - | 0 | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 6 | 6 | 6 | 6 | 6 | 6 |
| Mvmt Flow | 0 | 212 | 0 | 892 | 509 | 47 |

Major/Minor Minor2 Major1 Major2

| | | | | | | |
|----------------------|---|------|---|---|---|---|
| Conflicting Flow All | - | 255 | - | 0 | - | 0 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | 7.02 | - | - | - | - |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | 3.36 | - | - | - | - |
| Pot Cap-1 Maneuver | 0 | 732 | 0 | - | - | 0 |
| Stage 1 | 0 | - | 0 | - | - | 0 |
| Stage 2 | 0 | - | 0 | - | - | 0 |
| Platoon blocked, % | | | | - | - | |
| Mov Cap-1 Maneuver | - | 732 | - | - | - | - |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

Approach EB NB SB

| | | | |
|------------------------|------|---|---|
| HCM Control Delay, s/v | 11.9 | 0 | 0 |
| HCM LOS | B | | |

Minor Lane/Major Mvmt NBT EBLn1 SBT

| | | | |
|---------------------------|---|------|---|
| Capacity (veh/h) | - | 732 | - |
| HCM Lane V/C Ratio | - | 0.29 | - |
| HCM Control Delay (s/veh) | - | 11.9 | - |
| HCM Lane LOS | - | B | - |
| HCM 95th %tile Q (veh) | - | 1.2 | - |

HCM 6th TWSC
 3: ROSEMARY STREET & DRIVEWAY/SITE ACCESS

11/15/2023

| Intersection | | | | | | | | | | | | |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh | 0.1 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | ↗ | | | ↗ | | ↔ | | | ↕ | |
| Traffic Vol, veh/h | 0 | 0 | 10 | 0 | 0 | 0 | 5 | 816 | 0 | 0 | 501 | 1 |
| Future Vol, veh/h | 0 | 0 | 10 | 0 | 0 | 0 | 5 | 816 | 0 | 0 | 501 | 1 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | 0 | - | - | 0 | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Mvmt Flow | 0 | 0 | 11 | 0 | 0 | 0 | 5 | 887 | 0 | 0 | 545 | 1 |

| Major/Minor | Minor2 | Minor1 | Major1 | Major2 |
|----------------------|--------|--------|--------|--------|
| Conflicting Flow All | - | - | 273 | - |
| Stage 1 | - | - | - | - |
| Stage 2 | - | - | - | - |
| Critical Hdwy | - | - | 7.02 | 4.22 |
| Critical Hdwy Stg 1 | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - |
| Follow-up Hdwy | - | - | 3.36 | 2.26 |
| Pot Cap-1 Maneuver | 0 | 0 | 713 | 0 |
| Stage 1 | 0 | 0 | - | - |
| Stage 2 | 0 | 0 | - | - |
| Platoon blocked, % | - | - | - | - |
| Mov Cap-1 Maneuver | - | - | 713 | 551 |
| Mov Cap-2 Maneuver | - | - | - | - |
| Stage 1 | - | - | - | - |
| Stage 2 | - | - | - | - |

| Approach | EB | WB | NB | SB |
|------------------------|------|----|-----|----|
| HCM Control Delay, s/v | 10.1 | 0 | 0.1 | 0 |
| HCM LOS | B | A | | |

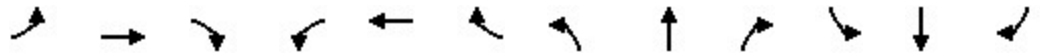
| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBT | SBR |
|---------------------------|-------|-----|-----|-------|-------|-----|-----|
| Capacity (veh/h) | 92 | - | - | 713 | - | - | - |
| HCM Lane V/C Ratio | 0.005 | - | - | 0.015 | - | - | - |
| HCM Control Delay (s/veh) | 8.6 | 0 | - | 10.1 | 0 | - | - |
| HCM Lane LOS | A | A | - | B | A | - | - |
| HCM 95th %tile Q (veh) | 0 | - | - | 0 | - | - | - |

APPENDIX F – Future (with site development) Synchro Outputs

Timings

1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY

11/15/2023

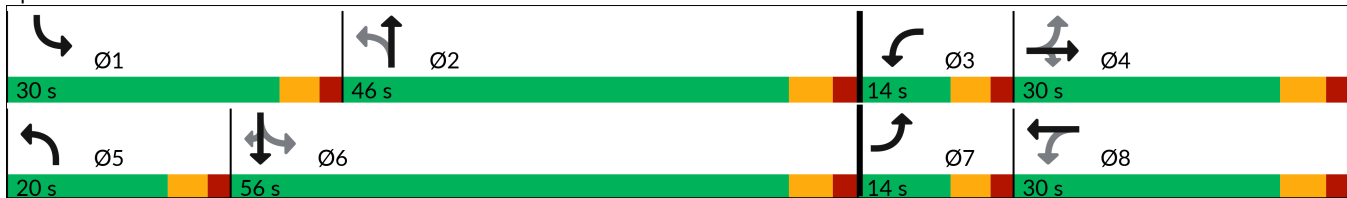


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|-------|-------|-------|-------|-------|------|-------|-------|------|-------|-------|-------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 87 | 603 | 326 | 9 | 353 | 365 | 153 | 109 | 22 | 617 | 870 | 106 |
| Future Volume (vph) | 87 | 603 | 326 | 9 | 353 | 365 | 153 | 109 | 22 | 617 | 870 | 106 |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | Free | pm+pt | NA | Free | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | Free | 2 | | Free | 6 | | 6 |
| Detector Phase | 7 | 4 | 4 | 3 | 8 | | 5 | 2 | | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 15.0 | | 5.0 | 15.0 | 15.0 |
| Minimum Split (s) | 23.5 | 24.0 | 24.0 | 23.5 | 24.0 | | 23.5 | 24.0 | | 23.5 | 24.0 | 24.0 |
| Total Split (s) | 14.0 | 30.0 | 30.0 | 14.0 | 30.0 | | 20.0 | 46.0 | | 30.0 | 56.0 | 56.0 |
| Total Split (%) | 11.7% | 25.0% | 25.0% | 11.7% | 25.0% | | 16.7% | 38.3% | | 25.0% | 46.7% | 46.7% |
| Yellow Time (s) | 3.5 | 4.0 | 4.0 | 3.5 | 4.0 | | 3.5 | 4.0 | | 3.5 | 4.0 | 4.0 |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.5 | 6.0 | 6.0 | 5.5 | 6.0 | | 5.5 | 6.0 | | 5.5 | 6.0 | 6.0 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes |
| Recall Mode | None | None | None | None | None | | None | Min | | None | Min | Min |
| Act Effct Green (s) | 28.1 | 26.2 | 26.2 | 22.7 | 17.5 | 91.3 | 32.2 | 21.0 | 91.3 | 51.3 | 34.5 | 34.5 |
| Actuated g/C Ratio | 0.31 | 0.29 | 0.29 | 0.25 | 0.19 | 1.00 | 0.35 | 0.23 | 1.00 | 0.56 | 0.38 | 0.38 |
| v/c Ratio | 0.32 | 0.64 | 0.50 | 0.05 | 0.57 | 0.25 | 0.53 | 0.14 | 0.02 | 0.88 | 0.71 | 0.17 |
| Control Delay (s/veh) | 27.3 | 33.9 | 6.5 | 25.0 | 39.3 | 0.4 | 19.5 | 29.0 | 0.0 | 30.3 | 28.4 | 3.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 27.3 | 33.9 | 6.5 | 25.0 | 39.3 | 0.4 | 19.5 | 29.0 | 0.0 | 30.3 | 28.4 | 3.9 |
| LOS | C | C | A | C | D | A | B | C | A | C | C | A |
| Approach Delay (s/veh) | | 24.5 | | | 19.6 | | | 21.6 | | | 27.5 | |
| Approach LOS | | C | | | B | | | C | | | C | |

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 91.3
 Natural Cycle: 105
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay (s/veh): 24.6 Intersection LOS: C
 Intersection Capacity Utilization 86.7% ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY



