

1889 York Street
Denver, CO 80206
(303) 333-1105
FAX (303) 333-1107
E-mail: lsc@lscdenver.com



December 19, 2016

Mr. Jerry Richmond
Daybreak Recovery Acquisition, LLC
7200 S. Alton Way, Suite C-400
Centennial, CO 80112

Re: Colliers Hill Phase II
Traffic Impact Analysis
Erie, CO
(LSC #150950)

Dear Mr. Richmond:

In response to your request, LSC Transportation Consultants, Inc. has prepared this traffic impact analysis for the proposed Colliers Hill Phase II development. As shown on Figure 1, the site is located north of Erie Parkway, west of Weld County Road (WCR) 5, and south of WCR 10 in Erie, 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; an estimate of 2021 and 2035 background traffic, and any recommended roadway improvements to mitigate the site's traffic impacts.

LAND USE AND ACCESS

The site is proposed to include 745 single-family detached homes, 100 single-family attached homes, and a 500-student elementary school. Access is proposed from several locations as shown in the conceptual site plan in Figure 2. The site is projected to reach buildout by 2021.

ROADWAY AND TRAFFIC CONDITIONS

Area Roadways

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

- **Erie Parkway** is an east-west, two-lane arterial roadway south of the site. The intersections with Colliers Boulevard (WCR 3) and WCR 5 were recently signalized and have existing auxiliary turn lanes. The posted speed limit in the vicinity of the site varies

between 40 and 50 mph. The 2030 Roadway System Plan in the *Town of Erie 2008 Master Transportation Plan* shows Erie Parkway as a four-lane principal arterial. The *Buildout Roadway Network* shows a six-lane principal arterial.

- **Weld County Road 5** is a north-south, two-lane minor arterial roadway east of the site. The intersection with Erie Parkway was recently signalized. The posted speed limit in the vicinity of the site is 45 mph. The *Town of Erie 2008 Master Transportation Plan* shows a two-lane minor arterial in 2030 and a four-lane minor arterial by buildout. Erie High School is located east of WCR 5 just north of Erie Parkway. A traffic signal is currently being installed at the intersection of WCR 5/ Colliers Parkway/Erie High School.
- **Weld County Road 10** is an east-west, two-lane collector gravel roadway north of the site. The intersections with WCR 3 and WCR 5 are stop-sign controlled.
- **Colliers Parkway** is an east-west, two-lane collector roadway connecting Collier Boulevard (WCR 3) and WCR 5 and bisects the overall Colliers Hill site.

Existing Traffic Conditions

Figure 3 shows the existing lane geometries, traffic controls, posted speed limits, and traffic volumes in the site's vicinity on a typical weekday. The weekday peak-hour traffic volumes and daily traffic counts are from the attached traffic counts conducted by Counter Measures in September, 2015.

2021 and 2035 Background Traffic

Figures 4 and 5 show the estimated 2021 and 2035 background traffic. The projected 2035 background traffic volumes are based on previous studies in the area for Colliers Hill Phase I (formerly known as Bridgewater Phase I), Morgan Hill, Summerfield, and Sunset with adjustments made for the current density planned in Colliers Hill Phase III. The 2021 background traffic was generally pro-rated between the existing and 2035 estimates.

Existing, 2021, and 2035 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 signalized and unsignalized intersections.

The intersections in Figures 3, 4, and 5 were analyzed as appropriate to determine the existing, 2021, and 2035 background levels of service using Synchro. Table 1 shows the level of service analysis results. The level of service reports are attached.

- **WCR 10/Colliers Boulevard/WCR 3:** All movements at this unsignalized intersection currently operate at LOS "A" during the morning and afternoon peak-hours. By 2021, all movements are expected to operate at LOS "B" or better during both peak-hours and are expected to do so through 2035.

- **Erie Parkway/Bonanza Drive/Colliers Boulevard:** This signalized intersection currently operates at an overall LOS “A” during the morning peak-hour and afternoon peak-hours. By 2021, it is expected to operate at LOS “B” during both peak-hours and by 2035, the morning peak-hour is expected to operate at an overall LOS “C” and the afternoon peak-hour is expected to operate at LOS “B”.
- **Colliers Parkway/Colliers Boulevard:** All movements at this roundabout currently operate at LOS “A” and are expected to do so through 2035.
- **WCR 5/Erie Parkway:** This signalized intersection currently operates at an overall LOS “B” during the morning peak-hour and LOS “A” during the afternoon peak-hour. By 2021, the intersection is expected to operate at LOS “C” during both peak-hours, and by 2035, it is expected to operate at LOS “D” during both peak-hours.
- **WCR 5/Colliers Parkway/High School Access:** This signalized intersection is expected to operate at an overall LOS “C” or better during both peak-hours through 2035.
- **WCR 5/Collector:** All movements at this unsignalized intersection are expected to operate at LOS “D” or better during the morning and afternoon peak-hours with the following exception: The eastbound left movement is expected to operate at LOS “F” during both peak-hours. Vehicles making this movement can alternatively exit the site north to WCR 10 and turn left onto WCR 5 from WCR 10 which has the potential to be signalized in the long term.
- **WCR 5/WCR 10:** All movements at this unsignalized intersection currently operate at LOS “C” or better and are expected to do so through 2021. By 2035, several movements are expected to operate at LOS “E” or “F”. Traffic signal control will likely be necessary after 2021 once a traffic signal warrant is met.

TRIP GENERATION

Table 1 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, 9th Edition, 2012* by the Institute of Transportation Engineers (ITE) for the proposed land use. The site was divided into Traffic Analysis Zones (TAZ) as shown in Table 2 and Figure 6.

The proposed land use is projected to generate about 7,835 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 178 vehicles would enter and about 481 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 514 vehicles would enter and about 302 vehicles would exit.

TRIP DISTRIBUTION

Figure 7 shows the estimated directional distribution of the site-generated traffic volumes on the area roadways. The estimates were based on the location of the site with respect to the regional population, employment, and activity centers; and the site’s proposed land use.

TRIP ASSIGNMENT

Figure 8a shows the estimated 2021 site-generated traffic volumes which are the directional distribution percentages (from Figure 6) applied to the trip generation estimate (from Table 2).

Figure 8b shows the estimated build-out site-generated traffic volumes which are the directional distribution percentages (from Figure 6) applied to the trip generation estimate (from Table 2).

2021 AND 2035 TOTAL TRAFFIC

Figure 9 shows the 2021 total traffic which is the sum of the 2021 background traffic volumes (from Figure 4) and the 2021 site-generated traffic volumes (from Figure 8a). Figure 9 also shows the recommended 2021 lane geometry and traffic control.

Figure 10 shows the 2035 total traffic which is the sum of the 2035 background traffic volumes (from Figure 5) and the site-generated traffic volumes (from Figure 8b). Figure 10 also shows the recommended 2035 lane geometry and traffic control.

PROJECTED LEVELS OF SERVICE

The intersections in Figures 9 and 10 were analyzed to determine the 2021 and 2035 total levels of service. Table 1 shows the level of service analysis results. The level of service reports are attached.

- **WCR 10/Colliers Boulevard/WCR 3:** All movements at this unsignalized intersection are expected to operate at LOS "C" or better during both peak-hours through 2035.
- **Erie Parkway/Bonanza Drive/Colliers Boulevard:** This signalized intersection is expected to operate at an overall LOS "C" during the morning peak-hour and LOS "B" during the afternoon peak-hour through 2021. By 2035, both peak-hours are expected to operate at LOS "C".
- **Colliers Boulevard (WCR 3)/Local Access/Collector:** All movements at this unsignalized intersection are expected to operate at LOS "C" or better during the morning and afternoon peak-hours through 2035.
- **Colliers Parkway/Colliers Boulevard:** All movements at this roundabout are expected to operate at LOS "B" or better during the morning and afternoon peak-hours through 2021. By 2035, all movements are expected to operate at LOS "C" or better during both peak-hours.
- **WCR 5/Erie Parkway:** This signalized intersection is expected to operate at an overall LOS "C" during the morning and afternoon peak-hours through 2021. By 2035, this intersection is expected to operate at an overall LOS "D" during both peak-hours.
- **WCR 5/Colliers Parkway/High School Access:** By 2021, this signalized intersection is expected to operate at an overall LOS "D" during the morning peak-hour and LOS "C" during the afternoon peak-hour, with or without the addition of site traffic. By 2035, it is

expected to operate at an overall LOS “C” during the morning peak-hour and LOS “B” during the afternoon peak-hour, with or without the addition of site traffic.

- **WCR 5/Collector:** All movements at this unsignalized intersection are expected to operate at LOS “D” or better during the morning and afternoon peak-hours with the following exception: The eastbound left movement is expected to operate at LOS “F” during both peak-hours. Vehicles making this movement can alternatively exit the site north to WCR 10 and turn left onto WCR 5 from WCR 10 which has the potential to be signalized in the long term.
- **WCR 5/WCR 10:** All movements at this unsignalized intersection are expected to operate at LOS “D” or better through 2021. By 2035, the eastbound and westbound movements are expected to operate at LOS “F” during both peak-hours. Traffic signal control will likely be necessary once a traffic signal warrant is met. Figure 11 shows a four-hour traffic signal warrant will not be met by 2021 but will likely be met by 2035.

TRAFFIC SIGNAL WARRANTS - WCR 5/WCR 10

Figure 11 shows the 2021 and 2035 morning and afternoon peak-hour volumes plotted on a four-hour traffic signal warrant chart. Only the morning peak-hour exceeds the threshold in 2021, likely due to Erie High School traffic. By 2035, a four-hour warrant is expected to be met if the projected volumes are reached.

CONCLUSIONS AND RECOMMENDATIONS

Trip Generation

1. The site is projected to generate about 7,835 vehicle-trips on the average weekday, with about half entering and half exiting during a 24-hour period. During the morning peak-hour, about 178 vehicles would enter and about 481 vehicles would exit the site. During the afternoon peak-hour, about 514 vehicles would enter and about 302 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 the morning and afternoon peak-hours with the following exceptions: The eastbound left movement at the WCR 5/Collector intersection is expected to operate at LOS “F” during both peak-hours by 2035. The eastbound and westbound approaches at the WCR 5/WCR 10 intersection are expected to operate at LOS “F” during both peak-hours by 2035. The WCR 5/WCR 10 intersection will likely need to be signalized by 2035 based on a four-hour warrant being met per Figure 11. If signalized, the vehicles making the left-turn movement onto WCR 5 from the Collector intersection could alternatively turn left onto WCR 5 at WCR 10.
3. All signalized intersections analyzed are expected to operate at an overall LOS “D” or better during both morning and afternoon peak-hours through 2035.

