

**RidgeGate – Southwest Village
Lone Tree, CO**

Traffic Impact Study

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Technical Supplement - Appendices

- Appendix A*: Traffic Counts
- Appendix B*: HCM 6th Edition Level of Service Reports
- Appendix C*: Detailed Land Use Reports
- Appendix D: *RidgeGate Southwest Village Site Layout*
- Appendix E*: RidgeGate East – Land Use and Density Framework Plan
- Appendix F*: Excerpts from *RidgeGate Station Transit-Oriented Development Traffic Study*

* Included as part of separate Technical Supplement document

Section 1: Introduction

Purpose of Report and Study Objectives

JR Engineering (JR) has completed a review of the traffic impacts of the proposed development, RidgeGate Southwest Village, in Lone Tree, Colorado. This Draft Traffic Impact Study (TIS) assessed the short-term and long-term effects of the proposed development on local and regional transportation systems. The study also served to identify the appropriate improvements required to accommodate the proposed traffic from the development. Improvements included roadway classification, intersection control methods, and turn-lane storage lengths.

Project Description

Site Description

RidgeGate Southwest Village is a part of the larger RidgeGate East development, which is located within the southern half of Section 14 and northern halves of Sections 23 and 24 of Township 6 South, Range 67 West, 6th Principal Meridian, City of Lone Tree, County of Douglas, and State of Colorado. The project site is comprised of the southwestern third of RidgeGate by Shea Homes. The overall site is bound by RidgeGate Parkway to the north, Havana Street and Happy Canyon Creek to the west, and Badger Gulch to the east. The vicinity map is shown in **Figure 1**. An existing light-rail transit station operated by Regional Transportation District (RTD) exists just west of Havana Street and south of RidgeGate Parkway.

It is anticipated that construction of RidgeGate Southwest Village will begin in Year 2020, with an anticipated buildout date in the Year 2026 with five phases. This Traffic Impact Study analyzed the build-out condition and does not address the traffic impacts resulting from the individual phases.

The remainder of this report presents our findings concerning the traffic impacts of the developments within RidgeGate Southwest Village. The existing conditions, Year 2026 completion of the development, and future Year 2040 will be evaluated in this study.

Background Developments and Roadway Improvements

Outside of the improvements within RidgeGate Southwest Village and based on the *City of Lone Tree's Capital Improvement Projects*, RidgeGate Parkway is planned to be widened from two lanes to six lanes from Havana Street east to the existing Stepping Stone residential development. RidgeGate Parkway is also planned to be split into eastbound and westbound couplets along the eastern half of this segment. The RidgeGate Parkway improvements are expected to be completed by the Year 2021 and therefore expected to exist at the completion of RidgeGate Southwest Village. However, RidgeGate Parkway will be striped as four lanes as an interim condition expected to

remain in Year 2026, but is expected to be restriped to six lanes by the Year 2040 due to surrounding development.

In addition to the RidgeGate Parkway improvements, there are plans for Havana Street improvements to accommodate the Transit-Oriented Developments planned on the east and west sides of Havana Street. Havana Street is one of the westerly boundaries of the proposed RidgeGate Southwest Village. Improvements include a new signalized intersection for the TOD access with additional lanes, including two thru lanes in both the northbound and southbound directions. These improvements are expected to be completed by the Year 2022 and therefore expected to exist at the completion of RidgeGate Southwest Village. Furthermore, Havana Street is expected to be widened to four lanes south of the TOD by the Year 2040.

Finally, there are several surrounding developments east of Interstate 25 (I-25) occurring during or after the development of RidgeGate Southwest Village. One development included in the background traffic is the RidgeGate Station Transit Oriented Development (TOD) from the *RidgeGate Station TOD and Southwest Village Analyses* traffic study by Felsburg Holt & Ullevig (FHU), dated September 10, 2019. However, their trip generation for RidgeGate Southwest Village was excluded and replaced with the current site plan in this study. The TOD development is located west of Happy Canyon Creek, south of RidgeGate Parkway, and north of the existing RTD RidgeGate Parkway Station. Land uses include residential, retail, and restaurants. Relevant excerpts from the *RidgeGate Station TOD and Southwest Village Analyses* Traffic Study by FHU are included in **Appendix F**.

RidgeGate Parkway and Peoria Street is an existing T-intersection. As part of the RidgeGate Station TOD development, Peoria Street will be extended south of RidgeGate Parkway as a private access to these residential and restaurant parcels.

Other surrounding developments east of I-25 occurring during or after the development of RidgeGate Southwest Village include the remaining parcels of RidgeGate East and a City Center along Havana Street (north of RidgeGate Parkway). A Land Use and Density Framework Plan from the *RidgeGate East Sub-Area Plan for the East Villages* by Coventry Development Corporation (dated February 6, 2018) is included in **Appendix E**.

RidgeGate Parkway and Havana Street is an existing T-intersection. To accommodate future developments, Havana Street is planned to be extended north of RidgeGate Parkway to Lincoln Avenue by the Year 2040 as part of the City Center development. However, this intersection with the north leg included will need to be analyzed with more information in a separate traffic study for the City Center.

RidgeGate Southeast Village and RidgeGate Central Village will also need to be analyzed with more information in separate traffic studies during the design phase.

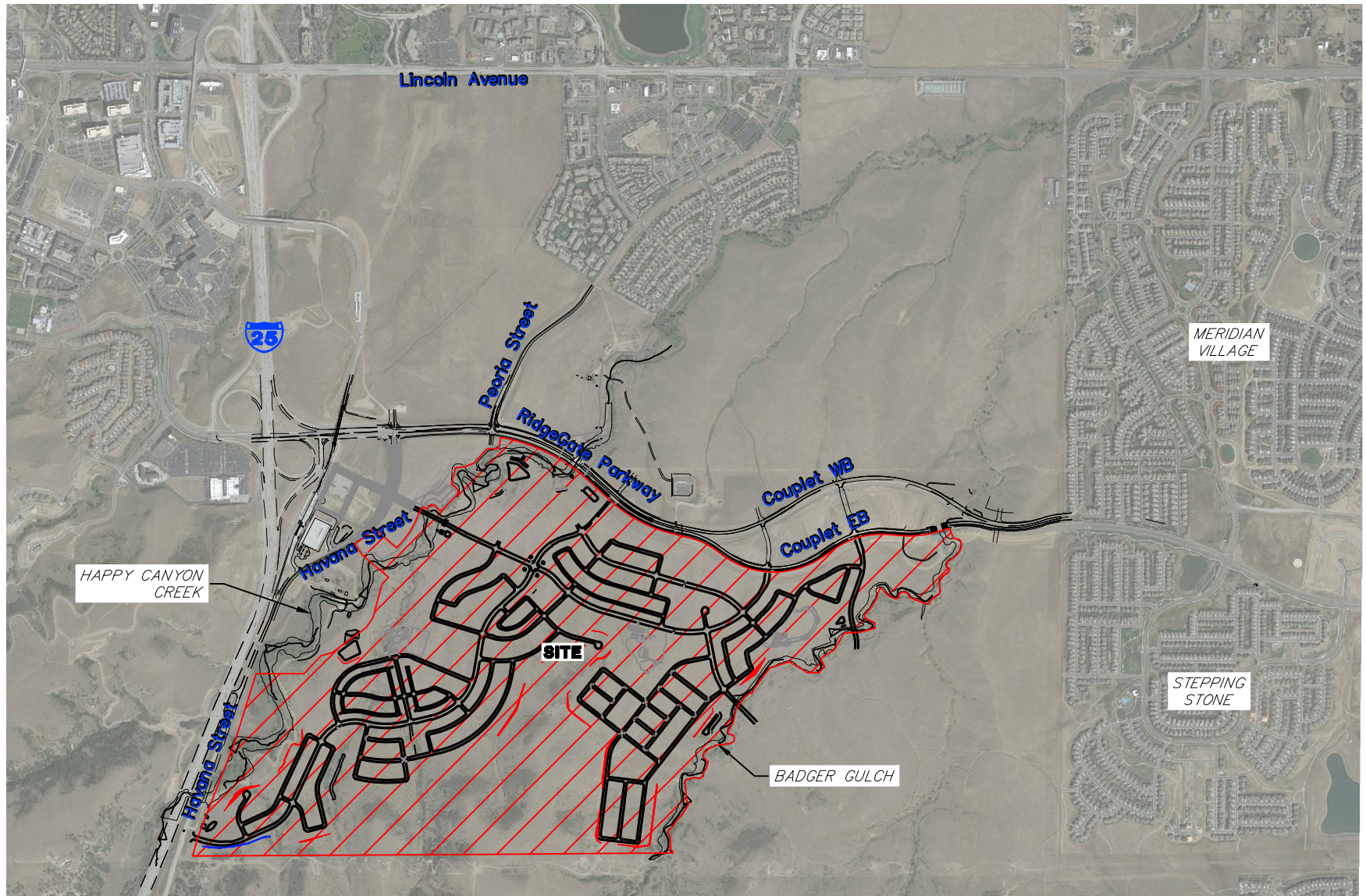
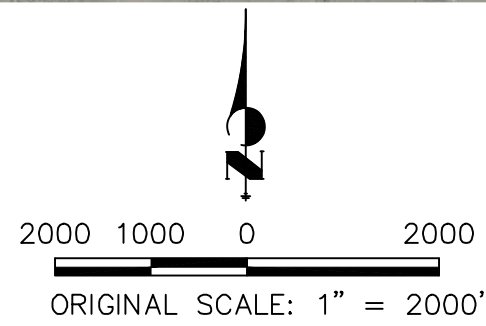


FIGURE 1 – VICINITY MAP
 RIDGEGATE SOUTHWEST VILLAGE
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Proposed and Future Parcel Descriptions

The project site encompasses approximately 700 acres. According to the most recent site plan, the site is proposed to be comprised of the following land uses:

- **Zone 1:** Mixed Use (single-family detached residential)
- **Zone 2:** Mixed Use (single family detached residential, school, rec center, and regional park)
- **Zone 3:** Mixed Use (single-family detached residential, single-family detached and attached retirement residential, multifamily residential, and local park)
- **Zone 4:** Mixed Use (single-family detached residential, multifamily residential, commercial, and regional park)

The *RidgeGate Southwest Village Site Layout* by Sage Design Group (dated February 10, 2020) is included in **Appendix D**.

Access to the site is proposed in five locations as follows:

- P1 – RidgeGate Parkway & Avenue A
- P4 – RidgeGate Couplet Eastbound & Avenue B
- P5 – RidgeGate Couplet Eastbound & Avenue D
- P6 – Havana Street & Avenue B
- P7 – Havana Street & Avenue A

Study Area Boundaries

Based on the number of trips anticipated to be generated by the proposed development in RidgeGate Southwest Village, the study area includes new and existing intersections along RidgeGate Parkway and Havana Street. All roadway names, intersections, and spacing are shown in **Figure 2**. The following intersections were analyzed in this study:

Existing Intersections

- E1 – RidgeGate Parkway and Havana Street
- E2 – RidgeGate Parkway and Peoria Street

Proposed External Intersections

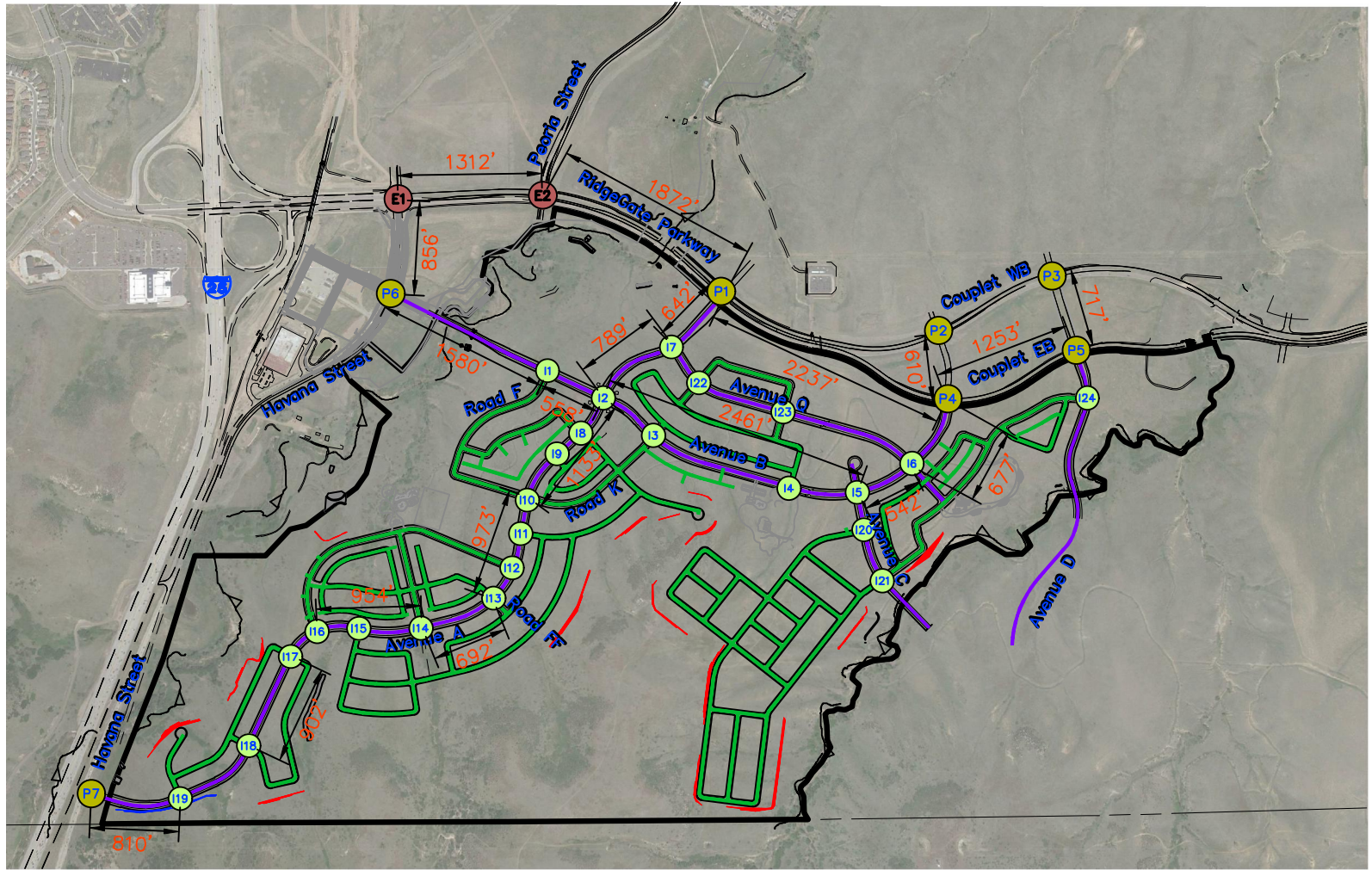
- P1 – RidgeGate Parkway & Avenue A
- P2 – RidgeGate Couplet Westbound & Avenue B
- P3 – RidgeGate Couplet Westbound & Avenue D
- P4 – RidgeGate Couplet Eastbound & Avenue B
- P5 – RidgeGate Couplet Eastbound & Avenue D
- P6 – Havana Street & Avenue B
- P7 – Havana Street & Avenue A

Proposed Internal Intersections

- I1 – Avenue B & Road F
- I2 – Avenue A & Avenue B
- I3 – Avenue B & Road K
- I4 – Avenue B & Road A2
- I5 – Avenue B & Avenue C
- I6 – Avenue B & Road Q
- I7 – Avenue A & Road Q
- I8 – Avenue A & Road BB
- I9 – Avenue A & Road A20
- I10 – Avenue A & Road K
- I11 – Avenue A & Road P
- I12 – Avenue A & Road E East
- I13 – Avenue A & Road FF
- I14 – Avenue A & Road AA
- I15 – Avenue A & Road G
- I16 – Avenue A & Road E West
- I17 – Avenue A & Road D
- I18 – Avenue A & Road C
- I19 – Avenue A & Road B
- I20 – Avenue C & Road W
- I21 – Avenue C & Road X
- I22 – Avenue Q & Road A5
- I23 – Avenue Q & Road A6
- I24 – Avenue D & Road R

Existing and Proposed Site Uses

Currently, the existing land within the RidgeGate Southwest Village is vacant. The existing vegetation will need to be removed with the construction of the developments. The proposed parcels are planned to be mixed use including single-family residential, multi-family residential, retirement residential, commercial, school, recreational center, and parks.



LEGEND

- | | | | |
|--|-------------------------------------|--|----------------|
| | EXISTING INTERSECTION | | COLLECTOR ROAD |
| | PROPOSED INTERSECTION
- EXTERNAL | | LOCAL ROAD |
| | PROPOSED INTERSECTION
- INTERNAL | | |



ORIGINAL SCALE: 1" = 1500'

FIGURE 2 – YEAR 2026
INTERSECTION SPACING
RIDGEGATE SOUTHWEST VILLAGE
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Existing Roadway Network

Currently all intersections within the study area of the analysis are located in the City of Lone Tree limits. The main roadway systems to be utilized to access the parcels, which will also be providing direct access, will be RidgeGate Parkway. The existing roadway and transportation network is described as follows:

- **RidgeGate Parkway from the Havana Street to Chambers Road** – A major arterial currently under construction running east and west. When construction of RidgeGate Parkway is complete, the typical cross section will consist of three travel lanes in each direction separated by a raised median. The section changes east of Avenue A where it transitions to two travel lanes in each direction separated by a raised median and enters the Couplet District.

The existing intersections on RidgeGate Parkway consist of the following:

- Signalized intersection at Havana Street located adjacent to the northwest corner of the site. The intersection is spaced at 850 feet to the east of the Interstate 25 northbound ramps intersection.
- Signalized intersection at Peoria Street located adjacent to the northwest corner of the site. The intersection is spaced at 1300 feet to the east of the Havana Street signalized intersection.

Section 2: Existing and Projected Traffic Volumes

Data Collection

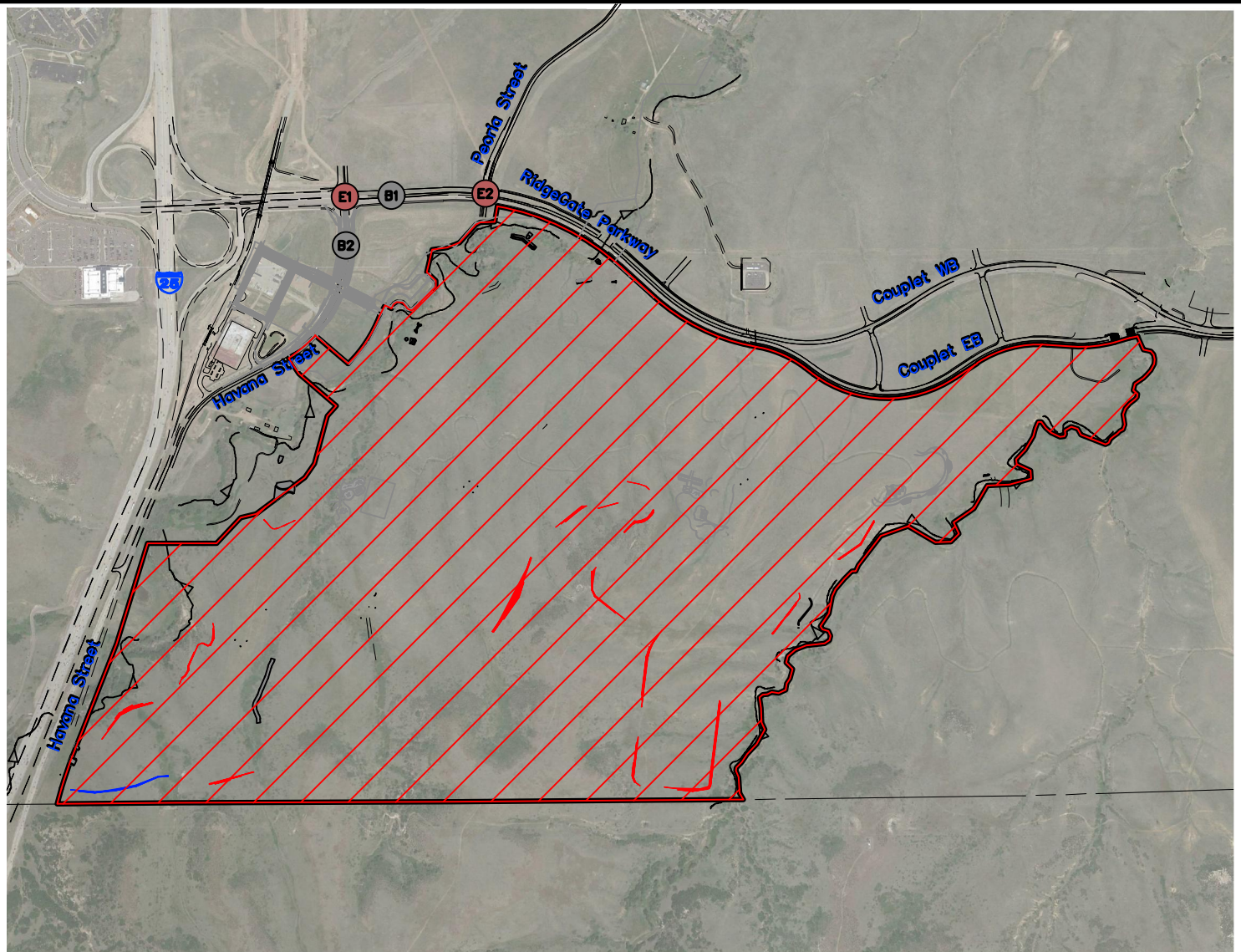
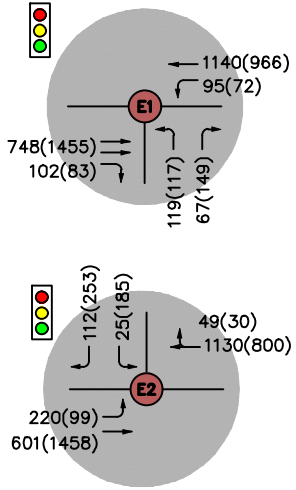
Traffic counts were collected by All Traffic Data on September 18, 2019 at the intersections of RidgeGate Parkway/Havana Street (E1) and RidgeGate Parkway/Peoria Street (E2). Two hours in the morning and evening were collected during the typical AM and PM peak hours. The counts were obtained after the RTD RidgeGate Parkway Station was in operation.

Additional details on the traffic count data include the following:

- Morning and evening traffic counts on RidgeGate Parkway and Havana Street from 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM
 - AM and PM Peak Hours occurred from 7:00-8:00 AM and 5:00-6:00 PM, respectively
- Morning and evening traffic counts on RidgeGate Parkway and Peoria Street from 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM
 - AM and PM Peak Hours occurred from 7:00-8:00 AM and 5:00-6:00 PM, respectively

The heavy vehicle percentage was calculated as 3.2% (12.4% with 2-axle long) along RidgeGate Parkway and 1.5% (13.5%) along Havana Street and Peoria Street.

Existing lane geometry and peak hour counts are shown in **Figure 3**. The traffic counts collected by All Traffic Data are included in **Appendix A**. Signal timing for the existing intersections of RidgeGate Parkway & Havana Street and RidgeGate Parkway & Peoria Street have yet to be received from the signal owner(s). Existing signal timing was assumed in this first submittal.

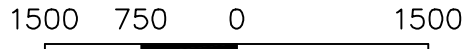


LEGEND

- EXISTING INTERSECTION
- 2019 AVERAGE DAILY TRAFFIC (ADT)
- XX (XX) AM (PM) PEAK HOUR TRIP DISTRIBUTION
- SIGNAL CONTROL
- STOP SIGN CONTROL
- PROJECT SITE

YEAR 2019 ADT

- 27,700
- 4,300



ORIGINAL SCALE: 1" = 1500'

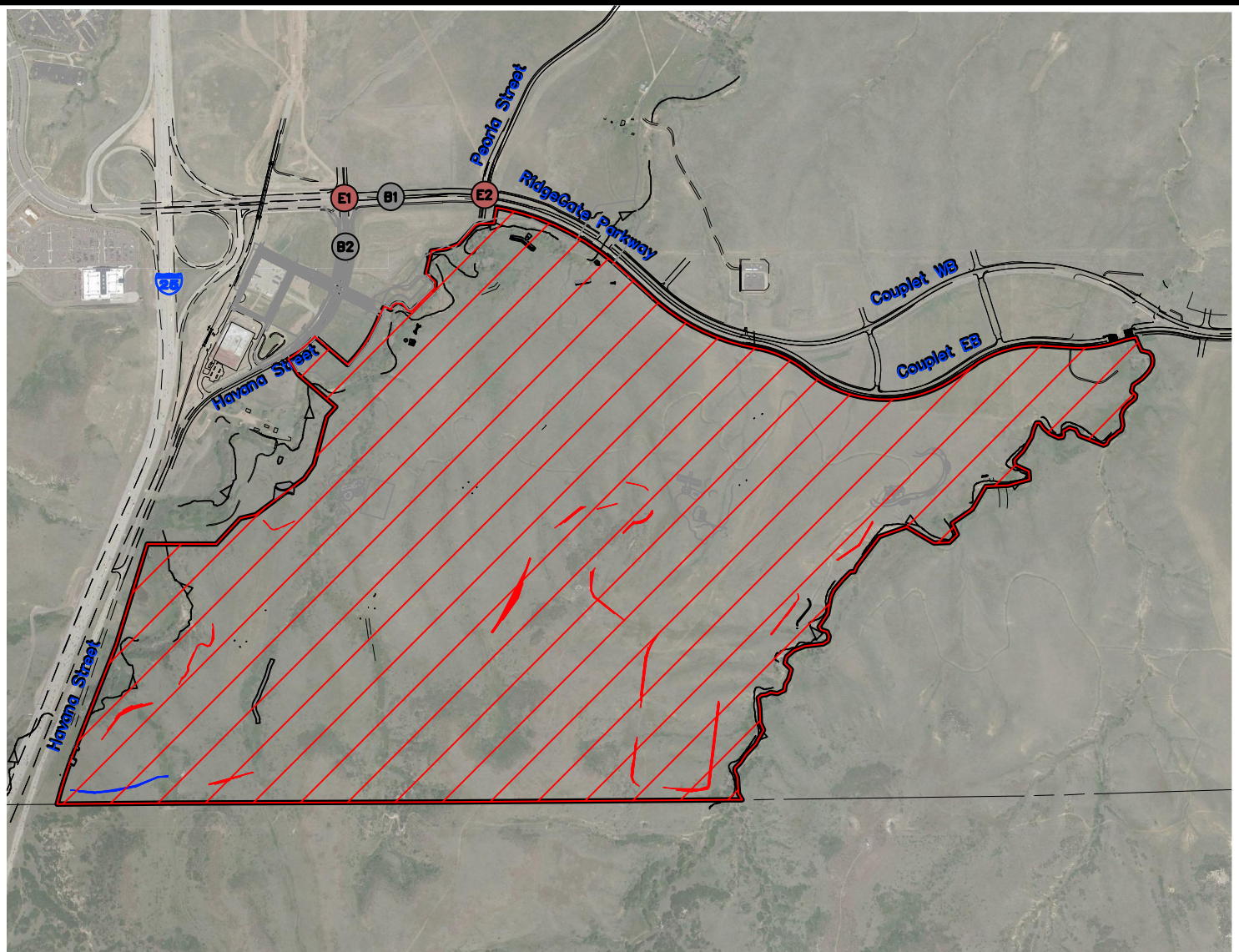
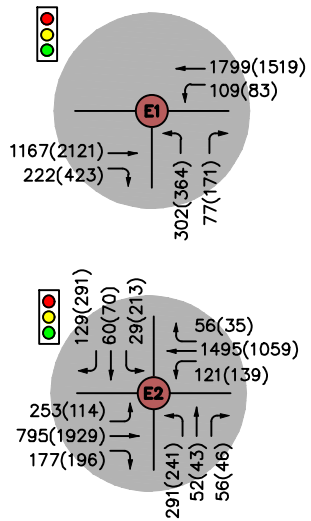
FIGURE 3 – YEAR 2019
 EXISTING TRAFFIC AND LANE
 GEOMETRY
 RIDGEGATE SOUTHWEST VILLAGE
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Background Traffic Projections

Projections of Years 2026 and 2040 peak hour traffic volumes have been made for the roadway system adjacent to the site in order to have a basis for determining future traffic impacts. Future traffic projections for Years 2026 and 2040 are shown in **Figure 4** and **Figure 5**, respectively. The projections were made based on a 4.0% growth rate applied to the existing thru traffic volumes along RidgeGate Parkway and a 2.0% growth rate was applied to the existing turning volumes and the minor street traffic.



LEGEND

- EXISTING INTERSECTION
- 2019 AVERAGE DAILY TRAFFIC (ADT)
- XX (XX) AM (PM) PEAK HOUR TRIP DISTRIBUTION
- SIGNAL CONTROL
- STOP SIGN CONTROL
- PROJECT SITE

YEAR 2026 BK ADT

- 44,050
- 5,550



1500 750 0 1500

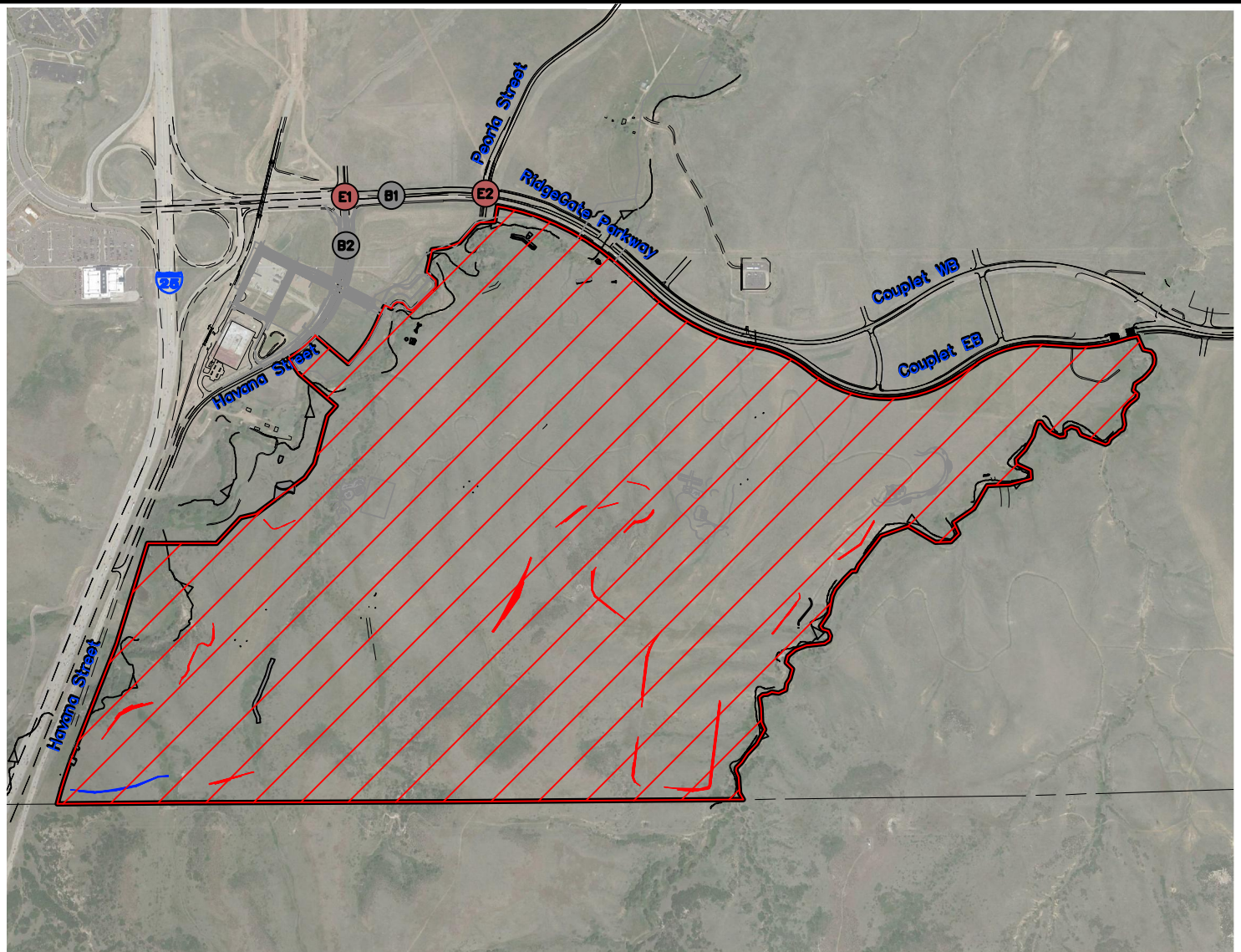
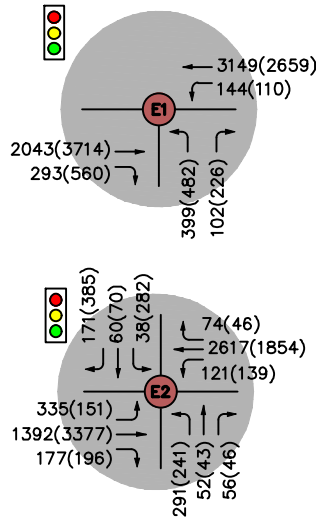
ORIGINAL SCALE: 1" = 1500'

**FIGURE 4 – YEAR 2026
BACKGROUND TRAFFIC
RIDGEGATE SOUTHWEST VILLAGE
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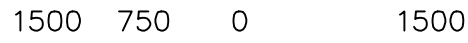


LEGEND

- EXISTING INTERSECTION
- 2019 AVERAGE DAILY TRAFFIC (ADT)
- XX (XX) AM (PM) PEAK HOUR TRIP DISTRIBUTION
- SIGNAL CONTROL
- STOP SIGN CONTROL
- PROJECT SITE

YEAR 2040 BK ADT

- 77,150
- 7,350



ORIGINAL SCALE: 1" = 1500'

FIGURE 5 – YEAR 2040
BACKGROUND TRAFFIC
RIDGEGATE SOUTHWEST VILLAGE
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Project Traffic

Trip Generation

Trip generation has been calculated from the latest data contained within the Institute of Transportation Engineers' (ITE) *Trip Generation Manual 10th Edition Volume 1, 2017*. Based on the land use and the guidelines within the *Trip Generation Manual*, JR used the appropriate average rates for the AM and PM peak hour traffic and the Weekday average daily traffic (ADT) traffic for each land use.

Based on the site plans for the RidgeGate Southwest Village the parcels were studied as follows:

- Zone 1 – 303 units Single-Family Detached Housing
- Zone 2 – 411 units Single-Family Detached Housing and 500-student School Site
- Zone 3 – 308 units Retirement Homes, 119 units Single-Family Detached, and 310 units Multi-Family Homes
- Zone 4 – 167 units Single-Family Detached Housing, 24 units Retirement Housing, 280 units Multi-Family Housing, 85,000 SF Commercial Site, and a Regional Park

Zone 1 development is expected to generate:

- 2883 weekday trips
- 220 AM peak hour vehicle trips, split 25% entering and 75% exiting
- 294 PM peak hour vehicle trips, split 65% entering and 35% exiting

Zone 2 development is expected to generate:

- 4900 weekday trips
- 636 AM peak hour vehicle trips, split 20% entering and 80% exiting
- 490 PM peak hour vehicle trips, split 65% entering and 35% exiting

Zone 3 development is expected to generate:

- 4422 weekday trips
- 289 AM peak hour vehicle trips, split 17% entering and 83% exiting
- 367 PM peak hour vehicle trips, split 67% entering and 33% exiting

Zone 4 development is expected to generate:

- 9163 weekday trips
- 431 AM peak hour vehicle trips, split 25% entering and 75% exiting
- 882 PM peak hour vehicle trips, split 63% entering and 37% exiting

In summary, RidgeGate Southwest Village is expected to generate 19,584 weekday trips, including 1,514 AM peak hour trips and 1,857 PM peak hour trips.

Table 1 shows a summary of land use, trip generation rates, and total external vehicle trips generated. The detailed land use reports are included in **Appendix C**.

Project Trip Distribution

An important element in the determination of the proposed project's traffic impact is the directional distribution of its traffic onto the surrounding roadway system. The relative location of the site, the type of land use, and specific characteristics of the roadway and access system will dictate this distribution of traffic. Note that in this analysis, the distribution was based on the approximate directional distribution of the traffic counts along RidgeGate Parkway and Havana Street.

The distribution of the site generated traffic will be oriented as follows:

- 60 percent to the northwest along RidgeGate Parkway
- 10 percent to the north along Peoria Street
- 20 percent to the northeast along RidgeGate Parkway
- 10 percent to the southwest along Havana Street

The directional distribution of site generated traffic is shown in **Figure 6**, as well as the delineated traffic analysis zones (TAZ's).

Site Generated Traffic

Access to the project site is proposed in five locations at the intersections of:

- P1: RidgeGate Parkway and Avenue A
- P4: RidgeGate Parkway and Avenue B
- P5: RidgeGate Parkway and Avenue D
- P6: Havana Street and Avenue B
- P7: Havana Street and Avenue A

The Year 2026 Lane Geometry and assignment of Site Generated Traffic for external and internal intersections are shown in **Figure 7** through **Figure 14** on the following pages.

Total Traffic

Total traffic volumes combine the background traffic with site generated traffic.

The Year 2040 Lane Geometry for external intersections and the Year 2040 Total Traffic for all intersections are shown in **Figure 15** through **Figure 20** on the following pages.

Table 1- Trip Generation Summary

Alternative: Alternative 1

Phase: (Through) Phase 4

Project: RidgeGate

Open Date: 3/12/2026

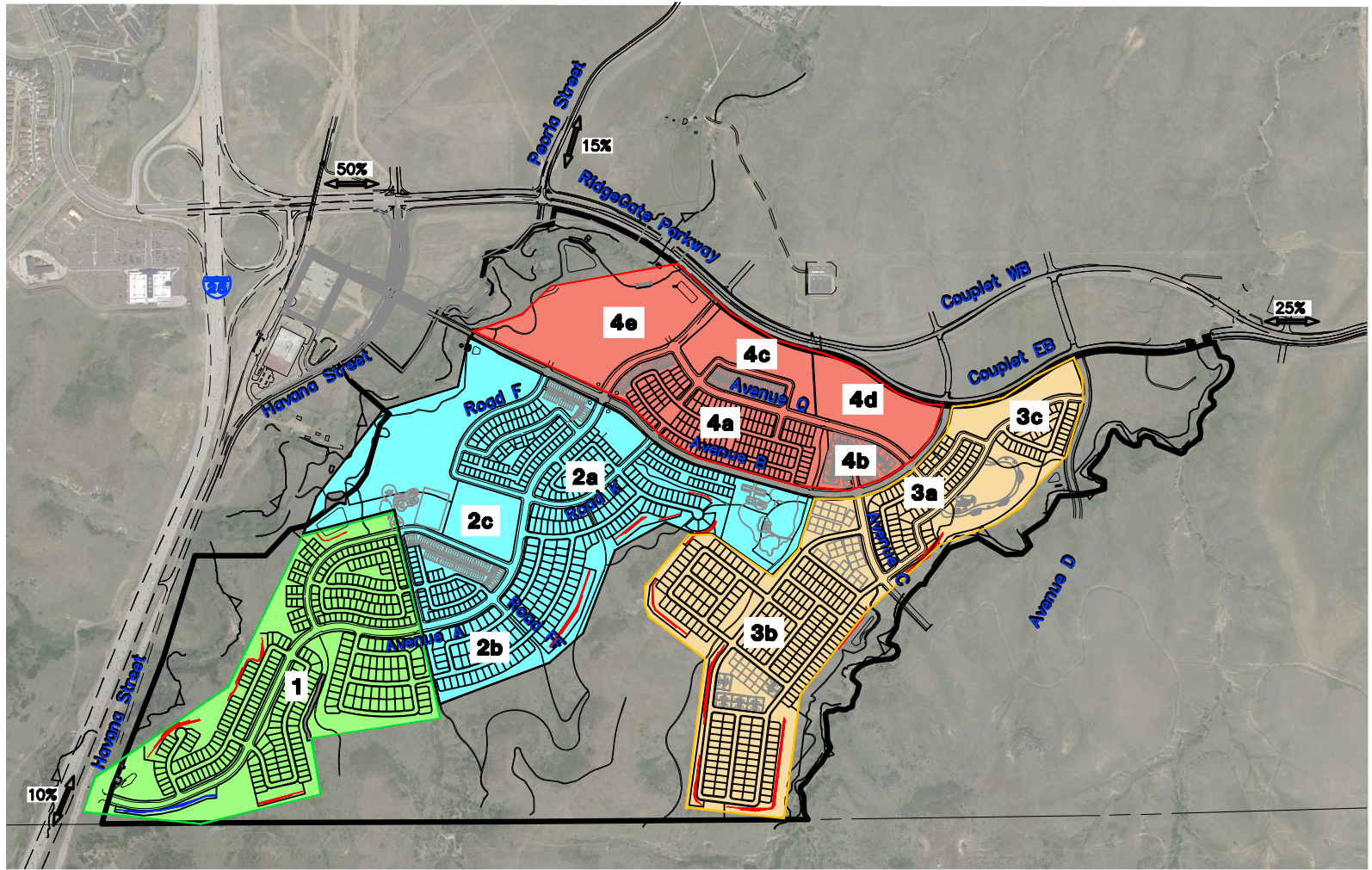
Analysis Date: 3/12/2020

ITE	Land Use	Weekday Average Daily Trips			Weekday AM Peak Hour of Adjacent Street Traffic			Weekday PM Peak Hour of Adjacent Street Traffic					
		*	Enter	Exit	Total	*	Enter	Exit	Total	*	Enter	Exit	Total
210	Single Family Detached - Zone 1 303 Dwelling Units		1442	1441	2883		55	165	220		185	109	294
210	Single Family Detached - Zone 2B south 140 Dwelling Units		709	708	1417		26	78	104		88	52	140
210	Single Family Detached - Zone 2A north 271 Dwelling Units		1301	1301	2602		49	148	197		167	98	265
520	Elementary School - Zone 2C - 500 Students 500 Students		441	440	881		181	154	335		41	44	85
210	Single Family Detached - Zone 3A 119 Dwelling Units		610	610	1220		22	67	89		76	44	120
221	Multi Family - Zone 3C 310 Dwelling Units		844	844	1688		27	77	104		80	51	131
251	Senior Living - Zone 3B 308 Dwelling Units		757	757	1514		32	64	96		71	45	116
210	Single Family Detached - Zone 4A 167 Dwelling Units		834	833	1667		31	92	123		105	61	166
221	Multi Family - Zone 4C 280 Dwelling Units		762	762	1524		24	70	94		73	46	119
251	Retirement - Zone 4B 24 Dwelling Units		80	80	160		5	9	14		10	6	16
488	Regional Park - 6 Soccer Fields 6 Fields		214	214	428		4	2	6		65	34	99
820	Shopping Center - Zone 4D 85 1000 Sq. Ft. GLA		2692	2691	5383		120	74	194		231	251	482





* - Custom rate used for selected time period.

Source: Institute of Transportation Engineers, Trip Generation Manual 10th Edition

TRIP GENERATION 10, TRAFFICWARE, LLC



LEGEND

- | | |
|---|---|
|  TAZ 1 |  TAZ 3 |
|  TAZ 2 |  TAZ 4 |

 PERCENT DIRECTIONAL DISTRIBUTION

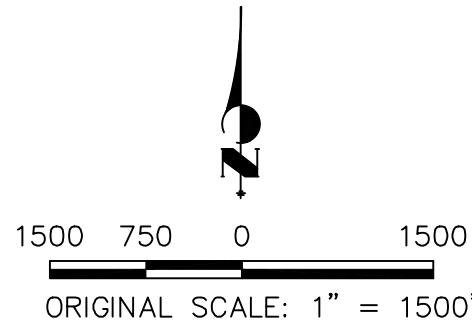
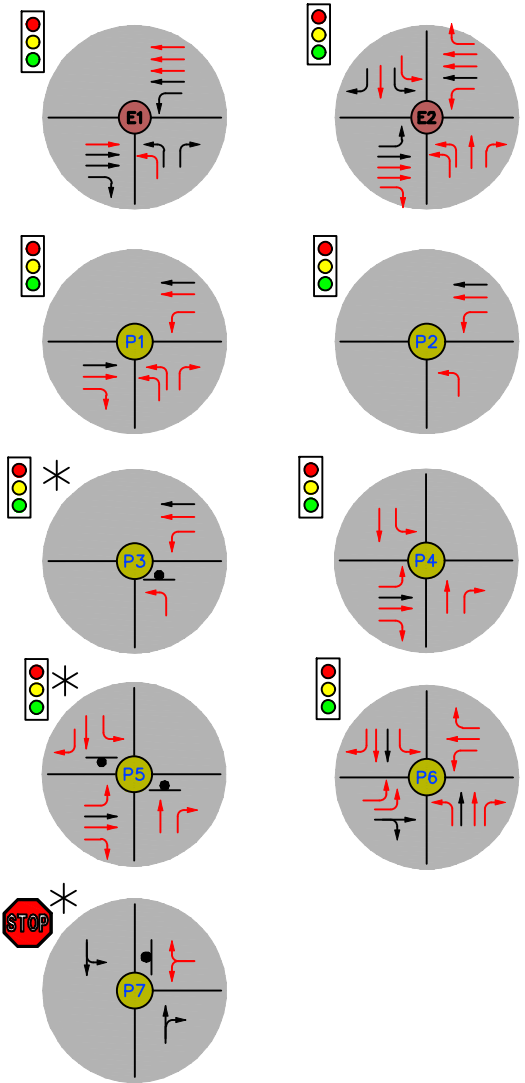


FIGURE 6 – TAZ'S AND
DISTRIBUTION OF SITE
GENERATED TRAFFIC
RIDGEGATE SOUTHWEST VILLAGE
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* SIGNAL NOT WARRANTED BASED ON PEAK HOUR VOLUMES, BUT IS A PLANNED SIGNAL.
 P3 AND P5 MODELED AS SIGNALIZED IN ORDER TO BE CONSISTENT THROUGH COUPLER.
 P7 CURRENTLY MODELED AS STOP-CONTROLLED.

LEGEND

- EXISTING INTERSECTION
- PROPOSED INTERSECTION - EXTERNAL
- EXISTING MOVEMENT
- PROPOSED MOVEMENT
- STOP SIGN CONTROL
- SIGNAL CONTROL
- COLLECTOR ROAD
- LOCAL ROAD
- PROJECT SITE

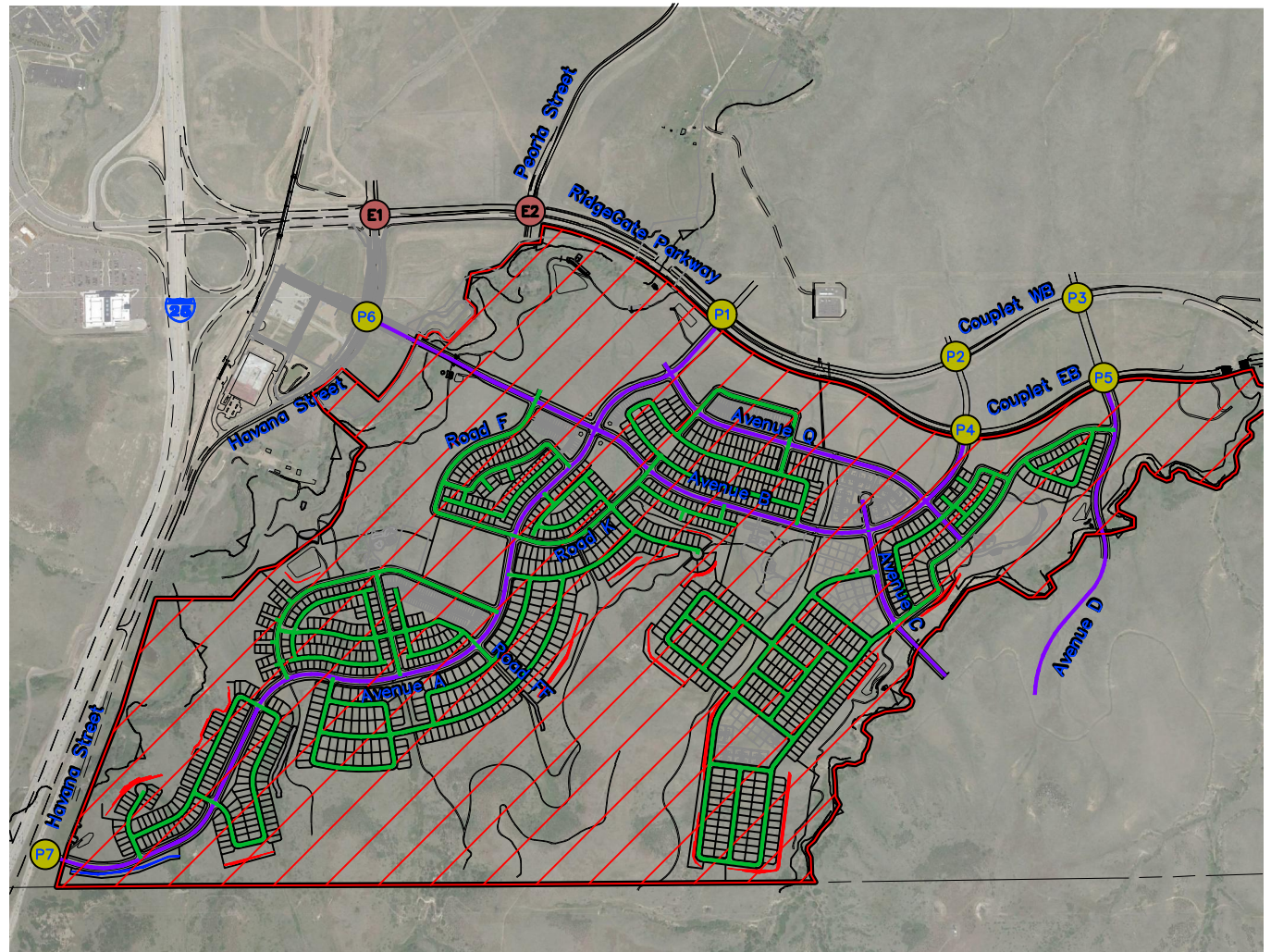
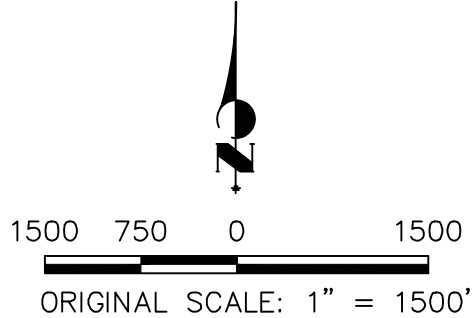
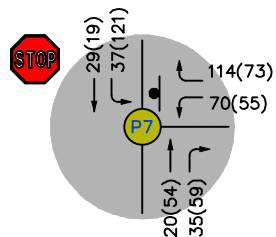
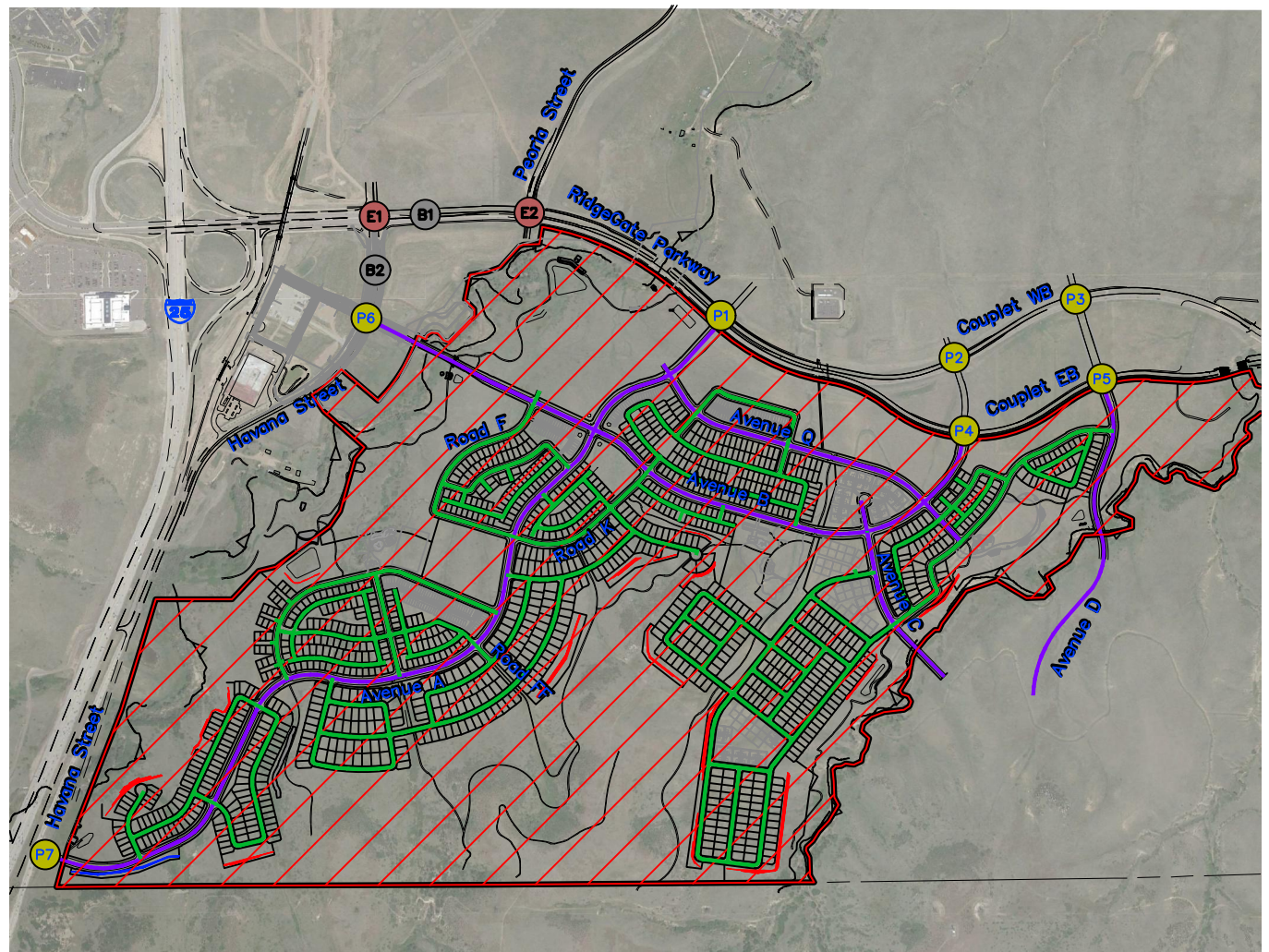
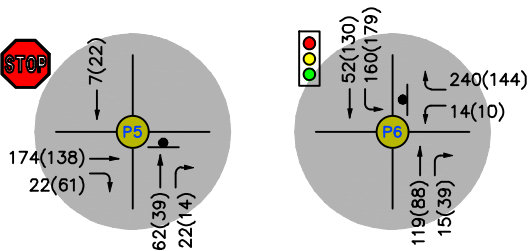
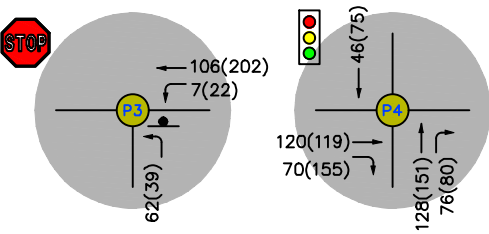
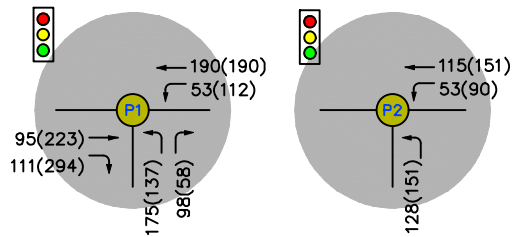
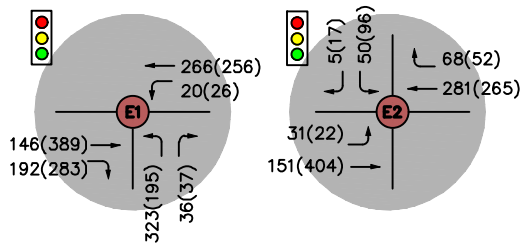


FIGURE 7 – YEAR 2026 LANE GEOMETRY – EXTERNAL RIDGEGATE SOUTHWEST VILLAGE
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SITE GENERATED ADT

- B1** 8,700
- B2** 5,650



1500 750 0 1500

ORIGINAL SCALE: 1" = 1500'

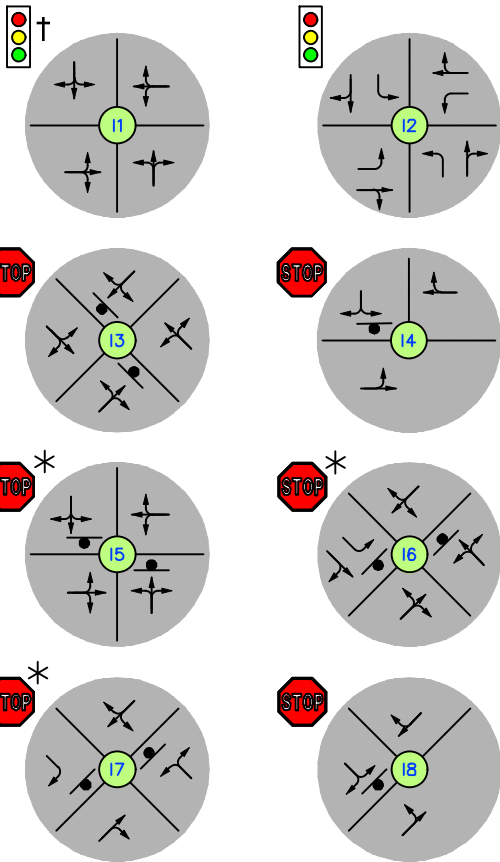
LEGEND

- EXISTING INTERSECTION
- PROPOSED INTERSECTION - EXTERNAL
- PROPOSED INTERSECTION - INTERNAL
- AVERAGE DAILY TRAFFIC (ADT)
- XX (XX) AM (PM) PEAK HOUR TRIP DISTRIBUTION
- COLLECTOR ROAD
- LOCAL ROAD
- PROJECT SITE
- STOP SIGN CONTROL
- SIGNAL CONTROL

FIGURE 8 – SITE GENERATED TRAFFIC – EXTERNAL
RIDGEGATE SOUTHWEST VILLAGE
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* PLANNED SIGNAL. FURTHER STUDIES MUST OCCUR TO DETERMINE IF SIGNALIZATION IS WARRANTED BASED ON OTHER FACTORS. CURRENTLY MODELED AS STOP-CONTROLLED.

† SIGNAL TO BE INSTALLED WHEN PARK IS CONSTRUCTED.

LEGEND

- EXISTING INTERSECTION
- PROPOSED INTERSECTION - INTERNAL
- PROPOSED MOVEMENT
- COLLECTOR ROAD
- LOCAL ROAD
- PROJECT SITE
- STOP SIGN CONTROL
- SIGNAL CONTROL

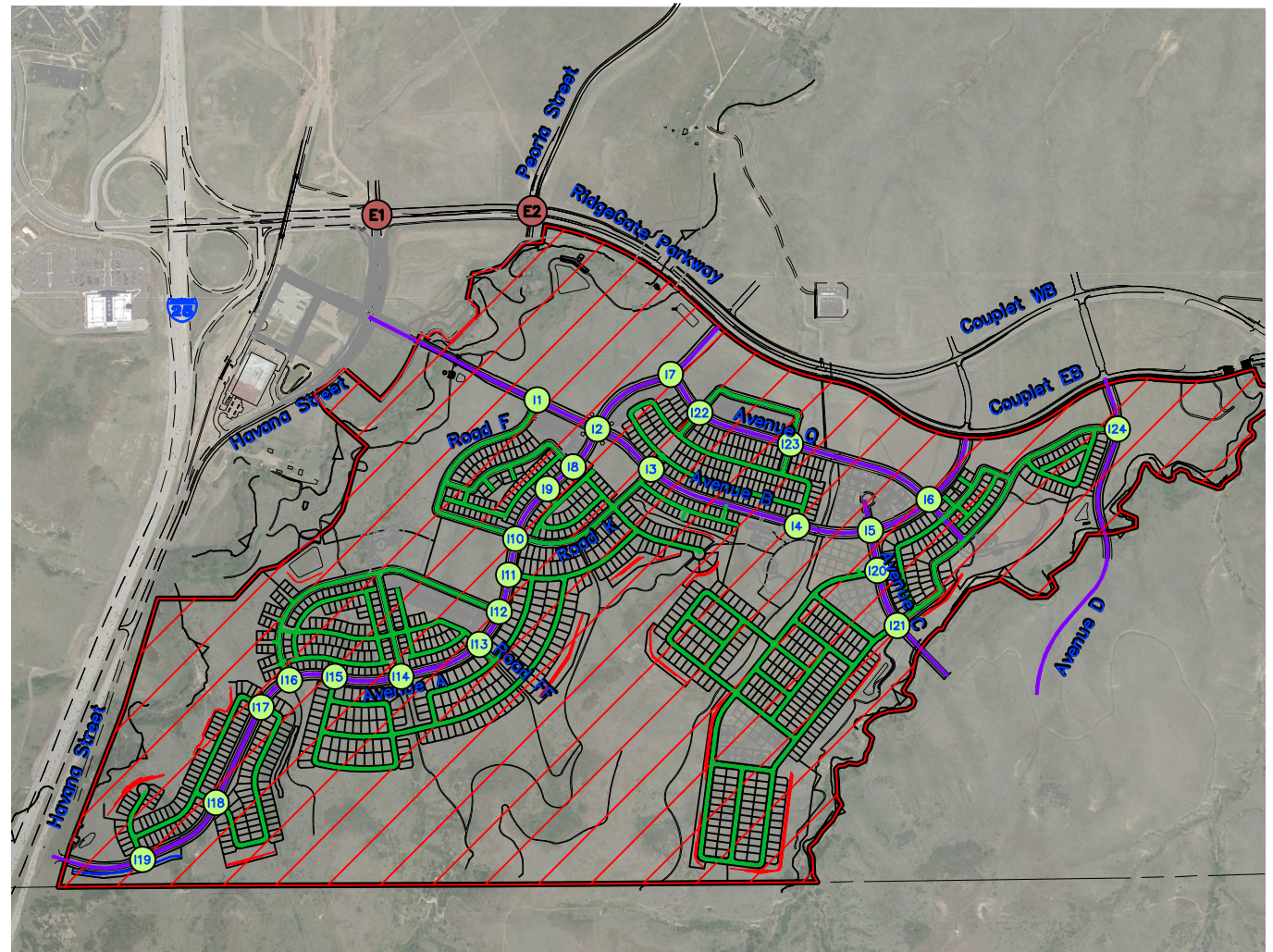
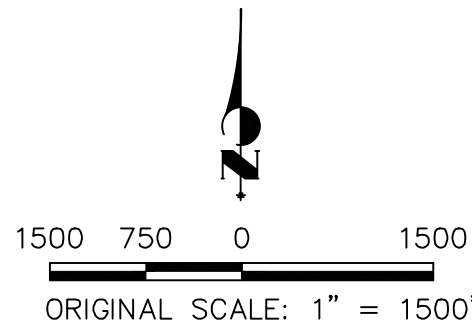
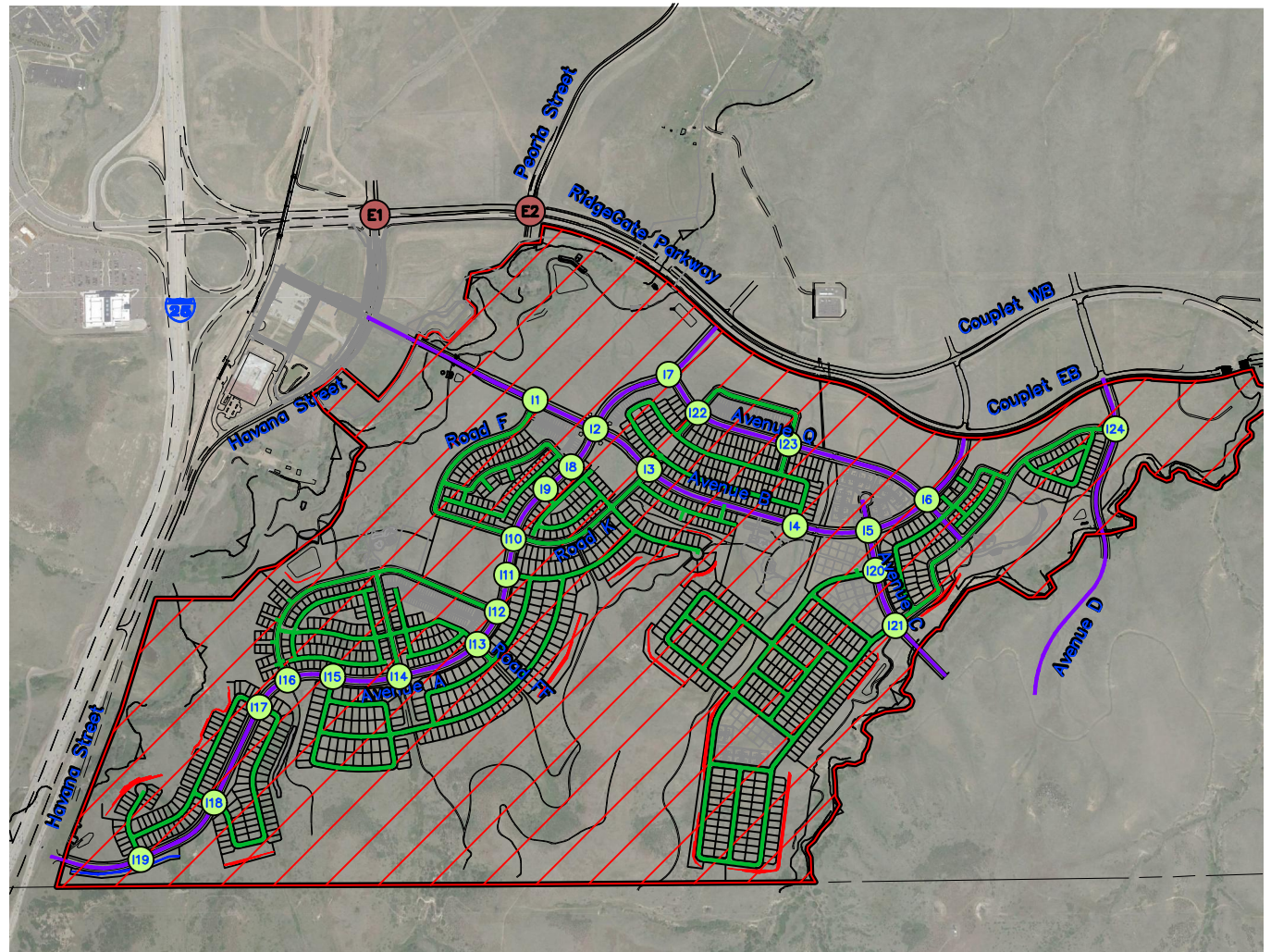
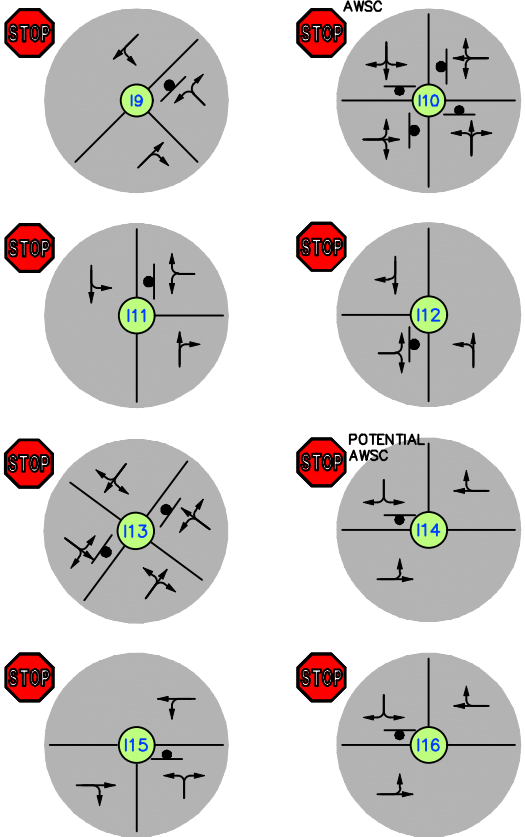


FIGURE 9 – YEAR 2026 &
2040 LANE GEOMETRY –
INTERNAL 1
RIDGEGATE SOUTHWEST VILLAGE
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LEGEND

- EXISTING INTERSECTION
- PROPOSED INTERSECTION - INTERNAL
- PROPOSED MOVEMENT
- COLLECTOR ROAD
- LOCAL ROAD
- PROJECT SITE
- STOP SIGN CONTROL
- SIGNAL CONTROL