Queues

1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY

11/15/2023



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 95 | 655 | 354 | 10 | 384 | 397 | 166 | 118 | 24 | 671 | 946 | 115 |
| v/c Ratio | 0.32 | 0.64 | 0.50 | 0.05 | 0.57 | 0.25 | 0.53 | 0.14 | 0.02 | 0.88 | 0.71 | 0.17 |
| Control Delay (s/veh) | 27.3 | 33.9 | 6.5 | 25.0 | 39.3 | 0.4 | 19.5 | 29.0 | 0.0 | 30.3 | 28.4 | 3.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 27.3 | 33.9 | 6.5 | 25.0 | 39.3 | 0.4 | 19.5 | 29.0 | 0.0 | 30.3 | 28.4 | 3.9 |
| Queue Length 50th (ft) | 37 | 155 | 0 | 4 | 105 | 0 | 44 | 28 | 0 | 260 | 241 | 0 |
| Queue Length 95th (ft) | 91 | #346 | 80 | 18 | 186 | 0 | 88 | 54 | 0 | #539 | 367 | 30 |
| Internal Link Dist (ft) | | 163 | | | 1049 | | | 779 | | | 969 | |
| Turn Bay Length (ft) | | | | 550 | | 400 | 400 | | 550 | 650 | | 450 |
| Base Capacity (vph) | 307 | 1069 | 725 | 267 | 952 | 1583 | 396 | 1587 | 1583 | 773 | 1985 | 943 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.31 | 0.61 | 0.49 | 0.04 | 0.40 | 0.25 | 0.42 | 0.07 | 0.02 | 0.87 | 0.48 | 0.12 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY

11/15/2023



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 87 | 603 | 326 | 9 | 353 | 365 | 153 | 109 | 22 | 617 | 870 | 106 |
| Future Volume (veh/h) | 87 | 603 | 326 | 9 | 353 | 365 | 153 | 109 | 22 | 617 | 870 | 106 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 95 | 655 | 0 | 10 | 384 | 0 | 166 | 118 | 0 | 671 | 946 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 320 | 800 | | 224 | 776 | | 331 | 612 | | 767 | 1256 | |
| Arrive On Green | 0.06 | 0.22 | 0.00 | 0.06 | 0.22 | 0.00 | 0.10 | 0.17 | 0.00 | 0.28 | 0.35 | 0.00 |
| Sat Flow, veh/h | 1781 | 3554 | 1585 | 1781 | 3554 | 1585 | 1781 | 3554 | 1585 | 1781 | 3554 | 1585 |
| Grp Volume(v), veh/h | 95 | 655 | 0 | 10 | 384 | 0 | 166 | 118 | 0 | 671 | 946 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1777 | 1585 | 1781 | 1777 | 1585 | 1781 | 1777 | 1585 | 1781 | 1777 | 1585 |
| Q Serve(g_s), s | 3.5 | 15.3 | 0.0 | 0.4 | 8.2 | 0.0 | 6.5 | 2.5 | 0.0 | 24.5 | 20.4 | 0.0 |
| Cycle Q Clear(g_c), s | 3.5 | 15.3 | 0.0 | 0.4 | 8.2 | 0.0 | 6.5 | 2.5 | 0.0 | 24.5 | 20.4 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 320 | 800 | | 224 | 776 | | 331 | 612 | | 767 | 1256 | |
| V/C Ratio(X) | 0.30 | 0.82 | | 0.04 | 0.49 | | 0.50 | 0.19 | | 0.87 | 0.75 | |
| Avail Cap(c_a), veh/h | 380 | 979 | | 295 | 979 | | 450 | 1632 | | 767 | 2040 | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 24.1 | 32.1 | 0.0 | 24.2 | 29.8 | 0.0 | 25.6 | 30.9 | 0.0 | 20.0 | 24.8 | 0.0 |
| Incr Delay (d2), s/veh | 0.5 | 4.6 | 0.0 | 0.1 | 0.5 | 0.0 | 1.2 | 0.2 | 0.0 | 11.0 | 0.9 | 0.0 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.5 | 6.8 | 0.0 | 0.1 | 3.4 | 0.0 | 2.7 | 1.0 | 0.0 | 12.1 | 8.0 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 24.6 | 36.7 | 0.0 | 24.3 | 30.3 | 0.0 | 26.8 | 31.0 | 0.0 | 31.0 | 25.7 | 0.0 |
| LnGrp LOS | C | D | | C | C | | C | C | | C | C | |
| Approach Vol, veh/h | | 750 | | | 394 | | | 284 | | | 1617 | |
| Approach Delay, s/veh | | 35.2 | | | 30.2 | | | 28.5 | | | 27.9 | |
| Approach LOS | | D | | | C | | | C | | | C | |
| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Phs Duration (G+Y+Rc), s | 30.0 | 21.0 | 10.5 | 25.6 | 14.2 | 36.8 | 11.1 | 25.0 | | | | |
| Change Period (Y+Rc), s | 5.5 | 6.0 | 5.5 | 6.0 | 5.5 | 6.0 | 5.5 | 6.0 | | | | |
| Max Green Setting (Gmax), s | 24.5 | 40.0 | 8.5 | 24.0 | 14.5 | 50.0 | 8.5 | 24.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 26.5 | 4.5 | 2.4 | 17.3 | 8.5 | 22.4 | 5.5 | 10.2 | | | | |
| Green Ext Time (p_c), s | 0.0 | 0.6 | 0.0 | 2.3 | 0.2 | 6.8 | 0.0 | 1.8 | | | | |

Intersection Summary

| | |
|---------------------------|------|
| HCM 6th Ctrl Delay, s/veh | 30.1 |
| HCM 6th LOS | C |

Notes

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

HCM 6th TWSC
 2: ROSEMARY STREET & 80TH AVENUE

11/15/2023

Intersection

Int Delay, s/veh 1.8

Movement EBL EBR NBL NBT SBT SBR

| | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations | | ↗ | | ↑↑ | ↑↑ | |
| Traffic Vol, veh/h | 0 | 192 | 0 | 612 | 825 | 12 |
| Future Vol, veh/h | 0 | 192 | 0 | 612 | 825 | 12 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | Stop | - | None | - | Free |
| Storage Length | - | 0 | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 209 | 0 | 665 | 897 | 13 |

Major/Minor Minor2 Major1 Major2

| | | | | | | |
|----------------------|---|------|---|---|---|---|
| Conflicting Flow All | - | 449 | - | 0 | - | 0 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | 6.94 | - | - | - | - |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | 3.32 | - | - | - | - |
| Pot Cap-1 Maneuver | 0 | 557 | 0 | - | - | 0 |
| Stage 1 | 0 | - | 0 | - | - | 0 |
| Stage 2 | 0 | - | 0 | - | - | 0 |
| Platoon blocked, % | | | | - | - | |
| Mov Cap-1 Maneuver | - | 557 | - | - | - | - |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

Approach EB NB SB

| | | | |
|------------------------|------|---|---|
| HCM Control Delay, s/v | 15.3 | 0 | 0 |
| HCM LOS | C | | |

Minor Lane/Major Mvmt NBT EBLn1 SBT

| | | | |
|---------------------------|---|-------|---|
| Capacity (veh/h) | - | 557 | - |
| HCM Lane V/C Ratio | - | 0.375 | - |
| HCM Control Delay (s/veh) | - | 15.3 | - |
| HCM Lane LOS | - | C | - |
| HCM 95th %tile Q (veh) | - | 1.7 | - |