Conclusions

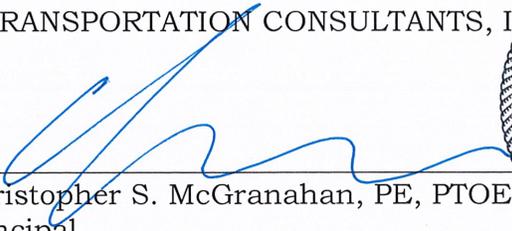
- 4. The impact of the Colliers Hill Phase II development site can be accommodated by the existing and proposed roadway network with the recommended improvements shown in Figures 9 and 10.
- 5. The intersection of WCR 5/WCR 10 will likely meet a four-hour traffic signal warrant between 2021 and 2035.

* * * * *

We trust our findings will assist you in gaining approval of the proposed Colliers Hill Phase II 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



12-19-16

CSM/wc

- Enclosures:
- Tables 1 and 2
 - Figures 1 - 11
 - Traffic Count Reports
 - Level of Service Definitions
 - Level of Service Reports

Table 1 (Page 1 of 2)
Intersection Levels of Service Analysis
Colliers Hill Update
Erie, CO
LSC #150950; December, 2016

Intersection Location	Traffic Control	Existing Traffic		2021 Background Traffic		2021 Total Traffic		2035 Background Traffic		2035 Total Traffic	
		Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
<u>WCR 10/Colliers Blvd./WCR 3</u>											
	TWSC										
WB Approach		A	A	--	--	--	--	--	--	--	--
WB Left		--	--	B	B	B	C	B	B	B	C
WB Right		--	--	A	A	A	B	A	A	B	B
SB Approach		A	A	--	--	--	--	--	--	--	--
SB Left		--	--	A	A	A	A	A	A	A	A
Critical Movement Delay		8.5	8.8	10.2	11.5	11.0	18.5	12.1	14.6	13.4	18.5
<u>Erie Parkway/Bonanza Drive/Colliers Blvd.</u>											
	Signalized										
EB Left		A	A	A	A	B	A	B	C	C	D
EB Through		A	A	B	A	B	B	B	B	B	B
EB Right		A	A	A	A	B	B	A	B	B	B
WB Left		A	A	A	A	B	B	B	B	B	B
WB Through		A	A	B	A	B	B	B	B	C	C
WB Right		A	A	A	A	B	B	A	B	B	B
NB Left		C	C	D	D	D	D	D	D	D	D
NB Through/Right		C	C	D	D	D	D	D	D	D	D
SB Left		C	C	D	D	D	D	D	D	D	D
SB Through/Right		C	C	--	--	--	--	--	--	--	--
SB Through		--	--	D	D	D	D	D	D	D	D
SB Right		--	--	D	D	D	D	D	D	D	C
Entire Intersection Delay (sec /veh)		5.8	5.6	19.7	16.8	23.7	19.5	20.4	19.0	25.6	26.1
Entire Intersection LOS		A	A	B	B	C	B	C	B	C	C
<u>Colliers Blvd. (WCR 3)/Local Access/Collector</u>											
	TWSC										
NB Left		--	--	--	--	--	--	--	--	A	A
EB Left/Through		--	--	--	--	--	--	--	--	B	C
EB Right		--	--	--	--	--	--	--	--	B	B
WB Left		--	--	--	--	--	--	--	--	B	C
WB Through/Right		--	--	--	--	--	--	--	--	B	B
SB Left		--	--	--	--	--	--	--	--	A	A
Critical Movement Delay		--	--	--	--	--	--	--	--	13.1	17.4
<u>Colliers Parkway/Colliers Blvd.</u>											
	Roundabout										
EB Approach		--	--	A	A	A	A	A	A	A	A
WB Approach		A	A	A	A	A	A	A	A	A	A
NB Approach		A	A	A	A	A	B	A	A	A	C
SB Approach		A	A	A	A	A	A	A	A	A	B
Entire Intersection Delay (sec /veh)		3.8	3.6	5.9	7.1	7.5	9.7	6.5	8.6	8.3	12.5
Entire Intersection LOS		A	A	A	A	A	A	A	A	A	B
<u>WCR 5/Collector</u>											
	TWSC										
NB Left		--	--	--	--	--	--	B	B	B	B
EB Left		--	--	--	--	--	--	F	F	F	F
EB Right		--	--	--	--	--	--	D	C	C	C
Critical Movement Delay		--	--	--	--	--	--	66.2	>240	67.2	>240

Table 1 (Page 2 of 2)
Intersection Levels of Service Analysis
Colliers Hill Update
Erie, CO
LSC #150950; December, 2016

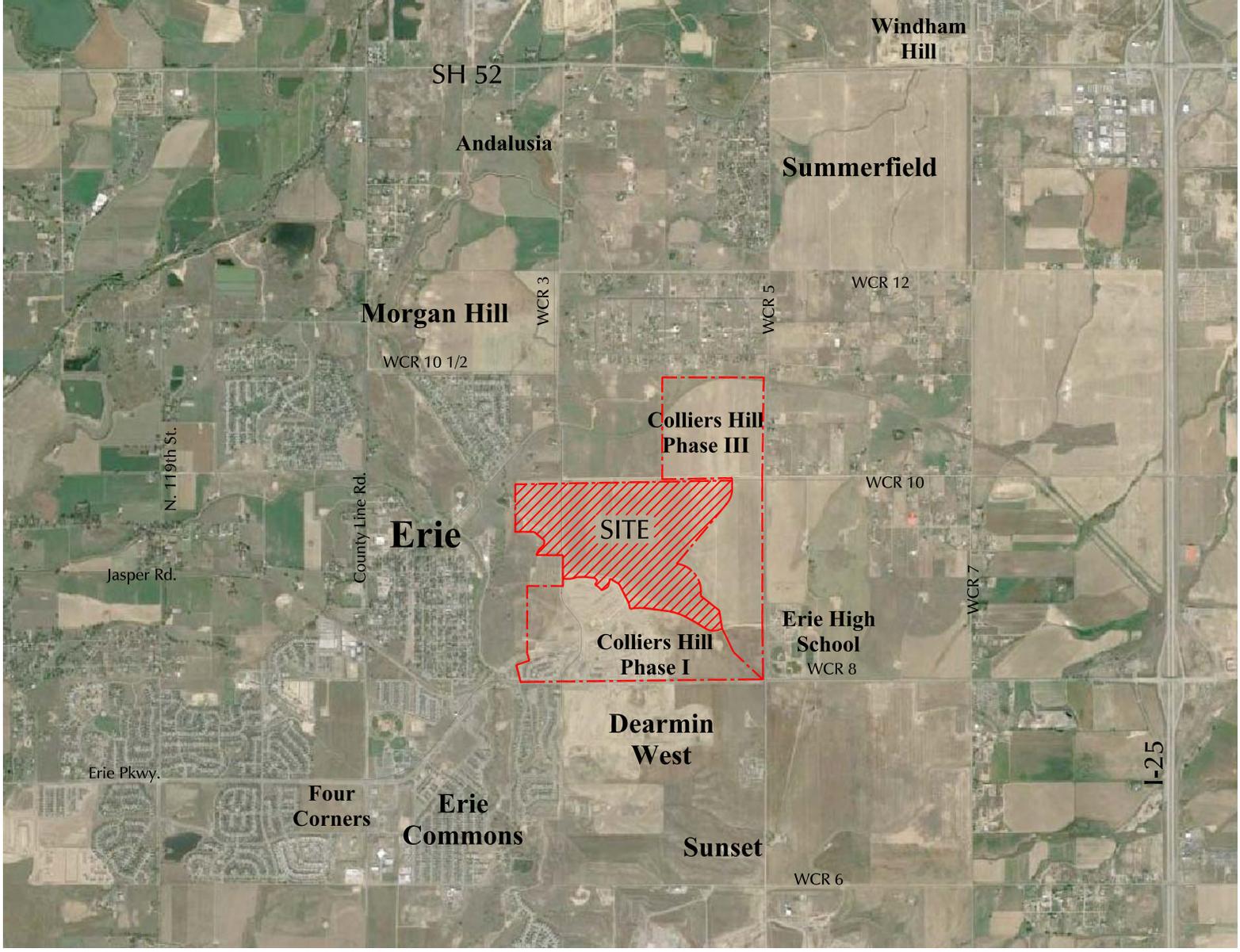
Intersection Location	Traffic Control	Existing Traffic		2021 Background Traffic		2021 Total Traffic		2035 Background Traffic		2035 Total Traffic	
		Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
<u>WCR 5/Erie Parkway</u>		Signalized									
EB Left		B	A	B	A	B	A	E	D	E	D
EB Through/Right		A	A	--	--	--	--	--	--	--	--
EB Through		--	--	B	B	B	B	C	C	C	C
EB Right		--	--	B	A	B	A	B	B	B	B
WB Left		A	A	B	A	B	A	E	D	E	D
WB Through		A	A	B	B	B	B	C	D	C	D
WB Right		A	A	B	A	B	A	B	C	B	C
NB Left		C	C	D	D	D	D	E	D	E	D
NB Through/Right		C	C	--	--	--	--	--	--	--	--
NB Through		--	--	D	D	D	D	D	D	D	D
NB Right		--	--	D	D	D	D	D	C	D	D
SB Left		C	C	D	D	D	D	E	D	E	D
SB Through		B	B	D	D	D	D	D	D	D	D
SB Right		C	C	D	D	D	D	D	C	D	C
Entire Intersection Delay (sec /veh)		11.0	7.2	28.9	20.4	30.6	21.9	37.4	36.4	38.7	39.6
Entire Intersection LOS		B	A	C	C	C	C	D	D	D	D
<u>WCR 5/Colliers Parkway/High School Access</u>		TWSC									
NB Through		A	A	--	--	--	--	--	--	--	--
EB Approach		A	A	--	--	--	--	--	--	--	--
WB Approach		F	A	--	--	--	--	--	--	--	--
SB Left		A	A	--	--	--	--	--	--	--	--
Critical Movement Delay		75.5	9.9	--	--	--	--	--	--	--	--
		Signalized									
EB Left		--	--	C	C	C	C	C	C	C	C
EB Through/Right		--	--	D	D	D	D	C	C	C	C
WB Left		--	--	D	C	D	C	D	C	D	C
WB Through/Right		--	--	C	D	C	D	C	C	C	C
NB Left		--	--	B	B	C	B	B	A	B	B
NB Through		--	--	C	B	C	B	D	B	D	B
NB Right		--	--	C	B	D	B	D	B	D	B
SB Left		--	--	C	B	D	B	C	A	C	A
SB Through		--	--	B	B	C	B	B	A	C	B
SB Right		--	--	B	B	C	B	B	A	B	A
Entire Intersection Delay (sec /veh)		--	--	29.9	25.7	35.6	27.9	29.7	16.7	31.5	15.8
Entire Intersection LOS		--	--	C	C	D	C	C	B	C	B
<u>WCR 5/WCR 10</u>		TWSC with the potential for signalization by 2035									
NB Approach		A	A	A	A	--	--	--	--	--	--
NB Left		--	--	--	--	A	A	A	A	A	A
EB Approach		B	A	B	B	--	--	--	--	--	--
EB Left		--	--	--	--	D	D	E	F	F	F
EB Through/Right		--	--	--	--	C	B	E	F	F	F
WB Approach		C	A	C	B	C	C	--	--	--	--
WB Left		--	--	--	--	--	--	F	F	F	F
WB Through/Right		--	--	--	--	--	--	E	F	F	F
SB Approach		A	A	A	A	--	--	--	--	--	--
SB Left		--	--	--	--	A	A	A	B	A	B
Critical Movement Delay		15.0	9.7	18.5	14.9	28.7	25.0	90.3	>240	131.7	>240