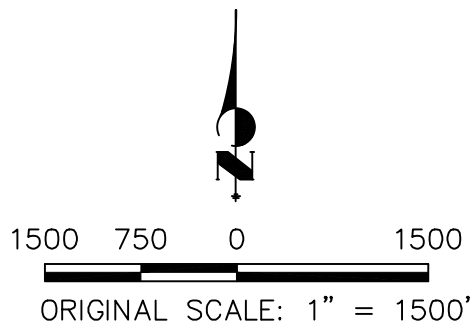
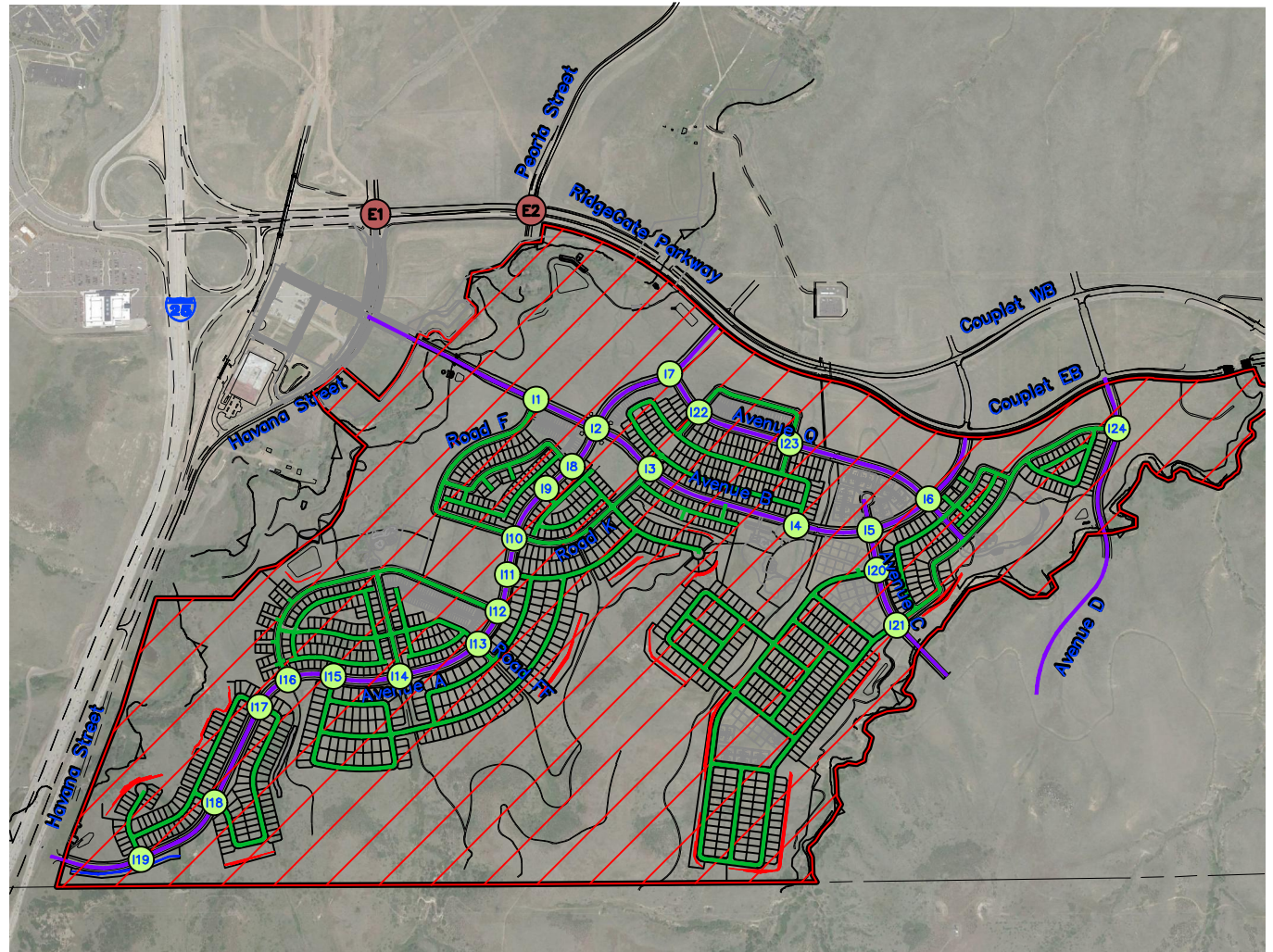
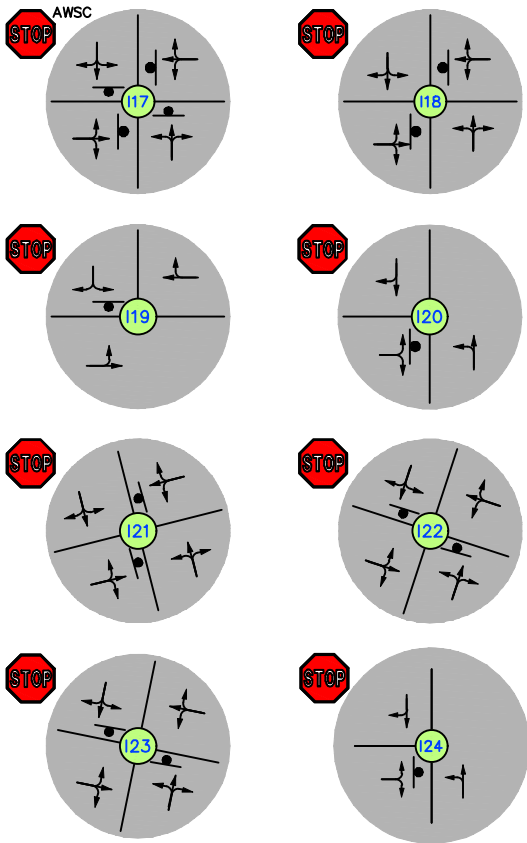


FIGURE 10 – YEAR 2026 &
2040 LANE GEOMETRY –
INTERNAL 2
RIDGEGATE SOUTHWEST VILLAGE
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LEGEND

- EXISTING INTERSECTION
- PROPOSED INTERSECTION - INTERNAL
- PROPOSED MOVEMENT
- COLLECTOR ROAD
- LOCAL ROAD
- PROJECT SITE
- STOP SIGN CONTROL
- SIGNAL CONTROL



1500 750 0 1500

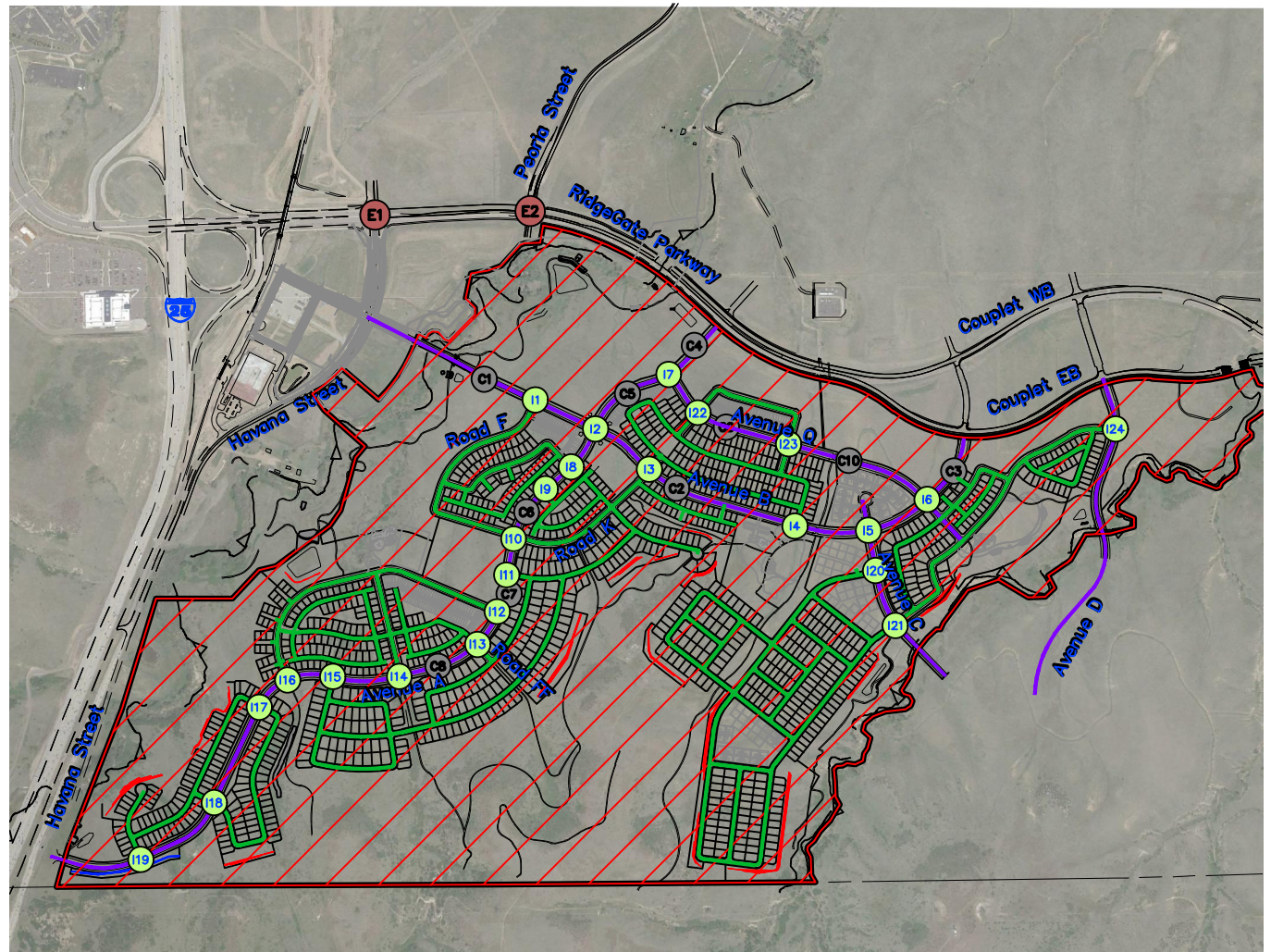
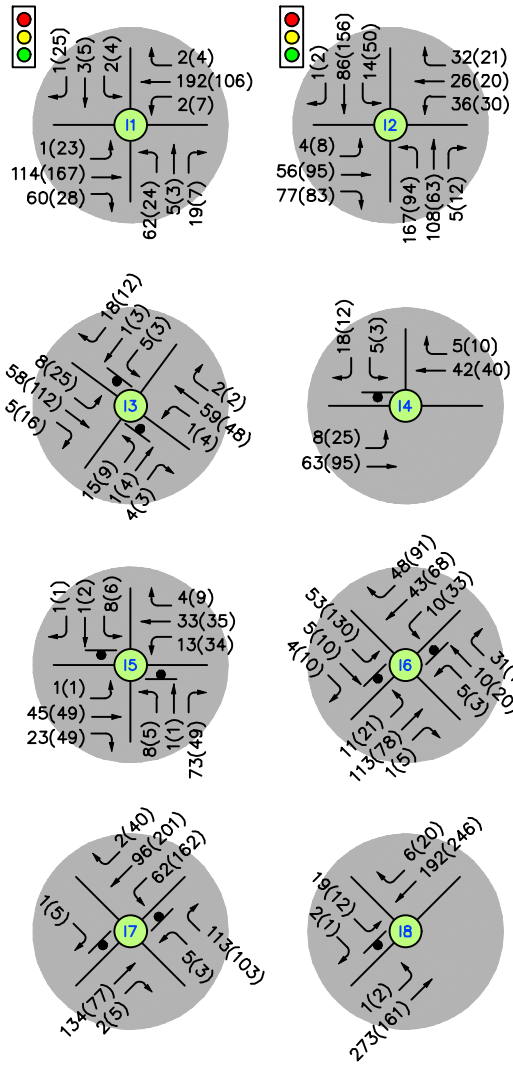
ORIGINAL SCALE: 1" = 1500'

FIGURE 11 – YEAR 2026 & 2040 LANE GEOMETRY – INTERNAL 3
 RIDGEGATE SOUTHWEST VILLAGE
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LEGEND

- X EXISTING INTERSECTION
- X PROPOSED INTERSECTION - EXTERNAL
- X PROPOSED INTERSECTION - INTERNAL
- X AVERAGE DAILY TRAFFIC (ADT)
- XX (XX) AM (PM) PEAK HOUR TRIP DISTRIBUTION
- COLLECTOR ROAD
- LOCAL ROAD
- PROJECT SITE
- STOP SIGN CONTROL
- ● ● SIGNAL CONTROL

YEAR 2026 ADT

C1 5,650	C8 4,700
C2 2,550	C7 3,000
C3 5,450	C6 1,750
C4 6,600	C9 3,500
C5 2,900	C10 3,450

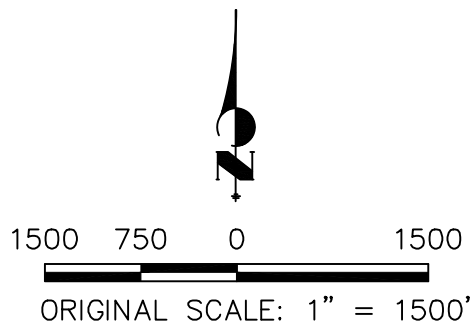
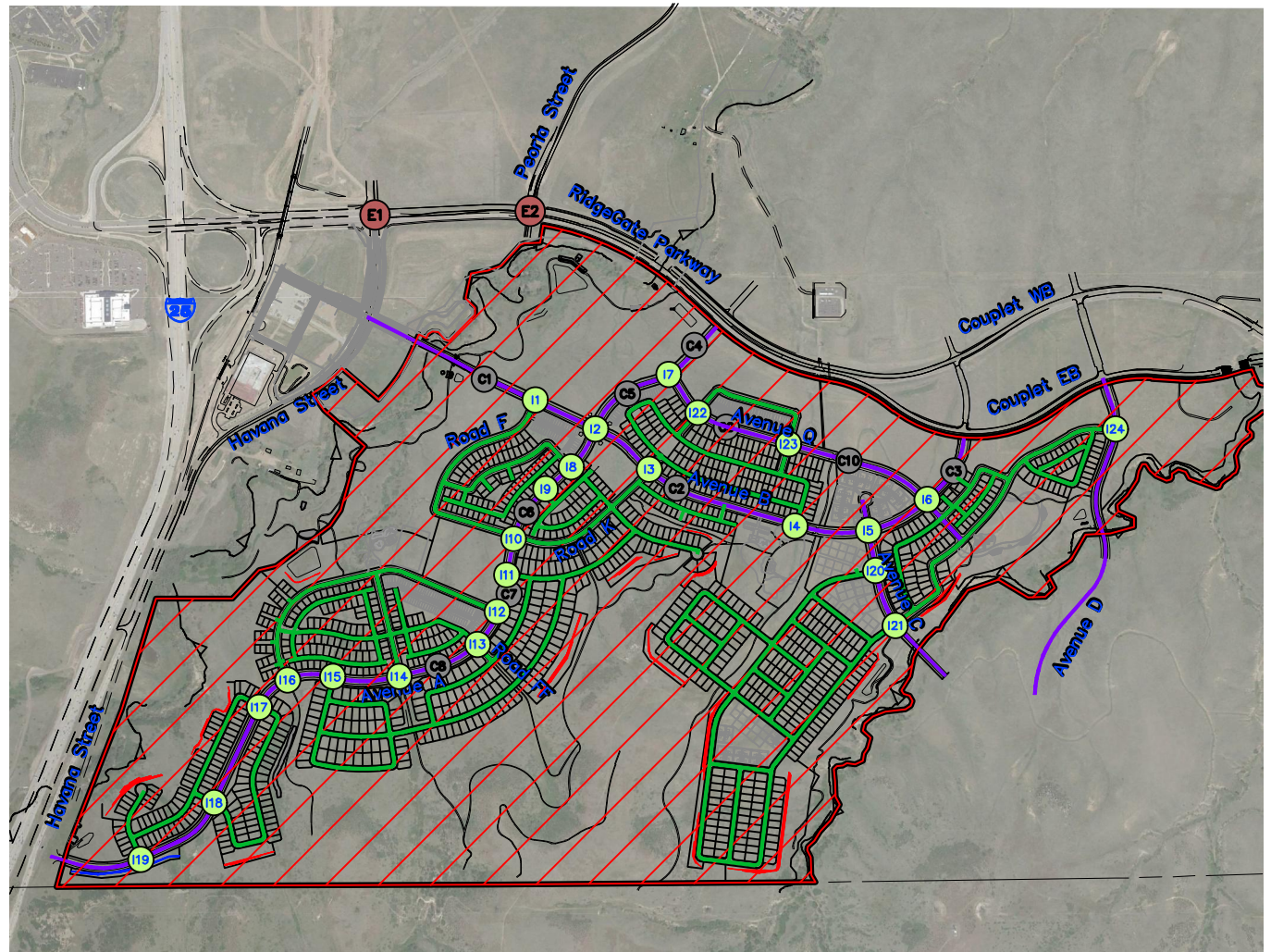
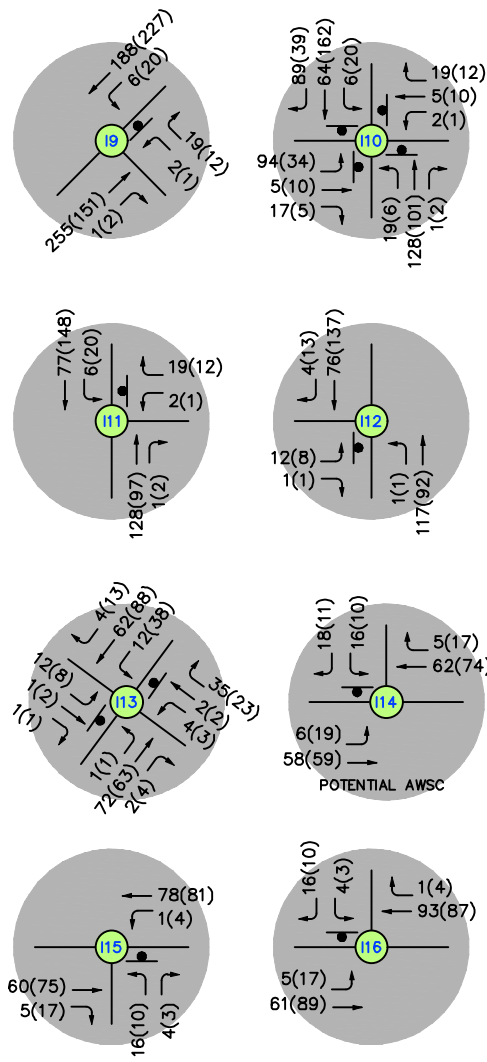


FIGURE 12 – SITE GENERATED TRAFFIC & 2026 – INTERNAL 1 RIDGEGATE SOUTHWEST VILLAGE
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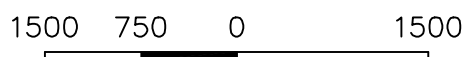


LEGEND

- X EXISTING INTERSECTION
- X PROPOSED INTERSECTION - EXTERNAL
- X PROPOSED INTERSECTION - INTERNAL
- X AVERAGE DAILY TRAFFIC (ADT)
- XX (XX) AM (PM) PEAK HOUR TRIP DISTRIBUTION
- COLLECTOR ROAD
- LOCAL ROAD
- PROJECT SITE
- STOP SIGN CONTROL
- ● ● SIGNAL CONTROL

SITE GENERATED ADT

C1	5,675	C6	4,350
C2	2,550	C7	3,100
C3	5,475	C8	2,000
C4	6,575	C9	3,350
C5	2,875	C10	3,700

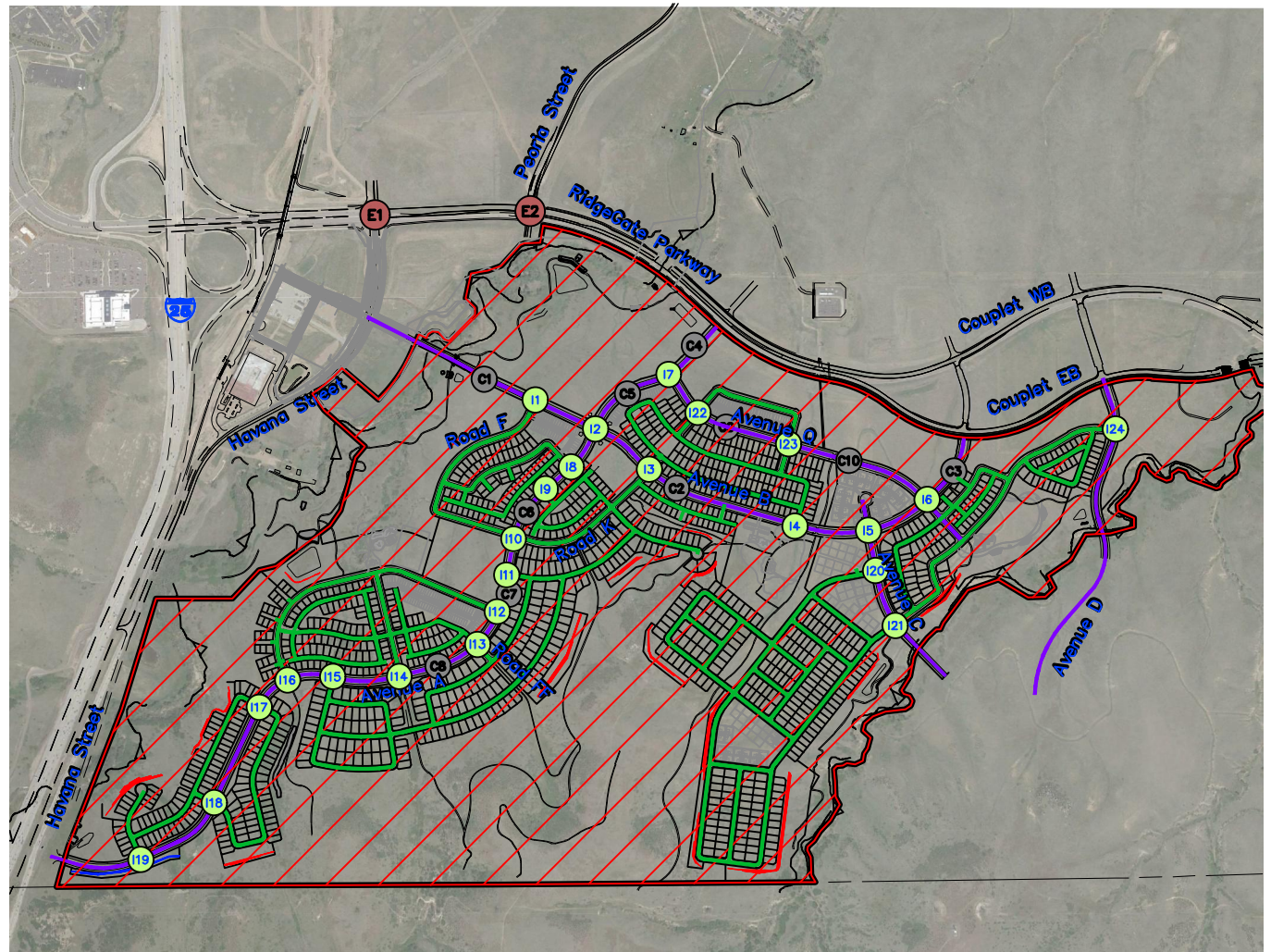
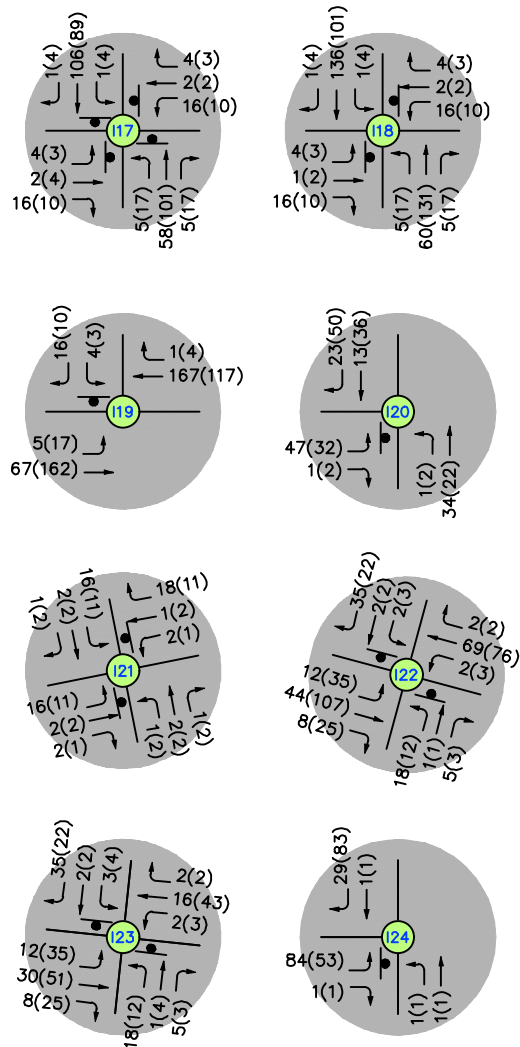


ORIGINAL SCALE: 1" = 1500'

FIGURE 13 – SITE GENERATED TRAFFIC & 2026 – INTERNAL 2 RIDGEGATE SOUTHWEST VILLAGE
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LEGEND

- EXISTING INTERSECTION
- PROPOSED INTERSECTION - EXTERNAL
- PROPOSED INTERSECTION - INTERNAL
- AVERAGE DAILY TRAFFIC (ADT)
- AM (XX) (PM) PEAK HOUR TRIP DISTRIBUTION
- COLLECTOR ROAD
- LOCAL ROAD
- PROJECT SITE
- STOP SIGN CONTROL
- SIGNAL CONTROL

SITE GENERATED ADT

C1	5,675	C6	4,350
C2	2,550	C7	3,100
C3	5,475	C8	2,000
C4	6,575	C9	3,350
C5	2,875	C10	3,700



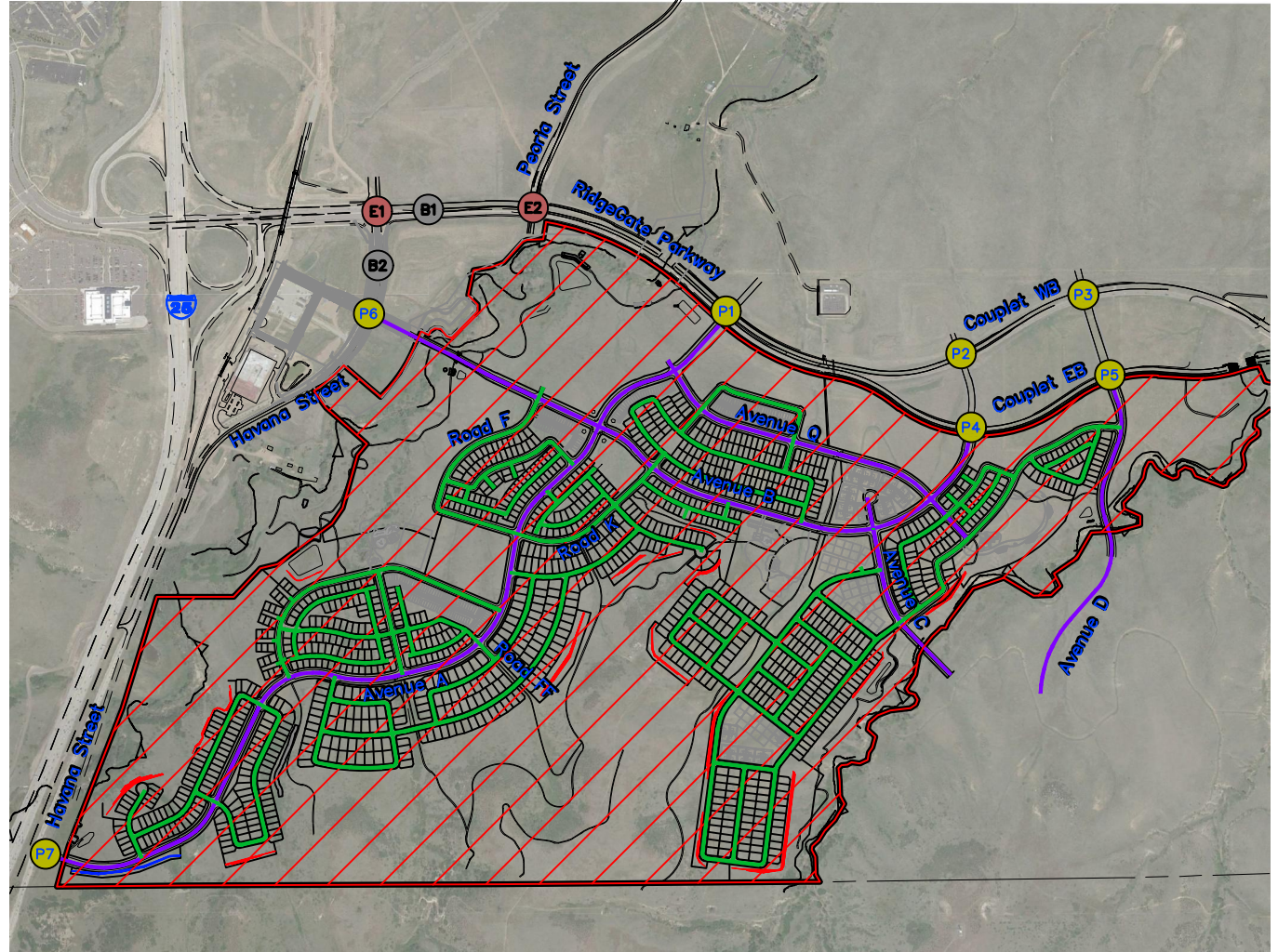
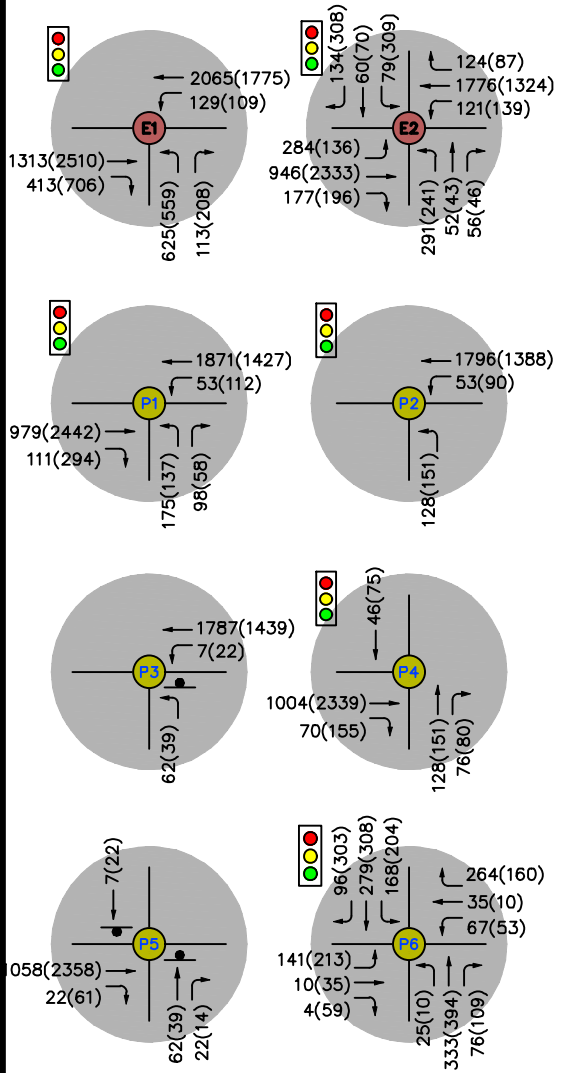
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ORIGINAL SCALE: 1" = 1500'

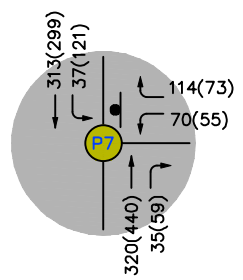
FIGURE 14 – SITE GENERATED TRAFFIC & 2026 – INTERNAL 3 RIDGEGATE SOUTHWEST VILLAGE
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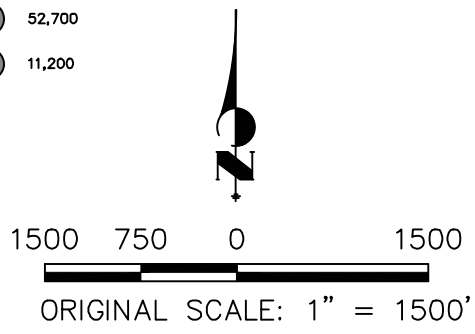


- LEGEND**
- EXISTING INTERSECTION
 - PROPOSED INTERSECTION - EXTERNAL
 - PROPOSED INTERSECTION - INTERNAL
 - AVERAGE DAILY TRAFFIC (ADT)
 - XX (XX) AM (PM) PEAK HOUR TRIP DISTRIBUTION
 - COLLECTOR ROAD
 - LOCAL ROAD
 - PROJECT SITE
 - STOP SIGN CONTROL
 - SIGNAL CONTROL

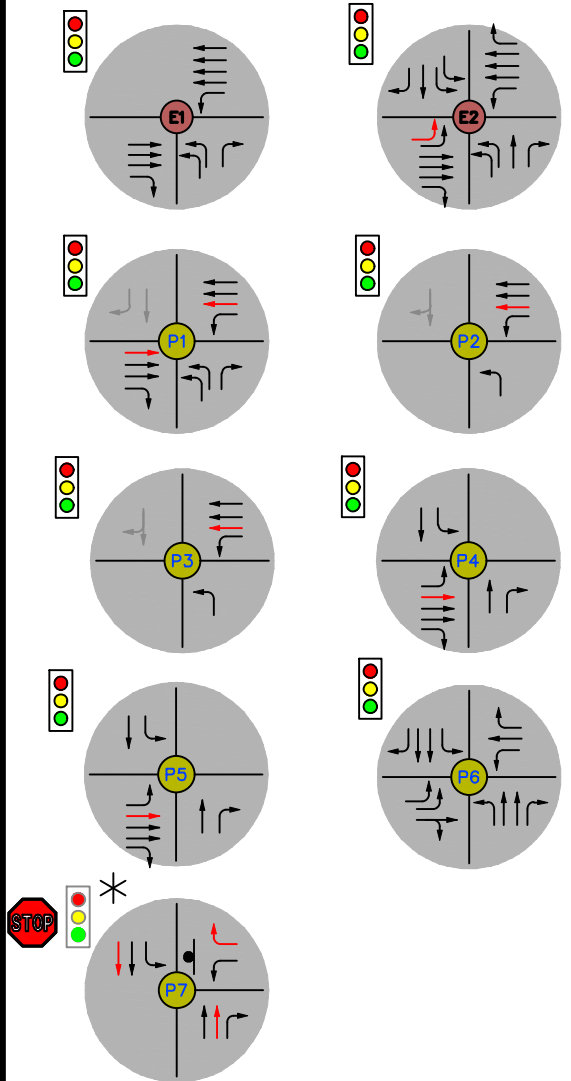


YEAR 2026 ADT

- B1 52,700
- B2 11,200



**FIGURE 15 – YEAR 2026
OPENING DAY TRAFFIC –
EXTERNAL
RIDGEGATE SOUTHWEST VILLAGE
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* POTENTIAL SIGNAL - FURTHER STUDIES NEEDED

LEGEND

- EXISTING INTERSECTION
- PROPOSED INTERSECTION - EXTERNAL
- EXISTING MOVEMENT
- PROPOSED MOVEMENT
- ADJACENT DEVELOPMENT
- COLLECTOR ROAD
- LOCAL ROAD
- PROJECT SITE
- STOP SIGN CONTROL
- SIGNAL CONTROL

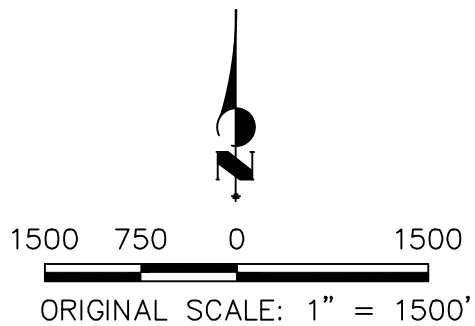
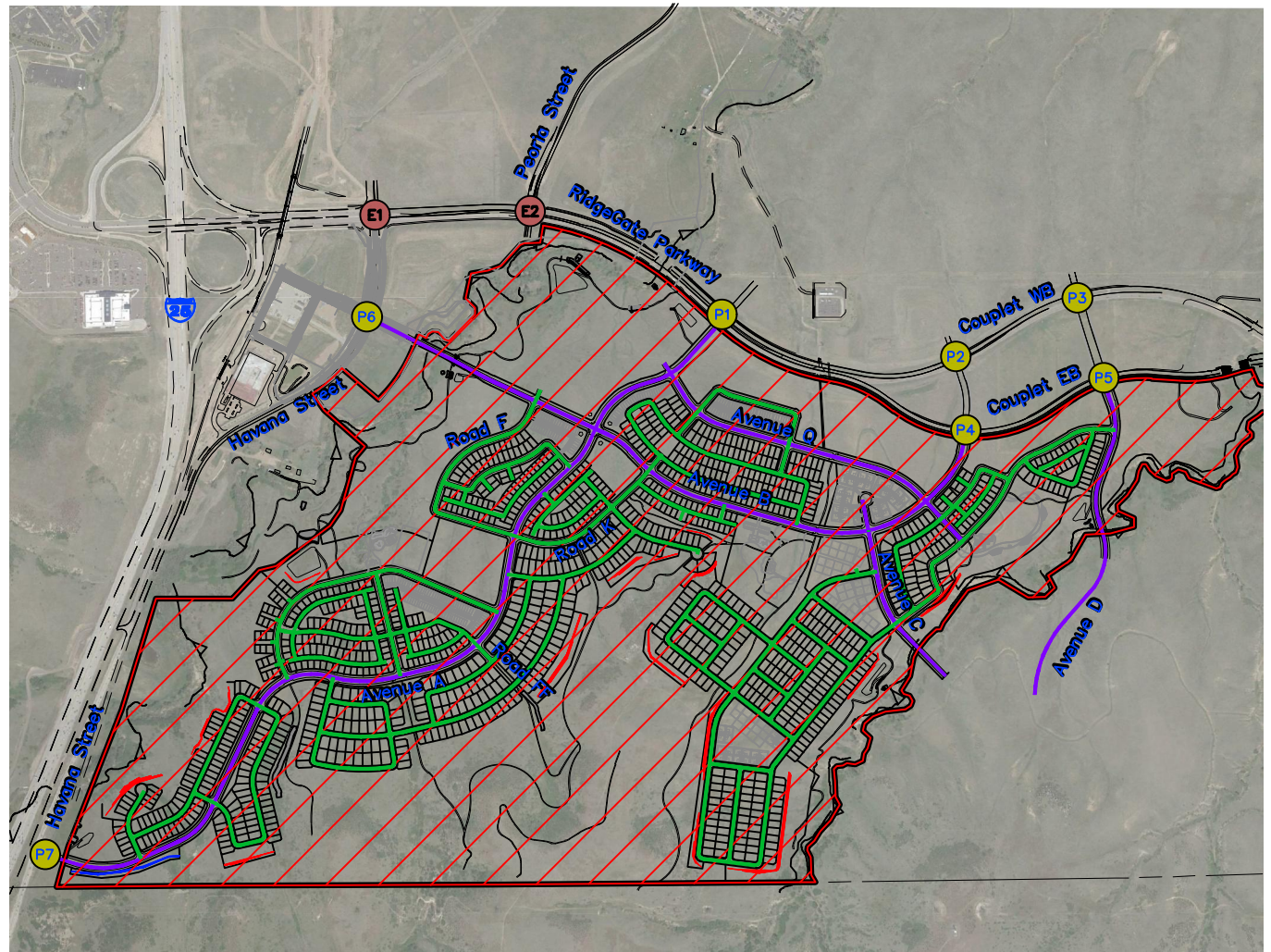
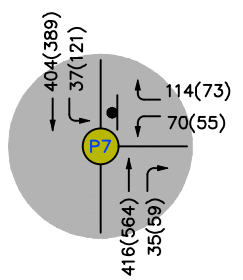
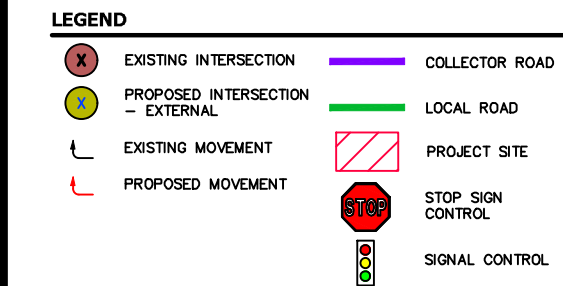
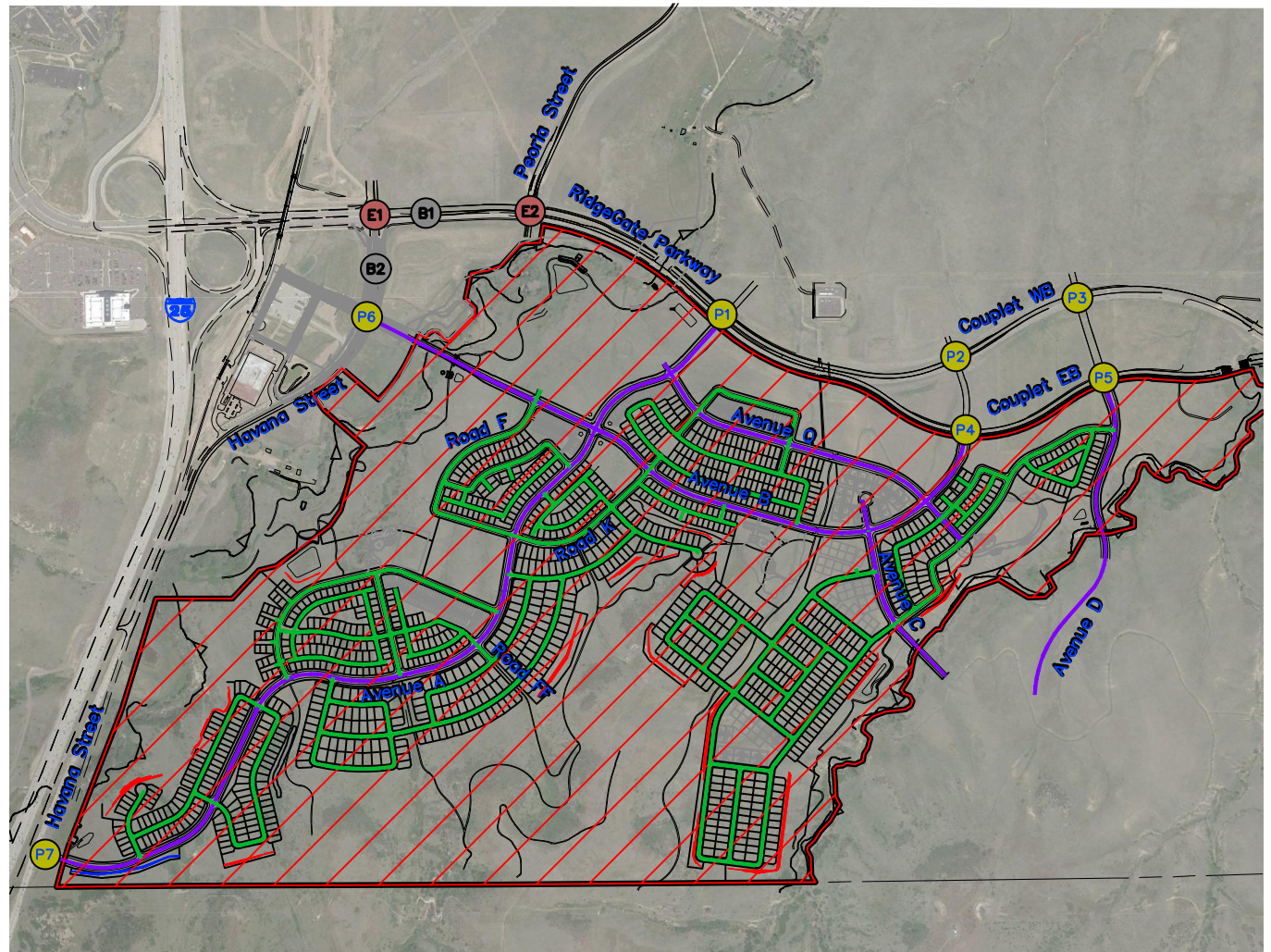
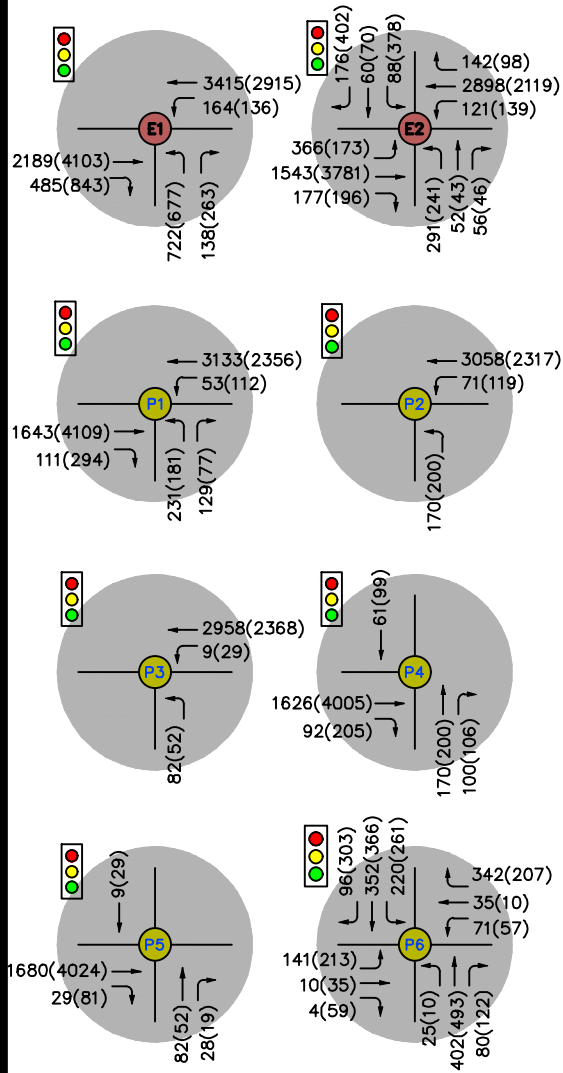


FIGURE 16 - YEAR 2040
LANE GEOMETRY - EXTERNAL
RIDGEGATE SOUTHWEST VILLAGE
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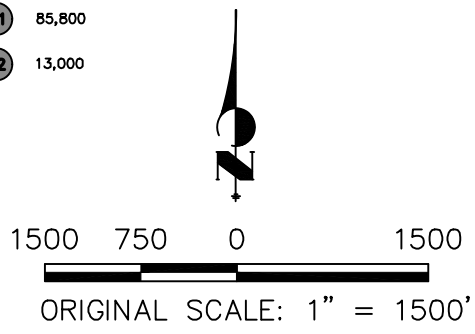


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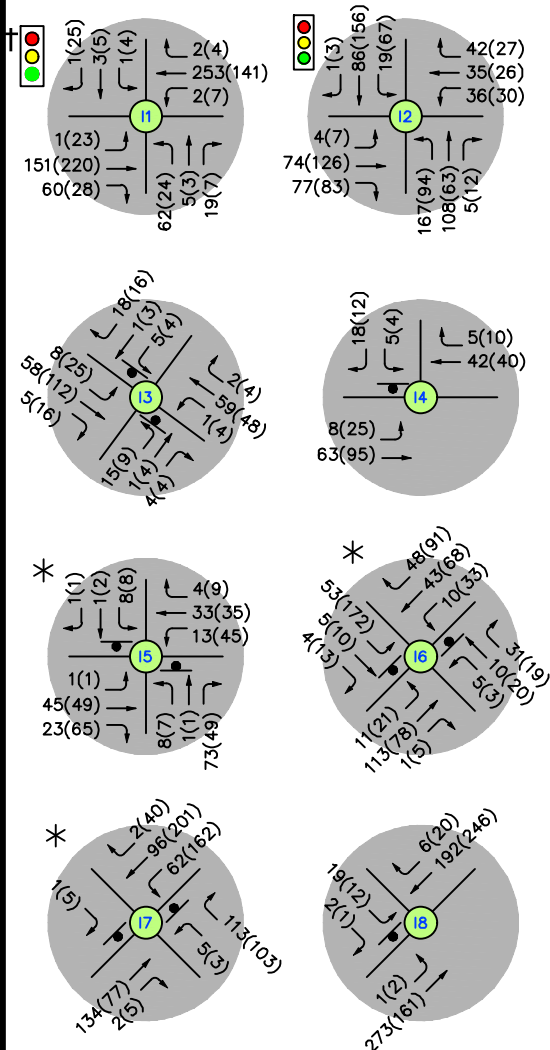


YEAR 2040 ADT

- B1 85,800
- B2 13,000



**FIGURE 17 – YEAR 2040
TOTAL TRAFFIC – EXTERNAL
RIDGEGATE SOUTHWEST VILLAGE
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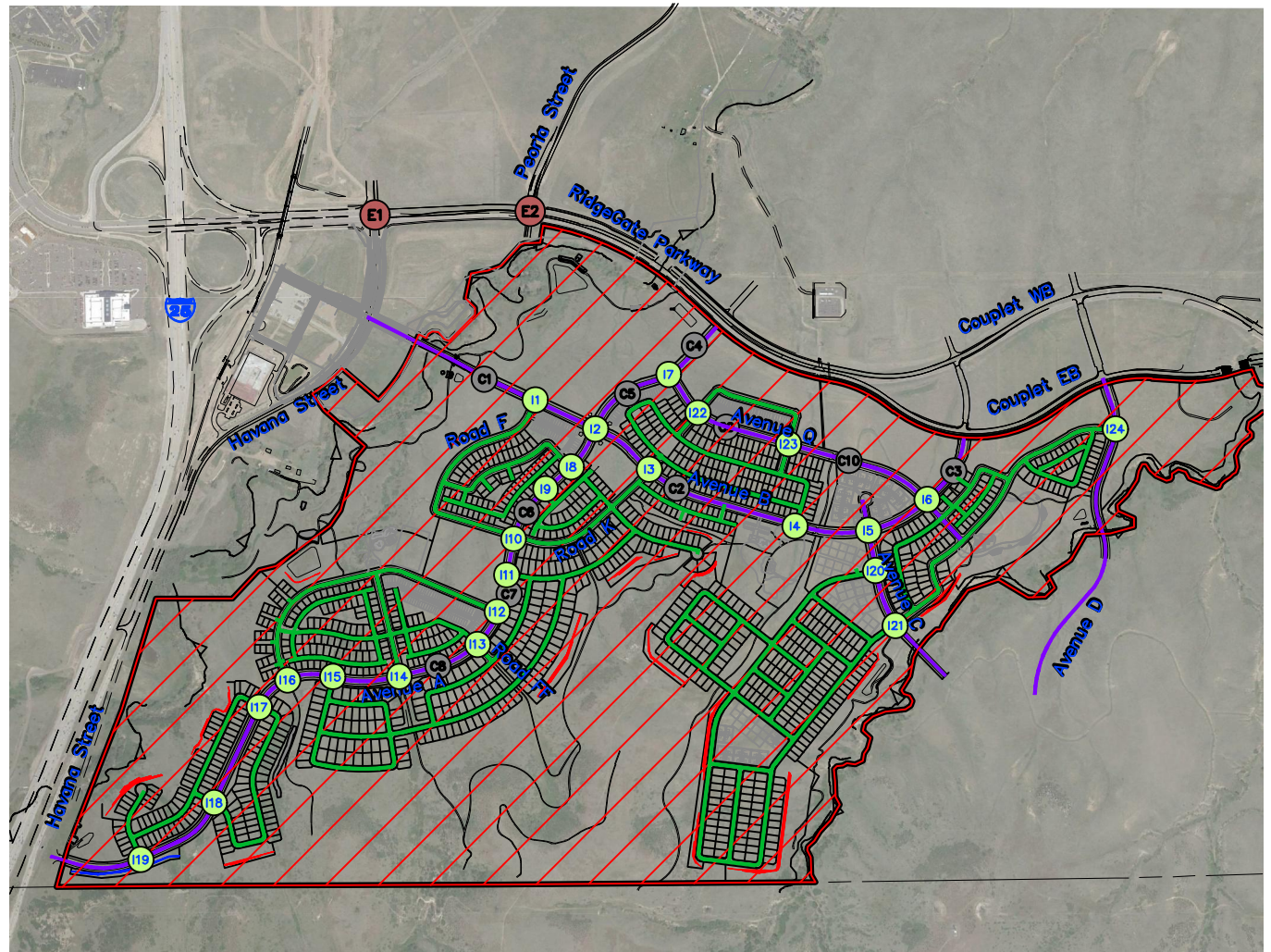


* PLANNED SIGNAL. FURTHER STUDIES MUST OCCUR TO DETERMINE IF SIGNALIZATION IS WARRANTED BASED ON OTHER FACTORS. CURRENTLY MODELED AS STOP-CONTROLLED.

† SIGNAL TO BE INSTALLED WHEN PARK IS CONSTRUCTED.

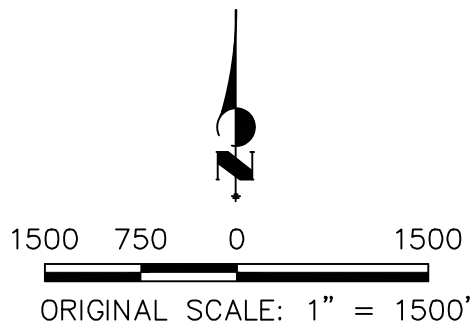
LEGEND

- EXISTING INTERSECTION
- PROPOSED INTERSECTION - EXTERNAL
- PROPOSED INTERSECTION - INTERNAL
- AVERAGE DAILY TRAFFIC (ADT)
- XX (XX) AM (PM) PEAK HOUR TRIP DISTRIBUTION
- COLLECTOR ROAD
- LOCAL ROAD
- PROJECT SITE
- STOP SIGN CONTROL
- SIGNAL CONTROL



YEAR 2040 ADT

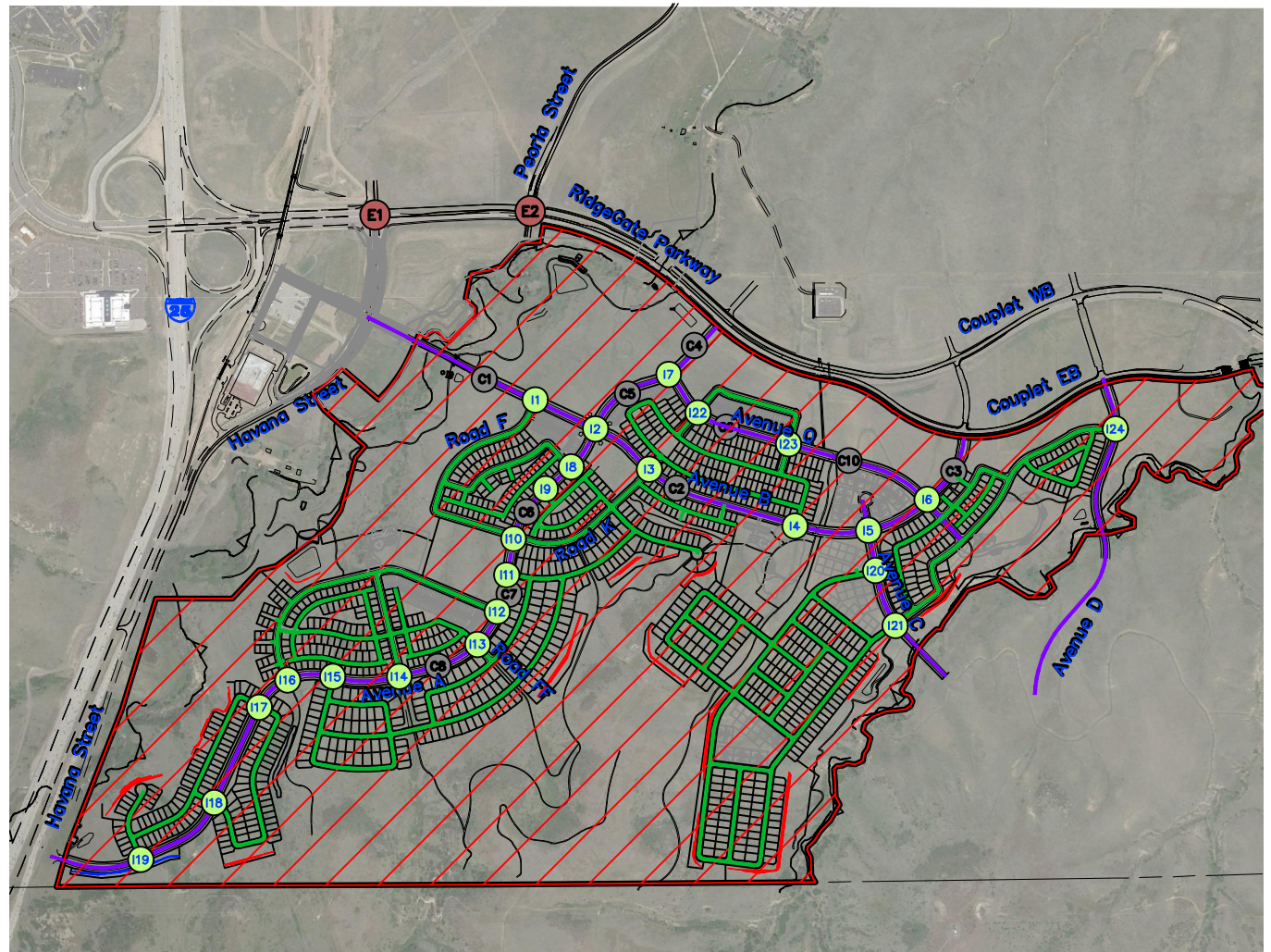
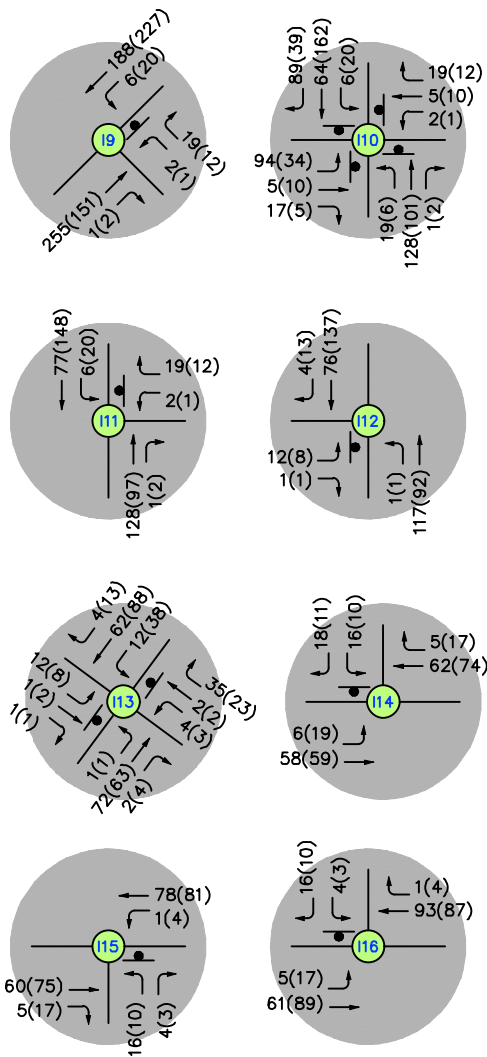
C1	7,800	C6	6,450
C2	3,500	C7	4,150
C3	7,550	C8	2,450
C4	9,050	C9	4,800
C5	3,950	C10	4,800



**FIGURE 18 – YEAR 2040
TOTAL TRAFFIC – INTERNAL 1
RIDGEGATE SOUTHWEST VILLAGE
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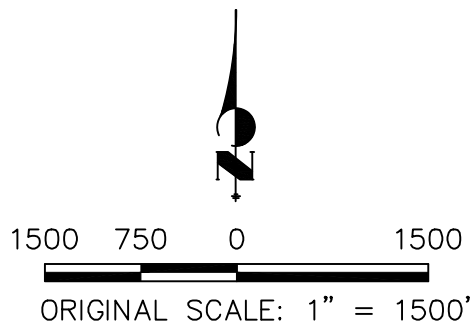


LEGEND

- EXISTING INTERSECTION
- PROPOSED INTERSECTION - EXTERNAL
- PROPOSED INTERSECTION - INTERNAL
- AVERAGE DAILY TRAFFIC (ADT)
- XX (XX) AM (PM) PEAK HOUR TRIP DISTRIBUTION
- COLLECTOR ROAD
- LOCAL ROAD
- PROJECT SITE
- STOP SIGN CONTROL
- SIGNAL CONTROL

YEAR 2040 ADT

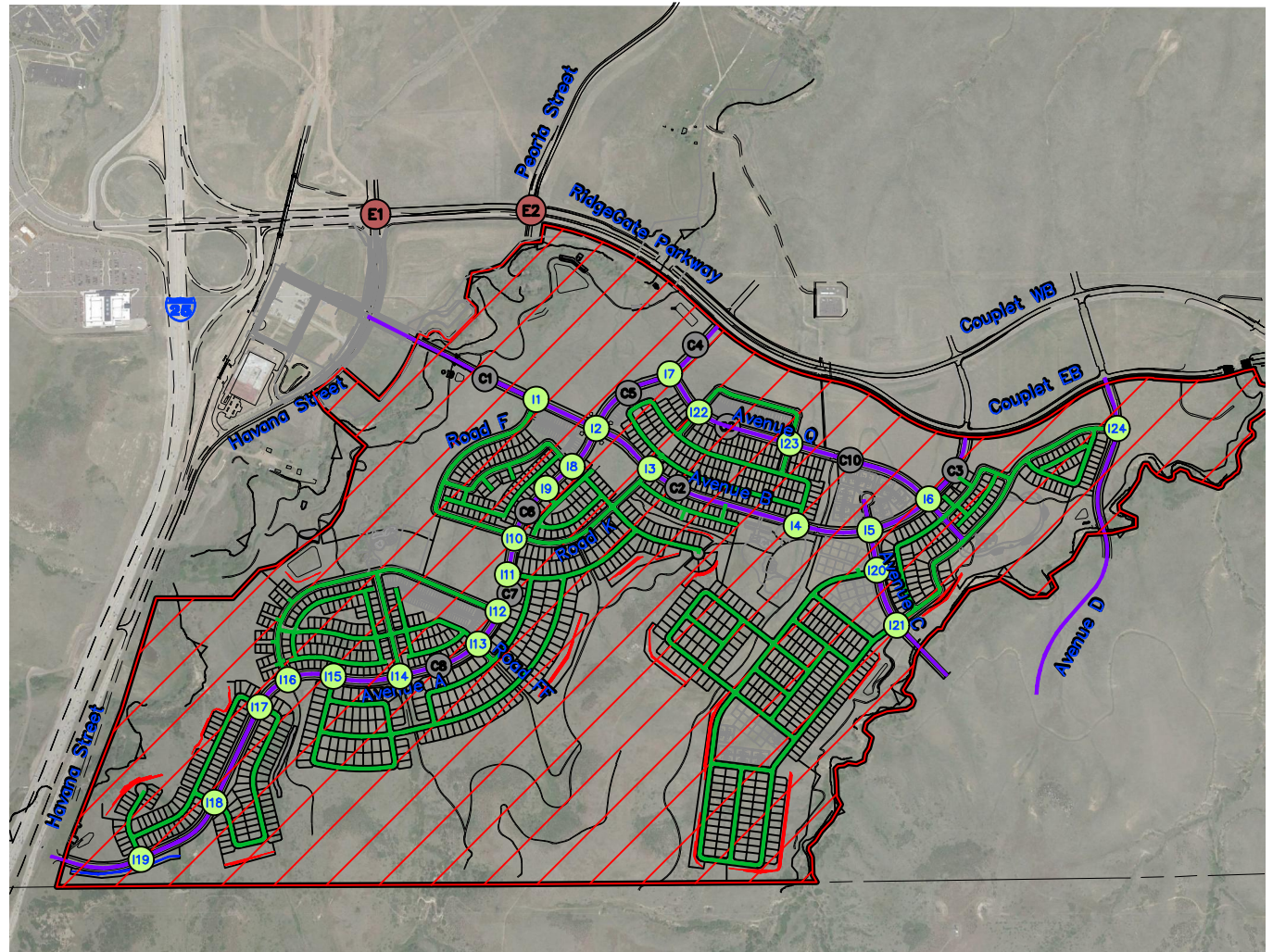
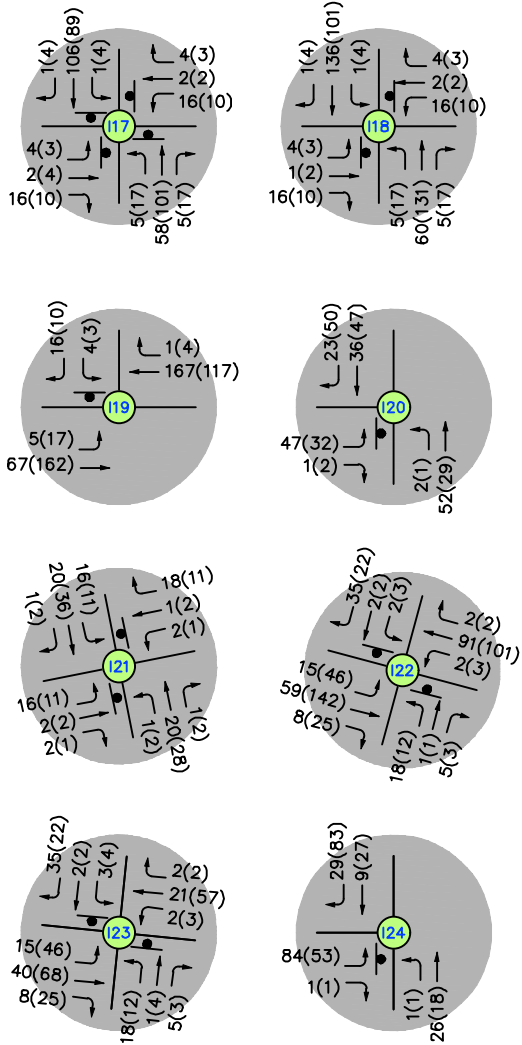
C1	7,800	C6	6,450
C2	3,500	C7	4,150
C3	7,550	C8	2,450
C4	9,050	C9	4,800
C5	3,950	C10	4,800



**FIGURE 19 – YEAR 2040
TOTAL TRAFFIC – INTERNAL 2
RIDGEGATE SOUTHWEST VILLAGE**
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LEGEND

- EXISTING INTERSECTION
- PROPOSED INTERSECTION - EXTERNAL
- PROPOSED INTERSECTION - INTERNAL
- AVERAGE DAILY TRAFFIC (ADT)
- XX (XX) AM (PM) PEAK HOUR TRIP DISTRIBUTION
- COLLECTOR ROAD
- LOCAL ROAD
- PROJECT SITE
- STOP SIGN CONTROL
- SIGNAL CONTROL

YEAR 2040 ADT

C1	7,800	C6	6,450
C2	3,500	C7	4,150
C3	7,550	C8	2,450
C4	9,050	C9	4,800
C5	3,950	C10	4,800



1500 750 0 1500

ORIGINAL SCALE: 1" = 1500'

**FIGURE 20 - YEAR 2040
TOTAL TRAFFIC - INTERNAL 3
RIDGATE SOUTHWEST VILLAGE
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Section 3: Traffic Operations and Project Impacts

Level of Service

The capacity of an intersection is measured by how well it operates during the peak hours of the day. Intersection capacities are expressed in terms of levels of service (LOS). LOS is a qualitative measure of intersection functionality, which is based on average delay experienced at an intersection. LOS ratings range from LOS A (best – free flow conditions) to LOS F (worst – unstable flow or high vehicle delay).

Level of service for signalized intersections is defined in terms of control delay, which is a measure of driver discomfort, frustration, fuel consumption, and increased travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, geometry, traffic, and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions: in the absence of traffic control, geometric delay, any incidents, and any other vehicles. Specifically, LOS criteria for traffic signals are stated in terms of the average control delay per vehicle, typically for a 15-minute analysis period. Delay is a complex measure and depends on a number of variables, including the quality of progression, the cycle length, the green ratio, and the volume to capacity (v/c) ratio for the lane group.

The *Highway Capacity Manual (HCM) 6th Edition* LOS thresholds for lane groups take into account the volume-to-capacity (v/c) ratio, in addition to control delay, such that any value above 1.0 would denote LOS ‘F’ regardless of the corresponding value of control delay. Values for approach and overall intersection LOS are still based on just control delay. **Table 2** lists the LOS thresholds for the automobile mode at a signalized intersection:

**Table 2 – Signalized Intersection
(Auto Mode) LOS Thresholds**

Control Delay (Seconds per Vehicle)	Level of Service (v/c Ratio)	
	≤ 1.0	> 1.0
≤10	A	F
>10-20	B	F
>20-35	C	F
>35-55	D	F
>55-80	E	F
>80	F	F

Level of service for a two-way stop controlled (TWSC) intersection is determined by the computed or measured control delay. For motor vehicles, LOS is determined for each minor-street movement (or shared movement) as well as major-street left turns. LOS is not defined for the intersection as a whole or for major-street approaches for three primary reasons:

- a) Major-street through vehicles are assumed to experience zero delay

- b) The disproportionate number of major-street through vehicles at a typical TWSC intersection skews the weighted average for all movements, resulting in a very low overall average delay for all vehicles
- c) The resulting low delay can mask important LOS deficiencies for minor movements

The LOS criteria for TWSC intersections are somewhat different from the criteria used for signalized intersections, primarily because user perceptions differ among transportation facility types. The expectation is that a signalized intersection is designed to carry higher traffic volumes and will present greater delay than an unsignalized intersection. Unsignalized intersections are also associated with more uncertainty for users, as delays are less predictable than they are at signals, which can reduce user's delay tolerance.¹

As with signalized intersections, LOS F is assigned to the movement if the v/c ratio for the movement exceeds 1.0, regardless of the control delay. **Table 3** lists the LOS thresholds for the automobile mode at a TWSC intersection.

**Table 3 – TWSC Intersection
(Auto Mode) LOS Thresholds**

Control Delay (Seconds per Vehicle)	Level of Service (v/c Ratio)	
	<= 1.0	> 1.0
0-10	A	F
>10-15	B	F
>15-25	C	F
>25-35	D	F
>35-50	E	F
>50	F	F

Analysis of Existing Conditions

The existing intersections at RidgeGate Parkway & Havana Street (E1) and RidgeGate Parkway & Peoria Street (E2) were not analyzed as part of this Draft Traffic Impact Study. The existing traffic signal timing will need to be obtained from the owner of the traffic signals in order to conduct existing level of service studies.

¹Highway Capacity Manual 2010, Transportation Research Board, 2010

Analysis of Year 2026

The parameters were input into Synchro as applicable and the lane movement LOS results for Year 2026 Opening Day are summarized in **Table 4** for external intersections and **Table 5** for internal intersections. The detailed LOS reports are included in **Appendix D**.

Table 4 – LOS for Year 2026 External Traffic

Signalized Intersection		Opening Day Intersection LOS	
		AM Peak Hour	PM Peak Hour
E1 - Ridgeway Parkway & Havana Street		C	C
E2 - Ridgeway Parkway & Peoria Street		C	C
P1 - Ridgeway Parkway & Avenue A		B	B
P2 - Ridgeway Parkway WB Couplet & Link One		B	A
P3 - Ridgeway Parkway WB Couplet & Link Two		A	A
P4 - Ridgeway Parkway EB Couplet & Link One		B	B
P5 - Ridgeway Parkway EB Couplet & Link Two		A	A
P6 - Havana Street & Avenue B		C	B
TWSC Intersection	Direction	Opening Day Traffic LOS	
		AM Peak Hour	PM Peak Hour
P7 - Havana Street & Avenue A	WB	C	D

Notes:

1. EB=Eastbound, WB=Westbound, NB=Northbound, SB=Southbound
2. Yellow highlight exceeds Established Threshold of LOS D

Table 5 – LOS for Year 2026 Internal Traffic

Signalized Intersection		Opening Day Intersection LOS	
		AM Peak Hour	PM Peak Hour
I2 - Avenue A & Avenue B		B	B
AWSC Intersection			
I10 - Avenue A & Road K		A	A
TWSC Intersection	Direction	Opening Day Traffic LOS	
		AM Peak Hour	PM Peak Hour
I1 - Avenue B & Road F	NB	B	B
	SB	A	A
I5 - Avenue B & Avenue C	NB	A	A
	SB	B	B
I6 - Avenue B & Road Q	SEB	B	B
	NWB	A	A
I7 - Avenue A & Road Q	EB	A	A
	WB	A	A
I13 - Avenue A & Road FF	EB	B	B
	WB	A	A

Notes:

1. EB=Eastbound, WB=Westbound, NB=Northbound, SB=Southbound, SEB=Southeast-bound, NWB=Northwest-bound, NEB=Northeast-bound, SWB=Southwest-bound
2. Yellow highlight exceeds Established Threshold of LOS D

As shown in **Table 4** and **Table 5**, all intersections are expected to operate at acceptable levels of service in the Opening Day Year 2026.

Analysis of Year 2040

The parameters were input into Synchro as applicable and the lane movement LOS results for Future Year 2040 are summarized in Error! Not a valid bookmark self-reference. for external intersections and **Table 7** for internal intersections. The detailed LOS reports are included in **Appendix D**.