HCM 6th TWSC
 3: ROSEMARY STREET & DRIVEWAY/SITE ACCESS

01/05/2024

| Intersection | | | | | | | | | | | | |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh | 0.3 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | ↗ | | | ↗ | | ↔↕ | ↗ | | ↕↔ | |
| Traffic Vol, veh/h | 0 | 0 | 2 | 0 | 0 | 35 | 4 | 445 | 163 | 0 | 834 | 6 |
| Future Vol, veh/h | 0 | 0 | 2 | 0 | 0 | 35 | 4 | 445 | 163 | 0 | 834 | 6 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | 0 | - | - | 0 | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 0 | 2 | 0 | 0 | 38 | 4 | 484 | 177 | 0 | 907 | 7 |

| Major/Minor | Minor2 | | Minor1 | | Major1 | | Major2 | | | | | |
|----------------------|--------|---|--------|---|--------|------|--------|---|---|---|---|---|
| Conflicting Flow All | - | - | 457 | - | - | 242 | 914 | 0 | 0 | - | - | 0 |
| Stage 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | - | - | - |
| Critical Hdwy | - | - | 6.94 | - | - | 6.94 | 4.14 | - | - | - | - | - |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | 3.32 | - | - | 3.32 | 2.22 | - | - | - | - | - |
| Pot Cap-1 Maneuver | 0 | 0 | 551 | 0 | 0 | 759 | 742 | - | - | 0 | - | - |
| Stage 1 | 0 | 0 | - | 0 | 0 | - | - | - | - | 0 | - | - |
| Stage 2 | 0 | 0 | - | 0 | 0 | - | - | - | - | 0 | - | - |
| Platoon blocked, % | - | - | - | - | - | - | - | - | - | - | - | - |
| Mov Cap-1 Maneuver | - | - | 551 | - | - | 759 | 742 | - | - | - | - | - |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | - | - | - |

| Approach | EB | | WB | | NB | | SB | | | | |
|------------------------|------|--|----|--|-----|--|----|--|--|--|--|
| HCM Control Delay, s/v | 11.6 | | 10 | | 0.1 | | 0 | | | | |
| HCM LOS | B | | B | | | | | | | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBT | SBR |
|---------------------------|-------|-----|-----|-------|-------|-----|-----|
| Capacity (veh/h) | 742 | - | - | 551 | 759 | - | - |
| HCM Lane V/C Ratio | 0.006 | - | - | 0.004 | 0.05 | - | - |
| HCM Control Delay (s/veh) | 9.9 | 0 | - | 11.6 | 10 | - | - |
| HCM Lane LOS | A | A | - | B | B | - | - |
| HCM 95th %tile Q (veh) | 0 | - | - | 0 | 0.2 | - | - |

4: ROSEMARY STREET & N SITE ACCESS Performance by lane

| Lane | WB | WB | NB | NB | SB | SB | All |
|--------------------|------|-----|-----|-----|-----|-----|-----|
| Movements Served | L | R | T | TR | LT | T | |
| Denied Del/Veh (s) | | | | | | | 0.2 |
| Total Del/Veh (s) | 30.1 | 7.8 | 0.3 | 0.4 | 2.3 | 0.9 | 4.5 |

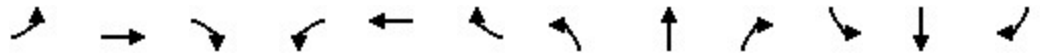
Intersection: 4: ROSEMARY STREET & N SITE ACCESS

| Movement | WB | WB | NB | NB | SB |
|-----------------------|-----|-----|-----|-----|-----|
| Directions Served | L | R | T | TR | LT |
| Maximum Queue (ft) | 189 | 79 | 10 | 9 | 56 |
| Average Queue (ft) | 87 | 13 | 0 | 0 | 14 |
| 95th Queue (ft) | 161 | 42 | 7 | 5 | 42 |
| Link Distance (ft) | 174 | 174 | 181 | 181 | 753 |
| Upstream Blk Time (%) | 2 | 0 | | | |
| Queuing Penalty (veh) | 0 | 0 | | | |
| Storage Bay Dist (ft) | | | | | |
| Storage Blk Time (%) | | | | | |
| Queuing Penalty (veh) | | | | | |

Timings

1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY

11/15/2023



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|-------|-------|-------|-------|-------|------|-------|-------|------|-------|-------|-------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 93 | 439 | 250 | 6 | 593 | 877 | 237 | 535 | 6 | 348 | 367 | 109 |
| Future Volume (vph) | 93 | 439 | 250 | 6 | 593 | 877 | 237 | 535 | 6 | 348 | 367 | 109 |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | Free | pm+pt | NA | Free | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | Free | 2 | | Free | 6 | | 6 |
| Detector Phase | 7 | 4 | 4 | 3 | 8 | | 5 | 2 | | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 15.0 | | 5.0 | 15.0 | 15.0 |
| Minimum Split (s) | 23.5 | 24.0 | 24.0 | 23.5 | 24.0 | | 23.5 | 24.0 | | 23.5 | 24.0 | 24.0 |
| Total Split (s) | 14.0 | 40.0 | 40.0 | 14.0 | 40.0 | | 20.0 | 46.0 | | 20.0 | 46.0 | 46.0 |
| Total Split (%) | 11.7% | 33.3% | 33.3% | 11.7% | 33.3% | | 16.7% | 38.3% | | 16.7% | 38.3% | 38.3% |
| Yellow Time (s) | 3.5 | 4.0 | 4.0 | 3.5 | 4.0 | | 3.5 | 4.0 | | 3.5 | 4.0 | 4.0 |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.5 | 6.0 | 6.0 | 5.5 | 6.0 | | 5.5 | 6.0 | | 5.5 | 6.0 | 6.0 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes |
| Recall Mode | None | None | None | None | None | | None | Min | | None | Min | Min |
| Act Effct Green (s) | 33.7 | 31.8 | 31.8 | 28.2 | 23.3 | 88.7 | 35.6 | 21.8 | 88.7 | 39.1 | 23.6 | 23.6 |
| Actuated g/C Ratio | 0.38 | 0.36 | 0.36 | 0.32 | 0.26 | 1.00 | 0.40 | 0.25 | 1.00 | 0.44 | 0.27 | 0.27 |
| v/c Ratio | 0.37 | 0.39 | 0.38 | 0.02 | 0.72 | 0.63 | 0.55 | 0.70 | 0.00 | 0.93 | 0.44 | 0.24 |
| Control Delay (s/veh) | 21.7 | 23.0 | 4.8 | 17.5 | 35.9 | 1.9 | 21.1 | 36.5 | 0.0 | 53.2 | 30.8 | 6.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 21.7 | 23.0 | 4.8 | 17.5 | 35.9 | 1.9 | 21.1 | 36.5 | 0.0 | 53.2 | 30.8 | 6.2 |
| LOS | C | C | A | B | D | A | C | D | A | D | C | A |
| Approach Delay (s/veh) | | 17.0 | | | 15.7 | | | 31.5 | | | 37.0 | |
| Approach LOS | | B | | | B | | | C | | | D | |

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 88.7
 Natural Cycle: 95
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.93
 Intersection Signal Delay (s/veh): 23.7
 Intersection LOS: C
 Intersection Capacity Utilization 74.8%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY

| | | | |
|------------|------------|------------|------------|
| Ø1 20 s | Ø2 46 s | Ø3 14 s | Ø4 40 s |
| Ø5 20 s | Ø6 46 s | Ø7 14 s | Ø8 40 s |

Queues

1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY

11/15/2023



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 101 | 477 | 272 | 7 | 645 | 953 | 258 | 582 | 7 | 378 | 399 | 118 |
| v/c Ratio | 0.37 | 0.39 | 0.38 | 0.02 | 0.72 | 0.63 | 0.55 | 0.70 | 0.00 | 0.93 | 0.44 | 0.24 |
| Control Delay (s/veh) | 21.7 | 23.0 | 4.8 | 17.5 | 35.9 | 1.9 | 21.1 | 36.5 | 0.0 | 53.2 | 30.8 | 6.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 21.7 | 23.0 | 4.8 | 17.5 | 35.9 | 1.9 | 21.1 | 36.5 | 0.0 | 53.2 | 30.8 | 6.2 |
| Queue Length 50th (ft) | 35 | 97 | 0 | 2 | 180 | 0 | 90 | 162 | 0 | ~151 | 104 | 0 |
| Queue Length 95th (ft) | 75 | 186 | 57 | 11 | 265 | 0 | 170 | 245 | 0 | #392 | 166 | 38 |
| Internal Link Dist (ft) | | 163 | | | 1049 | | | 779 | | | 969 | |
| Turn Bay Length (ft) | | | | 550 | | 400 | 400 | | 550 | 650 | | 450 |
| Base Capacity (vph) | 278 | 1423 | 795 | 375 | 1351 | 1524 | 507 | 1589 | 1524 | 406 | 1589 | 779 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.36 | 0.34 | 0.34 | 0.02 | 0.48 | 0.63 | 0.51 | 0.37 | 0.00 | 0.93 | 0.25 | 0.15 |