Table 2
ESTIMATED TRAFFIC GENERATION
Colliers Hill Phase II
Erie, CO
LSC #150950; December, 2016

Trip Generating Category	Quantity	Trip Generation Rates ⁽¹⁾					Internal Reduction	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	
TAZ A													
Single Family Detached ⁽²⁾	53 DU ⁽³⁾	9.52	0.188	0.563	0.630	0.370	0%	505	10	30	33	20	
TAZ B													
Single Family Detached	128 DU	9.52	0.188	0.563	0.630	0.370	0%	1,219	24	72	81	47	
TAZ C													
Single Family Detached	136 DU	9.52	0.188	0.563	0.630	0.370	0%	1,295	26	77	86	50	
TAZ D													
Single Family Detached	102 DU	9.52	0.188	0.563	0.630	0.370	0%	971	19	57	64	38	
TAZ E													
Single Family Detached	87 DU	9.52	0.188	0.563	0.630	0.370	0%	828	16	49	55	32	
TAZ F													
Single Family Detached	112 DU	9.52	0.188	0.563	0.630	0.370	0%	1,066	21	63	71	41	
TAZ G													
Single Family Detached	127 DU	9.52	0.188	0.563	0.630	0.370	0%	1,209	24	71	80	47	
TAZ H													
Single Family Attached ⁽⁴⁾	100 DU	5.81	0.075	0.365	0.348	0.172	0%	581	7	37	35	17	
TAZ I													
Elementary School ⁽⁵⁾	500 Students	1.29	0.248	0.203	0.074	0.077	75%	161	31	25	9	10	
Total Trips								7,835	178	481	514	302	

Notes:

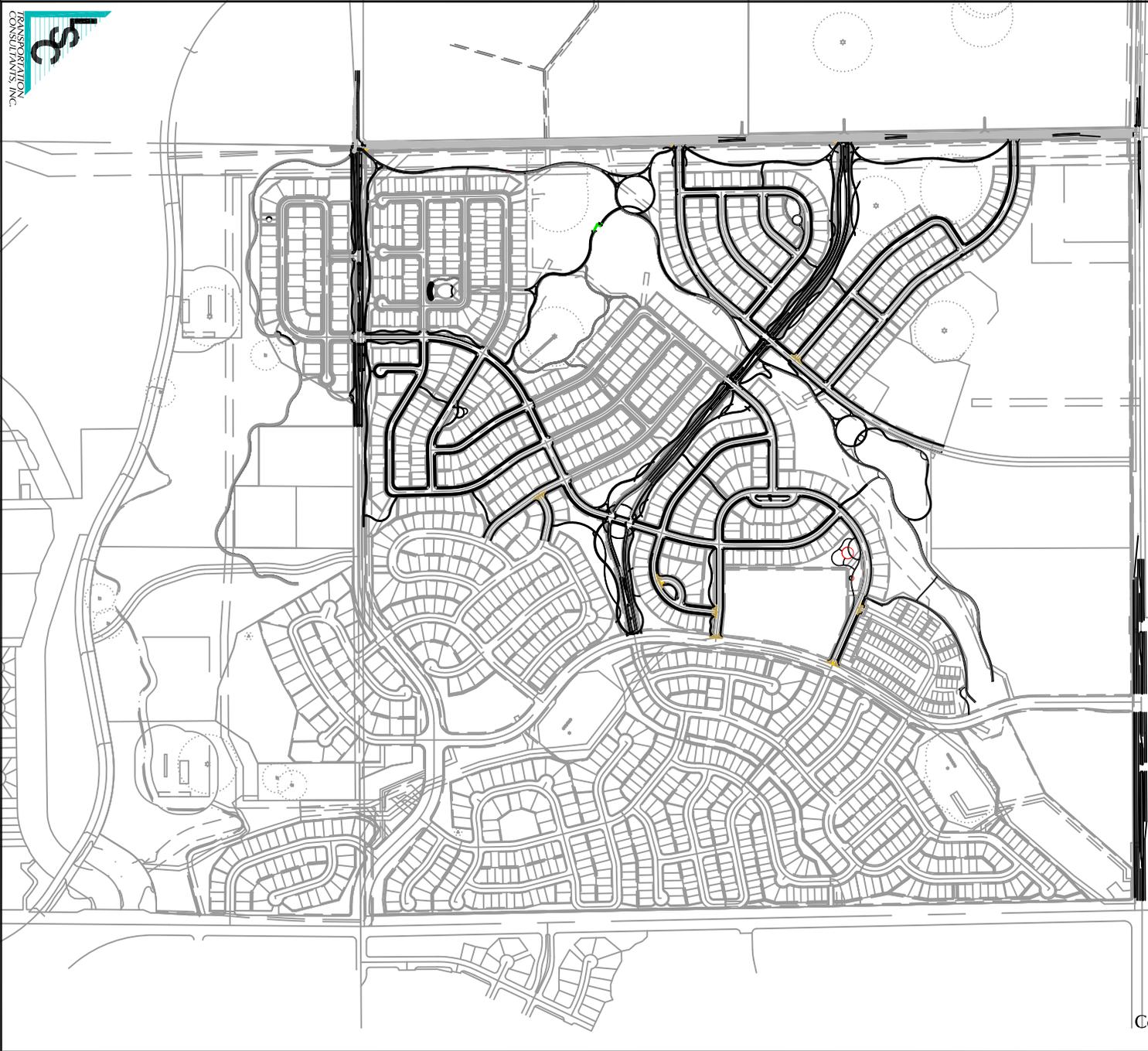
- (1) Source: *Trip Generation*, Institute of Transportation Engineers (ITE), 9th Edition, 2012
- (2) Land Use No. 210 - Single-Family Detached Housing
- (3) DU = Dwelling Unit
- (4) Land Use No. 230 - Residential Condominium/Townhouse
- (5) Land Use No. 520 - Elementary School



Approximate Scale
Scale: 1" = 4,000'

Figure 1
**Vicinity
Map**

Colliers Hill Phase II (LSC #150950)

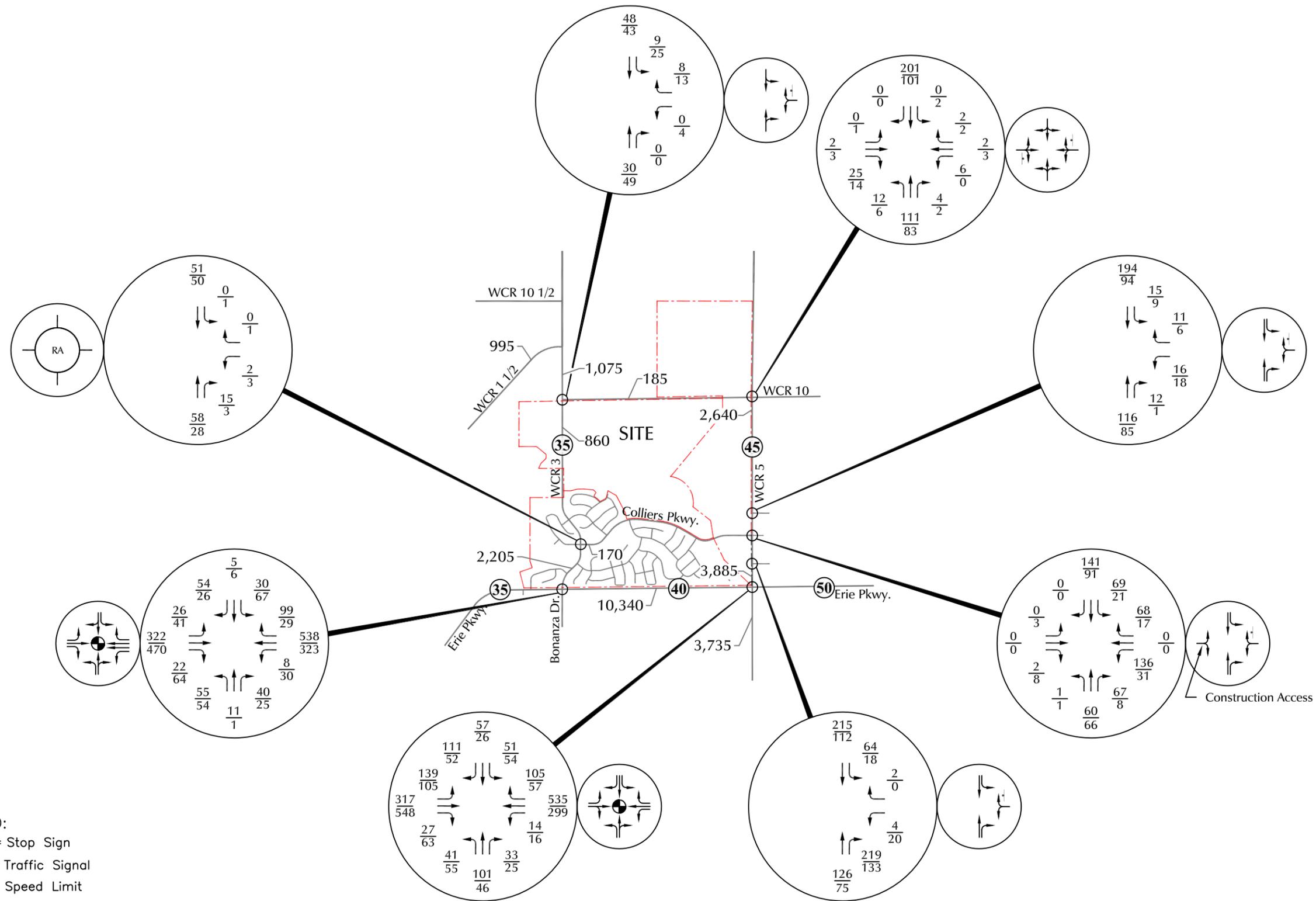
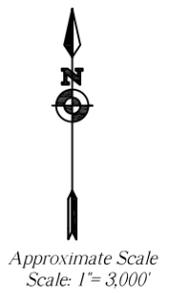