Table 6 – LOS for Year 2040 External Traffic

Signalized Intersection		Future Year Intersection LOS	
		AM Peak Hour	PM Peak Hour
E1 - Ridgegate Parkway & Havana Street		C	E
E2 - Ridgegate Parkway & Peoria Street		E	E
P1 - Ridgegate Parkway & Avenue A		B	D
P2 - Ridgegate Parkway WB Couplet & Link One		C	B
P3 - Ridgegate Parkway WB Couplet & Link Two		A	A
P4 - Ridgegate Parkway EB Couplet & Link One		B	D
P5 - Ridgegate Parkway EB Couplet & Link Two		A	C
P6 - Havana Street & Avenue B		C	C
TWSC Intersection	Direction	Future Year Traffic LOS	
		AM Peak Hour	PM Peak Hour
P7 - Havana Street & Avenue A	WB	B	C

Notes:

1. EB=Eastbound, WB=Westbound, NB=Northbound, SB=Southbound
2. Yellow highlight exceeds Established Threshold of LOS D

Table 7 – LOS for Year 2040 Internal Traffic

Signalized Intersection		Opening Day Intersection LOS	
		AM Peak Hour	PM Peak Hour
I2 - Avenue A & Avenue B		B	B
AWSC Intersection			
I10 - Avenue A & Road K		A	A
TWSC Intersection	Direction	Opening Day Traffic LOS	
		AM Peak Hour	PM Peak Hour
I1 - Avenue B & Road F	NB	B	B
	SB	A	A
I5 - Avenue B & Avenue C	NB	A	A
	SB	B	B
I6 - Avenue B & Road Q	SEB	B	B
	NWB	A	A
I7 - Avenue A & Road Q	EB	A	A
	WB	A	A
I13 - Avenue A & Road FF	EB	B	B
	WB	A	A

Notes:

1. EB=Eastbound, WB=Westbound, NB=Northbound, SB=Southbound, SEB=Southeast-bound, NWB=Northwest-bound, NEB=Northeast-bound, SWB=Southwest-bound
2. Yellow highlight exceeds Established Threshold of LOS D

As shown in **Table 6** and **Table 7**, all intersections are expected to operate at acceptable levels of service in the Year 2040 Total Traffic, with the exceptions of E1 – RidgeGate Parkway & Havana Street and E2 – RidgeGate Parkway & Peoria Street. Ridgegate Parkway in the future Year 2040 is expected to have high traffic volumes due to regional growth. For both of these intersections outside of the project site, lane geometry was used from the approved *Plans for Proposed RidgeGate Parkway Expansion, Phase II* by Merrick & Company. The failing LOS in Year 2040 indicates that further improvements may be necessary with future surrounding developments, particularly the City Center along Havana Street to the north.

Traffic Signal Warrant Analysis

As part of this study, traffic signal warrant analyses were conducted at the proposed intersections that provide access to the Southwest Village site. The access intersections include:

- P1 – RidgeGate Parkway & Avenue A
- P2 – RidgeGate Couplet Westbound & Avenue B
- P3 – RidgeGate Couplet Westbound & Avenue D
- P4 – RidgeGate Couplet Eastbound & Avenue B
- P5 – RidgeGate Couplet Eastbound & Avenue D
- P6 – Havana Street & Avenue B

Each of these intersections was evaluated whether or not a signal is warranted per MUTCD Warrant #3 (Peak Hour) – Condition B in Year 2026 or Year 2040. Additional MUTCD Warrants will be considered in the Final Traffic Impact Study.

Warrant 3, Peak Hour

Per the 2009 MUTCD Warrant #3 – Condition B, the need for a traffic control signal shall be considered if an engineering study finds that the following criteria is met:

The plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only) for 1 hour (any four consecutive 15-minute periods) of an average day falls above the applicable curve in MUTCD Figure 4C-3 or Figure 4C-4 for the existing combination of approach lanes.

Based on peak hour volumes, traffic signals are warranted in 2026 at the following intersections:

- P1 – RidgeGate Parkway & Avenue A
- P2 – RidgeGate Couplet Westbound & Avenue B
- P4 – RidgeGate Couplet Eastbound & Avenue B
- P6 – Havana Street & Avenue B

Based on being planned signals, level of service, and consistency along the RidgeGate Parkway couplet, traffic signals are anticipated in 2026 at the following intersections:

- P3 – RidgeGate Couplet Westbound & Avenue D
- P5 – RidgeGate Couplet Eastbound & Avenue D

Internal Intersections

None of the intersections internal to the site meet the MUTCD Warrant #3 for peak hour. It is not anticipated that any of the intersections will be signalized unless other warrants are met. The intersection of Avenue A & Avenue B (I2) has the most potential to be signalized, since they are both classified as collectors and a school is proposed just south of the intersection. Also, per the request of the City of Lone Tree, Intersection I1 is planned to be signalized with the construction of the regional park by the Year 2026. Intersections I1 and I2 were modeled as signalized.

The following intersections are planned signals modeled as stop-controlled because further studies must occur to determine if signalization is warranted based on other factors:

- I5 – Avenue B & Avenue C
- I6 – Avenue B & Avenue Q
- I7 – Avenue A & Avenue Q

Bicycle and Pedestrian Facilities

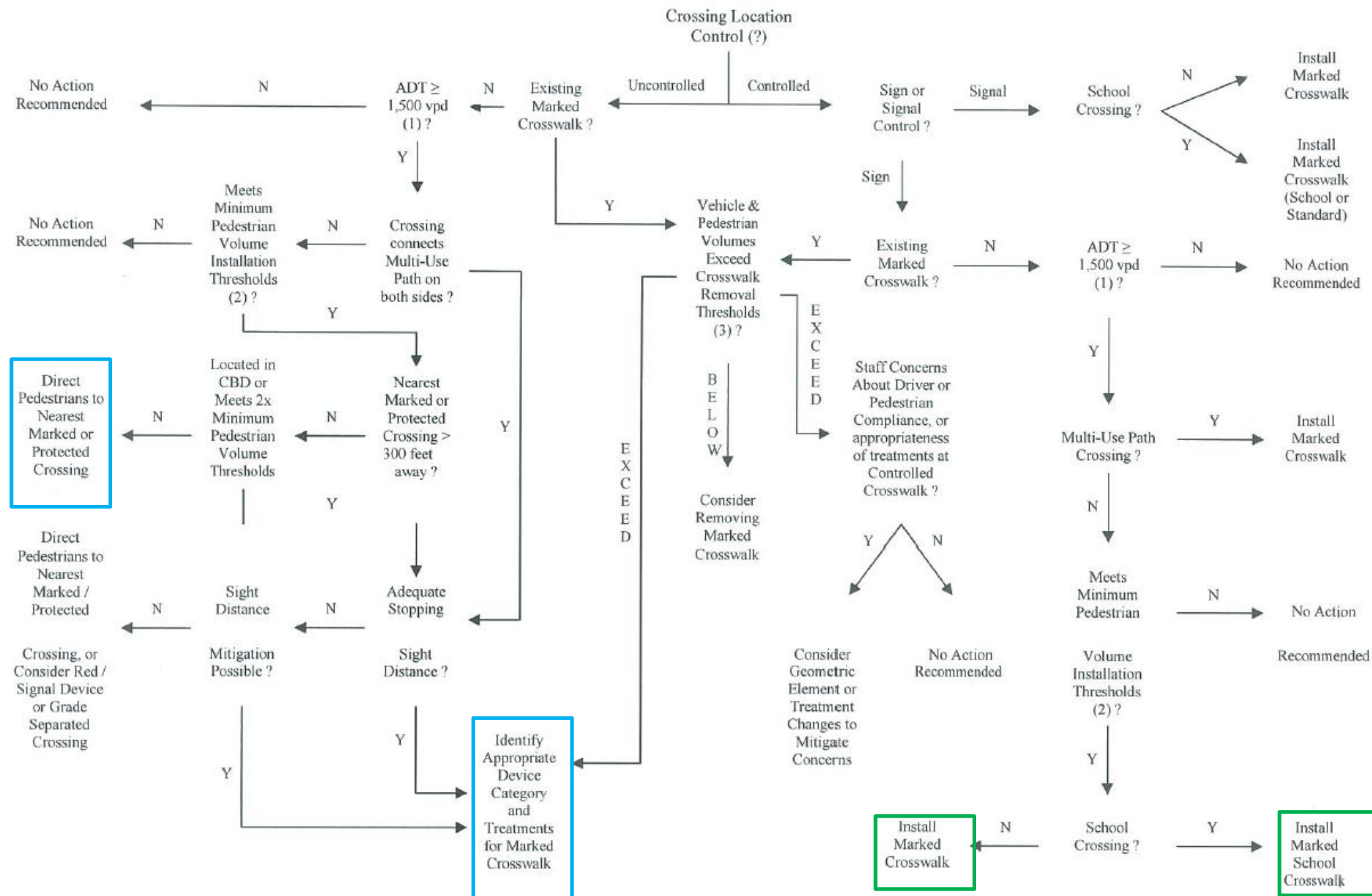
As part of this study, bicycle and pedestrian routes were identified within the proposed RidgeGate Southwest Village, as shown in **Figure 21** through **Figure 24**.

. On-street bike lanes are provided on all Collector Roads within the proposed site. The on-street bike lanes provide connectivity to the 12-foot cycle track that is being constructed on the south side of RidgeGate Parkway. A 6-foot, soft trail is provided off street throughout the proposed site and has multiple crossings with proposed roadways.

Pedestrian Crossings

The *City of Lone Tree Pedestrian Crossing Treatment Guidelines* provides direction for pedestrian crossing treatments on roadways. The *Pedestrian Crossing Evaluation Flowchart* contained within the guidelines indicates the recommended treatments for both uncontrolled and controlled crossings. This flowchart is shown on the next page. For uncontrolled crossings that connect a multi-use path across a roadway, a marked crosswalk is required so long as adequate stopping sight distance is provided for vehicles on the roadway. For controlled crossings, a marked crosswalk is required for roadways with an ADT that exceeds 1,500 vehicles per day. Further discussions will need to be held with the City of Lone Tree to determine where they prefer school crossings along Avenue A. Once determined where the school crossings should be, adequate crossing treatments will be determined based on the City's guidelines.

As shown on the flowchart, all of the crossings within the proposed RidgeGate Southwest Village Site may meet the criteria for the installation of marked crosswalks at both controlled and uncontrolled crossings. This study identified intersections that required control based on peak-hour vehicular volumes. Further studies will be required to determine the amount of estimated pedestrian volumes crossing the roadways. If the estimated pedestrian volumes do not meet minimum threshold requirements, pedestrians will be directed to the nearest marked or protected crossing.



- Notes:
- (1) Or ≥ 150 vph at School Crossing during peak school period
 - (2) **Minimum Pedestrian Volume Installation Thresholds:**
 - 20+ pedestrians per hour during any single hour, or
 - 18+ pedestrians per hour during each of any two hours, or
 - 15+ pedestrians per hour during each of any three hours
 [Apply 50% of above thresholds if crossing connects end of Multi-Use Path and sidewalk. Young, elderly and disabled pedestrians count 2x toward volume thresholds]
 - (3) **Crosswalk Removal Thresholds:**
 - pedestrian or vehicular volumes fall below 50% of Installation Thresholds

Figure 1
Pedestrian Crossing Evaluation Flowchart

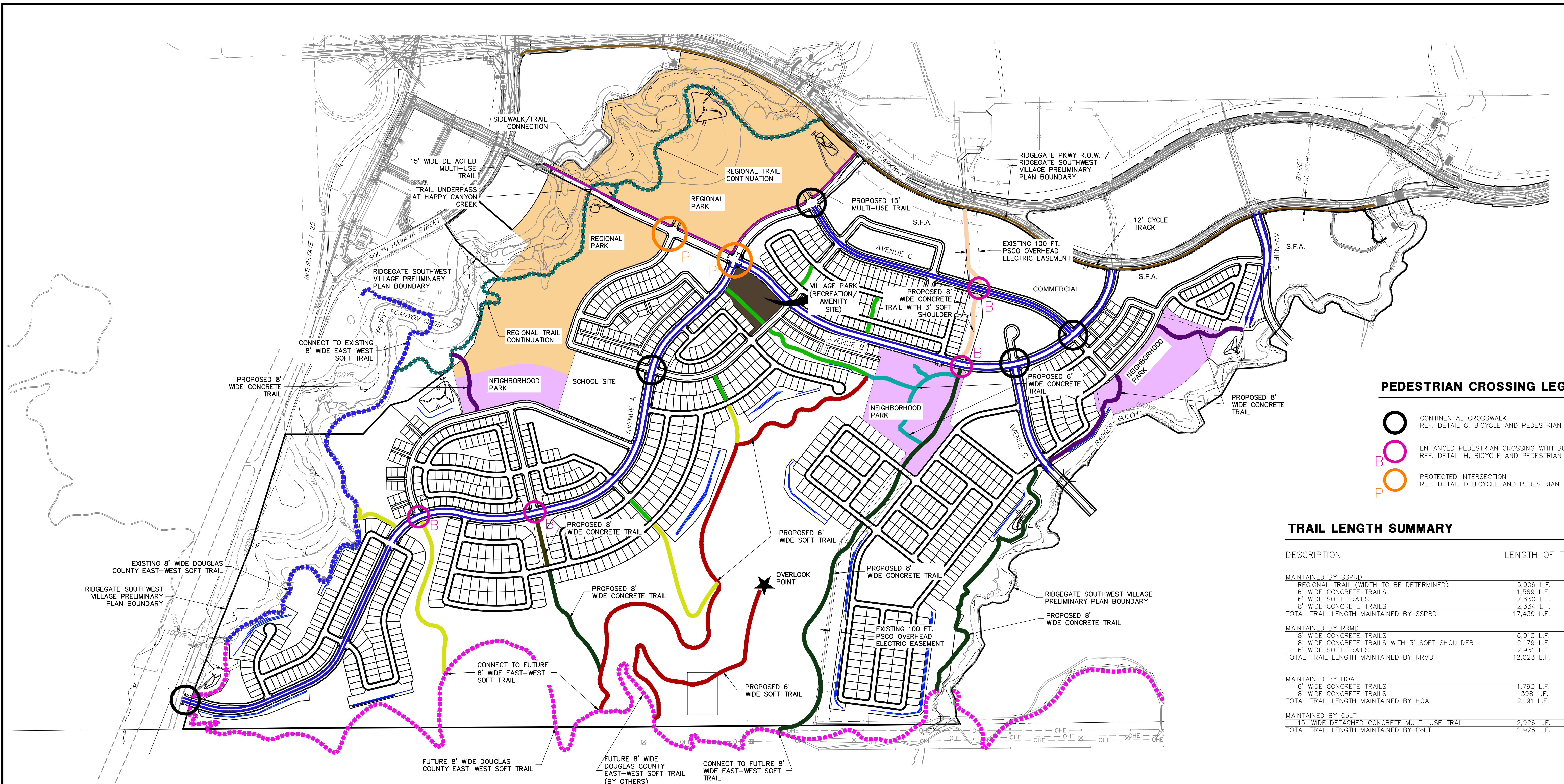
City of Lone Tree
Pedestrian Crossing Treatment Guidelines – June 2018

Since all of the roadways within the proposed site are two lanes, and the vehicular ADT of all roadways are less than 9,000 vehicles per day with speed limits less than 35 MPH, it is anticipated that only painted crosswalks are recommended, according to the table below contained in City of Lone Tree guidelines. Even so, both standard and enhanced crosswalks will be installed based on priority locations as shown on **Figure 21**. Enhanced crosswalks include roadside signs and advance signs and markings to warn drivers of pedestrian crossings. It is not anticipated that flashing beacons or controlled intersections will be required based on the criteria in the table below.

Roadway Type	Vehicle ADT ≤9,000			Vehicle ADT >9,000 to 12,000			Vehicle ADT >12,000 to 15,000			Vehicle ADT ≥15,000		
	≤30 mph	35 mph	40 mph	≤30 mph	35 mph	40 mph	≤30 mph	35 mph	40 mph	≤30 mph	35 mph	40 mph
Two Lanes	A	A	B	A	A	B	A	A	C	A	B	C
Three lanes	A	A	B	A	B	B	B	B	C	B	C	C
Multilane with raised median	A	A	C	A	B	C	B	B	C	C	C	C
Multilane without raised median	A	B	C	B	B	C	C	C	C	C	C	C

Notes:

- A = Crosswalk/Enhanced, B = Enhanced, C = Active/Red/Signal
- Speed limit is set at the 85th percentile speed
- Explore geometric elements prior to the implementation of the treatment



PEDESTRIAN CROSSING LEGEND

- CONTINENTAL CROSSWALK
REF. DETAIL C, BICYCLE AND PEDESTRIAN DETAILS
- ENHANCED PEDESTRIAN CROSSING WITH BULB-OUT
REF. DETAIL H, BICYCLE AND PEDESTRIAN DETAILS
- PROTECTED INTERSECTION
REF. DETAIL D BICYCLE AND PEDESTRIAN DETAILS

TRAIL LENGTH SUMMARY

DESCRIPTION	LENGTH OF TRAIL
MAINTAINED BY SSPRD	
REGIONAL TRAIL (WIDTH TO BE DETERMINED)	5,906 L.F.
6' WIDE CONCRETE TRAILS	1,569 L.F.
6' WIDE SOFT TRAILS	7,630 L.F.
8' WIDE CONCRETE TRAILS	2,334 L.F.
TOTAL TRAIL LENGTH MAINTAINED BY SSPRD	17,439 L.F.
MAINTAINED BY RRMD	
8' WIDE CONCRETE TRAILS	6,913 L.F.
8' WIDE CONCRETE TRAILS WITH 3' SOFT SHOULDER	2,179 L.F.
6' WIDE SOFT TRAILS	2,931 L.F.
TOTAL TRAIL LENGTH MAINTAINED BY RRMD	12,023 L.F.
MAINTAINED BY HOA	
6' WIDE CONCRETE TRAILS	1,793 L.F.
8' WIDE CONCRETE TRAILS	398 L.F.
TOTAL TRAIL LENGTH MAINTAINED BY HOA	2,191 L.F.
MAINTAINED BY CoLT	
15' WIDE DETACHED CONCRETE MULTI-USE TRAIL	2,926 L.F.
TOTAL TRAIL LENGTH MAINTAINED BY CoLT	2,926 L.F.

TRAIL LEGEND

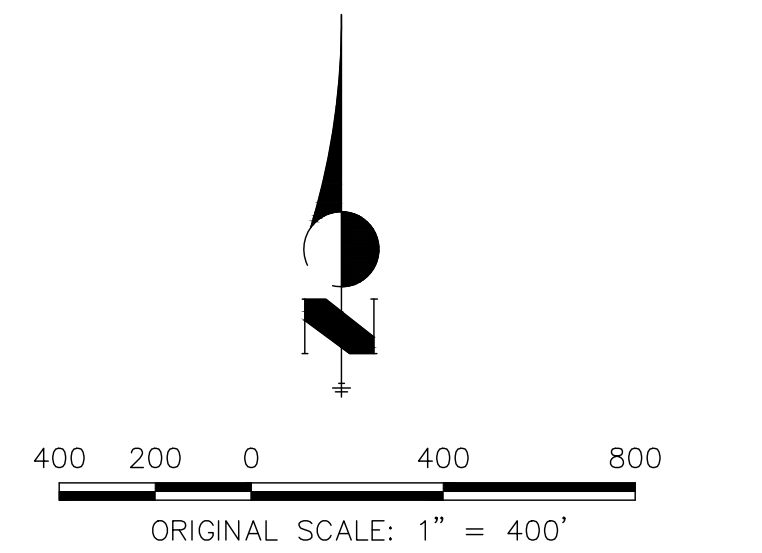
	EXISTING DOUGLAS COUNTY EAST-WEST TRAIL (8' SOFT TRAIL), REF. DETAIL E BICYCLE AND PEDESTRIAN DETAILS.
	FUTURE DOUGLAS COUNTY EAST-WEST TRAIL (8' SOFT TRAIL), REF. DETAIL E BICYCLE AND PEDESTRIAN DETAILS.
	FUTURE REGIONAL TRAIL, WIDTH AND SURFACE TO BE DETERMINED BY FINAL REGIONAL PARK DESIGN
	PROPOSED 6' HOA CONCRETE TRAIL, REF. DETAIL F BICYCLE AND PEDESTRIAN DETAILS.
	PROPOSED 8' HOA CONCRETE TRAIL, REF. DETAIL F BICYCLE AND PEDESTRIAN DETAILS.
	PROPOSED 6' RRMD SOFT TRAIL, REF. DETAIL E BICYCLE AND PEDESTRIAN DETAILS
	PROPOSED 6' SSPRD CONCRETE TRAIL, REF. DETAIL F BICYCLE AND PEDESTRIAN DETAILS.
	PROPOSED 8' RRMD CONCRETE TRAIL, REF. DETAIL F BICYCLE AND PEDESTRIAN DETAILS.
	PROPOSED 8' RRMD CONCRETE TRAIL WITH 3' SOFT SHOULDER, REF. DETAIL G BICYCLE AND PEDESTRIAN DETAILS.
	PROPOSED 6' SSPRD SOFT TRAIL, REF. DETAIL E BICYCLE AND PEDESTRIAN DETAILS.
	PROPOSED 8' SSPRD CONCRETE TRAIL, REF. DETAIL F BICYCLE AND PEDESTRIAN DETAILS.
	15' CONCRETE DETACHED MULTI-USE TRAIL
	12' CYCLE TRACK (RIDGEGATE PARKWAY)
	PROPOSED 6' WIDE BICYCLE LANE, REF. DETAIL A BICYCLE AND PEDESTRIAN DETAILS.
	NEIGHBORHOOD PARK
	VILLAGE PARK (RECREATION CENTER/AMENITY SITE)
	REGIONAL PARK

CONSTRUCTION RESPONSIBILITY

MAINTENANCE RESPONSIBILITY

LINEAR FEET OF TRAIL

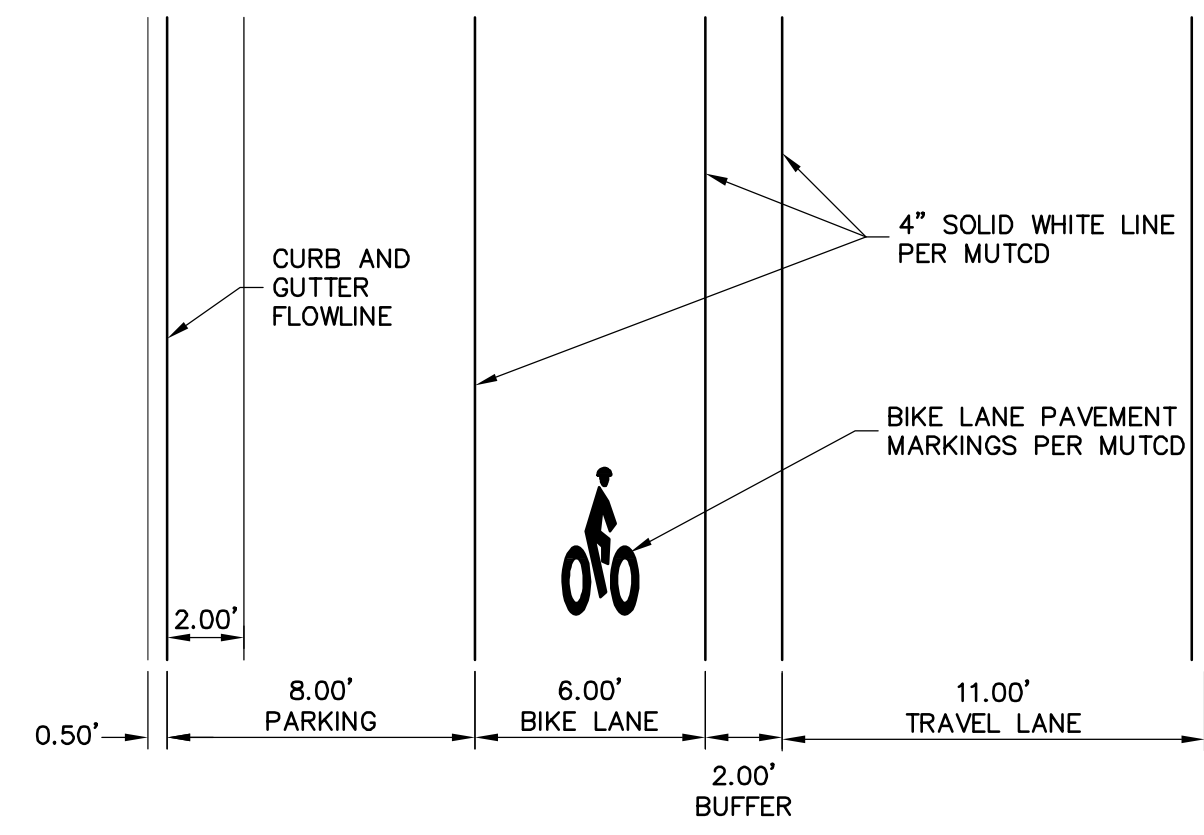
DOUGLAS COUNTY	DOUGLAS COUNTY	-
DOUGLAS COUNTY	DOUGLAS COUNTY	-
BY OTHERS (TO BE DETERMINED)	SOUTH SUBURBAN PARKS AND RECREATION DISTRICT	5,906 L.F.
DEVELOPER	HOA	1,793 L.F.
DEVELOPER	HOA	398 L.F.
DEVELOPER	RAMPART RANGE METRO DISTRICT	2,931 L.F.
DEVELOPER	SOUTH SUBURBAN PARKS AND RECREATION DISTRICT	1,569 L.F.
DEVELOPER	RAMPART RANGE METRO DISTRICT	6,913 L.F.
DEVELOPER	RAMPART RANGE METRO DISTRICT	2,179 L.F.
DEVELOPER	SOUTH SUBURBAN PARKS AND RECREATION DISTRICT	7,304 L.F.
DEVELOPER	SOUTH SUBURBAN PARKS AND RECREATION DISTRICT	2,334 L.F.
DEVELOPER	CITY OF LONE TREE	2,926 L.F.
DEVELOPER	CITY OF LONE TREE	-
DEVELOPER	CITY OF LONE TREE	-
DEVELOPER	SOUTH SUBURBAN PARKS AND RECREATION DISTRICT	-
DEVELOPER	HOA	-
SOUTH SUBURBAN PARKS AND RECREATION DISTRICT	SOUTH SUBURBAN PARKS AND RECREATION DISTRICT	-



BICYCLE AND PEDESTRIAN MOBILITY PLAN
 RIDGEGATE SOUTHWEST VILLAGE
 JOB NO. 15950.00
 8/26/2020
 SHEET 1 OF 1

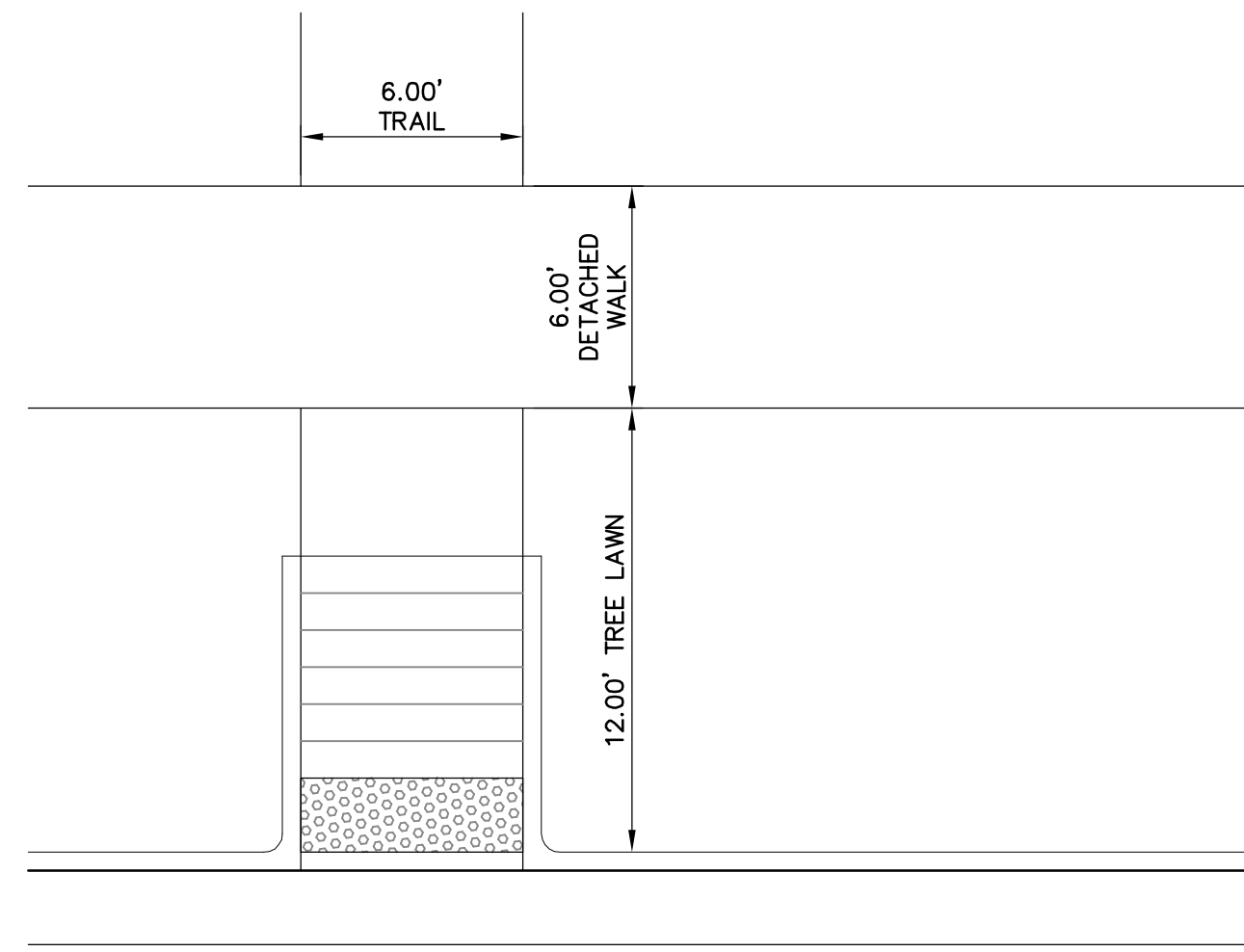


Centennial 303-740-9393 • Colorado Springs 719-593-2593
 Fort Collins 970-491-9888 • www.jrengineering.com



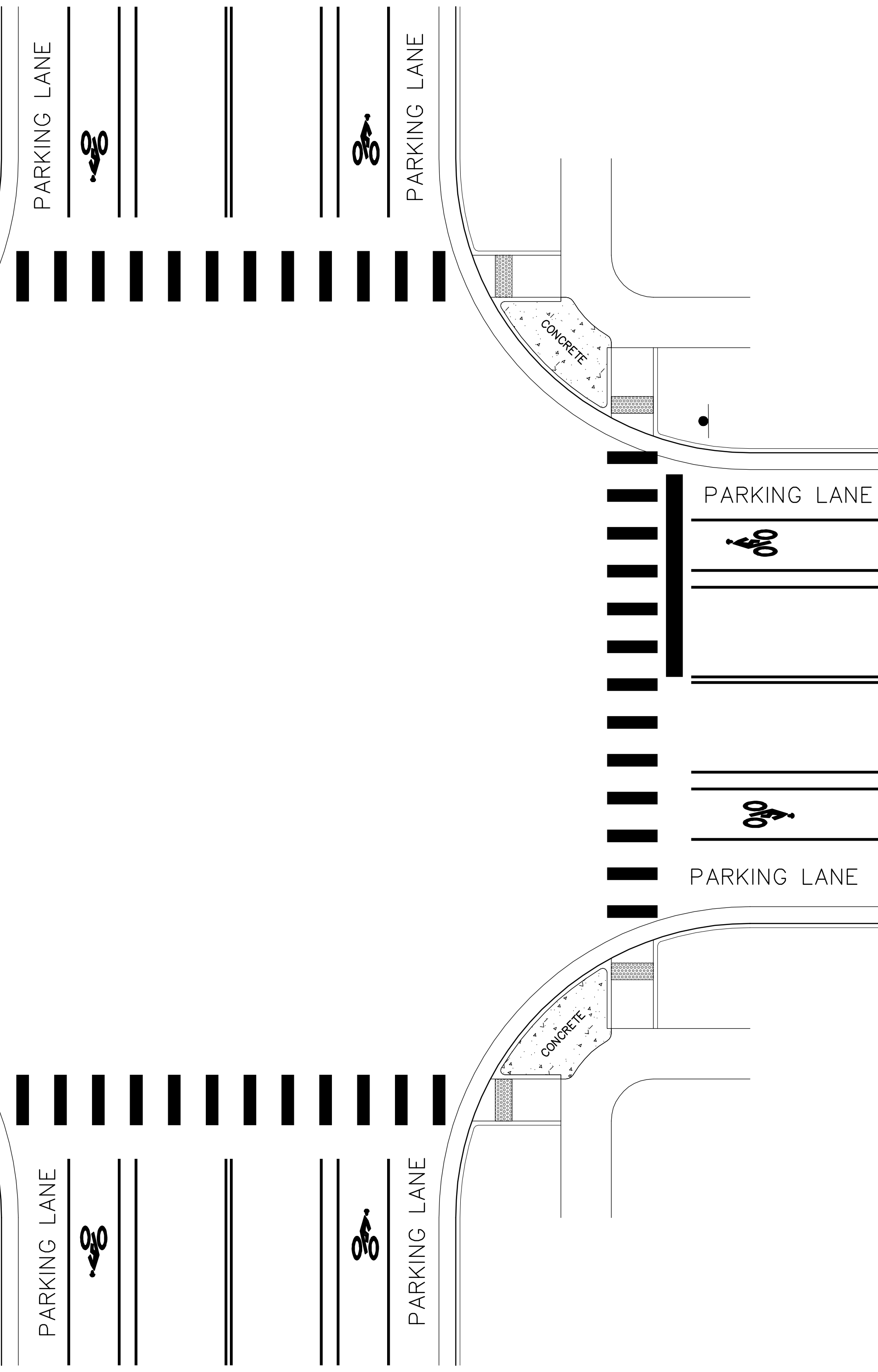
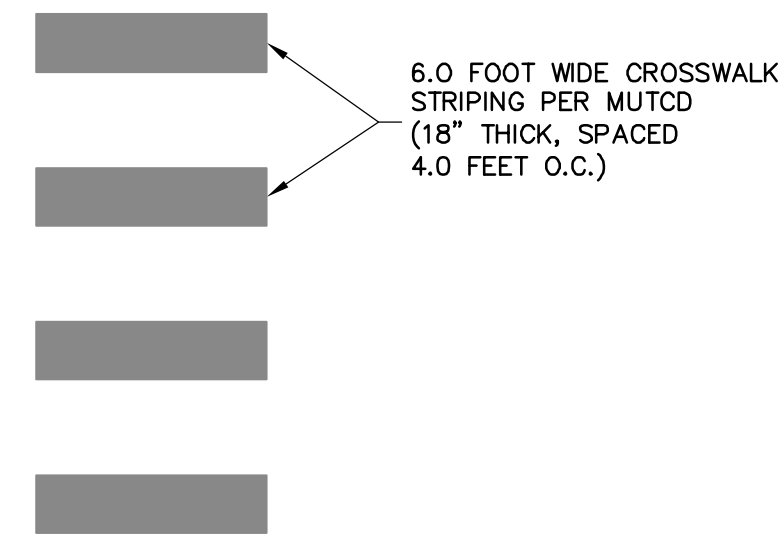
DETAIL A - BIKE LANE STRIPING

SCALE: 1"=5'



DETAIL B - CROSSWALK STRIPING

SCALE: 1"=5'



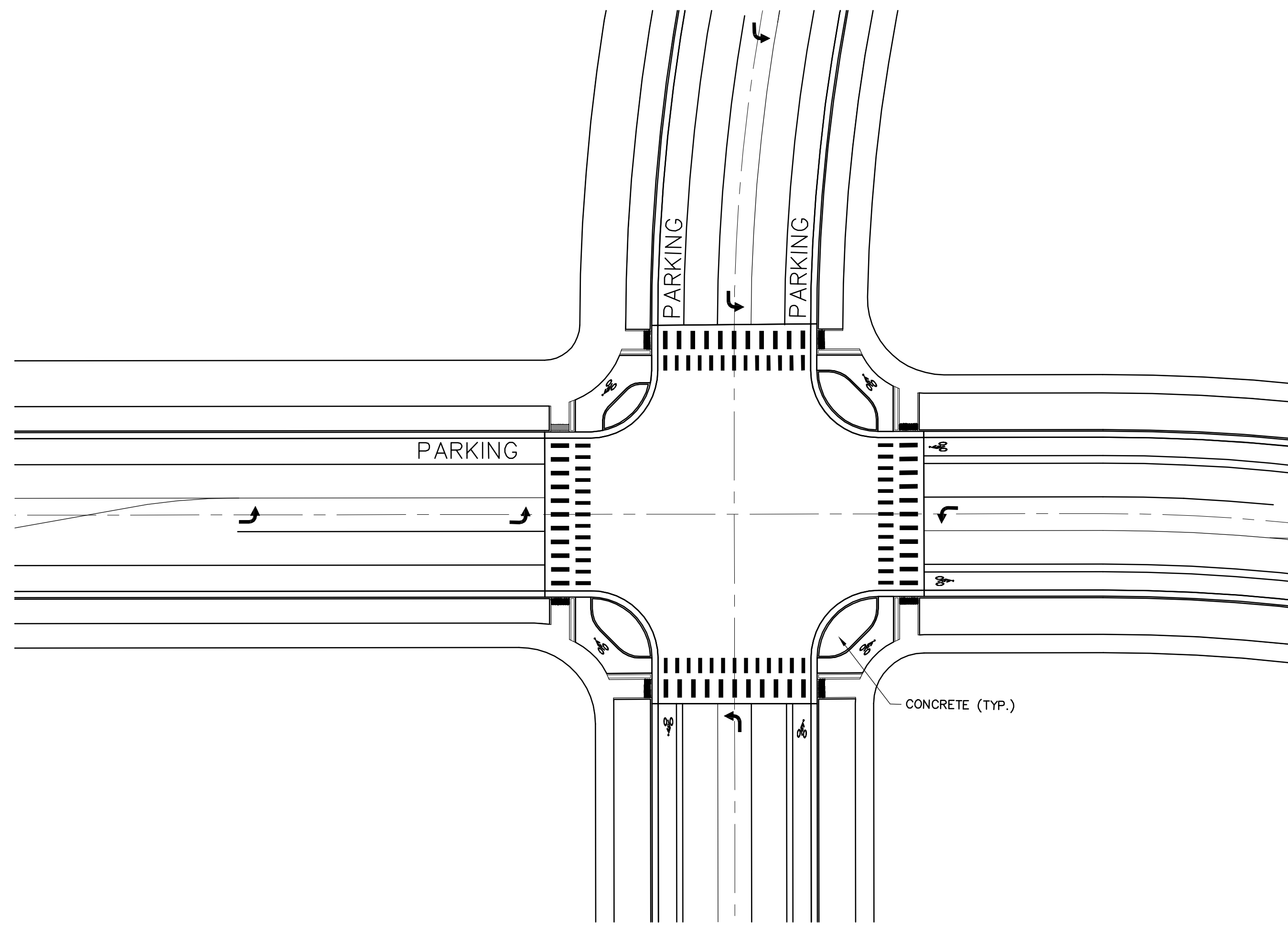
DETAIL C - CONTINENTAL CROSSWALK

SCALE: 1"=10'

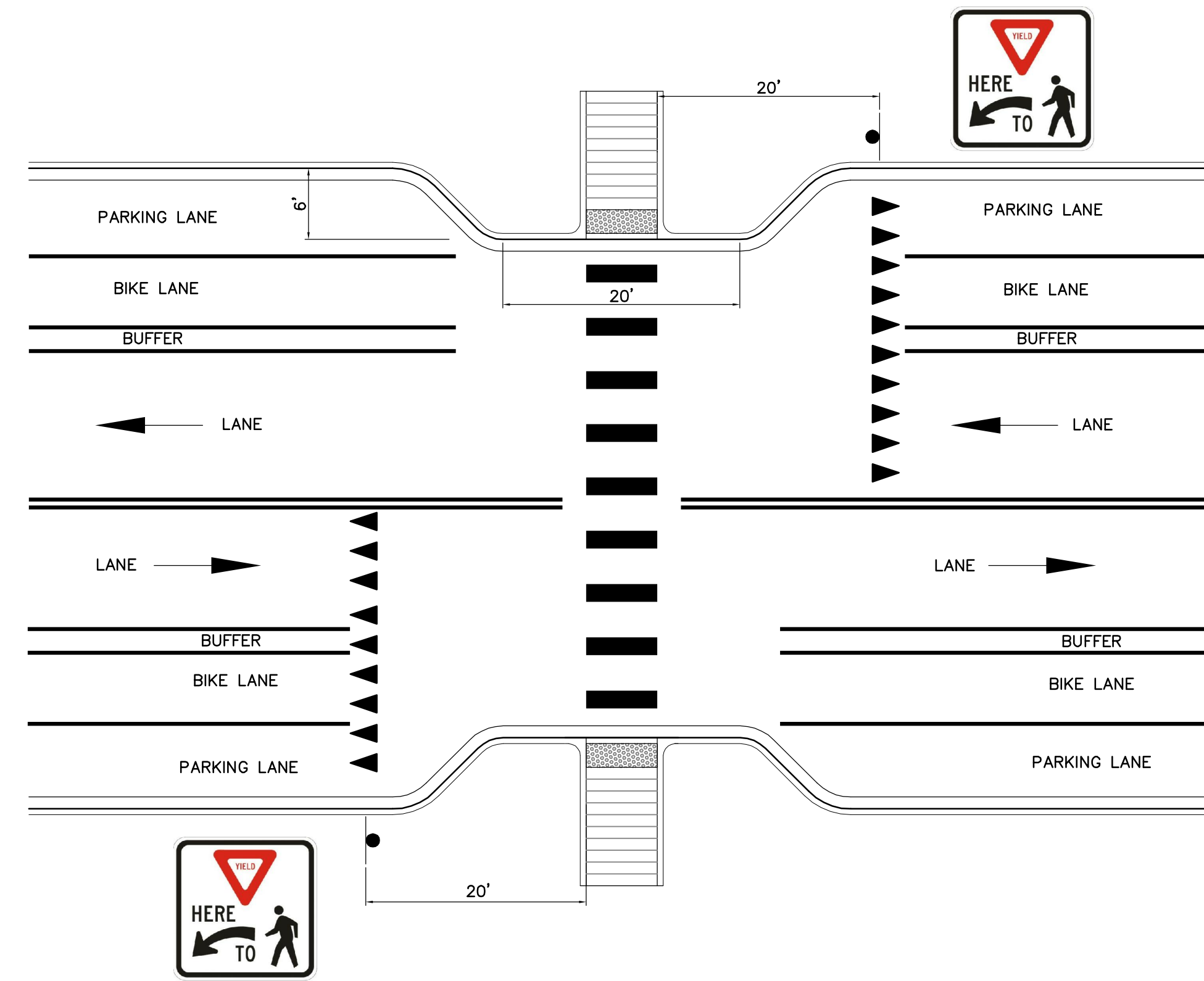
BICYCLE AND PEDESTRIAN
 DETAILS
 RIDGEGATE SOUTHWEST VILLAGE
 JOB NO. 15950.00
 7/13/2020
 SHEET 1 OF 1



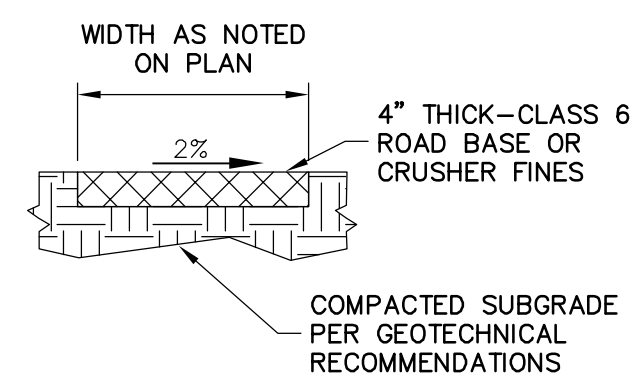
Centennial 303-740-9393 • Colorado Springs 719-593-2593
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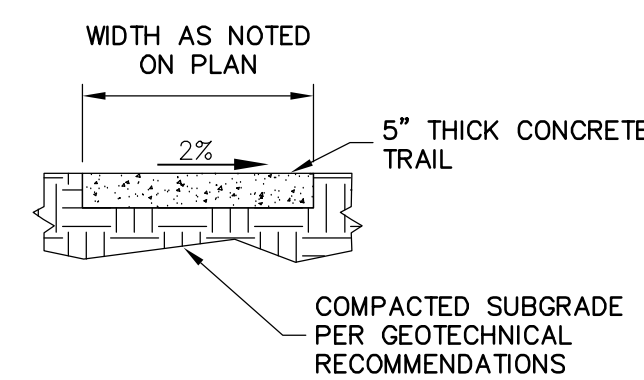
DETAIL D - PROTECTED INTERSECTION CONCEPT
SCALE: 1"=30'



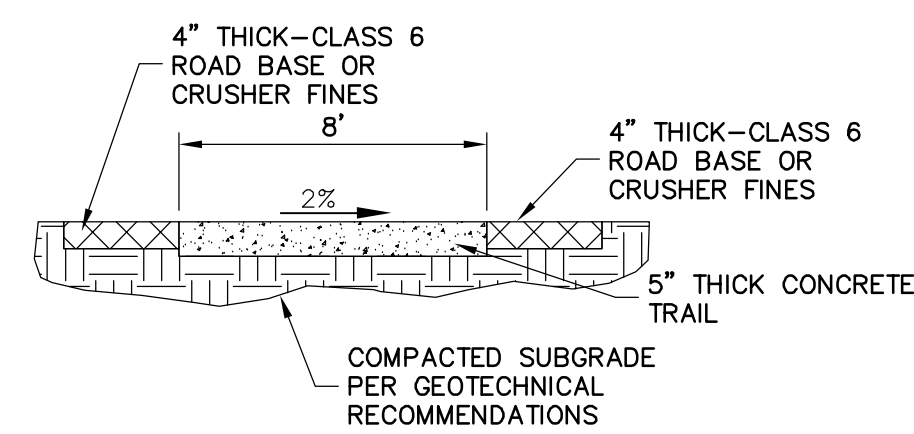
DETAIL H - ENHANCED PEDESTRIAN CROSSING WITH BULB-OUT CURB
SCALE: 1"=10'



DETAIL E - 6-FOOT OR 8-FOOT WIDE SOFT SURFACE TRAIL
NTS



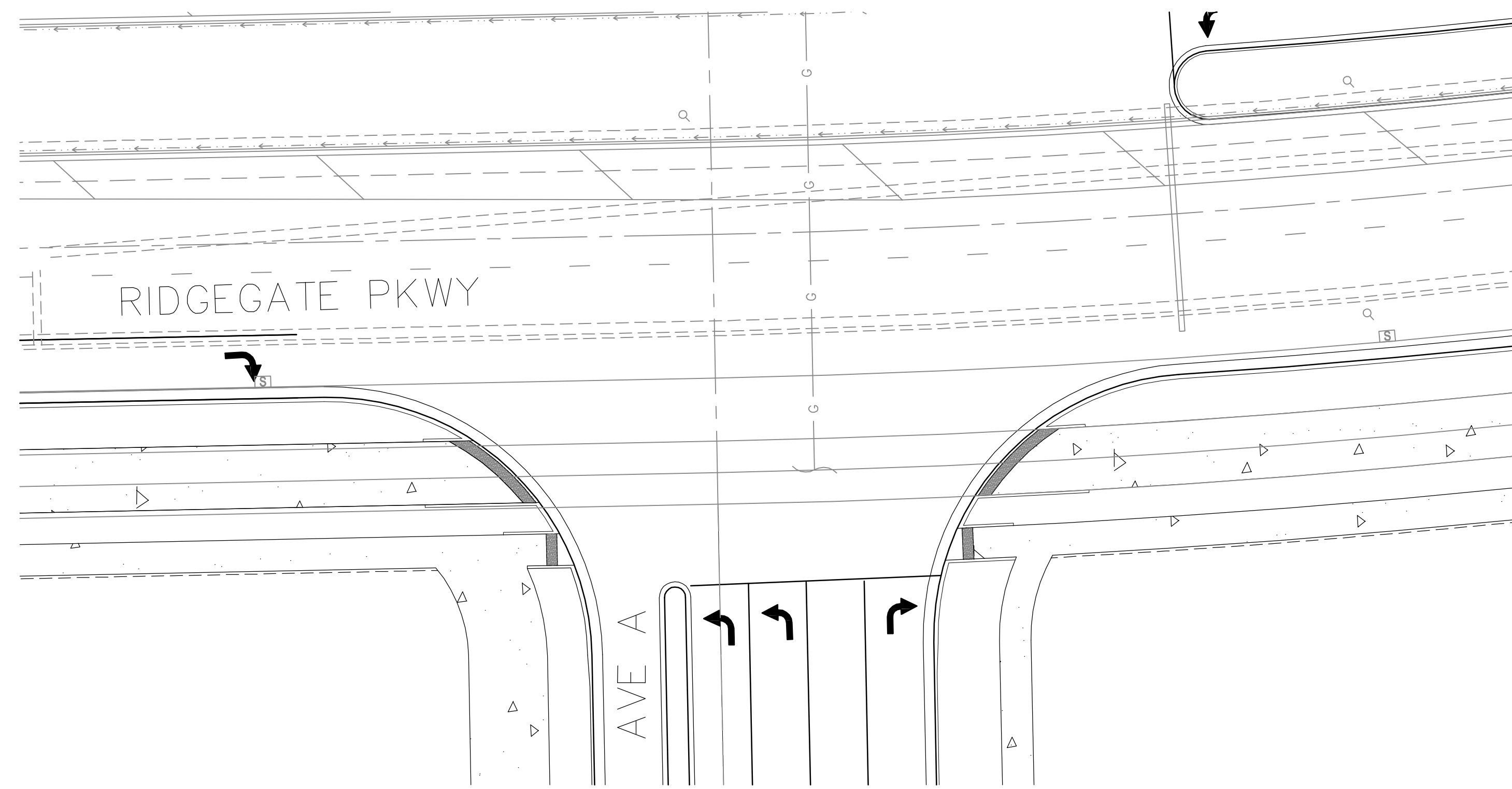
DETAIL F - 6-FOOT OR 8-FOOT WIDE CONCRETE SURFACE TRAIL
NTS



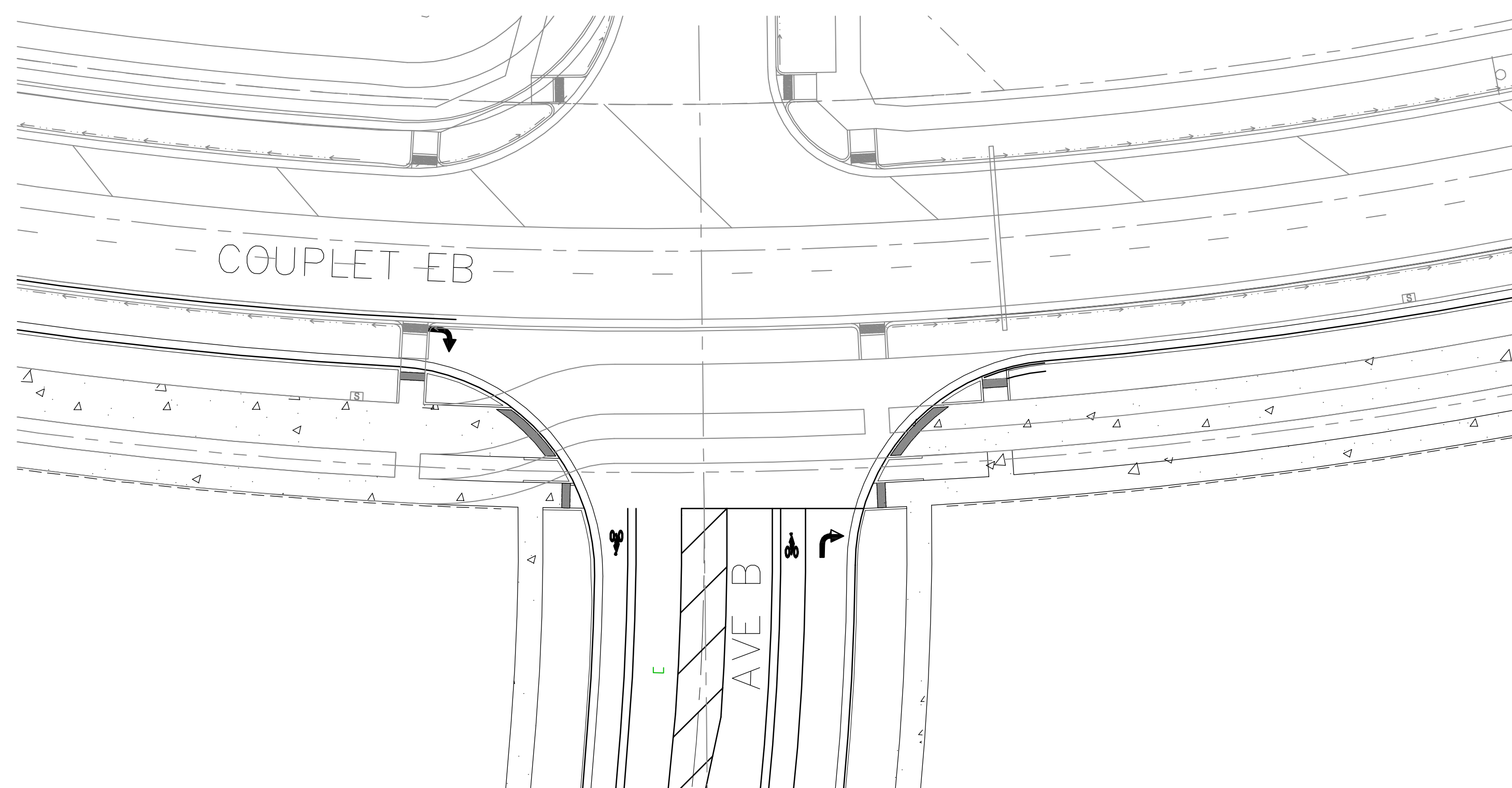
DETAIL G - 8-FOOT WIDE CONCRETE SURFACE TRAIL WITH 3' SOFT SHOULDER
NTS

NOTE: ALL INTERSECTIONS WHERE A GRAVEL OR SOFT SURFACE TRAIL INTERSECTS A ROAD, A 10 FT MINIMUM CONCRETE TRANSITION WILL BE INSTALLED BETWEEN THE ROAD AND THE GRAVEL OR SOFT SURFACE TRAIL

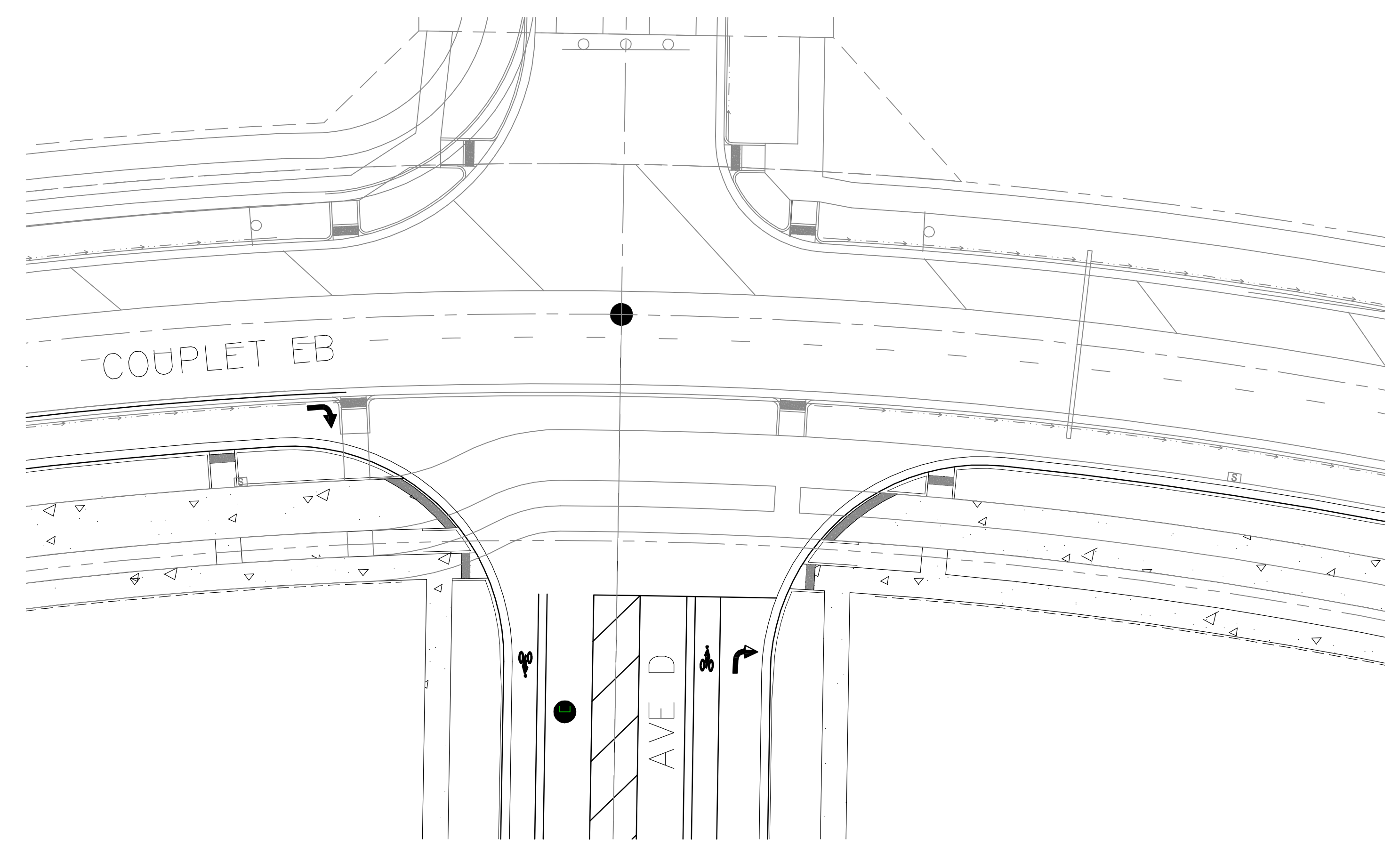
BICYCLE AND PEDESTRIAN DETAILS
RIDGEGATE SOUTHWEST VILLAGE
JOB NO. 15950.00
7/13/2020
SHEET 1 OF 1



RIDGEGATE PKWY & AVENUE A
PEDESTRIAN/BIKE TREATMENT



COUplet EB & AVENUE B
PEDESTRIAN/BIKE TREATMENT



COUplet EB & AVENUE D
PEDESTRIAN/BIKE TREATMENT

FIGURE 24 – BIKE AND
PEDESTRIAN DETAILS
RIDGEGATE SOUTHWEST VILLAGE
JOB NO. 15950.00
PAGE 44
SHEET 3 OF 3

Section 4: Conclusion

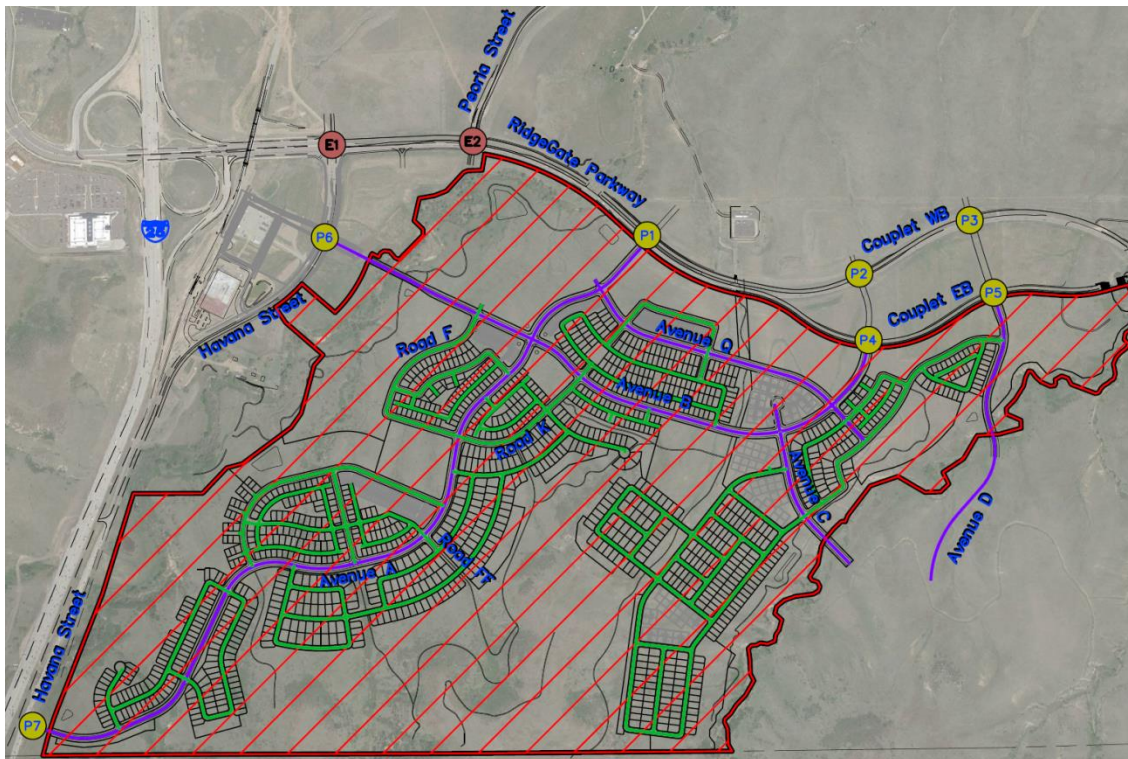
Based on the analyses presented herein, the following conclusions and recommendations are made with respect to the proposed RidgeGate Southwest Village development.

Based on peak hour volumes, traffic signals are warranted in 2026 at the following intersections:

- P1 – RidgeGate Parkway & Avenue A
- P2 – RidgeGate Couplet Westbound & Link One
- P4 – RidgeGate Couplet Eastbound & Link One
- P6 – Havana Street & Avenue B

Based on being planned signals, level of service, and consistency along the RidgeGate Parkway couplet, traffic signals are anticipated in 2026 at the following intersections:

- P3 – RidgeGate Couplet Westbound & Avenue D
- P5 – RidgeGate Couplet Eastbound & Avenue D



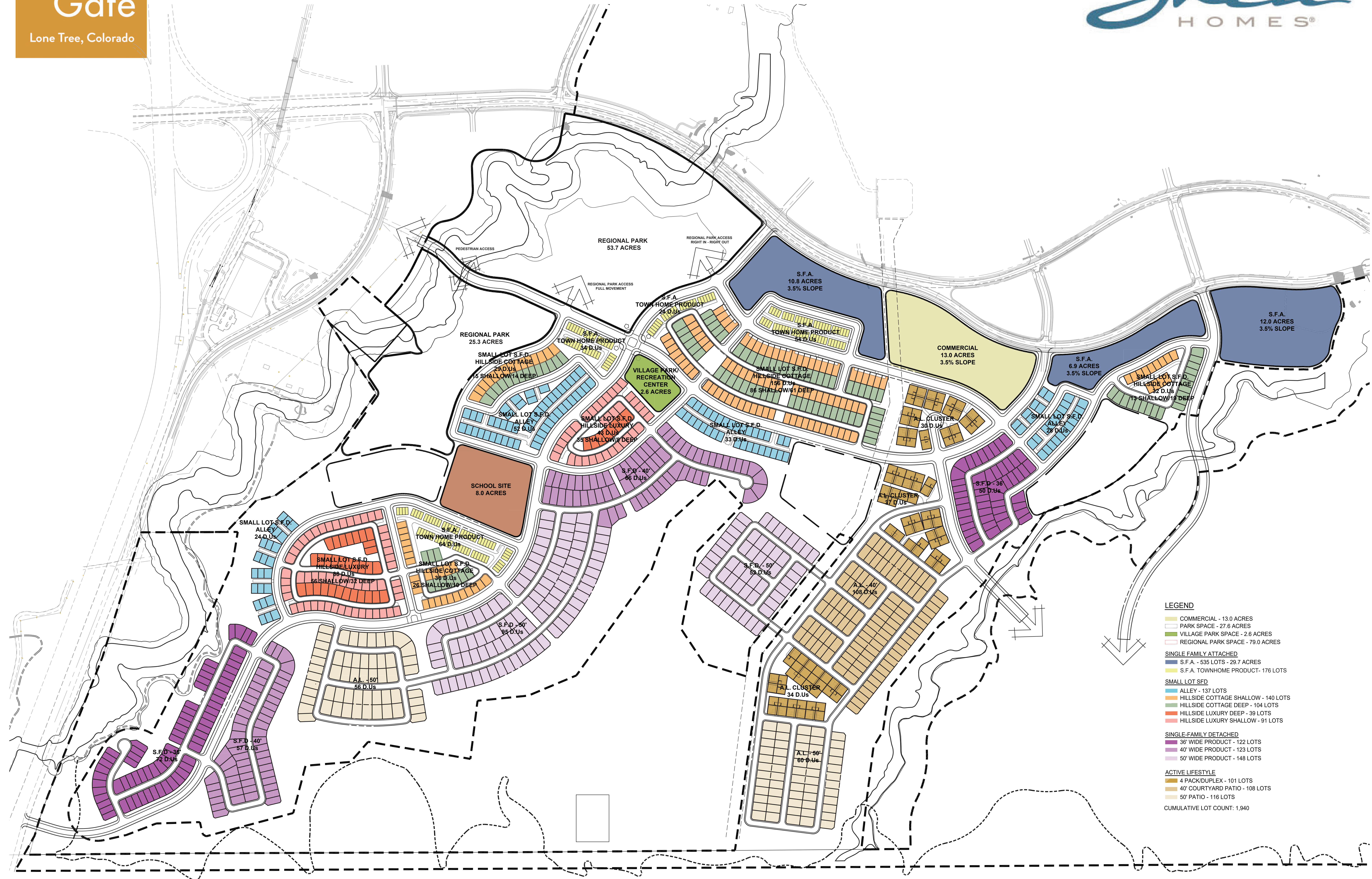
It was found that the majority of the internal intersections do not require traffic signals based on the peak hour volumes. Currently, a traffic signal is also proposed at I1 – Avenue B & Road F and I2 – Avenue A & Avenue B, since it is the intersection of the primary collectors within the site. However, further analysis must be conducted as part of the final study to determine if other warrants dictate the need for signals within the site.

Provisions for pedestrians and bicyclists were provided throughout the site. Sidewalks and on-street bike lanes were provided on all collector roads within the site. At the

intersection of Avenue A and Avenue B, a protected intersection configuration is proposed for enhanced intersection safety. Bike lanes are provided for connectivity to the cycle track currently being constructed on RidgeGate Parkway. There is also a trail proposed throughout the site.

RidgeGate Parkway in the future Year 2040 is expected to have large volumes of traffic due to regional growth. For example, this arterial is expected to draw traffic off of Lincoln Avenue and E-470 as an alternate route. Levels of service for the RidgeGate Parkway corridor will need to be considered in future developments or city studies.