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY

11/15/2023



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations | ↘ | ↑↑ | ↗ | ↘ | ↑↑ | ↗ | ↘ | ↑↑ | ↗ | ↘ | ↑↑ | ↗ |
| Traffic Volume (veh/h) | 93 | 439 | 250 | 6 | 593 | 877 | 237 | 535 | 6 | 348 | 367 | 109 |
| Future Volume (veh/h) | 93 | 439 | 250 | 6 | 593 | 877 | 237 | 535 | 6 | 348 | 367 | 109 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 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 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 |
| Adj Flow Rate, veh/h | 101 | 477 | 0 | 7 | 645 | 0 | 258 | 582 | 0 | 378 | 399 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Cap, veh/h | 259 | 865 | | 310 | 842 | | 490 | 782 | | 452 | 916 | |
| Arrive On Green | 0.07 | 0.25 | 0.00 | 0.06 | 0.24 | 0.00 | 0.14 | 0.23 | 0.00 | 0.18 | 0.27 | 0.00 |
| Sat Flow, veh/h | 1725 | 3441 | 1535 | 1725 | 3441 | 1535 | 1725 | 3441 | 1535 | 1725 | 3441 | 1535 |
| Grp Volume(v), veh/h | 101 | 477 | 0 | 7 | 645 | 0 | 258 | 582 | 0 | 378 | 399 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1725 | 1721 | 1535 | 1725 | 1721 | 1535 | 1725 | 1721 | 1535 | 1725 | 1721 | 1535 |
| Q Serve(g_s), s | 3.5 | 9.8 | 0.0 | 0.2 | 14.2 | 0.0 | 9.1 | 12.8 | 0.0 | 13.6 | 7.8 | 0.0 |
| Cycle Q Clear(g_c), s | 3.5 | 9.8 | 0.0 | 0.2 | 14.2 | 0.0 | 9.1 | 12.8 | 0.0 | 13.6 | 7.8 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 259 | 865 | | 310 | 842 | | 490 | 782 | | 452 | 916 | |
| V/C Ratio(X) | 0.39 | 0.55 | | 0.02 | 0.77 | | 0.53 | 0.74 | | 0.84 | 0.44 | |
| Avail Cap(c_a), veh/h | 322 | 1436 | | 384 | 1436 | | 557 | 1689 | | 452 | 1689 | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 21.9 | 26.5 | 0.0 | 20.2 | 28.6 | 0.0 | 19.4 | 29.3 | 0.0 | 20.1 | 24.8 | 0.0 |
| Incr Delay (d2), s/veh | 1.0 | 0.6 | 0.0 | 0.0 | 1.5 | 0.0 | 0.9 | 1.4 | 0.0 | 13.0 | 0.3 | 0.0 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.4 | 3.9 | 0.0 | 0.1 | 5.5 | 0.0 | 3.4 | 5.0 | 0.0 | 6.4 | 3.0 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 22.8 | 27.1 | 0.0 | 20.3 | 30.1 | 0.0 | 20.3 | 30.7 | 0.0 | 33.1 | 25.2 | 0.0 |
| LnGrp LOS | C | C | | C | C | | C | C | | C | C | |
| Approach Vol, veh/h | | 578 | | | 652 | | | 840 | | | 777 | |
| Approach Delay, s/veh | | 26.3 | | | 30.0 | | | 27.5 | | | 29.0 | |
| Approach LOS | | C | | | C | | | C | | | C | |
| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Phs Duration (G+Y+Rc), s | 20.0 | 24.5 | 10.5 | 26.5 | 16.8 | 27.7 | 11.0 | 25.9 | | | | |
| Change Period (Y+Rc), s | 5.5 | 6.0 | 5.5 | 6.0 | 5.5 | 6.0 | 5.5 | 6.0 | | | | |
| Max Green Setting (Gmax), s | 14.5 | 40.0 | 8.5 | 34.0 | 14.5 | 40.0 | 8.5 | 34.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 15.6 | 14.8 | 2.2 | 11.8 | 11.1 | 9.8 | 5.5 | 16.2 | | | | |
| Green Ext Time (p_c), s | 0.0 | 3.7 | 0.0 | 3.1 | 0.2 | 2.5 | 0.1 | 3.7 | | | | |

| Intersection Summary | | | | | | | | | | | | |
|---------------------------|--|--|--|--|--|--|--|--|--|--|------|--|
| HCM 6th Ctrl Delay, s/veh | | | | | | | | | | | 28.3 | |
| HCM 6th LOS | | | | | | | | | | | C | |

Notes

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

HCM 6th TWSC
 2: ROSEMARY STREET & 80TH AVENUE

11/15/2023

Intersection

Int Delay, s/veh 1.5

Movement EBL EBR NBL NBT SBT SBR

| | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations | | ↗ | | ↑↑ | ↑↑ | |
| Traffic Vol, veh/h | 0 | 195 | 0 | 939 | 586 | 43 |
| Future Vol, veh/h | 0 | 195 | 0 | 939 | 586 | 43 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | Stop | - | None | - | Free |
| Storage Length | - | 0 | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 6 | 6 | 6 | 6 | 6 | 6 |
| Mvmt Flow | 0 | 212 | 0 | 1021 | 637 | 47 |

Major/Minor Minor2 Major1 Major2

| | | | | | | |
|----------------------|---|------|---|---|---|---|
| Conflicting Flow All | - | 319 | - | 0 | - | 0 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | 7.02 | - | - | - | - |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | 3.36 | - | - | - | - |
| Pot Cap-1 Maneuver | 0 | 665 | 0 | - | - | 0 |
| Stage 1 | 0 | - | 0 | - | - | 0 |
| Stage 2 | 0 | - | 0 | - | - | 0 |
| Platoon blocked, % | | | | - | - | |
| Mov Cap-1 Maneuver | - | 665 | - | - | - | - |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

Approach EB NB SB

| | | | |
|------------------------|------|---|---|
| HCM Control Delay, s/v | 12.9 | 0 | 0 |
| HCM LOS | B | | |

Minor Lane/Major Mvmt NBT EBLn1 SBT

| | | | |
|---------------------------|---|-------|---|
| Capacity (veh/h) | - | 665 | - |
| HCM Lane V/C Ratio | - | 0.319 | - |
| HCM Control Delay (s/veh) | - | 12.9 | - |
| HCM Lane LOS | - | B | - |
| HCM 95th %tile Q (veh) | - | 1.4 | - |

HCM 6th TWSC
 3: ROSEMARY STREET & DRIVEWAY/SITE ACCESS

01/05/2024

| Intersection | | | | | | | | | | | | |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh | 0.3 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | ↗ | | | ↗ | | ↔ | ↗ | | ↕ | |
| Traffic Vol, veh/h | 0 | 0 | 10 | 0 | 0 | 29 | 5 | 796 | 138 | 0 | 619 | 1 |
| Future Vol, veh/h | 0 | 0 | 10 | 0 | 0 | 29 | 5 | 796 | 138 | 0 | 619 | 1 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | 0 | - | - | 0 | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Mvmt Flow | 0 | 0 | 11 | 0 | 0 | 32 | 5 | 865 | 150 | 0 | 673 | 1 |

| Major/Minor | Minor2 | Minor1 | Major1 | Major2 |
|----------------------|--------|--------|--------|--------|
| Conflicting Flow All | - | - | 337 | - |
| Stage 1 | - | - | - | - |
| Stage 2 | - | - | - | - |
| Critical Hdwy | - | - | 7.02 | 4.22 |
| Critical Hdwy Stg 1 | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - |
| Follow-up Hdwy | - | - | 3.36 | 2.26 |
| Pot Cap-1 Maneuver | 0 | 0 | 647 | 0 |
| Stage 1 | 0 | 0 | - | - |
| Stage 2 | 0 | 0 | - | - |
| Platoon blocked, % | - | - | - | - |
| Mov Cap-1 Maneuver | - | - | 647 | 560 |
| Mov Cap-2 Maneuver | - | - | - | - |
| Stage 1 | - | - | - | - |
| Stage 2 | - | - | - | - |

| Approach | EB | WB | NB | SB |
|------------------------|------|------|-----|----|
| HCM Control Delay, s/v | 10.7 | 11.8 | 0.1 | 0 |
| HCM LOS | B | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBT | SBR |
|---------------------------|-------|-----|-----|-------|-------|-----|-----|
| Capacity (veh/h) | 887 | - | - | 647 | 560 | - | - |
| HCM Lane V/C Ratio | 0.006 | - | - | 0.017 | 0.056 | - | - |
| HCM Control Delay (s/veh) | 9.1 | 0.1 | - | 10.7 | 11.8 | - | - |
| HCM Lane LOS | A | A | - | B | B | - | - |
| HCM 95th %tile Q (veh) | 0 | - | - | 0.1 | 0.2 | - | - |