Approximate Scale
Scale: 1" = 1,000'

Figure 2

Phase II Site Plan

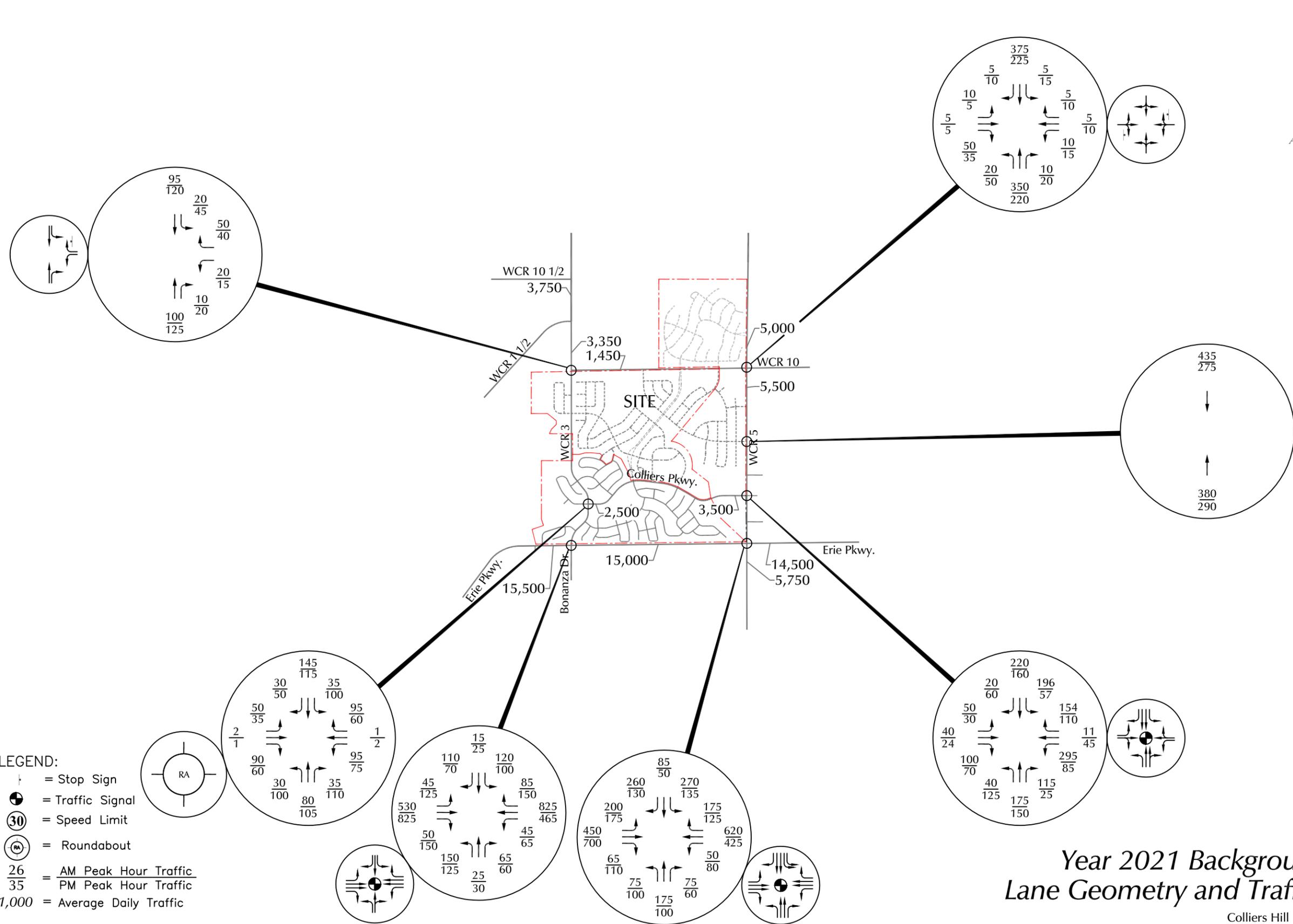
Colliers Hill Phase II (LSC #150950)



- LEGEND:**
- ⊥ = Stop Sign
 - ⊙ = Traffic Signal
 - Ⓟ = Speed Limit
 - Ⓜ = Roundabout
 - $\frac{26}{35}$ = AM Peak Hour Traffic / PM Peak Hour Traffic
 - 1,000 = Average Daily Traffic

Figure 3
Existing Traffic, Traffic Control and Lane Geometry
 Colliers Hill Phase II (LSC #150950)





Approximate Scale
Scale: 1"= 3,000'

- LEGEND:**
- ⊥ = Stop Sign
 - ⊙ = Traffic Signal
 - ⓪30 = Speed Limit
 - Ⓜ = Roundabout
 - $\frac{26}{35}$ = AM Peak Hour Traffic / PM Peak Hour Traffic
 - 1,000 = Average Daily Traffic



Figure 4
**Year 2021 Background Traffic,
Lane Geometry and Traffic Control**
Colliers Hill Phase II (LSC #150950)

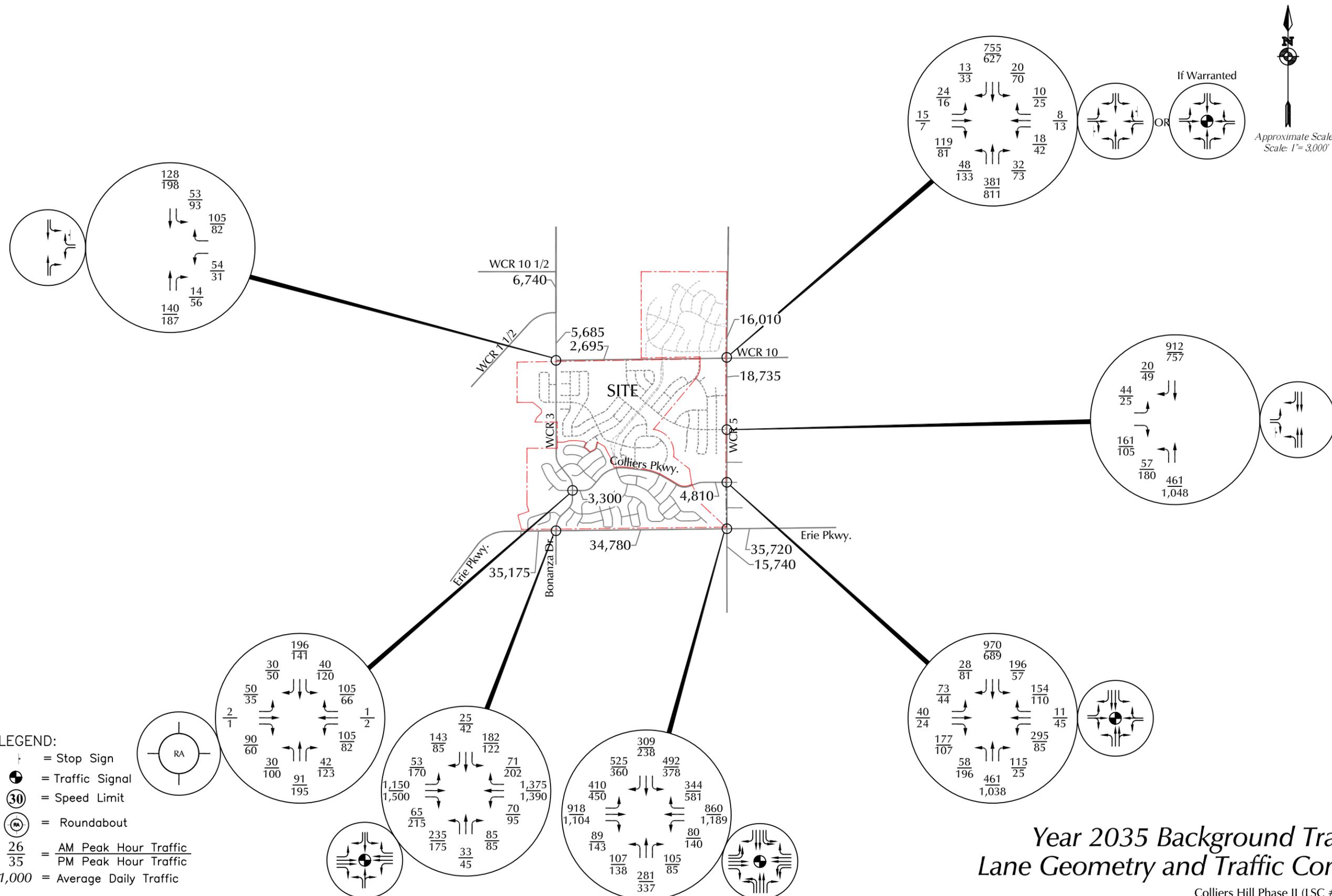


Figure 5

Year 2035 Background Traffic, Lane Geometry and Traffic Control

Colliers Hill Phase II (LSC #150950)





