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June 4, 2019

Mr. Kurtis Jones  
SLV Castle Oaks, LLC  
385 Inverness Parkway, Suite 310  
Englewood, CO 80112

Re: Terrain Basin North  
Traffic Impact Analysis  
Castle Rock, CO  
LSC #190430

Dear Mr. Jones:

In response to your request, LSC Transportation Consultants, Inc. has prepared this traffic impact analysis for the proposed Terrain Basin North portion of the overall Terrain master planned development. As shown on Figure 1, the site is located east and west of Castle Oaks Drive in Castle Rock, Colorado.

## **REPORT CONTENTS**

The report contains the following: the existing roadway and traffic conditions in the vicinity of the site including the lane geometries, traffic controls, posted speed limits, etc.; the existing weekday peak-hour traffic volumes; the existing daily traffic volumes in the area; the typical weekday site-generated traffic volume projections for the site; the assignment of the projected traffic volumes to the area roadways; the projected site buildout and long-term background and resulting total traffic volumes on the area roadways; the site's projected traffic impacts; and any recommended roadway improvements to mitigate the growth in background traffic and from trips generated by the site.

## **LAND USE AND ACCESS**

The site is proposed to include about 208 single-family detached dwelling units. Access is proposed to Castle Oaks Drive from multiple locations as shown in the conceptual site plan in Figure 2.

## **ROADWAY AND TRAFFIC CONDITIONS**

### **Area Roadways**

The major roadways in the site's vicinity are shown on Figure 1 and are described below.

- **Founders Parkway** is a north-south four-lane state highway west of the site. The intersection with Crimson Sky Drive is stop-sign controlled with auxiliary turn lanes. A traffic signal warrant at this intersection is unlikely to be met until development occurs to the west of Founders Parkway. The posted speed limit is 50 mph in the vicinity of the site. It is classified by CDOT as RA (Regional Highway).
- **Crimson Sky Drive** is an east-west, two-lane collector roadway west of the site. The intersections with Founders Parkway and Autumn Sage Street are stop-sign controlled with auxiliary lanes. No speed limit is posted in the vicinity of the site.
- **Autumn Sage Street** is a two-lane collector roadway west of the site. The intersections with Castle Oaks Drive are stop-sign controlled. The posted speed limit is 30 mph in the vicinity of the site.
- **Castle Oaks Drive** is a two-lane roadway that passes through the site. The north half is paved and the south half is unpaved. The intersections with Autumn Sage Street are stop-sign controlled. No speed limit is posted in the vicinity of the site. The south half is proposed to be paved as part of site development with a reduced cross-section because the projected traffic volumes are expected to be relatively low.

### **Existing Traffic Conditions**

Figure 3 shows the existing traffic volumes, lane geometry, posted speed limits, and traffic control in the site's vicinity on a typical weekday. The weekday peak-hour traffic volumes and average daily traffic volumes are from the attached traffic counts conducted by Counter Measures in May, 2019.

### **2024 and 2040 Background Traffic**

Figure 4 shows the estimated 2024 background traffic based on minor adjustments of trips from Autumn Sage Street to Castle Oaks Drive after Castle Oaks Drive is paved. It also assumes one percent annual growth from 2019 to 2024 on all but Founders Parkway to maintain a conservative analysis even though the balance of the Terrain site in this area is primarily built out. An annual growth rate of two percent was assumed on Founders Parkway.

Figure 5 shows the estimated 2040 background traffic based on an annual growth rate of two percent on Founders Parkway from 2024 to 2040 and one percent on all internal Terrain streets to maintain a conservative analysis. It also assumes partial development of the unincorporated property west of Founders Parkway.

### **Existing, 2024, and 2040 Background Levels of Service**

Level of service (LOS) is a quantitative measure of the level of congestion or delay at an intersection. Level of service is indicated on a scale from "A" to "F." LOS A is indicative of little congestion or delay and LOS F is indicative of a high level of congestion or delay. Attached are specific level of service definitions for unsignalized intersections.

The intersections in Figures 3, 4, and 5 were analyzed to determine the existing, 2024, and 2040 background levels of service using Synchro. Table 1 shows the level of service analysis results. The level of service reports are attached.

- **Founders Parkway/Crimson Sky Drive:** All movements at this unsignalized intersection currently operate at LOS “B” or better during both morning and afternoon peak-hours with the exception of the westbound left-turn movement which operates at LOS “F” and is expected to do so through 2040. All other movements are expected to operate at LOS “D” or better. A traffic signal warrant is unlikely to be met until development occurs to the west of Founders Parkway. There is existing connectivity to the existing traffic signal at the intersection of Founders Parkway/Rising Sun Drive.
- **Castle Oaks Drive/Autumn Sage Street (North):** All movements at this unsignalized intersection currently operate at LOS “A” during both morning and afternoon peak-hours and are expected to operate at LOS “B” or better through 2040.
- **Autumn Sage Street/Crimson Sky Drive:** All movements at this unsignalized intersection currently operate at LOS “B” or better during both morning and afternoon peak-hours and are expected to do so through 2040.
- **Castle Oaks Drive/Autumn Sage Street (South):** All movements at this unsignalized intersection currently operate at LOS “A” during both morning and afternoon peak-hours and are expected to do so through 2040.

### TRIP GENERATION

Table 2 shows the estimated average weekday, morning peak-hour, and afternoon peak-hour trip generation for the proposed site based on the rates from *Trip Generation*, 10<sup>th</sup> Edition, 2017 by the Institute of Transportation Engineers (ITE).

The site is projected to generate about 1,963 vehicle-trips on the average weekday, with about half entering and half exiting during a 24-hour period. During the morning peak-hour, which generally occurs for one hour between 6:30 and 8:30 a.m., about 39 vehicles would enter and about 116 vehicles would exit the site. During the afternoon peak-hour, which generally occurs for one hour between 4:00 and 6:00 p.m., about 129 vehicles would enter and about 76 vehicles would exit.

### TRIP DISTRIBUTION

Figure 6 shows the estimated directional distribution of site-generated traffic volumes on the area roadways. The estimates were based on the location of the various planning areas with respect to the regional population, employment, activity centers, and the site’s proposed land use.

### TRIP ASSIGNMENT

Figure 7 shows the estimated site-generated traffic volumes based on the directional distribution percentages (from Figure 6) and the trip generation estimate (from Table 2).

## **2024 AND 2040 TOTAL TRAFFIC**

Figure 8 shows the 2024 total traffic which is the sum of the 2024 background traffic volumes (from Figure 4) and the site-generated traffic volumes (from Figure 7). Figure 8 also shows the recommended 2024 lane geometry and traffic control.

Figure 9 shows the 2040 total traffic which is the sum of the 2040 background traffic volumes (from Figure 5) and the site-generated traffic volumes (from Figure 7). Figure 9 also shows the recommended 2040 lane geometry and traffic control.

Figure 10 shows the proposed typical cross-section for Castle Oaks Drive South. An attached eight-foot wide sidewalk is proposed on the west side of the roadway and on-street parking is proposed on the east side of the roadway adjacent to PA-17 which fronts the roadway.

## **PROJECTED LEVELS OF SERVICE**

The intersections in Figures 8 and 9 were analyzed to determine the 2024 and 2040 total traffic levels of service. Table 1 shows the level of service analysis results.

- **Founders Parkway/Crimson Sky Drive:** All movements at this stop-controlled intersection are expected to operate at “D” or better through 2040 with the exception of the westbound left-turn movement which is expected to operate at LOS “F” during both peak-hours. A traffic signal warrant is unlikely to be met until development occurs to the west of Founders Parkway. There is existing connectivity to the exiting traffic signal at the intersection of Founders Parkway/Rising Sun Drive.
- **Castle Oaks Drive/Site Access #2:** All movements at this stop-controlled intersection are expected to operate at “B” or better during both morning and afternoon peak-hours through 2040.
- **Castle Oaks Drive/Autumn Sage Street (North):** All movements at this stop-controlled intersection are expected to operate at “B” or better during both morning and afternoon peak-hours through 2040.
- **Castle Oaks Drive/Crimson Sky Drive:** All movements at this stop-controlled intersection are expected to operate at “B” or better during both morning and afternoon peak-hours through 2040.
- **Castle Oaks Drive/Site Access #1:** All movements at this stop-controlled intersection are expected to operate at “B” or better during both morning and afternoon peak-hours through 2040.
- **Castle Oaks Drive/Site Access #3:** All movements at this stop-controlled intersection are expected to operate at “A” during both morning and afternoon peak-hours through 2040.
- **Castle Oaks Drive/Site Access #4:** All movements at this stop-controlled intersection are expected to operate at “A” during both morning and afternoon peak-hours through 2040.

- **Castle Oaks Drive/Autumn Sage Street (South):** All movements at this stop-controlled intersection are expected to operate at “B” or better during both morning and afternoon peak-hours through 2040.

**CONCLUSIONS AND RECOMMENDATIONS**

**Trip Generation**

1. The site is projected to generate about 1,963 vehicle-trips on the average weekday, with about half entering and half exiting during a 24-hour period. During the morning peak-hour, about 39 vehicles would enter and about 116 vehicles would exit the site. During the afternoon peak-hour, about 129 vehicles would enter and about 76 vehicles would exit.

**Projected Levels of Service**

2. All movements at the unsignalized intersections analyzed are expected to operate at LOS “D” or better during both peak-hours through 2040 with the following exception: The west-bound left-turn movement at the Founders Parkway/Crimson Sky Drive currently operates at LOS “F” during both peak-hours and is expected to do so through 2040. There is existing connectivity to the exiting traffic signal at the intersection of Founders Parkway/Rising Sun Drive.

**Conclusions**

3. A traffic signal warrant is unlikely to be met at the Founders Parkway/Crimson Sky Drive intersection until development occurs to the west of Founders Parkway.
4. The impact of the Terrain Basin North development can be accommodated by the existing roadway network with implementation of the recommendations below.

**Recommendations**

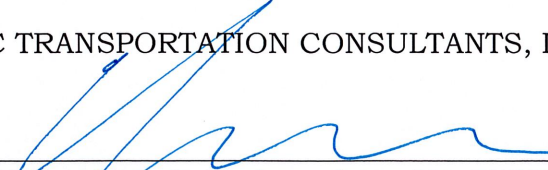
5. Figures 8 and 9 show two recommended turn lanes in the study area. A northbound left-turn lane is recommended on Castle Oaks Drive approaching Site Access #1 and a south-bound right-turn lane is recommended on Castle Oaks Drive approaching Autumn Sage Street (North). The specific lengths are shown in Figures 8 and 9.
6. Castle Oaks Drive should be paved between Autumn Sage Street (North) and Autumn Sage Street (South) as a two-lane roadway as shown in Figure 10 to limit impacts to the corridor. The projected average daily traffic volume is below 1,500 vehicles per day which is appropriate for the proposed cross-section, back-out driveways, and no turn lanes.

\* \* \* \* \*

We trust our findings will assist you in gaining approval of the Terrain Basin North development. Please contact me if you have any questions or need further assistance.

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

By   
Christopher S. McGranahan, PE, PTOE  
Principal



CSM/wc

6-4-19

- Enclosures:
- Tables 1 and 2
  - Figures 1 - 10
  - Traffic Counts
  - Level of Service Definitions
  - Level of Service Reports



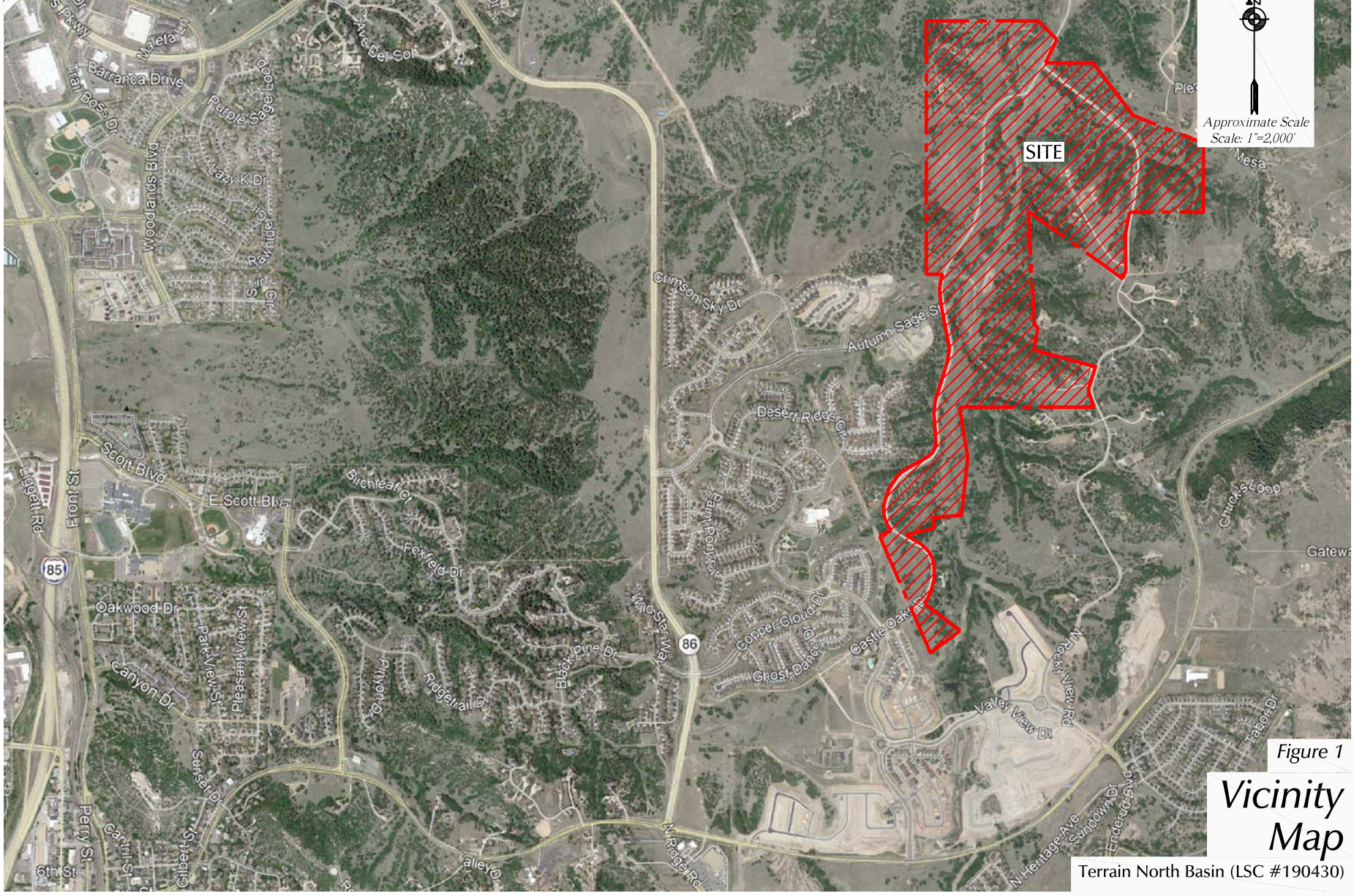
**Table 2**  
**ESTIMATED TRAFFIC GENERATION**  
**Terrain North Basin**  
**Castle Rock, CO**  
**LSC #190430; June, 2019**

Planning Area	Trip Generating Category	Quantity	Trip Generation Rates <sup>(1)</sup>				Vehicle-Trips Generated						
			Average Weekday	AM Peak-Hour		PM Peak-Hour		Average Weekday	AM Peak-Hour		PM Peak-Hour		
				In	Out	In	Out		In	Out	In	Out	
<b>PROPOSED LAND USE</b>													
PA-1	Single-Family Housing <sup>(2)</sup>	80 DU <sup>(3)</sup>	9.44	0.185	0.555	0.624	0.366	755	15	44	50	29	
PA-8	Single-Family Housing	32 DU	9.44	0.185	0.555	0.624	0.366	302	6	18	20	12	
PA-17	Single-Family Housing	19 DU	9.44	0.185	0.555	0.624	0.366	179	4	11	12	7	
PA-18	Single-Family Housing	29 DU	9.44	0.185	0.555	0.624	0.366	274	5	16	18	11	
PA-26	Single-Family Housing	28 DU	9.44	0.185	0.555	0.624	0.366	264	5	16	17	10	
PA-31	Single-Family Housing	<u>20 DU</u>	9.44	0.185	0.555	0.624	0.366	<u>189</u>	<u>4</u>	<u>11</u>	<u>12</u>	<u>7</u>	
		208 DU						<b>Total =</b>	<b>1,963</b>	<b>39</b>	<b>116</b>	<b>129</b>	<b>76</b>

Notes:

- (1) Source: *Trip Generation*, Institute of Transportation Engineers, 10th Edition, 2017.
- (2) ITE Land Use No. 210 - Single-Family Detached Housing
- (3) DU = Dwelling Unit





Approximate Scale  
Scale: 1"=2,000'

Figure 1

# Vicinity Map

Terrain North Basin (LSC #190430)



Approximate Scale  
Scale: NTS

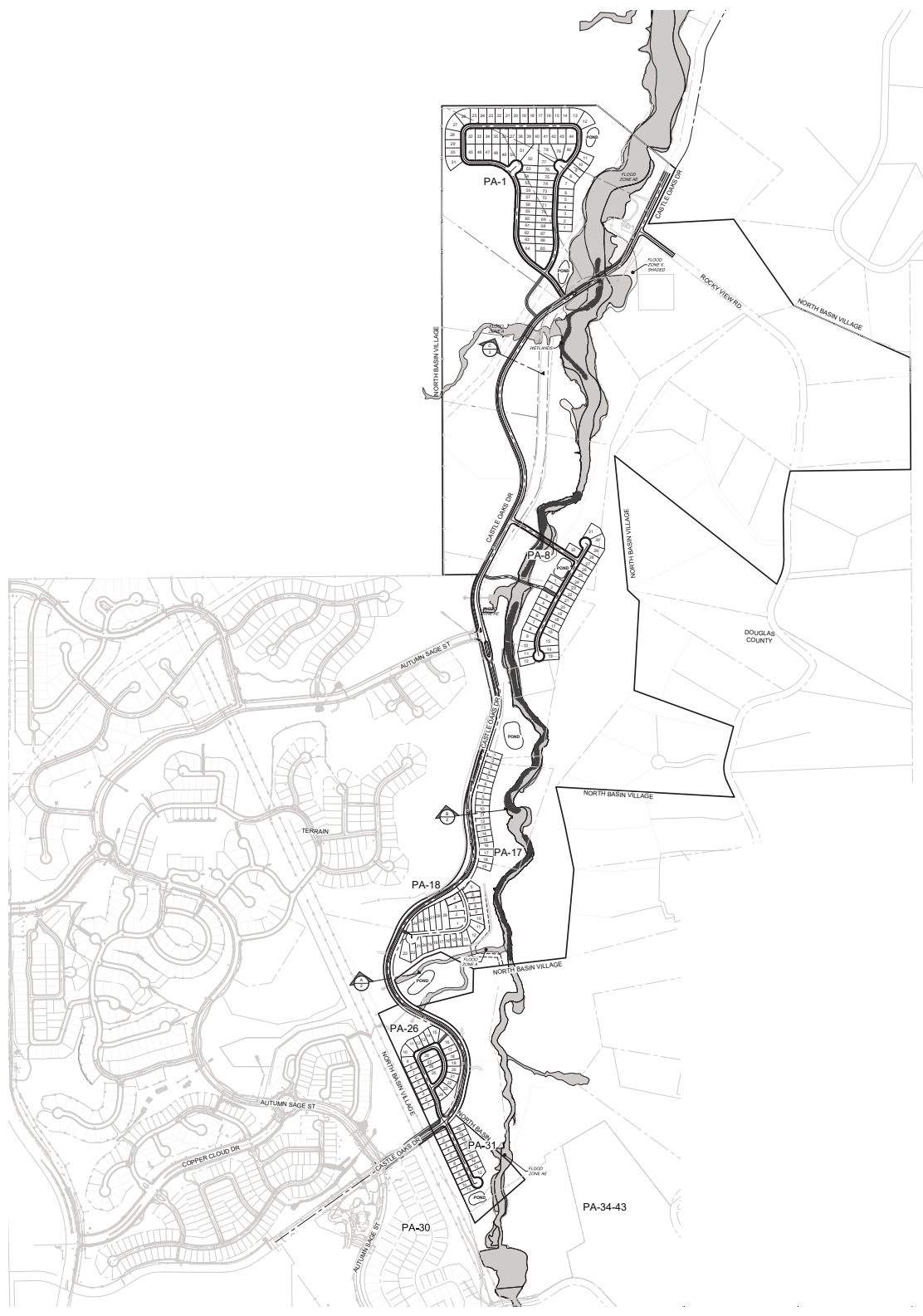
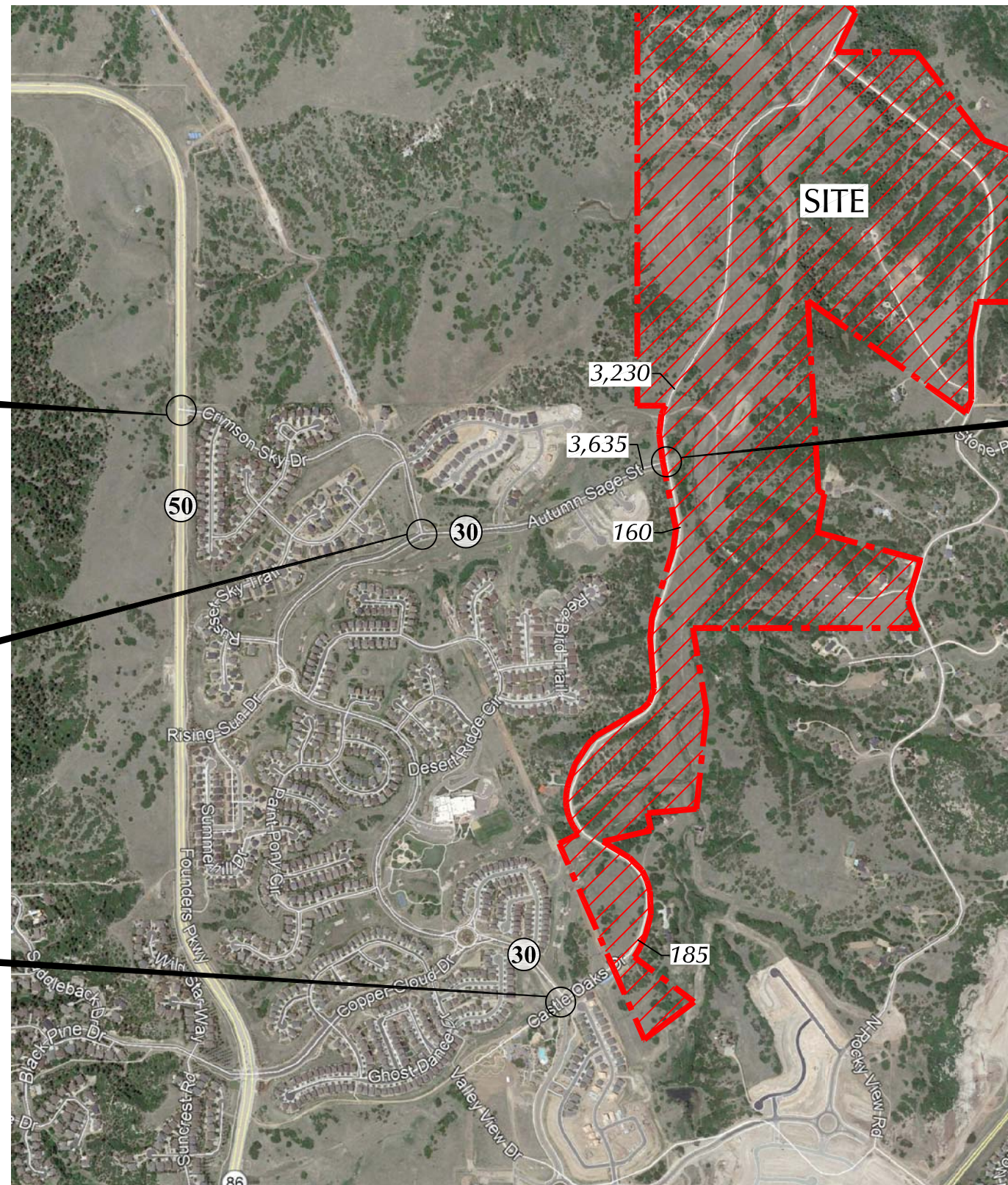
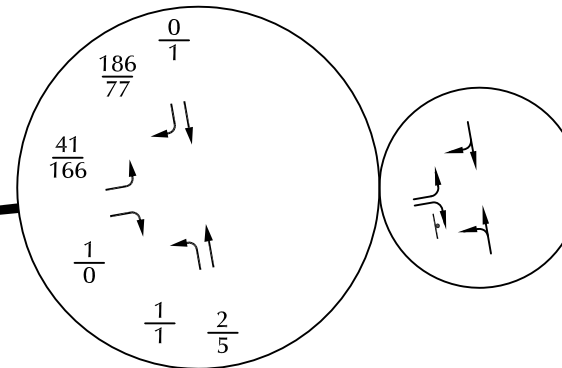
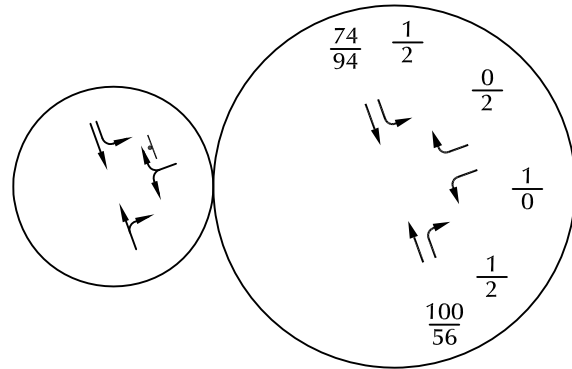
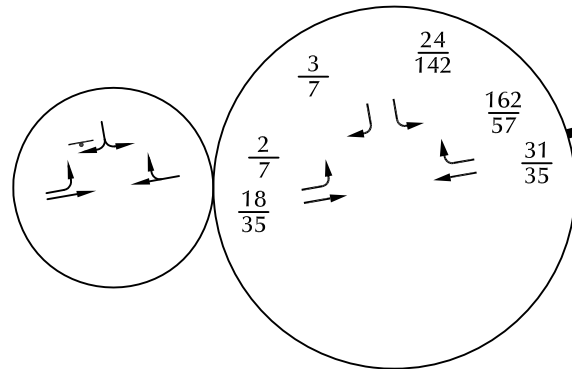
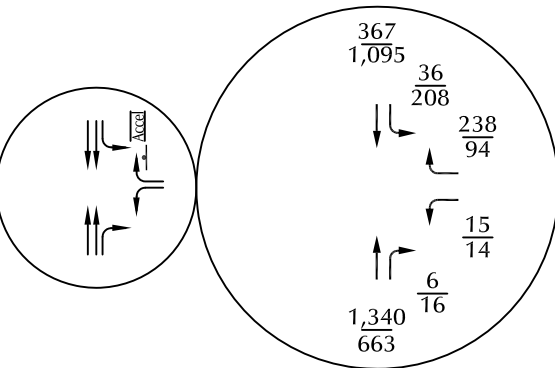