Appendix D
RidgeGate Southwest Village Site Plan



- LEGEND**
- COMMERCIAL - 13.0 ACRES
 - PARK SPACE - 27.6 ACRES
 - VILLAGE PARK SPACE - 2.6 ACRES
 - REGIONAL PARK SPACE - 79.0 ACRES
- SINGLE FAMILY ATTACHED**
- S.F.A. - 535 LOTS - 29.7 ACRES
 - S.F.A. TOWNHOME PRODUCT - 176 LOTS
- SMALL LOT SFD**
- ALLEY - 137 LOTS
 - HILLSIDE COTTAGE SHALLOW - 140 LOTS
 - HILLSIDE COTTAGE DEEP - 104 LOTS
 - HILLSIDE LUXURY DEEP - 39 LOTS
 - HILLSIDE LUXURY SHALLOW - 91 LOTS
- SINGLE-FAMILY DETACHED**
- 36' WIDE PRODUCT - 122 LOTS
 - 40' WIDE PRODUCT - 123 LOTS
 - 50' WIDE PRODUCT - 148 LOTS
- ACTIVE LIFESTYLE**
- 4 PACK/DUPLEX - 101 LOTS
 - 40' COURTYARD PATIO - 108 LOTS
 - 50' PATIO - 116 LOTS
- CUMULATIVE LOT COUNT: 1,940

Appendix A Traffic Counts



(303) 216-2439
www.alltrafficdata.net

Location: 1 HAVANA ST & RIDGEGATE PKWY AM

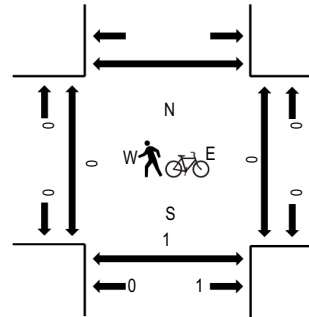
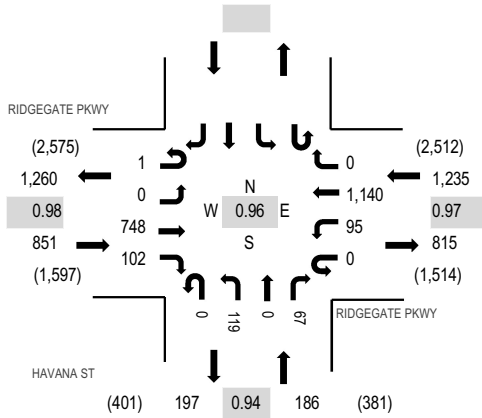
Date: Wednesday, September 18, 2019

Peak Hour: 07:00 AM - 08:00 AM

Peak 15-Minutes: 07:00 AM - 07:15 AM

Peak Hour - All Vehicles

Peak Hour - Pedestrians/Bicycles on Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	RIDGEGATE PKWY Eastbound				RIDGEGATE PKWY Westbound				HAVANA ST Northbound				Southbound				Total	Rolling Hour	Pedestrian Crossings						
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North			
7:00 AM	0	0	185	33	0	30	293	0	0	30	0	18	0	0	0	0	0	0	0	0	589	2,272	0	0	0
7:15 AM	0	0	185	26	0	26	280	0	0	24	0	20	0	0	0	0	0	0	0	0	561	2,257	0	0	0
7:30 AM	0	0	188	26	0	15	283	0	0	28	0	17	0	0	0	0	0	0	0	0	557	2,239	0	0	0
7:45 AM	1	0	190	17	0	24	284	0	0	37	0	12	0	0	0	0	0	0	0	0	565	2,247	0	0	0
8:00 AM	0	0	166	26	0	29	300	0	0	38	0	15	0	0	0	0	0	0	0	0	574	2,218	0	0	0
8:15 AM	0	0	151	27	0	25	291	0	0	27	0	22	0	0	0	0	0	0	0	0	543		0	0	0
8:30 AM	0	0	161	39	0	24	293	0	0	28	0	20	0	0	0	0	0	0	0	0	565		0	0	0
8:45 AM	1	0	153	22	0	12	303	0	0	34	0	11	0	0	0	0	0	0	0	0	536		0	0	0
Count Total	2	0	1,379	216	0	185	2,327	0	0	246	0	135	0	0	0	0	0	0	0	0	4,490		0	0	0
Peak Hour	1	0	748	102	0	95	1,140	0	0	119	0	67	0	0	0	0	0	0	0	0	2,272		0	0	0



(303) 216-2439
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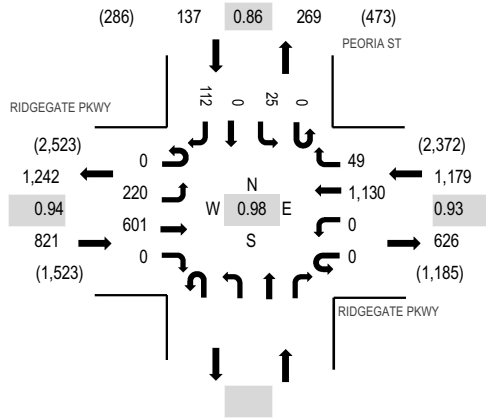
Location: 2 PEORIA ST & RIDGEGATE PKWY AM

Date: Wednesday, September 18, 2019

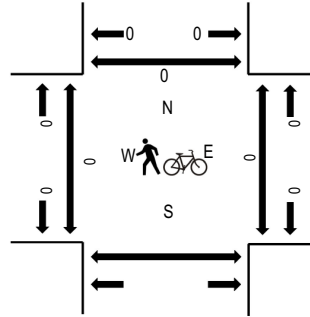
Peak Hour: 07:00 AM - 08:00 AM

Peak 15-Minutes: 07:15 AM - 07:30 AM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles on Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	RIDGEGATE PKWY Eastbound				RIDGEGATE PKWY Westbound				Northbound			PEORIA ST Southbound			Total	Rolling Hour	Pedestrian Crossings				
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left			Thru	Right	West	East	South
7:00 AM	0	33	155	0	0	0	305	10				0	5	0	21	529	2,137	0	0	0	0
7:15 AM	0	56	162	0	0	0	283	15				0	6	0	25	547	2,135	0	0	0	0
7:30 AM	0	65	139	0	0	0	276	14				0	5	0	27	526	2,089	0	0	0	0
7:45 AM	0	66	145	0	0	0	266	10				0	9	0	39	535	2,092	0	0	0	0
8:00 AM	0	46	135	0	0	0	294	7				0	4	0	41	527	2,044	0	0	0	0
8:15 AM	0	59	121	0	0	0	273	8				0	5	0	35	501		0	0	0	0
8:30 AM	0	31	146	0	0	0	305	17				0	8	0	22	529		0	0	0	0
8:45 AM	0	29	135	0	0	0	282	7				0	5	0	29	487		0	0	0	0
Count Total	0	385	1,138	0	0	0	2,284	88				0	47	0	239	4,181		0	0	0	0
Peak Hour	0	220	601	0	0	0	1,130	49				0	25	0	112	2,137		0	0	0	0



(303) 216-2439
www.alltrafficdata.net

Location: 1 HAVANA ST & RIDGEGATE PKWY PM

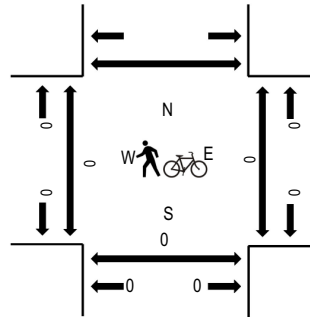
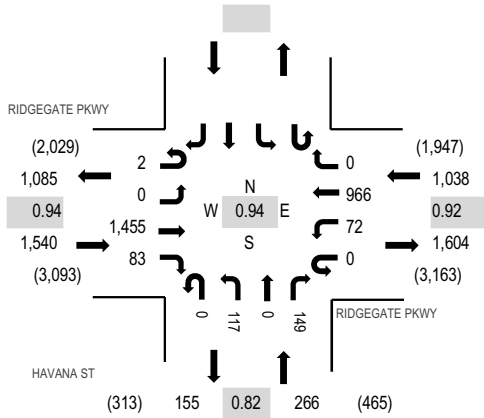
Date: Wednesday, September 18, 2019

Peak Hour: 04:45 PM - 05:45 PM

Peak 15-Minutes: 04:45 PM - 05:00 PM

Peak Hour - All Vehicles

Peak Hour - Pedestrians/Bicycles on Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	RIDGEGATE PKWY Eastbound				RIDGEGATE PKWY Westbound				HAVANA ST Northbound				Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	0	359	22	0	16	199	0	0	9	0	11	0	0	0	0	616	2,744	0	0	0	
4:15 PM	0	0	404	17	0	15	217	0	0	23	0	26	0	0	0	0	702	2,816	0	0	0	
4:30 PM	2	0	355	28	0	17	201	0	0	36	0	34	0	0	0	0	673	2,833	0	0	0	
4:45 PM	0	0	374	18	0	24	252	0	0	35	0	50	0	0	0	0	753	2,844	0	0	0	
5:00 PM	0	0	362	22	0	14	226	0	0	27	0	37	0	0	0	0	688	2,761	0	0	0	
5:15 PM	1	0	350	25	0	15	267	0	0	27	0	34	0	0	0	0	719		0	0	0	
5:30 PM	1	0	369	18	0	19	221	0	0	28	0	28	0	0	0	0	684		0	0	0	
5:45 PM	0	0	337	29	0	14	230	0	0	27	0	33	0	0	0	0	670		0	0	0	
Count Total	4	0	2,910	179	0	134	1,813	0	0	212	0	253	0	0	0	0	5,505		0	0	0	
Peak Hour	2	0	1,455	83	0	72	966	0	0	117	0	149	0	0	0	0	2,844		0	0	0	



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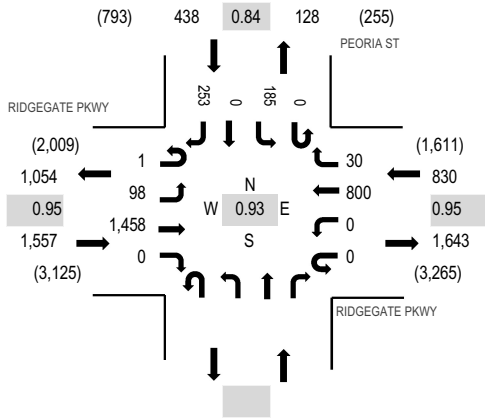
Location: 2 PEORIA ST & RIDGEGATE PKWY PM

Date: Wednesday, September 18, 2019

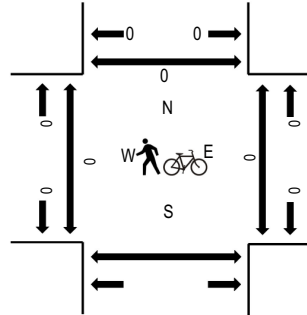
Peak Hour: 04:45 PM - 05:45 PM

Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles on Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	RIDGEGATE PKWY Eastbound				RIDGEGATE PKWY Westbound				Northbound			PEORIA ST Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru			Right	West	East	South
4:00 PM	0	17	359	0	0	0	207	10				0	31	0	52	676	2,736	0	0	0	
4:15 PM	0	22	375	0	0	0	211	11				0	39	0	50	708	2,724	0	0	0	
4:30 PM	0	27	366	0	0	0	160	6				0	49	0	58	666	2,774	0	0	0	
4:45 PM	1	24	364	0	0	0	189	7				0	31	0	70	686	2,825	0	0	0	
5:00 PM	0	13	339	0	0	0	199	3				0	51	0	59	664	2,793	0	0	0	
5:15 PM	0	29	376	0	0	0	211	8				0	57	0	77	758		0	0	0	
5:30 PM	0	32	379	0	0	0	201	12				0	46	0	47	717		0	0	0	
5:45 PM	0	30	372	0	0	0	172	4				0	31	0	45	654		0	0	0	
Count Total	1	194	2,930	0	0	0	1,550	61				0	335	0	458	5,529		0	0	0	
Peak Hour	1	98	1,458	0	0	0	800	30				0	185	0	253	2,825		0	0	0	

All Traffic Data Services
Wheat Ridge, CO 80033

Site Code: 3
Station ID: 3
RIDGEGATE PKWY E.O. HAVANA ST

EB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
09/18/19	0	94	4	0	0	0	0	0	0	0	0	0	0	98
01:00	0	44	0	0	1	0	0	0	1	0	0	0	0	46
02:00	0	32	2	0	0	0	0	0	0	0	0	0	0	34
03:00	0	23	0	0	0	0	0	0	0	0	0	0	0	23
04:00	0	47	6	0	0	1	0	0	0	1	0	0	0	55
05:00	0	181	10	1	0	1	0	0	3	1	0	0	0	197
06:00	1	455	58	1	0	7	4	5	1	0	0	3	0	535
07:00	1	692	71	1	4	11	4	8	6	9	0	5	0	812
08:00	1	583	77	3	3	3	3	5	5	5	0	0	0	688
09:00	1	524	64	0	2	5	0	8	7	4	0	1	0	616
10:00	0	544	55	0	2	11	2	4	7	4	0	1	1	631
11:00	2	506	59	2	14	13	0	2	4	2	0	0	0	604
12 PM	3	520	74	3	2	6	0	6	8	2	0	1	2	627
13:00	2	617	93	2	11	19	2	8	6	9	0	6	4	779
14:00	2	728	115	6	6	11	5	5	7	2	0	4	2	893
15:00	4	899	136	0	4	15	10	4	2	7	0	8	4	1093
16:00	12	1419	313	30	9	12	9	18	9	18	3	9	9	1870
17:00	9	1027	200	15	3	9	0	6	6	9	0	3	0	1287
18:00	0	740	100	4	2	3	5	6	1	15	0	5	1	882
19:00	0	774	90	0	0	1	2	5	1	8	0	3	1	885
20:00	0	593	63	1	0	2	2	5	0	3	0	3	0	672
21:00	1	480	36	0	0	0	1	1	0	1	0	1	0	521
22:00	0	278	9	1	0	0	0	1	0	0	0	0	0	289
23:00	0	147	2	0	0	0	0	0	0	0	0	0	0	149
Day Total	39	11947	1637	70	63	130	49	97	74	100	3	53	24	14286
Percent	0.3%	83.6%	11.5%	0.5%	0.4%	0.9%	0.3%	0.7%	0.5%	0.7%	0.0%	0.4%	0.2%	
AM Peak	11:00	07:00	08:00	08:00	11:00	11:00	06:00	07:00	09:00	07:00		07:00	10:00	07:00
Vol.	2	692	77	3	14	13	4	8	7	9		5	1	812
PM Peak	16:00	16:00	16:00	16:00	13:00	13:00	15:00	16:00	16:00	16:00	16:00	16:00	16:00	16:00
Vol.	12	1419	313	30	11	19	10	18	9	18	3	9	9	1870
Grand Total	39	11947	1637	70	63	130	49	97	74	100	3	53	24	14286
Percent	0.3%	83.6%	11.5%	0.5%	0.4%	0.9%	0.3%	0.7%	0.5%	0.7%	0.0%	0.4%	0.2%	

All Traffic Data Services
Wheat Ridge, CO 80033

Site Code: 3
Station ID: 3
RIDGEGATE PKWY E.O. HAVANA ST

WB														
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
09/18/19	0	27	1	0	0	0	0	0	0	1	0	0	0	29
01:00	0	18	1	0	0	0	0	0	0	0	0	0	0	19
02:00	0	12	0	0	0	0	0	0	1	0	0	0	0	13
03:00	0	41	1	0	0	0	0	0	0	0	0	0	0	42
04:00	0	183	33	0	0	0	0	0	1	0	0	0	0	217
05:00	1	611	62	1	1	2	0	1	1	0	0	0	0	680
06:00	2	986	71	1	0	5	2	5	1	3	0	0	1	1077
07:00	2	1147	59	0	1	0	2	3	4	0	0	0	0	1218
08:00	2	1149	78	8	10	3	1	1	0	2	0	2	0	1256
09:00	0	842	67	1	6	3	1	2	10	1	0	0	0	933
10:00	0	740	57	1	6	6	0	2	4	1	0	0	0	817
11:00	0	557	55	1	5	3	1	2	1	2	0	0	0	627
12 PM	0	500	28	0	11	4	0	0	2	0	0	0	2	547
13:00	0	514	44	0	8	6	0	2	0	0	0	0	0	574
14:00	0	689	78	0	14	7	3	0	4	3	0	0	0	798
15:00	0	866	66	0	9	6	3	3	0	0	0	0	0	953
16:00	8	941	70	0	11	0	0	0	0	0	0	0	0	1030
17:00	4	909	53	0	0	4	0	0	0	0	0	0	0	970
18:00	0	512	30	0	0	0	0	0	0	0	0	0	0	542
19:00	0	408	23	0	0	2	0	0	0	0	0	0	0	433
20:00	0	278	10	0	3	0	0	0	0	0	0	0	0	291
21:00	0	181	13	0	2	0	0	1	0	0	0	0	0	197
22:00	0	97	4	1	1	0	0	0	0	0	0	0	0	103
23:00	0	36	1	0	0	0	0	0	0	0	0	0	0	37
Day Total	19	12244	905	14	88	51	13	22	29	13	0	2	3	13403
Percent	0.1%	91.4%	6.8%	0.1%	0.7%	0.4%	0.1%	0.2%	0.2%	0.1%	0.0%	0.0%	0.0%	
AM Peak	06:00	08:00	08:00	08:00	08:00	10:00	06:00	06:00	09:00	06:00		08:00	06:00	08:00
Vol.	2	1149	78	8	10	6	2	5	10	3		2	1	1256
PM Peak	16:00	16:00	14:00	22:00	14:00	14:00	14:00	15:00	14:00	14:00			12:00	16:00
Vol.	8	941	78	1	14	7	3	3	4	3			2	1030
Grand Total	19	12244	905	14	88	51	13	22	29	13	0	2	3	13403
Percent	0.1%	91.4%	6.8%	0.1%	0.7%	0.4%	0.1%	0.2%	0.2%	0.1%	0.0%	0.0%	0.0%	

All Traffic Data Services
Wheat Ridge, CO 80033

Site Code: 4
Station ID: 4
HAVANA ST S.O. RIDGEGATE PKWY

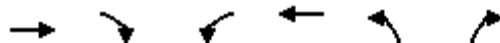
NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
09/18/19	0	8	1	0	1	0	0	0	0	0	0	0	0	10
01:00	0	5	4	0	0	0	0	0	0	0	0	0	0	9
02:00	0	2	2	0	0	0	0	0	0	0	0	0	0	4
03:00	0	0	2	0	0	0	0	1	0	0	0	0	0	3
04:00	0	24	2	0	0	0	0	0	0	0	0	0	0	26
05:00	1	74	11	0	0	0	0	0	0	0	0	0	0	86
06:00	2	222	18	0	2	0	0	0	0	0	0	0	0	244
07:00	2	174	18	0	0	3	0	0	0	0	0	0	0	197
08:00	1	173	21	0	3	0	0	0	0	0	0	0	0	198
09:00	1	199	34	0	6	2	0	0	3	0	0	0	0	245
10:00	3	106	28	0	0	0	0	0	0	0	0	0	0	137
11:00	4	89	10	0	2	0	0	0	0	0	0	0	0	105
12 PM	1	70	13	0	1	1	0	2	0	0	0	0	0	88
13:00	0	59	18	0	3	1	0	1	0	0	0	0	0	82
14:00	0	75	13	0	1	0	0	1	0	0	0	0	0	90
15:00	2	74	7	0	0	1	0	1	0	0	0	0	0	85
16:00	6	198	24	0	1	1	0	0	0	0	0	0	0	230
17:00	2	196	26	0	2	0	0	0	0	0	0	0	0	226
18:00	0	105	8	0	1	0	0	0	0	0	0	0	0	114
19:00	0	75	8	0	2	0	0	0	0	0	0	0	0	85
20:00	0	41	7	0	0	0	0	0	0	0	0	0	0	48
21:00	0	29	1	0	1	0	0	0	0	0	0	0	0	31
22:00	0	9	2	0	0	0	0	0	0	0	0	0	0	11
23:00	0	1	1	0	0	0	0	0	0	0	0	0	0	2
Day Total	25	2008	279	0	26	9	0	6	3	0	0	0	0	2356
Percent	1.1%	85.2%	11.8%	0.0%	1.1%	0.4%	0.0%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	11:00	06:00	09:00		09:00	07:00		03:00	09:00					09:00
Vol.	4	222	34		6	3		1	3					245
PM Peak	16:00	16:00	17:00		13:00	12:00		12:00						16:00
Vol.	6	198	26		3	1		2						230
Grand Total	25	2008	279	0	26	9	0	6	3	0	0	0	0	2356
Percent	1.1%	85.2%	11.8%	0.0%	1.1%	0.4%	0.0%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	

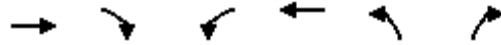
Appendix B
HCM 6th Edition Level of Service Reports

Lanes, Volumes, Timings
1: Havana St & RidgeGate Pkwy

JR Engineering
05/13/2020



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖	↑↑↑	↗↖	↗
Traffic Volume (vph)	1313	413	129	2065	625	113
Future Volume (vph)	1313	413	129	2065	625	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		200	200		200	0
Storage Lanes		1	1		2	1
Taper Length (ft)			25		25	
Lane Util. Factor	0.91	1.00	1.00	0.86	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	5085	1583	1770	6408	3433	1583
Flt Permitted			0.129		0.950	
Satd. Flow (perm)	5085	1583	240	6408	3433	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		464				136
Link Speed (mph)	45			45	35	
Link Distance (ft)	980			1333	842	
Travel Time (s)	14.8			20.2	16.4	
Peak Hour Factor	0.93	0.89	0.83	0.95	0.92	0.83
Adj. Flow (vph)	1412	464	155	2174	679	136
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1412	464	155	2174	679	136
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	1	1	1	1	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	40	40	40	40	40	40
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	40	40	40	40	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2	6			8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	24.0	24.0	10.0	24.0	24.0	24.0
Total Split (s)	42.0	42.0	15.0	57.0	33.0	33.0

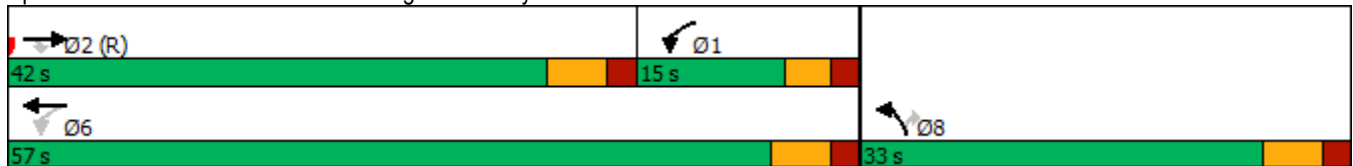


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Total Split (%)	46.7%	46.7%	16.7%	63.3%	36.7%	36.7%
Maximum Green (s)	36.0	36.0	10.0	51.0	27.0	27.0
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	5.0	6.0	6.0	6.0
Lead/Lag	Lead	Lead	Lag			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min	C-Min	None	Min	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	42.1	42.1	55.7	54.7	23.3	23.3
Actuated g/C Ratio	0.47	0.47	0.62	0.61	0.26	0.26
v/c Ratio	0.59	0.47	0.56	0.56	0.77	0.27
Control Delay	19.9	3.6	13.8	6.6	36.8	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.9	3.6	13.8	6.6	36.8	5.9
LOS	B	A	B	A	D	A
Approach Delay	15.9			7.1	31.6	
Approach LOS	B			A	C	

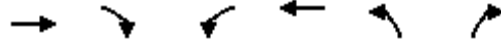
Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.77
 Intersection Signal Delay: 14.3
 Intersection Capacity Utilization 64.5%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service C

Splits and Phases: 1: Havana St & RidgeGate Pkwy



Queues
1: Havana St & RidgeGate Pkwy



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1412	464	155	2174	679	136
v/c Ratio	0.59	0.47	0.56	0.56	0.77	0.27
Control Delay	19.9	3.6	13.8	6.6	36.8	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.9	3.6	13.8	6.6	36.8	5.9
Queue Length 50th (ft)	208	0	20	93	182	0
Queue Length 95th (ft)	291	54	m17	66	231	32
Internal Link Dist (ft)	900			1253	762	
Turn Bay Length (ft)		200	200		200	
Base Capacity (vph)	2381	987	324	3897	1029	570
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.47	0.48	0.56	0.66	0.24

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
 1: Havana St & RidgeGate Pkwy



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖	↑↑↑	↖	↗
Traffic Volume (veh/h)	1313	413	129	2065	625	113
Future Volume (veh/h)	1313	413	129	2065	625	113
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1412	464	155	2174	679	136
Peak Hour Factor	0.93	0.89	0.83	0.95	0.92	0.83
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1813	563	473	4058	815	374
Arrive On Green	0.36	0.36	0.21	0.63	0.24	0.24
Sat Flow, veh/h	5274	1585	1781	6696	3456	1585
Grp Volume(v), veh/h	1412	464	155	2174	679	136
Grp Sat Flow(s),veh/h/ln	1702	1585	1781	1609	1728	1585
Q Serve(g_s), s	22.2	24.0	1.2	17.0	16.8	6.5
Cycle Q Clear(g_c), s	22.2	24.0	1.2	17.0	16.8	6.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1813	563	473	4058	815	374
V/C Ratio(X)	0.78	0.82	0.33	0.54	0.83	0.36
Avail Cap(c_a), veh/h	2042	634	473	4058	1037	476
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.48	0.48	0.85	0.85
Uniform Delay (d), s/veh	25.9	26.5	27.7	9.3	32.7	28.7
Incr Delay (d2), s/veh	3.4	12.9	0.2	0.1	4.1	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.7	10.3	2.5	4.7	7.2	2.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	29.2	39.4	27.9	9.3	36.8	29.2
LnGrp LOS	C	D	C	A	D	C
Approach Vol, veh/h	1876			2329	815	
Approach Delay, s/veh	31.7			10.6	35.5	
Approach LOS	C			B	D	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	24.8	38.0			62.8	27.2
Change Period (Y+Rc), s	6.0	* 6			6.0	6.0
Max Green Setting (Gmax), s	10.0	* 36			51.0	27.0
Max Q Clear Time (g_c+I1), s	3.2	26.0			19.0	18.8
Green Ext Time (p_c), s	0.2	5.9			14.5	2.4

Intersection Summary

HCM 6th Ctrl Delay	22.5
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings
2: Peoria St & RidgeGate Pkwy

JR Engineering
05/13/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	284	946	177	121	1776	124	291	52	56	79	60	134
Future Volume (vph)	284	946	177	121	1776	124	291	52	56	79	60	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		300	300		150	200		200	150		150
Storage Lanes	1		1	1		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	1.00	1.00	0.97	1.00	1.00
Frt			0.850				0.850			0.850		0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	3433	1863	1583	3433	1863	1583
Flt Permitted	0.132			0.162			0.950			0.950		
Satd. Flow (perm)	246	5085	1583	302	5085	1583	3433	1863	1583	3433	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			206			170			230			170
Link Speed (mph)		45			45			30				35
Link Distance (ft)		1333			1893			1113				726
Travel Time (s)		20.2			28.7			25.3				14.1
Peak Hour Factor	0.88	0.92	0.86	0.83	0.94	0.83	0.88	0.78	0.78	0.80	0.79	0.84
Adj. Flow (vph)	323	1028	206	146	1889	149	331	67	72	99	76	160
Shared Lane Traffic (%)												
Lane Group Flow (vph)	323	1028	206	146	1889	149	331	67	72	99	76	160
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	40	40	40	40	40	40	40	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	40	40	40	40	40	40	40	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)								94				94
Detector 2 Size(ft)								6				6
Detector 2 Type								Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)								0.0				0.0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases	2		2	6		6			8			4

Lanes, Volumes, Timings
2: Peoria St & RidgeGate Pkwy

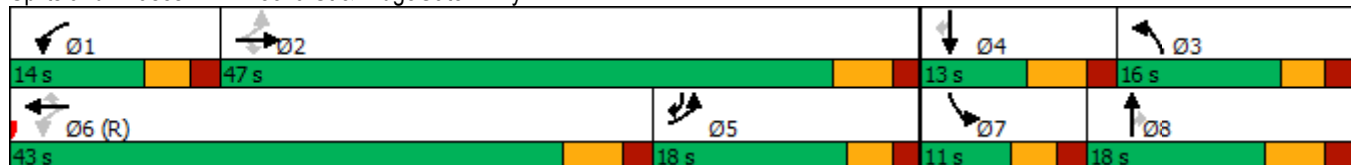


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	5
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	24.0	24.0	10.0	24.0	24.0	10.0	15.0	15.0	10.0	15.0	10.0
Total Split (s)	18.0	47.0	47.0	14.0	43.0	43.0	16.0	18.0	18.0	11.0	13.0	18.0
Total Split (%)	20.0%	52.2%	52.2%	15.6%	47.8%	47.8%	17.8%	20.0%	20.0%	12.2%	14.4%	20.0%
Maximum Green (s)	13.0	41.0	41.0	9.0	37.0	37.0	11.0	12.0	12.0	6.0	7.0	13.0
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Min	Min	None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0						
Flash Dont Walk (s)		11.0	11.0		11.0	11.0						
Pedestrian Calls (#/hr)		0	0		0	0						
Act Effct Green (s)	45.2	44.2	44.2	39.9	38.9	38.9	10.9	11.5	11.5	6.0	6.7	24.2
Actuated g/C Ratio	0.50	0.49	0.49	0.44	0.43	0.43	0.12	0.13	0.13	0.07	0.07	0.27
v/c Ratio	0.91	0.41	0.23	0.54	0.86	0.19	0.80	0.28	0.18	0.44	0.55	0.29
Control Delay	47.5	3.6	1.0	18.4	25.9	2.1	54.0	38.6	1.0	46.7	55.4	5.1
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	47.5	3.6	1.0	18.4	25.9	2.1	54.0	38.6	1.0	46.7	55.4	5.1
LOS	D	A	A	B	C	A	D	D	A	D	E	A
Approach Delay		12.4			23.8			43.7			28.8	
Approach LOS		B			C			D			C	

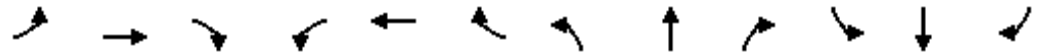
Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	89 (99%), Referenced to phase 6:WBTL, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.91
Intersection Signal Delay:	22.3
Intersection LOS:	C
Intersection Capacity Utilization:	79.2%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 2: Peoria St & RidgeGate Pkwy



Queues
2: Peoria St & RidgeGate Pkwy



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	323	1028	206	146	1889	149	331	67	72	99	76	160
v/c Ratio	0.91	0.41	0.23	0.54	0.86	0.19	0.80	0.28	0.18	0.44	0.55	0.29
Control Delay	47.5	3.6	1.0	18.4	25.9	2.1	54.0	38.6	1.0	46.7	55.4	5.1
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	47.5	3.6	1.0	18.4	25.9	2.1	54.0	38.6	1.0	46.7	55.4	5.1
Queue Length 50th (ft)	142	10	0	55	379	11	95	35	0	28	42	0
Queue Length 95th (ft)	#291	23	0	m56	#419	m11	#153	64	0	47	76	32
Internal Link Dist (ft)		1253			1813			1033			646	
Turn Bay Length (ft)	150		300	300		150	200		200	150		150
Base Capacity (vph)	356	2498	882	280	2200	781	419	248	410	228	144	549
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	0.91	0.41	0.23	0.52	0.86	0.19	0.79	0.27	0.18	0.43	0.53	0.29

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
2: Peoria St & RidgeGate Pkwy

JR Engineering
05/13/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	284	946	177	121	1776	124	291	52	56	79	60	134
Future Volume (veh/h)	284	946	177	121	1776	124	291	52	56	79	60	134
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	323	1028	206	146	1889	0	331	67	72	99	76	0
Peak Hour Factor	0.88	0.92	0.86	0.83	0.94	0.83	0.88	0.78	0.78	0.80	0.79	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	344	2451	761	333	2052		404	252	213	192	116	
Arrive On Green	0.29	0.96	0.96	0.08	0.40	0.00	0.12	0.13	0.13	0.06	0.06	0.00
Sat Flow, veh/h	1781	5106	1585	1781	5106	1585	3456	1870	1585	3456	1870	1585
Grp Volume(v), veh/h	323	1028	206	146	1889	0	331	67	72	99	76	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1781	1702	1585	1728	1870	1585	1728	1870	1585
Q Serve(g_s), s	11.3	1.2	0.3	5.1	31.6	0.0	8.4	2.9	3.7	2.5	3.6	0.0
Cycle Q Clear(g_c), s	11.3	1.2	0.3	5.1	31.6	0.0	8.4	2.9	3.7	2.5	3.6	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	344	2451	761	333	2052		404	252	213	192	116	
V/C Ratio(X)	0.94	0.42	0.27	0.44	0.92		0.82	0.27	0.34	0.52	0.65	
Avail Cap(c_a), veh/h	344	2451	761	373	2099		422	252	213	230	145	
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.80	0.80	0.80	0.62	0.62	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	29.9	1.0	0.2	19.6	25.6	0.0	38.8	35.0	35.3	41.3	41.2	0.0
Incr Delay (d2), s/veh	28.5	0.1	0.2	0.6	5.5	0.0	11.7	0.6	0.9	2.1	7.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	0.3	0.2	2.0	12.4	0.0	4.2	1.3	1.5	1.1	1.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.3	1.0	0.4	20.2	31.0	0.0	50.6	35.5	36.2	43.5	48.2	0.0
LnGrp LOS	E	A	A	C	C		D	D	D	D	D	
Approach Vol, veh/h		1557			2035	A		470			175	A
Approach Delay, s/veh		12.8			30.3			46.2			45.5	
Approach LOS		B			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	49.2	16.5	11.6	19.0	42.2	10.0	18.1				
Change Period (Y+Rc), s	5.0	6.0	6.0	* 6	6.0	* 6	5.0	6.0				
Max Green Setting (Gmax), s	9.0	41.0	11.0	* 7	13.0	* 37	6.0	12.0				
Max Q Clear Time (g_c+I1), s	7.1	3.2	10.4	5.6	13.3	33.6	4.5	5.7				
Green Ext Time (p_c), s	0.1	6.0	0.1	0.0	0.0	2.6	0.0	0.2				
















Intersection Summary

HCM 6th Ctrl Delay	26.3
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
11: Avenue A & RidgeGate Pkwy

						
Lane Group	NBL	NBR	SET	SER	NWL	NWT
Lane Configurations	 		 			 
Traffic Volume (vph)	175	98	979	111	53	1871
Future Volume (vph)	175	98	979	111	53	1871
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150	0		0	200	
Storage Lanes	2	1		1	2	
Taper Length (ft)	25				25	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.950				0.202	
Satd. Flow (perm)	3433	1583	3539	1583	376	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		120		134		
Link Speed (mph)	30		45			45
Link Distance (ft)	1079		1893			1290
Travel Time (s)	24.5		28.7			19.5
Peak Hour Factor	0.86	0.82	0.92	0.83	0.80	0.94
Adj. Flow (vph)	203	120	1064	134	66	1990
Shared Lane Traffic (%)						
Lane Group Flow (vph)	203	120	1064	134	66	1990
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	24		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (ft)	40	40	100	20	20	100
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	40	40	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	3		2		1	6
Permitted Phases		8		2	6	

Lanes, Volumes, Timings
11: Avenue A & RidgeGate Pkwy



Lane Group	NBL	NBR	SET	SER	NWL	NWT
Detector Phase	3	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.0	23.0	24.0	24.0	15.0	24.0
Total Split (s)	23.0	23.0	52.0	52.0	15.0	67.0
Total Split (%)	25.6%	25.6%	57.8%	57.8%	16.7%	74.4%
Maximum Green (s)	18.0	18.0	46.0	46.0	10.0	61.0
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	4.0
All-Red Time (s)	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
Total Lost Time (s)	5.0	5.0	6.0	6.0	5.0	6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	C-Min	None	C-Min
Walk Time (s)		7.0	7.0	7.0		7.0
Flash Dont Walk (s)		11.0	11.0	11.0		11.0
Pedestrian Calls (#/hr)		0	0	0		0
Act Effct Green (s)	11.2	11.2	55.8	55.8	68.8	67.8
Actuated g/C Ratio	0.12	0.12	0.62	0.62	0.76	0.75
v/c Ratio	0.48	0.40	0.48	0.13	0.15	0.75
Control Delay	40.3	11.1	6.0	0.9	2.1	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.3	11.1	6.0	0.9	2.1	4.7
LOS	D	B	A	A	A	A
Approach Delay	29.5		5.5			4.6
Approach LOS	C		A			A

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 60 (67%), Referenced to phase 2:SET and 6:NWTL, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay: 7.1
 Intersection LOS: A
 Intersection Capacity Utilization 65.9%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 11: Avenue A & RidgeGate Pkwy



Queues
11: Avenue A & RidgeGate Pkwy


















Lane Group	NBL	NBR	SET	SER	NWL	NWT
Lane Group Flow (vph)	203	120	1064	134	66	1990
v/c Ratio	0.48	0.40	0.48	0.13	0.15	0.75
Control Delay	40.3	11.1	6.0	0.9	2.1	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.3	11.1	6.0	0.9	2.1	4.7
Queue Length 50th (ft)	56	0	7	0	4	87
Queue Length 95th (ft)	83	37	350	3	m7	100
Internal Link Dist (ft)	999		1813			1210
Turn Bay Length (ft)	150				200	
Base Capacity (vph)	686	412	2194	1032	442	2666
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.29	0.48	0.13	0.15	0.75

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

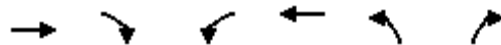
HCM 6th Signalized Intersection Summary
 11: Avenue A & RidgeGate Pkwy

JR Engineering
 05/13/2020

						
Movement	NBL	NBR	SET	SER	NWL	NWT
Lane Configurations	 		 			 
Traffic Volume (veh/h)	175	98	979	111	53	1871
Future Volume (veh/h)	175	98	979	111	53	1871
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	203	120	1064	134	66	1990
Peak Hour Factor	0.86	0.82	0.92	0.83	0.80	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	365	167	2228	994	458	2744
Arrive On Green	0.11	0.11	0.63	0.63	0.09	0.77
Sat Flow, veh/h	3456	1585	3647	1585	1781	3647
Grp Volume(v), veh/h	203	120	1064	134	66	1990
Grp Sat Flow(s),veh/h/ln	1728	1585	1777	1585	1781	1777
Q Serve(g_s), s	5.0	6.6	14.4	3.1	0.9	26.1
Cycle Q Clear(g_c), s	5.0	6.6	14.4	3.1	0.9	26.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	365	167	2228	994	458	2744
V/C Ratio(X)	0.56	0.72	0.48	0.13	0.14	0.73
Avail Cap(c_a), veh/h	691	317	2228	994	496	2744
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.92	0.92	1.00	1.00
Uniform Delay (d), s/veh	38.2	39.0	8.9	6.8	4.9	5.3
Incr Delay (d2), s/veh	1.3	5.6	0.7	0.3	0.1	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	2.8	4.6	1.0	0.2	5.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	39.6	44.6	9.6	7.1	5.1	7.0
LnGrp LOS	D	D	A	A	A	A
Approach Vol, veh/h	323		1198			2056
Approach Delay, s/veh	41.4		9.3			6.9
Approach LOS	D		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	13.1	62.4			75.5	14.5
Change Period (Y+Rc), s	5.0	6.0			6.0	5.0
Max Green Setting (Gmax), s	10.0	46.0			61.0	18.0
Max Q Clear Time (g_c+I1), s	2.9	16.4			28.1	8.6
Green Ext Time (p_c), s	0.1	8.6			20.5	0.9
Intersection Summary						
HCM 6th Ctrl Delay			10.9			
HCM 6th LOS			B			

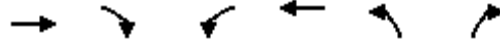
Lanes, Volumes, Timings
12: Avenue B & Ridgeway Couplet WB

JR Engineering
05/13/2020



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	53	1796	128	0
Future Volume (vph)	0	0	53	1796	128	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	200		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected			0.950		0.950	
Satd. Flow (prot)	0	0	1770	3539	1770	0
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	0	0	1770	3539	1770	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						
Link Speed (mph)	45			45	30	
Link Distance (ft)	815			1169	614	
Travel Time (s)	12.3			17.7	14.0	
Peak Hour Factor	0.92	0.92	0.78	0.94	0.84	0.92
Adj. Flow (vph)	0	0	68	1911	152	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	68	1911	152	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors			1	2	1	
Detector Template			Left	Thru	Left	
Leading Detector (ft)			20	100	20	
Trailing Detector (ft)			0	0	0	
Detector 1 Position(ft)			0	0	0	
Detector 1 Size(ft)			20	6	20	
Detector 1 Type			Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)			0.0	0.0	0.0	
Detector 1 Queue (s)			0.0	0.0	0.0	
Detector 1 Delay (s)			0.0	0.0	0.0	
Detector 2 Position(ft)				94		
Detector 2 Size(ft)				6		
Detector 2 Type				Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)				0.0		
Turn Type			Perm	NA	Prot	
Protected Phases				6	8	
Permitted Phases			6			

Lanes, Volumes, Timings
12: Avenue B & Ridgeway Couplet WB



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase			6	6	8	
Switch Phase						
Minimum Initial (s)			5.0	5.0	5.0	
Minimum Split (s)			24.0	24.0	24.0	
Total Split (s)			66.0	66.0	24.0	
Total Split (%)			73.3%	73.3%	26.7%	
Maximum Green (s)			60.0	60.0	18.0	
Yellow Time (s)			4.0	4.0	4.0	
All-Red Time (s)			2.0	2.0	2.0	
Lost Time Adjust (s)			0.0	0.0	0.0	
Total Lost Time (s)			6.0	6.0	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)			3.0	3.0	3.0	
Recall Mode			C-Min	C-Min	None	
Walk Time (s)			7.0	7.0	7.0	
Flash Dont Walk (s)			11.0	11.0	11.0	
Pedestrian Calls (#/hr)			0	0	0	
Act Effct Green (s)			65.0	65.0	13.0	
Actuated g/C Ratio			0.72	0.72	0.14	
v/c Ratio			0.05	0.75	0.60	
Control Delay			1.9	6.5	42.2	
Queue Delay			0.0	0.0	0.0	
Total Delay			1.9	6.5	42.2	
LOS			A	A	D	
Approach Delay				6.3	42.2	
Approach LOS				A	D	

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	8 (9%), Referenced to phase 2: and 6:WBTL, Start of Green
Natural Cycle:	70
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.75
Intersection Signal Delay:	8.9
Intersection LOS:	A
Intersection Capacity Utilization:	66.7%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 12: Avenue B & Ridgeway Couplet WB



Queues
12: Avenue B & Ridgegate Couplet WB



Lane Group	WBL	WBT	NBL
Lane Group Flow (vph)	68	1911	152
v/c Ratio	0.05	0.75	0.60
Control Delay	1.9	6.5	42.2
Queue Delay	0.0	0.0	0.0
Total Delay	1.9	6.5	42.2
Queue Length 50th (ft)	2	330	95
Queue Length 95th (ft)	m8	85	148
Internal Link Dist (ft)		1089	534
Turn Bay Length (ft)	200		
Base Capacity (vph)	1279	2557	354
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.05	0.75	0.43

Intersection Summary

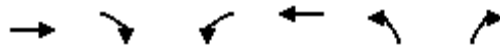
m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
 12: Avenue B & Ridgeway Couplet WB



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations			↶	↷	↶	
Traffic Volume (veh/h)	0	0	53	1796	128	0
Future Volume (veh/h)	0	0	53	1796	128	0
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)			1.00		1.00	1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach				No	No	
Adj Sat Flow, veh/h/ln			1870	1870	1870	0
Adj Flow Rate, veh/h			68	1911	152	0
Peak Hour Factor			0.78	0.94	0.84	0.92
Percent Heavy Veh, %			2	2	2	0
Cap, veh/h			1743	3317	0	0
Arrive On Green			0.31	0.31	0.00	0.00
Sat Flow, veh/h			1781	3647	0	
Grp Volume(v), veh/h			68	1911	0.0	
Grp Sat Flow(s),veh/h/ln			1781	1777		
Q Serve(g_s), s			2.4	40.7		
Cycle Q Clear(g_c), s			2.4	40.7		
Prop In Lane			1.00			
Lane Grp Cap(c), veh/h			1743	3317		
V/C Ratio(X)			0.04	0.58		
Avail Cap(c_a), veh/h			1743	3317		
HCM Platoon Ratio			0.33	0.33		
Upstream Filter(I)			0.71	0.71		
Uniform Delay (d), s/veh			2.9	16.2		
Incr Delay (d2), s/veh			0.0	0.5		
Initial Q Delay(d3),s/veh			0.0	0.0		
%ile BackOfQ(50%),veh/ln			0.0	14.8		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			2.9	16.7		
LnGrp LOS			A	B		
Approach Vol, veh/h				1979		
Approach Delay, s/veh				16.2		
Approach LOS				B		
Timer - Assigned Phs						6
Phs Duration (G+Y+Rc), s						90.0
Change Period (Y+Rc), s						6.0
Max Green Setting (Gmax), s						60.0
Max Q Clear Time (g_c+I1), s						42.7
Green Ext Time (p_c), s						12.6
Intersection Summary						
HCM 6th Ctrl Delay			16.2			
HCM 6th LOS			B			

Lanes, Volumes, Timings
13: Avenue D & Ridgeway Couplet WB



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	7	1787	62	0
Future Volume (vph)	0	0	7	1787	62	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	200		150	0
Storage Lanes		0	1		0	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected			0.950		0.950	
Satd. Flow (prot)	0	0	1770	3539	1770	0
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	0	0	1770	3539	1770	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						
Link Speed (mph)	30			45	30	
Link Distance (ft)	1169			1377	727	
Travel Time (s)	26.6			20.9	16.5	
Peak Hour Factor	0.92	0.92	0.78	0.94	0.79	0.92
Adj. Flow (vph)	0	0	9	1901	78	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	9	1901	78	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors			1	2	1	
Detector Template			Left	Thru	Left	
Leading Detector (ft)			20	100	20	
Trailing Detector (ft)			0	0	0	
Detector 1 Position(ft)			0	0	0	
Detector 1 Size(ft)			20	6	20	
Detector 1 Type			Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)			0.0	0.0	0.0	
Detector 1 Queue (s)			0.0	0.0	0.0	
Detector 1 Delay (s)			0.0	0.0	0.0	
Detector 2 Position(ft)				94		
Detector 2 Size(ft)				6		
Detector 2 Type				Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)				0.0		
Turn Type			Perm	NA	Prot	
Protected Phases				6	8	
Permitted Phases			6			

Lanes, Volumes, Timings
 13: Avenue D & Ridgeway Couplet WB



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase			6	6	8	
Switch Phase						
Minimum Initial (s)			5.0	5.0	5.0	
Minimum Split (s)			24.0	24.0	23.0	
Total Split (s)			67.0	67.0	23.0	
Total Split (%)			74.4%	74.4%	25.6%	
Maximum Green (s)			61.0	61.0	18.0	
Yellow Time (s)			4.0	4.0	3.0	
All-Red Time (s)			2.0	2.0	2.0	
Lost Time Adjust (s)			0.0	0.0	0.0	
Total Lost Time (s)			6.0	6.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)			3.0	3.0	3.0	
Recall Mode			C-Min	C-Min	None	
Walk Time (s)			7.0	7.0	7.0	
Flash Dont Walk (s)			11.0	11.0	11.0	
Pedestrian Calls (#/hr)			0	0	0	
Act Effct Green (s)			73.0	73.0	9.3	
Actuated g/C Ratio			0.81	0.81	0.10	
v/c Ratio			0.01	0.66	0.43	
Control Delay			2.9	6.3	15.5	
Queue Delay			0.0	0.0	0.0	
Total Delay			2.9	6.3	15.5	
LOS			A	A	B	
Approach Delay				6.3	15.5	
Approach LOS				A	B	

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	87 (97%), Referenced to phase 2: and 6:WBTL, Start of Green
Natural Cycle:	65
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.66
Intersection Signal Delay:	6.7
Intersection LOS:	A
Intersection Capacity Utilization:	62.7%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 13: Avenue D & Ridgeway Couplet WB





Lane Group	WBL	WBT	NBL
Lane Group Flow (vph)	9	1901	78
v/c Ratio	0.01	0.66	0.43
Control Delay	2.9	6.3	15.5
Queue Delay	0.0	0.0	0.0
Total Delay	2.9	6.3	15.5
Queue Length 50th (ft)	1	215	1
Queue Length 95th (ft)	4	346	79
Internal Link Dist (ft)		1297	647
Turn Bay Length (ft)	200		150
Base Capacity (vph)	1436	2872	354
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.01	0.66	0.22
Intersection Summary			





















HCM 6th Signalized Intersection Summary
 13: Avenue D & Ridgeway Couplet WB



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations			↶	↷	↶	
Traffic Volume (veh/h)	0	0	7	1787	62	0
Future Volume (veh/h)	0	0	7	1787	62	0
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)			1.00		1.00	1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach				No	No	
Adj Sat Flow, veh/h/ln			1870	1870	1870	0
Adj Flow Rate, veh/h			9	1901	78	0
Peak Hour Factor			0.78	0.94	0.79	0.92
Percent Heavy Veh, %			2	2	2	0
Cap, veh/h			1743	3317	0	0
Arrive On Green			0.93	0.93	0.00	0.00
Sat Flow, veh/h			1781	3647	0	
Grp Volume(v), veh/h			9	1901	0.0	
Grp Sat Flow(s),veh/h/ln			1781	1777		
Q Serve(g_s), s			0.0	6.9		
Cycle Q Clear(g_c), s			0.0	6.9		
Prop In Lane			1.00			
Lane Grp Cap(c), veh/h			1743	3317		
V/C Ratio(X)			0.01	0.57		
Avail Cap(c_a), veh/h			1743	3317		
HCM Platoon Ratio			1.00	1.00		
Upstream Filter(I)			1.00	1.00		
Uniform Delay (d), s/veh			0.2	0.4		
Incr Delay (d2), s/veh			0.0	0.7		
Initial Q Delay(d3),s/veh			0.0	0.0		
%ile BackOfQ(50%),veh/ln			0.0	0.3		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.2	1.2		
LnGrp LOS			A	A		
Approach Vol, veh/h				1910		
Approach Delay, s/veh				1.2		
Approach LOS				A		
Timer - Assigned Phs						6
Phs Duration (G+Y+Rc), s						90.0
Change Period (Y+Rc), s						6.0
Max Green Setting (Gmax), s						61.0
Max Q Clear Time (g_c+I1), s						8.9
Green Ext Time (p_c), s						24.3
Intersection Summary						
HCM 6th Ctrl Delay			1.2			
HCM 6th LOS			A			

Lanes, Volumes, Timings
14: Avenue B & Ridgeway Couplet EB

JR Engineering
05/13/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 										
Traffic Volume (vph)	1	1004	70	0	0	0	0	128	76	1	46	0
Future Volume (vph)	1	1004	70	0	0	0	0	128	76	1	46	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	0		200	0		0	0		0
Storage Lanes	1		1	0		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.850			
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1770	3539	1583	0	0	0	0	1863	1583	1770	1863	0
Flt Permitted	0.950									0.550		
Satd. Flow (perm)	1770	3539	1583	0	0	0	0	1863	1583	1025	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			88						95			
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		990			1252			512			614	
Travel Time (s)		15.0			19.0			11.6			14.0	
Peak Hour Factor	0.92	0.93	0.80	0.92	0.92	0.92	0.92	0.84	0.80	0.92	0.78	0.92
Adj. Flow (vph)	1	1080	88	0	0	0	0	152	95	1	59	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	1080	88	0	0	0	0	152	95	1	59	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	40	40	40					100	40	40	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	40	40	40					6	40	40	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)								94			94	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	Perm	NA	
Protected Phases		2						8			4	
Permitted Phases	2		2						8	4		

Lanes, Volumes, Timings
 14: Avenue B & Ridgeway Couplet EB

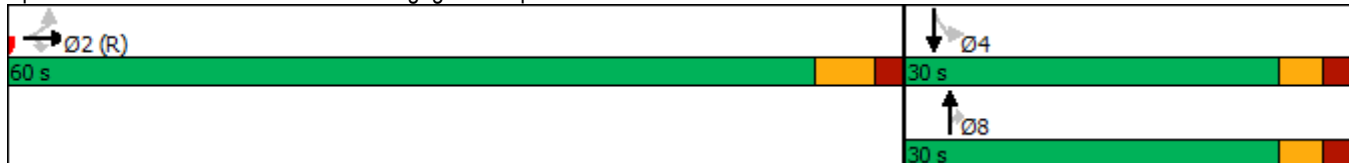


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2	2					8	8	4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0					5.0	5.0	5.0	5.0	
Minimum Split (s)	24.0	24.0	24.0					24.0	24.0	24.0	24.0	
Total Split (s)	60.0	60.0	60.0					30.0	30.0	30.0	30.0	
Total Split (%)	66.7%	66.7%	66.7%					33.3%	33.3%	33.3%	33.3%	
Maximum Green (s)	54.0	54.0	54.0					25.0	25.0	25.0	25.0	
Yellow Time (s)	4.0	4.0	4.0					3.0	3.0	3.0	3.0	
All-Red Time (s)	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	
Total Lost Time (s)	6.0	6.0	6.0					5.0	5.0	5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Recall Mode	C-Min	C-Min	C-Min					None	None	None	None	
Walk Time (s)	7.0	7.0	7.0					7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0					11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0					0	0	0	0	
Act Effct Green (s)	66.3	66.3	66.3					12.7	12.7	12.7	12.7	
Actuated g/C Ratio	0.74	0.74	0.74					0.14	0.14	0.14	0.14	
v/c Ratio	0.00	0.41	0.07					0.58	0.31	0.01	0.23	
Control Delay	4.0	5.4	1.2					44.6	10.0	31.0	33.4	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Delay	4.0	5.4	1.2					44.6	10.0	31.0	33.4	
LOS	A	A	A					D	A	C	C	
Approach Delay		5.1						31.3			33.4	
Approach LOS		A						C			C	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 84 (93%), Referenced to phase 2:EBTL, Start of Green
 Natural Cycle: 50
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.58
 Intersection Signal Delay: 10.6
 Intersection Capacity Utilization 66.7%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service C

Splits and Phases: 14: Avenue B & Ridgeway Couplet EB



Queues
14: Avenue B & Ridgeway Couplet EB



Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	1	1080	88	152	95	1	59
v/c Ratio	0.00	0.41	0.07	0.58	0.31	0.01	0.23
Control Delay	4.0	5.4	1.2	44.6	10.0	31.0	33.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.0	5.4	1.2	44.6	10.0	31.0	33.4
Queue Length 50th (ft)	0	101	0	82	0	0	26
Queue Length 95th (ft)	2	164	10	124	30	4	45
Internal Link Dist (ft)		910		432			534
Turn Bay Length (ft)	200		200				
Base Capacity (vph)	1304	2608	1190	517	508	284	517
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.41	0.07	0.29	0.19	0.00	0.11

Intersection Summary






















HCM 6th Signalized Intersection Summary
 14: Avenue B & Ridgeway Couplet EB

JR Engineering
 05/13/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗					↑	↗	↘	↑	
Traffic Volume (veh/h)	1	1004	70	0	0	0	0	128	76	1	46	0
Future Volume (veh/h)	1	1004	70	0	0	0	0	128	76	1	46	0
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	1	1080	88				0	152	95	1	59	0
Peak Hour Factor	0.92	0.93	0.80				0.92	0.84	0.80	0.92	0.78	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	1364	2721	1213				0	210	178	118	210	0
Arrive On Green	0.77	0.77	0.77				0.00	0.11	0.11	0.11	0.11	0.00
Sat Flow, veh/h	1781	3554	1585				0	1870	1585	1133	1870	0
Grp Volume(v), veh/h	1	1080	88				0	152	95	1	59	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585				0	1870	1585	1133	1870	0
Q Serve(g_s), s	0.0	9.2	1.2				0.0	7.1	5.1	0.1	2.6	0.0
Cycle Q Clear(g_c), s	0.0	9.2	1.2				0.0	7.1	5.1	7.1	2.6	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1364	2721	1213				0	210	178	118	210	0
V/C Ratio(X)	0.00	0.40	0.07				0.00	0.72	0.53	0.01	0.28	0.00
Avail Cap(c_a), veh/h	1364	2721	1213				0	520	440	306	520	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	2.5	3.6	2.6				0.0	38.6	37.7	42.1	36.6	0.0
Incr Delay (d2), s/veh	0.0	0.4	0.1				0.0	4.7	2.5	0.0	0.7	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
%ile BackOfQ(50%),veh/ln	0.0	1.9	0.2				0.0	3.5	2.1	0.0	1.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	2.5	4.0	2.7				0.0	43.3	40.2	42.1	37.3	0.0
LnGrp LOS	A	A	A				A	D	D	D	D	A
Approach Vol, veh/h		1169						247			60	
Approach Delay, s/veh		3.9						42.1			37.4	
Approach LOS		A						D			D	
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		74.9		15.1				15.1				
Change Period (Y+Rc), s		6.0		5.0				5.0				
Max Green Setting (Gmax), s		54.0		25.0				25.0				
Max Q Clear Time (g_c+I1), s		11.2		9.1				9.1				
Green Ext Time (p_c), s		5.8		0.2				1.0				
Intersection Summary												
HCM 6th Ctrl Delay			11.7									
HCM 6th LOS			B									

Lanes, Volumes, Timings
15: Ridgeway Couplet EB & Avenue D

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 										
Traffic Volume (vph)	1	1058	22	0	0	0	0	62	22	1	7	0
Future Volume (vph)	1	1058	22	0	0	0	0	62	22	1	7	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		200	0		0	0		0	150		0
Storage Lanes	1		1	0		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.850			
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1593	3185	1425	0	0	0	0	1676	1425	1593	1676	0
Flt Permitted	0.950									0.706		
Satd. Flow (perm)	1593	3185	1425	0	0	0	0	1676	1425	1184	1676	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			28						36			
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1252			1387			763			727	
Travel Time (s)		19.0			21.0			17.3			16.5	
Peak Hour Factor	0.92	0.93	0.78	0.92	0.92	0.92	0.92	0.79	0.78	0.92	0.78	0.92
Adj. Flow (vph)	1	1138	28	0	0	0	0	78	28	1	9	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	1138	28	0	0	0	0	78	28	1	9	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	Perm	NA	
Protected Phases		2						8			4	
Permitted Phases	2		2						8	4		

Lanes, Volumes, Timings
15: Ridgeway Couplet EB & Avenue D

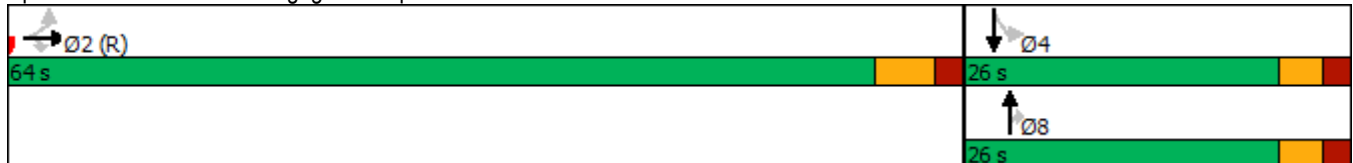


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2	2					8	8	4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0					5.0	5.0	5.0	5.0	
Minimum Split (s)	24.0	24.0	24.0					23.0	23.0	23.0	23.0	
Total Split (s)	64.0	64.0	64.0					26.0	26.0	26.0	26.0	
Total Split (%)	71.1%	71.1%	71.1%					28.9%	28.9%	28.9%	28.9%	
Maximum Green (s)	58.0	58.0	58.0					21.0	21.0	21.0	21.0	
Yellow Time (s)	4.0	4.0	4.0					3.0	3.0	3.0	3.0	
All-Red Time (s)	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	
Total Lost Time (s)	6.0	6.0	6.0					5.0	5.0	5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Recall Mode	C-Min	C-Min	C-Min					None	None	None	None	
Walk Time (s)	7.0	7.0	7.0					7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0					11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0					0	0	0	0	
Act Effct Green (s)	72.8	72.8	72.8					9.5	9.5	9.5	9.5	
Actuated g/C Ratio	0.81	0.81	0.81					0.11	0.11	0.11	0.11	
v/c Ratio	0.00	0.44	0.02					0.44	0.15	0.01	0.05	
Control Delay	2.0	2.5	0.4					44.7	11.6	37.0	33.3	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Delay	2.0	2.5	0.4					44.7	11.6	37.0	33.3	
LOS	A	A	A					D	B	D	C	
Approach Delay		2.4						35.9			33.7	
Approach LOS		A						D			C	

Intersection Summary

Area Type: CBD
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:EBTL, Start of Green
 Natural Cycle: 55
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.44
 Intersection Signal Delay: 5.4
 Intersection Capacity Utilization 62.7%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service B

Splits and Phases: 15: Ridgeway Couplet EB & Avenue D



Queues
15: Ridgeway Couplet EB & Avenue D



Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	1	1138	28	78	28	1	9
v/c Ratio	0.00	0.44	0.02	0.44	0.15	0.01	0.05
Control Delay	2.0	2.5	0.4	44.7	11.6	37.0	33.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.0	2.5	0.4	44.7	11.6	37.0	33.3
Queue Length 50th (ft)	0	42	0	42	0	1	5
Queue Length 95th (ft)	m0	48	0	72	15	5	16
Internal Link Dist (ft)		1172		683			647
Turn Bay Length (ft)	150		200			150	
Base Capacity (vph)	1288	2577	1158	391	360	276	391
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.44	0.02	0.20	0.08	0.00	0.02

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
 15: Ridgeway Couplet EB & Avenue D

JR Engineering
 05/13/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗					↑	↗	↘	↑	
Traffic Volume (veh/h)	1	1058	22	0	0	0	0	62	22	1	7	0
Future Volume (veh/h)	1	1058	22	0	0	0	0	62	22	1	7	0
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	1683	1683	1683				0	1683	1683	1683	1683	0
Adj Flow Rate, veh/h	1	1138	28				0	78	28	1	9	0
Peak Hour Factor	0.92	0.93	0.78				0.92	0.79	0.78	0.92	0.78	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	1299	2592	1156				0	113	96	106	113	0
Arrive On Green	0.81	0.81	0.81				0.00	0.07	0.07	0.07	0.07	0.00
Sat Flow, veh/h	1603	3198	1427				0	1683	1427	1159	1683	0
Grp Volume(v), veh/h	1	1138	28				0	78	28	1	9	0
Grp Sat Flow(s),veh/h/ln	1603	1599	1427				0	1683	1427	1159	1683	0
Q Serve(g_s), s	0.0	9.4	0.3				0.0	4.1	1.7	0.1	0.5	0.0
Cycle Q Clear(g_c), s	0.0	9.4	0.3				0.0	4.1	1.7	4.2	0.5	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1299	2592	1156				0	113	96	106	113	0
V/C Ratio(X)	0.00	0.44	0.02				0.00	0.69	0.29	0.01	0.08	0.00
Avail Cap(c_a), veh/h	1299	2592	1156				0	393	333	298	393	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.92	0.92	0.92				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	1.6	2.5	1.7				0.0	41.0	39.9	43.1	39.3	0.0
Incr Delay (d2), s/veh	0.0	0.5	0.0				0.0	7.2	1.7	0.0	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
%ile BackOfQ(50%),veh/ln	0.0	1.2	0.0				0.0	1.9	0.6	0.0	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	1.6	3.0	1.7				0.0	48.2	41.6	43.1	39.6	0.0
LnGrp LOS	A	A	A				A	D	D	D	D	A
Approach Vol, veh/h		1167						106			10	
Approach Delay, s/veh		3.0						46.5			40.0	
Approach LOS		A						D			D	
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		78.9		11.1				11.1				
Change Period (Y+Rc), s		6.0		5.0				5.0				
Max Green Setting (Gmax), s		58.0		21.0				21.0				
Max Q Clear Time (g_c+I1), s		11.4		6.2				6.1				
Green Ext Time (p_c), s		9.8		0.0				0.3				
Intersection Summary												
HCM 6th Ctrl Delay			6.9									
HCM 6th LOS			A									

Lanes, Volumes, Timings
16: Havana St & Avenue B

JR Engineering
05/13/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	141	10	4	67	35	264	25	333	76	168	279	96
Future Volume (vph)	141	10	4	67	35	264	25	333	76	168	279	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	200		0	200		200	200		0
Storage Lanes	2		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.958				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1785	0	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.746			0.560			0.342		
Satd. Flow (perm)	3433	1785	0	1390	1863	1583	1043	3539	1583	637	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5				300			244			257
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		497			2632			5321			842	
Travel Time (s)		11.3			59.8			103.7			16.4	
Peak Hour Factor	0.84	0.78	0.78	0.79	0.78	0.88	0.78	0.89	0.80	0.85	0.88	0.82
Adj. Flow (vph)	168	13	5	85	45	300	32	374	95	198	317	117
Shared Lane Traffic (%)												
Lane Group Flow (vph)	168	18	0	85	45	300	32	374	95	198	317	117
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	40	40		40	40	20	20	100	40	40	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	40	40		40	40	20	20	6	40	40	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)								94			94	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases				8		8	2		2	6		6

Lanes, Volumes, Timings
16: Havana St & Avenue B

JR Engineering
05/13/2020

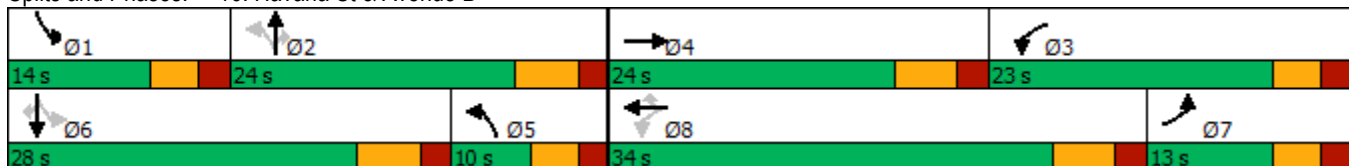


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.0	24.0		23.0	24.0	24.0	10.0	24.0	24.0	10.0	24.0	24.0
Total Split (s)	13.0	24.0		23.0	34.0	34.0	10.0	24.0	24.0	14.0	28.0	28.0
Total Split (%)	15.3%	28.2%		27.1%	40.0%	40.0%	11.8%	28.2%	28.2%	16.5%	32.9%	32.9%
Maximum Green (s)	8.0	18.0		18.0	28.0	28.0	5.0	18.0	18.0	9.0	22.0	22.0
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.0	4.0	3.0	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	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	0.0
Total Lost Time (s)	5.0	6.0		5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag	Lag	Lead		Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0		7.0	7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0		11.0	11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0		0	0	0		0	0		0	0
Act Effct Green (s)	7.6	10.1		23.9	10.6	10.6	13.5	12.5	12.5	21.4	20.4	20.4
Actuated g/C Ratio	0.12	0.16		0.39	0.17	0.17	0.22	0.20	0.20	0.35	0.33	0.33
v/c Ratio	0.40	0.06		0.13	0.14	0.58	0.10	0.52	0.18	0.52	0.27	0.17
Control Delay	28.9	21.2		13.5	24.0	8.5	20.6	24.8	0.8	24.6	18.5	0.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.9	21.2		13.5	24.0	8.5	20.6	24.8	0.8	24.6	18.5	0.5
LOS	C	C		B	C	A	C	C	A	C	B	A
Approach Delay		28.2			11.1			20.0			17.1	
Approach LOS		C			B			B			B	

Intersection Summary

Area Type:	Other
Cycle Length:	85
Actuated Cycle Length:	61.5
Natural Cycle:	85
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.58
Intersection Signal Delay:	17.6
Intersection LOS:	B
Intersection Capacity Utilization:	43.9%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 16: Havana St & Avenue B



Queues
16: Havana St & Avenue B





























Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	168	18	85	45	300	32	374	95	198	317	117
v/c Ratio	0.40	0.06	0.13	0.14	0.58	0.10	0.52	0.18	0.52	0.27	0.17
Control Delay	28.9	21.2	13.5	24.0	8.5	20.6	24.8	0.8	24.6	18.5	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.9	21.2	13.5	24.0	8.5	20.6	24.8	0.8	24.6	18.5	0.5
Queue Length 50th (ft)	29	4	19	14	0	10	65	0	43	36	0
Queue Length 95th (ft)	57	18	42	36	56	25	106	0	#131	94	0
Internal Link Dist (ft)		417		2552			5241			762	
Turn Bay Length (ft)			200			200		200	200		
Base Capacity (vph)	449	529	707	853	887	312	1041	638	388	1349	762
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.03	0.12	0.05	0.34	0.10	0.36	0.15	0.51	0.23	0.15

Intersection Summary

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

HCM 6th Signalized Intersection Summary
 16: Havana St & Avenue B

JR Engineering
 05/13/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 							 			 	
Traffic Volume (veh/h)	141	10	4	67	35	264	25	333	76	168	279	96
Future Volume (veh/h)	141	10	4	67	35	264	25	333	76	168	279	96
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	168	13	5	85	45	300	32	374	95	198	317	117
Peak Hour Factor	0.84	0.78	0.78	0.79	0.78	0.88	0.78	0.89	0.80	0.85	0.88	0.82
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	317	236	91	539	343	290	346	652	291	378	652	291
Arrive On Green	0.09	0.18	0.18	0.09	0.18	0.18	0.12	0.18	0.18	0.14	0.18	0.18
Sat Flow, veh/h	3456	1286	495	1781	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	168	0	18	85	45	300	32	374	95	198	317	117
Grp Sat Flow(s),veh/h/ln	1728	0	1781	1781	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.5	0.0	0.5	0.0	1.1	5.8	0.0	5.2	1.8	5.9	4.4	3.5
Cycle Q Clear(g_c), s	2.5	0.0	0.5	0.0	1.1	5.8	0.0	5.2	1.8	5.9	4.4	3.5
Prop In Lane	1.00		0.28	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	317	0	327	539	343	290	346	652	291	378	652	291
V/C Ratio(X)	0.53	0.00	0.06	0.16	0.13	1.03	0.09	0.57	0.33	0.52	0.49	0.40
Avail Cap(c_a), veh/h	507	0	588	964	960	814	346	1173	523	426	1433	639
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.6	0.0	18.4	15.6	18.6	7.6	21.1	20.3	7.9	22.7	20.0	19.6
Incr Delay (d2), s/veh	1.4	0.0	0.1	0.1	0.2	33.6	0.1	0.8	0.6	1.1	0.6	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.2	0.8	0.5	5.7	0.3	2.0	1.0	2.3	1.7	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.0	0.0	18.4	15.8	18.8	41.2	21.2	21.1	8.6	23.8	20.5	20.5
LnGrp LOS	C	A	B	B	B	F	C	C	A	C	C	C
Approach Vol, veh/h		186			430			501			632	
Approach Delay, s/veh		24.4			33.8			18.8			21.6	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.5	16.0	10.0	16.0	12.5	16.0	10.0	16.0				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	6.0	* 6	5.0	6.0				
Max Green Setting (Gmax), s	9.0	18.0	18.0	18.0	5.0	* 22	8.0	28.0				
Max Q Clear Time (g_c+I1), s	7.9	7.2	2.0	2.5	2.0	6.4	4.5	7.8				
Green Ext Time (p_c), s	0.1	2.0	0.2	0.0	0.0	2.1	0.2	1.1				

Intersection Summary

HCM 6th Ctrl Delay	24.1
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	70	114	320	35	37	313
Future Volume (vph)	70	114	320	35	37	313
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	200		200	300	
Storage Lanes	1	0		0	0	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.918		0.985			
Flt Protected	0.981					0.994
Satd. Flow (prot)	1678	0	1835	0	0	1852
Flt Permitted	0.981					0.994
Satd. Flow (perm)	1678	0	1835	0	0	1852
Link Speed (mph)	30		35			35
Link Distance (ft)	744		1352			5321
Travel Time (s)	16.9		26.3			103.7
Peak Hour Factor	0.80	0.83	0.90	0.78	0.78	0.88
Adj. Flow (vph)	88	137	356	45	47	356
Shared Lane Traffic (%)						
Lane Group Flow (vph)	225	0	401	0	0	403
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	58.4%
	ICU Level of Service B
Analysis Period (min)	15

Intersection						
Int Delay, s/veh	4.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	70	114	320	35	37	313
Future Vol, veh/h	70	114	320	35	37	313
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	83	90	78	78	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	88	137	356	45	47	356

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	829	379	0	0	401
Stage 1	379	-	-	-	-
Stage 2	450	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	340	668	-	-	1158
Stage 1	692	-	-	-	-
Stage 2	642	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	323	668	-	-	1158
Mov Cap-2 Maneuver	323	-	-	-	-
Stage 1	692	-	-	-	-
Stage 2	609	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.4	0	1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	472	1158
HCM Lane V/C Ratio	-	-	0.476	0.041
HCM Control Delay (s)	-	-	19.4	8.2
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	2.5	0.1

Lanes, Volumes, Timings
1: Havana St & RidgeGate Pkwy



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖	↑↑↑	↖	↗
Traffic Volume (vph)	2510	706	109	1775	559	208
Future Volume (vph)	2510	706	109	1775	559	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		200	200		200	0
Storage Lanes		1	1		2	1
Taper Length (ft)			25		25	
Lane Util. Factor	0.91	1.00	1.00	0.86	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	5085	1583	1770	6408	3433	1583
Flt Permitted			0.049		0.950	
Satd. Flow (perm)	5085	1583	91	6408	3433	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		428				100
Link Speed (mph)	45			45	35	
Link Distance (ft)	980			1333	842	
Travel Time (s)	14.8			20.2	16.4	
Peak Hour Factor	0.95	0.92	0.83	0.94	0.92	0.87
Adj. Flow (vph)	2642	767	131	1888	608	239
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2642	767	131	1888	608	239
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	1	1	1	1	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	40	40	40	40	40	40
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	40	40	40	40	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2	6			8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	24.0	24.0	10.0	24.0	24.0	24.0
Total Split (s)	76.0	76.0	13.0	89.0	41.0	41.0



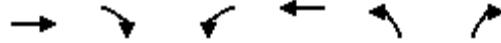
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Total Split (%)	58.5%	58.5%	10.0%	68.5%	31.5%	31.5%
Maximum Green (s)	70.0	70.0	8.0	83.0	35.0	35.0
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	5.0	6.0	6.0	6.0
Lead/Lag	Lead	Lead	Lag			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min	C-Min	None	Min	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	76.3	76.3	90.0	89.0	29.0	29.0
Actuated g/C Ratio	0.59	0.59	0.69	0.68	0.22	0.22
v/c Ratio	0.89	0.69	0.81	0.43	0.79	0.56
Control Delay	28.5	11.9	61.7	9.1	55.6	29.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.5	11.9	61.7	9.1	55.6	29.8
LOS	C	B	E	A	E	C
Approach Delay	24.8			12.5	48.3	
Approach LOS	C			B	D	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 99 (76%), Referenced to phase 2:EBT, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 24.0
 Intersection Capacity Utilization 84.6%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service E