Approximate Scale
Scale: 1" = 1,200'

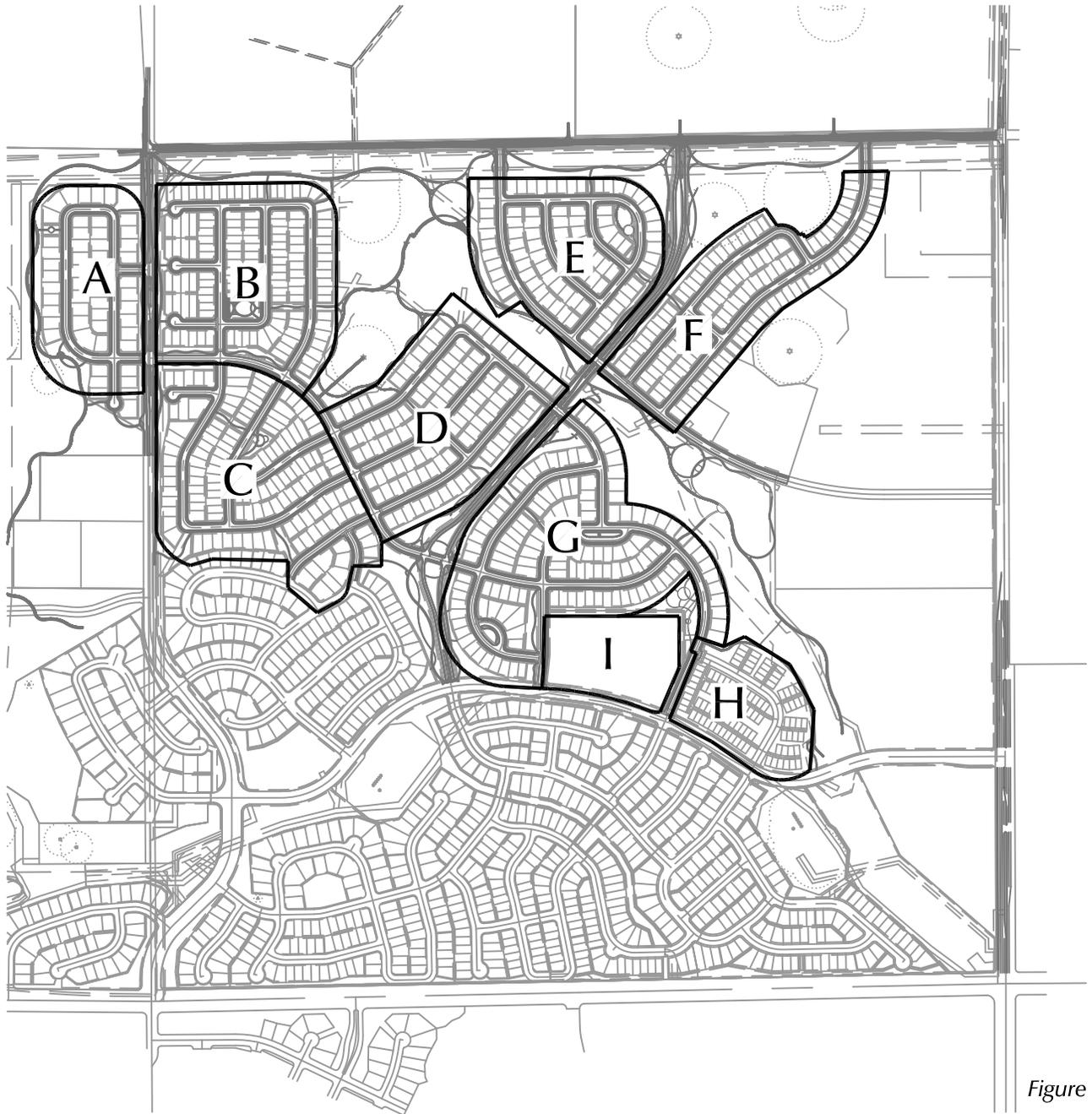
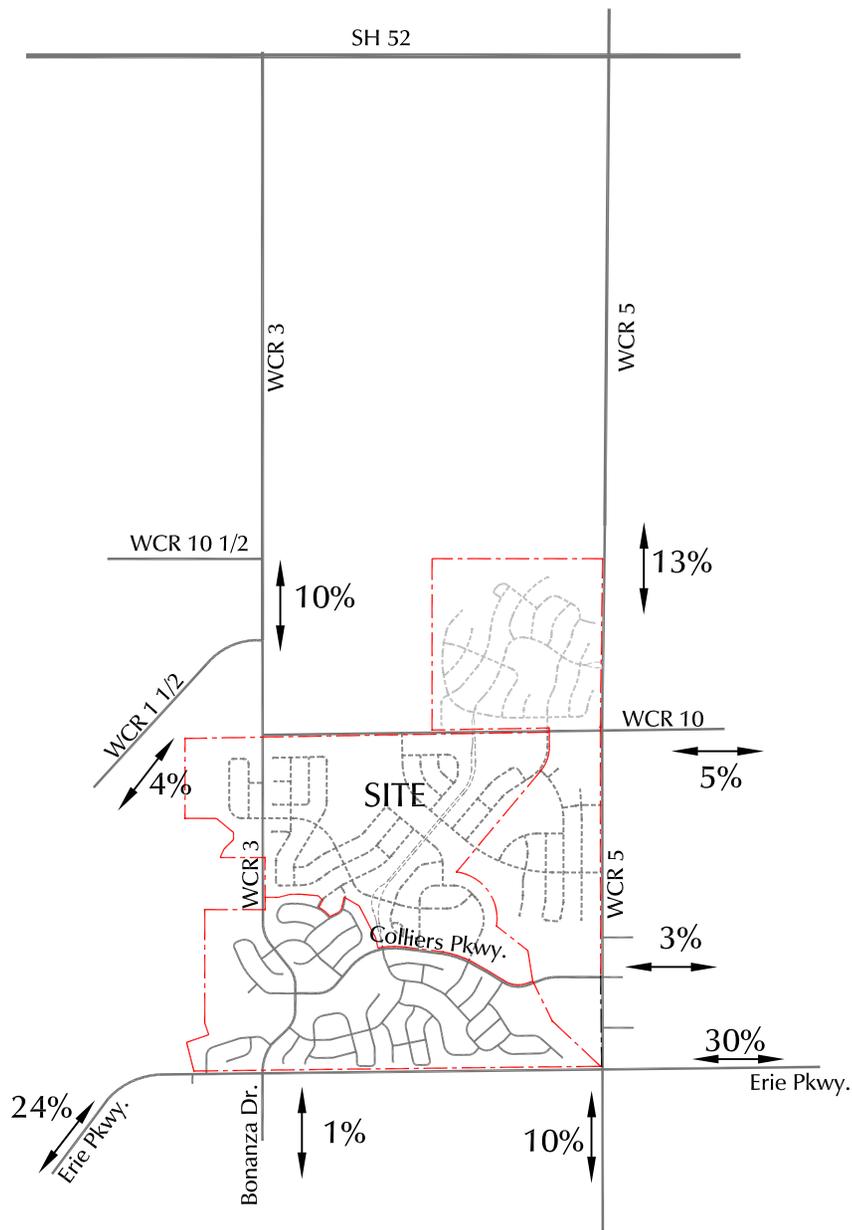


Figure 6

Phase II TAZ Map

Colliers Hill Phase II (LSC #150950)



Approximate Scale
Scale: 1" = 3,000'

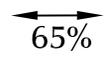
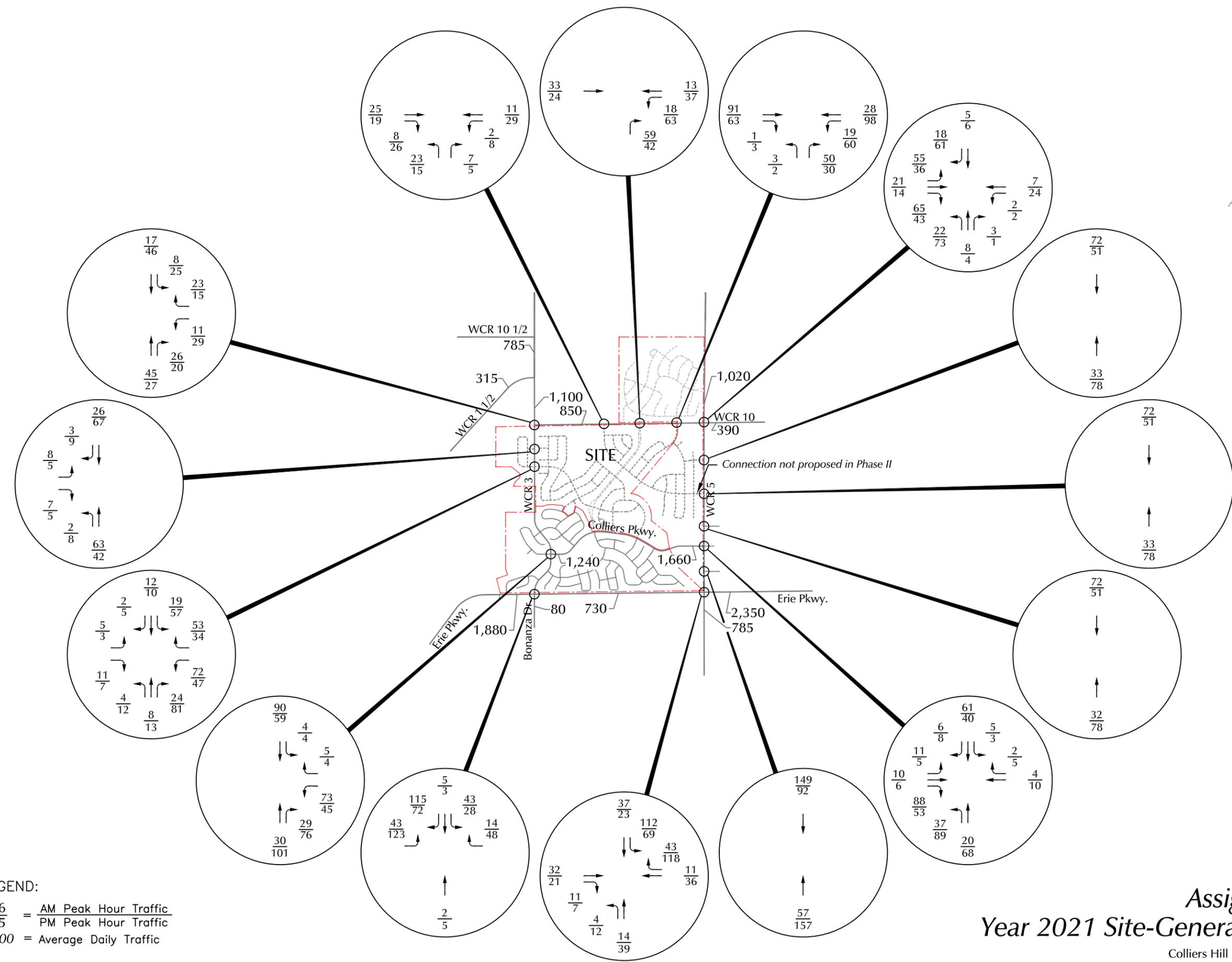
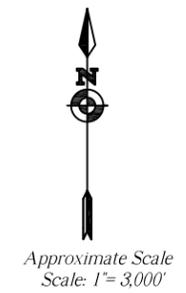
LEGEND:
 = Percent Directional Distribution