Figure 2  
**Site Plan**

Terrain North Basin (LSC #190430)





- LEGEND:
- ⊥ = Stop Sign
  - ⓪ = Speed Limit
  - $\frac{26}{35}$  = AM Peak Hour Traffic / PM Peak Hour Traffic
  - 1,000 = Average Daily Traffic

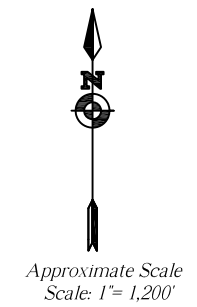
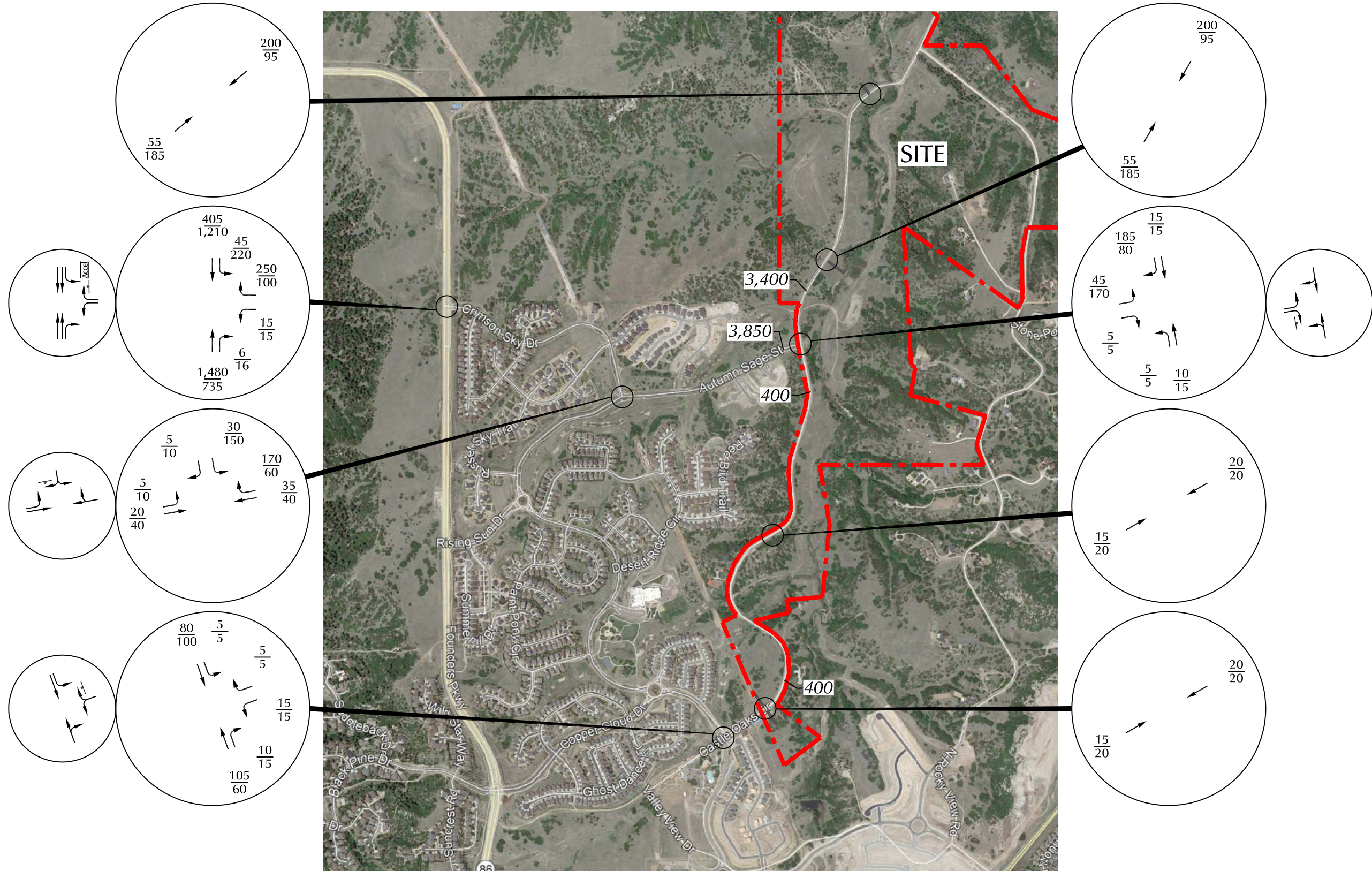


Figure 3  
**Existing Traffic, Lane  
 Geometry and Traffic Control**  
 Terrain North Basin (LSC #190430)



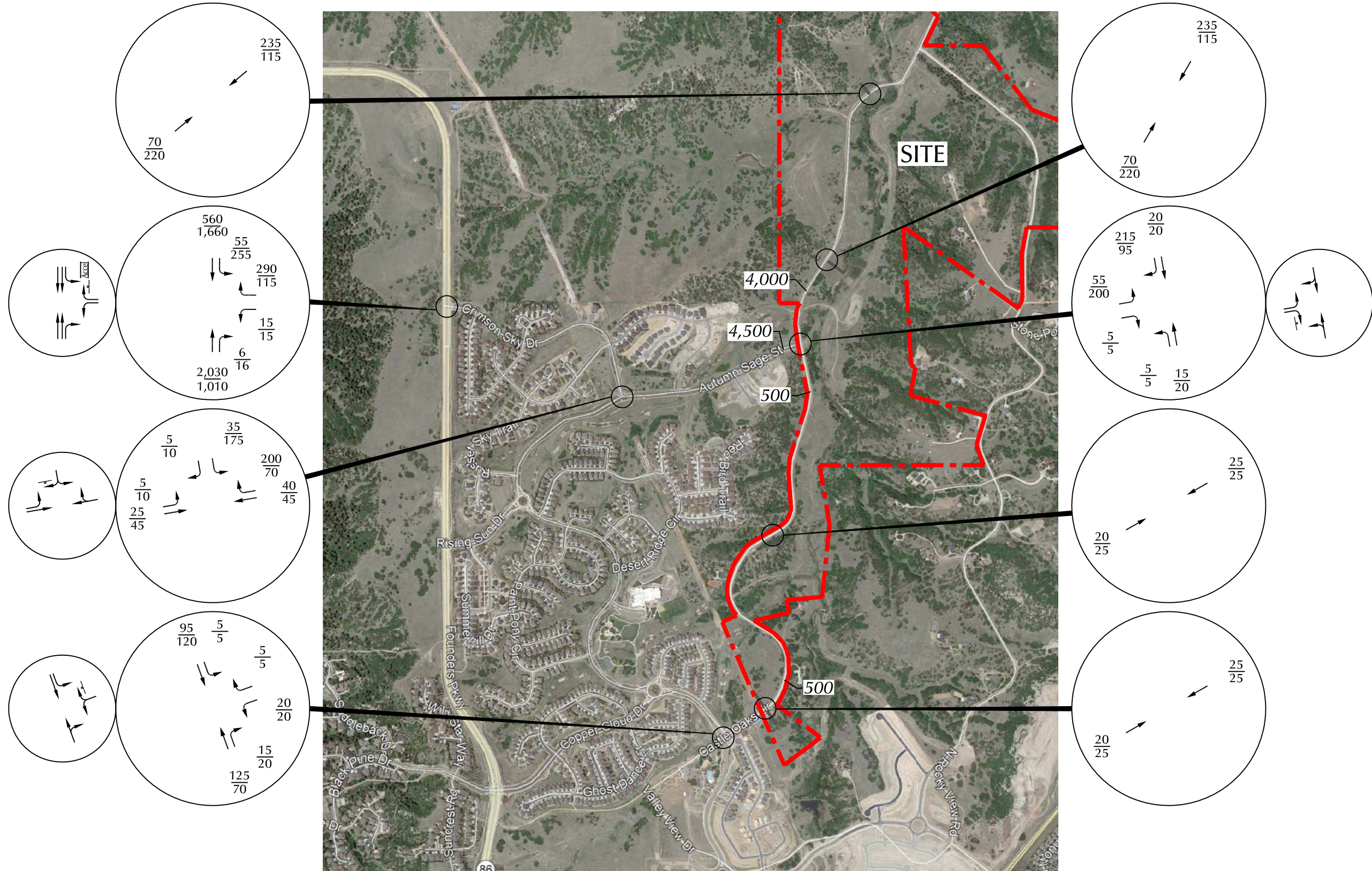
Approximate Scale  
Scale: 1" = 1,200'

**LEGEND:**  
 † = Stop Sign  
 $\frac{26}{35}$  = AM Peak Hour Traffic / PM Peak Hour Traffic  
 1,000 = Average Daily Traffic

**Notes:**  
 1. Assumes minor adjustment of trips from Autumn Sage Street to Castle Oaks Drive after Castle Oaks Drive is paved.  
 2. Assumes one percent annual growth from 2019 to 2024 on all but Founders Parkway to maintain a conservative analysis even through the balance of the Terrain site in this area is primarily built-out. An annual growth rate of two percent was assumed on Founders Parkway.

Figure 4  
**Year 2024 Background Traffic,  
 Lane Geometry and Traffic Control**  
 Terrain North Basin (LSC #190430)





Approximate Scale  
Scale: 1" = 1,200'

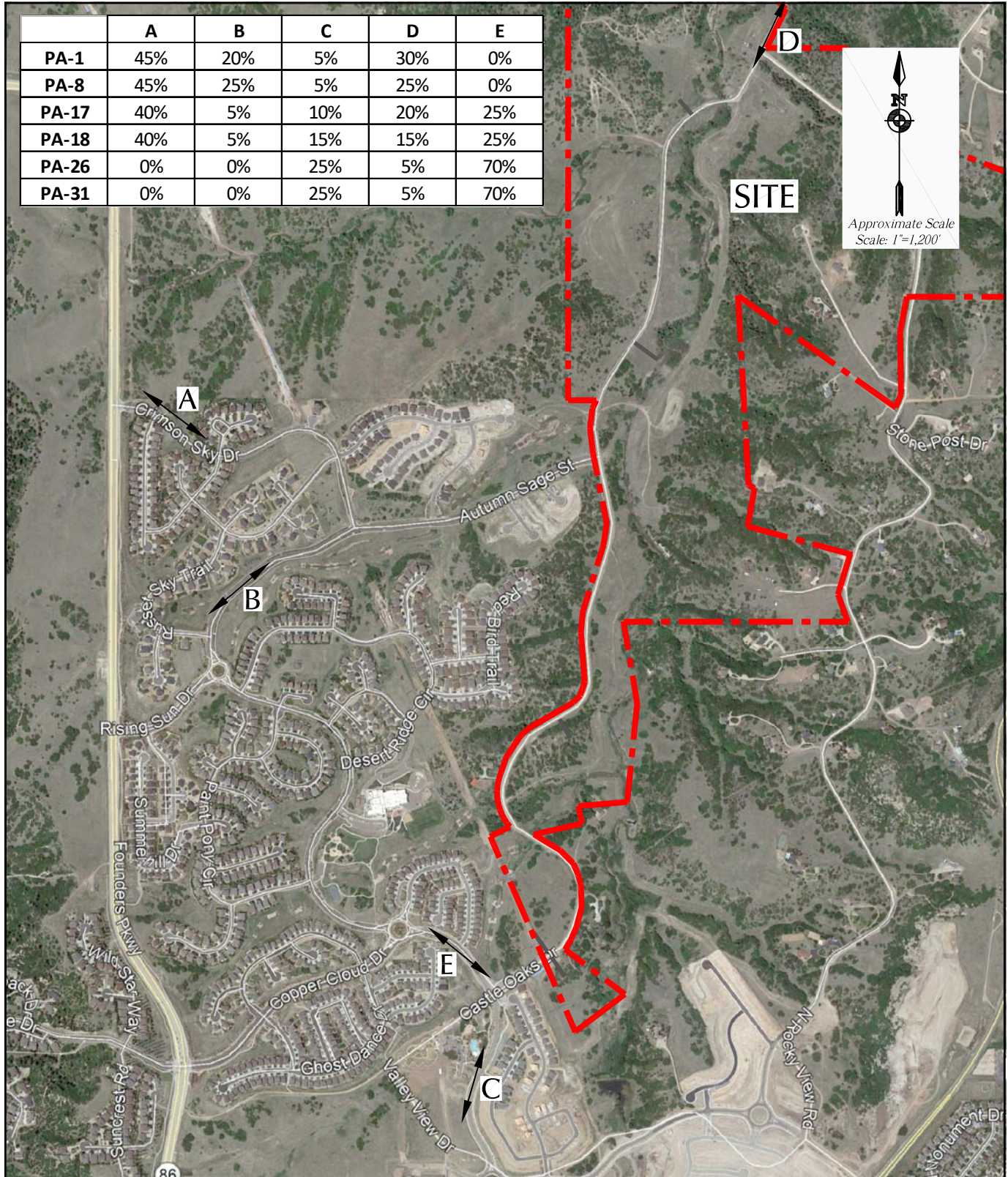
**LEGEND:**  
 † = Stop Sign  
 $\frac{26}{35}$  = AM Peak Hour Traffic / PM Peak Hour Traffic  
 1,000 = Average Daily Traffic

**Notes:**  
 1. Assumes two percent annual growth on Founders Parkway from 2024 to 2040 and one percent on all internal Terrain streets to maintain a conservative analysis.  
 2. Assumes partial development of the unincorporated property west of Founders Parkway.

Figure 5  
**Year 2040 Background Traffic,  
 Lane Geometry and Traffic Control**  
 Terrain North Basin (LSC #190430)



	A	B	C	D	E
PA-1	45%	20%	5%	30%	0%
PA-8	45%	25%	5%	25%	0%
PA-17	40%	5%	10%	20%	25%
PA-18	40%	5%	15%	15%	25%
PA-26	0%	0%	25%	5%	70%
PA-31	0%	0%	25%	5%	70%



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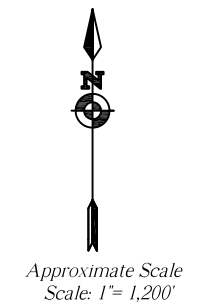
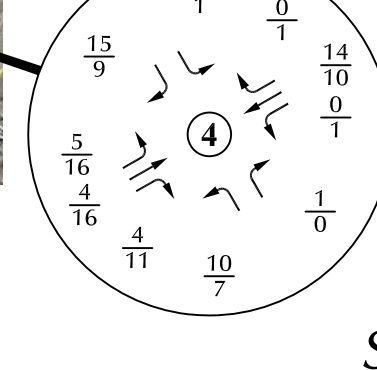
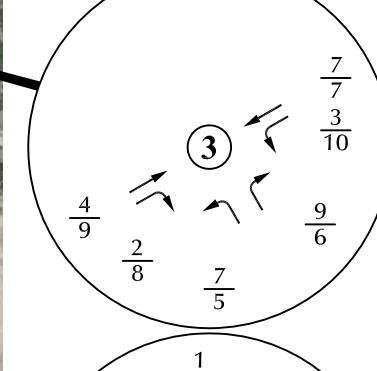
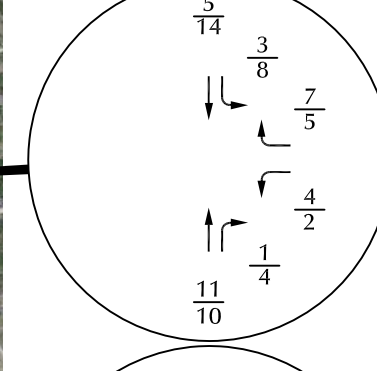
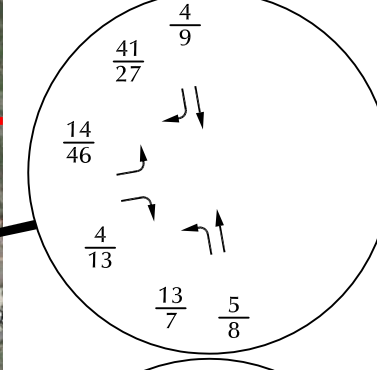
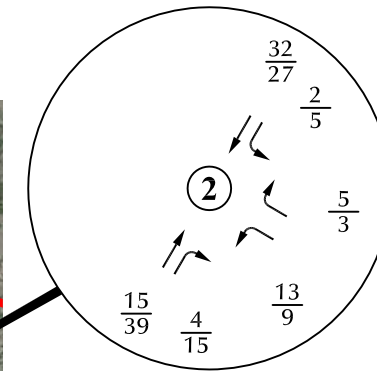
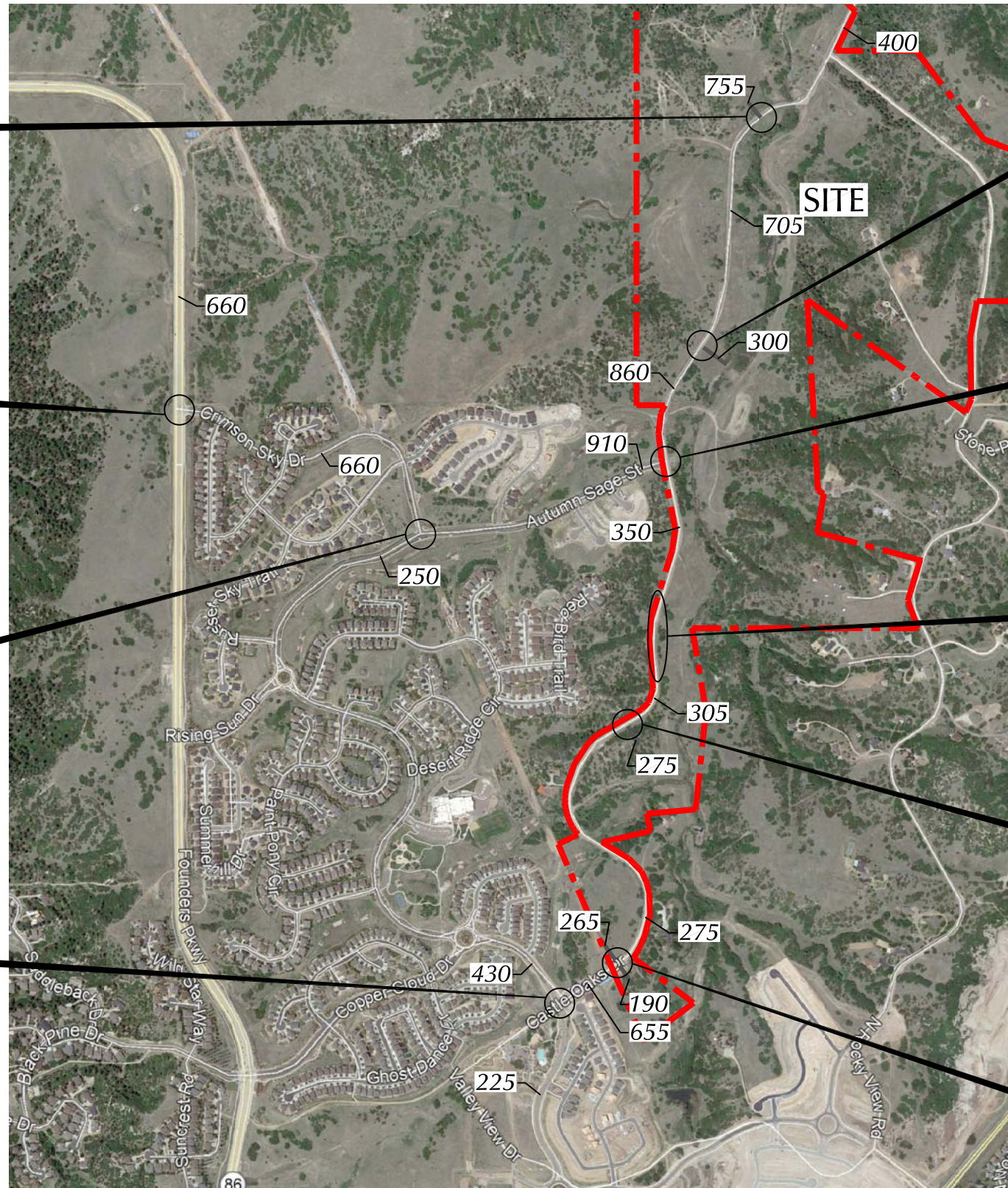
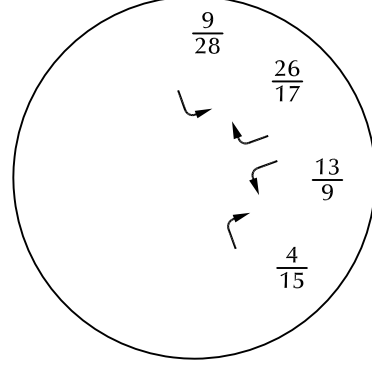
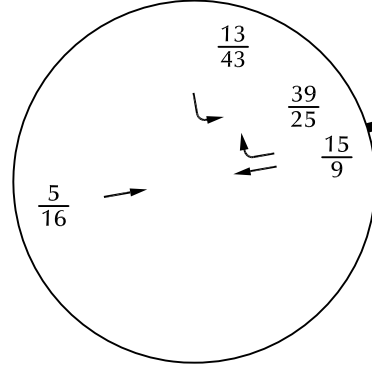
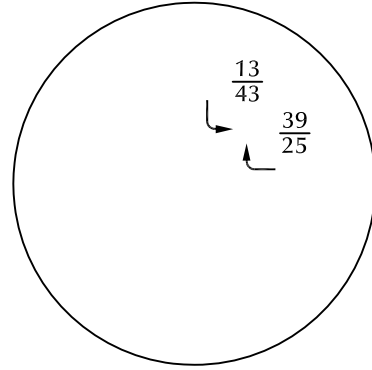
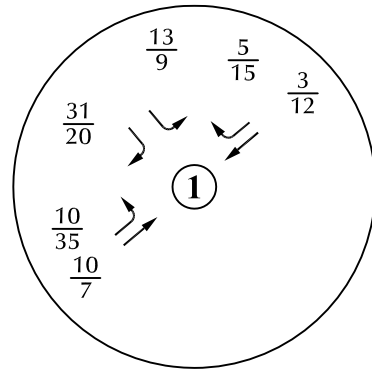
↔  
5% = Percent Directional Distribution