Splits and Phases: 1: Havana St & RidgeGate Pkwy





Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	2642	767	131	1888	608	239
v/c Ratio	0.89	0.69	0.81	0.43	0.79	0.56
Control Delay	28.5	11.9	61.7	9.1	55.6	29.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.5	11.9	61.7	9.1	55.6	29.8
Queue Length 50th (ft)	673	186	43	90	251	103
Queue Length 95th (ft)	#869	378	m#138	277	300	170
Internal Link Dist (ft)	900			1253	762	
Turn Bay Length (ft)		200	200		200	
Base Capacity (vph)	2985	1105	166	4387	924	499
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.69	0.79	0.43	0.66	0.48

Intersection Summary

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
 1: Havana St & RidgeGate Pkwy



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖	↑↑↑	↖	↗
Traffic Volume (veh/h)	2510	706	109	1775	559	208
Future Volume (veh/h)	2510	706	109	1775	559	208
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2642	767	131	1888	608	239
Peak Hour Factor	0.95	0.92	0.83	0.94	0.92	0.87
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2743	851	265	4507	716	328
Arrive On Green	0.54	0.54	0.12	0.70	0.21	0.21
Sat Flow, veh/h	5274	1585	1781	6696	3456	1585
Grp Volume(v), veh/h	2642	767	131	1888	608	239
Grp Sat Flow(s),veh/h/ln	1702	1585	1781	1609	1728	1585
Q Serve(g_s), s	64.5	56.4	4.6	16.2	22.0	18.3
Cycle Q Clear(g_c), s	64.5	56.4	4.6	16.2	22.0	18.3
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2743	851	265	4507	716	328
V/C Ratio(X)	0.96	0.90	0.49	0.42	0.85	0.73
Avail Cap(c_a), veh/h	2749	853	265	4507	930	427
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.75	0.75	0.86	0.86
Uniform Delay (d), s/veh	28.9	27.0	51.7	8.3	49.6	48.1
Incr Delay (d2), s/veh	10.5	14.5	1.1	0.0	5.2	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	26.7	23.0	3.9	4.9	9.9	7.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	39.4	41.5	52.8	8.3	54.7	51.9
LnGrp LOS	D	D	D	A	D	D
Approach Vol, veh/h	3409			2019	847	
Approach Delay, s/veh	39.8			11.2	53.9	
Approach LOS	D			B	D	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	21.2	75.8			97.1	32.9
Change Period (Y+Rc), s	6.0	* 6			6.0	6.0
Max Green Setting (Gmax), s	8.0	* 70			83.0	35.0
Max Q Clear Time (g_c+I1), s	6.6	66.5			18.2	24.0
Green Ext Time (p_c), s	0.0	3.3			13.1	2.9

Intersection Summary

HCM 6th Ctrl Delay	32.5
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings
2: Peoria St & RidgeGate Pkwy

JR Engineering
05/13/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑	↗	↘↗	↑	↗	↘↗	↑	↗
Traffic Volume (vph)	136	2333	196	139	1324	87	241	43	46	309	70	308
Future Volume (vph)	136	2333	196	139	1324	87	241	43	46	309	70	308
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		300	300		150	200		200	150		150
Storage Lanes	1		1	1		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	3433	1863	1583	3433	1863	1583
Flt Permitted	0.100			0.070			0.950			0.950		
Satd. Flow (perm)	186	5085	1583	130	5085	1583	3433	1863	1583	3433	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			188			109			159			117
Link Speed (mph)		45		45			30			35		
Link Distance (ft)		1333		1893			1113			726		
Travel Time (s)		20.2		28.7			25.3			14.1		
Peak Hour Factor	0.84	0.95	0.86	0.84	0.93	0.81	0.87	0.78	0.78	0.88	0.80	0.88
Adj. Flow (vph)	162	2456	228	165	1424	107	277	55	59	351	88	350
Shared Lane Traffic (%)												
Lane Group Flow (vph)	162	2456	228	165	1424	107	277	55	59	351	88	350
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12		12			24			24		
Link Offset(ft)		0		0			0			0		
Crosswalk Width(ft)		16		16			16			16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	40	40	40	40	40	40	40	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	40	40	40	40	40	40	40	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)								94			94	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases	2		2	6		6			8			4

Lanes, Volumes, Timings
2: Peoria St & RidgeGate Pkwy

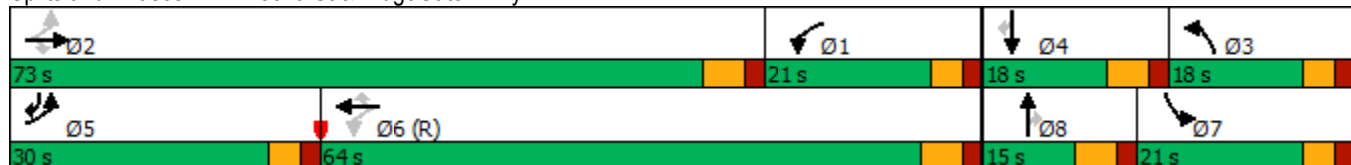


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	5
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	24.0	24.0	10.0	24.0	24.0	10.0	15.0	15.0	10.0	15.0	10.0
Total Split (s)	30.0	73.0	73.0	21.0	64.0	64.0	18.0	15.0	15.0	21.0	18.0	30.0
Total Split (%)	23.1%	56.2%	56.2%	16.2%	49.2%	49.2%	13.8%	11.5%	11.5%	16.2%	13.8%	23.1%
Maximum Green (s)	25.0	67.0	67.0	16.0	58.0	58.0	13.0	9.0	9.0	16.0	12.0	25.0
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	5.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Min	Min	None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0						
Flash Dont Walk (s)		11.0	11.0		11.0	11.0						
Pedestrian Calls (#/hr)		0	0		0	0						
Act Effct Green (s)	73.1	72.1	72.1	69.9	68.9	68.9	14.0	8.5	8.5	18.6	10.7	26.1
Actuated g/C Ratio	0.56	0.55	0.55	0.54	0.53	0.53	0.11	0.07	0.07	0.14	0.08	0.20
v/c Ratio	0.58	0.87	0.24	0.79	0.53	0.12	0.75	0.45	0.24	0.71	0.58	0.85
Control Delay	29.8	10.4	0.4	67.0	21.0	4.2	69.5	70.3	2.2	62.6	71.9	42.4
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	29.8	10.4	0.4	67.0	21.0	4.2	69.5	70.3	2.2	62.6	71.9	42.4
LOS	C	B	A	E	C	A	E	E	A	E	E	D
Approach Delay		10.7			24.4			59.5			54.7	
Approach LOS		B			C			E			D	

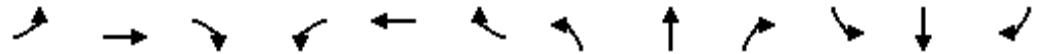
Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	17 (13%), Referenced to phase 6:WBTL, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.87
Intersection Signal Delay:	24.2
Intersection LOS:	C
Intersection Capacity Utilization:	82.4%
ICU Level of Service:	E
Analysis Period (min):	15

Splits and Phases: 2: Peoria St & RidgeGate Pkwy



Queues
2: Peoria St & RidgeGate Pkwy



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	162	2456	228	165	1424	107	277	55	59	351	88	350
v/c Ratio	0.58	0.87	0.24	0.79	0.53	0.12	0.75	0.45	0.24	0.71	0.58	0.85
Control Delay	29.8	10.4	0.4	67.0	21.0	4.2	69.5	70.3	2.2	62.6	71.9	42.4
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	29.8	10.4	0.4	67.0	21.0	4.2	69.5	70.3	2.2	62.6	71.9	42.4
Queue Length 50th (ft)	42	315	1	89	320	1	115	45	0	146	72	143
Queue Length 95th (ft)	m63	223	m0	153	435	17	#175	78	0	#216	113	200
Internal Link Dist (ft)		1253			1813			1033			646	
Turn Bay Length (ft)	150		300	300		150	200		200	150		150
Base Capacity (vph)	409	2821	961	276	2694	890	375	133	261	492	175	531
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	0.40	0.87	0.24	0.60	0.53	0.12	0.74	0.41	0.23	0.71	0.50	0.66

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
2: Peoria St & RidgeGate Pkwy

JR Engineering
05/13/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑	↗	↘↗	↑	↗	↘↗	↑	↗
Traffic Volume (veh/h)	136	2333	196	139	1324	87	241	43	46	309	70	308
Future Volume (veh/h)	136	2333	196	139	1324	87	241	43	46	309	70	308
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	162	2456	228	165	1424	0	277	55	59	351	88	0
Peak Hour Factor	0.84	0.95	0.86	0.84	0.93	0.81	0.87	0.78	0.78	0.88	0.80	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	253	2526	784	189	2555		368	98	83	402	117	
Arrive On Green	0.15	0.99	0.99	0.07	0.50	0.00	0.11	0.05	0.05	0.12	0.06	0.00
Sat Flow, veh/h	1781	5106	1585	1781	5106	1585	3456	1870	1585	3456	1870	1585
Grp Volume(v), veh/h	162	2456	228	165	1424	0	277	55	59	351	88	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1781	1702	1585	1728	1870	1585	1728	1870	1585
Q Serve(g_s), s	7.0	17.7	0.3	7.5	25.1	0.0	10.1	3.7	4.8	13.0	6.0	0.0
Cycle Q Clear(g_c), s	7.0	17.7	0.3	7.5	25.1	0.0	10.1	3.7	4.8	13.0	6.0	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	253	2526	784	189	2555		368	98	83	402	117	
V/C Ratio(X)	0.64	0.97	0.29	0.87	0.56		0.75	0.56	0.71	0.87	0.75	
Avail Cap(c_a), veh/h	463	2632	817	280	2555		368	129	110	425	173	
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.40	0.40	0.40	0.84	0.84	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	23.4	0.4	0.4	58.0	22.5	0.0	56.4	60.1	60.6	56.5	60.0	0.0
Incr Delay (d2), s/veh	1.1	6.1	0.1	15.5	0.7	0.0	8.5	4.9	13.1	17.1	10.0	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	2.6	1.7	0.1	6.0	9.7	0.0	4.9	1.9	2.2	6.6	3.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.5	6.5	0.4	73.4	23.2	0.0	64.9	65.0	73.7	73.6	69.9	0.0
LnGrp LOS	C	A	A	E	C		E	E	E	E	E	
Approach Vol, veh/h		2846			1589	A		391			439	A
Approach Delay, s/veh		7.0			28.5			66.2			72.9	
Approach LOS		A			C			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.5	59.8	18.8	14.1	14.5	60.8	20.1	12.8				
Change Period (Y+Rc), s	6.0	* 6	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	16.0	* 67	13.0	12.0	25.0	58.0	16.0	9.0				
Max Q Clear Time (g_c+I1), s	9.5	19.7	12.1	8.0	9.0	27.1	15.0	6.8				
Green Ext Time (p_c), s	0.2	23.5	0.1	0.1	0.4	7.5	0.1	0.1				
















Intersection Summary

HCM 6th Ctrl Delay	23.4
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
11: Avenue A & RidgeGate Pkwy

						
Lane Group	NBL	NBR	SET	SER	NWL	NWT
Lane Configurations	 		 			 
Traffic Volume (vph)	137	58	2442	294	112	1427
Future Volume (vph)	137	58	2442	294	112	1427
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150	0		0	200	
Storage Lanes	2	1		1	2	
Taper Length (ft)	25				25	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.950				0.042	
Satd. Flow (perm)	3433	1583	3539	1583	78	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		74		192		
Link Speed (mph)	30		45			45
Link Distance (ft)	1079		1893			1290
Travel Time (s)	24.5		28.7			19.5
Peak Hour Factor	0.84	0.78	0.95	0.88	0.83	0.94
Adj. Flow (vph)	163	74	2571	334	135	1518
Shared Lane Traffic (%)						
Lane Group Flow (vph)	163	74	2571	334	135	1518
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	24		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (ft)	40	40	100	20	20	100
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	40	40	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	3		2		1	6
Permitted Phases		8		2	6	

Lanes, Volumes, Timings
 11: Avenue A & RidgeGate Pkwy

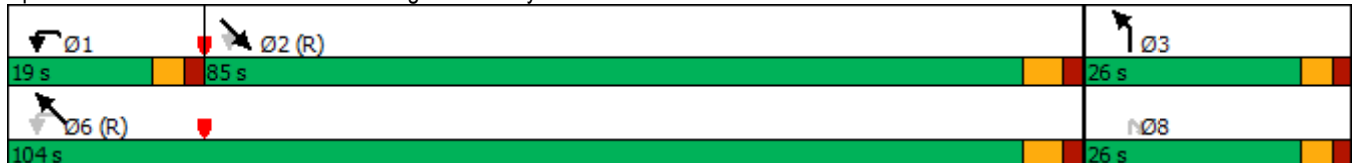


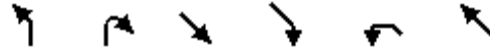
Lane Group	NBL	NBR	SET	SER	NWL	NWT
Detector Phase	3	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.0	23.0	24.0	24.0	15.0	24.0
Total Split (s)	26.0	26.0	85.0	85.0	19.0	104.0
Total Split (%)	20.0%	20.0%	65.4%	65.4%	14.6%	80.0%
Maximum Green (s)	21.0	21.0	79.0	79.0	14.0	98.0
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	4.0
All-Red Time (s)	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
Total Lost Time (s)	5.0	5.0	6.0	6.0	5.0	6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	C-Min	None	C-Min
Walk Time (s)		7.0	7.0	7.0		7.0
Flash Dont Walk (s)		11.0	11.0	11.0		11.0
Pedestrian Calls (#/hr)		0	0	0		0
Act Effct Green (s)	11.8	11.8	90.4	90.4	108.2	107.2
Actuated g/C Ratio	0.09	0.09	0.70	0.70	0.83	0.82
v/c Ratio	0.52	0.35	1.05	0.29	0.62	0.52
Control Delay	62.3	16.3	40.5	0.4	33.4	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.3	16.3	40.5	0.4	33.4	5.0
LOS	E	B	D	A	C	A
Approach Delay	47.9		35.8			7.4
Approach LOS	D		D			A

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 4 (3%), Referenced to phase 2:SET and 6:NWTL, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.05
 Intersection Signal Delay: 26.6
 Intersection LOS: C
 Intersection Capacity Utilization 93.3%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 11: Avenue A & RidgeGate Pkwy

















Lane Group	NBL	NBR	SET	SER	NWL	NWT
Lane Group Flow (vph)	163	74	2571	334	135	1518
v/c Ratio	0.52	0.35	1.05	0.29	0.62	0.52
Control Delay	62.3	16.3	40.5	0.4	33.4	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.3	16.3	40.5	0.4	33.4	5.0
Queue Length 50th (ft)	69	0	~360	0	56	246
Queue Length 95th (ft)	96	32	#1437	m0	99	267
Internal Link Dist (ft)	999		1813			1210
Turn Bay Length (ft)	150				200	
Base Capacity (vph)	554	317	2460	1159	252	2917
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.23	1.05	0.29	0.54	0.52

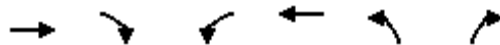
Intersection Summary

- ~ 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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
 11: Avenue A & RidgeGate Pkwy

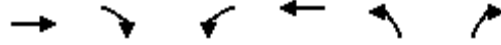
						
Movement	NBL	NBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Volume (veh/h)	137	58	2442	294	112	1427
Future Volume (veh/h)	137	58	2442	294	112	1427
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	163	74	2571	334	135	1518
Peak Hour Factor	0.84	0.78	0.95	0.88	0.83	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	232	107	2606	1162	194	3014
Arrive On Green	0.07	0.07	0.73	0.73	0.08	0.85
Sat Flow, veh/h	3456	1585	3647	1585	1781	3647
Grp Volume(v), veh/h	163	74	2571	334	135	1518
Grp Sat Flow(s),veh/h/ln	1728	1585	1777	1585	1781	1777
Q Serve(g_s), s	6.0	5.9	90.7	9.3	5.2	14.7
Cycle Q Clear(g_c), s	6.0	5.9	90.7	9.3	5.2	14.7
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	232	107	2606	1162	194	3014
V/C Ratio(X)	0.70	0.69	0.99	0.29	0.69	0.50
Avail Cap(c_a), veh/h	558	256	2606	1162	250	3014
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.43	0.43	1.00	1.00
Uniform Delay (d), s/veh	59.4	59.3	16.7	5.9	46.8	2.6
Incr Delay (d2), s/veh	3.8	7.8	8.8	0.3	5.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	2.6	31.4	2.9	4.5	2.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	63.2	67.2	25.6	6.1	52.4	3.2
LnGrp LOS	E	E	C	A	D	A
Approach Vol, veh/h	237		2905			1653
Approach Delay, s/veh	64.4		23.3			7.2
Approach LOS	E		C			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	14.9	101.3			116.3	13.7
Change Period (Y+Rc), s	5.0	6.0			6.0	5.0
Max Green Setting (Gmax), s	14.0	79.0			98.0	21.0
Max Q Clear Time (g_c+I1), s	7.2	92.7			16.7	8.0
Green Ext Time (p_c), s	0.2	0.0			17.1	0.7
Intersection Summary						
HCM 6th Ctrl Delay			19.8			
HCM 6th LOS			B			

Lanes, Volumes, Timings
12: Avenue B & Ridgeway Couplet WB



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	90	1388	151	0
Future Volume (vph)	0	0	90	1388	151	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	200		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected			0.950		0.950	
Satd. Flow (prot)	0	0	1770	3539	1770	0
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	0	0	1770	3539	1770	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						
Link Speed (mph)	45			45	30	
Link Distance (ft)	815			1169	614	
Travel Time (s)	12.3			17.7	14.0	
Peak Hour Factor	0.92	0.92	0.82	0.94	0.85	0.92
Adj. Flow (vph)	0	0	110	1477	178	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	110	1477	178	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors			1	2	1	
Detector Template			Left	Thru	Left	
Leading Detector (ft)			20	100	20	
Trailing Detector (ft)			0	0	0	
Detector 1 Position(ft)			0	0	0	
Detector 1 Size(ft)			20	6	20	
Detector 1 Type			Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)			0.0	0.0	0.0	
Detector 1 Queue (s)			0.0	0.0	0.0	
Detector 1 Delay (s)			0.0	0.0	0.0	
Detector 2 Position(ft)				94		
Detector 2 Size(ft)				6		
Detector 2 Type				Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)				0.0		
Turn Type			Perm	NA	Prot	
Protected Phases				6	8	
Permitted Phases			6			

Lanes, Volumes, Timings
 12: Avenue B & Ridgeway Couplet WB



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase			6	6	8	
Switch Phase						
Minimum Initial (s)			5.0	5.0	5.0	
Minimum Split (s)			24.0	24.0	24.0	
Total Split (s)			41.0	41.0	24.0	
Total Split (%)			63.1%	63.1%	36.9%	
Maximum Green (s)			35.0	35.0	18.0	
Yellow Time (s)			4.0	4.0	4.0	
All-Red Time (s)			2.0	2.0	2.0	
Lost Time Adjust (s)			0.0	0.0	0.0	
Total Lost Time (s)			6.0	6.0	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)			3.0	3.0	3.0	
Recall Mode			C-Min	C-Min	None	
Walk Time (s)			7.0	7.0	7.0	
Flash Dont Walk (s)			11.0	11.0	11.0	
Pedestrian Calls (#/hr)			0	0	0	
Act Effct Green (s)			41.3	41.3	11.7	
Actuated g/C Ratio			0.64	0.64	0.18	
v/c Ratio			0.10	0.66	0.56	
Control Delay			6.6	12.6	40.4	
Queue Delay			0.0	0.0	0.0	
Total Delay			6.6	12.6	40.4	
LOS			A	B	D	
Approach Delay				12.2	40.4	
Approach LOS				B	D	

Intersection Summary

Area Type:	Other
Cycle Length:	65
Actuated Cycle Length:	65
Offset:	0 (0%), Referenced to phase 2: and 6:WBTL, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.66
Intersection Signal Delay:	15.0
Intersection LOS:	B
Intersection Capacity Utilization:	91.8%
ICU Level of Service:	F
Analysis Period (min):	15

Splits and Phases: 12: Avenue B & Ridgeway Couplet WB

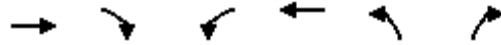


Queues
 12: Avenue B & Ridgegate Couplet WB



Lane Group	WBL	WBT	NBL
Lane Group Flow (vph)	110	1477	178
v/c Ratio	0.10	0.66	0.56
Control Delay	6.6	12.6	40.4
Queue Delay	0.0	0.0	0.0
Total Delay	6.6	12.6	40.4
Queue Length 50th (ft)	20	222	142
Queue Length 95th (ft)	38	375	126
Internal Link Dist (ft)		1089	534
Turn Bay Length (ft)	200		
Base Capacity (vph)	1123	2246	490
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.10	0.66	0.36
Intersection Summary			

HCM 6th Signalized Intersection Summary
 12: Avenue B & Ridgeway Couplet WB



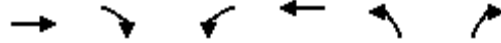
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations			↶	↷	↶	
Traffic Volume (veh/h)	0	0	90	1388	151	0
Future Volume (veh/h)	0	0	90	1388	151	0
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)			1.00		1.00	1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach				No	No	
Adj Sat Flow, veh/h/ln			1870	1870	1870	0
Adj Flow Rate, veh/h			110	1477	178	0
Peak Hour Factor			0.82	0.94	0.85	0.92
Percent Heavy Veh, %			2	2	2	0
Cap, veh/h			1728	3226	0	0
Arrive On Green			0.30	0.30	0.00	0.00
Sat Flow, veh/h			1781	3647	0	
Grp Volume(v), veh/h			110	1477	0.0	
Grp Sat Flow(s),veh/h/ln			1781	1777		
Q Serve(g_s), s			2.9	21.9		
Cycle Q Clear(g_c), s			2.9	21.9		
Prop In Lane			1.00			
Lane Grp Cap(c), veh/h			1728	3226		
V/C Ratio(X)			0.06	0.46		
Avail Cap(c_a), veh/h			1728	3226		
HCM Platoon Ratio			0.33	0.33		
Upstream Filter(I)			0.84	0.84		
Uniform Delay (d), s/veh			3.1	9.8		
Incr Delay (d2), s/veh			0.1	0.4		
Initial Q Delay(d3),s/veh			0.0	0.0		
%ile BackOfQ(50%),veh/ln			0.0	5.0		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			3.2	10.2		
LnGrp LOS			A	B		
Approach Vol, veh/h				1587		
Approach Delay, s/veh				9.7		
Approach LOS				A		
Timer - Assigned Phs						6
Phs Duration (G+Y+Rc), s						65.0
Change Period (Y+Rc), s						6.0
Max Green Setting (Gmax), s						35.0
Max Q Clear Time (g_c+I1), s						23.9
Green Ext Time (p_c), s						7.2
Intersection Summary						
HCM 6th Ctrl Delay			9.7			
HCM 6th LOS			A			

Lanes, Volumes, Timings
13: Avenue D & Ridgeway Couplet WB



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	22	1439	39	0
Future Volume (vph)	0	0	22	1439	39	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	200		150	0
Storage Lanes		0	1		0	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected			0.950		0.950	
Satd. Flow (prot)	0	0	1770	3539	1770	0
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	0	0	1770	3539	1770	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						
Link Speed (mph)	30			45	30	
Link Distance (ft)	1169			1377	727	
Travel Time (s)	26.6			20.9	16.5	
Peak Hour Factor	0.92	0.92	0.78	0.94	0.78	0.92
Adj. Flow (vph)	0	0	28	1531	50	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	28	1531	50	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors			1	2	1	
Detector Template			Left	Thru	Left	
Leading Detector (ft)			20	100	20	
Trailing Detector (ft)			0	0	0	
Detector 1 Position(ft)			0	0	0	
Detector 1 Size(ft)			20	6	20	
Detector 1 Type			Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)			0.0	0.0	0.0	
Detector 1 Queue (s)			0.0	0.0	0.0	
Detector 1 Delay (s)			0.0	0.0	0.0	
Detector 2 Position(ft)				94		
Detector 2 Size(ft)				6		
Detector 2 Type				Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)				0.0		
Turn Type			Perm	NA	Prot	
Protected Phases				6	8	
Permitted Phases			6			

Lanes, Volumes, Timings
 13: Avenue D & Ridgeway Couplet WB

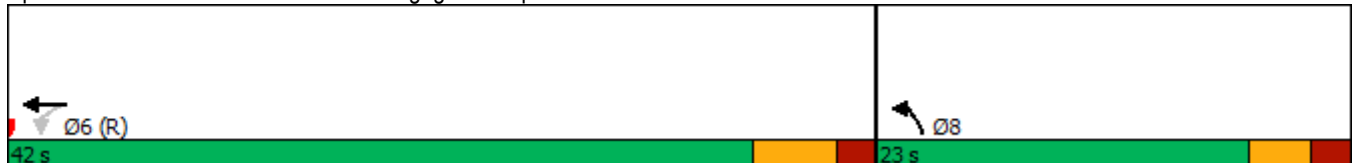


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase			6	6	8	
Switch Phase						
Minimum Initial (s)			5.0	5.0	5.0	
Minimum Split (s)			24.0	24.0	23.0	
Total Split (s)			42.0	42.0	23.0	
Total Split (%)			64.6%	64.6%	35.4%	
Maximum Green (s)			36.0	36.0	18.0	
Yellow Time (s)			4.0	4.0	3.0	
All-Red Time (s)			2.0	2.0	2.0	
Lost Time Adjust (s)			0.0	0.0	0.0	
Total Lost Time (s)			6.0	6.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)			3.0	3.0	3.0	
Recall Mode			C-Min	C-Min	None	
Walk Time (s)			7.0	7.0	7.0	
Flash Dont Walk (s)			11.0	11.0	11.0	
Pedestrian Calls (#/hr)			0	0	0	
Act Effct Green (s)			53.4	53.4	7.3	
Actuated g/C Ratio			0.82	0.82	0.11	
v/c Ratio			0.02	0.53	0.25	
Control Delay			3.0	4.5	20.9	
Queue Delay			0.0	0.0	0.0	
Total Delay			3.0	4.5	20.9	
LOS			A	A	C	
Approach Delay				4.5	20.9	
Approach LOS				A	C	

Intersection Summary

Area Type: Other
 Cycle Length: 65
 Actuated Cycle Length: 65
 Offset: 33 (51%), Referenced to phase 2: and 6:WBTL, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.53
 Intersection Signal Delay: 5.0
 Intersection LOS: A
 Intersection Capacity Utilization 53.1%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 13: Avenue D & Ridgeway Couplet WB



Queues
 13: Avenue D & Ridgegate Couplet WB



Lane Group	WBL	WBT	NBL
Lane Group Flow (vph)	28	1531	50
v/c Ratio	0.02	0.53	0.25
Control Delay	3.0	4.5	20.9
Queue Delay	0.0	0.0	0.0
Total Delay	3.0	4.5	20.9
Queue Length 50th (ft)	2	120	44
Queue Length 95th (ft)	8	197	78
Internal Link Dist (ft)		1297	647
Turn Bay Length (ft)	200		150
Base Capacity (vph)	1454	2907	490
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.02	0.53	0.10
Intersection Summary			

HCM 6th Signalized Intersection Summary
 13: Avenue D & Ridgeway Couplet WB



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations			↶	↷	↶	
Traffic Volume (veh/h)	0	0	22	1439	39	0
Future Volume (veh/h)	0	0	22	1439	39	0
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)			1.00		1.00	1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach				No	No	
Adj Sat Flow, veh/h/ln			1870	1870	1870	0
Adj Flow Rate, veh/h			28	1531	50	0
Peak Hour Factor			0.78	0.94	0.78	0.92
Percent Heavy Veh, %			2	2	2	0
Cap, veh/h			1728	3226	0	0
Arrive On Green			0.91	0.91	0.00	0.00
Sat Flow, veh/h			1781	3647	0	
Grp Volume(v), veh/h			28	1531	0.0	
Grp Sat Flow(s),veh/h/ln			1781	1777		
Q Serve(g_s), s			0.1	4.5		
Cycle Q Clear(g_c), s			0.1	4.5		
Prop In Lane			1.00			
Lane Grp Cap(c), veh/h			1728	3226		
V/C Ratio(X)			0.02	0.47		
Avail Cap(c_a), veh/h			1728	3226		
HCM Platoon Ratio			1.00	1.00		
Upstream Filter(I)			1.00	1.00		
Uniform Delay (d), s/veh			0.3	0.5		
Incr Delay (d2), s/veh			0.0	0.5		
Initial Q Delay(d3),s/veh			0.0	0.0		
%ile BackOfQ(50%),veh/ln			0.0	0.2		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.3	1.0		
LnGrp LOS			A	A		
Approach Vol, veh/h				1559		
Approach Delay, s/veh				1.0		
Approach LOS				A		
Timer - Assigned Phs						6
Phs Duration (G+Y+Rc), s						65.0
Change Period (Y+Rc), s						6.0
Max Green Setting (Gmax), s						36.0
Max Q Clear Time (g_c+I1), s						6.5
Green Ext Time (p_c), s						13.5
Intersection Summary						
HCM 6th Ctrl Delay			1.0			
HCM 6th LOS			A			

Lanes, Volumes, Timings
14: Avenue B & Ridgeway Couplet EB

JR Engineering
05/13/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	2339	155	0	0	0	0	151	80	1	75	0
Future Volume (vph)	1	2339	155	0	0	0	0	151	80	1	75	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	0		200	0		0	0		0
Storage Lanes	1		1	0		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.850			
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1770	3539	1583	0	0	0	0	1863	1583	1770	1863	0
Flt Permitted	0.950									0.413		
Satd. Flow (perm)	1770	3539	1583	0	0	0	0	1863	1583	769	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			126						25			
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		990			1252			512			614	
Travel Time (s)		15.0			19.0			11.6			14.0	
Peak Hour Factor	0.92	0.95	0.85	0.92	0.92	0.92	0.92	0.85	0.81	0.78	0.80	0.92
Adj. Flow (vph)	1	2462	182	0	0	0	0	178	99	1	94	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	2462	182	0	0	0	0	178	99	1	94	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	40	40	40					100	40	40	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	40	40	40					6	40	40	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)								94			94	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	Perm	NA	
Protected Phases		2						8			4	
Permitted Phases	2		2						8	4		

Lanes, Volumes, Timings
14: Avenue B & Ridgeway Couplet EB

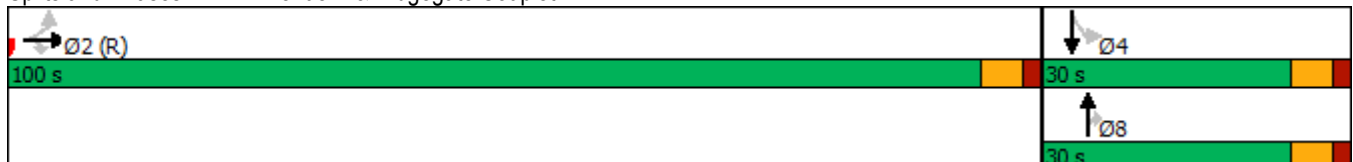


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2	2					8	8	4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0					5.0	5.0	5.0	5.0	
Minimum Split (s)	24.0	24.0	24.0					24.0	24.0	24.0	24.0	
Total Split (s)	100.0	100.0	100.0					30.0	30.0	30.0	30.0	
Total Split (%)	76.9%	76.9%	76.9%					23.1%	23.1%	23.1%	23.1%	
Maximum Green (s)	94.0	94.0	94.0					24.0	24.0	24.0	24.0	
Yellow Time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0					2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Recall Mode	C-Min	C-Min	C-Min					None	None	None	None	
Walk Time (s)	7.0	7.0	7.0					7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0					11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0					0	0	0	0	
Act Effct Green (s)	100.4	100.4	100.4					17.6	17.6	17.6	17.6	
Actuated g/C Ratio	0.77	0.77	0.77					0.14	0.14	0.14	0.14	
v/c Ratio	0.00	0.90	0.15					0.71	0.42	0.01	0.37	
Control Delay	4.0	18.1	1.8					68.3	42.5	55.0	58.5	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Delay	4.0	18.1	1.8					68.3	42.5	55.0	58.5	
LOS	A	B	A					E	D	D	E	
Approach Delay		17.0						59.1			58.4	
Approach LOS		B						E			E	

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	0 (0%), Referenced to phase 2:EBTL, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.90
Intersection Signal Delay:	22.1
Intersection LOS:	C
Intersection Capacity Utilization:	91.8%
ICU Level of Service:	F
Analysis Period (min):	15

Splits and Phases: 14: Avenue B & Ridgeway Couplet EB



Queues
14: Avenue B & Ridgegate Couplet EB



Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	1	2462	182	178	99	1	94
v/c Ratio	0.00	0.90	0.15	0.71	0.42	0.01	0.37
Control Delay	4.0	18.1	1.8	68.3	42.5	55.0	58.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.0	18.1	1.8	68.3	42.5	55.0	58.5
Queue Length 50th (ft)	0	701	10	145	57	1	73
Queue Length 95th (ft)	2	#1128	29	200	95	7	128
Internal Link Dist (ft)		910		432			534
Turn Bay Length (ft)	200		200				
Base Capacity (vph)	1366	2732	1250	343	312	141	343
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.90	0.15	0.52	0.32	0.01	0.27

Intersection Summary

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

HCM 6th Signalized Intersection Summary
 14: Avenue B & Ridgeway Couplet EB

JR Engineering
 05/13/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗					↑	↗	↘	↑	
Traffic Volume (veh/h)	1	2339	155	0	0	0	0	151	80	1	75	0
Future Volume (veh/h)	1	2339	155	0	0	0	0	151	80	1	75	0
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	1	2462	182				0	178	99	1	94	0
Peak Hour Factor	0.92	0.95	0.85				0.92	0.85	0.81	0.78	0.80	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	1411	2815	1255				0	216	183	80	216	0
Arrive On Green	0.79	0.79	0.79				0.00	0.12	0.12	0.12	0.12	0.00
Sat Flow, veh/h	1781	3554	1585				0	1870	1585	1102	1870	0
Grp Volume(v), veh/h	1	2462	182				0	178	99	1	94	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585				0	1870	1585	1102	1870	0
Q Serve(g_s), s	0.0	61.0	3.5				0.0	12.1	7.7	0.1	6.1	0.0
Cycle Q Clear(g_c), s	0.0	61.0	3.5				0.0	12.1	7.7	12.2	6.1	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1411	2815	1255				0	216	183	80	216	0
V/C Ratio(X)	0.00	0.87	0.14				0.00	0.82	0.54	0.01	0.43	0.00
Avail Cap(c_a), veh/h	1411	2815	1255				0	345	293	156	345	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	2.8	9.1	3.2				0.0	56.2	54.2	62.1	53.5	0.0
Incr Delay (d2), s/veh	0.0	4.2	0.2				0.0	8.4	2.5	0.1	1.4	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
%ile BackOfQ(50%),veh/ln	0.0	17.5	0.9				0.0	6.2	3.2	0.0	3.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	2.8	13.3	3.4				0.0	64.6	56.7	62.2	54.9	0.0
LnGrp LOS	A	B	A				A	E	E	E	D	A
Approach Vol, veh/h		2645						277			95	
Approach Delay, s/veh		12.6						61.8			55.0	
Approach LOS		B						E			D	
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		109.0		21.0				21.0				
Change Period (Y+Rc), s		6.0		6.0				6.0				
Max Green Setting (Gmax), s		94.0		24.0				24.0				
Max Q Clear Time (g_c+I1), s		63.0		14.2				14.1				
Green Ext Time (p_c), s		20.3		0.2				0.9				
Intersection Summary												
HCM 6th Ctrl Delay			18.5									
HCM 6th LOS			B									

Lanes, Volumes, Timings
15: Ridgeway Couplet EB & Avenue D



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	2358	61	0	0	0	0	39	14	1	22	1
Future Volume (vph)	1	2358	61	0	0	0	0	39	14	1	22	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		200	0		0	0		0	150		0
Storage Lanes	1		1	0		0	0		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.850			0.850
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1593	3185	1425	0	0	0	0	1676	1425	1593	1676	1425
Flt Permitted	0.950									0.724		
Satd. Flow (perm)	1593	3185	1425	0	0	0	0	1676	1425	1214	1676	1425
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			52						25			25
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1252			1387			763			727	
Travel Time (s)		19.0			21.0			17.3			16.5	
Peak Hour Factor	0.78	0.93	0.79	0.92	0.92	0.92	0.92	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	1	2535	77	0	0	0	0	50	18	1	28	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	2535	77	0	0	0	0	50	18	1	28	1
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	1
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20					100	20	20	100	20
Trailing Detector (ft)	0	0	0					0	0	0	0	0
Detector 1 Position(ft)	0	0	0					0	0	0	0	0
Detector 1 Size(ft)	20	6	20					6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	Perm	NA	Perm
Protected Phases		2						8			4	
Permitted Phases	2		2						8	4		4

Lanes, Volumes, Timings
15: Ridgeway Couplet EB & Avenue D

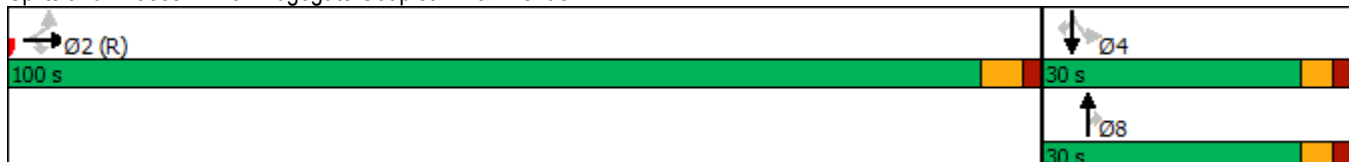


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2	2					8	8	4	4	4
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0					5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0					23.0	23.0	23.0	23.0	23.0
Total Split (s)	100.0	100.0	100.0					30.0	30.0	30.0	30.0	30.0
Total Split (%)	76.9%	76.9%	76.9%					23.1%	23.1%	23.1%	23.1%	23.1%
Maximum Green (s)	94.0	94.0	94.0					25.0	25.0	25.0	25.0	25.0
Yellow Time (s)	4.0	4.0	4.0					3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	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
Total Lost Time (s)	6.0	6.0	6.0					5.0	5.0	5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min	C-Min	C-Min					None	None	None	None	None
Walk Time (s)	7.0	7.0	7.0					7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0					11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0					0	0	0	0	0
Act Effct Green (s)	113.1	113.1	113.1					9.3	9.3	9.2	9.2	9.2
Actuated g/C Ratio	0.87	0.87	0.87					0.07	0.07	0.07	0.07	0.07
v/c Ratio	0.00	0.92	0.06					0.42	0.15	0.01	0.24	0.01
Control Delay	3.0	11.1	1.2					67.5	16.8	64.0	59.0	1.0
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.0	0.0
Total Delay	3.0	11.1	1.2					67.5	16.8	64.0	59.0	1.0
LOS	A	B	A					E	B	E	E	A
Approach Delay		10.8						54.1			57.3	
Approach LOS		B						D			E	

Intersection Summary

Area Type:	CBD	
Cycle Length:	130	
Actuated Cycle Length:	130	
Offset:	0 (0%), Referenced to phase 2:EBTL, Start of Green	
Natural Cycle:	130	
Control Type:	Actuated-Coordinated	
Maximum v/c Ratio:	0.92	
Intersection Signal Delay:	12.4	Intersection LOS: B
Intersection Capacity Utilization	94.1%	ICU Level of Service F
Analysis Period (min)	15	

Splits and Phases: 15: Ridgeway Couplet EB & Avenue D



Queues
15: Ridgeway Couplet EB & Avenue D



Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1	2535	77	50	18	1	28	1
v/c Ratio	0.00	0.92	0.06	0.42	0.15	0.01	0.24	0.01
Control Delay	3.0	11.1	1.2	67.5	16.8	64.0	59.0	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.0	11.1	1.2	67.5	16.8	64.0	59.0	1.0
Queue Length 50th (ft)	0	253	2	41	0	1	23	0
Queue Length 95th (ft)	m0	#427	m6	71	14	6	43	1
Internal Link Dist (ft)		1172		683			647	
Turn Bay Length (ft)	150		200			150		
Base Capacity (vph)	1385	2769	1246	322	294	233	322	294
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.92	0.06	0.16	0.06	0.00	0.09	0.00

Intersection Summary

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
 15: Ridgeway Couplet EB & Avenue D

JR Engineering
 05/13/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↗	↖					↖	↗	↖	↗	↖
Traffic Volume (veh/h)	1	2358	61	0	0	0	0	39	14	1	22	1
Future Volume (veh/h)	1	2358	61	0	0	0	0	39	14	1	22	1
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	1683	1683	1683				0	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	1	2535	77				0	50	18	1	28	1
Peak Hour Factor	0.78	0.93	0.79				0.92	0.78	0.78	0.78	0.78	0.78
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	2
Cap, veh/h	1395	2784	1242				0	76	64	74	76	64
Arrive On Green	0.87	0.87	0.87				0.00	0.04	0.04	0.04	0.04	0.04
Sat Flow, veh/h	1603	3198	1427				0	1683	1427	1200	1683	1427
Grp Volume(v), veh/h	1	2535	77				0	50	18	1	28	1
Grp Sat Flow(s),veh/h/ln	1603	1599	1427				0	1683	1427	1200	1683	1427
Q Serve(g_s), s	0.0	64.4	1.0				0.0	3.8	1.6	0.1	2.1	0.1
Cycle Q Clear(g_c), s	0.0	64.4	1.0				0.0	3.8	1.6	3.9	2.1	0.1
Prop In Lane	1.00		1.00				0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	1395	2784	1242				0	76	64	74	76	64
V/C Ratio(X)	0.00	0.91	0.06				0.00	0.66	0.28	0.01	0.37	0.02
Avail Cap(c_a), veh/h	1395	2784	1242				0	324	274	251	324	274
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.35	0.35	0.35				0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	1.1	5.3	1.2				0.0	61.1	60.0	63.0	60.3	59.3
Incr Delay (d2), s/veh	0.0	2.2	0.0				0.0	9.4	2.4	0.1	3.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	7.8	0.1				0.0	1.8	0.6	0.0	1.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	1.1	7.4	1.2				0.0	70.5	62.4	63.1	63.3	59.4
LnGrp LOS	A	A	A				A	E	E	E	E	E
Approach Vol, veh/h		2613						68			30	
Approach Delay, s/veh		7.3						68.4			63.1	
Approach LOS		A						E			E	
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		119.2		10.8				10.8				
Change Period (Y+Rc), s		6.0		5.0				5.0				
Max Green Setting (Gmax), s		94.0		25.0				25.0				
Max Q Clear Time (g_c+I1), s		66.4		5.9				5.8				
Green Ext Time (p_c), s		23.5		0.1				0.2				
Intersection Summary												
HCM 6th Ctrl Delay			9.4									
HCM 6th LOS			A									

Lanes, Volumes, Timings
16: Havana St & Avenue B

JR Engineering
05/13/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↖		↖	↖	↖	↖	↖↗	↖	↖	↖↗	↖
Traffic Volume (vph)	213	35	59	53	10	160	10	394	109	204	308	303
Future Volume (vph)	213	35	59	53	10	160	10	394	109	204	308	303
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	200		0	200		200	200		0
Storage Lanes	2		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.900				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1676	0	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.684			0.332			0.495		
Satd. Flow (perm)	3433	1676	0	1274	1863	1583	618	3539	1583	922	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		76				244			257			344
Link Speed (mph)		30			30			35				35
Link Distance (ft)		497			2632			5321				842
Travel Time (s)		11.3			59.8			103.7				16.4
Peak Hour Factor	0.87	0.92	0.78	0.78	0.78	0.85	0.78	0.89	0.83	0.87	0.88	0.88
Adj. Flow (vph)	245	38	76	68	13	188	13	443	131	234	350	344
Shared Lane Traffic (%)												
Lane Group Flow (vph)	245	114	0	68	13	188	13	443	131	234	350	344
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	40	40		40	40	20	20	100	40	40	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	40	40		40	40	20	20	6	40	40	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)								94				94
Detector 2 Size(ft)								6				6
Detector 2 Type								Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)								0.0				0.0
Turn Type	Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases				8		8	2		2	6		6

Lanes, Volumes, Timings
16: Havana St & Avenue B

JR Engineering
05/13/2020

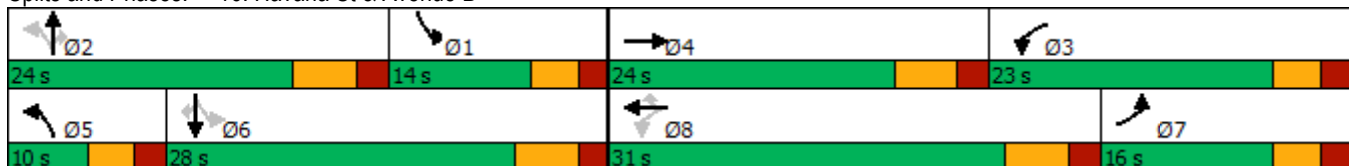


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.0	24.0		23.0	24.0	24.0	10.0	24.0	24.0	10.0	24.0	24.0
Total Split (s)	16.0	24.0		23.0	31.0	31.0	10.0	24.0	24.0	14.0	28.0	28.0
Total Split (%)	18.8%	28.2%		27.1%	36.5%	36.5%	11.8%	28.2%	28.2%	16.5%	32.9%	32.9%
Maximum Green (s)	11.0	18.0		18.0	25.0	25.0	5.0	18.0	18.0	9.0	22.0	22.0
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.0	4.0	3.0	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	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	0.0
Total Lost Time (s)	5.0	6.0		5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag	Lag	Lead		Lag	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0		7.0	7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0		11.0	11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0		0	0	0		0	0		0	0
Act Effct Green (s)	9.6	13.1		20.9	10.1	10.1	14.8	13.8	13.8	24.4	23.4	23.4
Actuated g/C Ratio	0.16	0.21		0.34	0.16	0.16	0.24	0.22	0.22	0.39	0.38	0.38
v/c Ratio	0.46	0.27		0.13	0.04	0.41	0.05	0.56	0.24	0.52	0.26	0.42
Control Delay	27.7	13.4		13.7	25.0	4.7	19.0	24.7	1.0	21.7	14.8	4.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.7	13.4		13.7	25.0	4.7	19.0	24.7	1.0	21.7	14.8	4.1
LOS	C	B		B	C	A	B	C	A	C	B	A
Approach Delay		23.1			8.0			19.3			12.6	
Approach LOS		C			A			B			B	

Intersection Summary

Area Type:	Other
Cycle Length:	85
Actuated Cycle Length:	61.9
Natural Cycle:	85
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.56
Intersection Signal Delay:	15.6
Intersection LOS:	B
Intersection Capacity Utilization:	49.1%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 16: Havana St & Avenue B



Queues
16: Havana St & Avenue B





























Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	245	114	68	13	188	13	443	131	234	350	344
v/c Ratio	0.46	0.27	0.13	0.04	0.41	0.05	0.56	0.24	0.52	0.26	0.42
Control Delay	27.7	13.4	13.7	25.0	4.7	19.0	24.7	1.0	21.7	14.8	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.7	13.4	13.7	25.0	4.7	19.0	24.7	1.0	21.7	14.8	4.1
Queue Length 50th (ft)	43	12	15	4	0	4	77	0	56	44	0
Queue Length 95th (ft)	79	57	36	17	21	14	125	0	129	90	49
Internal Link Dist (ft)		417		2552			5241			762	
Turn Bay Length (ft)			200			200		200	200		
Base Capacity (vph)	613	576	728	757	788	241	1035	645	527	1354	818
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.20	0.09	0.02	0.24	0.05	0.43	0.20	0.44	0.26	0.42

Intersection Summary

HCM 6th Signalized Intersection Summary
 16: Havana St & Avenue B

JR Engineering
 05/13/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 							 			 	
Traffic Volume (veh/h)	213	35	59	53	10	160	10	394	109	204	308	303
Future Volume (veh/h)	213	35	59	53	10	160	10	394	109	204	308	303
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	245	38	76	68	13	188	13	443	131	234	350	344
Peak Hour Factor	0.87	0.92	0.78	0.78	0.78	0.85	0.78	0.89	0.83	0.87	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	380	102	205	485	343	290	168	692	309	328	1017	453
Arrive On Green	0.11	0.18	0.18	0.11	0.18	0.18	0.02	0.19	0.19	0.09	0.29	0.29
Sat Flow, veh/h	3456	557	1113	1781	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	245	0	114	68	13	188	13	443	131	234	350	344
Grp Sat Flow(s),veh/h/ln	1728	0	1670	1781	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	3.7	0.0	3.3	0.0	0.3	6.0	0.3	6.2	3.9	1.6	4.2	6.1
Cycle Q Clear(g_c), s	3.7	0.0	3.3	0.0	0.3	6.0	0.3	6.2	3.9	1.6	4.2	6.1
Prop In Lane	1.00		0.67	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	380	0	307	485	343	290	168	692	309	328	1017	453
V/C Ratio(X)	0.64	0.00	0.37	0.14	0.04	0.65	0.08	0.64	0.42	0.71	0.34	0.76
Avail Cap(c_a), veh/h	699	0	552	879	859	728	302	1176	524	463	1437	641
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.2	0.0	19.5	16.9	18.3	20.6	20.6	20.1	19.2	22.5	15.4	5.6
Incr Delay (d2), s/veh	1.8	0.0	0.7	0.1	0.0	2.4	0.2	1.0	0.9	3.0	0.2	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	1.2	0.6	0.1	2.2	0.1	2.4	1.4	2.8	1.5	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.0	0.0	20.2	17.0	18.3	23.0	20.8	21.1	20.2	25.5	15.6	8.9
LnGrp LOS	C	A	C	B	B	C	C	C	C	C	B	A
Approach Vol, veh/h		359			269			587			928	
Approach Delay, s/veh		23.5			21.3			20.9			15.6	
Approach LOS		C			C			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.9	16.6	11.0	16.0	5.9	21.6	11.0	16.0				
Change Period (Y+Rc), s	6.0	* 6	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	9.0	* 18	18.0	18.0	5.0	22.0	11.0	25.0				
Max Q Clear Time (g_c+I1), s	3.6	8.2	2.0	5.3	2.3	8.1	5.7	8.0				
Green Ext Time (p_c), s	0.4	2.4	0.1	0.3	0.0	3.0	0.4	0.6				
Intersection Summary												
HCM 6th Ctrl Delay			19.1									
HCM 6th LOS			B									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	55	73	440	59	121	299
Future Volume (vph)	55	73	440	59	121	299
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	200		200	300	
Storage Lanes	1	0		0	0	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.924		0.982			
Flt Protected	0.979					0.985
Satd. Flow (prot)	1685	0	1829	0	0	1835
Flt Permitted	0.979					0.985
Satd. Flow (perm)	1685	0	1829	0	0	1835
Link Speed (mph)	30		35			35
Link Distance (ft)	744		1352			5321
Travel Time (s)	16.9		26.3			103.7
Peak Hour Factor	0.78	0.79	0.91	0.78	0.83	0.88
Adj. Flow (vph)	71	92	484	76	146	340
Shared Lane Traffic (%)						
Lane Group Flow (vph)	163	0	560	0	0	486
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 66.7% ICU Level of Service C
 Analysis Period (min) 15

Intersection						
Int Delay, s/veh	5.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	55	73	440	59	121	299
Future Vol, veh/h	55	73	440	59	121	299
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	78	79	91	78	83	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	71	92	484	76	146	340

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1154	522	0	0	560
Stage 1	522	-	-	-	-
Stage 2	632	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	218	555	-	-	1011
Stage 1	595	-	-	-	-
Stage 2	530	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	179	555	-	-	1011
Mov Cap-2 Maneuver	179	-	-	-	-
Stage 1	595	-	-	-	-
Stage 2	436	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	32	0	2.8
HCM LOS	D		

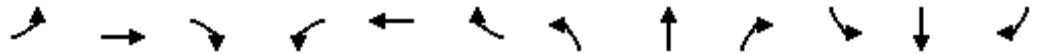
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	291	1011
HCM Lane V/C Ratio	-	-	0.56	0.144
HCM Control Delay (s)	-	-	32	9.2
HCM Lane LOS	-	-	D	A
HCM 95th %tile Q(veh)	-	-	3.2	0.5

Lanes, Volumes, Timings
1: Road F & Avenue B



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	114	60	2	192	2	62	5	19	2	3	1
Future Volume (vph)	1	114	60	2	192	2	62	5	19	2	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	150		0	150		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.946			0.998			0.970			0.983	
Flt Protected	0.950			0.950				0.965			0.982	
Satd. Flow (prot)	1770	1762	0	1770	1859	0	0	1744	0	0	1798	0
Flt Permitted	0.617			0.625				0.782			0.831	
Satd. Flow (perm)	1149	1762	0	1164	1859	0	0	1413	0	0	1522	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		67			2			24			1	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		814			1136			494			379	
Travel Time (s)		18.5			25.8			13.5			10.3	
Peak Hour Factor	0.78	0.83	0.79	0.78	0.86	0.78	0.79	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	1	137	76	3	223	3	78	6	24	3	4	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	213	0	3	226	0	0	108	0	0	8	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	40	40		40	40		20	40		20	40	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	40	40		40	40		20	40		20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Total Split (s)	26.0	26.0		26.0	26.0		24.0	24.0		24.0	24.0	

Lanes, Volumes, Timings
1: Road F & Avenue B

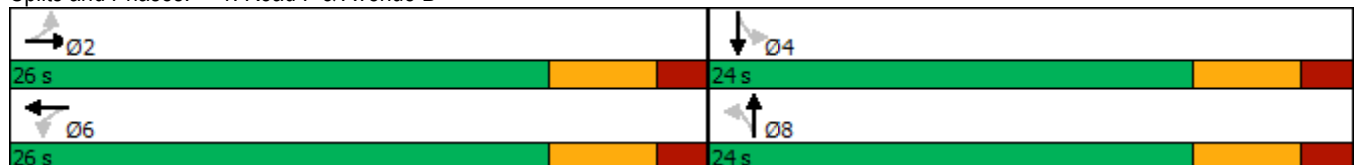


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	52.0%	52.0%		52.0%	52.0%		48.0%	48.0%		48.0%	48.0%	
Maximum Green (s)	20.0	20.0		20.0	20.0		18.0	18.0		18.0	18.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	20.2	20.2		20.2	20.2			7.5			7.3	
Actuated g/C Ratio	0.64	0.64		0.64	0.64			0.24			0.23	
v/c Ratio	0.00	0.19		0.00	0.19			0.31			0.02	
Control Delay	7.0	5.3		7.0	6.8			10.8			8.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	7.0	5.3		7.0	6.8			10.8			8.8	
LOS	A	A		A	A			B			A	
Approach Delay		5.3			6.8			10.8			8.8	
Approach LOS		A			A			B			A	

Intersection Summary

Area Type:	Other
Cycle Length:	50
Actuated Cycle Length:	31.6
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.31
Intersection Signal Delay:	7.0
Intersection LOS:	A
Intersection Capacity Utilization:	29.8%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 1: Road F & Avenue B



Queues
1: Road F & Avenue B



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	1	213	3	226	108	8
v/c Ratio	0.00	0.19	0.00	0.19	0.31	0.02
Control Delay	7.0	5.3	7.0	6.8	10.8	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.0	5.3	7.0	6.8	10.8	8.8
Queue Length 50th (ft)	0	15	0	24	15	1
Queue Length 95th (ft)	2	40	3	56	27	5
Internal Link Dist (ft)		734		1056	414	299
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	859	1335	871	1391	828	882
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.16	0.00	0.16	0.13	0.01

Intersection Summary

HCM 6th Signalized Intersection Summary
1: Road F & Avenue B

JR Engineering
05/07/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	114	60	2	192	2	62	5	19	2	3	1
Future Volume (veh/h)	1	114	60	2	192	2	62	5	19	2	3	1
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	1	137	76	3	223	3	78	6	24	3	4	1
Peak Hour Factor	0.78	0.83	0.79	0.78	0.86	0.78	0.79	0.78	0.78	0.78	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	554	293	162	556	477	6	449	10	39	328	111	26
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.12	0.12	0.12	0.12	0.12	0.12
Sat Flow, veh/h	1155	1130	627	1168	1841	25	1067	82	328	602	923	218
Grp Volume(v), veh/h	1	0	213	3	0	226	108	0	0	8	0	0
Grp Sat Flow(s),veh/h/ln	1155	0	1757	1168	0	1866	1478	0	0	1743	0	0
Q Serve(g_s), s	0.0	0.0	2.0	0.0	0.0	2.0	1.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.0	0.0	2.0	2.0	0.0	2.0	1.3	0.0	0.0	0.1	0.0	0.0
Prop In Lane	1.00		0.36	1.00		0.01	0.72		0.22	0.37		0.12
Lane Grp Cap(c), veh/h	554	0	455	556	0	483	498	0	0	465	0	0
V/C Ratio(X)	0.00	0.00	0.47	0.01	0.00	0.47	0.22	0.00	0.00	0.02	0.00	0.00
Avail Cap(c_a), veh/h	1450	0	1820	1463	0	1932	1689	0	0	1779	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.9	0.0	6.0	6.9	0.0	6.0	8.1	0.0	0.0	7.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.8	0.0	0.0	0.7	0.2	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.4	0.0	0.0	0.4	0.3	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.9	0.0	6.8	6.9	0.0	6.7	8.3	0.0	0.0	7.5	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		214			229			108				8
Approach Delay, s/veh		6.8			6.7			8.3				7.5
Approach LOS		A			A			A				A
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		11.0		8.3		11.0		8.3				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		20.0		18.0		20.0		18.0				
Max Q Clear Time (g_c+I1), s		4.0		2.1		4.0		3.3				
Green Ext Time (p_c), s		0.7		0.0		0.7		0.3				
Intersection Summary												
HCM 6th Ctrl Delay				7.1								
HCM 6th LOS				A								

Lanes, Volumes, Timings
2: Avenue A & Avenue B

JR Engineering
05/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	56	77	36	26	32	167	108	5	14	86	1
Future Volume (vph)	4	56	77	36	26	32	167	108	5	14	86	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	150		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.914			0.917			0.993			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1703	0	1770	1708	0	1770	1850	0	1770	1861	0
Flt Permitted	0.709			0.578			0.535			0.670		
Satd. Flow (perm)	1321	1703	0	1077	1708	0	997	1850	0	1248	1861	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		92			41			3			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1136			2594			720			491	
Travel Time (s)		25.8			59.0			16.4			11.2	
Peak Hour Factor	0.78	0.78	0.80	0.78	0.78	0.78	0.85	0.83	0.78	0.78	0.81	0.78
Adj. Flow (vph)	5	72	96	46	33	41	196	130	6	18	106	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	168	0	46	74	0	196	136	0	18	107	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	40	40		40	40		40	40		40	40	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	40	40		40	40		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	24.0		10.0	24.0		10.0	24.0		10.0	24.0	
Total Split (s)	10.0	24.0		10.0	24.0		12.0	26.0		10.0	24.0	

Lanes, Volumes, Timings
2: Avenue A & Avenue B

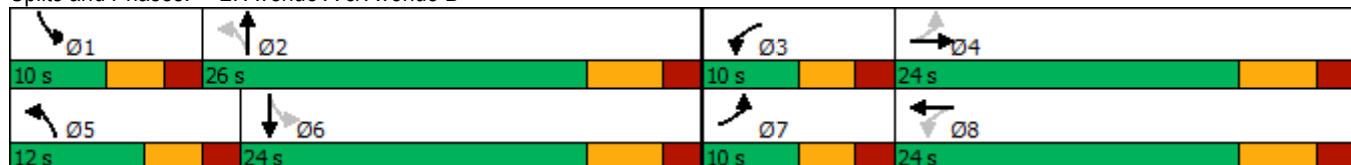


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	14.3%	34.3%		14.3%	34.3%		17.1%	37.1%		14.3%	34.3%	
Maximum Green (s)	5.0	18.0		5.0	18.0		7.0	20.0		5.0	18.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	6.0		5.0	6.0		5.0	6.0		5.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Min		None	Min	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	10.3	8.1		11.1	9.7		22.9	22.7		18.0	15.1	
Actuated g/C Ratio	0.24	0.19		0.26	0.23		0.54	0.53		0.42	0.35	
v/c Ratio	0.01	0.42		0.13	0.18		0.29	0.14		0.03	0.16	
Control Delay	10.8	13.2		11.9	10.3		9.9	12.3		9.3	18.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	10.8	13.2		11.9	10.3		9.9	12.3		9.3	18.4	
LOS	B	B		B	B		A	B		A	B	
Approach Delay		13.1			10.9			10.9			17.1	
Approach LOS		B			B			B			B	

Intersection Summary

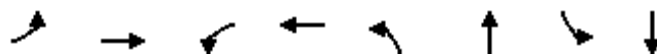
Area Type:	Other
Cycle Length:	70
Actuated Cycle Length:	42.7
Natural Cycle:	70
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.42
Intersection Signal Delay:	12.4
Intersection LOS:	B
Intersection Capacity Utilization:	41.9%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 2: Avenue A & Avenue B



Queues
2: Avenue A & Avenue B

JR Engineering
05/07/2020



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	5	168	46	74	196	136	18	107
v/c Ratio	0.01	0.42	0.13	0.18	0.29	0.14	0.03	0.16
Control Delay	10.8	13.2	11.9	10.3	9.9	12.3	9.3	18.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.8	13.2	11.9	10.3	9.9	12.3	9.3	18.4
Queue Length 50th (ft)	1	14	8	6	20	14	2	20
Queue Length 95th (ft)	5	52	22	30	74	72	11	61
Internal Link Dist (ft)		1056		2514		640		411
Turn Bay Length (ft)	150		150		150		150	
Base Capacity (vph)	374	823	366	806	670	1038	591	967
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.20	0.13	0.09	0.29	0.13	0.03	0.11

Intersection Summary

HCM 6th Signalized Intersection Summary
2: Avenue A & Avenue B

JR Engineering
05/07/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	56	77	36	26	32	167	108	5	14	86	1
Future Volume (veh/h)	4	56	77	36	26	32	167	108	5	14	86	1
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	5	72	96	46	33	41	196	130	6	18	106	1
Peak Hour Factor	0.78	0.78	0.80	0.78	0.78	0.78	0.85	0.83	0.78	0.78	0.81	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	385	105	141	333	143	178	498	406	19	379	233	2
Arrive On Green	0.01	0.15	0.15	0.05	0.19	0.19	0.13	0.23	0.23	0.02	0.13	0.13
Sat Flow, veh/h	1781	727	969	1781	758	942	1781	1774	82	1781	1850	17
Grp Volume(v), veh/h	5	0	168	46	0	74	196	0	136	18	0	107
Grp Sat Flow(s),veh/h/ln	1781	0	1696	1781	0	1701	1781	0	1856	1781	0	1867
Q Serve(g_s), s	0.1	0.0	3.7	0.8	0.0	1.5	3.5	0.0	2.4	0.3	0.0	2.1
Cycle Q Clear(g_c), s	0.1	0.0	3.7	0.8	0.0	1.5	3.5	0.0	2.4	0.3	0.0	2.1
Prop In Lane	1.00		0.57	1.00		0.55	1.00		0.04	1.00		0.01
Lane Grp Cap(c), veh/h	385	0	246	333	0	320	498	0	424	379	0	235
V/C Ratio(X)	0.01	0.00	0.68	0.14	0.00	0.23	0.39	0.00	0.32	0.05	0.00	0.46
Avail Cap(c_a), veh/h	598	0	768	467	0	770	588	0	934	563	0	846
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.3	0.0	16.1	13.4	0.0	13.7	11.8	0.0	12.8	14.6	0.0	16.1
Incr Delay (d2), s/veh	0.0	0.0	3.3	0.2	0.0	0.4	0.5	0.0	0.4	0.1	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	1.4	0.3	0.0	0.5	1.2	0.0	0.9	0.1	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.4	0.0	19.5	13.6	0.0	14.1	12.3	0.0	13.2	14.6	0.0	17.5
LnGrp LOS	B	A	B	B	A	B	B	A	B	B	A	B
Approach Vol, veh/h		173			120			332			125	
Approach Delay, s/veh		19.3			13.9			12.6			17.1	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.9	15.1	7.0	11.8	10.0	11.0	5.3	13.5				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	5.0	20.0	5.0	18.0	7.0	18.0	5.0	18.0				
Max Q Clear Time (g_c+I1), s	2.3	4.4	2.8	5.7	5.5	4.1	2.1	3.5				
Green Ext Time (p_c), s	0.0	0.3	0.0	0.4	0.1	0.2	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay			15.1									
HCM 6th LOS			B									

Lanes, Volumes, Timings
5: Avenue C & Avenue B

JR Engineering
05/07/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	45	23	13	33	4	8	1	73	8	1	1
Future Volume (vph)	1	45	23	13	33	4	8	1	73	8	1	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	150		0	150		0
Storage Lanes	0		0	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.956			0.984			0.852				0.989
Flt Protected		0.999		0.950			0.950					0.960
Satd. Flow (prot)	0	1779	0	1770	1833	0	1770	1587	0	0	1769	0
Flt Permitted		0.999		0.950			0.950					0.960
Satd. Flow (perm)	0	1779	0	1770	1833	0	1770	1587	0	0	1769	0
Link Speed (mph)		30			30			30				30
Link Distance (ft)		2594			712			450				364
Travel Time (s)		59.0			16.2			10.2				8.3
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.80	0.78	0.78	0.78
Adj. Flow (vph)	1	58	29	17	42	5	10	1	91	10	1	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	88	0	17	47	0	10	92	0	0	12	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop				Stop

Intersection Summary





















Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	21.2%
ICU Level of Service	A
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	4.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕		↕	↕			↕	
Traffic Vol, veh/h	1	45	23	13	33	4	8	1	73	8	1	1
Future Vol, veh/h	1	45	23	13	33	4	8	1	73	8	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	150	-	-	150	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	80	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	58	29	17	42	5	10	1	91	10	1	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	47	0	0	87	0	0	155	156	73	200	168	45
Stage 1	-	-	-	-	-	-	75	75	-	79	79	-
Stage 2	-	-	-	-	-	-	80	81	-	121	89	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1560	-	-	1509	-	-	812	736	989	759	725	1025
Stage 1	-	-	-	-	-	-	934	833	-	930	829	-
Stage 2	-	-	-	-	-	-	929	828	-	883	821	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1560	-	-	1509	-	-	802	727	989	682	716	1025
Mov Cap-2 Maneuver	-	-	-	-	-	-	802	727	-	682	716	-
Stage 1	-	-	-	-	-	-	933	832	-	929	820	-
Stage 2	-	-	-	-	-	-	916	819	-	799	820	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			1.9			9			10.2		
HCM LOS							A			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	802	984	1560	-	-	1509	-	-	709
HCM Lane V/C Ratio	0.013	0.094	0.001	-	-	0.011	-	-	0.018
HCM Control Delay (s)	9.5	9	7.3	0	-	7.4	-	-	10.2
HCM Lane LOS	A	A	A	A	-	A	-	-	B
HCM 95th %tile Q(veh)	0	0.3	0	-	-	0	-	-	0.1

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	53	5	4	5	10	31	11	113	1	10	43	48
Future Volume (vph)	53	5	4	5	10	31	11	113	1	10	43	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		0	150		0	150		150
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.932			0.908			0.999				0.850
Flt Protected	0.950				0.995		0.950			0.950		
Satd. Flow (prot)	1770	1736	0	0	1683	0	1770	1861	0	1770	1863	1583
Flt Permitted	0.950				0.995		0.950			0.950		
Satd. Flow (perm)	1770	1736	0	0	1683	0	1770	1861	0	1770	1863	1583
Link Speed (mph)		30			25			30				30
Link Distance (ft)		3003			485			712				565
Travel Time (s)		68.3			13.2			16.2				12.8
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.83	0.78	0.78	0.78	0.78
Adj. Flow (vph)	68	6	5	6	13	40	14	136	1	13	55	62
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	11	0	0	59	0	14	137	0	13	55	62
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free				Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	23.5%
ICU Level of Service	A
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	4											
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↖	↗			↕		↖	↗		↖	↗	↖
Traffic Vol, veh/h	53	5	4	5	10	31	11	113	1	10	43	48
Future Vol, veh/h	53	5	4	5	10	31	11	113	1	10	43	48
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	-	-	-	150	-	-	150	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	83	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	68	6	5	6	13	40	14	136	1	13	55	62



















Major/Minor	Minor2		Minor1			Major1		Major2				
Conflicting Flow All	272	246	55	283	308	137	117	0	0	137	0	0
Stage 1	81	81	-	165	165	-	-	-	-	-	-	-
Stage 2	191	165	-	118	143	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	680	656	1012	669	606	911	1471	-	-	1447	-	-
Stage 1	927	828	-	837	762	-	-	-	-	-	-	-
Stage 2	811	762	-	887	779	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	630	644	1012	652	594	911	1471	-	-	1447	-	-
Mov Cap-2 Maneuver	630	644	-	652	594	-	-	-	-	-	-	-
Stage 1	918	821	-	829	754	-	-	-	-	-	-	-
Stage 2	755	754	-	868	772	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	11.2	10	0.7	0.7
HCM LOS	B	B		

Minor Lane/Major Mvmt	NEL	NET	NERNWLn1	SELn1	SELn2	SWL	SWT	SWR
Capacity (veh/h)	1471	-	-	786	630	768	1447	-
HCM Lane V/C Ratio	0.01	-	-	0.075	0.108	0.015	0.009	-
HCM Control Delay (s)	7.5	-	-	10	11.4	9.8	7.5	-
HCM Lane LOS	A	-	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.4	0	0	-

Lanes, Volumes, Timings
7: Avenue A & Road Q

JR Engineering
05/07/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	1	5	0	113	0	134	2	62	96	2
Future Volume (vph)	0	0	1	5	0	113	0	134	2	62	96	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	150		0	0		0	150		150
Storage Lanes	0		1	1		1	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.865			0.850		0.998			0.996	
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	0	1611	1770	0	1583	0	1859	0	1770	1855	0
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	0	1611	1770	0	1583	0	1859	0	1770	1855	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		311			3003			491			1156	
Travel Time (s)		7.1			68.3			11.2			26.3	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.83	0.78	0.84	0.78	0.79	0.82	0.78
Adj. Flow (vph)	0	0	1	6	0	136	0	160	3	78	117	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	1	6	0	136	0	163	0	78	120	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	23.9%						ICU Level of Service A					
Analysis Period (min)	15											

Intersection												
Int Delay, s/veh	4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗	↘		↗		↘		↗	↘	
Traffic Vol, veh/h	0	0	1	5	0	113	0	134	2	62	96	2
Future Vol, veh/h	0	0	1	5	0	113	0	134	2	62	96	2
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	150	-	0	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	83	78	84	78	79	82	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	1	6	0	136	0	160	3	78	117	3




















Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	-	-	119	437	-	162	-	0	0	163	0	0
Stage 1	-	-	-	162	-	-	-	-	-	-	-	-
Stage 2	-	-	-	275	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.22	7.12	-	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	-	-	-	6.12	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.12	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.318	3.518	-	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	0	0	933	530	0	883	0	-	-	1416	-	-
Stage 1	0	0	-	840	0	-	0	-	-	-	-	-
Stage 2	0	0	-	731	0	-	0	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	933	507	-	883	-	-	-	1416	-	-
Mov Cap-2 Maneuver	-	-	-	507	-	-	-	-	-	-	-	-
Stage 1	-	-	-	840	-	-	-	-	-	-	-	-
Stage 2	-	-	-	690	-	-	-	-	-	-	-	-