4: ROSEMARY STREET & N SITE ACCESS Performance by lane

| Lane | WB | WB | NB | NB | SB | SB | All |
|--------------------|------|-----|-----|-----|-----|-----|-----|
| Movements Served | L | R | T | TR | LT | T | |
| Denied Del/Veh (s) | | | | | | | 0.1 |
| Total Del/Veh (s) | 30.6 | 8.2 | 0.3 | 0.6 | 3.9 | 0.6 | 3.7 |

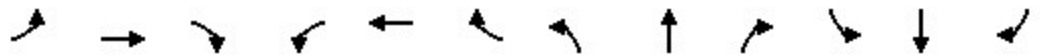
Intersection: 4: ROSEMARY STREET & N SITE ACCESS

| Movement | WB | WB | NB | SB | SB |
|-----------------------|-----|-----|-----|-----|-----|
| Directions Served | L | R | TR | LT | T |
| Maximum Queue (ft) | 177 | 56 | 10 | 63 | 11 |
| Average Queue (ft) | 78 | 11 | 0 | 17 | 0 |
| 95th Queue (ft) | 148 | 39 | 5 | 48 | 8 |
| Link Distance (ft) | 174 | 174 | 181 | 753 | 753 |
| Upstream Blk Time (%) | 1 | | | | |
| Queuing Penalty (veh) | 0 | | | | |
| Storage Bay Dist (ft) | | | | | |
| Storage Blk Time (%) | | | | | |
| Queuing Penalty (veh) | | | | | |

Timings

1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY

11/15/2023



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 87 | 603 | 326 | 11 | 353 | 445 | 153 | 143 | 26 | 753 | 1073 | 106 |
| Future Volume (vph) | 87 | 603 | 326 | 11 | 353 | 445 | 153 | 143 | 26 | 753 | 1073 | 106 |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | Free | pm+pt | NA | Free | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | Free | 2 | | Free | 6 | | 6 |
| Detector Phase | 7 | 4 | 4 | 3 | 8 | | 5 | 2 | | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 15.0 | | 5.0 | 15.0 | 15.0 |
| Minimum Split (s) | 23.5 | 24.0 | 24.0 | 23.5 | 24.0 | | 23.5 | 24.0 | | 23.5 | 24.0 | 24.0 |
| Total Split (s) | 14.0 | 30.0 | 30.0 | 14.0 | 30.0 | | 20.0 | 46.0 | | 30.0 | 56.0 | 56.0 |
| Total Split (%) | 11.7% | 25.0% | 25.0% | 11.7% | 25.0% | | 16.7% | 38.3% | | 25.0% | 46.7% | 46.7% |
| Yellow Time (s) | 3.5 | 4.0 | 4.0 | 3.5 | 4.0 | | 3.5 | 4.0 | | 3.5 | 4.0 | 4.0 |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.5 | 6.0 | 6.0 | 5.5 | 6.0 | | 5.5 | 6.0 | | 5.5 | 6.0 | 6.0 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes |
| Recall Mode | None | None | None | None | None | | None | Min | | None | Min | Min |
| Act Effct Green (s) | 30.1 | 28.2 | 28.2 | 25.0 | 19.7 | 102.7 | 41.9 | 29.3 | 102.7 | 60.6 | 42.3 | 42.3 |
| Actuated g/C Ratio | 0.29 | 0.27 | 0.27 | 0.24 | 0.19 | 1.00 | 0.41 | 0.29 | 1.00 | 0.59 | 0.41 | 0.41 |
| v/c Ratio | 0.36 | 0.70 | 0.53 | 0.06 | 0.59 | 0.32 | 0.61 | 0.16 | 0.02 | 1.08 | 0.83 | 0.16 |
| Control Delay (s/veh) | 32.7 | 40.2 | 7.1 | 29.0 | 44.6 | 0.5 | 28.6 | 27.5 | 0.0 | 77.3 | 33.8 | 3.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 32.7 | 40.2 | 7.1 | 29.0 | 44.6 | 0.5 | 28.6 | 27.5 | 0.0 | 77.3 | 33.8 | 3.6 |
| LOS | C | D | A | C | D | A | C | C | A | E | C | A |
| Approach Delay (s/veh) | | 28.9 | | | 20.1 | | | 25.8 | | | 49.1 | |
| Approach LOS | | C | | | C | | | C | | | D | |

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 102.7
 Natural Cycle: 135
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.08
 Intersection Signal Delay (s/veh): 36.5
 Intersection LOS: D
 Intersection Capacity Utilization 94.2%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY



Queues

1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY

11/15/2023



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 95 | 655 | 354 | 12 | 384 | 484 | 166 | 155 | 28 | 818 | 1166 | 115 |
| v/c Ratio | 0.36 | 0.70 | 0.53 | 0.06 | 0.59 | 0.32 | 0.61 | 0.16 | 0.02 | 1.08 | 0.83 | 0.16 |
| Control Delay (s/veh) | 32.7 | 40.2 | 7.1 | 29.0 | 44.6 | 0.5 | 28.6 | 27.5 | 0.0 | 77.3 | 33.8 | 3.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 32.7 | 40.2 | 7.1 | 29.0 | 44.6 | 0.5 | 28.6 | 27.5 | 0.0 | 77.3 | 33.8 | 3.6 |
| Queue Length 50th (ft) | 48 | 204 | 0 | 6 | 131 | 0 | 47 | 40 | 0 | ~480 | 368 | 0 |
| Queue Length 95th (ft) | 96 | #375 | 84 | 21 | 195 | 0 | 124 | 69 | 0 | #966 | 503 | 29 |
| Internal Link Dist (ft) | | 163 | | | 1049 | | | 779 | | | 969 | |
| Turn Bay Length (ft) | | | | 550 | | 400 | 400 | | 550 | 650 | | 450 |
| Base Capacity (vph) | 271 | 957 | 682 | 230 | 815 | 1524 | 317 | 1358 | 1524 | 756 | 1698 | 823 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.35 | 0.68 | 0.52 | 0.05 | 0.47 | 0.32 | 0.52 | 0.11 | 0.02 | 1.08 | 0.69 | 0.14 |

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

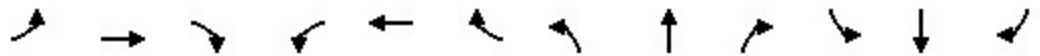
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY

11/15/2023



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 87 | 603 | 326 | 11 | 353 | 445 | 153 | 143 | 26 | 753 | 1073 | 106 |
| Future Volume (veh/h) | 87 | 603 | 326 | 11 | 353 | 445 | 153 | 143 | 26 | 753 | 1073 | 106 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 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 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 |
| Adj Flow Rate, veh/h | 95 | 655 | 0 | 12 | 384 | 0 | 166 | 155 | 0 | 818 | 1166 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Cap, veh/h | 287 | 756 | | 188 | 713 | | 278 | 846 | | 754 | 1386 | |
| Arrive On Green | 0.06 | 0.22 | 0.00 | 0.05 | 0.21 | 0.00 | 0.09 | 0.25 | 0.00 | 0.25 | 0.40 | 0.00 |
| Sat Flow, veh/h | 1725 | 3441 | 1535 | 1725 | 3441 | 1535 | 1725 | 3441 | 1535 | 1725 | 3441 | 1535 |
| Grp Volume(v), veh/h | 95 | 655 | 0 | 12 | 384 | 0 | 166 | 155 | 0 | 818 | 1166 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1725 | 1721 | 1535 | 1725 | 1721 | 1535 | 1725 | 1721 | 1535 | 1725 | 1721 | 1535 |
| Q Serve(g_s), s | 4.2 | 18.0 | 0.0 | 0.5 | 9.8 | 0.0 | 6.9 | 3.5 | 0.0 | 24.5 | 30.1 | 0.0 |
| Cycle Q Clear(g_c), s | 4.2 | 18.0 | 0.0 | 0.5 | 9.8 | 0.0 | 6.9 | 3.5 | 0.0 | 24.5 | 30.1 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 287 | 756 | | 188 | 713 | | 278 | 846 | | 754 | 1386 | |
| V/C Ratio(X) | 0.33 | 0.87 | | 0.06 | 0.54 | | 0.60 | 0.18 | | 1.08 | 0.84 | |
| Avail Cap(c_a), veh/h | 327 | 841 | | 250 | 841 | | 373 | 1401 | | 754 | 1751 | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 28.2 | 36.9 | 0.0 | 28.7 | 34.7 | 0.0 | 25.5 | 29.2 | 0.0 | 23.8 | 26.5 | 0.0 |
| Incr Delay (d2), s/veh | 0.7 | 8.8 | 0.0 | 0.1 | 0.6 | 0.0 | 2.0 | 0.1 | 0.0 | 58.0 | 3.1 | 0.0 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.7 | 8.3 | 0.0 | 0.2 | 4.0 | 0.0 | 2.8 | 1.4 | 0.0 | 17.1 | 11.8 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 28.9 | 45.8 | 0.0 | 28.8 | 35.4 | 0.0 | 27.5 | 29.3 | 0.0 | 81.8 | 29.7 | 0.0 |
| LnGrp LOS | C | D | | C | D | | C | C | | F | C | |
| Approach Vol, veh/h | | 750 | | | 396 | | | 321 | | | 1984 | |
| Approach Delay, s/veh | | 43.6 | | | 35.2 | | | 28.4 | | | 51.2 | |
| Approach LOS | | D | | | D | | | C | | | D | |
| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Phs Duration (G+Y+Rc), s | 30.0 | 30.2 | 10.5 | 27.6 | 14.6 | 45.6 | 11.7 | 26.4 | | | | |
| Change Period (Y+Rc), s | 5.5 | 6.0 | 5.5 | 6.0 | 5.5 | 6.0 | 5.5 | 6.0 | | | | |
| Max Green Setting (Gmax), s | 24.5 | 40.0 | 8.5 | 24.0 | 14.5 | 50.0 | 8.5 | 24.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 26.5 | 5.5 | 2.5 | 20.0 | 8.9 | 32.1 | 6.2 | 11.8 | | | | |
| Green Ext Time (p_c), s | 0.0 | 0.9 | 0.0 | 1.6 | 0.2 | 7.5 | 0.0 | 1.7 | | | | |

| Intersection Summary | | | | | | | | | | | | |
|---------------------------|--|--|------|--|--|--|--|--|--|--|--|--|
| HCM 6th Ctrl Delay, s/veh | | | 45.6 | | | | | | | | | |
| HCM 6th LOS | | | D | | | | | | | | | |

Notes

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

HCM 6th TWSC
 2: ROSEMARY STREET & 80TH AVENUE

11/15/2023

Intersection

Int Delay, s/veh 1.8

Movement EBL EBR NBL NBT SBT SBR

| | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations | | ↗ | | ↑↑ | ↑↑ | |
| Traffic Vol, veh/h | 0 | 192 | 0 | 612 | 825 | 12 |
| Future Vol, veh/h | 0 | 192 | 0 | 612 | 825 | 12 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | Stop | - | None | - | Free |
| Storage Length | - | 0 | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 6 | 6 | 6 | 6 | 6 | 6 |
| Mvmt Flow | 0 | 209 | 0 | 665 | 897 | 13 |

Major/Minor Minor2 Major1 Major2

| | | | | | | |
|----------------------|---|------|---|---|---|---|
| Conflicting Flow All | - | 449 | - | 0 | - | 0 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | 7.02 | - | - | - | - |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | 3.36 | - | - | - | - |
| Pot Cap-1 Maneuver | 0 | 546 | 0 | - | - | 0 |
| Stage 1 | 0 | - | 0 | - | - | 0 |
| Stage 2 | 0 | - | 0 | - | - | 0 |
| Platoon blocked, % | | | | - | - | |
| Mov Cap-1 Maneuver | - | 546 | - | - | - | - |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

Approach EB NB SB

| | | | |
|------------------------|------|---|---|
| HCM Control Delay, s/v | 15.6 | 0 | 0 |
| HCM LOS | C | | |

Minor Lane/Major Mvmt NBT EBLn1 SBT

| | | | |
|---------------------------|---|-------|---|
| Capacity (veh/h) | - | 546 | - |
| HCM Lane V/C Ratio | - | 0.382 | - |
| HCM Control Delay (s/veh) | - | 15.6 | - |
| HCM Lane LOS | - | C | - |
| HCM 95th %tile Q (veh) | - | 1.8 | - |

HCM 6th TWSC
 3: ROSEMARY STREET & DRIVEWAY/SITE ACCESS

01/05/2024

| Intersection | | | | | | | | | | | | |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh | 0.3 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | ↗ | | | ↗ | | ↔↕ | ↗ | | ↕↔ | |
| Traffic Vol, veh/h | 0 | 0 | 2 | 0 | 0 | 35 | 4 | 445 | 163 | 0 | 834 | 6 |
| Future Vol, veh/h | 0 | 0 | 2 | 0 | 0 | 35 | 4 | 445 | 163 | 0 | 834 | 6 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | 0 | - | - | 0 | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Mvmt Flow | 0 | 0 | 2 | 0 | 0 | 38 | 4 | 484 | 177 | 0 | 907 | 7 |

| Major/Minor | Minor2 | | Minor1 | | Major1 | | Major2 | | | | | |
|----------------------|--------|---|--------|---|--------|------|--------|---|---|---|---|---|
| Conflicting Flow All | - | - | 457 | - | - | 242 | 914 | 0 | 0 | - | - | 0 |
| Stage 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | - | - | - |
| Critical Hdwy | - | - | 7.02 | - | - | 7.02 | 4.22 | - | - | - | - | - |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | 3.36 | - | - | 3.36 | 2.26 | - | - | - | - | - |
| Pot Cap-1 Maneuver | 0 | 0 | 540 | 0 | 0 | 747 | 717 | - | - | 0 | - | - |
| Stage 1 | 0 | 0 | - | 0 | 0 | - | - | - | - | 0 | - | - |
| Stage 2 | 0 | 0 | - | 0 | 0 | - | - | - | - | 0 | - | - |
| Platoon blocked, % | | | | | | | | - | - | - | - | - |
| Mov Cap-1 Maneuver | - | - | 540 | - | - | 747 | 717 | - | - | - | - | - |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | - | - | - |

| Approach | EB | | WB | | NB | | SB | | | | |
|------------------------|------|--|------|--|-----|--|----|--|--|--|--|
| HCM Control Delay, s/v | 11.7 | | 10.1 | | 0.1 | | 0 | | | | |
| HCM LOS | B | | B | | | | | | | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBT | SBR |
|---------------------------|-------|-----|-----|-------|-------|-----|-----|
| Capacity (veh/h) | 717 | - | - | 540 | 747 | - | - |
| HCM Lane V/C Ratio | 0.006 | - | - | 0.004 | 0.051 | - | - |
| HCM Control Delay (s/veh) | 10.1 | 0 | - | 11.7 | 10.1 | - | - |
| HCM Lane LOS | B | A | - | B | B | - | - |
| HCM 95th %tile Q (veh) | 0 | - | - | 0 | 0.2 | - | - |

4: ROSEMARY STREET & N SITE ACCESS Performance by lane

| Lane | WB | WB | NB | NB | SB | SB | All |
|--------------------|------|-----|-----|-----|-----|-----|-----|
| Movements Served | L | R | T | TR | LT | T | |
| Denied Del/Veh (s) | | | | | | | 0.2 |
| Total Del/Veh (s) | 33.1 | 8.0 | 0.2 | 0.4 | 3.7 | 0.9 | 5.0 |