Figure 6

# Directional Distribution of Site-Generated Traffic

Terrain North Basin (LSC #190430)



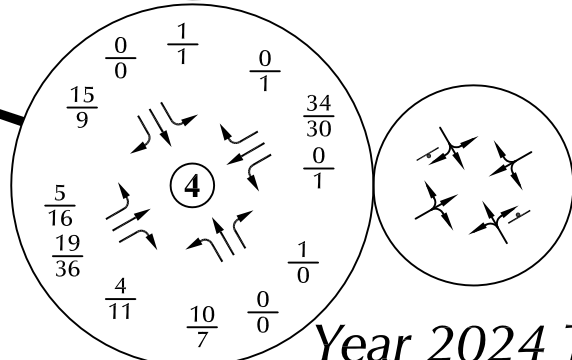
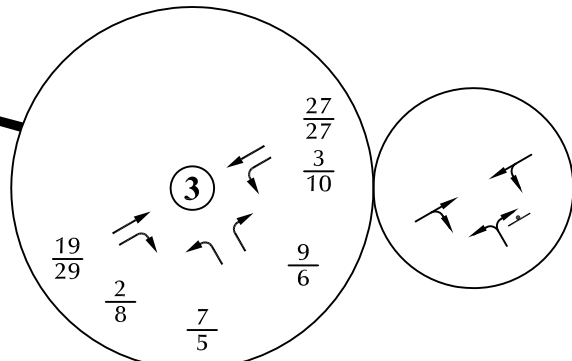
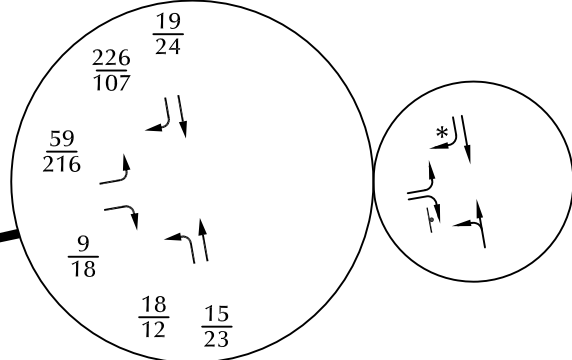
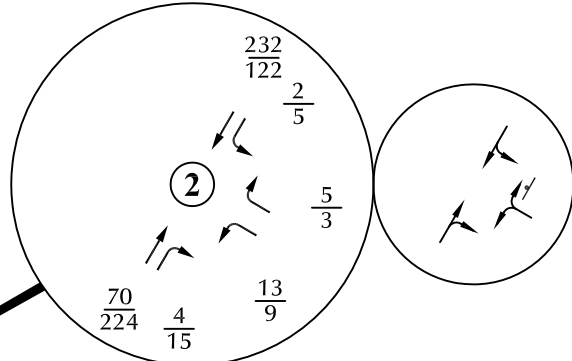
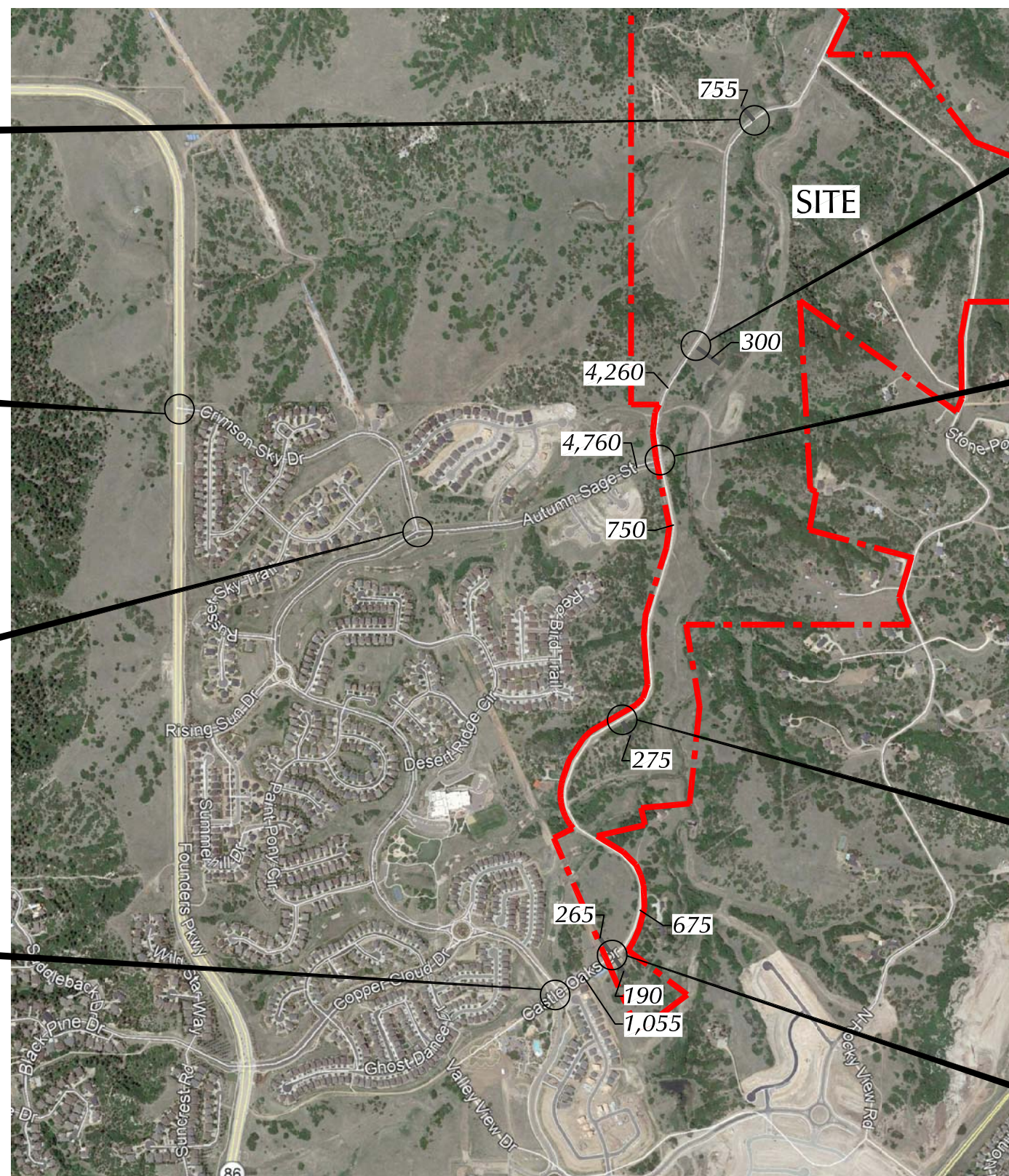
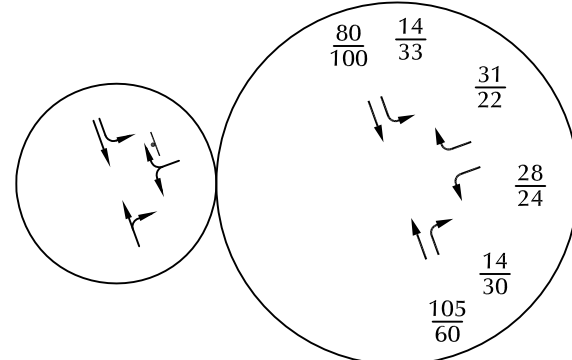
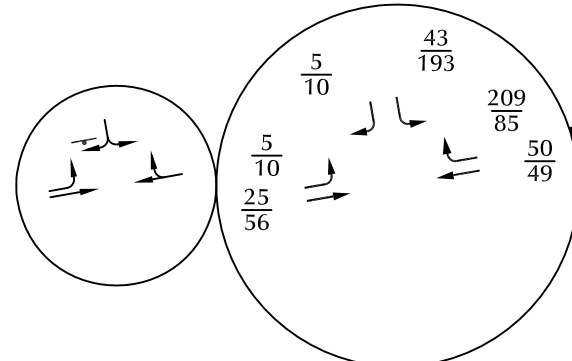
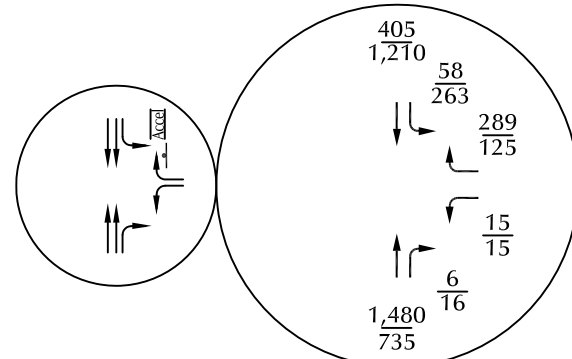
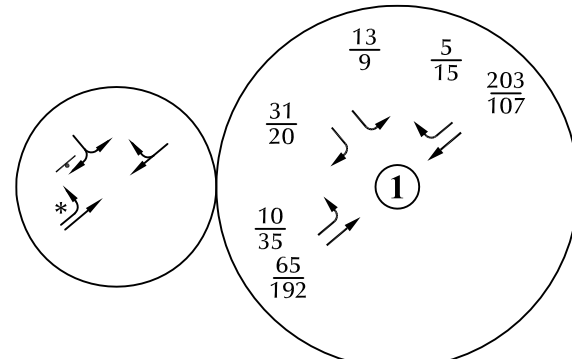


LEGEND:

- ① = Site Access Number
- $\frac{26}{35}$  = AM Peak Hour Traffic / PM Peak Hour Traffic
- 1,000 = Average Daily Traffic



Figure 7  
**Assignment of Site-Generated Traffic**  
 Terrain North Basin (LSC #190430)



Approximate Scale  
Scale: 1" = 1,200'

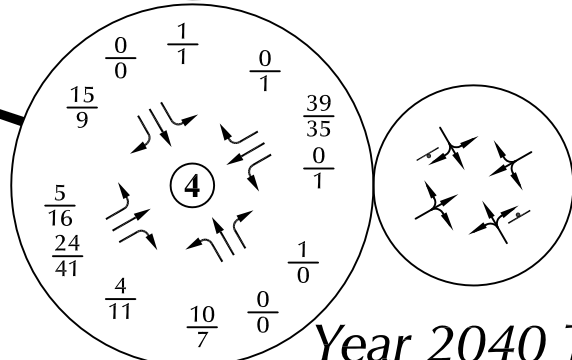
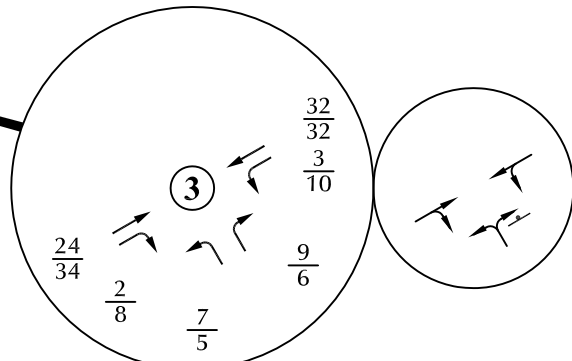
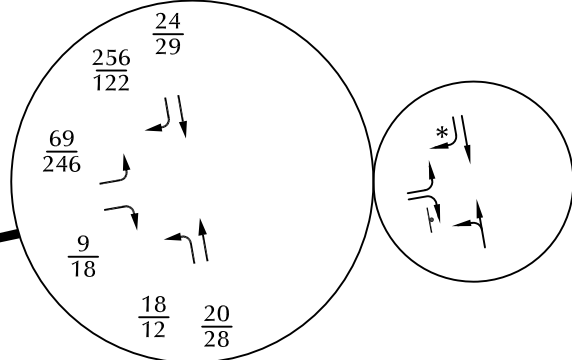
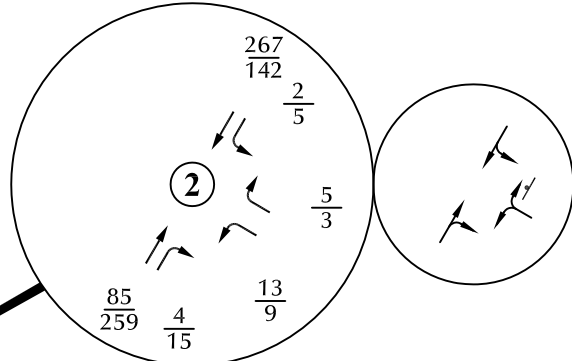
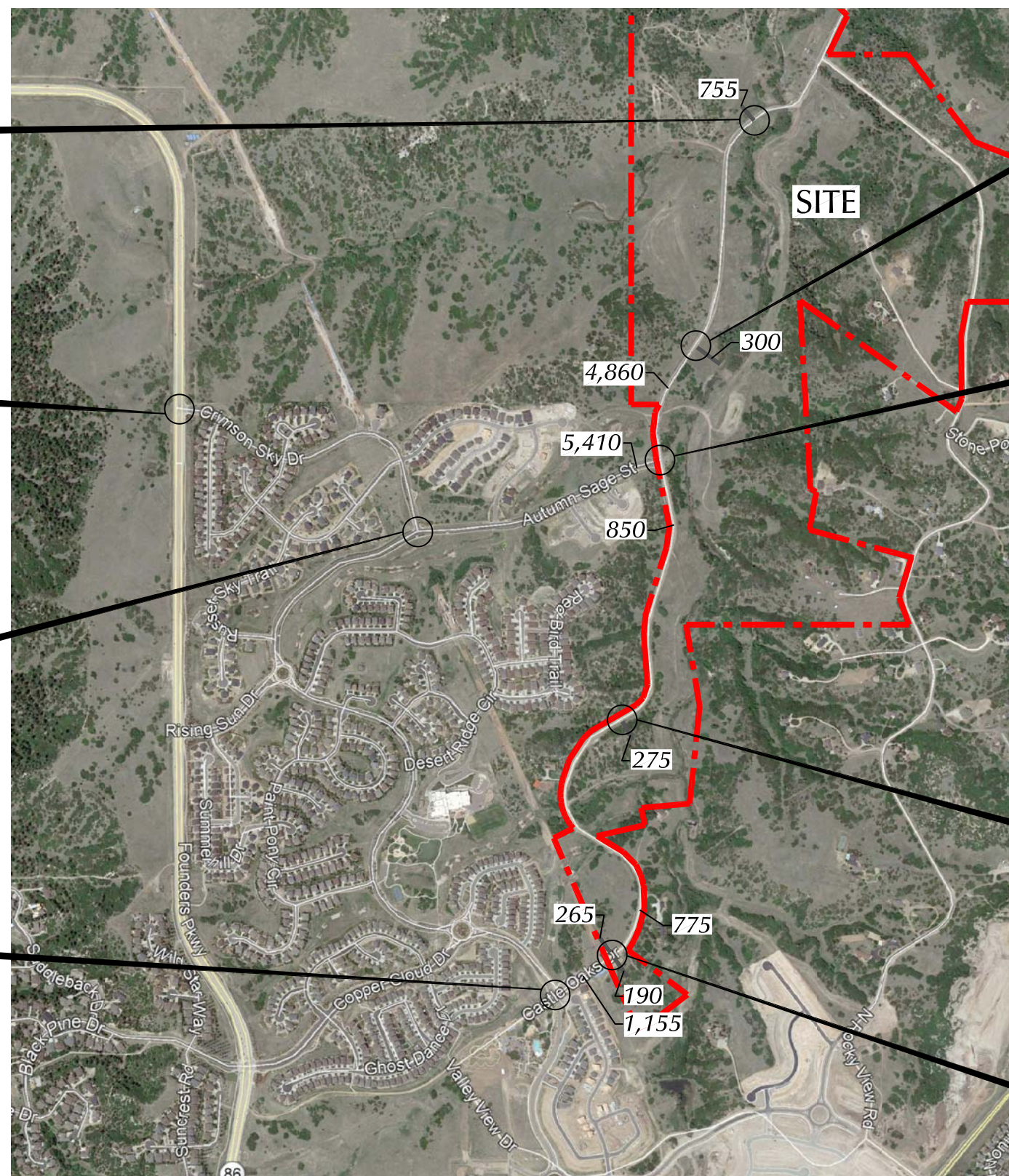
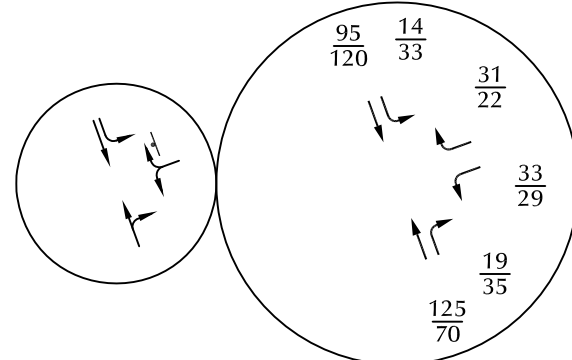
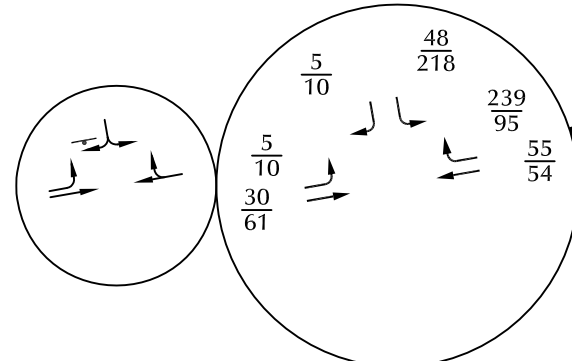
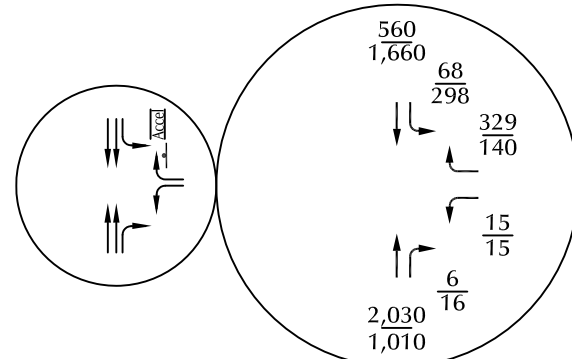
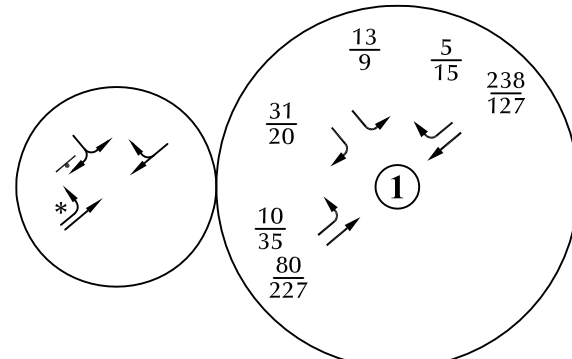
LEGEND:  
 (#) = Site Access Number  
 $\frac{26}{35}$  = AM Peak Hour Traffic / PM Peak Hour Traffic  
 1,000 = Average Daily Traffic

\* 275 feet + 160-foot transition taper



Figure 8  
**Year 2024 Total Traffic,  
 Lane Geometry and Traffic Control**  
 Terrain North Basin (LSC #190430)





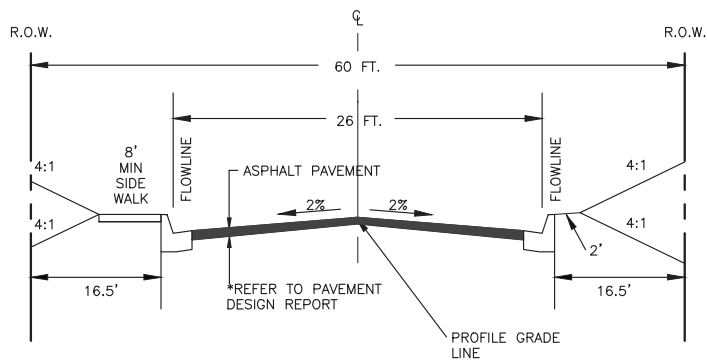
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Scale: 1" = 1,200'

LEGEND:  
 (#) = Site Access Number  
 $\frac{26}{35}$  = AM Peak Hour Traffic / PM Peak Hour Traffic  
 1,000 = Average Daily Traffic

\* 275 feet + 160-foot transition taper

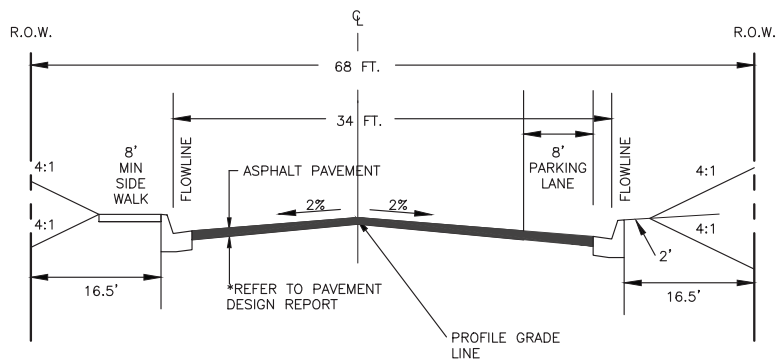


Figure 9  
**Year 2040 Total Traffic, Lane Geometry and Traffic Control**  
 Terrain North Basin (LSC #190430)



A

 CASTLE OAKS DRIVE (SOUTH) TYPICAL SECTION 60' ROW  
 N.T.S.
 