Approach	EB		WB		NB			SB		
HCM Control Delay, s	8.9		9.9		0			3		
HCM LOS	A		A							

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	-	-	933	507	883	1416	-	-
HCM Lane V/C Ratio	-	-	0.001	0.013	0.154	0.055	-	-
HCM Control Delay (s)	-	-	8.9	12.2	9.8	7.7	-	-
HCM Lane LOS	-	-	A	B	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0	0	0.5	0.2	-	-

Lanes, Volumes, Timings
10: Avenue A & Road K

JR Engineering
05/07/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	94	5	17	2	5	19	19	128	1	6	64	89
Future Volume (vph)	94	5	17	2	5	19	19	128	1	6	64	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		0	150		0	150		0
Storage Lanes	1		0	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.882			0.902			0.999			0.914	
Flt Protected	0.950				0.995		0.950			0.950		
Satd. Flow (prot)	1770	1643	0	0	1672	0	1770	1861	0	1770	1703	0
Flt Permitted	0.950				0.995		0.950			0.950		
Satd. Flow (perm)	1770	1643	0	0	1672	0	1770	1861	0	1770	1703	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1139			489			686			720	
Travel Time (s)		25.9			11.1			15.6			16.4	
Peak Hour Factor	0.82	0.78	0.78	0.78	0.78	0.78	0.78	0.84	0.78	0.78	0.79	0.81
Adj. Flow (vph)	115	6	22	3	6	24	24	152	1	8	81	110
Shared Lane Traffic (%)												
Lane Group Flow (vph)	115	28	0	0	33	0	24	153	0	8	191	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	34.0%
ICU Level of Service	A
Analysis Period (min)	15


















Intersection	
Intersection Delay, s/veh	9.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷			↔		↶	↷		↶	↷	
Traffic Vol, veh/h	94	5	17	2	5	19	19	128	1	6	64	89
Future Vol, veh/h	94	5	17	2	5	19	19	128	1	6	64	89
Peak Hour Factor	0.82	0.78	0.78	0.78	0.78	0.78	0.78	0.84	0.78	0.78	0.79	0.81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	115	6	22	3	6	24	24	152	1	8	81	110
Number of Lanes	1	1	0	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	2
HCM Control Delay	9.7	8.6	9.3	9.2
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	8%	100%	0%
Vol Thru, %	0%	99%	0%	23%	19%	0%	42%
Vol Right, %	0%	1%	0%	77%	73%	0%	58%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	19	129	94	22	26	6	153
LT Vol	19	0	94	0	2	6	0
Through Vol	0	128	0	5	5	0	64
RT Vol	0	1	0	17	19	0	89
Lane Flow Rate	24	154	115	28	33	8	191
Geometry Grp	7	7	7	7	6	7	7
Degree of Util (X)	0.039	0.222	0.191	0.039	0.049	0.012	0.255
Departure Headway (Hd)	5.717	5.209	5.985	4.938	5.248	5.716	4.803
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	625	687	598	722	678	625	746
Service Time	3.463	2.954	3.738	2.691	3.313	3.46	2.546
HCM Lane V/C Ratio	0.038	0.224	0.192	0.039	0.049	0.013	0.256
HCM Control Delay	8.7	9.4	10.2	7.9	8.6	8.5	9.2
HCM Lane LOS	A	A	B	A	A	A	A
HCM 95th-tile Q	0.1	0.8	0.7	0.1	0.2	0	1

Lanes, Volumes, Timings
13: Avenue A & Road FF

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	1	1	4	2	35	1	72	2	12	62	4
Future Volume (vph)	12	1	1	4	2	35	1	72	2	12	62	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	150		0
Storage Lanes	0		0	0		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.885			0.996			0.991	
Flt Protected		0.958			0.995			0.999		0.950		
Satd. Flow (prot)	0	1770	0	0	1640	0	0	1853	0	1770	1846	0
Flt Permitted		0.958			0.995			0.999		0.950		
Satd. Flow (perm)	0	1770	0	0	1640	0	0	1853	0	1770	1846	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		556			391			1288			686	
Travel Time (s)		12.6			8.9			29.3			15.6	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.80	0.78	0.78	0.79	0.78
Adj. Flow (vph)	15	1	1	5	3	45	1	90	3	15	78	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	17	0	0	53	0	0	94	0	15	83	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	18.1%						ICU Level of Service A					
Analysis Period (min)	15											

Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↕	↕	
Traffic Vol, veh/h	12	1	1	4	2	35	1	72	2	12	62	4
Future Vol, veh/h	12	1	1	4	2	35	1	72	2	12	62	4
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	-	-	-	-	-	-	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	80	78	78	79	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	1	1	5	3	45	1	90	3	15	78	5

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	229	206	81	206	207	92	83	0	0	93	0	0
Stage 1	111	111	-	94	94	-	-	-	-	-	-	-
Stage 2	118	95	-	112	113	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	726	691	979	752	690	965	1514	-	-	1501	-	-
Stage 1	894	804	-	913	817	-	-	-	-	-	-	-
Stage 2	887	816	-	893	802	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	685	683	979	744	682	965	1514	-	-	1501	-	-
Mov Cap-2 Maneuver	685	683	-	744	682	-	-	-	-	-	-	-
Stage 1	893	796	-	912	816	-	-	-	-	-	-	-
Stage 2	842	815	-	881	794	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	10.3		9.2		0.1		1.2	
HCM LOS	B		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1514	-	-	700	920	1501	-
HCM Lane V/C Ratio	0.001	-	-	0.026	0.057	0.01	-
HCM Control Delay (s)	7.4	0	-	10.3	9.2	7.4	-
HCM Lane LOS	A	A	-	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0	-

Lanes, Volumes, Timings
1: Road F & Avenue B

JR Engineering
05/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	167	28	7	106	4	24	3	7	4	5	25
Future Volume (vph)	23	167	28	7	106	4	24	3	7	4	5	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	150		0	150		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.977			0.994			0.972			0.900	
Flt Protected	0.950			0.950				0.966			0.994	
Satd. Flow (prot)	1770	1820	0	1770	1852	0	0	1749	0	0	1666	0
Flt Permitted	0.672			0.614								
Satd. Flow (perm)	1252	1820	0	1144	1852	0	0	1811	0	0	1676	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			5			9			32	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		814			1136			494			379	
Travel Time (s)		18.5			25.8			13.5			10.3	
Peak Hour Factor	0.78	0.85	0.78	0.78	0.83	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	29	196	36	9	128	5	31	4	9	5	6	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	29	232	0	9	133	0	0	44	0	0	43	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	40	40		40	40		20	40		20	40	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	40	40		40	40		20	40		20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Total Split (s)	26.0	26.0		26.0	26.0		24.0	24.0		24.0	24.0	

Lanes, Volumes, Timings
1: Road F & Avenue B

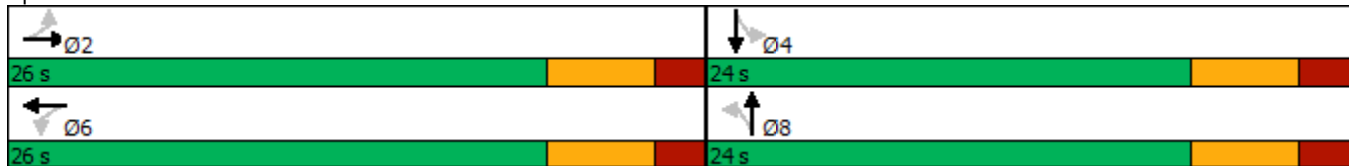


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	52.0%	52.0%		52.0%	52.0%		48.0%	48.0%		48.0%	48.0%	
Maximum Green (s)	20.0	20.0		20.0	20.0		18.0	18.0		18.0	18.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	23.9	23.9		23.9	23.9			6.3			6.1	
Actuated g/C Ratio	0.87	0.87		0.87	0.87			0.23			0.22	
v/c Ratio	0.03	0.15		0.01	0.08			0.10			0.11	
Control Delay	3.5	2.9		3.7	3.0			7.7			5.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	3.5	2.9		3.7	3.0			7.7			5.5	
LOS	A	A		A	A			A			A	
Approach Delay		3.0			3.0			7.7			5.5	
Approach LOS		A			A			A			A	

Intersection Summary

Area Type:	Other
Cycle Length:	50
Actuated Cycle Length:	27.4
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.15
Intersection Signal Delay:	3.6
Intersection LOS:	A
Intersection Capacity Utilization:	28.1%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 1: Road F & Avenue B



Queues
1: Road F & Avenue B



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	29	232	9	133	44	43
v/c Ratio	0.03	0.15	0.01	0.08	0.10	0.11
Control Delay	3.5	2.9	3.7	3.0	7.7	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.5	2.9	3.7	3.0	7.7	5.5
Queue Length 50th (ft)	0	0	0	0	4	1
Queue Length 95th (ft)	9	46	4	28	14	10
Internal Link Dist (ft)		734		1056	414	299
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	1120	1630	1023	1657	1201	1119
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.14	0.01	0.08	0.04	0.04

Intersection Summary

HCM 6th Signalized Intersection Summary
1: Road F & Avenue B

JR Engineering
05/07/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	167	28	7	106	4	24	3	7	4	5	25
Future Volume (veh/h)	23	167	28	7	106	4	24	3	7	4	5	25
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	29	196	36	9	128	5	31	4	9	5	6	32
Peak Hour Factor	0.78	0.85	0.78	0.78	0.83	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	645	408	75	564	475	19	430	13	30	232	22	120
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.10	0.10	0.10	0.10	0.10	0.10
Sat Flow, veh/h	1257	1537	282	1148	1788	70	1074	139	312	193	231	1233
Grp Volume(v), veh/h	29	0	232	9	0	133	44	0	0	43	0	0
Grp Sat Flow(s),veh/h/ln	1257	0	1820	1148	0	1858	1525	0	0	1657	0	0
Q Serve(g_s), s	0.4	0.0	2.0	0.1	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.4	0.0	2.0	2.1	0.0	1.1	0.4	0.0	0.0	0.4	0.0	0.0
Prop In Lane	1.00		0.16	1.00		0.04	0.70		0.20	0.12		0.74
Lane Grp Cap(c), veh/h	645	0	483	564	0	493	474	0	0	374	0	0
V/C Ratio(X)	0.04	0.00	0.48	0.02	0.00	0.27	0.09	0.00	0.00	0.11	0.00	0.00
Avail Cap(c_a), veh/h	1646	0	1933	1479	0	1973	1715	0	0	1744	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.0	0.0	5.8	6.7	0.0	5.5	7.9	0.0	0.0	7.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.7	0.0	0.0	0.3	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.4	0.0	0.0	0.2	0.1	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.1	0.0	6.6	6.7	0.0	5.8	8.0	0.0	0.0	8.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		261			142			44				43
Approach Delay, s/veh		6.5			5.8			8.0				8.0
Approach LOS		A			A			A				A
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		11.0		7.8		11.0		7.8				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		20.0		18.0		20.0		18.0				
Max Q Clear Time (g_c+I1), s		4.0		2.4		4.1		2.4				
Green Ext Time (p_c), s		0.8		0.1		0.4		0.1				
Intersection Summary												
HCM 6th Ctrl Delay				6.6								
HCM 6th LOS				A								

Lanes, Volumes, Timings
2: Avenue A & Avenue B

JR Engineering
05/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	95	83	30	20	21	94	63	12	50	156	2
Future Volume (vph)	8	95	83	30	20	21	94	63	12	50	156	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	150		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.930			0.924			0.976			0.998	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1732	0	1770	1721	0	1770	1818	0	1770	1859	0
Flt Permitted	0.722			0.575			0.590			0.695		
Satd. Flow (perm)	1345	1732	0	1071	1721	0	1099	1818	0	1295	1859	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		61			27			14			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1136			2594			720			491	
Travel Time (s)		25.8			59.0			16.4			11.2	
Peak Hour Factor	0.78	0.82	0.81	0.78	0.78	0.78	0.82	0.79	0.78	0.78	0.85	0.78
Adj. Flow (vph)	10	116	102	38	26	27	115	80	15	64	184	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	218	0	38	53	0	115	95	0	64	187	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	40	40		40	40		40	40		40	40	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	40	40		40	40		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	24.0		10.0	24.0		10.0	24.0		10.0	24.0	
Total Split (s)	10.0	24.0		10.0	24.0		10.0	26.0		10.0	26.0	

Lanes, Volumes, Timings
2: Avenue A & Avenue B

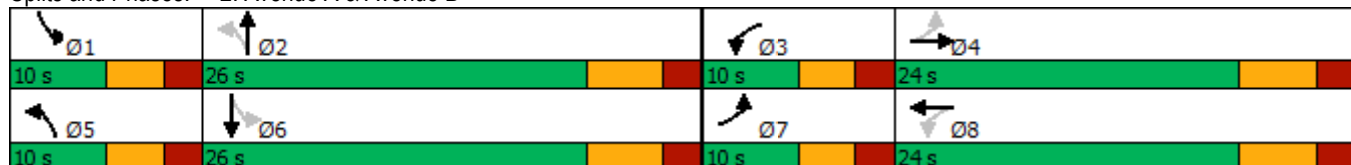


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	14.3%	34.3%		14.3%	34.3%		14.3%	37.1%		14.3%	37.1%	
Maximum Green (s)	5.0	18.0		5.0	18.0		5.0	20.0		5.0	20.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	6.0		5.0	6.0		5.0	6.0		5.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Min		None	Min	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	12.8	10.2		13.7	11.9		20.3	16.5		19.0	14.0	
Actuated g/C Ratio	0.27	0.21		0.29	0.25		0.42	0.34		0.40	0.29	
v/c Ratio	0.02	0.52		0.10	0.12		0.21	0.15		0.11	0.34	
Control Delay	11.0	18.2		11.6	10.5		10.8	15.5		10.2	19.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	11.0	18.2		11.6	10.5		10.8	15.5		10.2	19.5	
LOS	B	B		B	B		B	B		B	B	
Approach Delay		17.9			11.0			12.9			17.2	
Approach LOS		B			B			B			B	

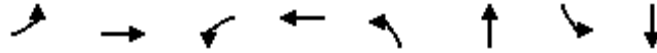
Intersection Summary

Area Type:	Other
Cycle Length:	70
Actuated Cycle Length:	47.9
Natural Cycle:	70
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.52
Intersection Signal Delay:	15.5
Intersection LOS:	B
Intersection Capacity Utilization:	46.1%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 2: Avenue A & Avenue B



Queues
2: Avenue A & Avenue B



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	10	218	38	53	115	95	64	187
v/c Ratio	0.02	0.52	0.10	0.12	0.21	0.15	0.11	0.34
Control Delay	11.0	18.2	11.6	10.5	10.8	15.5	10.2	19.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.0	18.2	11.6	10.5	10.8	15.5	10.2	19.5
Queue Length 50th (ft)	2	32	7	5	13	15	7	38
Queue Length 95th (ft)	8	92	20	26	50	50	30	106
Internal Link Dist (ft)		1056		2514		640		411
Turn Bay Length (ft)	150		150		150		150	
Base Capacity (vph)	407	717	382	719	538	806	566	817
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.30	0.10	0.07	0.21	0.12	0.11	0.23

Intersection Summary

HCM 6th Signalized Intersection Summary
2: Avenue A & Avenue B



















JR Engineering
05/07/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	95	83	30	20	21	94	63	12	50	156	2
Future Volume (veh/h)	8	95	83	30	20	21	94	63	12	50	156	2
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	10	116	102	38	26	27	115	80	15	64	184	3
Peak Hour Factor	0.78	0.82	0.81	0.78	0.78	0.78	0.82	0.79	0.78	0.78	0.85	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	436	160	141	317	172	178	408	277	52	465	285	5
Arrive On Green	0.01	0.17	0.17	0.04	0.20	0.20	0.09	0.18	0.18	0.06	0.16	0.16
Sat Flow, veh/h	1781	918	807	1781	840	873	1781	1532	287	1781	1835	30
Grp Volume(v), veh/h	10	0	218	38	0	53	115	0	95	64	0	187
Grp Sat Flow(s),veh/h/ln	1781	0	1725	1781	0	1713	1781	0	1819	1781	0	1865
Q Serve(g_s), s	0.2	0.0	4.9	0.7	0.0	1.0	2.1	0.0	1.8	1.2	0.0	3.8
Cycle Q Clear(g_c), s	0.2	0.0	4.9	0.7	0.0	1.0	2.1	0.0	1.8	1.2	0.0	3.8
Prop In Lane	1.00		0.47	1.00		0.51	1.00		0.16	1.00		0.02
Lane Grp Cap(c), veh/h	436	0	301	317	0	350	408	0	329	465	0	289
V/C Ratio(X)	0.02	0.00	0.72	0.12	0.00	0.15	0.28	0.00	0.29	0.14	0.00	0.65
Avail Cap(c_a), veh/h	630	0	760	458	0	754	467	0	890	571	0	912
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(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.6	0.0	15.9	13.1	0.0	13.3	12.7	0.0	14.5	13.0	0.0	16.2
Incr Delay (d2), s/veh	0.0	0.0	3.3	0.2	0.0	0.2	0.4	0.0	0.5	0.1	0.0	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	1.9	0.2	0.0	0.4	0.7	0.0	0.7	0.4	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.6	0.0	19.2	13.3	0.0	13.5	13.1	0.0	14.9	13.1	0.0	18.6
LnGrp LOS	B	A	B	B	A	B	B	A	B	B	A	B
Approach Vol, veh/h		228			91			210			251	
Approach Delay, s/veh		19.0			13.4			13.9			17.2	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.6	13.4	6.8	13.1	8.6	12.3	5.5	14.4				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	5.0	20.0	5.0	18.0	5.0	20.0	5.0	18.0				
Max Q Clear Time (g_c+I1), s	3.2	3.8	2.7	6.9	4.1	5.8	2.2	3.0				
Green Ext Time (p_c), s	0.0	0.2	0.0	0.6	0.0	0.5	0.0	0.1				
Intersection Summary												
HCM 6th Ctrl Delay			16.4									
HCM 6th LOS			B									

Lanes, Volumes, Timings
5: Avenue C & Avenue B

JR Engineering
05/07/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	49	49	34	35	9	5	1	49	6	2	1
Future Volume (vph)	1	49	49	34	35	9	5	1	49	6	2	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	150		0	150		0
Storage Lanes	0		0	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.933			0.968			0.852			0.989	
Flt Protected				0.950			0.950				0.968	
Satd. Flow (prot)	0	1738	0	1770	1803	0	1770	1587	0	0	1783	0
Flt Permitted				0.950			0.950				0.968	
Satd. Flow (perm)	0	1738	0	1770	1803	0	1770	1587	0	0	1783	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2594			712			450			364	
Travel Time (s)		59.0			16.2			10.2			8.3	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	1	63	63	44	45	12	6	1	63	8	3	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	127	0	44	57	0	6	64	0	0	12	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary





















Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.8%
ICU Level of Service	A
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	3.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕		↕	↕			↕	
Traffic Vol, veh/h	1	49	49	34	35	9	5	1	49	6	2	1
Future Vol, veh/h	1	49	49	34	35	9	5	1	49	6	2	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	150	-	-	150	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	63	63	44	45	12	6	1	63	8	3	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	57	0	0	126	0	0	238	242	95	268	267	51
Stage 1	-	-	-	-	-	-	97	97	-	139	139	-
Stage 2	-	-	-	-	-	-	141	145	-	129	128	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1547	-	-	1460	-	-	716	660	962	685	639	1017
Stage 1	-	-	-	-	-	-	910	815	-	864	782	-
Stage 2	-	-	-	-	-	-	862	777	-	875	790	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1547	-	-	1460	-	-	696	640	962	624	619	1017
Mov Cap-2 Maneuver	-	-	-	-	-	-	696	640	-	624	619	-
Stage 1	-	-	-	-	-	-	909	814	-	863	759	-
Stage 2	-	-	-	-	-	-	832	754	-	816	789	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			3.3			9.2			10.6		
HCM LOS							A			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	696	952	1547	-	-	1460	-	-	651
HCM Lane V/C Ratio	0.009	0.067	0.001	-	-	0.03	-	-	0.018
HCM Control Delay (s)	10.2	9.1	7.3	0	-	7.5	-	-	10.6
HCM Lane LOS	B	A	A	A	-	A	-	-	B
HCM 95th %tile Q(veh)	0	0.2	0	-	-	0.1	-	-	0.1

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	130	10	10	3	20	19	21	78	5	33	68	91
Future Volume (vph)	130	10	10	3	20	19	21	78	5	33	68	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		0	150		0	150		150
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.925			0.940			0.991				0.850
Flt Protected	0.950				0.996		0.950			0.950		
Satd. Flow (prot)	1770	1723	0	0	1744	0	1770	1846	0	1770	1863	1583
Flt Permitted	0.950				0.996		0.950			0.950		
Satd. Flow (perm)	1770	1723	0	0	1744	0	1770	1846	0	1770	1863	1583
Link Speed (mph)		30			25			30				30
Link Distance (ft)		3003			485			712				565
Travel Time (s)		68.3			13.2			16.2				12.8
Peak Hour Factor	0.84	0.78	0.78	0.78	0.78	0.78	0.78	0.80	0.78	0.78	0.79	0.82
Adj. Flow (vph)	155	13	13	4	26	24	27	98	6	42	86	111
Shared Lane Traffic (%)												
Lane Group Flow (vph)	155	26	0	0	54	0	27	104	0	42	86	111
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free				Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	29.0%
ICU Level of Service	A
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	5.9											
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↖	↗			↕		↖	↗		↖	↗	↖
Traffic Vol, veh/h	130	10	10	3	20	19	21	78	5	33	68	91
Future Vol, veh/h	130	10	10	3	20	19	21	78	5	33	68	91
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	150	-	-	-	-	-	150	-	-	150	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	78	78	78	78	78	78	80	78	78	79	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	155	13	13	4	26	24	27	98	6	42	86	111



















Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	350	328	86	394	436	101	197	0	0	104	0	0
Stage 1	170	170	-	155	155	-	-	-	-	-	-	-
Stage 2	180	158	-	239	281	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	605	591	973	566	514	954	1376	-	-	1488	-	-
Stage 1	832	758	-	847	769	-	-	-	-	-	-	-
Stage 2	822	767	-	764	678	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	546	563	973	529	490	954	1376	-	-	1488	-	-
Mov Cap-2 Maneuver	546	563	-	529	490	-	-	-	-	-	-	-
Stage 1	815	737	-	830	754	-	-	-	-	-	-	-
Stage 2	759	752	-	720	659	-	-	-	-	-	-	-

Approach	SE		NW		NE		SW	
HCM Control Delay, s	13.6		11.2		1.6		1.3	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NEL	NET	NERNWLn1	SELn1	SELn2	SWL	SWT	SWR
Capacity (veh/h)	1376	-	-	632	546	713	1488	-
HCM Lane V/C Ratio	0.02	-	-	0.085	0.283	0.036	0.028	-
HCM Control Delay (s)	7.7	-	-	11.2	14.2	10.2	7.5	-
HCM Lane LOS	A	-	-	B	B	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	1.2	0.1	0.1	-

Lanes, Volumes, Timings
7: Avenue A & Road Q

JR Engineering
05/07/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	5	3	0	103	0	77	5	162	201	40
Future Volume (vph)	0	0	5	3	0	103	0	77	5	162	201	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	150		0	0		0	150		150
Storage Lanes	0		1	1		1	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.865			0.850		0.992				0.973
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	0	1611	1770	0	1583	0	1848	0	1770	1812	0
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	0	1611	1770	0	1583	0	1848	0	1770	1812	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		311			3003			491			1156	
Travel Time (s)		7.1			68.3			11.2			26.3	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.83	0.78	0.80	0.78	0.85	0.87	0.78
Adj. Flow (vph)	0	0	6	4	0	124	0	96	6	191	231	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	6	4	0	124	0	102	0	191	282	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	29.7%						ICU Level of Service A					
Analysis Period (min)	15											

Intersection												
Int Delay, s/veh	3.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗	↘		↗		↘		↗	↘	
Traffic Vol, veh/h	0	0	5	3	0	103	0	77	5	162	201	40
Future Vol, veh/h	0	0	5	3	0	103	0	77	5	162	201	40
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	150	-	0	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	83	78	80	78	85	87	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	6	4	0	124	0	96	6	191	231	51

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	257	741	-	99	-	0	0	102	0	0
Stage 1	-	-	-	99	-	-	-	-	-	-	-	-
Stage 2	-	-	-	642	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.22	7.12	-	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	-	-	-	6.12	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.12	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.318	3.518	-	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	0	0	782	332	0	957	0	-	-	1490	-	-
Stage 1	0	0	-	907	0	-	0	-	-	-	-	-
Stage 2	0	0	-	463	0	-	0	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	782	297	-	957	-	-	-	1490	-	-
Mov Cap-2 Maneuver	-	-	-	297	-	-	-	-	-	-	-	-
Stage 1	-	-	-	907	-	-	-	-	-	-	-	-
Stage 2	-	-	-	400	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.6	9.5	0	3.1
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	-	-	782	297	957	1490	-
HCM Lane V/C Ratio	-	-	0.008	0.013	0.13	0.128	-
HCM Control Delay (s)	-	-	9.6	17.3	9.3	7.8	-
HCM Lane LOS	-	-	A	C	A	A	-
HCM 95th %tile Q(veh)	-	-	0	0	0.4	0.4	-

Lanes, Volumes, Timings
10: Avenue A & Road K

JR Engineering
05/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	0	5	1	0	12	6	101	2	20	162	39
Future Volume (vph)	34	0	5	1	0	12	6	101	2	20	162	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		0	150		0	150		0
Storage Lanes	1		0	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.873			0.996			0.969	
Flt Protected	0.950				0.997		0.950			0.950		
Satd. Flow (prot)	1770	1583	0	0	1621	0	1770	1855	0	1770	1805	0
Flt Permitted	0.950				0.997		0.950			0.950		
Satd. Flow (perm)	1770	1583	0	0	1621	0	1770	1855	0	1770	1805	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1139			489			686			720	
Travel Time (s)		25.9			11.1			15.6			16.4	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.83	0.78	0.78	0.85	0.78
Adj. Flow (vph)	44	0	6	1	0	15	8	122	3	26	191	50
Shared Lane Traffic (%)												
Lane Group Flow (vph)	44	6	0	0	16	0	8	125	0	26	241	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 26.1%

ICU Level of Service A

Analysis Period (min) 15


















Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷			↔		↶	↷		↶	↷	
Traffic Vol, veh/h	34	0	5	1	0	12	6	101	2	20	162	39
Future Vol, veh/h	34	0	5	1	0	12	6	101	2	20	162	39
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.83	0.78	0.78	0.85	0.78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	44	0	6	1	0	15	8	122	3	26	191	50
Number of Lanes	1	1	0	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	2
HCM Control Delay	9	8.2	8.7	9.5
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	8%	100%	0%
Vol Thru, %	0%	98%	0%	0%	0%	0%	81%
Vol Right, %	0%	2%	0%	100%	92%	0%	19%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	6	103	34	5	13	20	201
LT Vol	6	0	34	0	1	20	0
Through Vol	0	101	0	0	0	0	162
RT Vol	0	2	0	5	12	0	39
Lane Flow Rate	8	124	44	6	17	26	241
Geometry Grp	7	7	7	7	6	7	7
Degree of Util (X)	0.012	0.17	0.073	0.009	0.023	0.038	0.314
Departure Headway (Hd)	5.439	4.923	5.999	4.793	5.017	5.334	4.696
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	660	731	598	747	713	673	767
Service Time	3.158	2.642	3.726	2.519	3.048	3.05	2.412
HCM Lane V/C Ratio	0.012	0.17	0.074	0.008	0.024	0.039	0.314
HCM Control Delay	8.2	8.7	9.2	7.6	8.2	8.3	9.6
HCM Lane LOS	A	A	A	A	A	A	A
HCM 95th-tile Q	0	0.6	0.2	0	0.1	0.1	1.3

Lanes, Volumes, Timings
13: Avenue A & Road FF

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	0	1	3	0	23	1	63	4	38	88	13
Future Volume (vph)	8	0	1	3	0	23	1	63	4	38	88	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	150		0
Storage Lanes	0		0	0		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.988			0.881			0.992			0.980	
Flt Protected		0.957			0.994			0.999		0.950		
Satd. Flow (prot)	0	1761	0	0	1631	0	0	1846	0	1770	1825	0
Flt Permitted		0.957			0.994			0.999		0.950		
Satd. Flow (perm)	0	1761	0	0	1631	0	0	1846	0	1770	1825	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		556			391			1288			686	
Travel Time (s)		12.6			8.9			29.3			15.6	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.79	0.78	0.78	0.81	0.78
Adj. Flow (vph)	10	0	1	4	0	29	1	80	5	49	109	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	11	0	0	33	0	0	86	0	49	126	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	18.8%						ICU Level of Service A					
Analysis Period (min)	15											

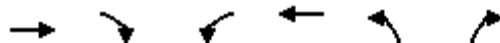
Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↕	↕	
Traffic Vol, veh/h	8	0	1	3	0	23	1	63	4	38	88	13
Future Vol, veh/h	8	0	1	3	0	23	1	63	4	38	88	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	79	78	78	81	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	0	1	4	0	29	1	80	5	49	109	17

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	315	303	118	301	309	83	126	0	0	85	0	0
Stage 1	216	216	-	85	85	-	-	-	-	-	-	-
Stage 2	99	87	-	216	224	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	638	610	934	651	605	976	1460	-	-	1512	-	-
Stage 1	786	724	-	923	824	-	-	-	-	-	-	-
Stage 2	907	823	-	786	718	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	603	590	934	633	585	976	1460	-	-	1512	-	-
Mov Cap-2 Maneuver	603	590	-	633	585	-	-	-	-	-	-	-
Stage 1	785	701	-	922	823	-	-	-	-	-	-	-
Stage 2	879	822	-	759	695	-	-	-	-	-	-	-

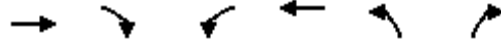
Approach	EB		WB		NB		SB	
HCM Control Delay, s	10.8		9.1		0.1		2.1	
HCM LOS	B		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1460	-	-	628	919	1512	-
HCM Lane V/C Ratio	0.001	-	-	0.018	0.036	0.032	-
HCM Control Delay (s)	7.5	0	-	10.8	9.1	7.5	-
HCM Lane LOS	A	A	-	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0.1	-

Lanes, Volumes, Timings
1: Havana St & RidgeGate Pkwy



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖	↑↑↑	↖	↗
Traffic Volume (vph)	2189	485	164	3415	722	138
Future Volume (vph)	2189	485	164	3415	722	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		200	200		200	0
Storage Lanes		1	1		2	1
Taper Length (ft)			25		25	
Lane Util. Factor	0.91	1.00	1.00	0.86	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	5085	1583	1770	6408	3433	1583
Flt Permitted			0.066		0.950	
Satd. Flow (perm)	5085	1583	123	6408	3433	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		365				164
Link Speed (mph)	45			45	35	
Link Distance (ft)	980			1333	842	
Travel Time (s)	14.8			20.2	16.4	
Peak Hour Factor	0.95	0.91	0.85	0.96	0.92	0.84
Adj. Flow (vph)	2304	533	193	3557	785	164
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2304	533	193	3557	785	164
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	1	1	1	1	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	40	40	40	40	40	40
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	40	40	40	40	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	NA	Perm	pm+pt	NA	pm+pt	Perm
Protected Phases	2		1	6	3	
Permitted Phases		2	6		8	8
Detector Phase	2	2	1	6	3	8
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	24.0	24.0	10.0	24.0	24.0	24.0
Total Split (s)	60.0	60.0	16.0	76.0	34.0	34.0

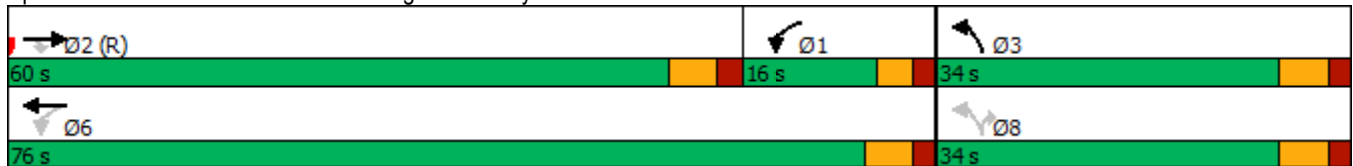


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Total Split (%)	54.5%	54.5%	14.5%	69.1%	30.9%	30.9%
Maximum Green (s)	54.0	54.0	11.0	70.0	28.0	28.0
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	5.0	6.0	6.0	6.0
Lead/Lag	Lead	Lead	Lag			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min	C-Min	None	Min	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	54.6	54.6	71.7	70.7	27.3	27.3
Actuated g/C Ratio	0.50	0.50	0.65	0.64	0.25	0.25
v/c Ratio	0.91	0.55	0.78	0.86	0.92	0.32
Control Delay	32.5	7.9	26.8	3.1	57.5	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.5	7.9	26.8	3.1	57.5	6.8
LOS	C	A	C	A	E	A
Approach Delay	27.9			4.4	48.8	
Approach LOS	C			A	D	

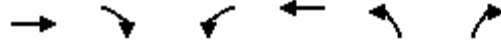
Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 27 (25%), Referenced to phase 2:EBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 18.8
 Intersection Capacity Utilization 86.1%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service E

Splits and Phases: 1: Havana St & RidgeGate Pkwy



Queues
1: Havana St & RidgeGate Pkwy



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	2304	533	193	3557	785	164
v/c Ratio	0.91	0.55	0.78	0.86	0.92	0.32
Control Delay	32.5	7.9	26.8	3.1	57.5	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.5	7.9	26.8	3.1	57.5	6.8
Queue Length 50th (ft)	535	65	74	52	276	0
Queue Length 95th (ft)	616	162	m71	m58	#385	42
Internal Link Dist (ft)	900			1253	762	
Turn Bay Length (ft)		200	200		200	
Base Capacity (vph)	2525	969	246	4118	873	525
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.55	0.78	0.86	0.90	0.31

Intersection Summary

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
 1: Havana St & RidgeGate Pkwy



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖	↑↑↑	↗↖	↗
Traffic Volume (veh/h)	2189	485	164	3415	722	138
Future Volume (veh/h)	2189	485	164	3415	722	138
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2304	533	193	3557	785	164
Peak Hour Factor	0.95	0.91	0.85	0.96	0.92	0.84
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2476	769	256	4144	853	391
Arrive On Green	0.48	0.48	0.10	0.64	0.25	0.25
Sat Flow, veh/h	5274	1585	1781	6696	3456	1585
Grp Volume(v), veh/h	2304	533	193	3557	785	164
Grp Sat Flow(s),veh/h/ln	1702	1585	1781	1609	1728	1585
Q Serve(g_s), s	46.6	8.9	7.2	48.4	24.4	9.6
Cycle Q Clear(g_c), s	46.6	8.9	7.2	48.4	24.4	9.6
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2476	769	256	4144	853	391
V/C Ratio(X)	0.93	0.69	0.75	0.86	0.92	0.42
Avail Cap(c_a), veh/h	2507	778	256	4144	880	403
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	0.09	0.09	0.75	0.75
Uniform Delay (d), s/veh	26.6	2.1	46.0	15.6	40.4	34.8
Incr Delay (d2), s/veh	7.8	5.1	1.2	0.2	11.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	18.8	8.3	5.0	14.6	11.5	3.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	34.4	7.2	47.1	15.8	51.9	35.3
LnGrp LOS	C	A	D	B	D	D
Approach Vol, veh/h	2837			3750	949	
Approach Delay, s/veh	29.3			17.4	49.0	
Approach LOS	C			B	D	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	17.5	59.3			76.9	33.1
Change Period (Y+Rc), s	6.0	* 6			6.0	6.0
Max Green Setting (Gmax), s	11.0	* 54			70.0	28.0
Max Q Clear Time (g_c+I1), s	9.2	48.6			50.4	26.4
Green Ext Time (p_c), s	0.1	4.8			18.1	0.8

Intersection Summary

HCM 6th Ctrl Delay	25.8
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

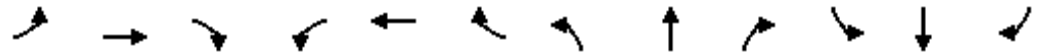
Lanes, Volumes, Timings
2: Peoria St & RidgeGate Pkwy

JR Engineering
05/13/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↑↑↑	↗	↖	↑↑↑	↗	↖↖	↑	↗	↖↖	↑	↗
Traffic Volume (vph)	366	1543	177	121	2898	142	291	52	56	88	60	176
Future Volume (vph)	366	1543	177	121	2898	142	291	52	56	88	60	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		300	300		150	200		200	150		150
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	0.97	1.00	1.00	0.97	1.00	1.00
Frt			0.850				0.850			0.850		0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	5085	1583	1770	5085	1583	3433	1863	1583	3433	1863	1583
Flt Permitted	0.950			0.082			0.950			0.950		
Satd. Flow (perm)	3433	5085	1583	153	5085	1583	3433	1863	1583	3433	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			206			139			188			129
Link Speed (mph)		45			45			30				35
Link Distance (ft)		1333			1893			1113				726
Travel Time (s)		20.2			28.7			25.3				14.1
Peak Hour Factor	0.89	0.94	0.86	0.83	0.96	0.84	0.88	0.78	0.78	0.81	0.79	0.86
Adj. Flow (vph)	411	1641	206	146	3019	169	331	67	72	109	76	205
Shared Lane Traffic (%)												
Lane Group Flow (vph)	411	1641	206	146	3019	169	331	67	72	109	76	205
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	40	40	40	40	40	40	40	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	40	40	40	40	40	40	40	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)								94				94
Detector 2 Size(ft)								6				6
Detector 2 Type								Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)								0.0				0.0
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2	6		6			8			4

Lanes, Volumes, Timings
2: Peoria St & RidgeGate Pkwy

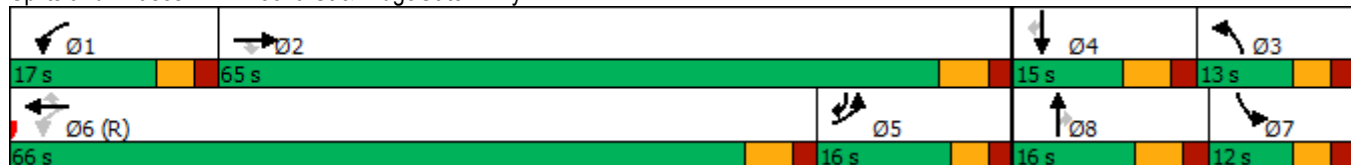


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	5
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	24.0	24.0	10.0	24.0	24.0	10.0	15.0	15.0	10.0	15.0	10.0
Total Split (s)	16.0	65.0	65.0	17.0	66.0	66.0	13.0	16.0	16.0	12.0	15.0	16.0
Total Split (%)	14.5%	59.1%	59.1%	15.5%	60.0%	60.0%	11.8%	14.5%	14.5%	10.9%	13.6%	14.5%
Maximum Green (s)	11.0	59.0	59.0	12.0	60.0	60.0	8.0	10.0	10.0	7.0	9.0	11.0
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Min	Min	None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0						
Flash Dont Walk (s)		11.0	11.0		11.0	11.0						
Pedestrian Calls (#/hr)		0	0		0	0						
Act Effct Green (s)	11.0	61.1	61.1	61.0	60.0	60.0	11.1	8.6	8.6	10.8	8.3	22.9
Actuated g/C Ratio	0.10	0.56	0.56	0.55	0.55	0.55	0.10	0.08	0.08	0.10	0.08	0.21
v/c Ratio	1.20	0.58	0.21	0.63	1.09	0.18	0.95	0.46	0.24	0.33	0.54	0.48
Control Delay	130.6	5.4	0.6	24.3	66.2	1.9	89.5	58.4	1.9	51.5	63.5	17.8
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	130.6	5.4	0.6	24.3	66.2	1.9	89.5	58.4	1.9	51.5	63.5	17.8
LOS	F	A	A	C	E	A	F	E	A	D	E	B
Approach Delay		27.8			61.1			71.7			36.2	
Approach LOS		C			E			E			D	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	18 (16%), Referenced to phase 6:WBTL, Start of Green
Natural Cycle:	150
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.20
Intersection Signal Delay:	48.7
Intersection LOS:	D
Intersection Capacity Utilization:	95.6%
ICU Level of Service:	F
Analysis Period (min):	15

Splits and Phases: 2: Peoria St & RidgeGate Pkwy



Queues
2: Peoria St & RidgeGate Pkwy



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	411	1641	206	146	3019	169	331	67	72	109	76	205
v/c Ratio	1.20	0.58	0.21	0.63	1.09	0.18	0.95	0.46	0.24	0.33	0.54	0.48
Control Delay	130.6	5.4	0.6	24.3	66.2	1.9	89.5	58.4	1.9	51.5	63.5	17.8
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	130.6	5.4	0.6	24.3	66.2	1.9	89.5	58.4	1.9	51.5	63.5	17.8
Queue Length 50th (ft)	~178	41	0	40	~886	14	~156	46	0	38	52	43
Queue Length 95th (ft)	m#211	m83	m2	m65	#973	m14	#240	78	0	61	88	102
Internal Link Dist (ft)		1253			1813			1033			646	
Turn Bay Length (ft)	150		300	300		150	200		200	150		150
Base Capacity (vph)	343	2823	970	261	2773	926	347	169	314	335	152	431
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	1.20	0.58	0.21	0.56	1.09	0.18	0.95	0.40	0.23	0.33	0.50	0.48

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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
2: Peoria St & RidgeGate Pkwy

JR Engineering
05/13/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	366	1543	177	121	2898	142	291	52	56	88	60	176
Future Volume (veh/h)	366	1543	177	121	2898	142	291	52	56	88	60	176
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	411	1641	206	146	3019	0	331	67	72	109	76	0
Peak Hour Factor	0.89	0.94	0.86	0.83	0.96	0.84	0.88	0.78	0.78	0.81	0.79	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	346	3025	939	285	2785		251	105	89	259	110	
Arrive On Green	0.20	1.00	1.00	0.06	0.55	0.00	0.07	0.06	0.06	0.08	0.06	0.00
Sat Flow, veh/h	3456	5106	1585	1781	5106	1585	3456	1870	1585	3456	1870	1585
Grp Volume(v), veh/h	411	1641	206	146	3019	0	331	67	72	109	76	0
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1781	1702	1585	1728	1870	1585	1728	1870	1585
Q Serve(g_s), s	11.0	0.0	0.0	4.7	60.0	0.0	8.0	3.9	4.0	3.3	4.4	0.0
Cycle Q Clear(g_c), s	11.0	0.0	0.0	4.7	60.0	0.0	8.0	3.9	4.0	3.3	4.4	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	346	3025	939	285	2785		251	105	89	259	110	
V/C Ratio(X)	1.19	0.54	0.22	0.51	1.08		1.32	0.64	0.81	0.42	0.69	
Avail Cap(c_a), veh/h	346	3025	939	369	2785		251	170	144	259	153	
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.37	0.37	0.37	0.48	0.48	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	44.0	0.0	0.0	14.0	25.0	0.0	51.0	50.8	33.9	48.6	50.8	0.0
Incr Delay (d2), s/veh	96.0	0.1	0.0	0.7	41.4	0.0	167.9	6.3	15.6	1.1	7.6	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	8.6	0.0	0.0	1.8	31.8	0.0	9.3	2.0	2.3	1.5	2.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	140.0	0.1	0.0	14.6	66.4	0.0	218.9	57.1	49.5	49.7	58.4	0.0
LnGrp LOS	F	A	A	B	F		F	E	D	D	E	
Approach Vol, veh/h		2258			3165	A		470			185	A
Approach Delay, s/veh		25.5			64.0			169.9			53.3	
Approach LOS		C			E			F			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.8	71.2	13.0	12.4	17.0	66.0	13.3	12.2				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	6.0	*6	5.0	6.0				
Max Green Setting (Gmax), s	12.0	59.0	8.0	9.0	11.0	*60	7.0	10.0				
Max Q Clear Time (g_c+I1), s	6.7	2.0	10.0	6.4	13.0	62.0	5.3	6.0				
Green Ext Time (p_c), s	0.2	11.8	0.0	0.1	0.0	0.0	0.0	0.2				













Intersection Summary

HCM 6th Ctrl Delay	57.6
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
11: Avenue A & RidgeGate Pkwy

						
Lane Group	NBL	NBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Volume (vph)	231	129	1643	111	53	3133
Future Volume (vph)	231	129	1643	111	53	3133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150	0		0	200	
Storage Lanes	2	1		1	2	
Taper Length (ft)	25				25	
Lane Util. Factor	0.97	1.00	0.91	1.00	1.00	0.91
Fr _t		0.850		0.850		
Fl _t Protected	0.950				0.950	
Satd. Flow (prot)	3433	1583	5085	1583	1770	5085
Fl _t Permitted	0.950				0.092	
Satd. Flow (perm)	3433	1583	5085	1583	171	5085
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		154		134		
Link Speed (mph)	30		45			45
Link Distance (ft)	1079		1893			1290
Travel Time (s)	24.5		28.7			19.5
Peak Hour Factor	0.87	0.84	0.94	0.83	0.78	0.96
Adj. Flow (vph)	266	154	1748	134	68	3264
Shared Lane Traffic (%)						
Lane Group Flow (vph)	266	154	1748	134	68	3264
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	24		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (ft)	40	40	100	20	20	100
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	40	40	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	3		2		1	6
Permitted Phases		8		2	6	

Lanes, Volumes, Timings
11: Avenue A & RidgeGate Pkwy

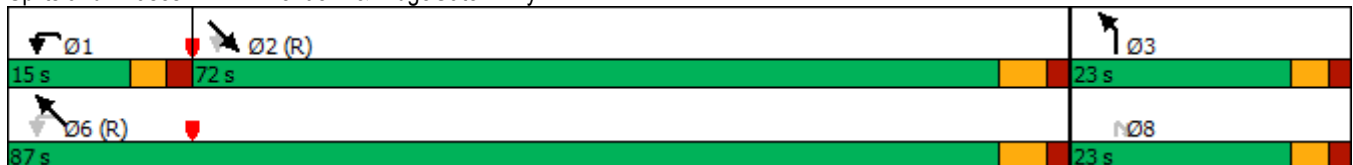


Lane Group	NBL	NBR	SET	SER	NWL	NWT
Detector Phase	3	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.0	23.0	24.0	24.0	15.0	24.0
Total Split (s)	23.0	23.0	72.0	72.0	15.0	87.0
Total Split (%)	20.9%	20.9%	65.5%	65.5%	13.6%	79.1%
Maximum Green (s)	18.0	18.0	66.0	66.0	10.0	81.0
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	4.0
All-Red Time (s)	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
Total Lost Time (s)	5.0	5.0	6.0	6.0	5.0	6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	C-Min	None	C-Min
Walk Time (s)		7.0	7.0	7.0		7.0
Flash Dont Walk (s)		11.0	11.0	11.0		11.0
Pedestrian Calls (#/hr)		0	0	0		0
Act Effct Green (s)	13.8	13.8	73.2	73.2	86.2	85.2
Actuated g/C Ratio	0.13	0.13	0.67	0.67	0.78	0.77
v/c Ratio	0.62	0.46	0.52	0.12	0.24	0.83
Control Delay	51.8	11.5	12.2	2.8	4.0	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.8	11.5	12.2	2.8	4.0	7.1
LOS	D	B	B	A	A	A
Approach Delay	37.0		11.5			7.1
Approach LOS	D		B			A

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 94 (85%), Referenced to phase 2:SET and 6:NWTL, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 10.8
 Intersection LOS: B
 Intersection Capacity Utilization 76.3%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 11: Avenue A & RidgeGate Pkwy



Queues
11: Avenue A & RidgeGate Pkwy



Lane Group	NBL	NBR	SET	SER	NWL	NWT
Lane Group Flow (vph)	266	154	1748	134	68	3264
v/c Ratio	0.62	0.46	0.52	0.12	0.24	0.83
Control Delay	51.8	11.5	12.2	2.8	4.0	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.8	11.5	12.2	2.8	4.0	7.1
Queue Length 50th (ft)	93	0	349	7	6	235
Queue Length 95th (ft)	126	47	496	33	m10	397
Internal Link Dist (ft)	999		1813			1210
Turn Bay Length (ft)	150				200	
Base Capacity (vph)	561	387	3385	1098	279	3940
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.40	0.52	0.12	0.24	0.83

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
 11: Avenue A & RidgeGate Pkwy

JR Engineering
 05/13/2020



Movement	NBL	NBR	SET	SER	NWL	NWT
Lane Configurations	↔↔	↔	↔↔↔	↔	↔	↔↔↔
Traffic Volume (veh/h)	231	129	1643	111	53	3133
Future Volume (veh/h)	231	129	1643	111	53	3133
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	266	154	1748	134	68	3264
Peak Hour Factor	0.87	0.84	0.94	0.83	0.78	0.96
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	418	192	3340	1037	322	3978
Arrive On Green	0.12	0.12	0.65	0.65	0.08	0.78
Sat Flow, veh/h	3456	1585	5274	1585	1781	5274
Grp Volume(v), veh/h	266	154	1748	134	68	3264
Grp Sat Flow(s),veh/h/ln	1728	1585	1702	1585	1781	1702
Q Serve(g_s), s	8.1	10.4	19.8	3.5	1.1	43.1
Cycle Q Clear(g_c), s	8.1	10.4	19.8	3.5	1.1	43.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	418	192	3340	1037	322	3978
V/C Ratio(X)	0.64	0.80	0.52	0.13	0.21	0.82
Avail Cap(c_a), veh/h	565	259	3340	1037	342	3978
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.81	0.81	1.00	1.00
Uniform Delay (d), s/veh	46.0	47.1	10.0	7.2	6.5	7.4
Incr Delay (d2), s/veh	1.6	12.2	0.5	0.2	0.3	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	4.7	6.3	1.2	0.3	10.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	47.7	59.3	10.5	7.4	6.9	9.5
LnGrp LOS	D	E	B	A	A	A
Approach Vol, veh/h	420		1882			3332
Approach Delay, s/veh	51.9		10.3			9.4
Approach LOS	D		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	13.7	78.0			91.7	18.3
Change Period (Y+Rc), s	5.0	6.0			6.0	5.0
Max Green Setting (Gmax), s	10.0	66.0			81.0	18.0
Max Q Clear Time (g_c+I1), s	3.1	21.8			45.1	12.4
Green Ext Time (p_c), s	0.1	19.0			33.3	0.9
Intersection Summary						
HCM 6th Ctrl Delay			12.9			
HCM 6th LOS			B			

Lanes, Volumes, Timings
12: Avenue B & Ridgeway Couplet WB

JR Engineering
05/13/2020



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	71	3058	170	0
Future Volume (vph)	0	0	71	3058	170	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	200		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	0.91	1.00	1.00
Frt						
Flt Protected			0.950		0.950	
Satd. Flow (prot)	0	0	1770	5085	1770	0
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	0	0	1770	5085	1770	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						
Link Speed (mph)	45			45	30	
Link Distance (ft)	815			1169	614	
Travel Time (s)	12.3			17.7	14.0	
Peak Hour Factor	0.92	0.92	0.80	0.96	0.85	0.92
Adj. Flow (vph)	0	0	89	3185	200	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	89	3185	200	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors			1	2	1	
Detector Template			Left	Thru	Left	
Leading Detector (ft)			20	100	20	
Trailing Detector (ft)			0	0	0	
Detector 1 Position(ft)			0	0	0	
Detector 1 Size(ft)			20	6	20	
Detector 1 Type			Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)			0.0	0.0	0.0	
Detector 1 Queue (s)			0.0	0.0	0.0	
Detector 1 Delay (s)			0.0	0.0	0.0	
Detector 2 Position(ft)				94		
Detector 2 Size(ft)				6		
Detector 2 Type				Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)				0.0		
Turn Type			Perm	NA	Prot	
Protected Phases				6	8	
Permitted Phases			6			

Lanes, Volumes, Timings
 12: Avenue B & Ridgeway Couplet WB



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase			6	6	8	
Switch Phase						
Minimum Initial (s)			5.0	5.0	5.0	
Minimum Split (s)			24.0	24.0	24.0	
Total Split (s)			85.0	85.0	25.0	
Total Split (%)			77.3%	77.3%	22.7%	
Maximum Green (s)			79.0	79.0	19.0	
Yellow Time (s)			4.0	4.0	4.0	
All-Red Time (s)			2.0	2.0	2.0	
Lost Time Adjust (s)			0.0	0.0	0.0	
Total Lost Time (s)			6.0	6.0	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)			3.0	3.0	3.0	
Recall Mode			C-Min	C-Min	None	
Walk Time (s)			7.0	7.0	7.0	
Flash Dont Walk (s)			11.0	11.0	11.0	
Pedestrian Calls (#/hr)			0	0	0	
Act Effct Green (s)			81.6	81.6	16.4	
Actuated g/C Ratio			0.74	0.74	0.15	
v/c Ratio			0.07	0.84	0.76	
Control Delay			1.4	8.1	56.0	
Queue Delay			0.0	0.0	0.0	
Total Delay			1.4	8.1	56.0	
LOS			A	A	E	
Approach Delay				7.9	56.0	
Approach LOS				A	E	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	44 (40%), Referenced to phase 2: and 6:WBTL, Start of Green
Natural Cycle:	80
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.84
Intersection Signal Delay:	10.7
Intersection LOS:	B
Intersection Capacity Utilization:	78.5%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 12: Avenue B & Ridgeway Couplet WB





Lane Group	WBL	WBT	NBL
Lane Group Flow (vph)	89	3185	200
v/c Ratio	0.07	0.84	0.76
Control Delay	1.4	8.1	56.0
Queue Delay	0.0	0.0	0.0
Total Delay	1.4	8.1	56.0
Queue Length 50th (ft)	4	542	7
Queue Length 95th (ft)	m5	65	213
Internal Link Dist (ft)		1089	534
Turn Bay Length (ft)	200		
Base Capacity (vph)	1313	3772	305
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.07	0.84	0.66

Intersection Summary

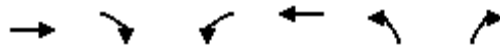
m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
 12: Avenue B & Ridgeway Couplet WB



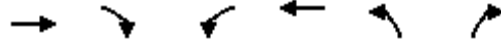
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations			↶	↷↷↷	↶	
Traffic Volume (veh/h)	0	0	71	3058	170	0
Future Volume (veh/h)	0	0	71	3058	170	0
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)			1.00		1.00	1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach				No	No	
Adj Sat Flow, veh/h/ln			1870	1870	1870	0
Adj Flow Rate, veh/h			89	3185	200	0
Peak Hour Factor			0.80	0.96	0.85	0.92
Percent Heavy Veh, %			2	2	2	0
Cap, veh/h			1750	4828	0	0
Arrive On Green			0.31	0.31	0.00	0.00
Sat Flow, veh/h			1781	5274	0	
Grp Volume(v), veh/h			89	3185	0.0	
Grp Sat Flow(s),veh/h/ln			1781	1702		
Q Serve(g_s), s			3.8	59.4		
Cycle Q Clear(g_c), s			3.8	59.4		
Prop In Lane			1.00			
Lane Grp Cap(c), veh/h			1750	4828		
V/C Ratio(X)			0.05	0.66		
Avail Cap(c_a), veh/h			1750	4828		
HCM Platoon Ratio			0.33	0.33		
Upstream Filter(I)			0.57	0.57		
Uniform Delay (d), s/veh			3.4	22.5		
Incr Delay (d2), s/veh			0.0	0.4		
Initial Q Delay(d3),s/veh			0.0	0.0		
%ile BackOfQ(50%),veh/ln			0.0	23.0		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			3.4	22.9		
LnGrp LOS			A	C		
Approach Vol, veh/h				3274		
Approach Delay, s/veh				22.4		
Approach LOS				C		
Timer - Assigned Phs						6
Phs Duration (G+Y+Rc), s						110.0
Change Period (Y+Rc), s						6.0
Max Green Setting (Gmax), s						79.0
Max Q Clear Time (g_c+I1), s						61.4
Green Ext Time (p_c), s						16.8
Intersection Summary						
HCM 6th Ctrl Delay			22.4			
HCM 6th LOS			C			

Lanes, Volumes, Timings
13: Avenue D & Ridgeway Couplet WB



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations			↙	↑↑↑	↘	
Traffic Volume (vph)	0	0	9	2958	82	0
Future Volume (vph)	0	0	9	2958	82	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	200		150	0
Storage Lanes		0	1		0	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	0.91	1.00	1.00
Frt						
Flt Protected			0.950		0.950	
Satd. Flow (prot)	0	0	1770	5085	1770	0
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	0	0	1770	5085	1770	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						
Link Speed (mph)	30			45	30	
Link Distance (ft)	1169			1377	727	
Travel Time (s)	26.6			20.9	16.5	
Peak Hour Factor	0.92	0.92	0.78	0.96	0.81	0.92
Adj. Flow (vph)	0	0	12	3081	101	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	12	3081	101	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors			1	2	1	
Detector Template			Left	Thru	Left	
Leading Detector (ft)			20	100	20	
Trailing Detector (ft)			0	0	0	
Detector 1 Position(ft)			0	0	0	
Detector 1 Size(ft)			20	6	20	
Detector 1 Type			Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)			0.0	0.0	0.0	
Detector 1 Queue (s)			0.0	0.0	0.0	
Detector 1 Delay (s)			0.0	0.0	0.0	
Detector 2 Position(ft)				94		
Detector 2 Size(ft)				6		
Detector 2 Type				Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)				0.0		
Turn Type			Perm	NA	Prot	
Protected Phases				6	8	
Permitted Phases			6			

Lanes, Volumes, Timings
 13: Avenue D & Ridgeway Couplet WB



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase			6	6	8	
Switch Phase						
Minimum Initial (s)			5.0	5.0	5.0	
Minimum Split (s)			24.0	24.0	23.0	
Total Split (s)			87.0	87.0	23.0	
Total Split (%)			79.1%	79.1%	20.9%	
Maximum Green (s)			81.0	81.0	18.0	
Yellow Time (s)			4.0	4.0	3.0	
All-Red Time (s)			2.0	2.0	2.0	
Lost Time Adjust (s)			0.0	0.0	0.0	
Total Lost Time (s)			6.0	6.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)			3.0	3.0	3.0	
Recall Mode			C-Min	C-Min	None	
Walk Time (s)			7.0	7.0	7.0	
Flash Dont Walk (s)			11.0	11.0	11.0	
Pedestrian Calls (#/hr)			0	0	0	
Act Effct Green (s)			87.4	87.4	11.6	
Actuated g/C Ratio			0.79	0.79	0.11	
v/c Ratio			0.01	0.76	0.54	
Control Delay			3.0	8.0	60.7	
Queue Delay			0.0	0.0	0.0	
Total Delay			3.0	8.0	60.7	
LOS			A	A	E	
Approach Delay				8.0	60.7	
Approach LOS				A	E	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	26 (24%), Referenced to phase 2: and 6:WBTL, Start of Green
Natural Cycle:	80
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.76
Intersection Signal Delay:	9.6
Intersection LOS:	A
Intersection Capacity Utilization:	70.9%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 13: Avenue D & Ridgeway Couplet WB





Lane Group	WBL	WBT	NBL
Lane Group Flow (vph)	12	3081	101
v/c Ratio	0.01	0.76	0.54
Control Delay	3.0	8.0	60.7
Queue Delay	0.0	0.0	0.0
Total Delay	3.0	8.0	60.7
Queue Length 50th (ft)	1	331	78
Queue Length 95th (ft)	5	481	122
Internal Link Dist (ft)		1297	647
Turn Bay Length (ft)	200		150
Base Capacity (vph)	1406	4040	289
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.01	0.76	0.35
Intersection Summary			

HCM 6th Signalized Intersection Summary
 13: Avenue D & Ridgeway Couplet WB



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations			↘	↑↑↑	↘	
Traffic Volume (veh/h)	0	0	9	2958	82	0
Future Volume (veh/h)	0	0	9	2958	82	0
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)			1.00		1.00	1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach				No	No	
Adj Sat Flow, veh/h/ln			1870	1870	1870	0
Adj Flow Rate, veh/h			12	3081	101	0
Peak Hour Factor			0.78	0.96	0.81	0.92
Percent Heavy Veh, %			2	2	2	0
Cap, veh/h			1750	4828	0	0
Arrive On Green			0.95	0.95	0.00	0.00
Sat Flow, veh/h			1781	5274	0	
Grp Volume(v), veh/h			12	3081	0.0	
Grp Sat Flow(s),veh/h/ln			1781	1702		
Q Serve(g_s), s			0.0	9.1		
Cycle Q Clear(g_c), s			0.0	9.1		
Prop In Lane			1.00			
Lane Grp Cap(c), veh/h			1750	4828		
V/C Ratio(X)			0.01	0.64		
Avail Cap(c_a), veh/h			1750	4828		
HCM Platoon Ratio			1.00	1.00		
Upstream Filter(I)			1.00	1.00		
Uniform Delay (d), s/veh			0.2	0.4		
Incr Delay (d2), s/veh			0.0	0.7		
Initial Q Delay(d3),s/veh			0.0	0.0		
%ile BackOfQ(50%),veh/ln			0.0	0.3		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.2	1.1		
LnGrp LOS			A	A		
Approach Vol, veh/h				3093		
Approach Delay, s/veh				1.1		
Approach LOS				A		
Timer - Assigned Phs						6
Phs Duration (G+Y+Rc), s						110.0
Change Period (Y+Rc), s						6.0
Max Green Setting (Gmax), s						81.0
Max Q Clear Time (g_c+I1), s						11.1
Green Ext Time (p_c), s						57.2
Intersection Summary						
HCM 6th Ctrl Delay			1.1			
HCM 6th LOS			A			

Lanes, Volumes, Timings
14: Avenue B & Ridgeway Couplet EB

JR Engineering
05/13/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗					↑	↗	↘	↑	
Traffic Volume (vph)	1	1626	92	0	0	0	0	170	100	1	61	0
Future Volume (vph)	1	1626	92	0	0	0	0	170	100	1	61	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	0		200	0		0	0		0
Storage Lanes	1		1	0		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850							0.850		
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1770	5085	1583	0	0	0	0	1863	1583	1770	1863	0
Flt Permitted	0.950									0.426		
Satd. Flow (perm)	1770	5085	1583	0	0	0	0	1863	1583	794	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			112						30			
Link Speed (mph)		45			45			30				30
Link Distance (ft)		990			1252			512				614
Travel Time (s)		15.0			19.0			11.6				14.0
Peak Hour Factor	0.78	0.94	0.82	0.92	0.92	0.92	0.92	0.85	0.83	0.78	0.79	0.92
Adj. Flow (vph)	1	1730	112	0	0	0	0	200	120	1	77	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	1730	112	0	0	0	0	200	120	1	77	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	40	40	40					100	40	40	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	40	40	40					6	40	40	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)								94			94	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	Perm	NA	
Protected Phases		2						8			4	
Permitted Phases	2		2						8	4		

Lanes, Volumes, Timings
14: Avenue B & Ridgeway Couplet EB

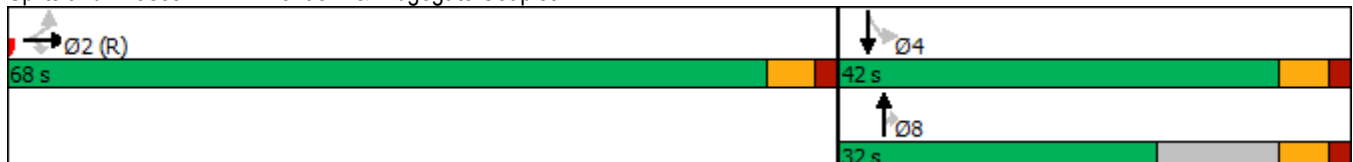


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2	2					8	8	4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0					5.0	5.0	5.0	5.0	
Minimum Split (s)	24.0	24.0	24.0					24.0	24.0	24.0	24.0	
Total Split (s)	68.0	68.0	68.0					32.0	32.0	42.0	42.0	
Total Split (%)	61.8%	61.8%	61.8%					29.1%	29.1%	38.2%	38.2%	
Maximum Green (s)	62.0	62.0	62.0					26.0	26.0	36.0	36.0	
Yellow Time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0					2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Recall Mode	C-Min	C-Min	C-Min					None	None	None	None	
Walk Time (s)	7.0	7.0	7.0					7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0					11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0					0	0	0	0	
Act Effct Green (s)	80.8	80.8	80.8					17.2	17.2	17.2	17.2	
Actuated g/C Ratio	0.73	0.73	0.73					0.16	0.16	0.16	0.16	
v/c Ratio	0.00	0.46	0.09					0.69	0.44	0.01	0.26	
Control Delay	5.0	6.8	1.3					55.5	35.2	43.0	43.1	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Delay	5.0	6.8	1.3					55.5	35.2	43.0	43.1	
LOS	A	A	A					E	D	D	D	
Approach Delay		6.5						47.9			43.1	
Approach LOS		A						D			D	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	86 (78%), Referenced to phase 2:EBTL, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.69
Intersection Signal Delay:	13.7
Intersection LOS:	B
Intersection Capacity Utilization:	78.5%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 14: Avenue B & Ridgeway Couplet EB



Queues
14: Avenue B & Ridgegate Couplet EB



Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	1	1730	112	200	120	1	77
v/c Ratio	0.00	0.46	0.09	0.69	0.44	0.01	0.26
Control Delay	5.0	6.8	1.3	55.5	35.2	43.0	43.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.0	6.8	1.3	55.5	35.2	43.0	43.1
Queue Length 50th (ft)	0	154	0	135	58	1	49
Queue Length 95th (ft)	2	231	13	186	96	6	95
Internal Link Dist (ft)		910		432			534
Turn Bay Length (ft)	200		200				
Base Capacity (vph)	1299	3735	1192	609	538	259	609
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.46	0.09	0.33	0.22	0.00	0.13
Intersection Summary							

HCM 6th Signalized Intersection Summary
 14: Avenue B & Ridgeway Couplet EB

JR Engineering
 05/13/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗					↑	↗	↘	↑	
Traffic Volume (veh/h)	1	1626	92	0	0	0	0	170	100	1	61	0
Future Volume (veh/h)	1	1626	92	0	0	0	0	170	100	1	61	0
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	1	1730	112				0	200	120	1	77	0
Peak Hour Factor	0.78	0.94	0.82				0.92	0.85	0.83	0.78	0.79	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	1349	3867	1201				0	250	212	97	250	0
Arrive On Green	0.76	0.76	0.76				0.00	0.13	0.13	0.13	0.13	0.00
Sat Flow, veh/h	1781	5106	1585				0	1870	1585	1060	1870	0
Grp Volume(v), veh/h	1	1730	112				0	200	120	1	77	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1585				0	1870	1585	1060	1870	0
Q Serve(g_s), s	0.0	13.7	2.0				0.0	11.4	7.8	0.1	4.1	0.0
Cycle Q Clear(g_c), s	0.0	13.7	2.0				0.0	11.4	7.8	11.5	4.1	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1349	3867	1201				0	250	212	97	250	0
V/C Ratio(X)	0.00	0.45	0.09				0.00	0.80	0.57	0.01	0.31	0.00
Avail Cap(c_a), veh/h	1349	3867	1201				0	442	375	302	612	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	3.2	4.9	3.5				0.0	46.2	44.7	51.8	43.1	0.0
Incr Delay (d2), s/veh	0.0	0.4	0.2				0.0	5.9	2.4	0.0	0.7	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
%ile BackOfQ(50%),veh/ln	0.0	3.5	0.5				0.0	5.7	3.2	0.0	1.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.2	5.3	3.6				0.0	52.1	47.1	51.9	43.8	0.0
LnGrp LOS	A	A	A				A	D	D	D	D	A
Approach Vol, veh/h		1843						320			78	
Approach Delay, s/veh		5.2						50.2			43.9	
Approach LOS		A						D			D	
Timer - Assigned Phs		2	4					8				
Phs Duration (G+Y+Rc), s		89.3	20.7					20.7				
Change Period (Y+Rc), s		6.0	6.0					6.0				
Max Green Setting (Gmax), s		62.0	36.0					26.0				
Max Q Clear Time (g_c+I1), s		15.7	13.5					13.4				
Green Ext Time (p_c), s		11.7	0.3					1.3				
Intersection Summary												
HCM 6th Ctrl Delay			13.0									
HCM 6th LOS			B									

Lanes, Volumes, Timings
15: Ridgeway Couplet EB & Avenue D

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	1680	29	0	0	0	0	82	28	1	9	0
Future Volume (vph)	1	1680	29	0	0	0	0	82	28	1	9	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		200	0		0	0		0	150		0
Storage Lanes	1		1	0		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.850			
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1593	4577	1425	0	0	0	0	1676	1425	1593	1676	0
Flt Permitted	0.950									0.644		
Satd. Flow (perm)	1593	4577	1425	0	0	0	0	1676	1425	1080	1676	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			37						30			
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1252			1387			763			727	
Travel Time (s)		19.0			21.0			17.3			16.5	
Peak Hour Factor	0.92	0.94	0.78	0.92	0.92	0.92	0.92	0.81	0.78	0.92	0.78	0.92
Adj. Flow (vph)	1	1787	37	0	0	0	0	101	36	1	12	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	1787	37	0	0	0	0	101	36	1	12	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	Perm	NA	
Protected Phases		2						8			4	
Permitted Phases	2		2						8	4		

Lanes, Volumes, Timings
 15: Ridgeway Couplet EB & Avenue D

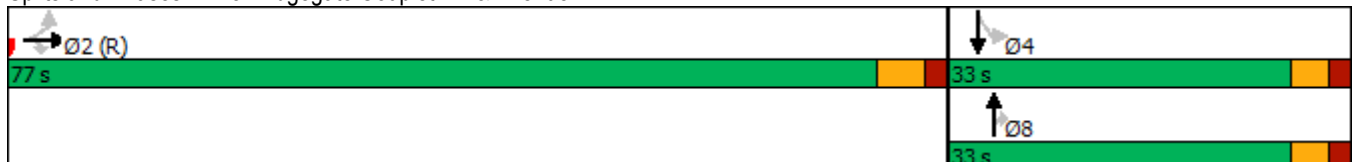


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2	2					8	8	4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0					5.0	5.0	5.0	5.0	
Minimum Split (s)	24.0	24.0	24.0					23.0	23.0	23.0	23.0	
Total Split (s)	77.0	77.0	77.0					33.0	33.0	33.0	33.0	
Total Split (%)	70.0%	70.0%	70.0%					30.0%	30.0%	30.0%	30.0%	
Maximum Green (s)	71.0	71.0	71.0					28.0	28.0	28.0	28.0	
Yellow Time (s)	4.0	4.0	4.0					3.0	3.0	3.0	3.0	
All-Red Time (s)	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	
Total Lost Time (s)	6.0	6.0	6.0					5.0	5.0	5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Recall Mode	C-Min	C-Min	C-Min					None	None	None	None	
Walk Time (s)	7.0	7.0	7.0					7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0					11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0					0	0	0	0	
Act Effct Green (s)	87.0	87.0	87.0					12.0	12.0	12.0	12.0	
Actuated g/C Ratio	0.79	0.79	0.79					0.11	0.11	0.11	0.11	
v/c Ratio	0.00	0.49	0.03					0.55	0.20	0.01	0.07	
Control Delay	1.0	3.4	0.3					57.3	20.2	48.0	42.1	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Delay	1.0	3.4	0.3					57.3	20.2	48.0	42.1	
LOS	A	A	A					E	C	D	D	
Approach Delay		3.4						47.6			42.6	
Approach LOS		A						D			D	