Intersection: 4: ROSEMARY STREET & N SITE ACCESS

| Movement | WB | WB | NB | SB | SB |
|-----------------------|-----|-----|-----|-----|-----|
| Directions Served | L | R | TR | LT | T |
| Maximum Queue (ft) | 194 | 57 | 5 | 74 | 8 |
| Average Queue (ft) | 88 | 13 | 0 | 16 | 0 |
| 95th Queue (ft) | 163 | 42 | 4 | 51 | 5 |
| Link Distance (ft) | 174 | 174 | 181 | 753 | 753 |
| Upstream Blk Time (%) | 3 | | | | |
| Queuing Penalty (veh) | 0 | | | | |
| Storage Bay Dist (ft) | | | | | |
| Storage Blk Time (%) | | | | | |
| Queuing Penalty (veh) | | | | | |

Timings

1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY

11/15/2023



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|-------|-------|-------|-------|-------|------|-------|-------|------|-------|-------|-------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 93 | 439 | 250 | 8 | 593 | 1070 | 237 | 662 | 8 | 425 | 457 | 109 |
| Future Volume (vph) | 93 | 439 | 250 | 8 | 593 | 1070 | 237 | 662 | 8 | 425 | 457 | 109 |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | Free | pm+pt | NA | Free | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | Free | 2 | | Free | 6 | | 6 |
| Detector Phase | 7 | 4 | 4 | 3 | 8 | | 5 | 2 | | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 15.0 | | 5.0 | 15.0 | 15.0 |
| Minimum Split (s) | 23.5 | 24.0 | 24.0 | 23.5 | 24.0 | | 23.5 | 24.0 | | 23.5 | 24.0 | 24.0 |
| Total Split (s) | 14.0 | 40.0 | 40.0 | 14.0 | 40.0 | | 20.0 | 46.0 | | 20.0 | 46.0 | 46.0 |
| Total Split (%) | 11.7% | 33.3% | 33.3% | 11.7% | 33.3% | | 16.7% | 38.3% | | 16.7% | 38.3% | 38.3% |
| Yellow Time (s) | 3.5 | 4.0 | 4.0 | 3.5 | 4.0 | | 3.5 | 4.0 | | 3.5 | 4.0 | 4.0 |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.5 | 6.0 | 6.0 | 5.5 | 6.0 | | 5.5 | 6.0 | | 5.5 | 6.0 | 6.0 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes |
| Recall Mode | None | None | None | None | None | | None | Min | | None | Min | Min |
| Act Effct Green (s) | 35.0 | 33.1 | 33.1 | 29.6 | 24.5 | 95.3 | 40.8 | 27.0 | 95.3 | 44.3 | 28.8 | 28.8 |
| Actuated g/C Ratio | 0.37 | 0.35 | 0.35 | 0.31 | 0.26 | 1.00 | 0.43 | 0.28 | 1.00 | 0.46 | 0.30 | 0.30 |
| v/c Ratio | 0.40 | 0.40 | 0.39 | 0.03 | 0.74 | 0.76 | 0.58 | 0.75 | 0.01 | 1.26 | 0.48 | 0.22 |
| Control Delay (s/veh) | 24.9 | 25.7 | 5.1 | 20.0 | 39.1 | 3.7 | 21.9 | 37.4 | 0.0 | 160.3 | 30.7 | 5.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 24.9 | 25.7 | 5.1 | 20.0 | 39.1 | 3.7 | 21.9 | 37.4 | 0.0 | 160.3 | 30.7 | 5.5 |
| LOS | C | C | A | B | D | A | C | D | A | F | C | A |
| Approach Delay (s/veh) | | 19.0 | | | 16.3 | | | 33.0 | | | 83.5 | |
| Approach LOS | | B | | | B | | | C | | | F | |

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 95.3
 Natural Cycle: 105
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.26
 Intersection Signal Delay (s/veh): 35.6
 Intersection LOS: D
 Intersection Capacity Utilization 82.6%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY

| | | | |
|------------|------------|------------|------------|
| Ø1 20 s | Ø2 46 s | Ø3 14 s | Ø4 40 s |
| Ø5 20 s | Ø6 46 s | Ø7 14 s | Ø8 40 s |

Queues

1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY

11/15/2023



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|------|------|------|------|------|------|------|-------|------|------|
| Lane Group Flow (vph) | 101 | 477 | 272 | 9 | 645 | 1163 | 258 | 720 | 9 | 462 | 497 | 118 |
| v/c Ratio | 0.40 | 0.40 | 0.39 | 0.03 | 0.74 | 0.76 | 0.58 | 0.75 | 0.01 | 1.26 | 0.48 | 0.22 |
| Control Delay (s/veh) | 24.9 | 25.7 | 5.1 | 20.0 | 39.1 | 3.7 | 21.9 | 37.4 | 0.0 | 160.3 | 30.7 | 5.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 24.9 | 25.7 | 5.1 | 20.0 | 39.1 | 3.7 | 21.9 | 37.4 | 0.0 | 160.3 | 30.7 | 5.5 |
| Queue Length 50th (ft) | 39 | 106 | 0 | 3 | 193 | 0 | 93 | 215 | 0 | ~318 | 137 | 0 |
| Queue Length 95th (ft) | 85 | 204 | 61 | 14 | 290 | 0 | 172 | 315 | 0 | #608 | 209 | 37 |
| Internal Link Dist (ft) | | 163 | | | 1049 | | | 779 | | | 969 | |
| Turn Bay Length (ft) | | | | 550 | | 400 | 400 | | 550 | 650 | | 450 |
| Base Capacity (vph) | 261 | 1367 | 774 | 361 | 1263 | 1524 | 475 | 1485 | 1524 | 368 | 1485 | 736 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.39 | 0.35 | 0.35 | 0.02 | 0.51 | 0.76 | 0.54 | 0.48 | 0.01 | 1.26 | 0.33 | 0.16 |

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 1: CO-2 & ROSEMARY STREET/QUEBEC PARKWAY