Figure 7
**Directional Distribution
of Site-Generated Traffic**
Colliers Hill Phase II (LSC #150950)



LEGEND:

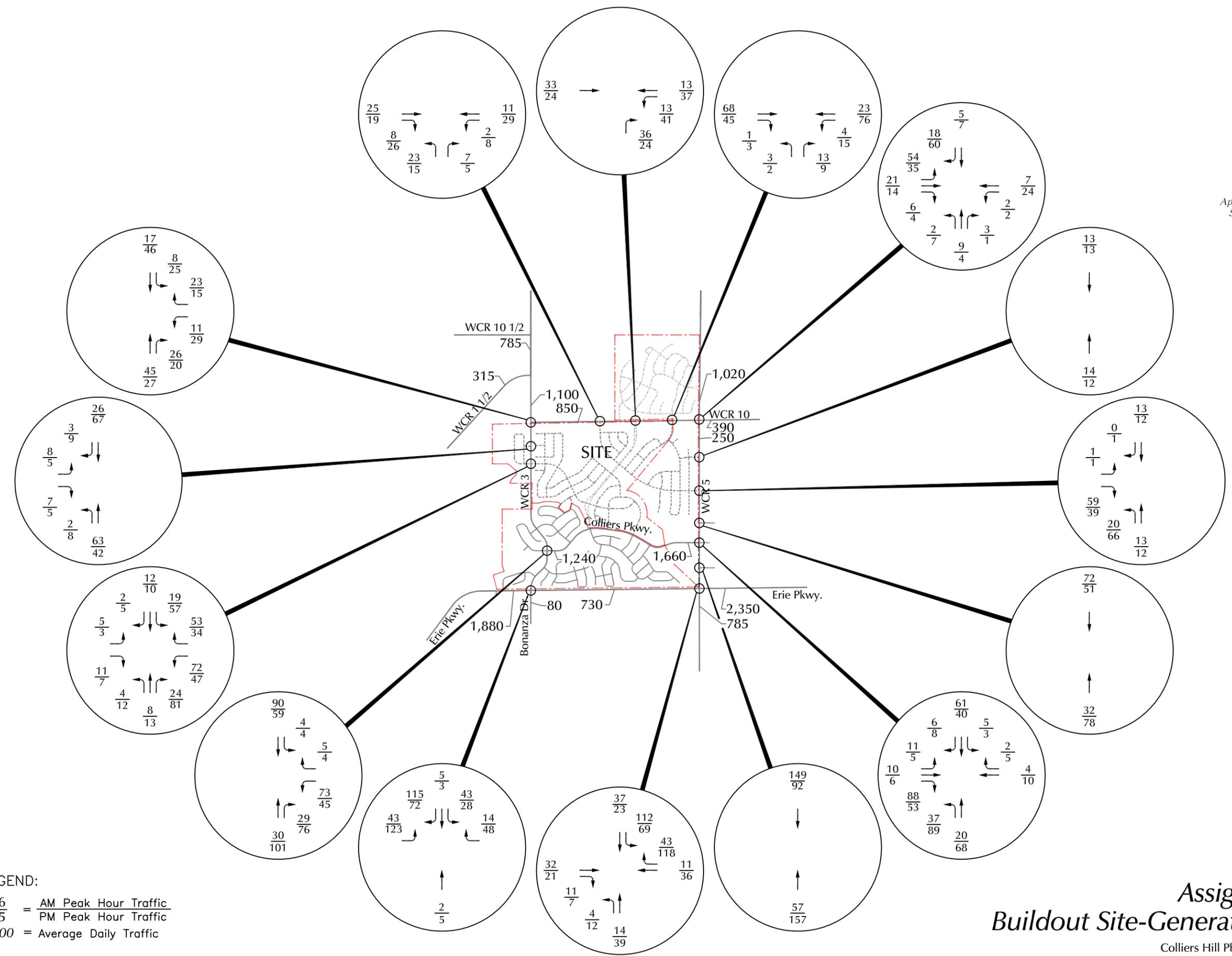
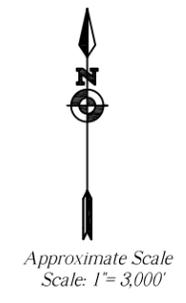
- $\frac{26}{35}$ = AM Peak Hour Traffic
- $\frac{35}{26}$ = PM Peak Hour Traffic
- 1,000 = Average Daily Traffic



Figure 8a

Assignment of Year 2021 Site-Generated Traffic

Colliers Hill Phase II (LSC #150950)

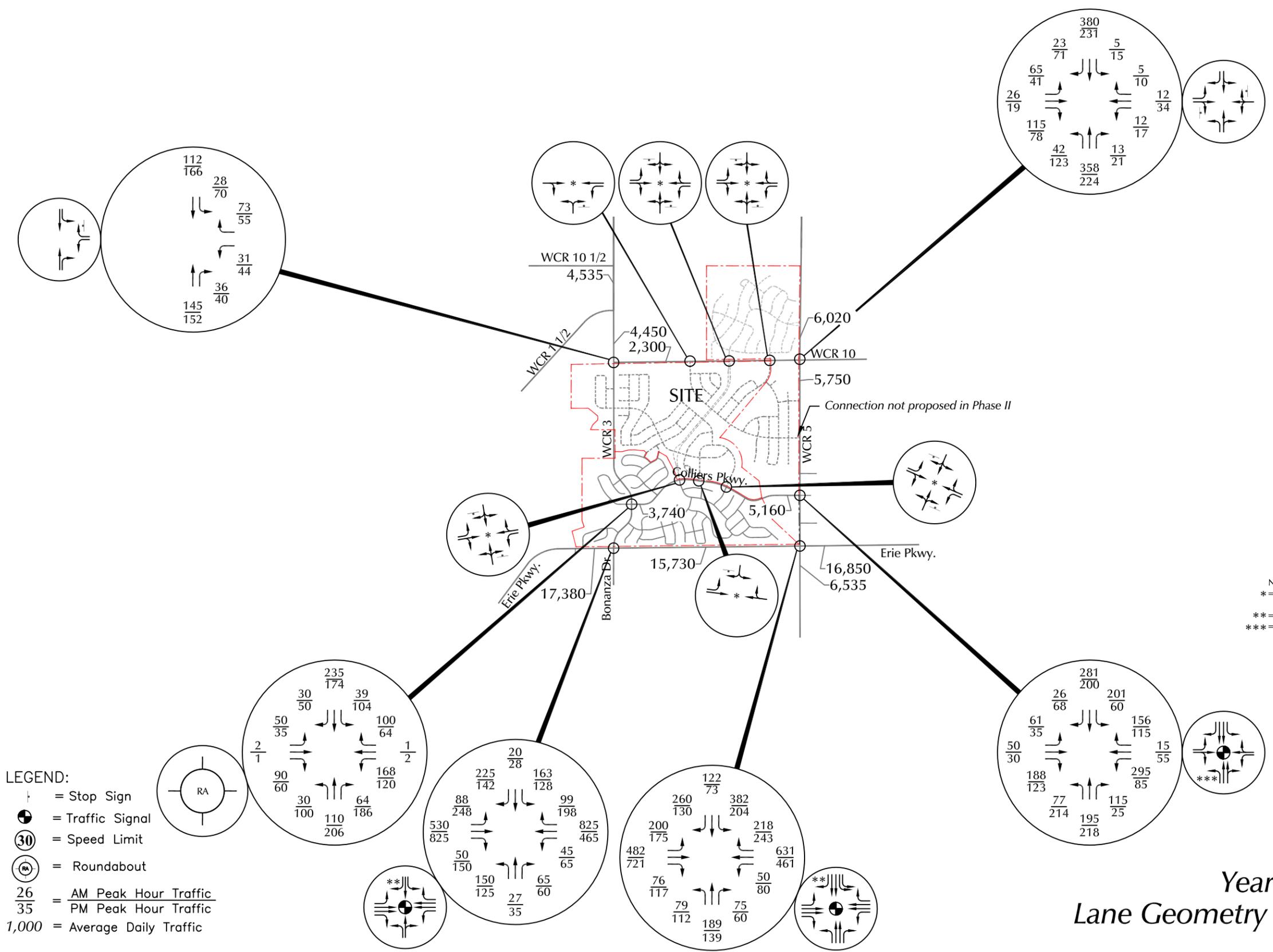
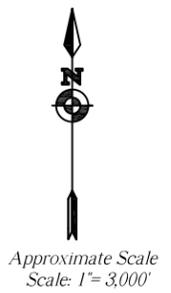


LEGEND:

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



Figure 8b
**Assignment of
 Buildout Site-Generated Traffic**
 Colliers Hill Phase II (LSC #150950)



Notes:
 * = It would be appropriate to design these left-turn lanes based on a 35mph speed.
 ** = Traffic signals were installed in 2015.
 *** = Traffic signal was installed in 2016.