Intersection Summary

Area Type: CBD
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:EBTL, Start of Green
 Natural Cycle: 55
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.55
 Intersection Signal Delay: 6.7
 Intersection LOS: A
 Intersection Capacity Utilization 70.9%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 15: Ridgeway Couplet EB & Avenue D



Queues
15: Ridgeway Couplet EB & Avenue D



Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	1	1787	37	101	36	1	12
v/c Ratio	0.00	0.49	0.03	0.55	0.20	0.01	0.07
Control Delay	1.0	3.4	0.3	57.3	20.2	48.0	42.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.0	3.4	0.3	57.3	20.2	48.0	42.1
Queue Length 50th (ft)	0	200	0	69	4	1	7
Queue Length 95th (ft)	m0	300	0	106	26	6	22
Internal Link Dist (ft)		1172		683			647
Turn Bay Length (ft)	150		200			150	
Base Capacity (vph)	1260	3620	1135	426	385	274	426
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.49	0.03	0.24	0.09	0.00	0.03

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
 15: Ridgeway Couplet EB & Avenue D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑↑	↗					↑	↗	↖	↑	
Traffic Volume (veh/h)	1	1680	29	0	0	0	0	82	28	1	9	0
Future Volume (veh/h)	1	1680	29	0	0	0	0	82	28	1	9	0
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	1683	1683	1683				0	1683	1683	1683	1683	0
Adj Flow Rate, veh/h	1	1787	37				0	101	36	1	12	0
Peak Hour Factor	0.92	0.94	0.78				0.92	0.81	0.78	0.92	0.78	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	1313	3764	1168				0	136	116	91	136	0
Arrive On Green	0.82	0.82	0.82				0.00	0.08	0.08	0.08	0.08	0.00
Sat Flow, veh/h	1603	4595	1427				0	1683	1427	1127	1683	0
Grp Volume(v), veh/h	1	1787	37				0	101	36	1	12	0
Grp Sat Flow(s),veh/h/ln	1603	1532	1427				0	1683	1427	1127	1683	0
Q Serve(g_s), s	0.0	12.7	0.5				0.0	6.5	2.6	0.1	0.7	0.0
Cycle Q Clear(g_c), s	0.0	12.7	0.5				0.0	6.5	2.6	6.5	0.7	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1313	3764	1168				0	136	116	91	136	0
V/C Ratio(X)	0.00	0.47	0.03				0.00	0.74	0.31	0.01	0.09	0.00
Avail Cap(c_a), veh/h	1313	3764	1168				0	428	363	286	428	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.89	0.89	0.89				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	1.8	2.9	1.9				0.0	49.4	47.7	52.6	46.8	0.0
Incr Delay (d2), s/veh	0.0	0.4	0.0				0.0	7.6	1.5	0.0	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
%ile BackOfQ(50%),veh/ln	0.0	2.1	0.1				0.0	3.0	1.0	0.0	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	1.8	3.3	1.9				0.0	57.1	49.2	52.7	47.1	0.0
LnGrp LOS	A	A	A				A	E	D	D	D	A
Approach Vol, veh/h		1825						137			13	
Approach Delay, s/veh		3.3						55.0			47.5	
Approach LOS		A						D			D	
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		96.1		13.9				13.9				
Change Period (Y+Rc), s		6.0		5.0				5.0				
Max Green Setting (Gmax), s		71.0		28.0				28.0				
Max Q Clear Time (g_c+I1), s		14.7		8.5				8.5				
Green Ext Time (p_c), s		20.6		0.0				0.6				

Intersection Summary

HCM 6th Ctrl Delay	7.2
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings
16: Havana St & Avenue B

JR Engineering
05/13/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	141	10	4	71	35	342	25	402	80	220	352	96
Future Volume (vph)	141	10	4	71	35	342	25	402	80	220	352	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	200		0	200		200	200		0
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.958				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1785	0	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.746			0.488			0.419		
Satd. Flow (perm)	3433	1785	0	1390	1863	1583	909	3539	1583	780	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5				240			244			244
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		497			2632			5321			842	
Travel Time (s)		11.3			59.8			103.7			16.4	
Peak Hour Factor	0.84	0.78	0.78	0.80	0.78	0.89	0.78	0.90	0.81	0.87	0.89	0.82
Adj. Flow (vph)	168	13	5	89	45	384	32	447	99	253	396	117
Shared Lane Traffic (%)												
Lane Group Flow (vph)	168	18	0	89	45	384	32	447	99	253	396	117
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	40	40		40	40	20	20	100	40	40	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	40	40		40	40	20	20	6	40	40	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)								94			94	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases				8		8	2		2	6		6

Lanes, Volumes, Timings
16: Havana St & Avenue B

JR Engineering
05/13/2020

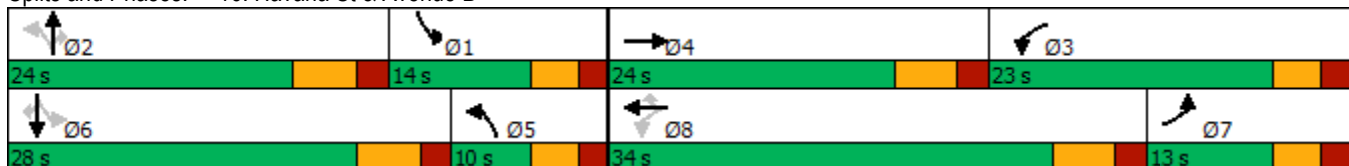


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.0	24.0		23.0	24.0	24.0	10.0	24.0	24.0	10.0	24.0	24.0
Total Split (s)	13.0	24.0		23.0	34.0	34.0	10.0	24.0	24.0	14.0	28.0	28.0
Total Split (%)	15.3%	28.2%		27.1%	40.0%	40.0%	11.8%	28.2%	28.2%	16.5%	32.9%	32.9%
Maximum Green (s)	8.0	18.0		18.0	28.0	28.0	5.0	18.0	18.0	9.0	22.0	22.0
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.0	4.0	3.0	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	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	0.0
Total Lost Time (s)	5.0	6.0		5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag	Lag	Lead		Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0		7.0	7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0		11.0	11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0		0	0	0		0	0		0	0
Act Effct Green (s)	7.7	10.2		28.0	14.1	14.1	21.2	13.8	13.8	25.6	21.5	21.5
Actuated g/C Ratio	0.12	0.16		0.43	0.22	0.22	0.32	0.21	0.21	0.39	0.33	0.33
v/c Ratio	0.42	0.06		0.12	0.11	0.72	0.08	0.60	0.19	0.61	0.34	0.17
Control Delay	32.9	25.5		12.7	22.0	18.1	14.4	28.0	0.8	25.9	20.6	0.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.9	25.5		12.7	22.0	18.1	14.4	28.0	0.8	25.9	20.6	0.5
LOS	C	C		B	C	B	B	C	A	C	C	A
Approach Delay		32.2			17.5			22.6			19.3	
Approach LOS		C			B			C			B	

Intersection Summary

Area Type:	Other
Cycle Length:	85
Actuated Cycle Length:	65.5
Natural Cycle:	85
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.72
Intersection Signal Delay:	20.9
Intersection LOS:	C
Intersection Capacity Utilization:	50.6%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 16: Havana St & Avenue B



Queues
16: Havana St & Avenue B





























Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	168	18	89	45	384	32	447	99	253	396	117
v/c Ratio	0.42	0.06	0.12	0.11	0.72	0.08	0.60	0.19	0.61	0.34	0.17
Control Delay	32.9	25.5	12.7	22.0	18.1	14.4	28.0	0.8	25.9	20.6	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.9	25.5	12.7	22.0	18.1	14.4	28.0	0.8	25.9	20.6	0.5
Queue Length 50th (ft)	31	4	21	15	51	8	82	0	62	51	0
Queue Length 95th (ft)	67	21	43	35	142	22	154	0	137	131	0
Internal Link Dist (ft)		417		2552			5241			762	
Turn Bay Length (ft)			200			200		200	200		
Base Capacity (vph)	429	506	741	815	827	378	995	620	467	1272	725
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.04	0.12	0.06	0.46	0.08	0.45	0.16	0.54	0.31	0.16

Intersection Summary

HCM 6th Signalized Intersection Summary
 16: Havana St & Avenue B

JR Engineering
 05/13/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 							 			 	
Traffic Volume (veh/h)	141	10	4	71	35	342	25	402	80	220	352	96
Future Volume (veh/h)	141	10	4	71	35	342	25	402	80	220	352	96
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	168	13	5	89	45	384	32	447	99	253	396	117
Peak Hour Factor	0.84	0.78	0.78	0.80	0.78	0.89	0.78	0.90	0.81	0.87	0.89	0.82
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	272	215	83	642	530	450	350	664	296	319	630	281
Arrive On Green	0.08	0.17	0.17	0.19	0.28	0.28	0.09	0.19	0.19	0.08	0.18	0.18
Sat Flow, veh/h	3456	1286	495	1781	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	168	0	18	89	45	384	32	447	99	253	396	117
Grp Sat Flow(s),veh/h/ln	1728	0	1781	1781	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.8	0.0	0.5	0.0	1.1	13.7	0.0	7.0	3.2	2.3	6.2	3.9
Cycle Q Clear(g_c), s	2.8	0.0	0.5	0.0	1.1	13.7	0.0	7.0	3.2	2.3	6.2	3.9
Prop In Lane	1.00		0.28	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	272	0	298	642	530	450	350	664	296	319	630	281
V/C Ratio(X)	0.62	0.00	0.06	0.14	0.08	0.85	0.09	0.67	0.33	0.79	0.63	0.42
Avail Cap(c_a), veh/h	463	0	537	833	877	743	350	1071	478	441	1309	584
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.6	0.0	20.9	14.7	15.7	20.2	21.5	22.6	21.1	25.0	22.7	21.8
Incr Delay (d2), s/veh	2.3	0.0	0.1	0.1	0.1	5.3	0.1	1.2	0.7	6.6	1.0	1.0
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	1.2	0.0	0.2	0.8	0.4	5.2	0.4	2.8	1.2	3.7	2.4	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.9	0.0	21.0	14.8	15.8	25.5	21.6	23.8	21.7	31.7	23.8	22.8
LnGrp LOS	C	A	C	B	B	C	C	C	C	C	C	C
Approach Vol, veh/h		186			518			578			766	
Approach Delay, s/veh		28.2			22.8			23.3			26.2	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.9	17.2	16.6	16.0	10.5	16.6	9.7	22.9				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	9.0	18.0	18.0	18.0	5.0	22.0	8.0	28.0				
Max Q Clear Time (g_c+I1), s	4.3	9.0	2.0	2.5	2.0	8.2	4.8	15.7				
Green Ext Time (p_c), s	0.4	2.2	0.2	0.0	0.0	2.4	0.2	1.3				
Intersection Summary												
HCM 6th Ctrl Delay			24.7									
HCM 6th LOS			C									



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	70	114	416	35	37	404
Future Volume (vph)	70	114	416	35	37	404
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	200		200	300	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	3539	1583	1770	3539
Link Speed (mph)	30		35			35
Link Distance (ft)	744		1352			5321
Travel Time (s)	16.9		26.3			103.7
Peak Hour Factor	0.80	0.83	0.90	0.78	0.78	0.90
Adj. Flow (vph)	88	137	462	45	47	449
Shared Lane Traffic (%)						
Lane Group Flow (vph)	88	137	462	45	47	449
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	28.7%
	ICU Level of Service A
Analysis Period (min)	15

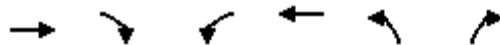
Intersection						
Int Delay, s/veh	3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↕	↗	↘	↕
Traffic Vol, veh/h	70	114	416	35	37	404
Future Vol, veh/h	70	114	416	35	37	404
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	200	-	200	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	83	90	78	78	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	88	137	462	45	47	449

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	781	231	0	0	507	0
Stage 1	462	-	-	-	-	-
Stage 2	319	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	332	771	-	-	1054	-
Stage 1	601	-	-	-	-	-
Stage 2	710	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	317	771	-	-	1054	-
Mov Cap-2 Maneuver	317	-	-	-	-	-
Stage 1	601	-	-	-	-	-
Stage 2	678	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.6	0	0.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	317	771	1054
HCM Lane V/C Ratio	-	-	0.276	0.178	0.045
HCM Control Delay (s)	-	-	20.6	10.7	8.6
HCM Lane LOS	-	-	C	B	A
HCM 95th %tile Q(veh)	-	-	1.1	0.6	0.1

Lanes, Volumes, Timings
1: Havana St & RidgeGate Pkwy



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖	↑↑↑	↖	↗
Traffic Volume (vph)	4103	843	136	2915	677	263
Future Volume (vph)	4103	843	136	2915	677	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		200	200		200	0
Storage Lanes		1	1		2	1
Taper Length (ft)			25		25	
Lane Util. Factor	0.91	1.00	1.00	0.86	0.97	1.00
Fr _t		0.850				0.850
Fl _t Protected			0.950		0.950	
Satd. Flow (prot)	5085	1583	1770	6408	3433	1583
Fl _t Permitted			0.037		0.950	
Satd. Flow (perm)	5085	1583	69	6408	3433	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		391				52
Link Speed (mph)	45			45	35	
Link Distance (ft)	980			1333	842	
Travel Time (s)	14.8			20.2	16.4	
Peak Hour Factor	0.97	0.92	0.84	0.95	0.92	0.88
Adj. Flow (vph)	4230	916	162	3068	736	299
Shared Lane Traffic (%)						
Lane Group Flow (vph)	4230	916	162	3068	736	299
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	1	1	1	1	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	40	40	40	40	40	40
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	40	40	40	40	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	NA	Perm	pm+pt	NA	pm+pt	Perm
Protected Phases	2		1	6	3	
Permitted Phases		2	6		8	8
Detector Phase	2	2	1	6	3	8
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	24.0	24.0	10.0	24.0	23.0	24.0
Total Split (s)	107.0	107.0	11.0	118.0	32.0	32.0

Lanes, Volumes, Timings
1: Havana St & RidgeGate Pkwy



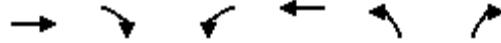
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Total Split (%)	71.3%	71.3%	7.3%	78.7%	21.3%	21.3%
Maximum Green (s)	101.0	101.0	6.0	112.0	27.0	26.0
Yellow Time (s)	4.0	4.0	3.0	4.0	3.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	5.0	6.0	5.0	6.0
Lead/Lag	Lead	Lead	Lag			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min	C-Min	None	Min	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	101.0	101.0	113.0	112.0	27.0	26.0
Actuated g/C Ratio	0.67	0.67	0.75	0.75	0.18	0.17
v/c Ratio	1.24	0.77	1.35	0.64	1.19	0.94
Control Delay	134.1	13.7	214.4	3.8	153.3	87.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	134.1	13.7	214.4	3.8	153.3	87.9
LOS	F	B	F	A	F	F
Approach Delay	112.7			14.4	134.4	
Approach LOS	F			B	F	

Intersection Summary

Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 29 (19%), Referenced to phase 2:EBT, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.35
 Intersection Signal Delay: 81.3
 Intersection Capacity Utilization 119.5%
 Analysis Period (min) 15
 Intersection LOS: F
 ICU Level of Service H

Splits and Phases: 1: Havana St & RidgeGate Pkwy





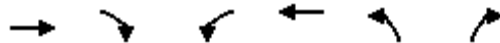
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	4230	916	162	3068	736	299
v/c Ratio	1.24	0.77	1.35	0.64	1.19	0.94
Control Delay	134.1	13.7	214.4	3.8	153.3	87.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	134.1	13.7	214.4	3.8	153.3	87.9
Queue Length 50th (ft)	~1871	334	~158	135	~446	247
Queue Length 95th (ft)	#1907	526	m#205	163	#576	#416
Internal Link Dist (ft)	900			1253	762	
Turn Bay Length (ft)		200	200		200	
Base Capacity (vph)	3423	1193	120	4784	617	317
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.24	0.77	1.35	0.64	1.19	0.94

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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
1: Havana St & RidgeGate Pkwy

JR Engineering
05/13/2020



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖	↑↑↑	↗↖	↗
Traffic Volume (veh/h)	4103	843	136	2915	677	263
Future Volume (veh/h)	4103	843	136	2915	677	263
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4230	916	162	3068	736	299
Peak Hour Factor	0.97	0.92	0.84	0.95	0.92	0.88
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	3438	1067	511	6262	622	285
Arrive On Green	0.67	0.67	0.26	0.97	0.18	0.18
Sat Flow, veh/h	5274	1585	1781	6696	3456	1585
Grp Volume(v), veh/h	4230	916	162	3068	736	299
Grp Sat Flow(s),veh/h/ln	1702	1585	1781	1609	1728	1585
Q Serve(g_s), s	101.0	61.6	6.7	3.6	27.0	27.0
Cycle Q Clear(g_c), s	101.0	61.6	6.7	3.6	27.0	27.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	3438	1067	511	6262	622	285
V/C Ratio(X)	1.23	0.86	0.32	0.49	1.18	1.05
Avail Cap(c_a), veh/h	3438	1067	511	6262	622	285
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.32	0.32	0.79	0.79
Uniform Delay (d), s/veh	24.5	16.0	42.5	0.1	61.5	61.5
Incr Delay (d2), s/veh	106.4	9.0	0.1	0.0	95.2	60.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	69.1	23.0	4.5	0.0	20.0	15.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	130.9	24.9	42.7	0.1	156.7	122.0
LnGrp LOS	F	C	D	A	F	F
Approach Vol, veh/h	5146			3230	1035	
Approach Delay, s/veh	112.0			2.3	146.7	
Approach LOS	F			A	F	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	46.0	107.0			153.0	32.0
Change Period (Y+Rc), s	6.0	* 6			6.0	5.0
Max Green Setting (Gmax), s	6.0	* 1E2			112.0	27.0
Max Q Clear Time (g_c+I1), s	8.7	103.0			5.6	29.0
Green Ext Time (p_c), s	0.0	0.0			49.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	78.2
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings
2: Peoria St & RidgeGate Pkwy

JR Engineering
05/13/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↑↑↑	↗	↖	↑↑↑	↗	↖↖	↑	↗	↖↖	↑	↗
Traffic Volume (vph)	173	3781	196	139	2119	98	241	43	46	378	70	402
Future Volume (vph)	173	3781	196	139	2119	98	241	43	46	378	70	402
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		300	300		150	200		200	150		150
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	0.97	1.00	1.00	0.97	1.00	1.00
Frt			0.850				0.850			0.850		0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	5085	1583	1770	5085	1583	3433	1863	1583	3433	1863	1583
Flt Permitted	0.050			0.054			0.950			0.950		
Satd. Flow (perm)	181	5085	1583	101	5085	1583	3433	1863	1583	3433	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			142			145			145			65
Link Speed (mph)		45			45			30				35
Link Distance (ft)		1333			1893			1113				726
Travel Time (s)		20.2			28.7			25.3				14.1
Peak Hour Factor	0.85	0.96	0.86	0.84	0.95	0.82	0.87	0.78	0.78	0.89	0.80	0.90
Adj. Flow (vph)	204	3939	228	165	2231	120	277	55	59	425	88	447
Shared Lane Traffic (%)												
Lane Group Flow (vph)	204	3939	228	165	2231	120	277	55	59	425	88	447
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	40	40	40	40	40	40	40	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	40	40	40	40	40	40	40	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)								94				94
Detector 2 Size(ft)								6				6
Detector 2 Type								Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)								0.0				0.0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases	2		2	6		6			8			4

Lanes, Volumes, Timings
2: Peoria St & RidgeGate Pkwy

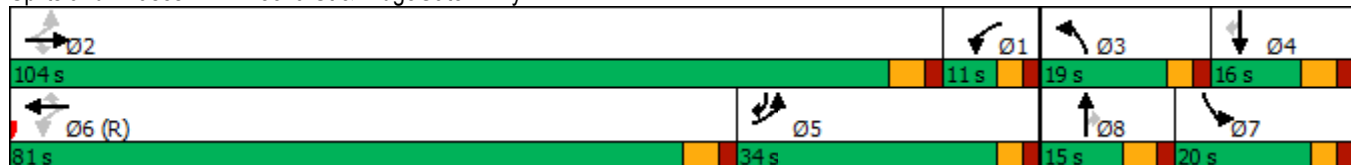


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	5
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	24.0	24.0	10.0	24.0	24.0	10.0	15.0	15.0	10.0	15.0	10.0
Total Split (s)	34.0	104.0	104.0	11.0	81.0	81.0	19.0	15.0	15.0	20.0	16.0	34.0
Total Split (%)	22.7%	69.3%	69.3%	7.3%	54.0%	54.0%	12.7%	10.0%	10.0%	13.3%	10.7%	22.7%
Maximum Green (s)	29.0	98.0	98.0	6.0	75.0	75.0	14.0	9.0	9.0	15.0	10.0	29.0
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	5.0
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Min	Min	None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0						
Flash Dont Walk (s)		11.0	11.0		11.0	11.0						
Pedestrian Calls (#/hr)		0	0		0	0						
Act Effct Green (s)	110.0	98.0	98.0	80.7	73.7	73.7	13.9	8.3	8.3	15.7	10.1	41.3
Actuated g/C Ratio	0.73	0.65	0.65	0.54	0.49	0.49	0.09	0.06	0.06	0.10	0.07	0.28
v/c Ratio	0.26	1.19	0.21	1.38	0.89	0.14	0.87	0.54	0.26	1.18	0.70	0.93
Control Delay	20.3	95.9	0.1	240.2	30.4	1.7	92.8	88.0	2.8	162.3	97.0	57.7
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	20.3	95.9	0.1	240.2	30.4	1.7	92.8	88.0	2.8	162.3	97.0	57.7
LOS	C	F	A	F	C	A	F	F	A	F	F	E
Approach Delay		87.3			42.8			78.6			107.6	
Approach LOS		F			D			E			F	

Intersection Summary

Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 52 (35%), Referenced to phase 6:WBTL, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.38
 Intersection Signal Delay: 75.7
 Intersection LOS: E
 Intersection Capacity Utilization 112.4%
 ICU Level of Service H
 Analysis Period (min) 15

Splits and Phases: 2: Peoria St & RidgeGate Pkwy



Queues
2: Peoria St & RidgeGate Pkwy



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	204	3939	228	165	2231	120	277	55	59	425	88	447
v/c Ratio	0.26	1.19	0.21	1.38	0.89	0.14	0.87	0.54	0.26	1.18	0.70	0.93
Control Delay	20.3	95.9	0.1	240.2	30.4	1.7	92.8	88.0	2.8	162.3	97.0	57.7
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	20.3	95.9	0.1	240.2	30.4	1.7	92.8	88.0	2.8	162.3	97.0	57.7
Queue Length 50th (ft)	38	~1683	0	~158	479	3	140	53	0	~264	86	292
Queue Length 95th (ft)	m22	m358	m0	#288	512	16	#206	89	0	#370	#140	#481
Internal Link Dist (ft)		1253			1813			1033			646	
Turn Bay Length (ft)	150		300	300		150	200		200	150		150
Base Capacity (vph)	789	3322	1083	120	2542	864	320	111	231	359	125	483
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	0.26	1.19	0.21	1.38	0.88	0.14	0.87	0.50	0.26	1.18	0.70	0.93

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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
2: Peoria St & RidgeGate Pkwy

JR Engineering
05/13/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗↘	↑↑↑	↗	↘	↑↑↑	↗	↗↘	↑	↗	↗↘	↑	↗
Traffic Volume (veh/h)	173	3781	196	139	2119	98	241	43	46	378	70	402
Future Volume (veh/h)	173	3781	196	139	2119	98	241	43	46	378	70	402
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	204	3939	228	165	2231	0	277	55	59	425	88	0
Peak Hour Factor	0.85	0.96	0.86	0.84	0.95	0.82	0.87	0.78	0.78	0.89	0.80	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	867	3336	1036	119	2428		320	94	80	346	121	
Arrive On Green	0.44	1.00	1.00	0.04	0.48	0.00	0.09	0.05	0.05	0.10	0.06	0.00
Sat Flow, veh/h	3456	5106	1585	1781	5106	1585	3456	1870	1585	3456	1870	1585
Grp Volume(v), veh/h	204	3939	228	165	2231	0	277	55	59	425	88	0
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1781	1702	1585	1728	1870	1585	1728	1870	1585
Q Serve(g_s), s	0.0	98.0	0.0	6.0	61.1	0.0	11.9	4.3	5.5	15.0	6.9	0.0
Cycle Q Clear(g_c), s	0.0	98.0	0.0	6.0	61.1	0.0	11.9	4.3	5.5	15.0	6.9	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	867	3336	1036	119	2428		320	94	80	346	121	
V/C Ratio(X)	0.24	1.18	0.22	1.38	0.92		0.87	0.58	0.74	1.23	0.73	
Avail Cap(c_a), veh/h	867	3336	1036	119	2553		323	112	95	346	125	
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	0.78	0.78	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	32.7	0.0	0.0	70.8	36.6	0.0	67.1	69.7	70.2	67.5	68.9	0.0
Incr Delay (d2), s/veh	0.0	81.7	0.0	207.9	5.7	0.0	21.0	5.6	21.8	126.3	18.8	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	2.1	25.2	0.0	11.4	25.4	0.0	6.2	2.2	2.7	12.7	3.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.7	81.7	0.0	278.7	42.3	0.0	88.2	75.3	92.0	193.8	87.6	0.0
LnGrp LOS	C	F	A	F	D		F	E	F	F	F	
Approach Vol, veh/h		4371			2396	A		391			513	A
Approach Delay, s/veh		75.1			58.6			87.0			175.6	
Approach LOS		E			E			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	104.0	18.9	15.7	37.7	77.3	21.0	13.6				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	6.0	* 6				
Max Green Setting (Gmax), s	6.0	98.0	14.0	10.0	29.0	75.0	15.0	* 9				
Max Q Clear Time (g_c+I1), s	8.0	100.0	13.9	8.9	2.0	63.1	17.0	7.5				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.8	8.3	0.0	0.0				













Intersection Summary

HCM 6th Ctrl Delay	77.3
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
11: Avenue A & RidgeGate Pkwy

						
Lane Group	NBL	NBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Volume (vph)	181	77	4109	294	112	2356
Future Volume (vph)	181	77	4109	294	112	2356
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150	0		0	200	
Storage Lanes	2	1		1	2	
Taper Length (ft)	25				25	
Lane Util. Factor	0.97	1.00	0.91	1.00	1.00	0.91
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	1583	5085	1583	1770	5085
Flt Permitted	0.950				0.035	
Satd. Flow (perm)	3433	1583	5085	1583	65	5085
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		94		192		
Link Speed (mph)	30		45			45
Link Distance (ft)	1079		1893			1290
Travel Time (s)	24.5		28.7			19.5
Peak Hour Factor	0.86	0.78	0.96	0.88	0.83	0.95
Adj. Flow (vph)	210	99	4280	334	135	2480
Shared Lane Traffic (%)						
Lane Group Flow (vph)	210	99	4280	334	135	2480
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	24		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (ft)	40	40	100	20	20	100
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	40	40	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	3		2		1	6
Permitted Phases		8		2	6	

Lanes, Volumes, Timings
11: Avenue A & RidgeGate Pkwy



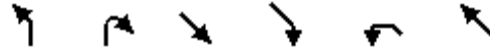
Lane Group	NBL	NBR	SET	SER	NWL	NWT
Detector Phase	3	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.0	23.0	24.0	24.0	15.0	24.0
Total Split (s)	23.0	23.0	112.0	112.0	15.0	127.0
Total Split (%)	15.3%	15.3%	74.7%	74.7%	10.0%	84.7%
Maximum Green (s)	18.0	18.0	106.0	106.0	10.0	121.0
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	4.0
All-Red Time (s)	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
Total Lost Time (s)	5.0	5.0	6.0	6.0	5.0	6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	C-Min	None	C-Min
Walk Time (s)		7.0	7.0	7.0		7.0
Flash Dont Walk (s)		11.0	11.0	11.0		11.0
Pedestrian Calls (#/hr)		0	0	0		0
Act Effct Green (s)	14.4	14.4	108.4	108.4	125.6	124.6
Actuated g/C Ratio	0.10	0.10	0.72	0.72	0.84	0.83
v/c Ratio	0.64	0.42	1.16	0.28	0.75	0.59
Control Delay	74.0	18.1	84.0	0.3	60.4	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.0	18.1	84.0	0.3	60.4	3.9
LOS	E	B	F	A	E	A
Approach Delay	56.1		78.0			6.8
Approach LOS	E		E			A

Intersection Summary

Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 73 (49%), Referenced to phase 2:SET and 6:NWTL, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.16
 Intersection Signal Delay: 52.4
 Intersection Capacity Utilization 106.2%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service G

Splits and Phases: 11: Avenue A & RidgeGate Pkwy





Lane Group	NBL	NBR	SET	SER	NWL	NWT
Lane Group Flow (vph)	210	99	4280	334	135	2480
v/c Ratio	0.64	0.42	1.16	0.28	0.75	0.59
Control Delay	74.0	18.1	84.0	0.3	60.4	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.0	18.1	84.0	0.3	60.4	3.9
Queue Length 50th (ft)	103	5	~1840	6	72	176
Queue Length 95th (ft)	138	42	m#185	m4	m#157	189
Internal Link Dist (ft)	999		1813			1210
Turn Bay Length (ft)	150				200	
Base Capacity (vph)	411	272	3674	1196	181	4223
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.36	1.16	0.28	0.75	0.59

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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
 11: Avenue A & RidgeGate Pkwy

JR Engineering
 05/13/2020



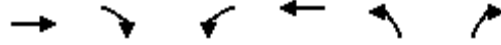
Movement	NBL	NBR	SET	SER	NWL	NWT
Lane Configurations	↔↔	↔	↔↔↔	↔	↔	↔↔↔
Traffic Volume (veh/h)	181	77	4109	294	112	2356
Future Volume (veh/h)	181	77	4109	294	112	2356
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	210	99	4280	334	135	2480
Peak Hour Factor	0.86	0.78	0.96	0.88	0.83	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	274	126	3817	1185	166	4326
Arrive On Green	0.08	0.08	0.75	0.75	0.07	0.85
Sat Flow, veh/h	3456	1585	5274	1585	1781	5274
Grp Volume(v), veh/h	210	99	4280	334	135	2480
Grp Sat Flow(s),veh/h/ln	1728	1585	1702	1585	1781	1702
Q Serve(g_s), s	8.9	9.2	112.1	10.1	7.1	21.6
Cycle Q Clear(g_c), s	8.9	9.2	112.1	10.1	7.1	21.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	274	126	3817	1185	166	4326
V/C Ratio(X)	0.77	0.79	1.12	0.28	0.81	0.57
Avail Cap(c_a), veh/h	415	190	3817	1185	167	4326
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.09	0.09	1.00	1.00
Uniform Delay (d), s/veh	67.7	67.8	18.9	6.1	58.2	3.4
Incr Delay (d2), s/veh	4.7	11.7	55.0	0.1	25.2	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	4.2	54.5	3.2	6.2	4.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	72.3	79.5	73.9	6.1	83.4	4.0
LnGrp LOS	E	E	F	A	F	A
Approach Vol, veh/h	309		4614			2615
Approach Delay, s/veh	74.6		69.0			8.1
Approach LOS	E		E			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	15.0	118.1			133.1	16.9
Change Period (Y+Rc), s	5.0	6.0			6.0	5.0
Max Green Setting (Gmax), s	10.0	106.0			121.0	18.0
Max Q Clear Time (g_c+I1), s	9.1	114.1			23.6	11.2
Green Ext Time (p_c), s	0.0	0.0			48.1	0.7
Intersection Summary						
HCM 6th Ctrl Delay			48.1			
HCM 6th LOS			D			

Lanes, Volumes, Timings
12: Avenue B & Ridgeway Couplet WB



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	119	2317	200	0
Future Volume (vph)	0	0	119	2317	200	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	200		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	0.91	1.00	1.00
Frt						
Flt Protected			0.950		0.950	
Satd. Flow (prot)	0	0	1770	5085	1770	0
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	0	0	1770	5085	1770	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						
Link Speed (mph)	45			45	30	
Link Distance (ft)	815			1169	614	
Travel Time (s)	12.3			17.7	14.0	
Peak Hour Factor	0.92	0.92	0.83	0.95	0.87	0.92
Adj. Flow (vph)	0	0	143	2439	230	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	143	2439	230	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors			1	2	1	
Detector Template			Left	Thru	Left	
Leading Detector (ft)			20	100	20	
Trailing Detector (ft)			0	0	0	
Detector 1 Position(ft)			0	0	0	
Detector 1 Size(ft)			20	6	20	
Detector 1 Type			Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)			0.0	0.0	0.0	
Detector 1 Queue (s)			0.0	0.0	0.0	
Detector 1 Delay (s)			0.0	0.0	0.0	
Detector 2 Position(ft)				94		
Detector 2 Size(ft)				6		
Detector 2 Type				Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)				0.0		
Turn Type			Perm	NA	Prot	
Protected Phases				6	8	
Permitted Phases			6			

Lanes, Volumes, Timings
 12: Avenue B & Ridgeway Couplet WB



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase			6	6	8	
Switch Phase						
Minimum Initial (s)			5.0	5.0	5.0	
Minimum Split (s)			24.0	24.0	24.0	
Total Split (s)			51.0	51.0	24.0	
Total Split (%)			68.0%	68.0%	32.0%	
Maximum Green (s)			45.0	45.0	18.0	
Yellow Time (s)			4.0	4.0	4.0	
All-Red Time (s)			2.0	2.0	2.0	
Lost Time Adjust (s)			0.0	0.0	0.0	
Total Lost Time (s)			6.0	6.0	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)			3.0	3.0	3.0	
Recall Mode			C-Min	C-Min	None	
Walk Time (s)			7.0	7.0	7.0	
Flash Dont Walk (s)			11.0	11.0	11.0	
Pedestrian Calls (#/hr)			0	0	0	
Act Effct Green (s)			48.6	48.6	14.4	
Actuated g/C Ratio			0.65	0.65	0.19	
v/c Ratio			0.12	0.74	0.68	
Control Delay			2.2	7.5	25.0	
Queue Delay			0.0	0.0	0.0	
Total Delay			2.2	7.5	25.0	
LOS			A	A	C	
Approach Delay				7.2	25.0	
Approach LOS				A	C	

Intersection Summary

Area Type:	Other
Cycle Length:	75
Actuated Cycle Length:	75
Offset:	20 (27%), Referenced to phase 2: and 6:WBTL, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.74
Intersection Signal Delay:	8.7
Intersection LOS:	A
Intersection Capacity Utilization:	107.1%
ICU Level of Service:	G
Analysis Period (min):	15

Splits and Phases: 12: Avenue B & Ridgeway Couplet WB



Queues
12: Avenue B & Ridgegate Couplet WB

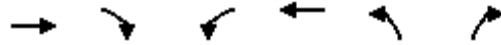


Lane Group	WBL	WBT	NBL
Lane Group Flow (vph)	143	2439	230
v/c Ratio	0.12	0.74	0.68
Control Delay	2.2	7.5	25.0
Queue Delay	0.0	0.0	0.0
Total Delay	2.2	7.5	25.0
Queue Length 50th (ft)	8	282	240
Queue Length 95th (ft)	11	272	m233
Internal Link Dist (ft)		1089	534
Turn Bay Length (ft)	200		
Base Capacity (vph)	1147	3296	424
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.12	0.74	0.54

Intersection Summary

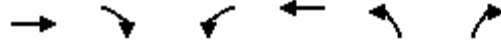
m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
 12: Avenue B & Ridgeway Couplet WB



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations			↙	↑↑↑	↘	
Traffic Volume (veh/h)	0	0	119	2317	200	0
Future Volume (veh/h)	0	0	119	2317	200	0
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)			1.00		1.00	1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No	No		
Adj Sat Flow, veh/h/ln			1870	1870	1870	0
Adj Flow Rate, veh/h			143	2439	230	0
Peak Hour Factor			0.83	0.95	0.87	0.92
Percent Heavy Veh, %			2	2	2	0
Cap, veh/h			1735	4698	0	0
Arrive On Green			0.30	0.30	0.00	0.00
Sat Flow, veh/h			1781	5274	0	
Grp Volume(v), veh/h			143	2439	0.0	
Grp Sat Flow(s),veh/h/ln			1781	1702		
Q Serve(g_s), s			4.3	29.6		
Cycle Q Clear(g_c), s			4.3	29.6		
Prop In Lane			1.00			
Lane Grp Cap(c), veh/h			1735	4698		
V/C Ratio(X)			0.08	0.52		
Avail Cap(c_a), veh/h			1735	4698		
HCM Platoon Ratio			0.33	0.33		
Upstream Filter(I)			0.75	0.75		
Uniform Delay (d), s/veh			3.6	12.4		
Incr Delay (d2), s/veh			0.1	0.3		
Initial Q Delay(d3),s/veh			0.0	0.0		
%ile BackOfQ(50%),veh/ln			0.0	8.7		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			3.7	12.7		
LnGrp LOS			A	B		
Approach Vol, veh/h				2582		
Approach Delay, s/veh				12.2		
Approach LOS				B		
Timer - Assigned Phs						6
Phs Duration (G+Y+Rc), s						75.0
Change Period (Y+Rc), s						6.0
Max Green Setting (Gmax), s						45.0
Max Q Clear Time (g_c+I1), s						31.6
Green Ext Time (p_c), s						11.7
Intersection Summary						
HCM 6th Ctrl Delay			12.2			
HCM 6th LOS			B			

Lanes, Volumes, Timings
 13: Avenue D & Ridgeway Couplet WB



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	29	2368	52	0
Future Volume (vph)	0	0	29	2368	52	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	200		150	0
Storage Lanes		0	1		0	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	0.91	1.00	1.00
Frt						
Flt Protected			0.950		0.950	
Satd. Flow (prot)	0	0	1770	5085	1770	0
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	0	0	1770	5085	1770	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						
Link Speed (mph)	30			45	30	
Link Distance (ft)	1169			1377	727	
Travel Time (s)	26.6			20.9	16.5	
Peak Hour Factor	0.92	0.92	0.78	0.95	0.78	0.92
Adj. Flow (vph)	0	0	37	2493	67	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	37	2493	67	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors			1	2	1	
Detector Template			Left	Thru	Left	
Leading Detector (ft)			20	100	20	
Trailing Detector (ft)			0	0	0	
Detector 1 Position(ft)			0	0	0	
Detector 1 Size(ft)			20	6	20	
Detector 1 Type			Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)			0.0	0.0	0.0	
Detector 1 Queue (s)			0.0	0.0	0.0	
Detector 1 Delay (s)			0.0	0.0	0.0	
Detector 2 Position(ft)				94		
Detector 2 Size(ft)				6		
Detector 2 Type				Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)				0.0		
Turn Type			Perm	NA	Prot	
Protected Phases				6	8	
Permitted Phases			6			

Lanes, Volumes, Timings
 13: Avenue D & Ridgeway Couplet WB



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase			6	6	8	
Switch Phase						
Minimum Initial (s)			5.0	5.0	5.0	
Minimum Split (s)			24.0	24.0	23.0	
Total Split (s)			52.0	52.0	23.0	
Total Split (%)			69.3%	69.3%	30.7%	
Maximum Green (s)			46.0	46.0	18.0	
Yellow Time (s)			4.0	4.0	3.0	
All-Red Time (s)			2.0	2.0	2.0	
Lost Time Adjust (s)			0.0	0.0	0.0	
Total Lost Time (s)			6.0	6.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)			3.0	3.0	3.0	
Recall Mode			C-Min	C-Min	None	
Walk Time (s)			7.0	7.0	7.0	
Flash Dont Walk (s)			11.0	11.0	11.0	
Pedestrian Calls (#/hr)			0	0	0	
Act Effct Green (s)			59.0	59.0	8.3	
Actuated g/C Ratio			0.79	0.79	0.11	
v/c Ratio			0.03	0.62	0.35	
Control Delay			3.1	5.5	63.0	
Queue Delay			0.0	0.0	0.0	
Total Delay			3.1	5.5	63.0	
LOS			A	A	E	
Approach Delay				5.5	63.0	
Approach LOS				A	E	

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 2 (3%), Referenced to phase 2: and 6:WBTL, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 7.0
 Intersection LOS: A
 Intersection Capacity Utilization 59.1%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 13: Avenue D & Ridgeway Couplet WB





Lane Group	WBL	WBT	NBL
Lane Group Flow (vph)	37	2493	67
v/c Ratio	0.03	0.62	0.35
Control Delay	3.1	5.5	63.0
Queue Delay	0.0	0.0	0.0
Total Delay	3.1	5.5	63.0
Queue Length 50th (ft)	4	164	69
Queue Length 95th (ft)	10	248	107
Internal Link Dist (ft)		1297	647
Turn Bay Length (ft)	200		150
Base Capacity (vph)	1393	4002	424
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.03	0.62	0.16
Intersection Summary			

HCM 6th Signalized Intersection Summary
 13: Avenue D & Ridgeway Couplet WB



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations			↶	↷↷↷	↶	
Traffic Volume (veh/h)	0	0	29	2368	52	0
Future Volume (veh/h)	0	0	29	2368	52	0
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)			1.00		1.00	1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach				No	No	
Adj Sat Flow, veh/h/ln			1870	1870	1870	0
Adj Flow Rate, veh/h			37	2493	67	0
Peak Hour Factor			0.78	0.95	0.78	0.92
Percent Heavy Veh, %			2	2	2	0
Cap, veh/h			1735	4698	0	0
Arrive On Green			0.92	0.92	0.00	0.00
Sat Flow, veh/h			1781	5274	0	
Grp Volume(v), veh/h			37	2493	0.0	
Grp Sat Flow(s),veh/h/ln			1781	1702		
Q Serve(g_s), s			0.1	5.7		
Cycle Q Clear(g_c), s			0.1	5.7		
Prop In Lane			1.00			
Lane Grp Cap(c), veh/h			1735	4698		
V/C Ratio(X)			0.02	0.53		
Avail Cap(c_a), veh/h			1735	4698		
HCM Platoon Ratio			1.00	1.00		
Upstream Filter(I)			1.00	1.00		
Uniform Delay (d), s/veh			0.2	0.5		
Incr Delay (d2), s/veh			0.0	0.4		
Initial Q Delay(d3),s/veh			0.0	0.0		
%ile BackOfQ(50%),veh/ln			0.0	0.2		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.3	0.9		
LnGrp LOS			A	A		
Approach Vol, veh/h				2530		
Approach Delay, s/veh				0.9		
Approach LOS				A		
Timer - Assigned Phs						6
Phs Duration (G+Y+Rc), s						75.0
Change Period (Y+Rc), s						6.0
Max Green Setting (Gmax), s						46.0
Max Q Clear Time (g_c+I1), s						7.7
Green Ext Time (p_c), s						28.1
Intersection Summary						
HCM 6th Ctrl Delay			0.9			
HCM 6th LOS			A			

Lanes, Volumes, Timings
14: Avenue B & Ridgeway Couplet EB

JR Engineering
05/13/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗					↑	↗	↘	↑	
Traffic Volume (vph)	1	4005	205	0	0	0	0	200	106	1	99	0
Future Volume (vph)	1	4005	205	0	0	0	0	200	106	1	99	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	0		200	0		0	0		0
Storage Lanes	1		1	0		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.850			
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1770	5085	1583	0	0	0	0	1863	1583	1770	1863	0
Flt Permitted	0.950									0.222		
Satd. Flow (perm)	1770	5085	1583	0	0	0	0	1863	1583	414	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			169						22			
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		990			1252			512			614	
Travel Time (s)		15.0			19.0			11.6			14.0	
Peak Hour Factor	0.92	0.97	0.87	0.92	0.92	0.92	0.92	0.87	0.83	0.92	0.82	0.92
Adj. Flow (vph)	1	4129	236	0	0	0	0	230	128	1	121	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	4129	236	0	0	0	0	230	128	1	121	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	40	40	40					100	40	40	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	40	40	40					6	40	40	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)								94			94	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	Perm	NA	
Protected Phases		2						8			4	
Permitted Phases	2		2						8	4		

Lanes, Volumes, Timings
14: Avenue B & Ridgeway Couplet EB

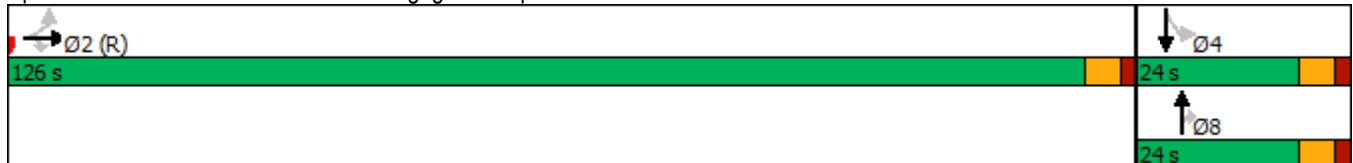


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2	2					8	8	4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0					5.0	5.0	5.0	5.0	
Minimum Split (s)	24.0	24.0	24.0					24.0	24.0	24.0	24.0	
Total Split (s)	126.0	126.0	126.0					24.0	24.0	24.0	24.0	
Total Split (%)	84.0%	84.0%	84.0%					16.0%	16.0%	16.0%	16.0%	
Maximum Green (s)	120.0	120.0	120.0					18.0	18.0	18.0	18.0	
Yellow Time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0					2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max					None	None	None	None	
Walk Time (s)	7.0	7.0	7.0					7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0					11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0					0	0	0	0	
Act Effct Green (s)	120.0	120.0	120.0					18.0	18.0	18.0	18.0	
Actuated g/C Ratio	0.80	0.80	0.80					0.12	0.12	0.12	0.12	
v/c Ratio	0.00	1.01	0.18					1.03	0.61	0.02	0.54	
Control Delay	3.0	33.4	1.3					131.3	65.1	56.0	64.4	
Queue Delay	0.0	23.4	0.0					0.0	0.0	0.0	0.0	
Total Delay	3.0	56.9	1.3					131.3	65.1	56.0	64.4	
LOS	A	E	A					F	E	E	E	
Approach Delay		53.9						107.6			64.3	
Approach LOS		D						F			E	

Intersection Summary

Area Type:	Other
Cycle Length:	150
Actuated Cycle Length:	150
Offset:	0 (0%), Referenced to phase 2:EBTL, Start of Green
Natural Cycle:	150
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.03
Intersection Signal Delay:	58.1
Intersection LOS:	E
Intersection Capacity Utilization:	107.1%
ICU Level of Service:	G
Analysis Period (min):	15

Splits and Phases: 14: Avenue B & Ridgeway Couplet EB



Queues
14: Avenue B & Ridgeway Couplet EB



Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	1	4129	236	230	128	1	121
v/c Ratio	0.00	1.01	0.18	1.03	0.61	0.02	0.54
Control Delay	3.0	33.4	1.3	131.3	65.1	56.0	64.4
Queue Delay	0.0	23.4	0.0	0.0	0.0	0.0	0.0
Total Delay	3.0	56.9	1.3	131.3	65.1	56.0	64.4
Queue Length 50th (ft)	0	~1556	12	~240	100	1	114
Queue Length 95th (ft)	1	#1595	26	#394	157	7	167
Internal Link Dist (ft)		910		432			534
Turn Bay Length (ft)	200		200				
Base Capacity (vph)	1416	4068	1300	223	209	49	223
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	224	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	1.07	0.18	1.03	0.61	0.02	0.54

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
 14: Avenue B & Ridgeway Couplet EB

JR Engineering
 05/13/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↑↑↑	↖					↑	↖	↗	↑	
Traffic Volume (veh/h)	1	4005	205	0	0	0	0	200	106	1	99	0
Future Volume (veh/h)	1	4005	205	0	0	0	0	200	106	1	99	0
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	1	4129	236				0	230	128	1	121	0
Peak Hour Factor	0.92	0.97	0.87				0.92	0.87	0.83	0.92	0.82	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	1425	4085	1268				0	224	190	48	224	0
Arrive On Green	0.80	0.80	0.80				0.00	0.12	0.12	0.12	0.12	0.00
Sat Flow, veh/h	1781	5106	1585				0	1870	1585	1023	1870	0
Grp Volume(v), veh/h	1	4129	236				0	230	128	1	121	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1585				0	1870	1585	1023	1870	0
Q Serve(g_s), s	0.0	120.0	5.2				0.0	18.0	11.6	0.0	9.1	0.0
Cycle Q Clear(g_c), s	0.0	120.0	5.2				0.0	18.0	11.6	18.0	9.1	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1425	4085	1268				0	224	190	48	224	0
V/C Ratio(X)	0.00	1.01	0.19				0.00	1.02	0.67	0.02	0.54	0.00
Avail Cap(c_a), veh/h	1425	4085	1268				0	224	190	48	224	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	3.0	15.0	3.5				0.0	66.0	63.2	75.0	62.1	0.0
Incr Delay (d2), s/veh	0.0	16.8	0.3				0.0	66.6	8.9	0.2	2.6	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
%ile BackOfQ(50%),veh/ln	0.0	38.8	1.4				0.0	12.8	5.2	0.0	4.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.0	31.8	3.8				0.0	132.6	72.1	75.2	64.7	0.0
LnGrp LOS	A	F	A				A	F	E	E	E	A
Approach Vol, veh/h		4366						358			122	
Approach Delay, s/veh		30.3						111.0			64.8	
Approach LOS		C						F			E	
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		126.0		24.0				24.0				
Change Period (Y+Rc), s		6.0		6.0				6.0				
Max Green Setting (Gmax), s		120.0		18.0				18.0				
Max Q Clear Time (g_c+I1), s		122.0		20.0				20.0				
Green Ext Time (p_c), s		0.0		0.0				0.0				
Intersection Summary												
HCM 6th Ctrl Delay			37.1									
HCM 6th LOS			D									
Notes												
User approved pedestrian interval to be less than phase max green.												

Lanes, Volumes, Timings
15: Ridgeway Couplet EB & Avenue D



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗					↑	↗	↘	↑	↗
Traffic Volume (vph)	1	4024	81	0	0	0	0	52	19	1	29	1
Future Volume (vph)	1	4024	81	0	0	0	0	52	19	1	29	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		200	0		0	0		0	150		0
Storage Lanes	1		1	0		0	0		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.850			0.850
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1593	4577	1425	0	0	0	0	1676	1425	1593	1676	1425
Flt Permitted	0.950									0.684		
Satd. Flow (perm)	1593	4577	1425	0	0	0	0	1676	1425	1147	1676	1425
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			73						22			22
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1252			1387			763			727	
Travel Time (s)		19.0			21.0			17.3			16.5	
Peak Hour Factor	0.78	0.96	0.81	0.92	0.92	0.92	0.92	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	1	4192	100	0	0	0	0	67	24	1	37	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	4192	100	0	0	0	0	67	24	1	37	1
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	1
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20					100	20	20	100	20
Trailing Detector (ft)	0	0	0					0	0	0	0	0
Detector 1 Position(ft)	0	0	0					0	0	0	0	0
Detector 1 Size(ft)	20	6	20					6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	Perm	NA	Perm
Protected Phases		2						8			4	
Permitted Phases	2		2						8	4		4

Lanes, Volumes, Timings
 15: Ridgeway Couplet EB & Avenue D

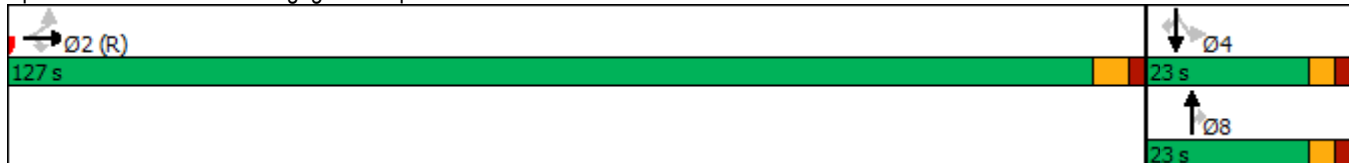


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2	2					8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0					5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0					23.0	23.0	23.0	23.0	23.0
Total Split (s)	127.0	127.0	127.0					23.0	23.0	23.0	23.0	23.0
Total Split (%)	84.7%	84.7%	84.7%					15.3%	15.3%	15.3%	15.3%	15.3%
Maximum Green (s)	121.0	121.0	121.0					18.0	18.0	18.0	18.0	18.0
Yellow Time (s)	4.0	4.0	4.0					3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	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
Total Lost Time (s)	6.0	6.0	6.0					5.0	5.0	5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max					None	None	None	None	None
Walk Time (s)	7.0	7.0	7.0					7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0					11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0					0	0	0	0	0
Act Effct Green (s)	131.2	131.2	131.2					11.3	11.3	11.1	11.1	11.1
Actuated g/C Ratio	0.87	0.87	0.87					0.08	0.08	0.07	0.07	0.07
v/c Ratio	0.00	1.05	0.08					0.53	0.19	0.01	0.30	0.01
Control Delay	3.0	33.1	1.0					80.9	27.7	79.0	70.1	1.0
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.0	0.0
Total Delay	3.0	33.1	1.0					80.9	27.7	79.0	70.1	1.0
LOS	A	C	A					F	C	E	E	A
Approach Delay		32.3						66.9			68.5	
Approach LOS		C						E			E	

Intersection Summary

Area Type: CBD
 Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 0 (0%), Referenced to phase 2:EBTL, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.05
 Intersection Signal Delay: 33.4
 Intersection LOS: C
 Intersection Capacity Utilization 108.1%
 ICU Level of Service G
 Analysis Period (min) 15

Splits and Phases: 15: Ridgeway Couplet EB & Avenue D



Queues
15: Ridgeway Couplet EB & Avenue D



Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1	4192	100	67	24	1	37	1
v/c Ratio	0.00	1.05	0.08	0.53	0.19	0.01	0.30	0.01
Control Delay	3.0	33.1	1.0	80.9	27.7	79.0	70.1	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.0	33.1	1.0	80.9	27.7	79.0	70.1	1.0
Queue Length 50th (ft)	0	~1661	4	64	2	1	36	0
Queue Length 95th (ft)	m0	m#1671	m4	99	25	6	64	1
Internal Link Dist (ft)		1172		683			647	
Turn Bay Length (ft)	150		200			150		
Base Capacity (vph)	1393	4004	1256	201	190	137	201	190
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	1.05	0.08	0.33	0.13	0.01	0.18	0.01

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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
 15: Ridgeway Couplet EB & Avenue D

JR Engineering
 05/13/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗					↑	↗	↘	↑	↗
Traffic Volume (veh/h)	1	4024	81	0	0	0	0	52	19	1	29	1
Future Volume (veh/h)	1	4024	81	0	0	0	0	52	19	1	29	1
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	1683	1683	1683				0	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	1	4192	100				0	67	24	1	37	1
Peak Hour Factor	0.78	0.96	0.81				0.92	0.78	0.78	0.78	0.78	0.78
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	2
Cap, veh/h	1399	4012	1245				0	90	77	65	90	77
Arrive On Green	0.87	0.87	0.87				0.00	0.05	0.05	0.05	0.05	0.05
Sat Flow, veh/h	1603	4595	1427				0	1683	1427	1175	1683	1427
Grp Volume(v), veh/h	1	4192	100				0	67	24	1	37	1
Grp Sat Flow(s),veh/h/ln	1603	1532	1427				0	1683	1427	1175	1683	1427
Q Serve(g_s), s	0.0	130.9	1.4				0.0	5.9	2.4	0.1	3.2	0.1
Cycle Q Clear(g_c), s	0.0	130.9	1.4				0.0	5.9	2.4	6.0	3.2	0.1
Prop In Lane	1.00		1.00				0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	1399	4012	1245				0	90	77	65	90	77
V/C Ratio(X)	0.00	1.04	0.08				0.00	0.74	0.31	0.02	0.41	0.01
Avail Cap(c_a), veh/h	1399	4012	1245				0	202	171	143	202	171
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09				0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	1.2	9.5	1.3				0.0	69.9	68.3	72.9	68.7	67.2
Incr Delay (d2), s/veh	0.0	21.1	0.0				0.0	11.2	2.3	0.1	2.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	26.2	0.2				0.0	2.8	0.9	0.0	1.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	1.2	30.7	1.3				0.0	81.2	70.6	73.0	71.6	67.3
LnGrp LOS	A	F	A				A	F	E	E	E	E
Approach Vol, veh/h		4293						91			39	
Approach Delay, s/veh		30.0						78.4			71.5	
Approach LOS		C						E			E	
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		136.9		13.1				13.1				
Change Period (Y+Rc), s		6.0		5.0				5.0				
Max Green Setting (Gmax), s		121.0		18.0				18.0				
Max Q Clear Time (g_c+I1), s		132.9		8.0				7.9				
Green Ext Time (p_c), s		0.0		0.1				0.2				
Intersection Summary												
HCM 6th Ctrl Delay			31.3									
HCM 6th LOS			C									

Lanes, Volumes, Timings
16: Havana St & Avenue B

JR Engineering
05/13/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	213	35	59	57	10	207	10	493	122	261	366	303
Future Volume (vph)	213	35	59	57	10	207	10	493	122	261	366	303
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	200		0	200		200	200		0
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.906				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1688	0	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.679			0.337			0.450		
Satd. Flow (perm)	3433	1688	0	1265	1863	1583	628	3539	1583	838	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		76				244			244			344
Link Speed (mph)		30			30			35				35
Link Distance (ft)		497			2632			5321				842
Travel Time (s)		11.3			59.8			103.7				16.4
Peak Hour Factor	0.87	0.78	0.78	0.78	0.78	0.87	0.78	0.91	0.83	0.88	0.89	0.88
Adj. Flow (vph)	245	45	76	73	13	238	13	542	147	297	411	344
Shared Lane Traffic (%)												
Lane Group Flow (vph)	245	121	0	73	13	238	13	542	147	297	411	344
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	40	40		40	40	20	20	100	40	40	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	40	40		40	40	20	20	6	40	40	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)								94				94
Detector 2 Size(ft)								6				6
Detector 2 Type								Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)								0.0				0.0
Turn Type	Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases				8		8	2		2	6		6

Lanes, Volumes, Timings
16: Havana St & Avenue B

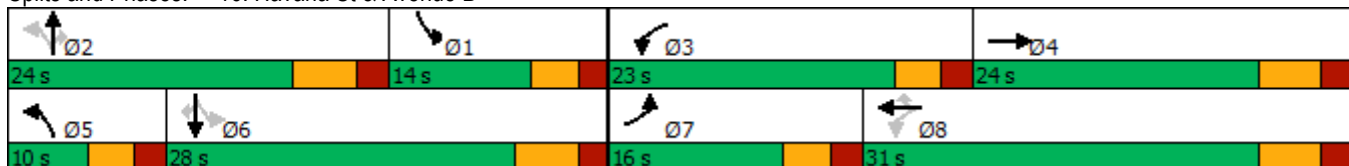


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.0	24.0		23.0	24.0	24.0	10.0	24.0	24.0	10.0	24.0	24.0
Total Split (s)	16.0	24.0		23.0	31.0	31.0	10.0	24.0	24.0	14.0	28.0	28.0
Total Split (%)	18.8%	28.2%		27.1%	36.5%	36.5%	11.8%	28.2%	28.2%	16.5%	32.9%	32.9%
Maximum Green (s)	11.0	18.0		18.0	25.0	25.0	5.0	18.0	18.0	9.0	22.0	22.0
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.0	4.0	3.0	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	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	0.0
Total Lost Time (s)	5.0	6.0		5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0		7.0	7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0		11.0	11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0		0	0	0		0	0		0	0
Act Effct Green (s)	9.7	15.2		18.6	10.4	10.4	16.7	15.7	15.7	28.5	27.5	27.5
Actuated g/C Ratio	0.15	0.23		0.28	0.16	0.16	0.25	0.24	0.24	0.43	0.41	0.41
v/c Ratio	0.49	0.27		0.18	0.04	0.53	0.05	0.65	0.26	0.62	0.28	0.40
Control Delay	30.3	13.2		15.0	25.9	8.7	19.6	27.1	1.5	25.9	14.7	3.8
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.3	13.2		15.0	25.9	8.7	19.6	27.1	1.5	25.9	14.7	3.8
LOS	C	B		B	C	A	B	C	A	C	B	A
Approach Delay		24.7			10.8			21.6			14.3	
Approach LOS		C			B			C			B	

Intersection Summary

Area Type:	Other
Cycle Length:	85
Actuated Cycle Length:	66.5
Natural Cycle:	85
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.65
Intersection Signal Delay:	17.5
Intersection LOS:	B
Intersection Capacity Utilization:	55.0%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 16: Havana St & Avenue B



Queues
16: Havana St & Avenue B

































Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	245	121	73	13	238	13	542	147	297	411	344
v/c Ratio	0.49	0.27	0.18	0.04	0.53	0.05	0.65	0.26	0.62	0.28	0.40
Control Delay	30.3	13.2	15.0	25.9	8.7	19.6	27.1	1.5	25.9	14.7	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.3	13.2	15.0	25.9	8.7	19.6	27.1	1.5	25.9	14.7	3.8
Queue Length 50th (ft)	48	16	19	5	0	4	104	0	75	53	0
Queue Length 95th (ft)	81	46	38	17	49	14	161	0	#204	110	50
Internal Link Dist (ft)		417		2552			5241			762	
Turn Bay Length (ft)			200			200		200	200		
Base Capacity (vph)	570	538	633	704	750	243	962	608	491	1463	856
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.22	0.12	0.02	0.32	0.05	0.56	0.24	0.60	0.28	0.40















Intersection Summary

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

HCM 6th Signalized Intersection Summary
16: Havana St & Avenue B

JR Engineering
05/13/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 			 		 		 		 	 	 
Traffic Volume (veh/h)	213	35	59	57	10	207	10	493	122	261	366	303
Future Volume (veh/h)	213	35	59	57	10	207	10	493	122	261	366	303
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	245	45	76	73	13	238	13	542	147	297	411	344
Peak Hour Factor	0.87	0.78	0.78	0.78	0.78	0.87	0.78	0.91	0.83	0.88	0.89	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	371	120	203	440	319	270	172	774	345	354	1173	523
Arrive On Green	0.11	0.19	0.19	0.09	0.17	0.17	0.02	0.22	0.22	0.11	0.33	0.33
Sat Flow, veh/h	3456	625	1055	1781	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	245	0	121	73	13	238	13	542	147	297	411	344
Grp Sat Flow(s),veh/h/ln	1728	0	1680	1781	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	4.0	0.0	3.7	1.9	0.3	5.3	0.4	8.2	3.0	4.3	5.1	10.9
Cycle Q Clear(g_c), s	4.0	0.0	3.7	1.9	0.3	5.3	0.4	8.2	3.0	4.3	5.1	10.9
Prop In Lane	1.00		0.63	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	371	0	324	440	319	270	172	774	345	354	1173	523
V/C Ratio(X)	0.66	0.00	0.37	0.17	0.04	0.88	0.08	0.70	0.43	0.84	0.35	0.66
Avail Cap(c_a), veh/h	649	0	516	836	798	677	295	1092	487	429	1335	595
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.1	0.0	20.6	17.0	20.3	9.1	20.9	21.1	8.4	23.8	14.9	16.8
Incr Delay (d2), s/veh	2.0	0.0	0.7	0.2	0.1	9.0	0.2	1.2	0.8	11.8	0.2	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	1.4	0.7	0.1	3.4	0.1	3.2	1.6	4.7	1.8	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.1	0.0	21.3	17.1	20.3	18.1	21.1	22.3	9.2	35.6	15.0	19.0
LnGrp LOS	C	A	C	B	C	B	C	C	A	D	B	B
Approach Vol, veh/h		366			324			702			1052	
Approach Delay, s/veh		25.2			18.0			19.5			22.1	
Approach LOS		C			B			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.5	18.8	10.0	17.3	6.0	25.3	11.3	16.0				
Change Period (Y+Rc), s	6.0	* 6	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	9.0	* 18	18.0	18.0	5.0	22.0	11.0	25.0				
Max Q Clear Time (g_c+I1), s	6.3	10.2	3.9	5.7	2.4	12.9	6.0	7.3				
Green Ext Time (p_c), s	0.3	2.5	0.1	0.3	0.0	2.7	0.4	0.8				
Intersection Summary												
HCM 6th Ctrl Delay			21.3									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	55	73	564	59	121	389
Future Volume (vph)	55	73	564	59	121	389
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	200		200	300	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	3539	1583	1770	3539
Link Speed (mph)	30		35			35
Link Distance (ft)	744		1352			5321
Travel Time (s)	16.9		26.3			103.7
Peak Hour Factor	0.78	0.80	0.92	0.78	0.83	0.90
Adj. Flow (vph)	71	91	613	76	146	432
Shared Lane Traffic (%)						
Lane Group Flow (vph)	71	91	613	76	146	432
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	35.6%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	3.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑↑	↗	↘	↑↑
Traffic Vol, veh/h	55	73	564	59	121	389
Future Vol, veh/h	55	73	564	59	121	389
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	200	-	200	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	78	80	92	78	83	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	71	91	613	76	146	432

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1121	307	0	0	689
Stage 1	613	-	-	-	-
Stage 2	508	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	200	689	-	-	901
Stage 1	503	-	-	-	-
Stage 2	569	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	168	689	-	-	901
Mov Cap-2 Maneuver	168	-	-	-	-
Stage 1	503	-	-	-	-
Stage 2	477	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	24.1	0	2.5
HCM LOS	C		

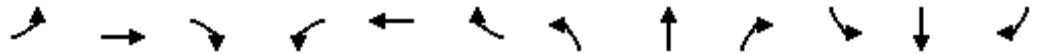
Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	168	689	901
HCM Lane V/C Ratio	-	-	0.42	0.132	0.162
HCM Control Delay (s)	-	-	41.1	11	9.8
HCM Lane LOS	-	-	E	B	A
HCM 95th %tile Q(veh)	-	-	1.9	0.5	0.6

Lanes, Volumes, Timings
1: Road F & Avenue B



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	151	60	2	253	2	62	5	19	1	3	1
Future Volume (vph)	1	151	60	2	253	2	62	5	19	1	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	150		0	150		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.955			0.998			0.970			0.977	
Flt Protected	0.950			0.950				0.965			0.992	
Satd. Flow (prot)	1770	1779	0	1770	1859	0	0	1744	0	0	1805	0
Flt Permitted	0.580			0.602				0.783			0.917	
Satd. Flow (perm)	1080	1779	0	1121	1859	0	0	1415	0	0	1669	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		51			1			24			1	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		814			1136			494			379	
Travel Time (s)		18.5			25.8			13.5			10.3	
Peak Hour Factor	0.78	0.85	0.79	0.78	0.87	0.78	0.79	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	1	178	76	3	291	3	78	6	24	1	4	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	254	0	3	294	0	0	108	0	0	6	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	40	40		40	40		20	40		20	40	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	40	40		40	40		20	40		20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Total Split (s)	26.0	26.0		26.0	26.0		24.0	24.0		24.0	24.0	

Lanes, Volumes, Timings
1: Road F & Avenue B

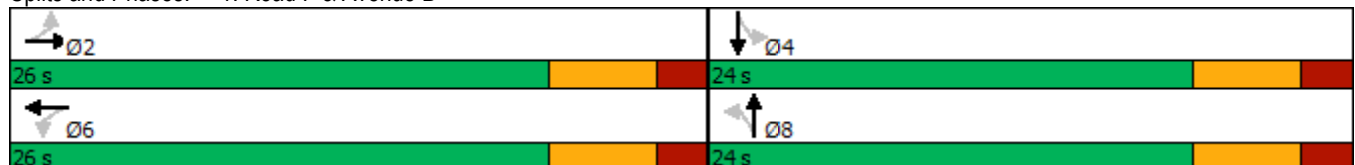


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	52.0%	52.0%		52.0%	52.0%		48.0%	48.0%		48.0%	48.0%	
Maximum Green (s)	20.0	20.0		20.0	20.0		18.0	18.0		18.0	18.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	21.6	21.6		21.6	21.6			7.6			7.5	
Actuated g/C Ratio	0.66	0.66		0.66	0.66			0.23			0.23	
v/c Ratio	0.00	0.21		0.00	0.24			0.31			0.02	
Control Delay	7.0	5.7		6.5	6.8			11.6			9.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	7.0	5.7		6.5	6.8			11.6			9.4	
LOS	A	A		A	A			B			A	
Approach Delay		5.7			6.8			11.6			9.4	
Approach LOS		A			A			B			A	

Intersection Summary

Area Type: Other
 Cycle Length: 50
 Actuated Cycle Length: 32.9
 Natural Cycle: 50
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.31
 Intersection Signal Delay: 7.2
 Intersection Capacity Utilization 35.0%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 1: Road F & Avenue B



Queues
1: Road F & Avenue B



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	1	254	3	294	108	6
v/c Ratio	0.00	0.21	0.00	0.24	0.31	0.02
Control Delay	7.0	5.7	6.5	6.8	11.6	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.0	5.7	6.5	6.8	11.6	9.4
Queue Length 50th (ft)	0	22	0	33	16	1
Queue Length 95th (ft)	2	55	3	76	30	5
Internal Link Dist (ft)		734		1056	414	299
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	787	1310	817	1355	801	933
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.19	0.00	0.22	0.13	0.01

Intersection Summary

HCM 6th Signalized Intersection Summary
1: Road F & Avenue B

JR Engineering
05/07/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Volume (veh/h)	1	151	60	2	253	2	62	5	19	1	3	1
Future Volume (veh/h)	1	151	60	2	253	2	62	5	19	1	3	1
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	1	178	76	3	291	3	78	6	24	1	4	1
Peak Hour Factor	0.78	0.85	0.79	0.78	0.87	0.78	0.79	0.78	0.78	0.78	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	520	349	149	542	518	5	436	10	38	242	144	35
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.12	0.12	0.12	0.12	0.12	0.12
Sat Flow, veh/h	1085	1244	531	1126	1848	19	1066	82	328	265	1230	299
Grp Volume(v), veh/h	1	0	254	3	0	294	108	0	0	6	0	0
Grp Sat Flow(s),veh/h/ln	1085	0	1775	1126	0	1867	1475	0	0	1794	0	0
Q Serve(g_s), s	0.0	0.0	2.4	0.0	0.0	2.7	1.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.7	0.0	2.4	2.4	0.0	2.7	1.4	0.0	0.0	0.1	0.0	0.0
Prop In Lane	1.00		0.30	1.00		0.01	0.72		0.22	0.17		0.17
Lane Grp Cap(c), veh/h	520	0	498	542	0	524	484	0	0	421	0	0
V/C Ratio(X)	0.00	0.00	0.51	0.01	0.00	0.56	0.22	0.00	0.00	0.01	0.00	0.00
Avail Cap(c_a), veh/h	1304	0	1781	1356	0	1874	1637	0	0	1771	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.3	0.0	6.0	7.0	0.0	6.1	8.4	0.0	0.0	7.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.8	0.0	0.0	0.9	0.2	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.4	0.0	0.0	0.5	0.3	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.3	0.0	6.8	7.0	0.0	7.1	8.6	0.0	0.0	7.8	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		255			297			108				6
Approach Delay, s/veh		6.8			7.1			8.6				7.8
Approach LOS		A			A			A				A
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		11.6		8.3		11.6		8.3				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		20.0		18.0		20.0		18.0				
Max Q Clear Time (g_c+I1), s		4.7		2.1		4.7		3.4				
Green Ext Time (p_c), s		0.8		0.0		0.9		0.3				
Intersection Summary												
HCM 6th Ctrl Delay				7.2								
HCM 6th LOS				A								