11/15/2023



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations | ↙ | ↑↑ | ↘ | ↙ | ↑↑ | ↘ | ↙ | ↑↑ | ↘ | ↙ | ↑↑ | ↘ |
| Traffic Volume (veh/h) | 93 | 439 | 250 | 8 | 593 | 1070 | 237 | 662 | 8 | 425 | 457 | 109 |
| Future Volume (veh/h) | 93 | 439 | 250 | 8 | 593 | 1070 | 237 | 662 | 8 | 425 | 457 | 109 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 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 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 | 1811 |
| Adj Flow Rate, veh/h | 101 | 477 | 0 | 9 | 645 | 0 | 258 | 720 | 0 | 462 | 497 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Cap, veh/h | 245 | 857 | | 294 | 824 | | 468 | 921 | | 419 | 1037 | |
| Arrive On Green | 0.07 | 0.25 | 0.00 | 0.06 | 0.24 | 0.00 | 0.13 | 0.27 | 0.00 | 0.16 | 0.30 | 0.00 |
| Sat Flow, veh/h | 1725 | 3441 | 1535 | 1725 | 3441 | 1535 | 1725 | 3441 | 1535 | 1725 | 3441 | 1535 |
| Grp Volume(v), veh/h | 101 | 477 | 0 | 9 | 645 | 0 | 258 | 720 | 0 | 462 | 497 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1725 | 1721 | 1535 | 1725 | 1721 | 1535 | 1725 | 1721 | 1535 | 1725 | 1721 | 1535 |
| Q Serve(g_s), s | 3.8 | 10.6 | 0.0 | 0.3 | 15.4 | 0.0 | 9.3 | 17.0 | 0.0 | 14.5 | 10.4 | 0.0 |
| Cycle Q Clear(g_c), s | 3.8 | 10.6 | 0.0 | 0.3 | 15.4 | 0.0 | 9.3 | 17.0 | 0.0 | 14.5 | 10.4 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 245 | 857 | | 294 | 824 | | 468 | 921 | | 419 | 1037 | |
| V/C Ratio(X) | 0.41 | 0.56 | | 0.03 | 0.78 | | 0.55 | 0.78 | | 1.10 | 0.48 | |
| Avail Cap(c_a), veh/h | 297 | 1330 | | 363 | 1330 | | 526 | 1565 | | 419 | 1565 | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 24.1 | 28.8 | 0.0 | 22.4 | 31.3 | 0.0 | 19.1 | 29.8 | 0.0 | 22.7 | 25.1 | 0.0 |
| Incr Delay (d2), s/veh | 1.1 | 0.6 | 0.0 | 0.0 | 1.7 | 0.0 | 1.0 | 1.5 | 0.0 | 75.1 | 0.3 | 0.0 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.6 | 4.3 | 0.0 | 0.1 | 6.1 | 0.0 | 3.5 | 6.7 | 0.0 | 14.4 | 4.0 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 25.2 | 29.4 | 0.0 | 22.5 | 33.0 | 0.0 | 20.2 | 31.3 | 0.0 | 97.8 | 25.4 | 0.0 |
| LnGrp LOS | C | C | | C | C | | C | C | | F | C | |
| Approach Vol, veh/h | | 578 | | | 654 | | | 978 | | | 959 | |
| Approach Delay, s/veh | | 28.6 | | | 32.8 | | | 28.4 | | | 60.3 | |
| Approach LOS | | C | | | C | | | C | | | E | |
| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Phs Duration (G+Y+Rc), s | 20.0 | 29.5 | 10.5 | 27.9 | 17.0 | 32.5 | 11.3 | 27.1 | | | | |
| Change Period (Y+Rc), s | 5.5 | 6.0 | 5.5 | 6.0 | 5.5 | 6.0 | 5.5 | 6.0 | | | | |
| Max Green Setting (Gmax), s | 14.5 | 40.0 | 8.5 | 34.0 | 14.5 | 40.0 | 8.5 | 34.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 16.5 | 19.0 | 2.3 | 12.6 | 11.3 | 12.4 | 5.8 | 17.4 | | | | |
| Green Ext Time (p_c), s | 0.0 | 4.5 | 0.0 | 3.0 | 0.2 | 3.1 | 0.0 | 3.6 | | | | |

Intersection Summary

| | |
|---------------------------|------|
| HCM 6th Ctrl Delay, s/veh | 39.0 |
| HCM 6th LOS | D |

Notes

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

HCM 6th TWSC
 2: ROSEMARY STREET & 80TH AVENUE

11/15/2023

Intersection

Int Delay, s/veh 1.5

Movement EBL EBR NBL NBT SBT SBR

| | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations | | ↗ | | ↑↑ | ↑↑ | |
| Traffic Vol, veh/h | 0 | 195 | 0 | 939 | 586 | 43 |
| Future Vol, veh/h | 0 | 195 | 0 | 939 | 586 | 43 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | Stop | - | None | - | Free |
| Storage Length | - | 0 | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 6 | 6 | 6 | 6 | 6 | 6 |
| Mvmt Flow | 0 | 212 | 0 | 1021 | 637 | 47 |

Major/Minor Minor2 Major1 Major2

| | | | | | | |
|----------------------|---|------|---|---|---|---|
| Conflicting Flow All | - | 319 | - | 0 | - | 0 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | 7.02 | - | - | - | - |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | 3.36 | - | - | - | - |
| Pot Cap-1 Maneuver | 0 | 665 | 0 | - | - | 0 |
| Stage 1 | 0 | - | 0 | - | - | 0 |
| Stage 2 | 0 | - | 0 | - | - | 0 |
| Platoon blocked, % | | | | - | - | |
| Mov Cap-1 Maneuver | - | 665 | - | - | - | - |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

Approach EB NB SB

| | | | |
|------------------------|------|---|---|
| HCM Control Delay, s/v | 12.9 | 0 | 0 |
| HCM LOS | B | | |

Minor Lane/Major Mvmt NBT EBLn1 SBT

| | | | |
|---------------------------|---|-------|---|
| Capacity (veh/h) | - | 665 | - |
| HCM Lane V/C Ratio | - | 0.319 | - |
| HCM Control Delay (s/veh) | - | 12.9 | - |
| HCM Lane LOS | - | B | - |
| HCM 95th %tile Q (veh) | - | 1.4 | - |

HCM 6th TWSC
 3: ROSEMARY STREET & DRIVEWAY/SITE ACCESS

01/05/2024

| Intersection | | | | | | | | | | | | |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh | 0.3 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | ↗ | | | ↗ | | ↔ | ↗ | | ↕ | |
| Traffic Vol, veh/h | 0 | 0 | 10 | 0 | 0 | 29 | 5 | 796 | 138 | 0 | 619 | 1 |
| Future Vol, veh/h | 0 | 0 | 10 | 0 | 0 | 29 | 5 | 796 | 138 | 0 | 619 | 1 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | 0 | - | - | 0 | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Mvmt Flow | 0 | 0 | 11 | 0 | 0 | 32 | 5 | 865 | 150 | 0 | 673 | 1 |

| Major/Minor | Minor2 | | Minor1 | | Major1 | | Major2 | | | | | |
|----------------------|--------|---|--------|---|--------|------|--------|---|---|---|---|---|
| Conflicting Flow All | - | - | 337 | - | - | 433 | 674 | 0 | 0 | - | - | 0 |
| Stage 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | - | - | - |
| Critical Hdwy | - | - | 7.02 | - | - | 7.02 | 4.22 | - | - | - | - | - |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | 3.36 | - | - | 3.36 | 2.26 | - | - | - | - | - |
| Pot Cap-1 Maneuver | 0 | 0 | 647 | 0 | 0 | 560 | 887 | - | - | 0 | - | - |
| Stage 1 | 0 | 0 | - | 0 | 0 | - | - | - | - | 0 | - | - |
| Stage 2 | 0 | 0 | - | 0 | 0 | - | - | - | - | 0 | - | - |
| Platoon blocked, % | | | | | | | | - | - | - | - | - |
| Mov Cap-1 Maneuver | - | - | 647 | - | - | 560 | 887 | - | - | - | - | - |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | - | - | - |

| Approach | EB | | WB | | NB | | SB | | | | |
|------------------------|------|--|------|--|-----|--|----|--|--|--|--|
| HCM Control Delay, s/v | 10.7 | | 11.8 | | 0.1 | | 0 | | | | |
| HCM LOS | B | | B | | | | | | | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBT | SBR |
|---------------------------|-------|-----|-----|-------|-------|-----|-----|
| Capacity (veh/h) | 887 | - | - | 647 | 560 | - | - |
| HCM Lane V/C Ratio | 0.006 | - | - | 0.017 | 0.056 | - | - |
| HCM Control Delay (s/veh) | 9.1 | 0.1 | - | 10.7 | 11.8 | - | - |
| HCM Lane LOS | A | A | - | B | B | - | - |
| HCM 95th %tile Q (veh) | 0 | - | - | 0.1 | 0.2 | - | - |

4: ROSEMARY STREET & N SITE ACCESS Performance by lane

| Lane | WB | WB | NB | NB | SB | SB | All |
|--------------------|------|-----|-----|-----|-----|-----|-----|
| Movements Served | L | R | T | TR | LT | T | |
| Denied Del/Veh (s) | | | | | | | 0.1 |
| Total Del/Veh (s) | 31.4 | 8.0 | 0.3 | 0.6 | 4.4 | 0.6 | 3.9 |

Intersection: 4: ROSEMARY STREET & N SITE ACCESS

| Movement | WB | WB | NB | NB | SB |
|-----------------------|-----|-----|-----|-----|-----|
| Directions Served | L | R | T | TR | LT |
| Maximum Queue (ft) | 179 | 61 | 8 | 23 | 76 |
| Average Queue (ft) | 79 | 10 | 0 | 1 | 19 |
| 95th Queue (ft) | 144 | 37 | 4 | 12 | 56 |
| Link Distance (ft) | 174 | 174 | 181 | 181 | 753 |
| Upstream Blk Time (%) | 2 | | | | |
| Queuing Penalty (veh) | 0 | | | | |
| Storage Bay Dist (ft) | | | | | |
| Storage Blk Time (%) | | | | | |
| Queuing Penalty (veh) | | | | | |