A



B

 CASTLE OAKS DRIVE (SOUTH) - 8 FT PARKING LANE  
 N.T.S.
 
B

Figure 10

## Proposed Cross Section (South)

Terrain North Basin (LSC #190430)



**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER.COLORADO  
303-333-7409

N/S STREET: CRIMSON SKY DR  
E/W STREET: AUTUMN SAGE ST  
CITY: CASTLE ROCK  
COUNTY: DOUGLAS

File Name : CRIMAUTU  
Site Code : 00000010  
Start Date : 5/1/2019  
Page No : 1

Groups Printed- VEHICLES

Start Time	CRIMSON SKY DR Southbound				AUTUMN SAGE ST Westbound				Northbound				AUTUMN SAGE ST Eastbound				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	5	0	0	0	0	3	25	0	0	0	0	0	0	0	0	0	33
06:45 AM	7	0	1	0	0	8	35	0	0	0	0	0	1	6	0	0	58
Total	12	0	1	0	0	11	60	0	0	0	0	0	1	6	0	0	91
07:00 AM	4	0	2	0	0	9	39	0	0	0	0	0	0	4	0	0	58
07:15 AM	5	0	0	0	0	8	48	0	0	0	0	0	1	4	0	0	66
07:30 AM	8	0	0	0	0	6	40	0	0	0	0	0	0	4	0	0	58
07:45 AM	5	0	3	0	0	15	42	0	0	0	0	0	0	6	0	0	71
Total	22	0	5	0	0	38	169	0	0	0	0	0	1	18	0	0	253
08:00 AM	21	0	1	0	0	9	31	0	0	0	0	0	0	9	0	0	71
08:15 AM	17	0	1	0	0	13	32	0	0	0	0	0	0	2	0	0	65
Total	38	0	2	0	0	22	63	0	0	0	0	0	0	11	0	0	136
04:00 PM	32	0	2	0	0	7	14	0	0	0	0	0	5	14	0	0	74
04:15 PM	36	0	1	0	0	9	19	0	0	0	0	0	5	14	0	0	84
04:30 PM	35	0	0	0	0	10	10	0	0	0	0	0	0	8	0	0	63
04:45 PM	33	0	0	0	0	6	20	0	0	0	0	0	1	7	0	0	67
Total	136	0	3	0	0	32	63	0	0	0	0	0	11	43	0	0	288
05:00 PM	26	0	2	0	0	8	9	0	0	0	0	0	1	9	0	0	55
05:15 PM	42	0	2	0	0	13	17	0	0	0	0	0	2	8	0	0	84
05:30 PM	41	0	3	0	0	8	11	0	0	0	0	0	3	11	0	0	77
05:45 PM	31	0	2	0	0	8	16	0	0	0	0	0	1	4	0	0	62
Total	140	0	9	0	0	37	53	0	0	0	0	0	7	32	0	0	278
Grand Total	348	0	20	0	0	140	408	0	0	0	0	0	20	110	0	0	1046
Apprch %	94.6	0.0	5.4	0.0	0.0	25.5	74.5	0.0	0.0	0.0	0.0	0.0	15.4	84.6	0.0	0.0	
Total %	33.3	0.0	1.9	0.0	0.0	13.4	39.0	0.0	0.0	0.0	0.0	0.0	1.9	10.5	0.0	0.0	

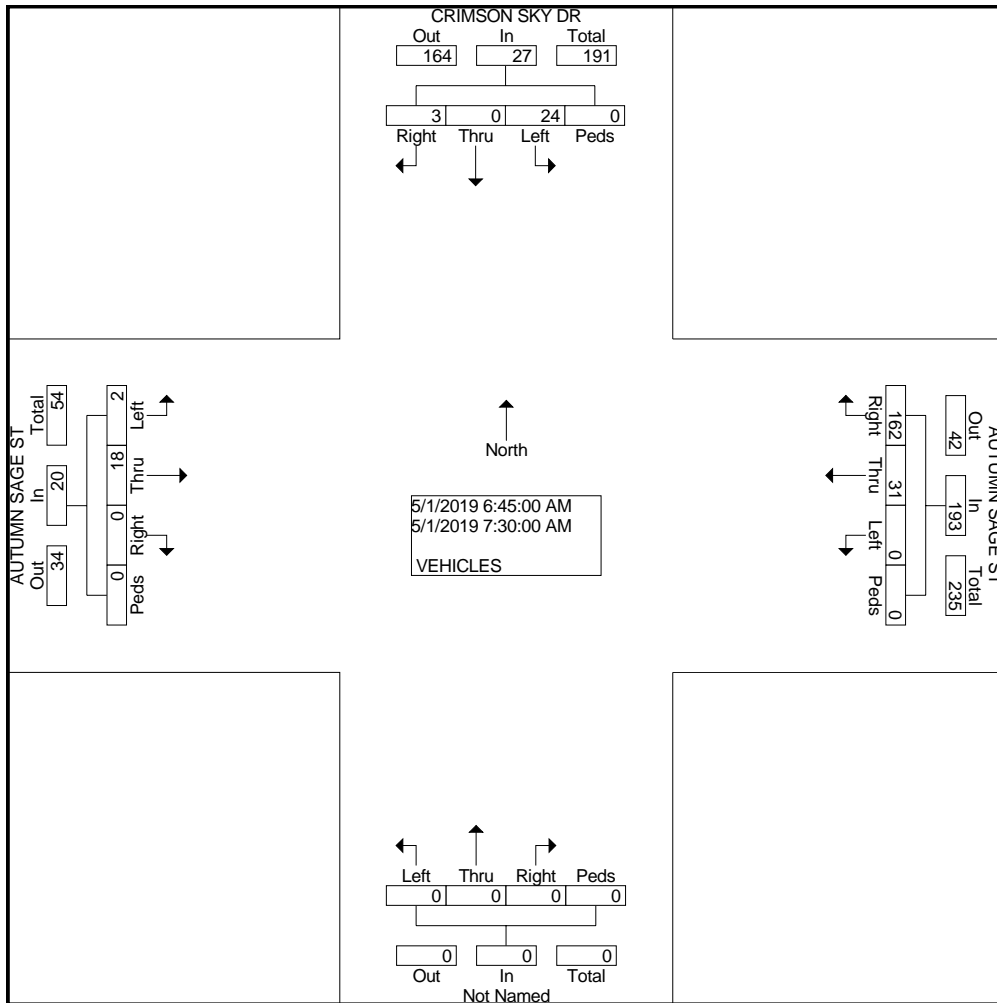
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: CRIMSON SKY DR  
E/W STREET: AUTUMN SAGE ST  
CITY: CASTLE ROCK  
COUNTY: DOUGLAS

File Name : CRIMAUTU  
Site Code : 0000010  
Start Date : 5/1/2019  
Page No : 2

Start Time	CRIMSON SKY DR Southbound					AUTUMN SAGE ST Westbound					Northbound					AUTUMN SAGE ST Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From 06:45 AM to 07:30 AM - Peak 1 of 1																					
Intersection	06:45 AM																				
Volume	24	0	3	0	27	0	31	162	0	193	0	0	0	0	0	2	18	0	0	20	240
Percent	88.9	0.0	11.1	0.0		0.0	16.1	83.9	0.0		0.0	0.0	0.0	0.0		10.0	90.0	0.0	0.0		
07:15 Peak Factor																					
High Int. Volume	5	0	0	0	5	0	8	48	0	56	0	0	0	0	0	1	4	0	0	5	66
Peak Factor																					
High Int. Volume	06:45 AM																				
Peak Factor	07:15 AM																				
High Int. Volume	7	0	1	0	8	0	8	48	0	56	0	0	0	0	0	1	6	0	0	7	7
Peak Factor	0.84																				
Peak Factor	4																				
Peak Factor	0.86																				
Peak Factor	2																				
Peak Factor	0.71																				
Peak Factor	4																				



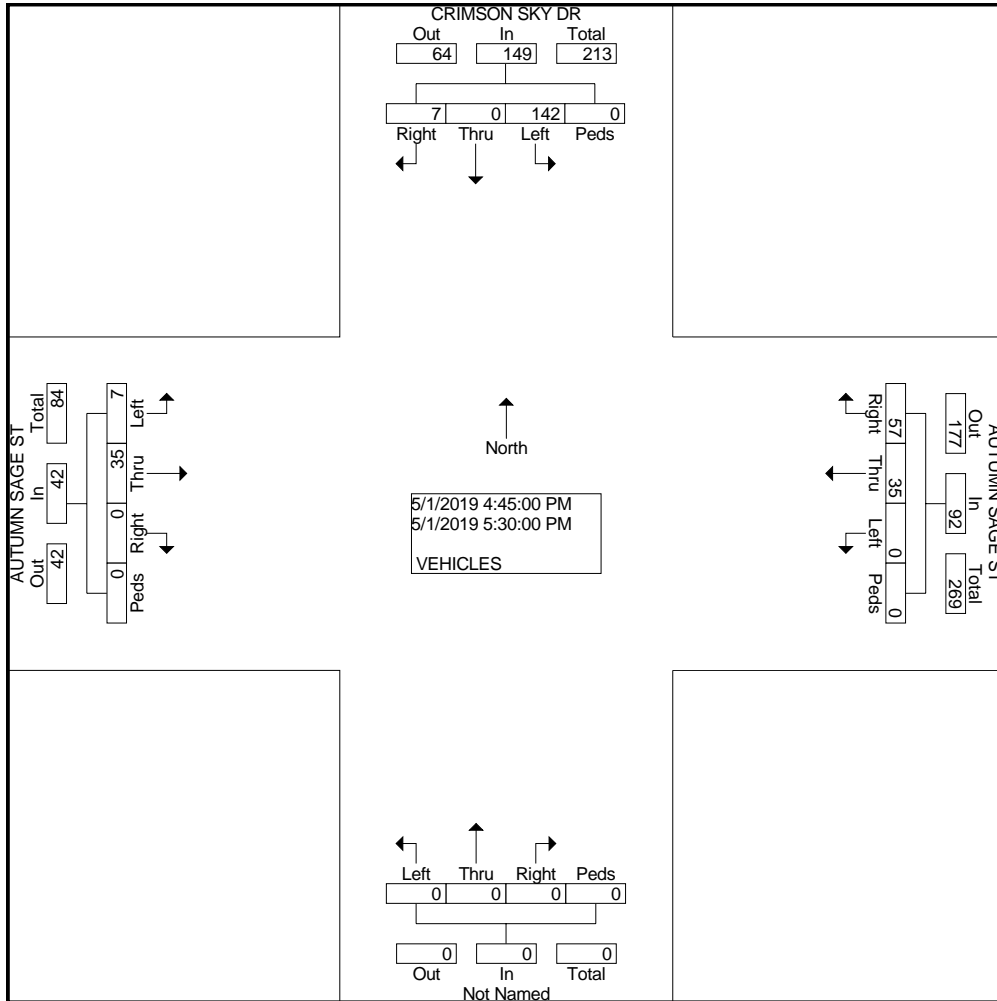
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1889 YORK STREET  
DENVER.COLORADO  
303-333-7409

N/S STREET: CRIMSON SKY DR  
E/W STREET: AUTUMN SAGE ST  
CITY: CASTLE ROCK  
COUNTY: DOUGLAS

File Name : CRIMAUTU  
Site Code : 0000010  
Start Date : 5/1/2019  
Page No : 2

Start Time	CRIMSON SKY DR Southbound					AUTUMN SAGE ST Westbound					Northbound					AUTUMN SAGE ST Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From 04:45 PM to 05:30 PM - Peak 1 of 1																					
Intersection	04:45 PM																				
Volume	142	0	7	0	149	0	35	57	0	92	0	0	0	0	0	7	35	0	0	42	283
Percent	95.3	0.0	4.7	0.0		0.0	38.0	62.0	0.0		0.0	0.0	0.0	0.0		16.7	83.3	0.0	0.0		
05:15 Peak Factor																					
High Int. Volume	42	0	2	0	44	0	13	17	0	30	0	0	0	0	0	2	8	0	0	10	84
Peak Factor																					
High Int. Volume	05:15 PM					05:15 PM					05:30 PM										
Peak Factor	42	0	2	0	44	0	13	17	0	30	0	0	0	0	0	3	11	0	0	14	0.842
Peak Factor	0.84					0.76										0.75					
Peak Factor	7					7										0					





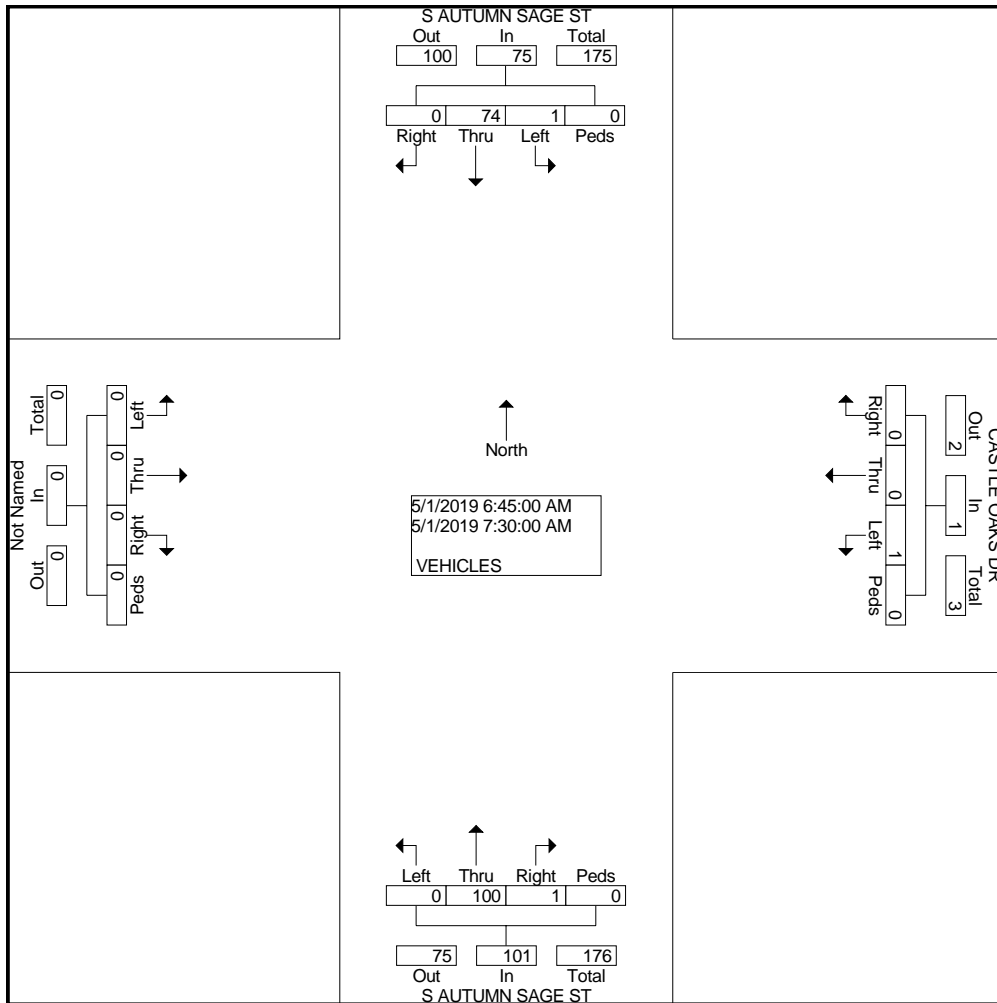
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER.COLORADO  
303-333-7409

N/S STREET: AUTUMN SAGE ST  
E/W STREET: CASTLE OAKS DR  
CITY: CASTLE ROCK  
COUNTY: DOUGLAS

File Name : AUTUCAST  
Site Code : 00000020  
Start Date : 5/1/2019  
Page No : 2

Start Time	S AUTUMN SAGE ST Southbound					CASTLE OAKS DR Westbound					S AUTUMN SAGE ST Northbound					Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From 06:45 AM to 07:30 AM - Peak 1 of 1																					
Intersection	06:45 AM																				
Volume	1	74	0	0	75	1	0	0	0	1	0	100	1	0	101	0	0	0	0	0	177
Percent	1.3	98.7	0.0	0.0		100.0	0.0	0.0	0.0		0.0	99.0	1.0	0.0		0.0	0.0	0.0	0.0		
07:00 Volume	0	28	0	0	28	1	0	0	0	1	0	29	0	0	29	0	0	0	0	0	58
Peak Factor																					
High Int. Volume	07:00 AM																				
Peak Factor	0	28	0	0	28	1	0	0	0	1	0	37	1	0	38	0	0	0	0	0	0.763
						07:00 AM					07:15 AM										
						0.67					0.25					0.66					
	0					0					4										



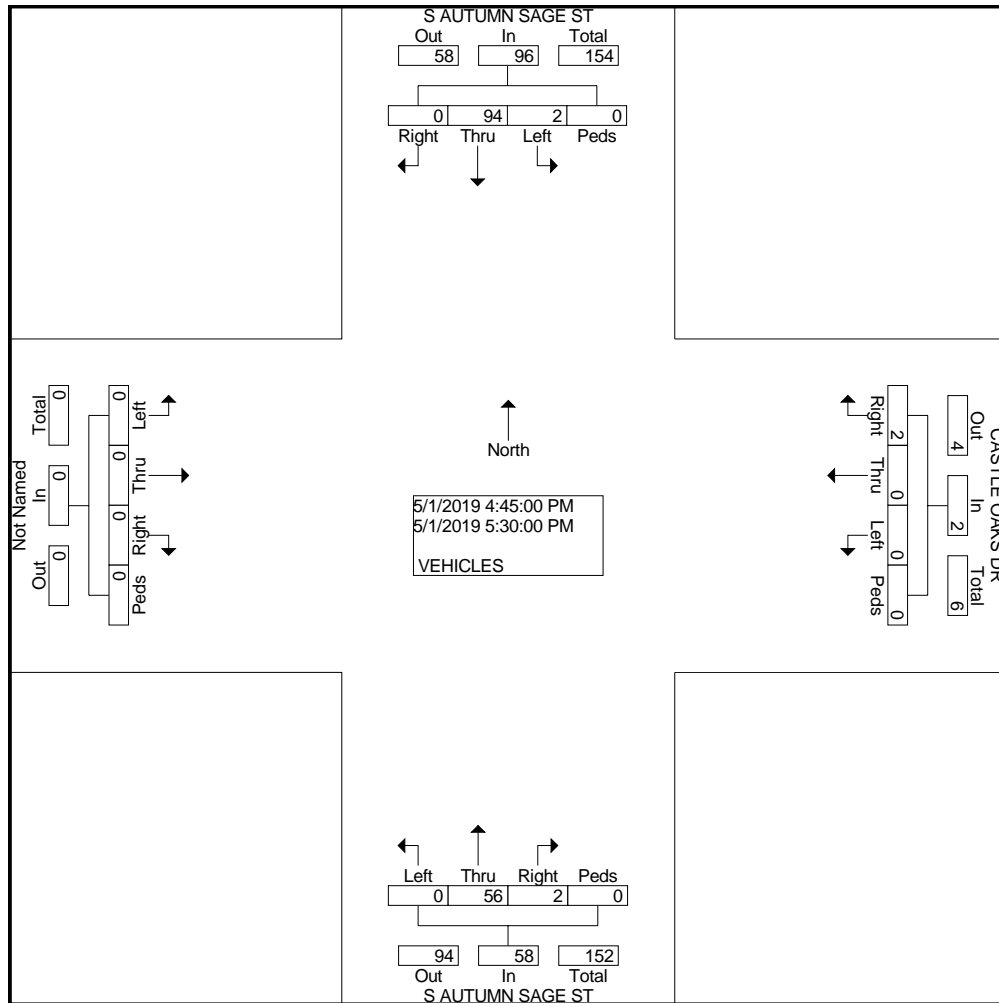
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: AUTUMN SAGE ST  
E/W STREET: CASTLE OAKS DR  
CITY: CASTLE ROCK  
COUNTY: DOUGLAS

File Name : AUTUCAST  
Site Code : 00000020  
Start Date : 5/1/2019  
Page No : 2

Start Time	S AUTUMN SAGE ST Southbound					CASTLE OAKS DR Westbound					S AUTUMN SAGE ST Northbound					Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From 04:45 PM to 05:30 PM - Peak 1 of 1																					
Intersection	04:45 PM																				
Volume	2	94	0	0	96	0	0	2	0	2	0	56	2	0	58	0	0	0	0	0	156
Percent	2.1	97.9	0.0	0.0		0.0	0.0	100.0	0.0		0.0	96.6	3.4	0.0		0.0	0.0	0.0	0.0		
05:30 Volume	0	29	0	0	29	0	0	0	0	0	0	14	0	0	14	0	0	0	0	0	43
Peak Factor	0.907																				
High Int. Volume	05:30 PM																				
Peak Factor	0	29	0	0	29	0	0	2	0	2	0	16	0	0	16	0	0	0	0	0	0
	0.828										0.250					0.906					





**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER.COLORADO  
303-333-7409

N/S STREET: CASTLE OAKS DR  
E/W STREET: AUTUMN SAGE ST  
CITY: CASTLE ROCK  
COUNTY: DOUGLAS

File Name : CASTAUTU  
Site Code : 00000014  
Start Date : 5/1/2019  
Page No : 1