Lanes, Volumes, Timings
2: Avenue A & Avenue B

JR Engineering
05/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	74	77	36	35	42	167	108	5	19	86	1
Future Volume (vph)	4	74	77	36	35	42	167	108	5	19	86	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	150		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.924			0.918			0.993			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1721	0	1770	1710	0	1770	1850	0	1770	1861	0
Flt Permitted	0.693			0.581			0.537			0.670		
Satd. Flow (perm)	1291	1721	0	1082	1710	0	1000	1850	0	1248	1861	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		71			54			3			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1136			2594			720			491	
Travel Time (s)		25.8			59.0			16.4			11.2	
Peak Hour Factor	0.78	0.80	0.80	0.78	0.78	0.78	0.85	0.83	0.78	0.78	0.81	0.78
Adj. Flow (vph)	5	93	96	46	45	54	196	130	6	24	106	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	189	0	46	99	0	196	136	0	24	107	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	40	40		40	40		40	40		40	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	40	40		40	40		40	40		40	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)											94	
Detector 2 Size(ft)											6	
Detector 2 Type											Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)											0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		

Lanes, Volumes, Timings
2: Avenue A & Avenue B

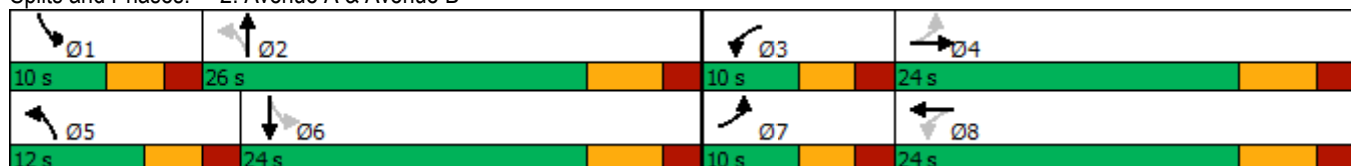


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	24.0		10.0	24.0		10.0	24.0		10.0	24.0	
Total Split (s)	10.0	24.0		10.0	24.0		12.0	26.0		10.0	24.0	
Total Split (%)	14.3%	34.3%		14.3%	34.3%		17.1%	37.1%		14.3%	34.3%	
Maximum Green (s)	5.0	18.0		5.0	18.0		7.0	20.0		5.0	18.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	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	
Total Lost Time (s)	5.0	6.0		5.0	6.0		5.0	6.0		5.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Min		None	Min	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	11.3	9.2		12.1	10.8		22.6	22.6		17.8	15.1	
Actuated g/C Ratio	0.26	0.21		0.28	0.25		0.52	0.52		0.41	0.35	
v/c Ratio	0.01	0.45		0.12	0.21		0.30	0.14		0.04	0.16	
Control Delay	10.5	15.5		11.6	9.8		10.6	12.9		9.9	19.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	10.5	15.5		11.6	9.8		10.6	12.9		9.9	19.1	
LOS	B	B		B	A		B	B		A	B	
Approach Delay		15.4			10.4			11.5			17.4	
Approach LOS		B			B			B			B	

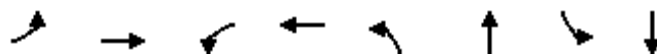
Intersection Summary

Area Type:	Other
Cycle Length:	70
Actuated Cycle Length:	43.3
Natural Cycle:	70
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.45
Intersection Signal Delay:	13.2
Intersection LOS:	B
Intersection Capacity Utilization:	42.9%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 2: Avenue A & Avenue B



Queues
2: Avenue A & Avenue B



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	5	189	46	99	196	136	24	107
v/c Ratio	0.01	0.45	0.12	0.21	0.30	0.14	0.04	0.16
Control Delay	10.5	15.5	11.6	9.8	10.6	12.9	9.9	19.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.5	15.5	11.6	9.8	10.6	12.9	9.9	19.1
Queue Length 50th (ft)	1	23	8	8	21	15	2	21
Queue Length 95th (ft)	5	70	22	36	78	74	14	63
Internal Link Dist (ft)		1056		2514		640		411
Turn Bay Length (ft)	150		150		150		150	
Base Capacity (vph)	398	831	390	835	659	961	579	858
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.23	0.12	0.12	0.30	0.14	0.04	0.12
Intersection Summary								

HCM 6th Signalized Intersection Summary
2: Avenue A & Avenue B

JR Engineering
05/07/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	74	77	36	35	42	167	108	5	19	86	1
Future Volume (veh/h)	4	74	77	36	35	42	167	108	5	19	86	1
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	5	92	96	46	45	54	196	130	6	24	106	1
Peak Hour Factor	0.78	0.80	0.80	0.78	0.78	0.78	0.85	0.83	0.78	0.78	0.81	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	387	133	139	332	156	188	492	390	18	384	228	2
Arrive On Green	0.01	0.16	0.16	0.05	0.20	0.20	0.13	0.22	0.22	0.03	0.12	0.12
Sat Flow, veh/h	1781	838	875	1781	774	929	1781	1774	82	1781	1850	17
Grp Volume(v), veh/h	5	0	188	46	0	99	196	0	136	24	0	107
Grp Sat Flow(s),veh/h/ln	1781	0	1713	1781	0	1703	1781	0	1856	1781	0	1867
Q Serve(g_s), s	0.1	0.0	4.2	0.9	0.0	2.0	3.7	0.0	2.5	0.5	0.0	2.2
Cycle Q Clear(g_c), s	0.1	0.0	4.2	0.9	0.0	2.0	3.7	0.0	2.5	0.5	0.0	2.2
Prop In Lane	1.00		0.51	1.00		0.55	1.00		0.04	1.00		0.01
Lane Grp Cap(c), veh/h	387	0	272	332	0	344	492	0	408	384	0	230
V/C Ratio(X)	0.01	0.00	0.69	0.14	0.00	0.29	0.40	0.00	0.33	0.06	0.00	0.47
Avail Cap(c_a), veh/h	595	0	760	463	0	756	575	0	915	551	0	828
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.2	0.0	16.1	13.3	0.0	13.7	12.2	0.0	13.3	14.8	0.0	16.5
Incr Delay (d2), s/veh	0.0	0.0	3.1	0.2	0.0	0.5	0.5	0.0	0.5	0.1	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	1.6	0.3	0.0	0.7	1.2	0.0	0.9	0.2	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.2	0.0	19.3	13.5	0.0	14.2	12.7	0.0	13.8	14.8	0.0	18.0
LnGrp LOS	B	A	B	B	A	B	B	A	B	B	A	B
Approach Vol, veh/h		193			145			332				131
Approach Delay, s/veh		19.1			13.9			13.2				17.4
Approach LOS		B			B			B				B
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.2	14.9	7.0	12.4	10.1	11.0	5.3	14.2				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	5.0	20.0	5.0	18.0	7.0	18.0	5.0	18.0				
Max Q Clear Time (g_c+I1), s	2.5	4.5	2.9	6.2	5.7	4.2	2.1	4.0				
Green Ext Time (p_c), s	0.0	0.3	0.0	0.5	0.1	0.4	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay			15.4									
HCM 6th LOS			B									

Lanes, Volumes, Timings
5: Avenue C & Avenue B

JR Engineering
05/07/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	45	23	13	33	4	8	1	73	8	1	1
Future Volume (vph)	1	45	23	13	33	4	8	1	73	8	1	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	150		0	150		0
Storage Lanes	0		0	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.956			0.984			0.852				0.989
Flt Protected		0.999		0.950			0.950					0.960
Satd. Flow (prot)	0	1779	0	1770	1833	0	1770	1587	0	0	1769	0
Flt Permitted		0.999		0.950			0.950					0.960
Satd. Flow (perm)	0	1779	0	1770	1833	0	1770	1587	0	0	1769	0
Link Speed (mph)		30			30			30				30
Link Distance (ft)		2594			712			450				364
Travel Time (s)		59.0			16.2			10.2				8.3
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.80	0.78	0.78	0.78
Adj. Flow (vph)	1	58	29	17	42	5	10	1	91	10	1	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	88	0	17	47	0	10	92	0	0	12	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	21.2%
ICU Level of Service	A
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	4.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕		↕	↕			↕	
Traffic Vol, veh/h	1	45	23	13	33	4	8	1	73	8	1	1
Future Vol, veh/h	1	45	23	13	33	4	8	1	73	8	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	150	-	-	150	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	80	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	58	29	17	42	5	10	1	91	10	1	1





















Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	47	0	0	87	0	0	155	156	73	200	168	45
Stage 1	-	-	-	-	-	-	75	75	-	79	79	-
Stage 2	-	-	-	-	-	-	80	81	-	121	89	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1560	-	-	1509	-	-	812	736	989	759	725	1025
Stage 1	-	-	-	-	-	-	934	833	-	930	829	-
Stage 2	-	-	-	-	-	-	929	828	-	883	821	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1560	-	-	1509	-	-	802	727	989	682	716	1025
Mov Cap-2 Maneuver	-	-	-	-	-	-	802	727	-	682	716	-
Stage 1	-	-	-	-	-	-	933	832	-	929	820	-
Stage 2	-	-	-	-	-	-	916	819	-	799	820	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.9	9	10.2
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	802	984	1560	-	-	1509	-	-	709
HCM Lane V/C Ratio	0.013	0.094	0.001	-	-	0.011	-	-	0.018
HCM Control Delay (s)	9.5	9	7.3	0	-	7.4	-	-	10.2
HCM Lane LOS	A	A	A	A	-	A	-	-	B
HCM 95th %tile Q(veh)	0	0.3	0	-	-	0	-	-	0.1

Lanes, Volumes, Timings
6: Avenue B & Road Q

JR Engineering
05/07/2020

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	53	5	4	5	10	31	11	113	1	10	43	48
Future Volume (vph)	53	5	4	5	10	31	11	113	1	10	43	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		0	150		0	150		150
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.932			0.908			0.999				0.850
Flt Protected	0.950				0.995		0.950			0.950		
Satd. Flow (prot)	1770	1736	0	0	1683	0	1770	1861	0	1770	1863	1583
Flt Permitted	0.950				0.995		0.950			0.950		
Satd. Flow (perm)	1770	1736	0	0	1683	0	1770	1861	0	1770	1863	1583
Link Speed (mph)		30			25			30				30
Link Distance (ft)		3003			485			712				565
Travel Time (s)		68.3			13.2			16.2				12.8
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.83	0.78	0.78	0.78	0.78
Adj. Flow (vph)	68	6	5	6	13	40	14	136	1	13	55	62
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	11	0	0	59	0	14	137	0	13	55	62
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free				Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	23.5%
ICU Level of Service	A
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	4											
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	53	5	4	5	10	31	11	113	1	10	43	48
Future Vol, veh/h	53	5	4	5	10	31	11	113	1	10	43	48
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	-	-	-	150	-	-	150	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	83	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	68	6	5	6	13	40	14	136	1	13	55	62



















Major/Minor	Minor2		Minor1			Major1		Major2				
Conflicting Flow All	272	246	55	283	308	137	117	0	0	137	0	0
Stage 1	81	81	-	165	165	-	-	-	-	-	-	-
Stage 2	191	165	-	118	143	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	680	656	1012	669	606	911	1471	-	-	1447	-	-
Stage 1	927	828	-	837	762	-	-	-	-	-	-	-
Stage 2	811	762	-	887	779	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	630	644	1012	652	594	911	1471	-	-	1447	-	-
Mov Cap-2 Maneuver	630	644	-	652	594	-	-	-	-	-	-	-
Stage 1	918	821	-	829	754	-	-	-	-	-	-	-
Stage 2	755	754	-	868	772	-	-	-	-	-	-	-

Approach	SE		NW		NE		SW	
HCM Control Delay, s	11.2		10		0.7		0.7	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NEL	NET	NERNWLn1	SELn1	SELn2	SWL	SWT	SWR
Capacity (veh/h)	1471	-	-	786	630	768	1447	-
HCM Lane V/C Ratio	0.01	-	-	0.075	0.108	0.015	0.009	-
HCM Control Delay (s)	7.5	-	-	10	11.4	9.8	7.5	-
HCM Lane LOS	A	-	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.4	0	0	-

Lanes, Volumes, Timings
7: Avenue A & Road Q

JR Engineering
05/07/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	1	5	0	113	0	134	2	62	96	2
Future Volume (vph)	0	0	1	5	0	113	0	134	2	62	96	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	150		0	0		0	150		150
Storage Lanes	0		1	1		1	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.865			0.850		0.998			0.996	
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	0	1611	1770	0	1583	0	1859	0	1770	1855	0
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	0	1611	1770	0	1583	0	1859	0	1770	1855	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		311			3003			491			1156	
Travel Time (s)		7.1			68.3			11.2			26.3	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.83	0.78	0.84	0.78	0.79	0.82	0.78
Adj. Flow (vph)	0	0	1	6	0	136	0	160	3	78	117	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	1	6	0	136	0	163	0	78	120	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	23.9%
ICU Level of Service	A
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↖	↖		↖		↖		↖	↖	
Traffic Vol, veh/h	0	0	1	5	0	113	0	134	2	62	96	2
Future Vol, veh/h	0	0	1	5	0	113	0	134	2	62	96	2
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	150	-	0	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	83	78	84	78	79	82	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	1	6	0	136	0	160	3	78	117	3

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	-	-	119	437	-	162	-	0	0	163	0	0
Stage 1	-	-	-	162	-	-	-	-	-	-	-	-
Stage 2	-	-	-	275	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.22	7.12	-	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	-	-	-	6.12	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.12	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.318	3.518	-	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	0	0	933	530	0	883	0	-	-	1416	-	-
Stage 1	0	0	-	840	0	-	0	-	-	-	-	-
Stage 2	0	0	-	731	0	-	0	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	933	507	-	883	-	-	-	1416	-	-
Mov Cap-2 Maneuver	-	-	-	507	-	-	-	-	-	-	-	-
Stage 1	-	-	-	840	-	-	-	-	-	-	-	-
Stage 2	-	-	-	690	-	-	-	-	-	-	-	-

Approach	EB		WB		NB			SB		
HCM Control Delay, s	8.9		9.9		0			3		
HCM LOS	A		A							

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	-	-	933	507	883	1416	-	-
HCM Lane V/C Ratio	-	-	0.001	0.013	0.154	0.055	-	-
HCM Control Delay (s)	-	-	8.9	12.2	9.8	7.7	-	-
HCM Lane LOS	-	-	A	B	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0	0	0.5	0.2	-	-

Lanes, Volumes, Timings
10: Avenue A & Road K

JR Engineering
05/07/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	94	5	17	2	5	19	19	128	1	6	64	89
Future Volume (vph)	94	5	17	2	5	19	19	128	1	6	64	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		0	150		0	150		0
Storage Lanes	1		0	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.882			0.902			0.999			0.914	
Flt Protected	0.950				0.995		0.950			0.950		
Satd. Flow (prot)	1770	1643	0	0	1672	0	1770	1861	0	1770	1703	0
Flt Permitted	0.950				0.995		0.950			0.950		
Satd. Flow (perm)	1770	1643	0	0	1672	0	1770	1861	0	1770	1703	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1139			489			686			720	
Travel Time (s)		25.9			11.1			15.6			16.4	
Peak Hour Factor	0.82	0.78	0.78	0.78	0.78	0.78	0.78	0.84	0.78	0.78	0.79	0.81
Adj. Flow (vph)	115	6	22	3	6	24	24	152	1	8	81	110
Shared Lane Traffic (%)												
Lane Group Flow (vph)	115	28	0	0	33	0	24	153	0	8	191	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	34.0%
ICU Level of Service	A
Analysis Period (min)	15

Intersection	
Intersection Delay, s/veh	9.3
Intersection LOS	A


















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷			↕		↶	↷		↶	↷	
Traffic Vol, veh/h	94	5	17	2	5	19	19	128	1	6	64	89
Future Vol, veh/h	94	5	17	2	5	19	19	128	1	6	64	89
Peak Hour Factor	0.82	0.78	0.78	0.78	0.78	0.78	0.78	0.84	0.78	0.78	0.79	0.81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	115	6	22	3	6	24	24	152	1	8	81	110
Number of Lanes	1	1	0	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	2
HCM Control Delay	9.7	8.6	9.3	9.2
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	8%	100%	0%
Vol Thru, %	0%	99%	0%	23%	19%	0%	42%
Vol Right, %	0%	1%	0%	77%	73%	0%	58%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	19	129	94	22	26	6	153
LT Vol	19	0	94	0	2	6	0
Through Vol	0	128	0	5	5	0	64
RT Vol	0	1	0	17	19	0	89
Lane Flow Rate	24	154	115	28	33	8	191
Geometry Grp	7	7	7	7	6	7	7
Degree of Util (X)	0.039	0.222	0.191	0.039	0.049	0.012	0.255
Departure Headway (Hd)	5.717	5.209	5.985	4.938	5.248	5.716	4.803
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	625	687	598	722	678	625	746
Service Time	3.463	2.954	3.738	2.691	3.313	3.46	2.546
HCM Lane V/C Ratio	0.038	0.224	0.192	0.039	0.049	0.013	0.256
HCM Control Delay	8.7	9.4	10.2	7.9	8.6	8.5	9.2
HCM Lane LOS	A	A	B	A	A	A	A
HCM 95th-tile Q	0.1	0.8	0.7	0.1	0.2	0	1

Lanes, Volumes, Timings
13: Avenue A & Road FF

JR Engineering
05/07/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	1	1	4	2	35	1	72	2	12	62	4
Future Volume (vph)	12	1	1	4	2	35	1	72	2	12	62	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	150		0
Storage Lanes	0		0	0		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.885			0.996			0.991	
Flt Protected		0.958			0.995			0.999		0.950		
Satd. Flow (prot)	0	1770	0	0	1640	0	0	1853	0	1770	1846	0
Flt Permitted		0.958			0.995			0.999		0.950		
Satd. Flow (perm)	0	1770	0	0	1640	0	0	1853	0	1770	1846	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		556			391			1288			686	
Travel Time (s)		12.6			8.9			29.3			15.6	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.80	0.78	0.78	0.79	0.78
Adj. Flow (vph)	15	1	1	5	3	45	1	90	3	15	78	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	17	0	0	53	0	0	94	0	15	83	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	18.1%
Analysis Period (min)	15
	ICU Level of Service A

Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↕	↕	
Traffic Vol, veh/h	12	1	1	4	2	35	1	72	2	12	62	4
Future Vol, veh/h	12	1	1	4	2	35	1	72	2	12	62	4
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	-	-	-	-	-	-	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	80	78	78	79	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	1	1	5	3	45	1	90	3	15	78	5

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	229	206	81	206	207	92	83	0	0	93	0	0
Stage 1	111	111	-	94	94	-	-	-	-	-	-	-
Stage 2	118	95	-	112	113	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	726	691	979	752	690	965	1514	-	-	1501	-	-
Stage 1	894	804	-	913	817	-	-	-	-	-	-	-
Stage 2	887	816	-	893	802	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	685	683	979	744	682	965	1514	-	-	1501	-	-
Mov Cap-2 Maneuver	685	683	-	744	682	-	-	-	-	-	-	-
Stage 1	893	796	-	912	816	-	-	-	-	-	-	-
Stage 2	842	815	-	881	794	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	10.3		9.2		0.1		1.2	
HCM LOS	B		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1514	-	-	700	920	1501	-
HCM Lane V/C Ratio	0.001	-	-	0.026	0.057	0.01	-
HCM Control Delay (s)	7.4	0	-	10.3	9.2	7.4	-
HCM Lane LOS	A	A	-	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0	-

Lanes, Volumes, Timings
1: Road F & Avenue B



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	220	28	7	141	4	24	3	7	4	5	25
Future Volume (vph)	23	220	28	7	141	4	24	3	7	4	5	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	150		0	150		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.981			0.996			0.972			0.900	
Flt Protected	0.950			0.950				0.966			0.994	
Satd. Flow (prot)	1770	1827	0	1770	1855	0	0	1749	0	0	1666	0
Flt Permitted	0.648			0.583								
Satd. Flow (perm)	1207	1827	0	1086	1855	0	0	1811	0	0	1676	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			4			9			32	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		814			1136			494			379	
Travel Time (s)		18.5			25.8			13.5			10.3	
Peak Hour Factor	0.78	0.87	0.78	0.78	0.84	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	29	253	36	9	168	5	31	4	9	5	6	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	29	289	0	9	173	0	0	44	0	0	43	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	40	40		40	40		20	40		20	40	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	40	40		40	40		20	40		20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Total Split (s)	26.0	26.0		26.0	26.0		24.0	24.0		24.0	24.0	

Lanes, Volumes, Timings
1: Road F & Avenue B

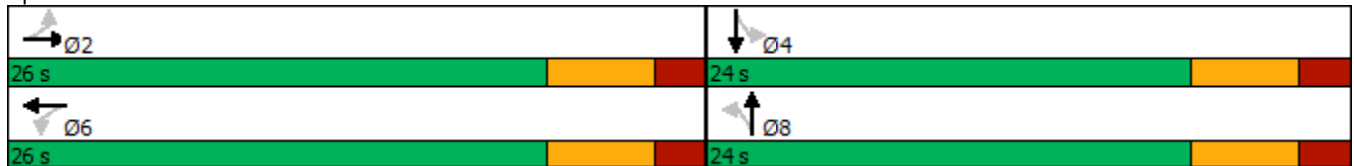


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	52.0%	52.0%		52.0%	52.0%		48.0%	48.0%		48.0%	48.0%	
Maximum Green (s)	20.0	20.0		20.0	20.0		18.0	18.0		18.0	18.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	24.6	24.6		24.6	24.6			6.3			6.1	
Actuated g/C Ratio	0.88	0.88		0.88	0.88			0.22			0.22	
v/c Ratio	0.03	0.18		0.01	0.11			0.11			0.11	
Control Delay	3.4	2.9		3.6	2.9			8.2			5.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	3.4	2.9		3.6	2.9			8.2			5.9	
LOS	A	A		A	A			A			A	
Approach Delay		3.0			2.9			8.2			5.9	
Approach LOS		A			A			A			A	

Intersection Summary

Area Type: Other
 Cycle Length: 50
 Actuated Cycle Length: 28
 Natural Cycle: 50
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.18
 Intersection Signal Delay: 3.6
 Intersection Capacity Utilization 36.8%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 1: Road F & Avenue B



Queues
1: Road F & Avenue B



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	29	289	9	173	44	43
v/c Ratio	0.03	0.18	0.01	0.11	0.11	0.11
Control Delay	3.4	2.9	3.6	2.9	8.2	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.4	2.9	3.6	2.9	8.2	5.9
Queue Length 50th (ft)	0	0	0	0	4	1
Queue Length 95th (ft)	9	60	4	36	15	11
Internal Link Dist (ft)		734		1056	414	299
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	1067	1617	960	1640	1176	1097
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.18	0.01	0.11	0.04	0.04

Intersection Summary

HCM 6th Signalized Intersection Summary
1: Road F & Avenue B

JR Engineering
05/07/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	220	28	7	141	4	24	3	7	4	5	25
Future Volume (veh/h)	23	220	28	7	141	4	24	3	7	4	5	25
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	29	253	36	9	168	5	31	4	9	5	6	32
Peak Hour Factor	0.78	0.87	0.78	0.78	0.84	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	630	461	66	538	521	15	418	13	30	225	22	119
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.10	0.10	0.10	0.10	0.10	0.10
Sat Flow, veh/h	1212	1601	228	1090	1807	54	1075	139	312	193	231	1233
Grp Volume(v), veh/h	29	0	289	9	0	173	44	0	0	43	0	0
Grp Sat Flow(s),veh/h/ln	1212	0	1829	1090	0	1861	1525	0	0	1657	0	0
Q Serve(g_s), s	0.4	0.0	2.6	0.1	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.8	0.0	2.6	2.7	0.0	1.4	0.4	0.0	0.0	0.4	0.0	0.0
Prop In Lane	1.00		0.12	1.00		0.03	0.70		0.20	0.12		0.74
Lane Grp Cap(c), veh/h	630	0	527	538	0	536	462	0	0	366	0	0
V/C Ratio(X)	0.05	0.00	0.55	0.02	0.00	0.32	0.10	0.00	0.00	0.12	0.00	0.00
Avail Cap(c_a), veh/h	1524	0	1877	1342	0	1909	1657	0	0	1684	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.2	0.0	5.9	7.0	0.0	5.4	8.2	0.0	0.0	8.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.9	0.0	0.0	0.3	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.5	0.0	0.0	0.2	0.1	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.2	0.0	6.8	7.0	0.0	5.8	8.2	0.0	0.0	8.3	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		318			182			44			43	
Approach Delay, s/veh		6.7			5.9			8.2			8.3	
Approach LOS		A			A			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		11.6		7.9		11.6		7.9				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		20.0		18.0		20.0		18.0				
Max Q Clear Time (g_c+I1), s		4.6		2.4		4.7		2.4				
Green Ext Time (p_c), s		1.0		0.1		0.5		0.1				
Intersection Summary												
HCM 6th Ctrl Delay				6.7								
HCM 6th LOS				A								

Lanes, Volumes, Timings
2: Avenue A & Avenue B

JR Engineering
05/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	126	83	30	26	27	94	63	12	67	156	3
Future Volume (vph)	7	126	83	30	26	27	94	63	12	67	156	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	150		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.939			0.923			0.976			0.997	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1749	0	1770	1719	0	1770	1818	0	1770	1857	0
Flt Permitted	0.713			0.524			0.586			0.695		
Satd. Flow (perm)	1328	1749	0	976	1719	0	1092	1818	0	1295	1857	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		47			35			14			2	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1136			2594			720			491	
Travel Time (s)		25.8			59.0			16.4			11.2	
Peak Hour Factor	0.78	0.84	0.81	0.78	0.78	0.78	0.82	0.79	0.78	0.79	0.85	0.78
Adj. Flow (vph)	9	150	102	38	33	35	115	80	15	85	184	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	252	0	38	68	0	115	95	0	85	188	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	40	40		40	40		40	40		40	40	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	40	40		40	40		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	24.0		10.0	24.0		10.0	24.0		10.0	24.0	
Total Split (s)	10.0	24.0		10.0	24.0		10.0	26.0		10.0	26.0	

Lanes, Volumes, Timings
2: Avenue A & Avenue B

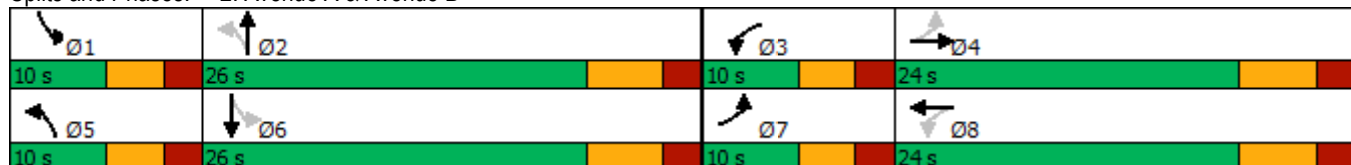


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	14.3%	34.3%		14.3%	34.3%		14.3%	37.1%		14.3%	37.1%	
Maximum Green (s)	5.0	18.0		5.0	18.0		5.0	20.0		5.0	20.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	6.0		5.0	6.0		5.0	6.0		5.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Min		None	Min	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	14.2	11.6		15.0	13.2		19.5	15.7		18.2	13.2	
Actuated g/C Ratio	0.29	0.24		0.31	0.27		0.40	0.32		0.38	0.27	
v/c Ratio	0.02	0.56		0.10	0.14		0.22	0.16		0.16	0.37	
Control Delay	10.7	19.7		11.4	9.9		11.7	16.2		11.1	20.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	10.7	19.7		11.4	9.9		11.7	16.2		11.1	20.6	
LOS	B	B		B	A		B	B		B	C	
Approach Delay		19.4			10.4			13.7			17.6	
Approach LOS		B			B			B			B	

Intersection Summary

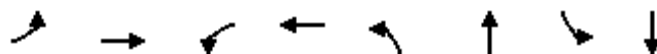
Area Type:	Other
Cycle Length:	70
Actuated Cycle Length:	48.5
Natural Cycle:	70
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.56
Intersection Signal Delay:	16.3
Intersection LOS:	B
Intersection Capacity Utilization:	47.8%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 2: Avenue A & Avenue B



Queues
2: Avenue A & Avenue B

JR Engineering
05/07/2020



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	9	252	38	68	115	95	85	188
v/c Ratio	0.02	0.56	0.10	0.14	0.22	0.16	0.16	0.37
Control Delay	10.7	19.7	11.4	9.9	11.7	16.2	11.1	20.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.7	19.7	11.4	9.9	11.7	16.2	11.1	20.6
Queue Length 50th (ft)	2	43	7	6	14	16	10	40
Queue Length 95th (ft)	8	119	20	30	52	51	39	109
Internal Link Dist (ft)		1056		2514		640		411
Turn Bay Length (ft)	150		150		150		150	
Base Capacity (vph)	436	719	389	735	512	806	538	816
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.35	0.10	0.09	0.22	0.12	0.16	0.23

Intersection Summary

HCM 6th Signalized Intersection Summary
2: Avenue A & Avenue B

JR Engineering
05/07/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	126	83	30	26	27	94	63	12	67	156	3
Future Volume (veh/h)	7	126	83	30	26	27	94	63	12	67	156	3
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	9	150	102	38	33	35	115	80	15	85	184	4
Peak Hour Factor	0.78	0.84	0.81	0.78	0.78	0.78	0.82	0.79	0.78	0.79	0.85	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	449	202	137	312	187	199	397	256	48	461	281	6
Arrive On Green	0.01	0.19	0.19	0.04	0.23	0.23	0.09	0.17	0.17	0.07	0.15	0.15
Sat Flow, veh/h	1781	1038	706	1781	831	881	1781	1532	287	1781	1824	40
Grp Volume(v), veh/h	9	0	252	38	0	68	115	0	95	85	0	188
Grp Sat Flow(s),veh/h/ln	1781	0	1743	1781	0	1712	1781	0	1819	1781	0	1863
Q Serve(g_s), s	0.2	0.0	5.7	0.7	0.0	1.4	2.2	0.0	1.9	1.6	0.0	4.0
Cycle Q Clear(g_c), s	0.2	0.0	5.7	0.7	0.0	1.4	2.2	0.0	1.9	1.6	0.0	4.0
Prop In Lane	1.00		0.40	1.00		0.51	1.00		0.16	1.00		0.02
Lane Grp Cap(c), veh/h	449	0	339	312	0	386	397	0	304	461	0	287
V/C Ratio(X)	0.02	0.00	0.74	0.12	0.00	0.18	0.29	0.00	0.31	0.18	0.00	0.66
Avail Cap(c_a), veh/h	639	0	743	448	0	730	452	0	862	539	0	883
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(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.4	0.0	16.0	13.0	0.0	13.2	13.2	0.0	15.5	13.2	0.0	16.8
Incr Delay (d2), s/veh	0.0	0.0	3.2	0.2	0.0	0.2	0.4	0.0	0.6	0.2	0.0	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	2.2	0.2	0.0	0.5	0.8	0.0	0.7	0.6	0.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.4	0.0	19.2	13.1	0.0	13.4	13.6	0.0	16.0	13.4	0.0	19.3
LnGrp LOS	B	A	B	B	A	B	B	A	B	B	A	B
Approach Vol, veh/h		261			106			210			273	
Approach Delay, s/veh		19.0			13.3			14.7			17.5	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.2	13.0	6.8	14.2	8.7	12.5	5.5	15.5				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	5.0	20.0	5.0	18.0	5.0	20.0	5.0	18.0				
Max Q Clear Time (g_c+I1), s	3.6	3.9	2.7	7.7	4.2	6.0	2.2	3.4				
Green Ext Time (p_c), s	0.0	0.2	0.0	0.6	0.0	0.5	0.0	0.1				
Intersection Summary												
HCM 6th Ctrl Delay			16.7									
HCM 6th LOS			B									

Lanes, Volumes, Timings
5: Avenue C & Avenue B

JR Engineering
05/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗		↖	↗			↕	
Traffic Volume (vph)	1	49	65	45	35	9	7	1	49	8	2	1
Future Volume (vph)	1	49	65	45	35	9	7	1	49	8	2	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	150		0	150		0
Storage Lanes	0		0	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.924			0.968			0.852			0.990	
Flt Protected				0.950			0.950				0.966	
Satd. Flow (prot)	0	1721	0	1770	1803	0	1770	1587	0	0	1781	0
Flt Permitted				0.950			0.950				0.966	
Satd. Flow (perm)	0	1721	0	1770	1803	0	1770	1587	0	0	1781	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2594			712			450			364	
Travel Time (s)		59.0			16.2			10.2			8.3	
Peak Hour Factor	0.78	0.78	0.79	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	1	63	82	58	45	12	9	1	63	10	3	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	146	0	58	57	0	9	64	0	0	14	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary






















Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	23.1%
ICU Level of Service	A
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	3.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕		↕	↕			↕	
Traffic Vol, veh/h	1	49	65	45	35	9	7	1	49	8	2	1
Future Vol, veh/h	1	49	65	45	35	9	7	1	49	8	2	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	150	-	-	150	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	79	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	63	82	58	45	12	9	1	63	10	3	1

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	57	0	0	145	0	0	275	279	104	305	314	51
Stage 1	-	-	-	-	-	-	106	106	-	167	167	-
Stage 2	-	-	-	-	-	-	169	173	-	138	147	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1547	-	-	1437	-	-	677	629	951	647	601	1017
Stage 1	-	-	-	-	-	-	900	807	-	835	760	-
Stage 2	-	-	-	-	-	-	833	756	-	865	775	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1547	-	-	1437	-	-	653	603	951	584	576	1017
Mov Cap-2 Maneuver	-	-	-	-	-	-	653	603	-	584	576	-
Stage 1	-	-	-	-	-	-	899	806	-	834	730	-
Stage 2	-	-	-	-	-	-	796	726	-	806	774	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0.1		3.8		9.3		11.1	
HCM LOS					A		B	

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	653	940	1547	-	-	1437	-	-	606
HCM Lane V/C Ratio	0.014	0.068	0.001	-	-	0.04	-	-	0.023
HCM Control Delay (s)	10.6	9.1	7.3	0	-	7.6	-	-	11.1
HCM Lane LOS	B	A	A	A	-	A	-	-	B
HCM 95th %tile Q(veh)	0	0.2	0	-	-	0.1	-	-	0.1

													
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR	
Lane Configurations													
Traffic Volume (vph)	172	10	13	3	20	19	21	78	5	33	68	91	
Future Volume (vph)	172	10	13	3	20	19	21	78	5	33	68	91	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	150		0	0		0	150		0	150		150	
Storage Lanes	1		0	0		0	1		0	1		1	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.915			0.940			0.991				0.850	
Flt Protected	0.950				0.996		0.950			0.950			
Satd. Flow (prot)	1770	1704	0	0	1744	0	1770	1846	0	1770	1863	1583	
Flt Permitted	0.950				0.996		0.950			0.950			
Satd. Flow (perm)	1770	1704	0	0	1744	0	1770	1846	0	1770	1863	1583	
Link Speed (mph)		30			25			30				30	
Link Distance (ft)		3003			485			712				565	
Travel Time (s)		68.3			13.2			16.2				12.8	
Peak Hour Factor	0.85	0.78	0.78	0.78	0.78	0.78	0.78	0.80	0.78	0.78	0.79	0.82	
Adj. Flow (vph)	202	13	17	4	26	24	27	98	6	42	86	111	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	202	30	0	0	54	0	27	104	0	42	86	111	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	
Median Width(ft)		12			12			12				12	
Link Offset(ft)		0			0			0				0	
Crosswalk Width(ft)		16			16			16				16	
Two way Left Turn Lane													
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15		9	15		9	15		9	15		9	
Sign Control		Stop			Stop			Free				Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 31.4% ICU Level of Service A

Analysis Period (min) 15

Intersection												
Int Delay, s/veh	6.9											
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↖	↗			↕		↖	↗		↖	↗	↖
Traffic Vol, veh/h	172	10	13	3	20	19	21	78	5	33	68	91
Future Vol, veh/h	172	10	13	3	20	19	21	78	5	33	68	91
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	150	-	-	-	-	-	150	-	-	150	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	78	78	78	78	78	78	80	78	78	79	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	202	13	17	4	26	24	27	98	6	42	86	111



















Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	350	328	86	396	436	101	197	0	0	104	0	0
Stage 1	170	170	-	155	155	-	-	-	-	-	-	-
Stage 2	180	158	-	241	281	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	605	591	973	564	514	954	1376	-	-	1488	-	-
Stage 1	832	758	-	847	769	-	-	-	-	-	-	-
Stage 2	822	767	-	762	678	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	546	563	973	525	490	954	1376	-	-	1488	-	-
Mov Cap-2 Maneuver	546	563	-	525	490	-	-	-	-	-	-	-
Stage 1	815	737	-	830	754	-	-	-	-	-	-	-
Stage 2	759	752	-	715	659	-	-	-	-	-	-	-

Approach	SE		NW		NE		SW	
HCM Control Delay, s	14.7		11.2		1.6		1.3	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NEL	NET	NERNWLn1	SELn1	SELn2	SWL	SWT	SWR
Capacity (veh/h)	1376	-	-	632	546	739	1488	-
HCM Lane V/C Ratio	0.02	-	-	0.085	0.371	0.04	0.028	-
HCM Control Delay (s)	7.7	-	-	11.2	15.4	10.1	7.5	-
HCM Lane LOS	A	-	-	B	C	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	1.7	0.1	0.1	-

Lanes, Volumes, Timings
7: Avenue A & Road Q

JR Engineering
05/07/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	5	3	0	103	0	77	5	162	201	40
Future Volume (vph)	0	0	5	3	0	103	0	77	5	162	201	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	150		0	0		0	150		150
Storage Lanes	0		1	1		1	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.865			0.850		0.992				0.973
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	0	1611	1770	0	1583	0	1848	0	1770	1812	0
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	0	1611	1770	0	1583	0	1848	0	1770	1812	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		311			3003			491			1156	
Travel Time (s)		7.1			68.3			11.2			26.3	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.83	0.78	0.80	0.78	0.85	0.87	0.78
Adj. Flow (vph)	0	0	6	4	0	124	0	96	6	191	231	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	6	4	0	124	0	102	0	191	282	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	29.7%						ICU Level of Service A					
Analysis Period (min)	15											

Intersection												
Int Delay, s/veh	3.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗	↘		↗		↘		↗	↘	
Traffic Vol, veh/h	0	0	5	3	0	103	0	77	5	162	201	40
Future Vol, veh/h	0	0	5	3	0	103	0	77	5	162	201	40
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	150	-	0	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	83	78	80	78	85	87	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	6	4	0	124	0	96	6	191	231	51

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	-	-	257	741	-	99	-	0	0	102	0	0
Stage 1	-	-	-	99	-	-	-	-	-	-	-	-
Stage 2	-	-	-	642	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.22	7.12	-	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	-	-	-	6.12	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.12	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.318	3.518	-	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	0	0	782	332	0	957	0	-	-	1490	-	-
Stage 1	0	0	-	907	0	-	0	-	-	-	-	-
Stage 2	0	0	-	463	0	-	0	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	782	297	-	957	-	-	-	1490	-	-
Mov Cap-2 Maneuver	-	-	-	297	-	-	-	-	-	-	-	-
Stage 1	-	-	-	907	-	-	-	-	-	-	-	-
Stage 2	-	-	-	400	-	-	-	-	-	-	-	-

Approach	EB		WB		NB			SB		
HCM Control Delay, s	9.6		9.5		0			3.1		
HCM LOS	A		A							

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	-	-	782	297	957	1490	-	-
HCM Lane V/C Ratio	-	-	0.008	0.013	0.13	0.128	-	-
HCM Control Delay (s)	-	-	9.6	17.3	9.3	7.8	-	-
HCM Lane LOS	-	-	A	C	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0	0	0.4	0.4	-	-

Lanes, Volumes, Timings
10: Avenue A & Road K

JR Engineering
05/07/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	10	5	1	10	12	6	101	2	20	162	39
Future Volume (vph)	34	10	5	1	10	12	6	101	2	20	162	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		0	150		0	150		0
Storage Lanes	1		0	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.953			0.930			0.996			0.969	
Flt Protected	0.950				0.998		0.950			0.950		
Satd. Flow (prot)	1770	1775	0	0	1729	0	1770	1855	0	1770	1805	0
Flt Permitted	0.950				0.998		0.950			0.950		
Satd. Flow (perm)	1770	1775	0	0	1729	0	1770	1855	0	1770	1805	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1139			489			686			720	
Travel Time (s)		25.9			11.1			15.6			16.4	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.83	0.78	0.78	0.85	0.78
Adj. Flow (vph)	44	13	6	1	13	15	8	122	3	26	191	50
Shared Lane Traffic (%)												
Lane Group Flow (vph)	44	19	0	0	29	0	8	125	0	26	241	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 26.1% ICU Level of Service A

Analysis Period (min) 15

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A


















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	34	10	5	1	10	12	6	101	2	20	162	39
Future Vol, veh/h	34	10	5	1	10	12	6	101	2	20	162	39
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.83	0.78	0.78	0.85	0.78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	44	13	6	1	13	15	8	122	3	26	191	50
Number of Lanes	1	1	0	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	2
HCM Control Delay	8.9	8.6	8.8	9.6
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	4%	100%	0%
Vol Thru, %	0%	98%	0%	67%	43%	0%	81%
Vol Right, %	0%	2%	0%	33%	52%	0%	19%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	6	103	34	15	23	20	201
LT Vol	6	0	34	0	1	20	0
Through Vol	0	101	0	10	10	0	162
RT Vol	0	2	0	5	12	0	39
Lane Flow Rate	8	124	44	19	29	26	241
Geometry Grp	7	7	7	7	6	7	7
Degree of Util (X)	0.012	0.173	0.073	0.028	0.043	0.039	0.319
Departure Headway (Hd)	5.519	5.003	6.023	5.286	5.28	5.409	4.771
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	649	718	595	677	677	663	755
Service Time	3.244	2.728	3.761	3.023	3.319	3.13	2.492
HCM Lane V/C Ratio	0.012	0.173	0.074	0.028	0.043	0.039	0.319
HCM Control Delay	8.3	8.8	9.2	8.2	8.6	8.4	9.7
HCM Lane LOS	A	A	A	A	A	A	A
HCM 95th-tile Q	0	0.6	0.2	0.1	0.1	0.1	1.4

Lanes, Volumes, Timings
13: Avenue A & Road FF

JR Engineering
05/07/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	2	1	3	2	23	1	63	4	38	88	13
Future Volume (vph)	8	2	1	3	2	23	1	63	4	38	88	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	150		0
Storage Lanes	0		0	0		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.990			0.891			0.992			0.980	
Flt Protected		0.966			0.994			0.999		0.950		
Satd. Flow (prot)	0	1781	0	0	1650	0	0	1846	0	1770	1825	0
Flt Permitted		0.966			0.994			0.999		0.950		
Satd. Flow (perm)	0	1781	0	0	1650	0	0	1846	0	1770	1825	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		556			391			1288			686	
Travel Time (s)		12.6			8.9			29.3			15.6	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.79	0.78	0.78	0.81	0.78
Adj. Flow (vph)	10	3	1	4	3	29	1	80	5	49	109	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	14	0	0	36	0	0	86	0	49	126	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	18.8%
ICU Level of Service	A
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↕	↕	
Traffic Vol, veh/h	8	2	1	3	2	23	1	63	4	38	88	13
Future Vol, veh/h	8	2	1	3	2	23	1	63	4	38	88	13
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	-	-	-	-	-	-	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	79	78	78	81	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	3	1	4	3	29	1	80	5	49	109	17

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	317	303	118	303	309	83	126	0	0	85	0	0
Stage 1	216	216	-	85	85	-	-	-	-	-	-	-
Stage 2	101	87	-	218	224	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	636	610	934	649	605	976	1460	-	-	1512	-	-
Stage 1	786	724	-	923	824	-	-	-	-	-	-	-
Stage 2	905	823	-	784	718	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	599	590	934	630	585	976	1460	-	-	1512	-	-
Mov Cap-2 Maneuver	599	590	-	630	585	-	-	-	-	-	-	-
Stage 1	785	701	-	922	823	-	-	-	-	-	-	-
Stage 2	874	822	-	755	695	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	11		9.3		0.1		2.1	
HCM LOS	B		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1460	-	-	617	882	1512	-
HCM Lane V/C Ratio	0.001	-	-	0.023	0.041	0.032	-
HCM Control Delay (s)	7.5	0	-	11	9.3	7.5	-
HCM Lane LOS	A	A	-	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0.1	-

Appendix C
Detailed Land Use Reports

Detailed Land Use Data

For 303 Dwelling Units of Single Family Detached - Zone 1
(210) Single-Family Detached Housing

Open Date: 1/16/2020
Analysis Date: 1/16/2020

Project: RidgeGate

Day / Period	Total Trips	Pass-By Trips	Avg Rate	Min Rate	Max Rate	Std Dev	Avg Size	% Enter	% Exit	Use Eq.	Equation	R2
Weekday Average Daily Trips Source : Trip Generation Manual 10th Edition	2883	0	9.44	4.81	19.39	2.1	264	50	50	True	$\ln(T) = 0.92 \ln(X) + 2.71$	0.95
Weekday AM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 10th Edition	220	0	0.74	0.33	2.27	0.27	219	25	75	True	$T = 0.71(X) + 4.8$	0.89
Weekday PM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 10th Edition	294	0	0.99	0.44	2.98	0.31	242	63	37	True	$\ln(T) = 0.96 \ln(X) + 0.2$	0.92

Detailed Land Use Data

For 271 Dwelling Units of Single Family Detached - Zone 2A north
(210) Single-Family Detached Housing

Open Date: 1/16/2020
Analysis Date: 1/16/2020

Project: RidgeGate

Day / Period	Total Trips	Pass-By Trips	Avg Rate	Min Rate	Max Rate	Std Dev	Avg Size	% Enter	% Exit	Use Eq.	Equation	R2
Weekday Average Daily Trips Source : Trip Generation Manual 10th Edition	2602	0	9.44	4.81	19.39	2.1	264	50	50	True	$\ln(T) = 0.92 \ln(X) + 2.71$	0.95
Weekday AM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 10th Edition	197	0	0.74	0.33	2.27	0.27	219	25	75	True	$T = 0.71(X) + 4.8$	0.89
Weekday PM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 10th Edition	265	0	0.99	0.44	2.98	0.31	242	63	37	True	$\ln(T) = 0.96 \ln(X) + 0.2$	0.92

Detailed Land Use Data

For 140 Dwelling Units of Single Family Detached - Zone 2B south
(210) Single-Family Detached Housing

Open Date: 1/16/2020
Analysis Date: 1/16/2020

Project: RidgeGate

Day / Period	Total Trips	Pass-By Trips	Avg Rate	Min Rate	Max Rate	Std Dev	Avg Size	% Enter	% Exit	Use Eq.	Equation	R2
Weekday Average Daily Trips Source : Trip Generation Manual 10th Edition	1417	0	9.44	4.81	19.39	2.1	264	50	50	True	$\ln(T) = 0.92 \ln(X) + 2.71$	0.95
Weekday AM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 10th Edition	104	0	0.74	0.33	2.27	0.27	219	25	75	True	$T = 0.71(X) + 4.8$	0.89
Weekday PM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 10th Edition	140	0	0.99	0.44	2.98	0.31	242	63	37	True	$\ln(T) = 0.96 \ln(X) + 0.2$	0.92

Detailed Land Use Data
 For 500 Students of Elementary School - Zone 2C - 500 Students
 (520) Elementary School

Open Date: 1/16/2020
 Analysis Date: 1/16/2020

Project: RidgeGate

Day / Period	Total Trips	Pass-By Trips	Avg Rate	Min Rate	Max Rate	Std Dev	Avg Size	% Enter	% Exit	Use Eq.	Equation	R2
Weekday Average Daily Trips Source : Trip Generation Manual 10th Edition	881	0	1.89	1.51	2.45	0.34	760	50	50	True	$T = 2.13(X) - 184.07$	0.7
Weekday AM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 10th Edition	335	0	0.67	0.24	1.47	0.27	603	54	46	False		
Weekday PM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 10th Edition	85	0	0.17	0.05	0.44	0.11	590	48	52	False		

Detailed Land Use Data
 For 119 Dwelling Units of Single Family Detached - Zone 3A
 (210) Single-Family Detached Housing

Project: RidgeGate

Open Date: 1/16/2020
 Analysis Date: 1/16/2020

Day / Period	Total Trips	Pass-By Trips	Avg Rate	Min Rate	Max Rate	Std Dev	Avg Size	% Enter	% Exit	Use Eq.	Equation	R2
Weekday Average Daily Trips Source : Trip Generation Manual 10th Edition	1220	0	9.44	4.81	19.39	2.1	264	50	50	True	$\ln(T) = 0.92 \ln(X) + 2.71$	0.95
Weekday AM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 10th Edition	89	0	0.74	0.33	2.27	0.27	219	25	75	True	$T = 0.71(X) + 4.8$	0.89
Weekday PM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 10th Edition	120	0	0.99	0.44	2.98	0.31	242	63	37	True	$\ln(T) = 0.96 \ln(X) + 0.2$	0.92

Detailed Land Use Data
 For 308 Dwelling Units of Senior Living - Zone 3B
 (251) Senior Adult Housing - Detached

Open Date: 1/16/2020
 Analysis Date: 1/16/2020

Project: RidgeGate

Day / Period	Total Trips	Pass-By Trips	Avg Rate	Min Rate	Max Rate	Std Dev	Avg Size	% Enter	% Exit	Use Eq.	Equation	R2
Weekday Average Daily Trips Source : Trip Generation Manual 10th Edition	1514	0	4.27	2.9	6.66	1.11	655	50	50	True	$\ln(T) = 0.88 \ln(X) + 2.28$	0.92
Weekday AM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 10th Edition	96	0	0.24	0.13	0.84	0.1	583	33	67	True	$\ln(T) = 0.76 \ln(X) + 0.21$	0.89
Weekday PM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 10th Edition	116	0	0.3	0.17	0.95	0.13	582	61	39	True	$\ln(T) = 0.78 \ln(X) + 0.28$	0.87

Detailed Land Use Data
 For 310 Dwelling Units of Multi Family - Zone 3C
 (221) Multifamily Housing (Mid-Rise)

Open Date: 1/16/2020
 Analysis Date: 1/16/2020

Project: RidgeGate

Day / Period	Total Trips	Pass-By Trips	Avg Rate	Min Rate	Max Rate	Std Dev	Avg Size	% Enter	% Exit	Use Eq.	Equation	R2
Weekday Average Daily Trips Source : Trip Generation Manual 10th Edition	1688	0	5.44	1.27	12.5	2.03	205	50	50	True	$T = 5.45(X) - 1.75$	0.77
Weekday AM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 10th Edition	104	0	0.36	0.06	1.61	0.19	207	26	74	True	$\ln(T) = 0.98 \ln(X) - 0.98$	0.67
Weekday PM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 10th Edition	131	0	0.44	0.15	1.11	0.19	208	61	39	True	$\ln(T) = 0.96 \ln(X) - 0.63$	0.72

Detailed Land Use Data
 For 167 Dwelling Units of Single Family Detached - Zone 4A
 (210) Single-Family Detached Housing

Project: RidgeGate

Open Date: 1/16/2020
 Analysis Date: 1/16/2020

Day / Period	Total Trips	Pass-By Trips	Avg Rate	Min Rate	Max Rate	Std Dev	Avg Size	% Enter	% Exit	Use Eq.	Equation	R2
Weekday Average Daily Trips Source : Trip Generation Manual 10th Edition	1667	0	9.44	4.81	19.39	2.1	264	50	50	True	$\ln(T) = 0.92 \ln(X) + 2.71$	0.95
Weekday AM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 10th Edition	123	0	0.74	0.33	2.27	0.27	219	25	75	True	$T = 0.71(X) + 4.8$	0.89
Weekday PM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 10th Edition	166	0	0.99	0.44	2.98	0.31	242	63	37	True	$\ln(T) = 0.96 \ln(X) + 0.2$	0.92

Detailed Land Use Data
 For 24 Dwelling Units of Retirement - Zone 4B
 (251) Senior Adult Housing - Detached

Project: RidgeGate

Open Date: 1/16/2020
 Analysis Date: 1/16/2020

Day / Period	Total Trips	Pass-By Trips	Avg Rate	Min Rate	Max Rate	Std Dev	Avg Size	% Enter	% Exit	Use Eq.	Equation	R2
Weekday Average Daily Trips Source : Trip Generation Manual 10th Edition	160	0	4.27	2.9	6.66	1.11	655	50	50	True	$\ln(T) = 0.88 \ln(X) + 2.28$	0.92
Weekday AM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 10th Edition	14	0	0.24	0.13	0.84	0.1	583	33	67	True	$\ln(T) = 0.76 \ln(X) + 0.21$	0.89
Weekday PM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 10th Edition	16	0	0.3	0.17	0.95	0.13	582	61	39	True	$\ln(T) = 0.78 \ln(X) + 0.28$	0.87

Detailed Land Use Data
 For 280 Dwelling Units of Multi Family - Zone 4C
 (221) Multifamily Housing (Mid-Rise)

Project: RidgeGate

Open Date: 1/16/2020
 Analysis Date: 1/16/2020

Day / Period	Total Trips	Pass-By Trips	Avg Rate	Min Rate	Max Rate	Std Dev	Avg Size	% Enter	% Exit	Use Eq.	Equation	R2
Weekday Average Daily Trips Source : Trip Generation Manual 10th Edition	1524	0	5.44	1.27	12.5	2.03	205	50	50	True	$T = 5.45(X) - 1.75$	0.77
Weekday AM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 10th Edition	94	0	0.36	0.06	1.61	0.19	207	26	74	True	$\ln(T) = 0.98 \ln(X) - 0.98$	0.67
Weekday PM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 10th Edition	119	0	0.44	0.15	1.11	0.19	208	61	39	True	$\ln(T) = 0.96 \ln(X) - 0.63$	0.72

Detailed Land Use Data
 For 250 Employees of Shopping Center - Zone 4D
 (820) Shopping Center

Project: RidgeGate

Open Date: 1/16/2020
 Analysis Date: 1/16/2020

<u>Day / Period</u>	<u>Total Trips</u>	<u>Pass-By Trips</u>	<u>Avg Rate</u>	<u>Min Rate</u>	<u>Max Rate</u>	<u>Std Dev</u>	<u>Avg Size</u>	<u>% Enter</u>	<u>% Exit</u>	<u>Use Eq.</u>	<u>Equation</u>	<u>R2</u>
Weekday Average Daily Trips Source : Trip Generation Manual 10th Edition	4028	0	16.11	5.11	48.63	15.33	708	50	50	False		
Weekday AM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 10th Edition	138	0	0.55	0.13	1.34	0.58	610	64	36	False		
Weekday PM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 10th Edition	405	138	1.62	0.51	5.16	1.45	708	50	50	False		

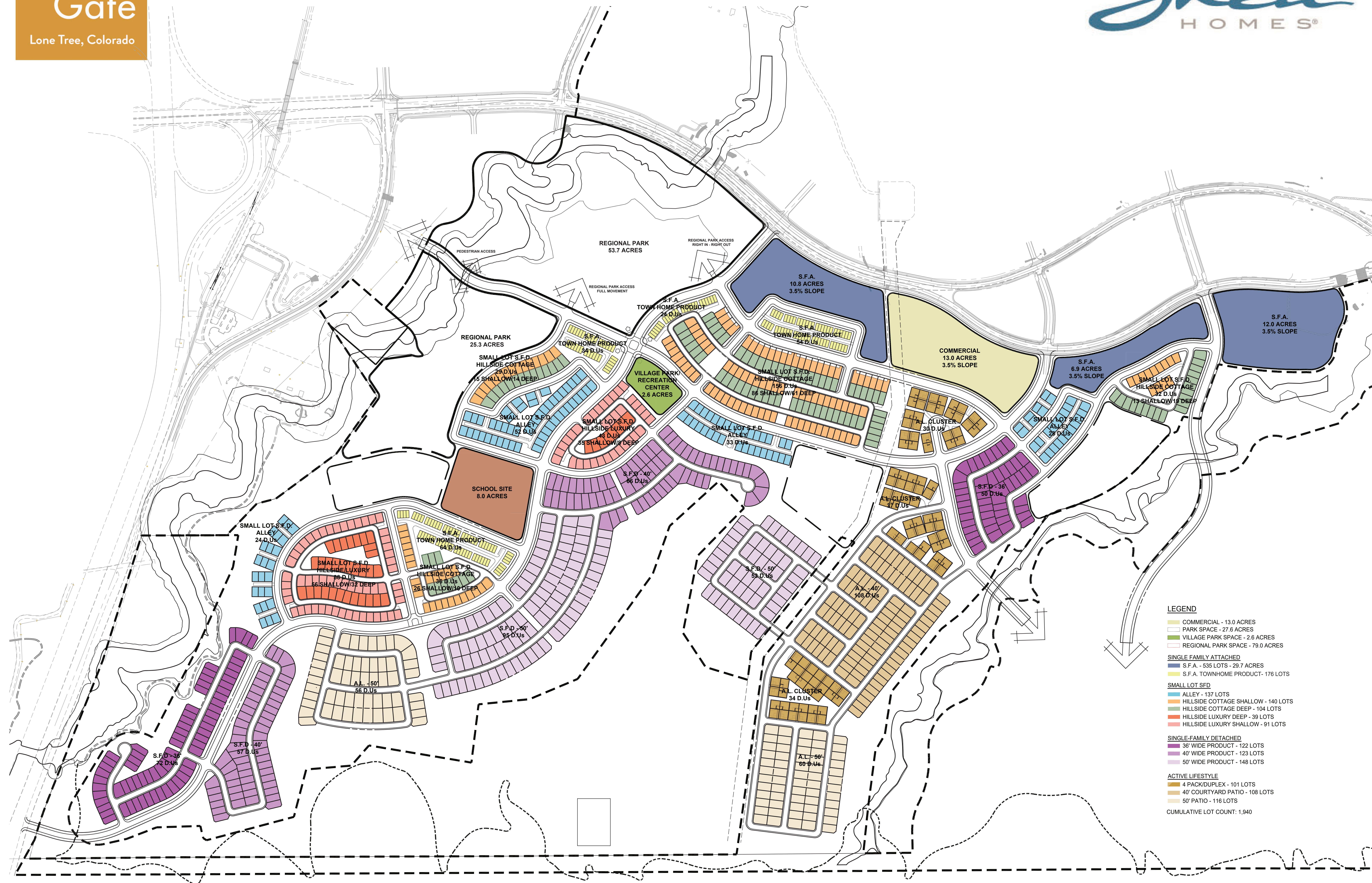
Detailed Land Use Data
 For 79 Acres of Regional Park
 (411) Public Park

Project: RidgeGate

Open Date: 1/16/2020
 Analysis Date: 1/16/2020

Day / Period	Total Trips	Pass-By Trips	Avg Rate	Min Rate	Max Rate	Std Dev	Avg Size	% Enter	% Exit	Use Eq.	Equation	R2
Weekday Average Daily Trips Source : Trip Generation Manual 10th Edition	139	0	0.78	0.55	34	1.36	612	50	50	True	$T = 0.64(X) + 88.46$	0.82
Weekday AM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 10th Edition	2	0	0.02	0	4.5	0.23	398	59	41	False		
Weekday PM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 10th Edition	27	0	0.11	0.05	3.5	0.24	516	55	45	True	$T = 0.06(X) + 22.6$	0.53

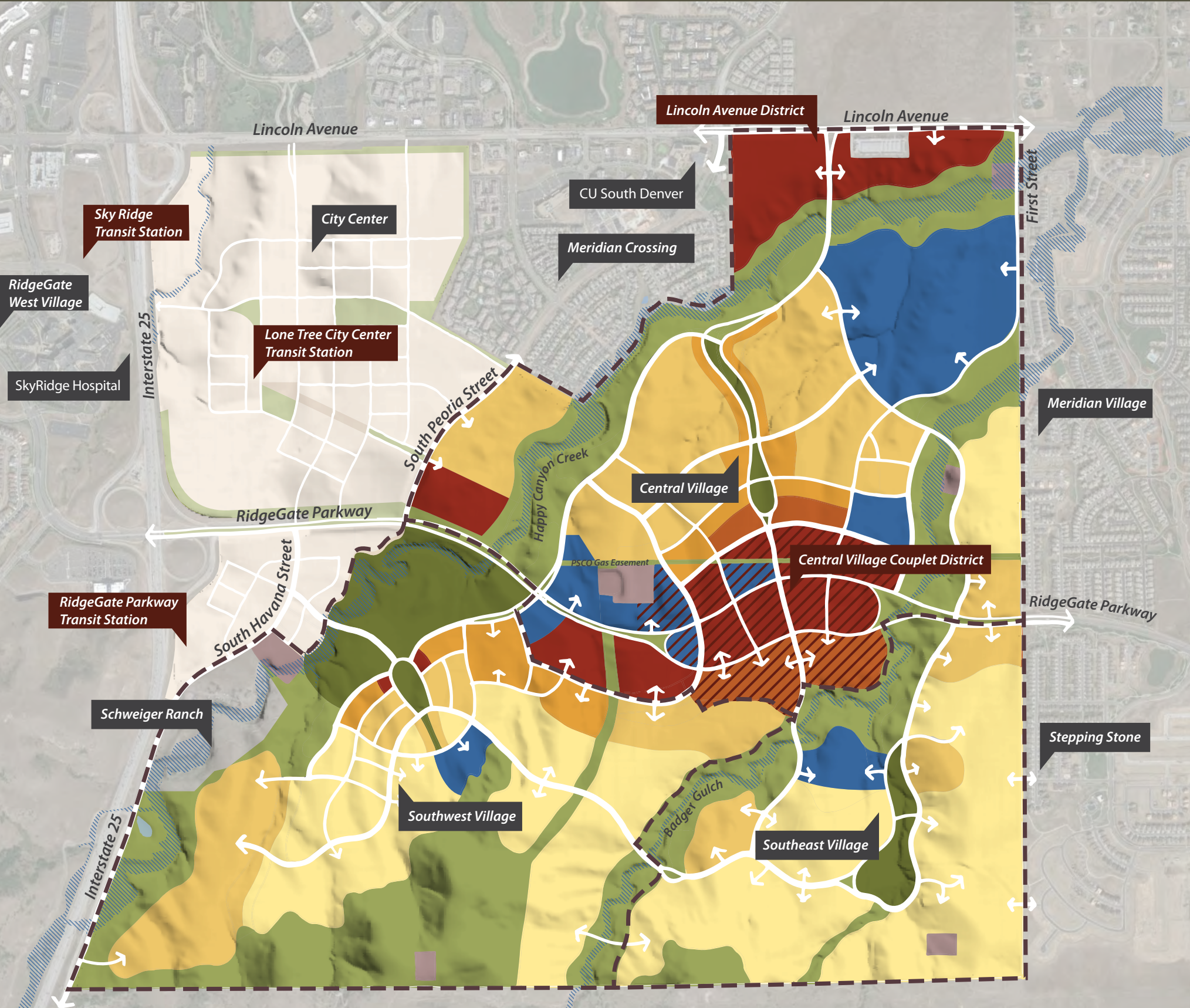
Appendix D
RidgeGate Southwest Village Site Plan



- LEGEND**
- COMMERCIAL - 13.0 ACRES
 - PARK SPACE - 27.6 ACRES
 - VILLAGE PARK SPACE - 2.6 ACRES
 - REGIONAL PARK SPACE - 79.0 ACRES
- SINGLE FAMILY ATTACHED**
- S.F.A. - 535 LOTS - 29.7 ACRES
 - S.F.A. TOWNHOME PRODUCT - 176 LOTS
- SMALL LOT SFD**
- ALLEY - 137 LOTS
 - HILLSIDE COTTAGE SHALLOW - 140 LOTS
 - HILLSIDE COTTAGE DEEP - 104 LOTS
 - HILLSIDE LUXURY DEEP - 39 LOTS
 - HILLSIDE LUXURY SHALLOW - 91 LOTS
- SINGLE-FAMILY DETACHED**
- 36' WIDE PRODUCT - 122 LOTS
 - 40' WIDE PRODUCT - 123 LOTS
 - 50' WIDE PRODUCT - 148 LOTS
- ACTIVE LIFESTYLE**
- 4 PACK/DUPLEX - 101 LOTS
 - 40' COURTYARD PATIO - 108 LOTS
 - 50' PATIO - 116 LOTS
- CUMULATIVE LOT COUNT: 1,940

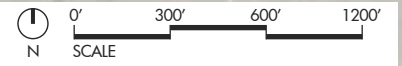
Appendix E
RidgeGate East – Land Use and Density Framework Plan

LAND USE AND DENSITY FRAMEWORK PLAN



Land Use and Density Framework Plan Legend

Low Density Res. 3-6 du/ac	Medium Density Res. 5-12 du/ac	High Density Res. 12-25 du/ac	Multi-Family Res. 20+ du/ac	Mixed-Use/ Commercial	Institutional/ Public Facility	Central Village M/U Core Area
Open Space	Regional/Village Park	Utility/ Infrastructure	City Center	100-Year Floodway	Roadway Network	Parcel Access/ Connection



Appendix F
Excerpts from RidgeGate Transit-Oriented Development Study

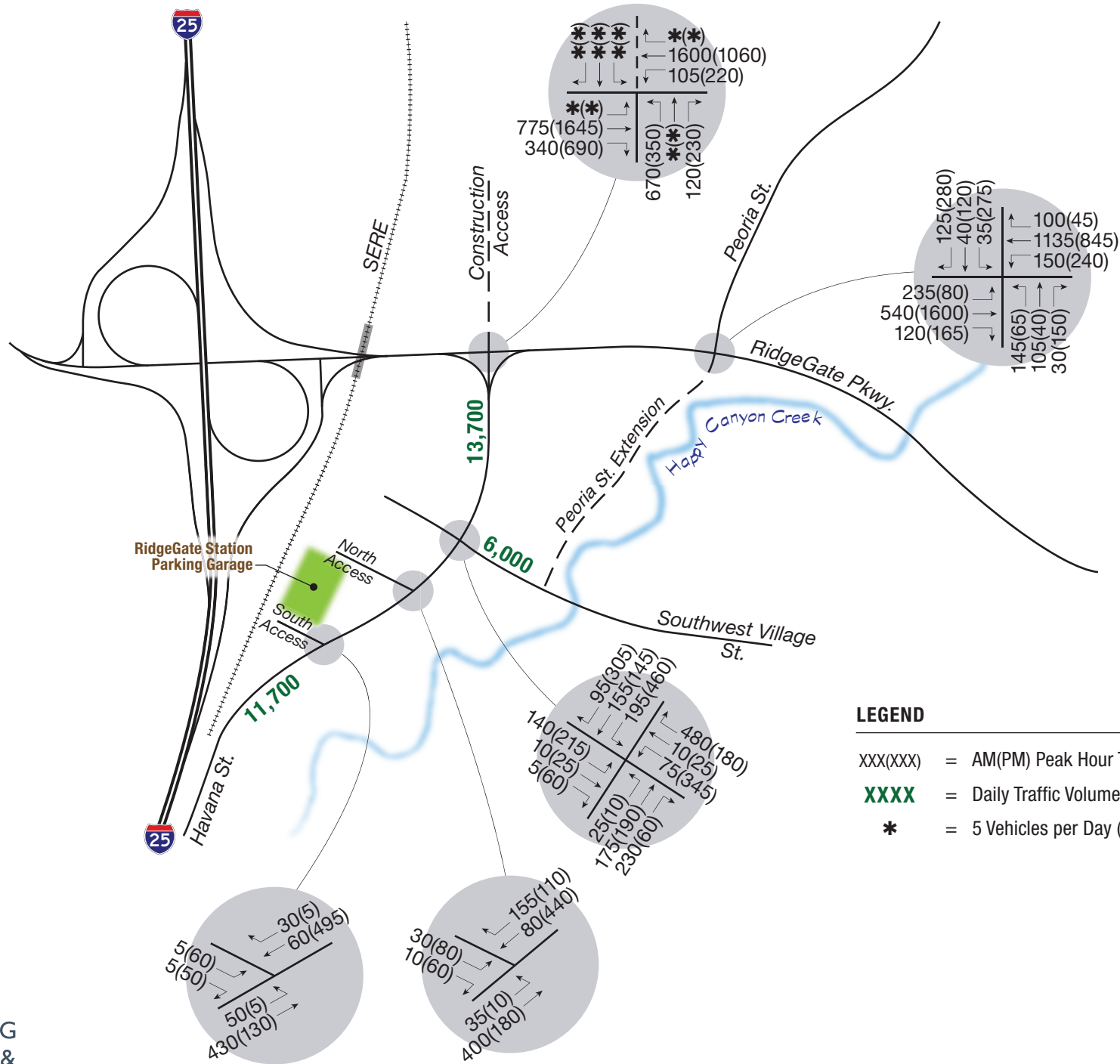
Table 1. Southwest Village and TOD Trip Generation Estimates

Land Use ¹	Unit	Size ²	Daily Trips	AM Peak Hour Trips			PM Peak Hour Trips		
				In	Out	Total	In	Out	Total
West of Havana Street									
Areas 59 & 71 – Retail & Restaurant	SF	113,985	6,572	129	80	209	288	311	599
Areas 64 & 67 – Apartments	DU	237	1,290	21	59	80	62	40	102
Areas 65 & 66 – Apartments	DU	238	1,296	21	59	80	62	40	102
Area 69 – Attainable Housing	DU	45	244	4	12	16	13	8	21
Subtotals			9,402	175	210	385	425	399	824
TOD Reductions			-2,317	-42	-62	-104	-106	-94	-200
External Trip Estimates			7,085	133	148	281	319	305	624
East of Havana Street									
Areas 60 & 61 – Restaurant	SF	120,058	13,468	656	538	1,194	727	446	1,173
Area 62 – Residential	DU	85	462	7	22	29	23	15	38
Area 63 – Condos	DU	131	713	13	33	46	35	23	58
Single-Family Residential	DU	2,000	16,364	356	1,069	1,425	1,136	767	1,903
Subtotals			31,007	1,032	1,662	2,694	1,921	1,251	3,172
TOD Reductions			-2,494	-89	-123	-212	-146	-94	-240
External Trip Estimates			28,513	943	1,539	2,482	1,775	1,157	2,932
¹ Land Area designations are based on MIG graphic dated 7/1/19. ² Density data based on MIG data dated 7/1/19 for Areas 59, 69 & 71 and on Merrick data dated 7/22/19 for remaining Land Areas									

Table 2. TOD Reductions

West of Havana Street	East of Havana Street
Areas 59 & 71 (Retail & Restaurant) – 20%	Areas 60 & 61 (Restaurant) – 10%
Areas 64 & 67 (Apartments) – 35%	Area 62 (Residential) – 25%
Areas 65 & 66 (Apartments) – 35%	Area 63 (Condos) – 30%
Area 69 (Attainable Housing) – 40%	Single-Family Homes – 5%





NORTH

FIGURE 3
Build-Out
Traffic Volumes