- LEGEND:**
- ⊥ = Stop Sign
 - ⊙ = Traffic Signal
 - ⓪30 = Speed Limit
 - Ⓜ = Roundabout
 - $\frac{26}{35}$ = AM Peak Hour Traffic / PM Peak Hour Traffic
 - 1,000 = Average Daily Traffic

Figure 9
**Year 2021 Total Traffic,
 Lane Geometry and Traffic Control**
 Colliers Hill Phase II (LSC #150950)



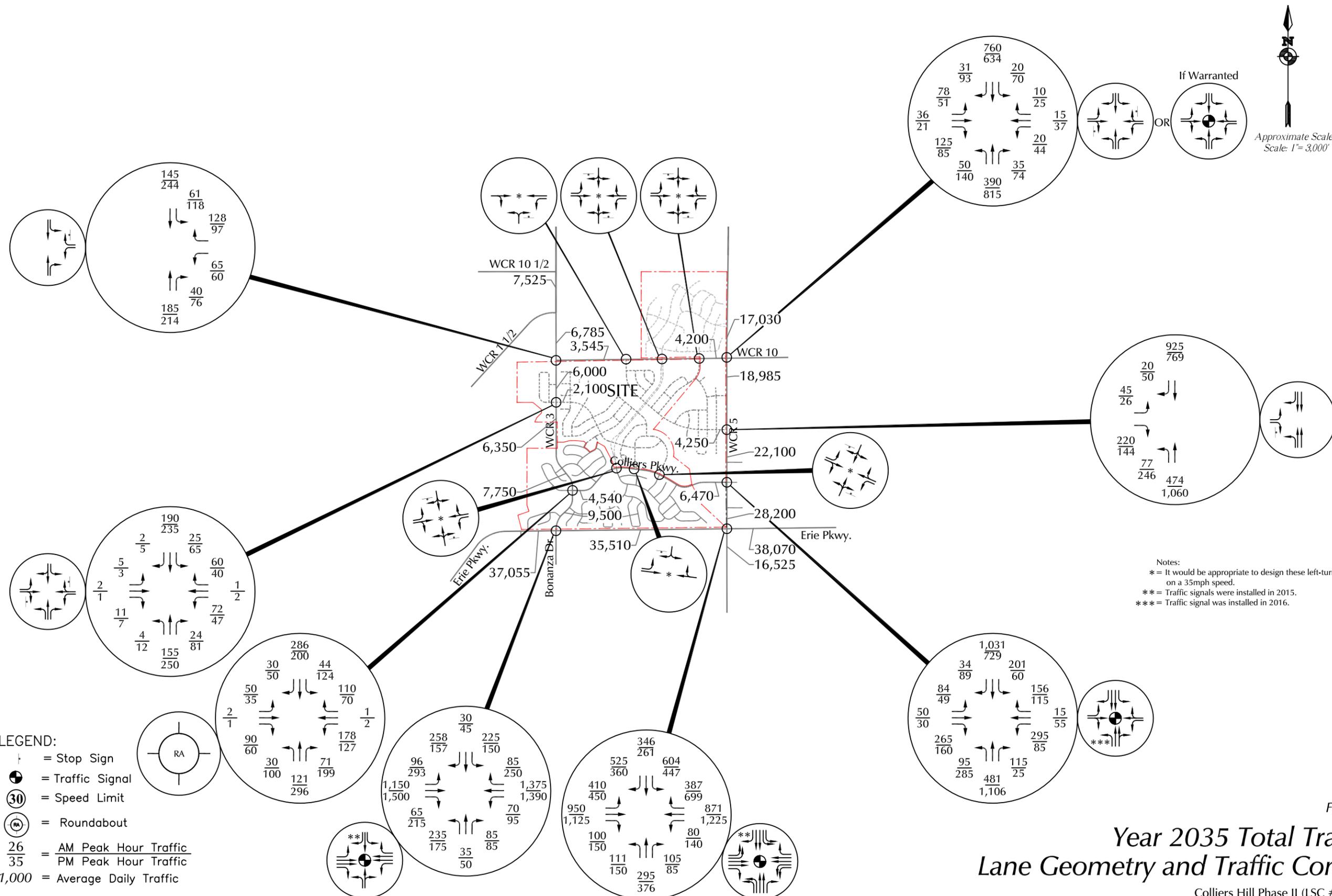
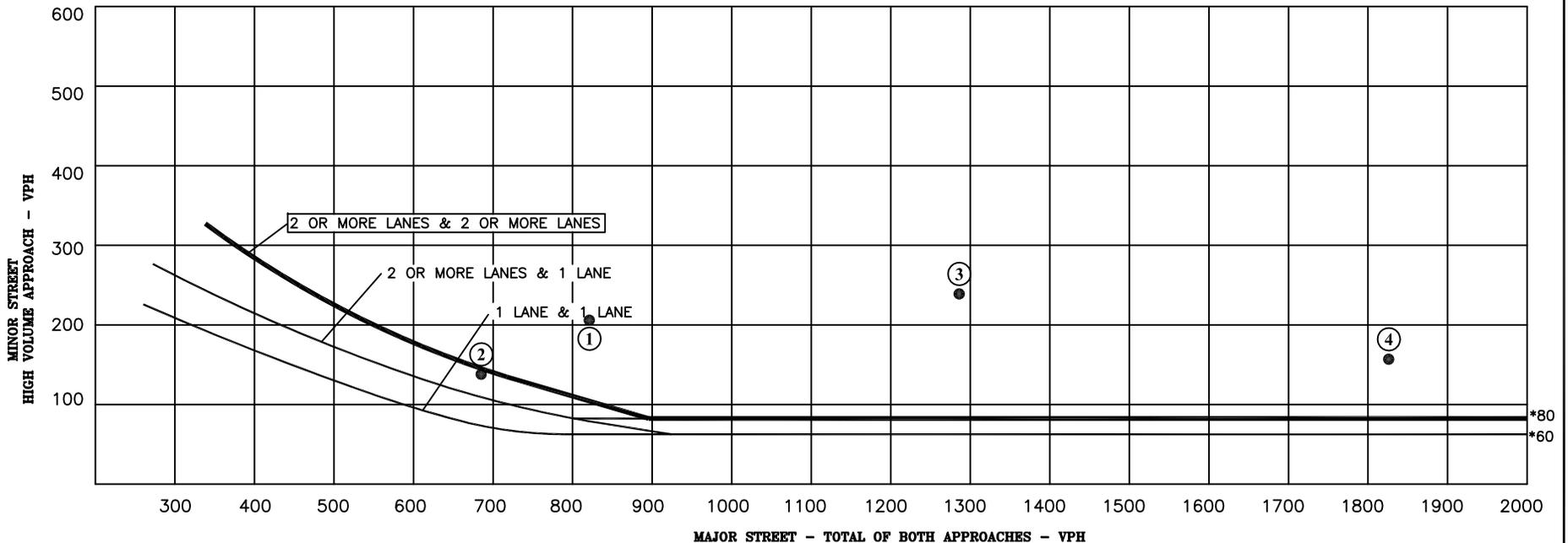


Figure 10
**Year 2035 Total Traffic,
 Lane Geometry and Traffic Control**
 Colliers Hill Phase II (LSC #150950)

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)
(Community Less than 10,000 population or above 40 mph on Major Street)



* Note: 80 vph applies as the lower threshold volumes for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

2021 Total Traffic (Figure 9)

① = AM Peak (821,206)

② = PM Peak (685,138)

2035 Total Traffic (Figure 10)

③ = AM Peak (1286,239)

④ = PM Peak (1826,157)

Figure 11

Four Hour Traffic Signal Warrant Chart

WCR 5/WCR 10

Colliers Hill Phase II (LSC #150950)

COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO
303-333-7409

File Name : CR-5ERIE1
Site Code : 00000016
Start Date : 9/9/2015
Page No : 1

N/S STREET: CR-5
E/W STREET: ERIE PKWY (CR-8)
CITY: ERIE
COUNTY: WELD

Groups Printed- VEHICLES

Start Time	CR-5 Southbound				ERIE PKWY (CR-8) Westbound				CR-5 Northbound				ERIE PKWY (CR-8) 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	1.0	
07:00 AM	25	23	42	0	2	107	53	0	4	59	9	0	101	84	6	0		515
07:15 AM	16	18	49	0	2	124	42	2	8	27	8	0	29	85	10	0		420
07:30 AM	6	6	9	0	2	179	5	0	12	8	7	0	2	68	1	0		305
07:45 AM	4	10	11	0	8	125	5	0	17	7	9	0	7	80	10	0		293
Total	51	57	111	0	14	535	105	2	41	101	33	0	139	317	27	0		1533
08:00 AM	4	8	11	0	7	85	3	0	10	6	1	0	4	51	6	0		196
08:15 AM	2	13	8	3	11	76	2	0	13	7	6	0	5	54	9	1		210
08:30 AM	4	5	6	0	8	81	4	0	17	5	6	0	7	44	7	0		194
08:45 AM	4	8	13	0	8	52	3	0	8	13	8	1	13	54	9	0		194
Total	14	34	38	3	34	294	12	0	48	31	21	1	29	203	31	1		794
04:00 PM	1	10	5	1	4	57	7	0	10	7	8	0	6	95	9	0		220
04:15 PM	4	2	15	2	8	67	9	0	9	11	8	0	6	91	8	0		240
04:30 PM	9	12	8	0	3	56	5	1	16	9	7	0	12	100	18	0		256
04:45 PM	3	6	11	0	4	71	8	0	9	15	8	0	16	132	17	1		301
Total	17	30	39	3	19	251	29	1	44	42	31	0	40	418	52	1		1017
05:00 PM	15	6	16	0	5	61	12	0	14	6	11	0	10	165	19	3		343
05:15 PM	15	1	10	0	5	90	12	0	12	11	5	0	18	128	21	1		329
05:30 PM	15	7	16	0	1	67	14	2	13	13	8	0	26	154	15	0		351
05:45 PM	9	12	10	1	5	81	19	0	16	16	1	0	51	101	8	0		330
Total	54	26	52	1	16	299	57	2	55	46	25	0	105	548	63	4		1353
Grand Total	136	147	240	7	83	1379	203	5	188	220	110	1	313	1486	173	6		4697
Apprch %	25.7	27.7	45.3	1.3	5.0	82.6	12.2	0.3	36.2	42.4	21.2	0.2	15.8	75.1	8.7	0.3		
Total %	2.9	3.1	5.1	0.1	1.8	29.4	4.3	0.1	4.0	4.7	2.3	0.0	6.7	31.6	3.7	0.1		