Groups Printed- VEHICLES

Start Time	CASTLE OAKS DR Southbound				Westbound				CASTLE OAKS DR Northbound				AUTUMN SAGE ST Eastbound				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	0	27	0	0	0	0	0	0	0	0	0	5	0	0	0	32
06:45 AM	0	0	38	0	0	0	0	0	0	0	0	0	12	0	0	0	50
Total	0	0	65	0	0	0	0	0	0	0	0	0	17	0	0	0	82
07:00 AM	0	0	44	0	0	0	0	0	0	0	0	0	8	0	0	0	52
07:15 AM	0	0	51	0	0	0	0	0	0	0	0	0	8	0	0	0	59
07:30 AM	0	0	53	0	0	0	0	0	1	1	0	0	13	0	0	0	68
07:45 AM	0	1	48	0	0	0	0	0	0	1	0	0	7	0	1	0	58
Total	0	1	196	0	0	0	0	0	1	2	0	0	36	0	1	0	237
08:00 AM	0	0	41	0	0	0	0	0	0	1	0	0	23	0	0	0	65
08:15 AM	0	1	45	0	0	0	0	0	0	2	0	0	12	0	0	0	60
Total	0	1	86	0	0	0	0	0	0	3	0	0	35	0	0	0	125
04:00 PM	0	0	12	0	0	0	0	0	0	0	0	0	39	0	0	0	51
04:15 PM	0	0	25	0	0	0	0	0	0	1	0	0	43	0	0	0	69
04:30 PM	0	1	18	0	0	0	0	0	0	2	0	0	42	0	0	0	63
04:45 PM	0	1	24	0	0	0	0	0	1	2	0	0	38	0	0	0	66
Total	0	2	79	0	0	0	0	0	1	5	0	0	162	0	0	0	249
05:00 PM	0	0	14	1	0	0	0	0	0	0	0	0	32	0	0	0	47
05:15 PM	0	0	26	0	0	0	0	0	0	2	0	0	48	0	0	0	76
05:30 PM	0	0	13	0	0	0	0	0	0	0	0	0	48	0	0	0	61
05:45 PM	0	2	19	0	0	0	0	0	1	0	0	0	36	0	1	0	59
Total	0	2	72	1	0	0	0	0	1	2	0	0	164	0	1	0	243
Grand Total	0	6	498	1	0	0	0	0	3	12	0	0	414	0	2	0	936
Apprch %	0.0	1.2	98.6	0.2	0.0	0.0	0.0	0.0	20.0	80.0	0.0	0.0	99.5	0.0	0.5	0.0	
Total %	0.0	0.6	53.2	0.1	0.0	0.0	0.0	0.0	0.3	1.3	0.0	0.0	44.2	0.0	0.2	0.0	

**COUNTER MEASURES INC.**

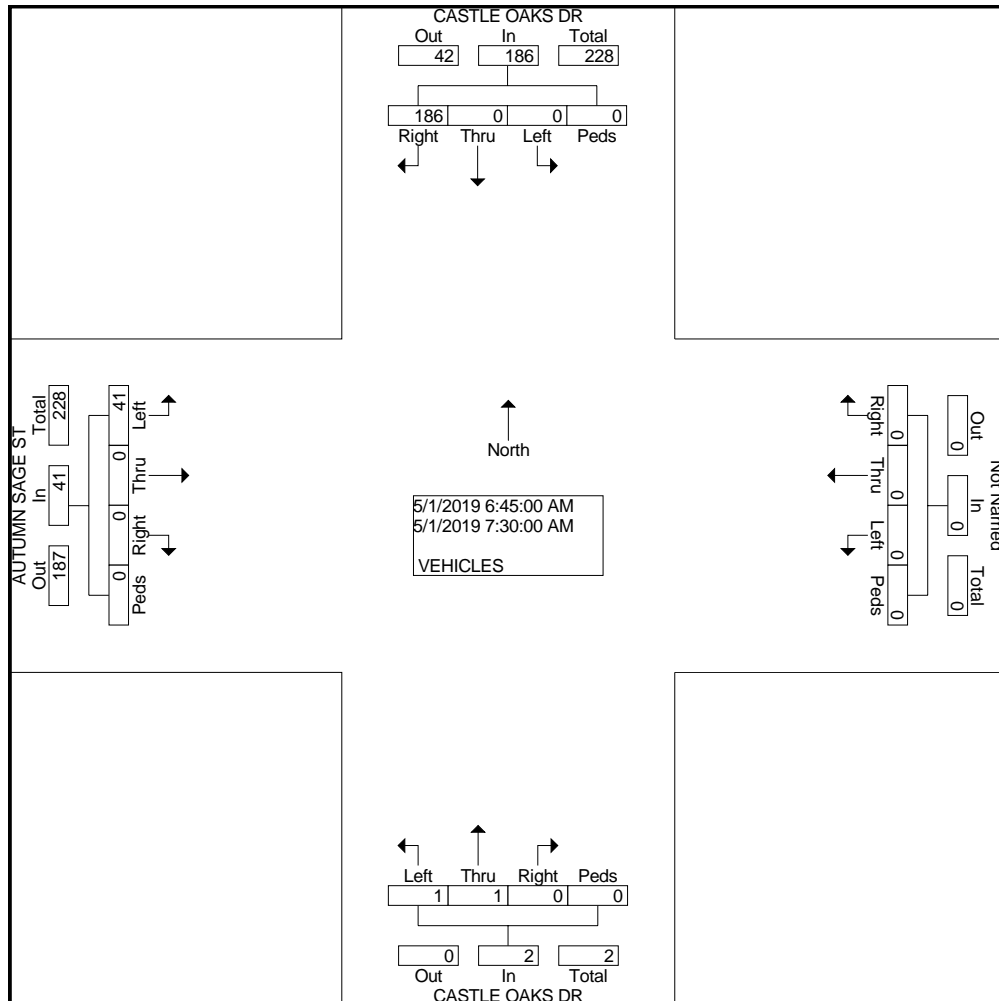
1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: CASTLE OAKS DR  
E/W STREET: AUTUMN SAGE ST  
CITY: CASTLE ROCK  
COUNTY: DOUGLAS

File Name : CASTAUTU  
Site Code : 00000014  
Start Date : 5/1/2019  
Page No : 2

Start Time	CASTLE OAKS DR Southbound					Westbound					CASTLE OAKS DR Northbound					AUTUMN SAGE ST Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
06:45 AM	0	0	186	0	186	0	0	0	0	0	1	1	0	0	2	41	0	0	0	41	229
Percent	0.0	0.0	100.0	0.0		0.0	0.0	0.0	0.0		50.0	50.0	0.0	0.0		100.0	0.0	0.0	0.0		
07:30 AM	0	0	53	0	53	0	0	0	0	0	1	1	0	0	2	13	0	0	0	13	68
High Int. Factor	0.877										0.250										0.842

Peak Hour From 06:45 AM to 07:30 AM - Peak 1 of 1



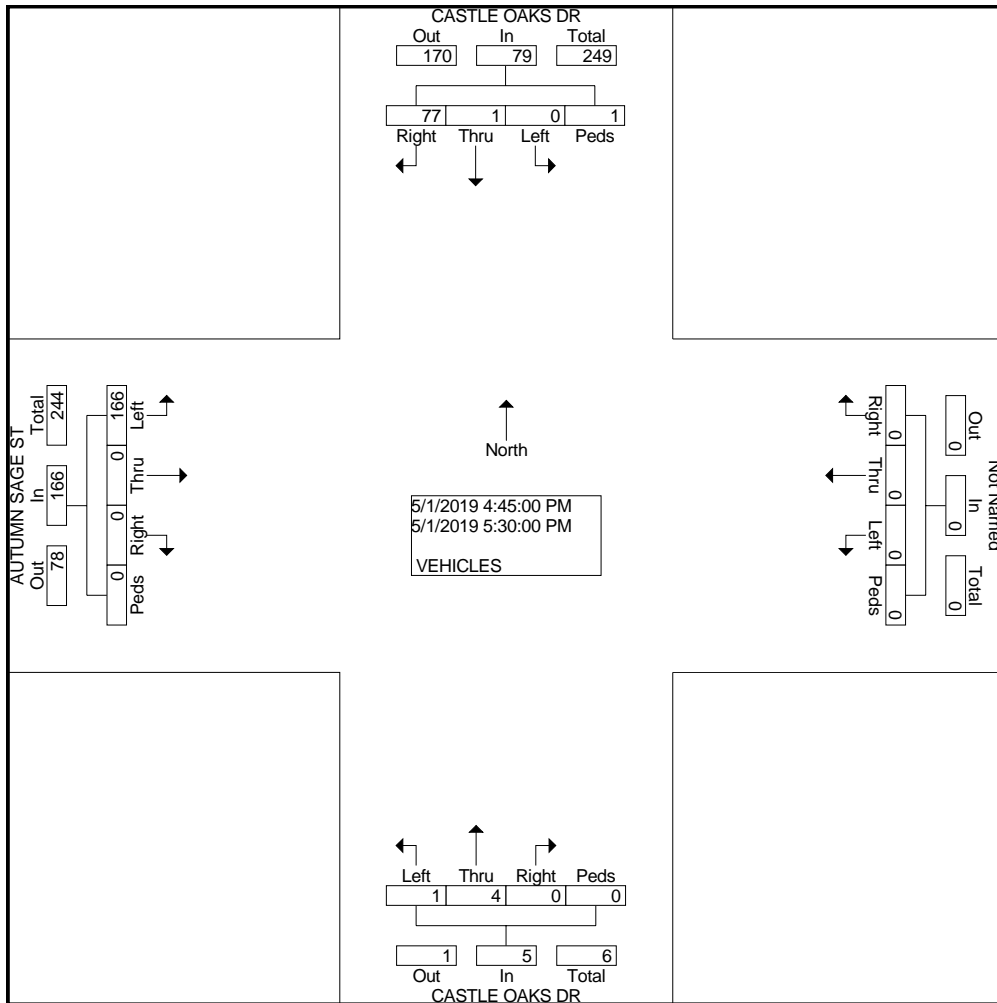
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: CASTLE OAKS DR  
E/W STREET: AUTUMN SAGE ST  
CITY: CASTLE ROCK  
COUNTY: DOUGLAS

File Name : CASTAUTU  
Site Code : 00000014  
Start Date : 5/1/2019  
Page No : 2

Start Time	CASTLE OAKS DR Southbound					Westbound					CASTLE OAKS DR Northbound					AUTUMN SAGE ST Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour	From 04:45 PM to 05:30 PM - Peak 1 of 1																				
Intersection	04:45 PM																				
Volume	0	1	77	1	79	0	0	0	0	0	1	4	0	0	5	166	0	0	0	166	250
Percent	0.0	1.3	97.5	1.3		0.0	0.0	0.0	0.0		20.0	80.0	0.0	0.0		100.0	0.0	0.0	0.0		
05:15 Peak Factor																					
High Int. Volume	0	0	26	0	26	0	0	0	0	0	0	2	0	0	2	48	0	0	0	48	76
Peak Factor	0.76										0.41					0.86					0.822
High Int. Volume	05:15 PM																				
Peak Factor	0										7					5					



**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER.COLORADO  
303-333-7409

N/S STREET: FOUNDERS PKWY  
E/W STREET: CRIMSON SKY DR  
CITY: CASTLE ROCK  
COUNTY: DOUGLAS

File Name : FOUNCRIMS  
Site Code : 0000016  
Start Date : 5/1/2019  
Page No : 1

Groups Printed- VEHICLES

Start Time	FOUNDERS PKWY Southbound				CRIMSON DR Westbound				FOUNDERS PKWY Northbound				Eastbound				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	6	59	0	0	0	0	38	0	0	316	0	0	0	0	0	0	419
06:45 AM	7	104	0	0	4	0	55	0	0	325	2	0	0	0	0	0	497
Total	13	163	0	0	4	0	93	0	0	641	2	0	0	0	0	0	916
07:00 AM	7	88	0	0	4	0	58	0	0	355	0	0	0	0	0	0	512
07:15 AM	7	97	0	0	3	0	62	0	0	348	1	0	0	0	0	0	518
07:30 AM	15	78	0	0	4	0	63	6	0	312	3	0	0	0	0	0	481
07:45 AM	11	105	0	0	1	0	52	0	0	310	0	0	0	0	0	0	479
Total	40	368	0	0	12	0	235	6	0	1325	4	0	0	0	0	0	1990
08:00 AM	19	77	0	0	2	0	50	0	0	360	1	0	0	0	0	0	509
08:15 AM	24	82	0	0	0	0	32	0	0	304	3	0	0	0	0	0	445
Total	43	159	0	0	2	0	82	0	0	664	4	0	0	0	0	0	954
04:00 PM	47	257	0	0	5	0	23	0	0	244	2	0	0	0	0	0	578
04:15 PM	37	209	0	0	1	0	29	0	0	198	2	0	0	0	0	0	476
04:30 PM	41	257	0	0	2	0	12	0	0	180	8	0	0	0	0	0	500
04:45 PM	41	278	0	0	2	0	35	4	0	166	4	0	0	0	0	0	530
Total	166	1001	0	0	10	0	99	4	0	788	16	0	0	0	0	0	2084
05:00 PM	47	280	0	0	3	0	22	0	0	190	2	0	0	0	0	0	544
05:15 PM	58	276	0	0	4	0	20	0	0	153	7	0	0	0	0	0	518
05:30 PM	62	261	0	0	5	0	17	0	0	154	3	0	0	0	0	0	502
05:45 PM	43	277	0	0	1	0	17	0	0	144	2	0	0	0	0	0	484
Total	210	1094	0	0	13	0	76	0	0	641	14	0	0	0	0	0	2048
Grand Total	472	2785	0	0	41	0	585	10	0	4059	40	0	0	0	0	0	7992
Apprch %	14.5	85.5	0.0	0.0	6.4	0.0	92.0	1.6	0.0	99.0	1.0	0.0	0.0	0.0	0.0	0.0	
Total %	5.9	34.8	0.0	0.0	0.5	0.0	7.3	0.1	0.0	50.8	0.5	0.0	0.0	0.0	0.0	0.0	

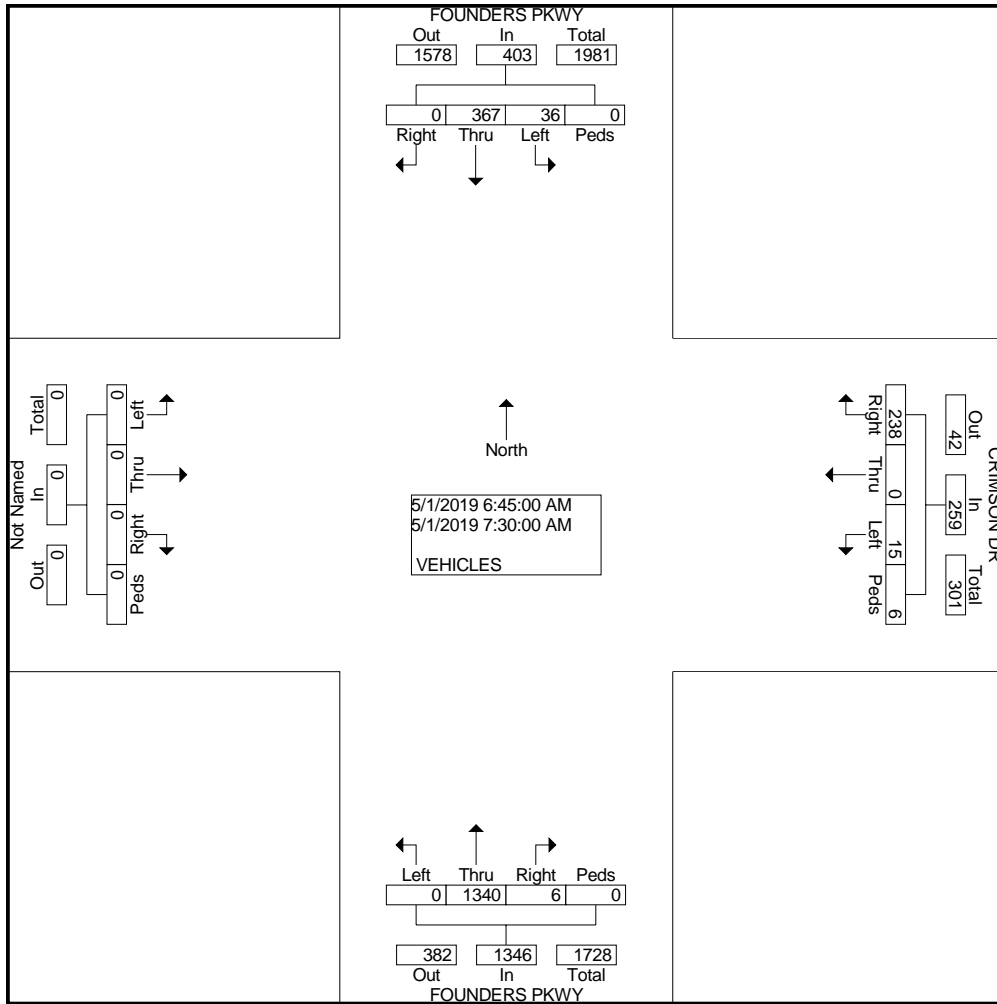
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER.COLORADO  
303-333-7409

N/S STREET: FOUNDERS PKWY  
E/W STREET: CRIMSON SKY DR  
CITY: CASTLE ROCK  
COUNTY: DOUGLAS

File Name : FOUNCRIMS  
Site Code : 0000016  
Start Date : 5/1/2019  
Page No : 2

Start Time	FOUNDERS PKWY Southbound					CRIMSON DR Westbound					FOUNDERS PKWY Northbound					Eastbound					Int. Total
	Left	Thru	Rig ht	Ped s	App. Total	Left	Thru	Rig ht	Ped s	App. Total	Left	Thru	Rig ht	Ped s	App. Total	Left	Thru	Rig ht	Ped s	App. Total	
Peak Hour From 06:45 AM to 07:30 AM - Peak 1 of 1																					
Intersecti on	06:45 AM																				
Volume	36	367	0	0	403	15	0	238	6	259	0	134	6	0	1346	0	0	0	0	0	2008
Percent	8.9	91.1	0.0	0.0		5.8	0.0	91.9	2.3		0.0	99.6	0.4	0.0		0.0	0.0	0.0	0.0		
07:15 Volume Peak	7	97	0	0	104	3	0	62	0	65	0	348	1	0	349	0	0	0	0	0	518
Factor	0.969																				
High Int. Volume Peak	06:45 AM					07:30 AM					07:00 AM										
Factor	7	104	0	0	111	4	0	63	6	73	0	355	0	0	355						
	0.90					0.88					0.94					8					
	8					7					8										



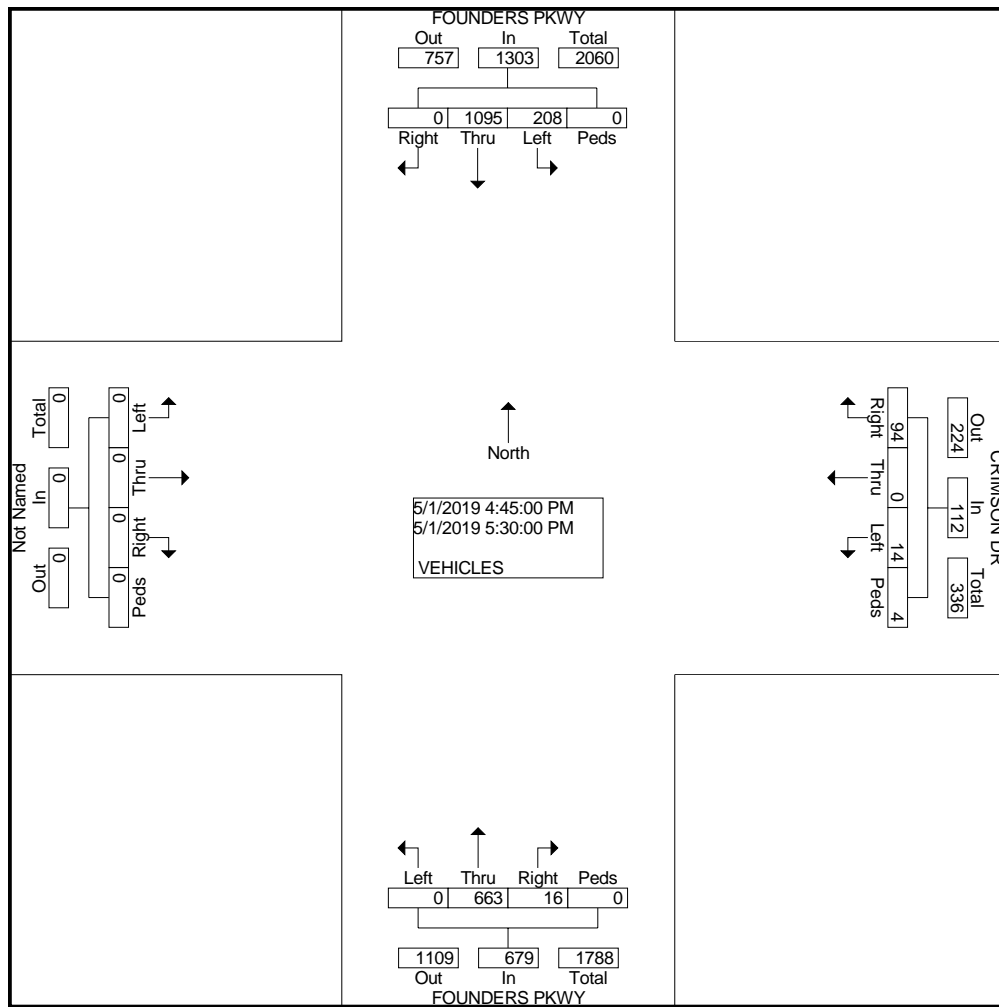
### COUNTER MEASURES INC.

1889 YORK STREET  
DENVER.COLORADO  
303-333-7409

N/S STREET: FOUNDERS PKWY  
E/W STREET: CRIMSON SKY DR  
CITY: CASTLE ROCK  
COUNTY: DOUGLAS

File Name : FOUNCRIMS  
Site Code : 0000016  
Start Date : 5/1/2019  
Page No : 2

Start Time	FOUNDERS PKWY Southbound					CRIMSON DR Westbound					FOUNDERS PKWY Northbound					Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From 04:45 PM to 05:30 PM - Peak 1 of 1																					
Intersection	04:45 PM																				
Volume	208	1095	0	0	1303	14	0	94	4	112	0	663	16	0	679	0	0	0	0	0	2094
Percent	16.0	84.0	0.0	0.0		12.5	0.0	83.9	3.6		0.0	97.6	2.4	0.0		0.0	0.0	0.0	0.0		
05:00 Volume	47	280	0	0	327	3	0	22	0	25	0	190	2	0	192	0	0	0	0	0	544
Peak Factor																					
High Int. Volume	05:15 PM					04:45 PM					05:00 PM										
Peak Factor	58	276	0	0	334	2	0	35	4	41	0	190	2	0	192						0.962
Factor	0.975					0.683					0.884										



**COUNTER MEASURES INC.**  
**1889 YORK STREET**  
**DENVER, COLORADO 80206**  
**303-333-7409**

Location: CASTLE OAKS DR N/O AUTUMN SAGE ST  
 City: CASTLE ROCK  
 County: DOUGLAS  
 Direction: NORTHBOUND-SOUTHBOUND

Site Code: 190114  
 Station ID: 190114

Start Time	29-Apr-19		Tue		Wed		Thu		Fri		Weekday Average		Sat		Sun	
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	*	*	*	*	*	*	4	1	*	*	4	1	*	*	*	*
01:00	*	*	*	*	*	*	2	0	*	*	2	0	*	*	*	*
02:00	*	*	*	*	*	*	1	2	*	*	1	2	*	*	*	*
03:00	*	*	*	*	*	*	1	2	*	*	1	2	*	*	*	*
04:00	*	*	*	*	*	*	2	13	*	*	2	13	*	*	*	*
05:00	*	*	*	*	*	*	4	65	*	*	4	65	*	*	*	*
06:00	*	*	*	*	*	*	22	130	*	*	22	130	*	*	*	*
07:00	*	*	*	*	*	*	61	191	*	*	61	191	*	*	*	*
08:00	*	*	*	*	*	*	60	159	*	*	60	159	*	*	*	*
09:00	*	*	*	*	*	*	70	104	*	*	70	104	*	*	*	*
10:00	*	*	*	*	*	*	80	102	*	*	80	102	*	*	*	*
11:00	*	*	*	*	*	*	79	95	*	*	79	95	*	*	*	*
12:00 PM	*	*	*	*	*	*	92	85	*	*	92	85	*	*	*	*
01:00	*	*	*	*	*	*	98	84	*	*	98	84	*	*	*	*
02:00	*	*	*	*	*	*	85	80	*	*	85	80	*	*	*	*
03:00	*	*	*	*	*	*	145	99	*	*	145	99	*	*	*	*
04:00	*	*	*	*	*	*	180	110	*	*	180	110	*	*	*	*
05:00	*	*	*	*	*	*	185	121	*	*	185	121	*	*	*	*
06:00	*	*	*	*	*	*	147	83	*	*	147	83	*	*	*	*
07:00	*	*	*	*	*	*	105	53	*	*	105	53	*	*	*	*
08:00	*	*	*	*	*	*	83	26	*	*	83	26	*	*	*	*
09:00	*	*	*	*	*	*	63	13	*	*	63	13	*	*	*	*
10:00	*	*	*	*	*	*	25	6	*	*	25	6	*	*	*	*
11:00	*	*	*	*	*	*	12	1	*	*	12	1	*	*	*	*
Total Day	0	0	0	0	0	0	1606	1625	0	0	1606	1625	0	0	0	0
AM Peak Vol.	-	-	-	-	-	-	10:00	07:00	-	-	10:00	07:00	-	-	-	-
PM Peak Vol.	-	-	-	-	-	-	17:00	17:00	-	-	17:00	17:00	-	-	-	-
ADT	ADT 3,231		AADT 3,231													

Comb. Total            0                            0                            0                            3231                            0                            3231                            0                            0

ADT                      ADT 3,231                      AADT 3,231

**COUNTER MEASURES INC.**  
**1889 YORK STREET**  
**DENVER, COLORADO 80206**  
**303-333-7409**

Location: AUTUMN SAGE ST W/O CASTLEOAKS DR  
 City: CASTLE ROCK  
 County: DOUGLAS  
 Direction: EASTBOUND-WESTBOUND

Site Code: 190120  
 Station ID: 190120

Start Time	29-Apr-19		Tue		Wed		Thu		Fri		Weekday Average		Sat		Sun	
	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
12:00 AM	*	*	*	*	*	*	3	2	*	*	3	2	*	*	*	*
01:00	*	*	*	*	*	*	0	2	*	*	0	2	*	*	*	*
02:00	*	*	*	*	*	*	2	2	*	*	2	2	*	*	*	*
03:00	*	*	*	*	*	*	1	2	*	*	1	2	*	*	*	*
04:00	*	*	*	*	*	*	1	15	*	*	1	15	*	*	*	*
05:00	*	*	*	*	*	*	2	69	*	*	2	69	*	*	*	*
06:00	*	*	*	*	*	*	12	146	*	*	12	146	*	*	*	*
07:00	*	*	*	*	*	*	19	296	*	*	19	296	*	*	*	*
08:00	*	*	*	*	*	*	9	323	*	*	9	323	*	*	*	*
09:00	*	*	*	*	*	*	14	208	*	*	14	208	*	*	*	*
10:00	*	*	*	*	*	*	23	208	*	*	23	208	*	*	*	*
11:00	*	*	*	*	*	*	94	89	*	*	94	89	*	*	*	*
12:00 PM	*	*	*	*	*	*	132	65	*	*	132	65	*	*	*	*
01:00	*	*	*	*	*	*	140	52	*	*	140	52	*	*	*	*
02:00	*	*	*	*	*	*	127	50	*	*	127	50	*	*	*	*
03:00	*	*	*	*	*	*	179	77	*	*	179	77	*	*	*	*
04:00	*	*	*	*	*	*	220	76	*	*	220	76	*	*	*	*
05:00	*	*	*	*	*	*	245	81	*	*	245	81	*	*	*	*
06:00	*	*	*	*	*	*	183	59	*	*	183	59	*	*	*	*
07:00	*	*	*	*	*	*	129	43	*	*	129	43	*	*	*	*
08:00	*	*	*	*	*	*	92	16	*	*	92	16	*	*	*	*
09:00	*	*	*	*	*	*	70	10	*	*	70	10	*	*	*	*
10:00	*	*	*	*	*	*	33	3	*	*	33	3	*	*	*	*
11:00	*	*	*	*	*	*	13	0	*	*	13	0	*	*	*	*
Total	0	0	0	0	0	0	1743	1894	0	0	1743	1894	0	0	0	0
Day	0	0	0	0	0	0	3637		0	0	3637		0	0	0	
AM Peak	-	-	-	-	-	-	11:00	08:00	-	-	11:00	08:00	-	-	-	-
Vol.	-	-	-	-	-	-	94	323	-	-	94	323	-	-	-	-
PM Peak	-	-	-	-	-	-	17:00	17:00	-	-	17:00	17:00	-	-	-	-
Vol.	-	-	-	-	-	-	245	81	-	-	245	81	-	-	-	-

Comb. Total	0	0	0	3637	0	3637	0	0
ADT	ADT 3,637	AADT 3,637						



**COUNTER MEASURES INC.**  
**1889 YORK STREET**  
**DENVER, COLORADO 80206**  
**303-333-7409**

Location: CASTLE OAKS DR E-O AUTUMN SAGE  
 City: CASTLE ROCK  
 County: DOUGLAS  
 Direction: EASTBOUND-WESTBOUND

Site Code: 190109  
 Station ID: 190109

Start Time	29-Apr-19		Tue		Wed		Thu		Fri		Weekday Average		Sat		Sun	
	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
12:00 AM	*	*	*	*	*	*	0	0	*	*	0	0	*	*	*	*
01:00	*	*	*	*	*	*	0	0	*	*	0	0	*	*	*	*
02:00	*	*	*	*	*	*	0	0	*	*	0	0	*	*	*	*
03:00	*	*	*	*	*	*	0	0	*	*	0	0	*	*	*	*
04:00	*	*	*	*	*	*	2	0	*	*	2	0	*	*	*	*
05:00	*	*	*	*	*	*	1	1	*	*	1	1	*	*	*	*
06:00	*	*	*	*	*	*	2	1	*	*	2	1	*	*	*	*
07:00	*	*	*	*	*	*	6	4	*	*	6	4	*	*	*	*
08:00	*	*	*	*	*	*	5	6	*	*	5	6	*	*	*	*
09:00	*	*	*	*	*	*	5	10	*	*	5	10	*	*	*	*
10:00	*	*	*	*	*	*	9	11	*	*	9	11	*	*	*	*
11:00	*	*	*	*	*	*	7	6	*	*	7	6	*	*	*	*
12:00 PM	*	*	*	*	*	*	2	10	*	*	2	10	*	*	*	*
01:00	*	*	*	*	*	*	10	11	*	*	10	11	*	*	*	*
02:00	*	*	*	*	*	*	5	7	*	*	5	7	*	*	*	*
03:00	*	*	*	*	*	*	6	9	*	*	6	9	*	*	*	*
04:00	*	*	*	*	*	*	8	11	*	*	8	11	*	*	*	*
05:00	*	*	*	*	*	*	5	3	*	*	5	3	*	*	*	*
06:00	*	*	*	*	*	*	3	8	*	*	3	8	*	*	*	*
07:00	*	*	*	*	*	*	2	3	*	*	2	3	*	*	*	*
08:00	*	*	*	*	*	*	0	2	*	*	0	2	*	*	*	*
09:00	*	*	*	*	*	*	1	0	*	*	1	0	*	*	*	*
10:00	*	*	*	*	*	*	0	0	*	*	0	0	*	*	*	*
11:00	*	*	*	*	*	*	0	1	*	*	0	1	*	*	*	*
Total	0	0	0	0	0	0	79	104	0	0	79	104	0	0	0	0
Day	0	0	0	0	0	0	183	104	0	0	183	104	0	0	0	0
AM Peak	-	-	-	-	-	-	10:00	10:00	-	-	10:00	10:00	-	-	-	-
Vol.	-	-	-	-	-	-	9	11	-	-	9	11	-	-	-	-
PM Peak	-	-	-	-	-	-	13:00	13:00	-	-	13:00	13:00	-	-	-	-
Vol.	-	-	-	-	-	-	10	11	-	-	10	11	-	-	-	-

Comb. Total	0	0	0	183	0	183	0	0
ADT	ADT 183	AADT 183						

**COUNTER MEASURES INC.**  
**1889 YORK STREET**  
**DENVER, COLORADO 80206**  
**303-333-7409**

Location: CASTLE OAKS DR S/O AUTUMN SAGE ST  
 City: CASTLE ROCK  
 County: DOUGLAS  
 Direction: NB

Site Code: 190119  
 Station ID: 190119

Start Time	29-Apr-19		Tue		Wed		Thu		Fri		Weekday Average		Sat		Sun	
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	*	*	*	*	*	*	0	0	*	*	0	0	*	*	*	*
01:00	*	*	*	*	*	*	0	0	*	*	0	0	*	*	*	*
02:00	*	*	*	*	*	*	0	0	*	*	0	0	*	*	*	*
03:00	*	*	*	*	*	*	0	0	*	*	0	0	*	*	*	*
04:00	*	*	*	*	*	*	2	0	*	*	2	0	*	*	*	*
05:00	*	*	*	*	*	*	1	0	*	*	1	0	*	*	*	*
06:00	*	*	*	*	*	*	2	0	*	*	2	0	*	*	*	*
07:00	*	*	*	*	*	*	4	2	*	*	4	2	*	*	*	*
08:00	*	*	*	*	*	*	5	5	*	*	5	5	*	*	*	*
09:00	*	*	*	*	*	*	4	8	*	*	4	8	*	*	*	*
10:00	*	*	*	*	*	*	9	9	*	*	9	9	*	*	*	*
11:00	*	*	*	*	*	*	5	5	*	*	5	5	*	*	*	*
12:00 PM	*	*	*	*	*	*	4	9	*	*	4	9	*	*	*	*
01:00	*	*	*	*	*	*	8	10	*	*	8	10	*	*	*	*
02:00	*	*	*	*	*	*	4	4	*	*	4	4	*	*	*	*
03:00	*	*	*	*	*	*	7	9	*	*	7	9	*	*	*	*
04:00	*	*	*	*	*	*	5	9	*	*	5	9	*	*	*	*
05:00	*	*	*	*	*	*	3	3	*	*	3	3	*	*	*	*
06:00	*	*	*	*	*	*	4	7	*	*	4	7	*	*	*	*
07:00	*	*	*	*	*	*	1	3	*	*	1	3	*	*	*	*
08:00	*	*	*	*	*	*	1	4	*	*	1	4	*	*	*	*
09:00	*	*	*	*	*	*	0	1	*	*	0	1	*	*	*	*
10:00	*	*	*	*	*	*	0	0	*	*	0	0	*	*	*	*
11:00	*	*	*	*	*	*	0	1	*	*	0	1	*	*	*	*
Total	0	0	0	0	0	0	69	89	0	0	69	89	0	0	0	0
Day	0	0	0	0	0	0	158	89	0	0	158	89	0	0	0	0
AM Peak	-	-	-	-	-	-	10:00	10:00	-	-	10:00	10:00	-	-	-	-
Vol.	-	-	-	-	-	-	9	9	-	-	9	9	-	-	-	-
PM Peak	-	-	-	-	-	-	13:00	13:00	-	-	13:00	13:00	-	-	-	-
Vol.	-	-	-	-	-	-	8	10	-	-	8	10	-	-	-	-

Comb. Total	0	0	0	158	0	158	0	0
ADT	ADT 158	AADT 158						

## LEVEL OF SERVICE DEFINITIONS

From *Highway Capacity Manual*, Transportation Research Board, 2016, 6th Edition

### UNSIGNALIZED INTERSECTION LEVEL OF SERVICE (LOS)

Applicable to Two-Way Stop Control, All-Way Stop Control, and Roundabouts

LOS	Average Vehicle Control Delay	<u>Operational Characteristics</u>
A	<10 seconds	Normally, vehicles on the stop-controlled approach only have to wait up to 10 seconds before being able to clear the intersection. Left-turning vehicles on the uncontrolled street do not have to wait to make their turn.
B	10 to 15 seconds	Vehicles on the stop-controlled approach will experience delays before being able to clear the intersection. <u>The delay could be up to 15 seconds.</u> Left-turning vehicles on the uncontrolled street may have to wait to make their turn.
C	15 to 25 seconds	Vehicles on the stop-controlled approach can expect delays in the range of 15 to 25 seconds before clearing the intersection. Motorists may begin to take chances due to the long delays, thereby posing a safety risk to through traffic. <u>Left-turning vehicles on the uncontrolled street will now be required to wait to make their turn causing a queue to be created in the turn lane.</u>
D	25 to 35 seconds	<u>This is the point at which a traffic signal may be warranted for this intersection.</u> The delays for the stop-controlled intersection are not considered to be excessive. The length of the queue may begin to block other public and private access points.
E	35 to 50 seconds	The delays for all critical traffic movements are considered to be unacceptable. The length of the queues for the stop-controlled approaches as well as the left-turn movements are extremely long. <u>There is a high probability that this intersection will meet traffic signal warrants.</u> The ability to install a traffic signal is affected by the location of other existing traffic signals. Consideration may be given to restricting the accesses by eliminating the left-turn movements from and to the stop-controlled approach.
F	>50 seconds	The delay for the critical traffic movements are probably in excess of 100 seconds. The length of the queues are extremely long. Motorists are selecting alternative routes due to the long delays. <u>The only remedy for these long delays is installing a traffic signal or restricting the accesses.</u> The potential for accidents at this intersection are extremely high due to motorist taking more risky chances. If the median permits, motorists begin making two-stage left-turns.

HCM 6th TWSC  
3: Founders Parkway & Crimson Sky Drive

Existing  
AM Peak

Intersection						
Int Delay, s/veh	0.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↕↕	↗	↘	↕↕
Traffic Vol, veh/h	15	238	1340	6	36	367
Future Vol, veh/h	15	238	1340	6	36	367
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	None
Storage Length	50	0	-	150	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	259	1457	7	39	399

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1735	-	0	0	1464
Stage 1	1457	-	-	-	-
Stage 2	278	-	-	-	-
Critical Hdwy	6.84	-	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	-	-	-	2.22
Pot Cap-1 Maneuver	79	0	-	-	457
Stage 1	181	0	-	-	-
Stage 2	744	0	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	72	-	-	-	457
Mov Cap-2 Maneuver	72	-	-	-	-
Stage 1	166	-	-	-	-
Stage 2	744	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	69.1	0	1.2
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	-	72	457
HCM Lane V/C Ratio	-	-	0.226	0.086
HCM Control Delay (s)	-	-	69.1	0
HCM Lane LOS	-	-	F	A
HCM 95th %tile Q(veh)	-	-	0.8	0.3

HCM 6th TWSC  
5: Castle Oaks Drive & Autumn Sage Street (North)

Existing  
AM Peak

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↶	↷		↶	↷	
Traffic Vol, veh/h	41	1	1	2	0	186
Future Vol, veh/h	41	1	1	2	0	186
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	45	1	1	2	0	202

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	105	101	202	0	-	0
Stage 1	101	-	-	-	-	-
Stage 2	4	-	-	-	-	-
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	893	954	1370	-	-	-
Stage 1	923	-	-	-	-	-
Stage 2	1019	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	892	954	1370	-	-	-
Mov Cap-2 Maneuver	892	-	-	-	-	-
Stage 1	922	-	-	-	-	-
Stage 2	1019	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.2	2.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1370	-	892	954	-	-
HCM Lane V/C Ratio	0.001	-	0.05	0.001	-	-
HCM Control Delay (s)	7.6	0	9.2	8.8	-	-
HCM Lane LOS	A	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	0	-	-

HCM 6th TWSC  
6: Autumn Sage Street & Crimson Sky Drive

Existing  
AM Peak

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	18	31	162	24	3
Future Vol, veh/h	2	18	31	162	24	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	20	34	176	26	3

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	210	0	-	0	146
Stage 1	-	-	-	-	122
Stage 2	-	-	-	-	24
Critical Hdwy	4.12	-	-	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	2.218	-	-	-	3.518
Pot Cap-1 Maneuver	1361	-	-	-	846
Stage 1	-	-	-	-	903
Stage 2	-	-	-	-	999
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1361	-	-	-	845
Mov Cap-2 Maneuver	-	-	-	-	845
Stage 1	-	-	-	-	902
Stage 2	-	-	-	-	999

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1361	-	-	-	854
HCM Lane V/C Ratio	0.002	-	-	-	0.034
HCM Control Delay (s)	7.6	-	-	-	9.4
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

HCM 6th TWSC  
 20: Castle Oaks Drive/Autumn Sage Street (South)

Existing  
 AM Peak

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		T		T	T
Traffic Vol, veh/h	1	0	100	1	1	74
Future Vol, veh/h	1	0	100	1	1	74
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	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	0	109	1	1	80

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	192	110	0	0	110	0
Stage 1	110	-	-	-	-	-
Stage 2	82	-	-	-	-	-
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	797	943	-	-	1480	-
Stage 1	915	-	-	-	-	-
Stage 2	941	-	-	-	-	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	796	943	-	-	1480	-
Mov Cap-2 Maneuver	796	-	-	-	-	-
Stage 1	914	-	-	-	-	-
Stage 2	941	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	0.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	796	1480
HCM Lane V/C Ratio	-	-	0.001	0.001
HCM Control Delay (s)	-	-	9.5	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

HCM 6th TWSC  
3: Founders Parkway & Crimson Sky Drive

Existing  
PM Peak

Intersection						
Int Delay, s/veh	1.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↕↕	↗	↘	↕↕
Traffic Vol, veh/h	14	94	663	16	208	1095
Future Vol, veh/h	14	94	663	16	208	1095
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	None
Storage Length	50	0	-	150	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	102	721	17	226	1190

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1768	-	0	0	738
Stage 1	721	-	-	-	-
Stage 2	1047	-	-	-	-
Critical Hdwy	6.84	-	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	-	-	-	2.22
Pot Cap-1 Maneuver	75	0	-	-	864
Stage 1	443	0	-	-	-
Stage 2	299	0	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	55	-	-	-	864
Mov Cap-2 Maneuver	55	-	-	-	-
Stage 1	327	-	-	-	-
Stage 2	299	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	93.8	0	1.7
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	55	-	864
HCM Lane V/C Ratio	-	-	0.277	-	0.262
HCM Control Delay (s)	-	-	93.8	0	10.6
HCM Lane LOS	-	-	F	A	B
HCM 95th %tile Q(veh)	-	-	1	-	1



HCM 6th TWSC  
5: Castle Oaks Drive & Autumn Sage Street (North)

Existing  
PM Peak

Intersection						
Int Delay, s/veh	6.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	166	0	1	5	1	77
Future Vol, veh/h	166	0	1	5	1	77
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	180	0	1	5	1	84

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	50	43	85	0	-	0
Stage 1	43	-	-	-	-	-
Stage 2	7	-	-	-	-	-
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	959	1027	1512	-	-	-
Stage 1	979	-	-	-	-	-
Stage 2	1016	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	958	1027	1512	-	-	-
Mov Cap-2 Maneuver	958	-	-	-	-	-
Stage 1	978	-	-	-	-	-
Stage 2	1016	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.6	1.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1512	-	958	-	-	-
HCM Lane V/C Ratio	0.001	-	0.188	-	-	-
HCM Control Delay (s)	7.4	0	9.6	0	-	-
HCM Lane LOS	A	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.7	-	-	-

HCM 6th TWSC  
6: Autumn Sage Street & Crimson Sky Drive

Existing  
PM Peak

Intersection						
Int Delay, s/veh	5.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	35	35	57	142	7
Future Vol, veh/h	7	35	35	57	142	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	38	38	62	154	8





Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	100	0	-	0	123 69
Stage 1	-	-	-	-	69 -
Stage 2	-	-	-	-	54 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1493	-	-	-	872 994
Stage 1	-	-	-	-	954 -
Stage 2	-	-	-	-	969 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1493	-	-	-	868 994
Mov Cap-2 Maneuver	-	-	-	-	868 -
Stage 1	-	-	-	-	949 -
Stage 2	-	-	-	-	969 -

Approach	EB	WB	SB
HCM Control Delay, s	1.2	0	10.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1493	-	-	-	873
HCM Lane V/C Ratio	0.005	-	-	-	0.186
HCM Control Delay (s)	7.4	-	-	-	10.1
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.7

HCM 6th TWSC  
 20: Castle Oaks Drive/Autumn Sage Street (South)

Existing  
 PM Peak

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	2	56	2	2	94
Future Vol, veh/h	0	2	56	2	2	94
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	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	2	61	2	2	102

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	168	62	0
Stage 1	62	-	-
Stage 2	106	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	822	1003	-
Stage 1	961	-	-
Stage 2	918	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	821	1003	-
Mov Cap-2 Maneuver	821	-	-
Stage 1	960	-	-
Stage 2	918	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.6	0	0.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1003	1540
HCM Lane V/C Ratio	-	-	0.002	0.001
HCM Control Delay (s)	-	-	8.6	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

HCM 6th TWSC  
 3: Founders Parkway & Crimson Sky Drive

2024 Background  
 AM Peak

Intersection						
Int Delay, s/veh	1.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑↑	↗	↘	↑↑
Traffic Vol, veh/h	15	250	1480	6	45	405
Future Vol, veh/h	15	250	1480	6	45	405
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	None
Storage Length	50	0	-	150	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	272	1609	7	49	440

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1927	-	0 0 1616 0
Stage 1	1609	-	- - - -
Stage 2	318	-	- - - -
Critical Hdwy	6.84	-	- - 4.14 -
Critical Hdwy Stg 1	5.84	-	- - - -
Critical Hdwy Stg 2	5.84	-	- - - -
Follow-up Hdwy	3.52	-	- - - 2.22 -
Pot Cap-1 Maneuver	58	0	- - 399 -
Stage 1	149	0	- - - -
Stage 2	710	0	- - - -
Platoon blocked, %		-	- - - -
Mov Cap-1 Maneuver	51	-	- - 399 -
Mov Cap-2 Maneuver	51	-	- - - -
Stage 1	131	-	- - - -
Stage 2	710	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	105.8	0	1.5
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 51	- 399	-
HCM Lane V/C Ratio	-	- 0.32	- 0.123	-
HCM Control Delay (s)	-	- 105.8	0 15.3	-
HCM Lane LOS	-	- F	A C	-
HCM 95th %tile Q(veh)	-	- 1.1	- 0.4	-

HCM 6th TWSC  
5: Castle Oaks Drive & Autumn Sage Street (North)

2024 Background  
AM Peak

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	45	5	5	10	15	185
Future Vol, veh/h	45	5	5	10	15	185
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	49	5	5	11	16	201

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	138	117	217	0	-	0
Stage 1	117	-	-	-	-	-
Stage 2	21	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	855	935	1353	-	-	-
Stage 1	908	-	-	-	-	-
Stage 2	1002	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	852	935	1353	-	-	-
Mov Cap-2 Maneuver	852	-	-	-	-	-
Stage 1	904	-	-	-	-	-
Stage 2	1002	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.4	2.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1353	-	852	935	-	-
HCM Lane V/C Ratio	0.004	-	0.057	0.006	-	-
HCM Control Delay (s)	7.7	0	9.5	8.9	-	-
HCM Lane LOS	A	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	0	-	-

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	20	35	170	30	5
Future Vol, veh/h	5	20	35	170	30	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	22	38	185	33	5

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	223	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.12	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.218	-	-
Pot Cap-1 Maneuver	1346	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1346	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	1.5	0	9.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1346	-	-	-	837
HCM Lane V/C Ratio	0.004	-	-	-	0.045
HCM Control Delay (s)	7.7	-	-	-	9.5
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection						
Int Delay, s/veh	1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘↗		↖↗		↘↗	↖↗
Traffic Vol, veh/h	15	5	105	10	5	80
Future Vol, veh/h	15	5	105	10	5	80
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	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	5	114	11	5	87

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	217	120	0	0	125
Stage 1	120	-	-	-	-
Stage 2	97	-	-	-	-
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	771	931	-	-	1462
Stage 1	905	-	-	-	-
Stage 2	927	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	769	931	-	-	1462
Mov Cap-2 Maneuver	769	-	-	-	-
Stage 1	902	-	-	-	-
Stage 2	927	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	0.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	804	1462
HCM Lane V/C Ratio	-	-	0.027	0.004
HCM Control Delay (s)	-	-	9.6	7.5
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

HCM 6th TWSC  
3: Founders Parkway & Crimson Sky Drive

2024 Background  
PM Peak

Intersection						
Int Delay, s/veh	2.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑↑	↗	↘	↑↑
Traffic Vol, veh/h	15	100	735	16	220	1210
Future Vol, veh/h	15	100	735	16	220	1210
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	None
Storage Length	50	0	-	150	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	109	799	17	239	1315

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1935	-	0	0	816
Stage 1	799	-	-	-	-
Stage 2	1136	-	-	-	-
Critical Hdwy	6.84	-	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	-	-	-	2.22
Pot Cap-1 Maneuver	58	0	-	-	807
Stage 1	403	0	-	-	-
Stage 2	268	0	-	-	-
Platoon blocked, %		-	-	-	-
Mov Cap-1 Maneuver	41	-	-	-	807
Mov Cap-2 Maneuver	41	-	-	-	-
Stage 1	284	-	-	-	-
Stage 2	268	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	141.9	0	1.7
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	41	-	807
HCM Lane V/C Ratio	-	-	0.398	-	0.296
HCM Control Delay (s)	-	-	141.9	0	11.3
HCM Lane LOS	-	-	F	A	B
HCM 95th %tile Q(veh)	-	-	1.4	-	1.2



HCM 6th TWSC  
5: Castle Oaks Drive & Autumn Sage Street (North)

2024 Background  
PM Peak

Intersection						
Int Delay, s/veh	6.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	170	5	5	15	15	80
Future Vol, veh/h	170	5	5	15	15	80
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	185	5	5	16	16	87

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	86	60	103	0	-	0
Stage 1	60	-	-	-	-	-
Stage 2	26	-	-	-	-	-
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	915	1005	1489	-	-	-
Stage 1	963	-	-	-	-	-
Stage 2	997	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	912	1005	1489	-	-	-
Mov Cap-2 Maneuver	912	-	-	-	-	-
Stage 1	960	-	-	-	-	-
Stage 2	997	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.9	1.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1489	-	912	1005	-	-
HCM Lane V/C Ratio	0.004	-	0.203	0.005	-	-
HCM Control Delay (s)	7.4	0	9.9	8.6	-	-
HCM Lane LOS	A	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.8	0	-	-

HCM 6th TWSC  
6: Autumn Sage Street & Crimson Sky Drive

2024 Background  
PM Peak

Intersection						
Int Delay, s/veh	5.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	40	40	60	150	10
Future Vol, veh/h	10	40	40	60	150	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	43	43	65	163	11

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	108	0	-	0	141 76
Stage 1	-	-	-	-	76 -
Stage 2	-	-	-	-	65 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1483	-	-	-	852 985
Stage 1	-	-	-	-	947 -
Stage 2	-	-	-	-	958 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1483	-	-	-	846 985
Mov Cap-2 Maneuver	-	-	-	-	846 -
Stage 1	-	-	-	-	940 -
Stage 2	-	-	-	-	958 -

Approach	EB	WB	SB
HCM Control Delay, s	1.5	0	10.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1483	-	-	-	854
HCM Lane V/C Ratio	0.007	-	-	-	0.204
HCM Control Delay (s)	7.4	-	-	-	10.3
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.8

Intersection						
Int Delay, s/veh	1.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	5	60	15	5	100
Future Vol, veh/h	15	5	60	15	5	100
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	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	5	65	16	5	109

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	192	73	0	0	81	0
Stage 1	73	-	-	-	-	-
Stage 2	119	-	-	-	-	-
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	797	989	-	-	1517	-
Stage 1	950	-	-	-	-	-
Stage 2	906	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	795	989	-	-	1517	-
Mov Cap-2 Maneuver	795	-	-	-	-	-
Stage 1	947	-	-	-	-	-
Stage 2	906	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	0.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	836	1517
HCM Lane V/C Ratio	-	-	0.026	0.004
HCM Control Delay (s)	-	-	9.4	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

HCM 6th TWSC  
 3: Founders Parkway & Crimson Sky Drive

2024 Total  
 AM Peak

Intersection						
Int Delay, s/veh	1.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↕↕	↗	↘	↕↕
Traffic Vol, veh/h	15	289	1480	6	58	405
Future Vol, veh/h	15	289	1480	6	58	405
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	None
Storage Length	50	0	-	150	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	314	1609	7	63	440

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1955	-	0	0	1616
Stage 1	1609	-	-	-	-
Stage 2	346	-	-	-	-
Critical Hdwy	6.84	-	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	-	-	-	2.22
Pot Cap-1 Maneuver	56	0	-	-	399
Stage 1	149	0	-	-	-
Stage 2	688	0	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	47	-	-	-	399
Mov Cap-2 Maneuver	47	-	-	-	-
Stage 1	125	-	-	-	-
Stage 2	688	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	117.8	0	2
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	47	-	399
HCM Lane V/C Ratio	-	-	0.347	-	0.158
HCM Control Delay (s)	-	-	117.8	0	15.7
HCM Lane LOS	-	-	F	A	C
HCM 95th %tile Q(veh)	-	-	1.2	-	0.6

HCM 6th TWSC  
4: Castle Oaks Drive & Site Access #2

2024 Total  
AM Peak

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	5	70	4	2	232
Future Vol, veh/h	13	5	70	4	2	232
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	5	76	4	2	252

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	334	78	0	0	80
Stage 1	78	-	-	-	-
Stage 2	256	-	-	-	-
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	661	983	-	-	1518
Stage 1	945	-	-	-	-
Stage 2	787	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	660	983	-	-	1518
Mov Cap-2 Maneuver	660	-	-	-	-
Stage 1	943	-	-	-	-
Stage 2	787	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.1	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	726	1518
HCM Lane V/C Ratio	-	-	0.027	0.001
HCM Control Delay (s)	-	-	10.1	7.4
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0

HCM 6th TWSC  
5: Castle Oaks Drive & Autumn Sage Street (North)

2024 Total  
AM Peak

Intersection						
Int Delay, s/veh	2.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	59	9	18	15	19	226
Future Vol, veh/h	59	9	18	15	19	226
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	64	10	20	16	21	246

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	77	21	267	0	-	0
Stage 1	21	-	-	-	-	-
Stage 2	56	-	-	-	-	-
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	926	1056	1297	-	-	-
Stage 1	1002	-	-	-	-	-
Stage 2	967	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	911	1056	1297	-	-	-
Mov Cap-2 Maneuver	911	-	-	-	-	-
Stage 1	986	-	-	-	-	-
Stage 2	967	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.2	4.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1297	-	911	1056	-	-
HCM Lane V/C Ratio	0.015	-	0.07	0.009	-	-
HCM Control Delay (s)	7.8	0	9.3	8.4	-	-
HCM Lane LOS	A	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	0	-	-

HCM 6th TWSC  
6: Autumn Sage Street & Crimson Sky Drive

2024 Total  
AM Peak

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	25	50	209	43	5
Future Vol, veh/h	5	25	50	209	43	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	27	54	227	47	5

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	281	0	0	205	168
Stage 1	-	-	-	168	-
Stage 2	-	-	-	37	-
Critical Hdwy	4.12	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	3.518	3.318
Pot Cap-1 Maneuver	1282	-	-	783	876
Stage 1	-	-	-	862	-
Stage 2	-	-	-	985	-
Platoon blocked, %		-	-		
Mov Cap-1 Maneuver	1282	-	-	780	876
Mov Cap-2 Maneuver	-	-	-	780	-
Stage 1	-	-	-	859	-
Stage 2	-	-	-	985	-

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	9.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1282	-	-	-	789
HCM Lane V/C Ratio	0.004	-	-	-	0.066
HCM Control Delay (s)	7.8	-	-	-	9.9
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

HCM 6th TWSC  
 12: Castle Oaks Drive & Site Access #1

2024 Total  
 AM Peak

Intersection						
Int Delay, s/veh	1.6					
Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Vol, veh/h	10	65	203	5	13	31
Future Vol, veh/h	10	65	203	5	13	31
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	71	221	5	14	34

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	226	0	-	0	317 224
Stage 1	-	-	-	-	224 -
Stage 2	-	-	-	-	93 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1342	-	-	-	676 815
Stage 1	-	-	-	-	813 -
Stage 2	-	-	-	-	931 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1342	-	-	-	671 815
Mov Cap-2 Maneuver	-	-	-	-	671 -
Stage 1	-	-	-	-	806 -
Stage 2	-	-	-	-	931 -

Approach	NB	SB	SE
HCM Control Delay, s	1	0	10
HCM LOS			B

Minor Lane/Major Mvmt	NBL	NBT	SELn1	SBT	SBR
Capacity (veh/h)	1342	-	766	-	-
HCM Lane V/C Ratio	0.008	-	0.062	-	-
HCM Control Delay (s)	7.7	-	10	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-



HCM 6th TWSC  
 15: Site Access #3 & Castle Oaks Drive

2024 Total  
 AM Peak

Intersection						
Int Delay, s/veh	2.4					
Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Vol, veh/h	19	2	3	27	7	9
Future Vol, veh/h	19	2	3	27	7	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	2	3	29	8	10

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	23	0	57
Stage 1	-	-	-	-	22
Stage 2	-	-	-	-	35
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1592	-	950
Stage 1	-	-	-	-	1001
Stage 2	-	-	-	-	987
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1592	-	948
Mov Cap-2 Maneuver	-	-	-	-	948
Stage 1	-	-	-	-	999
Stage 2	-	-	-	-	987

Approach	EB	WB	NW
HCM Control Delay, s	0	0.7	8.6
HCM LOS			A

Minor Lane/Major Mvmt	NWLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1005	-	-	1592	-
HCM Lane V/C Ratio	0.017	-	-	0.002	-
HCM Control Delay (s)	8.6	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

HCM 6th TWSC  
 17: Site Access #4 & Castle Oaks Drive

2024 Total  
 AM Peak

Intersection												
Int Delay, s/veh	3.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	19	4	0	34	0	10	0	1	1	0	15
Future Vol, veh/h	5	19	4	0	34	0	10	0	1	1	0	15
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	21	4	0	37	0	11	0	1	1	0	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	37	0	0	25	0	0	78	70	23	71	72	37
Stage 1	-	-	-	-	-	-	33	33	-	37	37	-
Stage 2	-	-	-	-	-	-	45	37	-	34	35	-
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	1574	-	-	1589	-	-	911	821	1054	920	818	1035
Stage 1	-	-	-	-	-	-	983	868	-	978	864	-
Stage 2	-	-	-	-	-	-	969	864	-	982	866	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1574	-	-	1589	-	-	895	819	1054	917	816	1035
Mov Cap-2 Maneuver	-	-	-	-	-	-	895	819	-	917	816	-
Stage 1	-	-	-	-	-	-	980	865	-	975	864	-
Stage 2	-	-	-	-	-	-	954	864	-	978	863	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.3	0	9	8.6
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	907	1574	-	-	1589	-	-	1027
HCM Lane V/C Ratio	0.013	0.003	-	-	-	-	-	0.017
HCM Control Delay (s)	9	7.3	0	-	0	-	-	8.6
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.1

HCM 6th TWSC  
 20: Castle Oaks Drive/Autumn Sage Street (South)

2024 Total  
 AM Peak

Intersection						
Int Delay, s/veh	2.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	28	31	105	14	14	80
Future Vol, veh/h	28	31	105	14	14	80
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	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	34	114	15	15	87

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	239	122	0	0	129
Stage 1	122	-	-	-	-
Stage 2	117	-	-	-	-
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	749	929	-	-	1457
Stage 1	903	-	-	-	-
Stage 2	908	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	742	929	-	-	1457
Mov Cap-2 Maneuver	742	-	-	-	-
Stage 1	894	-	-	-	-
Stage 2	908	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.7	0	1.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	830	1457
HCM Lane V/C Ratio	-	-	0.077	0.01
HCM Control Delay (s)	-	-	9.7	7.5
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0

HCM 6th TWSC  
 3: Founders Parkway & Crimson Sky Drive

2024 Total  
 PM Peak

Intersection						
Int Delay, s/veh	2.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑↑	↗	↘	↑↑
Traffic Vol, veh/h	15	125	735	16	263	1210
Future Vol, veh/h	15	125	735	16	263	1210
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	None
Storage Length	50	0	-	150	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	136	799	17	286	1315

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	2029	-	0	0	816
Stage 1	799	-	-	-	-
Stage 2	1230	-	-	-	-
Critical Hdwy	6.84	-	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	-	-	-	2.22
Pot Cap-1 Maneuver	50	0	-	-	807
Stage 1	403	0	-	-	-
Stage 2	239	0	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	32	-	-	-	807
Mov Cap-2 Maneuver	32	-	-	-	-
Stage 1	260	-	-	-	-
Stage 2	239	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	202	0	2.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	32	-	807
HCM Lane V/C Ratio	-	-	0.51	-	0.354
HCM Control Delay (s)	-	-	202	0	11.9
HCM Lane LOS	-	-	F	A	B
HCM 95th %tile Q(veh)	-	-	1.7	-	1.6

HCM 6th TWSC  
4: Castle Oaks Drive & Site Access #2

2024 Total  
PM Peak

Intersection						
Int Delay, s/veh	0.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	9	3	224	15	5	122
Future Vol, veh/h	9	3	224	15	5	122
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	3	243	16	5	133

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	394	251	0	0	259
Stage 1	251	-	-	-	-
Stage 2	143	-	-	-	-
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	611	788	-	-	1306
Stage 1	791	-	-	-	-
Stage 2	884	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	609	788	-	-	1306
Mov Cap-2 Maneuver	609	-	-	-	-
Stage 1	788	-	-	-	-
Stage 2	884	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	646	1306
HCM Lane V/C Ratio	-	-	0.02	0.004
HCM Control Delay (s)	-	-	10.7	7.8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0

HCM 6th TWSC  
 5: Castle Oaks Drive & Autumn Sage Street (North)

2024 Total  
 PM Peak

Intersection						
Int Delay, s/veh	6.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↙	↗		↖	↗	↗
Traffic Vol, veh/h	216	18	12	23	24	107
Future Vol, veh/h	216	18	12	23	24	107
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	235	20	13	25	26	116

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	77	26	142	0	-	0
Stage 1	26	-	-	-	-	-
Stage 2	51	-	-	-	-	-
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	926	1050	1441	-	-	-
Stage 1	997	-	-	-	-	-
Stage 2	971	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	918	1050	1441	-	-	-
Mov Cap-2 Maneuver	918	-	-	-	-	-
Stage 1	988	-	-	-	-	-
Stage 2	971	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.2	2.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1441	-	918	1050	-	-
HCM Lane V/C Ratio	0.009	-	0.256	0.019	-	-
HCM Control Delay (s)	7.5	0	10.3	8.5	-	-
HCM Lane LOS	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	1	0.1	-	-

HCM 6th TWSC  
6: Autumn Sage Street & Crimson Sky Drive

2024 Total  
PM Peak

Intersection						
Int Delay, s/veh	5.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	56	49	85	193	10
Future Vol, veh/h	10	56	49	85	193	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	61	53	92	210	11

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	145	0	-	0	182 99
Stage 1	-	-	-	-	99 -
Stage 2	-	-	-	-	83 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1437	-	-	-	807 957
Stage 1	-	-	-	-	925 -
Stage 2	-	-	-	-	940 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1437	-	-	-	801 957
Mov Cap-2 Maneuver	-	-	-	-	801 -
Stage 1	-	-	-	-	918 -
Stage 2	-	-	-	-	940 -

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	11.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1437	-	-	-	807
HCM Lane V/C Ratio	0.008	-	-	-	0.273
HCM Control Delay (s)	7.5	-	-	-	11.1
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	1.1

HCM 6th TWSC  
 12: Castle Oaks Drive & Site Access #1

2024 Total  
 PM Peak

Intersection						
Int Delay, s/veh	1.5					
Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Vol, veh/h	35	192	107	15	9	20
Future Vol, veh/h	35	192	107	15	9	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	209	116	16	10	22

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	132	0	-	0	409 124
Stage 1	-	-	-	-	124 -
Stage 2	-	-	-	-	285 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1453	-	-	-	599 927
Stage 1	-	-	-	-	902 -
Stage 2	-	-	-	-	763 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1453	-	-	-	583 927
Mov Cap-2 Maneuver	-	-	-	-	583 -
Stage 1	-	-	-	-	879 -
Stage 2	-	-	-	-	763 -

Approach	NB	SB	SE
HCM Control Delay, s	1.2	0	9.8
HCM LOS			A

Minor Lane/Major Mvmt	NBL	NBT	SELn1	SBT	SBR
Capacity (veh/h)	1453	-	784	-	-
HCM Lane V/C Ratio	0.026	-	0.04	-	-
HCM Control Delay (s)	7.5	-	9.8	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-



HCM 6th TWSC  
 15: Site Access #3 & Castle Oaks Drive

2024 Total  
 PM Peak

Intersection						
Int Delay, s/veh	2					
Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Vol, veh/h	29	8	10	27	5	6
Future Vol, veh/h	29	8	10	27	5	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	32	9	11	29	5	7

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	41	0	88
Stage 1	-	-	-	-	37
Stage 2	-	-	-	-	51
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1568	-	913
Stage 1	-	-	-	-	985
Stage 2	-	-	-	-	971
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1568	-	907
Mov Cap-2 Maneuver	-	-	-	-	907
Stage 1	-	-	-	-	978
Stage 2	-	-	-	-	971

Approach	EB	WB	NW
HCM Control Delay, s	0	2	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NWLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	973	-	-	1568	-
HCM Lane V/C Ratio	0.012	-	-	0.007	-
HCM Control Delay (s)	8.7	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

HCM 6th TWSC  
 17: Site Access #4 & Castle Oaks Drive

2024 Total  
 PM Peak

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	16	36	11	1	30	1	7	0	0	1	0	9
Future Vol, veh/h	16	36	11	1	30	1	7	0	0	1	0	9
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	39	12	1	33	1	8	0	0	1	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	34	0	0	51	0	0	120	115	45	115	121	34
Stage 1	-	-	-	-	-	-	79	79	-	36	36	-
Stage 2	-	-	-	-	-	-	41	36	-	79	85	-
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	1578	-	-	1555	-	-	855	775	1025	862	769	1039
Stage 1	-	-	-	-	-	-	930	829	-	980	865	-
Stage 2	-	-	-	-	-	-	974	865	-	930	824	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1578	-	-	1555	-	-	840	766	1025	854	760	1039
Mov Cap-2 Maneuver	-	-	-	-	-	-	840	766	-	854	760	-
Stage 1	-	-	-	-	-	-	920	820	-	969	864	-
Stage 2	-	-	-	-	-	-	964	864	-	920	815	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.9			0.2			9.3			8.6		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	840	1578	-	-	1555	-	-	1017
HCM Lane V/C Ratio	0.009	0.011	-	-	0.001	-	-	0.011
HCM Control Delay (s)	9.3	7.3	0	-	7.3	0	-	8.6
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

HCM 6th TWSC  
20: Castle Oaks Drive/Autumn Sage Street (South)

2024 Total  
PM Peak

Intersection						
Int Delay, s/veh	2.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	24	22	60	30	33	100
Future Vol, veh/h	24	22	60	30	33	100
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	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	24	65	33	36	109

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	263	82	0	0	98
Stage 1	82	-	-	-	-
Stage 2	181	-	-	-	-
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	726	978	-	-	1495
Stage 1	941	-	-	-	-
Stage 2	850	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	709	978	-	-	1495
Mov Cap-2 Maneuver	709	-	-	-	-
Stage 1	918	-	-	-	-
Stage 2	850	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.7	0	1.9
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	816	1495
HCM Lane V/C Ratio	-	-	0.061	0.024
HCM Control Delay (s)	-	-	9.7	7.5
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1

HCM 6th TWSC  
3: Founders Parkway & Crimson Sky Drive

2040 Background  
AM Peak

Intersection						
Int Delay, s/veh	4.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑↑	↗	↘	↑↑
Traffic Vol, veh/h	15	290	2030	6	55	560
Future Vol, veh/h	15	290	2030	6	55	560
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	None
Storage Length	50	0	-	150	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	315	2207	7	60	609

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	2632	-	0	0	2214
Stage 1	2207	-	-	-	-
Stage 2	425	-	-	-	-
Critical Hdwy	6.84	-	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	-	-	-	2.22
Pot Cap-1 Maneuver	19	0	-	-	233
Stage 1	70	0	-	-	-
Stage 2	627	0	-	-	-
Platoon blocked, %		-	-	-	-
Mov Cap-1 Maneuver	~ 14	-	-	-	233
Mov Cap-2 Maneuver	~ 14	-	-	-	-
Stage 1	52	-	-	-	-
Stage 2	627	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s\$	668.1	0	2.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	14	-	233	-
HCM Lane V/C Ratio	-	-	1.165	-	0.257	-
HCM Control Delay (s)	-	-	\$ 668.1	0	25.7	-
HCM Lane LOS	-	-	F	A	D	-
HCM 95th %tile Q(veh)	-	-	2.6	-	1	-

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

HCM 6th TWSC  
5: Castle Oaks Drive & Autumn Sage Street (North)

2040 Background  
AM Peak

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	55	5	5	15	20	215
Future Vol, veh/h	55	5	5	15	20	215
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	60	5	5	16	22	234

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	165	139	256	0	-	0
Stage 1	139	-	-	-	-	-
Stage 2	26	-	-	-	-	-
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	826	909	1309	-	-	-
Stage 1	888	-	-	-	-	-
Stage 2	997	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	823	909	1309	-	-	-
Mov Cap-2 Maneuver	823	-	-	-	-	-
Stage 1	884	-	-	-	-	-
Stage 2	997	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.6	1.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1309	-	823	909	-	-
HCM Lane V/C Ratio	0.004	-	0.073	0.006	-	-
HCM Control Delay (s)	7.8	0	9.7	9	-	-
HCM Lane LOS	A	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	0	-	-

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	25	40	200	35	5
Future Vol, veh/h	5	25	40	200	35	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	27	43	217	38	5

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	260	0	-	0	189
Stage 1	-	-	-	-	152
Stage 2	-	-	-	-	37
Critical Hdwy	4.12	-	-	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	2.218	-	-	-	3.518
Pot Cap-1 Maneuver	1304	-	-	-	800
Stage 1	-	-	-	-	876
Stage 2	-	-	-	-	985
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1304	-	-	-	797
Mov Cap-2 Maneuver	-	-	-	-	797
Stage 1	-	-	-	-	872
Stage 2	-	-	-	-	985

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	9.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1304	-	-	-	808
HCM Lane V/C Ratio	0.004	-	-	-	0.054
HCM Control Delay (s)	7.8	-	-	-	9.7
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection						
Int Delay, s/veh	1.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	5	125	15	5	95
Future Vol, veh/h	20	5	125	15	5	95
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	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	5	136	16	5	103

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	257	144	0	0	152
Stage 1	144	-	-	-	-
Stage 2	113	-	-	-	-
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	732	903	-	-	1429
Stage 1	883	-	-	-	-
Stage 2	912	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	730	903	-	-	1429
Mov Cap-2 Maneuver	730	-	-	-	-
Stage 1	880	-	-	-	-
Stage 2	912	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.9	0	0.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	759	1429
HCM Lane V/C Ratio	-	-	0.036	0.004
HCM Control Delay (s)	-	-	9.9	7.5
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

HCM 6th TWSC  
3: Founders Parkway & Crimson Sky Drive

2040 Background  
PM Peak

Intersection						
Int Delay, s/veh	5.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑↑	↗	↘	↑↑
Traffic Vol, veh/h	15	115	1010	16	255	1660
Future Vol, veh/h	15	115	1010	16	255	1660
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	None
Storage Length	50	0	-	150	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	125	1098	17	277	1804

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	2554	-	0	0	1115
Stage 1	1098	-	-	-	-
Stage 2	1456	-	-	-	-
Critical Hdwy	6.84	-	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	-	-	-	2.22
Pot Cap-1 Maneuver	22	0	-	-	622
Stage 1	281	0	-	-	-
Stage 2	181	0	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	~ 12	-	-	-	622
Mov Cap-2 Maneuver	~ 12	-	-	-	-
Stage 1	156	-	-	-	-
Stage 2	181	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s\$	821.5	0	2
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	12	-	622	-
HCM Lane V/C Ratio	-	-	1.359	-	0.446	-
HCM Control Delay (s)	-	-	\$ 821.5	0	15.4	-
HCM Lane LOS	-	-	F	A	C	-
HCM 95th %tile Q(veh)	-	-	2.8	-	2.3	-

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



HCM 6th TWSC  
 5: Castle Oaks Drive & Autumn Sage Street (North)

2040 Background  
 PM Peak

Intersection						
Int Delay, s/veh	6.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	200	5	5	20	20	95
Future Vol, veh/h	200	5	5	20	20	95
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	217	5	5	22	22	103

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	106	74	125	0	-	0
Stage 1	74	-	-	-	-	-
Stage 2	32	-	-	-	-	-
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	892	988	1462	-	-	-
Stage 1	949	-	-	-	-	-
Stage 2	991	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	889	988	1462	-	-	-
Mov Cap-2 Maneuver	889	-	-	-	-	-
Stage 1	946	-	-	-	-	-
Stage 2	991	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.4	1.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1462	-	889	988	-	-
HCM Lane V/C Ratio	0.004	-	0.245	0.006	-	-
HCM Control Delay (s)	7.5	0	10.4	8.7	-	-
HCM Lane LOS	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	1	0	-	-

Intersection						
Int Delay, s/veh	5.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	45	45	70	175	10
Future Vol, veh/h	10	45	45	70	175	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	49	49	76	190	11

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	125	0	-	0	158 87
Stage 1	-	-	-	-	87 -
Stage 2	-	-	-	-	71 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1462	-	-	-	833 971
Stage 1	-	-	-	-	936 -
Stage 2	-	-	-	-	952 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1462	-	-	-	826 971
Mov Cap-2 Maneuver	-	-	-	-	826 -
Stage 1	-	-	-	-	929 -
Stage 2	-	-	-	-	952 -

Approach	EB	WB	SB
HCM Control Delay, s	1.4	0	10.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1462	-	-	-	833
HCM Lane V/C Ratio	0.007	-	-	-	0.241
HCM Control Delay (s)	7.5	-	-	-	10.7
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.9

Intersection						
Int Delay, s/veh	1.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	5	70	20	5	120
Future Vol, veh/h	20	5	70	20	5	120
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	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	5	76	22	5	130

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	227	87	0	0	98
Stage 1	87	-	-	-	-
Stage 2	140	-	-	-	-
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	761	971	-	-	1495
Stage 1	936	-	-	-	-
Stage 2	887	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	759	971	-	-	1495
Mov Cap-2 Maneuver	759	-	-	-	-
Stage 1	933	-	-	-	-
Stage 2	887	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.7	0	0.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	794	1495
HCM Lane V/C Ratio	-	-	0.034	0.004
HCM Control Delay (s)	-	-	9.7	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

HCM 6th TWSC  
3: Founders Parkway & Crimson Sky Drive

2040 Total  
AM Peak

Intersection						
Int Delay, s/veh	5.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑↑	↗	↘	↑↑
Traffic Vol, veh/h	15	329	2030	6	68	560
Future Vol, veh/h	15	329	2030	6	68	560
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	None
Storage Length	50	0	-	150	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	358	2207	7	74	609

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	2660	-	0	0	2214
Stage 1	2207	-	-	-	-
Stage 2	453	-	-	-	-
Critical Hdwy	6.84	-	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	-	-	-	2.22
Pot Cap-1 Maneuver	18	0	-	-	233
Stage 1	70	0	-	-	-
Stage 2	607	0	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	~ 12	-	-	-	233
Mov Cap-2 Maneuver	~ 12	-	-	-	-
Stage 1	48	-	-	-	-
Stage 2	607	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s\$	821.5	0	3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	12	-	233	-
HCM Lane V/C Ratio	-	-	1.359	-	0.317	-
HCM Control Delay (s)	-	-	\$ 821.5	0	27.5	-
HCM Lane LOS	-	-	F	A	D	-
HCM 95th %tile Q(veh)	-	-	2.8	-	1.3	-

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

HCM 6th TWSC  
4: Castle Oaks Drive & Site Access #2

2040 Total  
AM Peak

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	13	5	85	4	2	267
Future Vol, veh/h	13	5	85	4	2	267
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	5	92	4	2	290

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	388	94	0	0	96
Stage 1	94	-	-	-	-
Stage 2	294	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	616	963	-	-	1498
Stage 1	930	-	-	-	-
Stage 2	756	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	615	963	-	-	1498
Mov Cap-2 Maneuver	615	-	-	-	-
Stage 1	928	-	-	-	-
Stage 2	756	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.4	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	684	1498
HCM Lane V/C Ratio	-	-	0.029	0.001
HCM Control Delay (s)	-	-	10.4	7.4
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0

HCM 6th TWSC  
 5: Castle Oaks Drive & Autumn Sage Street (North)

2040 Total  
 AM Peak

Intersection						
Int Delay, s/veh	2.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	69	9	18	20	24	256
Future Vol, veh/h	69	9	18	20	24	256
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	75	10	20	22	26	278

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	88	26	304	0	-	0
Stage 1	26	-	-	-	-	-
Stage 2	62	-	-	-	-	-
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	913	1050	1257	-	-	-
Stage 1	997	-	-	-	-	-
Stage 2	961	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	898	1050	1257	-	-	-
Mov Cap-2 Maneuver	898	-	-	-	-	-
Stage 1	981	-	-	-	-	-
Stage 2	961	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.3	3.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1257	-	898	1050	-	-
HCM Lane V/C Ratio	0.016	-	0.084	0.009	-	-
HCM Control Delay (s)	7.9	0	9.4	8.5	-	-
HCM Lane LOS	A	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.3	0	-	-

HCM 6th TWSC  
6: Autumn Sage Street & Crimson Sky Drive

2040 Total  
AM Peak

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	30	55	239	48	5
Future Vol, veh/h	5	30	55	239	48	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	33	60	260	52	5

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	320	0	-	0	233
Stage 1	-	-	-	-	190
Stage 2	-	-	-	-	43
Critical Hdwy	4.12	-	-	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	2.218	-	-	-	3.518
Pot Cap-1 Maneuver	1240	-	-	-	755
Stage 1	-	-	-	-	842
Stage 2	-	-	-	-	979
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1240	-	-	-	752
Mov Cap-2 Maneuver	-	-	-	-	752
Stage 1	-	-	-	-	839
Stage 2	-	-	-	-	979

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	10.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1240	-	-	-	760
HCM Lane V/C Ratio	0.004	-	-	-	0.076
HCM Control Delay (s)	7.9	-	-	-	10.1
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

HCM 6th TWSC  
 12: Castle Oaks Drive & Site Access #1

2040 Total  
 AM Peak

Intersection						
Int Delay, s/veh	1.4					
Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Vol, veh/h	10	80	238	5	13	31
Future Vol, veh/h	10	80	238	5	13	31
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	87	259	5	14	34

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	264	0	-	0	371 262
Stage 1	-	-	-	-	262 -
Stage 2	-	-	-	-	109 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1300	-	-	-	630 777
Stage 1	-	-	-	-	782 -
Stage 2	-	-	-	-	916 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1300	-	-	-	625 777
Mov Cap-2 Maneuver	-	-	-	-	625 -
Stage 1	-	-	-	-	776 -
Stage 2	-	-	-	-	916 -

Approach	NB	SB	SE
HCM Control Delay, s	0.9	0	10.3
HCM LOS			B

Minor Lane/Major Mvmt	NBL	NBT	SELn1	SBT	SBR
Capacity (veh/h)	1300	-	725	-	-
HCM Lane V/C Ratio	0.008	-	0.066	-	-
HCM Control Delay (s)	7.8	-	10.3	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-



HCM 6th TWSC  
 15: Site Access #3 & Castle Oaks Drive

2040 Total  
 AM Peak

Intersection						
Int Delay, s/veh	2.1					
Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Vol, veh/h	24	2	3	32	7	9
Future Vol, veh/h	24	2	3	32	7	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	2	3	35	8	10

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	28	0	68
Stage 1	-	-	-	-	27
Stage 2	-	-	-	-	41
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1585	-	937
Stage 1	-	-	-	-	996
Stage 2	-	-	-	-	981
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1585	-	935
Mov Cap-2 Maneuver	-	-	-	-	935
Stage 1	-	-	-	-	994
Stage 2	-	-	-	-	981

Approach	EB	WB	NW
HCM Control Delay, s	0	0.6	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NWLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	995	-	-	1585	-
HCM Lane V/C Ratio	0.017	-	-	0.002	-
HCM Control Delay (s)	8.7	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

HCM 6th TWSC  
 17: Site Access #4 & Castle Oaks Drive

2040 Total  
 AM Peak

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	5	24	4	0	39	0	10	0	1	1	0	15
Future Vol, veh/h	5	24	4	0	39	0	10	0	1	1	0	15
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	26	4	0	42	0	11	0	1	1	0	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	42	0	0	30	0	0	88	80	28	81	82	42
Stage 1	-	-	-	-	-	-	38	38	-	42	42	-
Stage 2	-	-	-	-	-	-	50	42	-	39	40	-
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	1567	-	-	1583	-	-	897	810	1047	907	808	1029
Stage 1	-	-	-	-	-	-	977	863	-	972	860	-
Stage 2	-	-	-	-	-	-	963	860	-	976	862	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1567	-	-	1583	-	-	881	808	1047	904	806	1029
Mov Cap-2 Maneuver	-	-	-	-	-	-	881	808	-	904	806	-
Stage 1	-	-	-	-	-	-	974	860	-	969	860	-
Stage 2	-	-	-	-	-	-	948	860	-	972	859	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.1	0	9.1	8.6
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	894	1567	-	-	1583	-	-	1020
HCM Lane V/C Ratio	0.013	0.003	-	-	-	-	-	0.017
HCM Control Delay (s)	9.1	7.3	0	-	0	-	-	8.6
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.1

HCM 6th TWSC  
 20: Castle Oaks Drive/Autumn Sage Street (South)

2040 Total  
 AM Peak

Intersection						
Int Delay, s/veh	2.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	33	31	125	19	14	95
Future Vol, veh/h	33	31	125	19	14	95
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	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	34	136	21	15	103

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	280	147	0	0	157
Stage 1	147	-	-	-	-
Stage 2	133	-	-	-	-
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	710	900	-	-	1423
Stage 1	880	-	-	-	-
Stage 2	893	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	702	900	-	-	1423
Mov Cap-2 Maneuver	702	-	-	-	-
Stage 1	870	-	-	-	-
Stage 2	893	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10	0	1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	786	1423
HCM Lane V/C Ratio	-	-	0.089	0.011
HCM Control Delay (s)	-	-	10	7.6
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.3	0

HCM 6th TWSC  
3: Founders Parkway & Crimson Sky Drive

2040 Total  
PM Peak

Intersection						
Int Delay, s/veh	7.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑↑	↗	↘	↑↑
Traffic Vol, veh/h	15	140	1010	16	298	1660
Future Vol, veh/h	15	140	1010	16	298	1660
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	None
Storage Length	50	0	-	150	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	152	1098	17	324	1804

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	2648	-	0	0	1115
Stage 1	1098	-	-	-	-
Stage 2	1550	-	-	-	-
Critical Hdwy	6.84	-	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	-	-	-	2.22
Pot Cap-1 Maneuver	19	0	-	-	622
Stage 1	281	0	-	-	-
Stage 2	161	0	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	~ 9	-	-	-	622
Mov Cap-2 Maneuver	~ 9	-	-	-	-
Stage 1	135	-	-	-	-
Stage 2	161	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, \$	1187.1	0	2.6
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	9	-	622	-
HCM Lane V/C Ratio	-	-	1.812	-	0.521	-
HCM Control Delay (s)	-	-	\$ 1187.1	0	16.9	-
HCM Lane LOS	-	-	F	A	C	-
HCM 95th %tile Q(veh)	-	-	3	-	3	-

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

HCM 6th TWSC  
4: Castle Oaks Drive & Site Access #2

2040 Total  
PM Peak

Intersection						
Int Delay, s/veh	0.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T	R	L	T
Traffic Vol, veh/h	9	3	259	15	5	142
Future Vol, veh/h	9	3	259	15	5	142
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	3	282	16	5	154

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	454	290	0	0	298
Stage 1	290	-	-	-	-
Stage 2	164	-	-	-	-
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	564	749	-	-	1263
Stage 1	759	-	-	-	-
Stage 2	865	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	562	749	-	-	1263
Mov Cap-2 Maneuver	562	-	-	-	-
Stage 1	756	-	-	-	-
Stage 2	865	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.1	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	599	1263
HCM Lane V/C Ratio	-	-	0.022	0.004
HCM Control Delay (s)	-	-	11.1	7.9
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0

HCM 6th TWSC  
5: Castle Oaks Drive & Autumn Sage Street (North)

2040 Total  
PM Peak

Intersection						
Int Delay, s/veh	6.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	246	18	12	28	29	122
Future Vol, veh/h	246	18	12	28	29	122
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	267	20	13	30	32	133

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	88	32	165	0	-	0
Stage 1	32	-	-	-	-	-
Stage 2	56	-	-	-	-	-
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	913	1042	1413	-	-	-
Stage 1	991	-	-	-	-	-
Stage 2	967	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	905	1042	1413	-	-	-
Mov Cap-2 Maneuver	905	-	-	-	-	-
Stage 1	982	-	-	-	-	-
Stage 2	967	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.5	2.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1413	-	905	1042	-	-
HCM Lane V/C Ratio	0.009	-	0.295	0.019	-	-
HCM Control Delay (s)	7.6	0	10.6	8.5	-	-
HCM Lane LOS	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	1.2	0.1	-	-

HCM 6th TWSC  
6: Autumn Sage Street & Crimson Sky Drive

2040 Total  
PM Peak

Intersection						
Int Delay, s/veh	6.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	61	95	54	218	10
Future Vol, veh/h	10	61	95	54	218	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	66	103	59	237	11

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	162	0	-	0	221
Stage 1	-	-	-	-	133
Stage 2	-	-	-	-	88
Critical Hdwy	4.12	-	-	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	2.218	-	-	-	3.518
Pot Cap-1 Maneuver	1417	-	-	-	767
Stage 1	-	-	-	-	893
Stage 2	-	-	-	-	935
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1417	-	-	-	761
Mov Cap-2 Maneuver	-	-	-	-	761
Stage 1	-	-	-	-	886
Stage 2	-	-	-	-	935

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	11.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1417	-	-	-	767
HCM Lane V/C Ratio	0.008	-	-	-	0.323
HCM Control Delay (s)	7.6	-	-	-	11.9
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	1.4

HCM 6th TWSC  
 12: Castle Oaks Drive & Site Access #1

2040 Total  
 PM Peak

Intersection						
Int Delay, s/veh	1.3					
Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Vol, veh/h	35	227	127	15	9	20
Future Vol, veh/h	35	227	127	15	9	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	247	138	16	10	22

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	154	0	-	0	469 146
Stage 1	-	-	-	-	146 -
Stage 2	-	-	-	-	323 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1426	-	-	-	553 901
Stage 1	-	-	-	-	881 -
Stage 2	-	-	-	-	734 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1426	-	-	-	538 901
Mov Cap-2 Maneuver	-	-	-	-	538 -
Stage 1	-	-	-	-	857 -
Stage 2	-	-	-	-	734 -

Approach	NB	SB	SE
HCM Control Delay, s	1	0	10
HCM LOS			B

Minor Lane/Major Mvmt	NBL	NBT	SELn1	SBT	SBR
Capacity (veh/h)	1426	-	745	-	-
HCM Lane V/C Ratio	0.027	-	0.042	-	-
HCM Control Delay (s)	7.6	-	10	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-



HCM 6th TWSC  
 15: Site Access #3 & Castle Oaks Drive

2040 Total  
 PM Peak

Intersection						
Int Delay, s/veh	1.8					
Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Vol, veh/h	34	8	10	32	5	6
Future Vol, veh/h	34	8	10	32	5	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	37	9	11	35	5	7

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	46	0	99
Stage 1	-	-	-	-	42
Stage 2	-	-	-	-	57
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1562	-	900
Stage 1	-	-	-	-	980
Stage 2	-	-	-	-	966
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1562	-	894
Mov Cap-2 Maneuver	-	-	-	-	894
Stage 1	-	-	-	-	973
Stage 2	-	-	-	-	966

Approach	EB	WB	NW
HCM Control Delay, s	0	1.7	8.8
HCM LOS			A

Minor Lane/Major Mvmt	NWLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	963	-	-	1562	-
HCM Lane V/C Ratio	0.012	-	-	0.007	-
HCM Control Delay (s)	8.8	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

HCM 6th TWSC  
 17: Site Access #4 & Castle Oaks Drive

2040 Total  
 PM Peak

Intersection												
Int Delay, s/veh	2.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	16	41	11	1	35	1	7	0	0	1	0	9
Future Vol, veh/h	16	41	11	1	35	1	7	0	0	1	0	9
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	45	12	1	38	1	8	0	0	1	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	39	0	0	57	0	0	131	126	51	126	132	39
Stage 1	-	-	-	-	-	-	85	85	-	41	41	-
Stage 2	-	-	-	-	-	-	46	41	-	85	91	-
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	1571	-	-	1547	-	-	841	764	1017	848	759	1033
Stage 1	-	-	-	-	-	-	923	824	-	974	861	-
Stage 2	-	-	-	-	-	-	968	861	-	923	820	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1571	-	-	1547	-	-	825	755	1017	840	750	1033
Mov Cap-2 Maneuver	-	-	-	-	-	-	825	755	-	840	750	-
Stage 1	-	-	-	-	-	-	913	815	-	963	860	-
Stage 2	-	-	-	-	-	-	958	860	-	913	811	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.7			0.2			9.4			8.6		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	825	1571	-	-	1547	-	-	1010
HCM Lane V/C Ratio	0.009	0.011	-	-	0.001	-	-	0.011
HCM Control Delay (s)	9.4	7.3	0	-	7.3	0	-	8.6
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

HCM 6th TWSC  
 20: Castle Oaks Drive/Autumn Sage Street (South)

2040 Total  
 PM Peak

Intersection						
Int Delay, s/veh	2.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		B		Y	↑
Traffic Vol, veh/h	29	22	70	35	33	120
Future Vol, veh/h	29	22	70	35	33	120
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	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	32	24	76	38	36	130

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	297	95	0	0	114
Stage 1	95	-	-	-	-
Stage 2	202	-	-	-	-
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	694	962	-	-	1475
Stage 1	929	-	-	-	-
Stage 2	832	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	677	962	-	-	1475
Mov Cap-2 Maneuver	677	-	-	-	-
Stage 1	907	-	-	-	-
Stage 2	832	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10	0	1.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	776	1475
HCM Lane V/C Ratio	-	-	0.071	0.024
HCM Control Delay (s)	-	-	10	7.5
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1