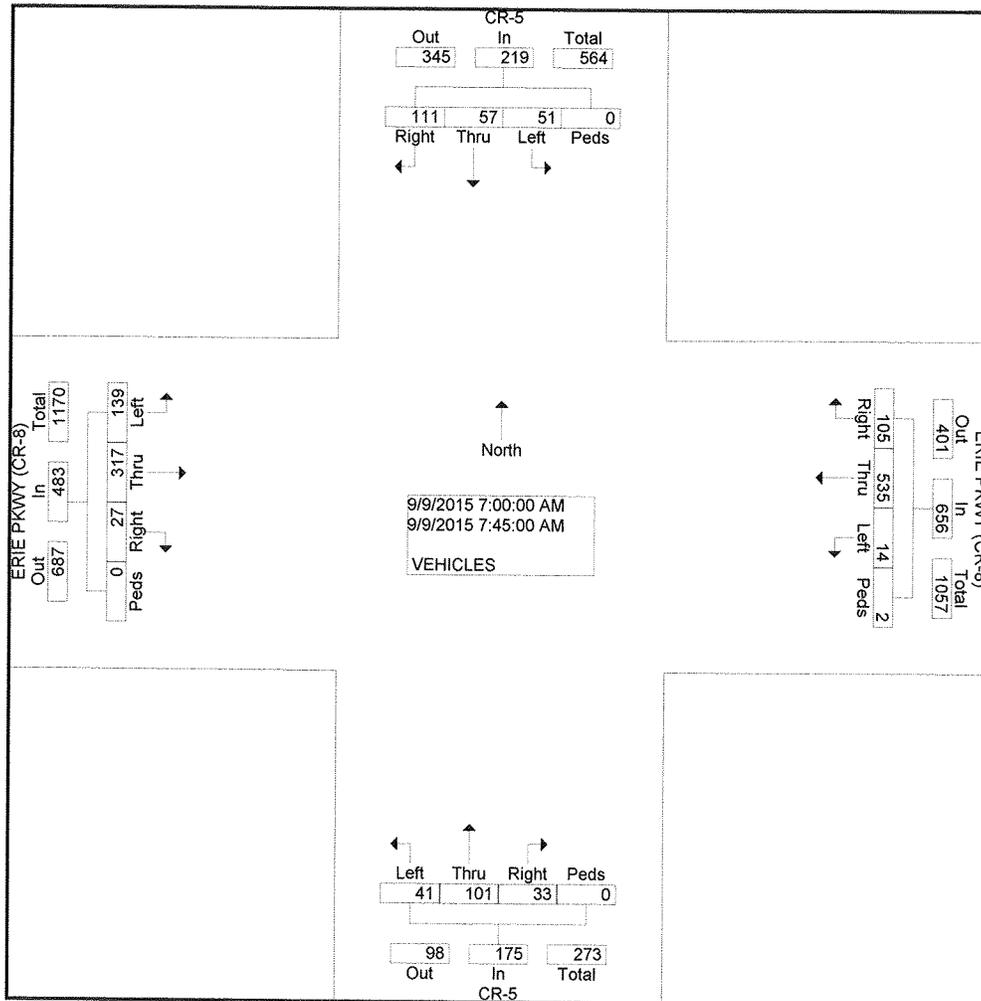
COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO
303-333-7409

N/S STREET: CR-5
E/W STREET: ERIE PKWY (CR-8)
CITY: ERIE
COUNTY: WELD

File Name : CR-5ERIE1
Site Code : 00000016
Start Date : 9/9/2015
Page No : 2

Start Time	CR-5 Southbound					ERIE PKWY (CR-8) Westbound					CR-5 Northbound					ERIE PKWY (CR-8) 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 07:00 AM to 09:00 AM - Peak 1 of 1																					
Intersect on	07:00 AM																				
Volume	51	57	111	0	219	14	535	105	2	656	41	101	33	0	175	139	317	27	0	483	1533
Percent	23.3	26.0	50.7	0.0		2.1	81.6	16.0	0.3		23.4	57.7	18.9	0.0		28.8	65.6	5.6	0.0		
07:00 Volume	25	23	42	0	90	2	107	53	0	162	4	59	9	0	72	101	84	6	0	191	515
Peak Factor																					
High Int. Volume	07:00 AM					07:30 AM					07:00 AM					07:00 AM					
Peak Factor	25	23	42	0	90	2	179	5	0	186	4	59	9	0	72	101	84	6	0	191	0.63
	0.60					0.88					0.60					0.63					0.744
	8					2					8					2					



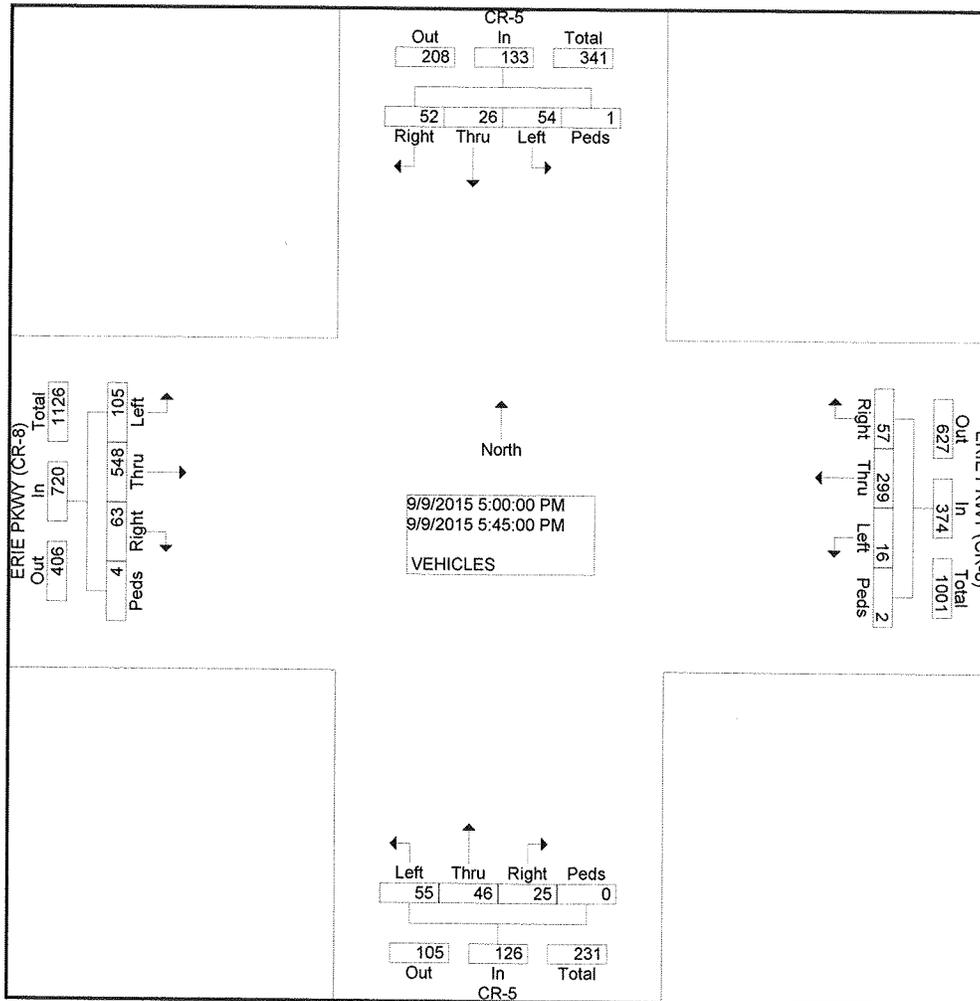
COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO
303-333-7409

N/S STREET: CR-5
E/W STREET: ERIE PKWY (CR-8)
CITY: ERIE
COUNTY: WELD

File Name : CR-5ERIE1
Site Code : 00000016
Start Date : 9/9/2015
Page No : 2

Start Time	CR-5 Southbound					ERIE PKWY (CR-8) Westbound					CR-5 Northbound					ERIE PKWY (CR-8) 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 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersect on	05:00 PM																				
Volume	54	26	52	1	133	16	299	57	2	374	55	46	25	0	126	105	548	63	4	720	1353
Percent	40.6	19.5	39.1	0.8		4.3	79.9	15.2	0.5		43.7	36.5	19.8	0.0		14.6	76.1	8.8	0.6		
05:30 Volume	15	7	16	0	38	1	67	14	2	84	13	13	8	0	34	26	154	15	0	195	351
Peak Factor																					
High Int. Volume	05:30 PM					05:15 PM					05:30 PM					05:00 PM					
Peak Factor	15	7	16	0	38	5	90	12	0	107	13	13	8	0	34	10	165	19	3	197	0.91
	0.87					0.87					0.92					0.91					4
	5					4					6					4					



COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO
303-333-7409

N/S STREET: CR-5
E/W STREET: SOUTH ACCESS SCHOOL
CITY: ERIE
COUNTY: WELD

File Name : CR-5SOUT
Site Code : 00000001
Start Date : 9/9/2015
Page No : 1

Groups Printed- VEHICLES

Start Time	CR-5 Southbound				SOUTH ACCESS SCHOOL Westbound				CR-5 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	
07:00 AM	40	89	0	0	1	0	1	0	0	69	144	0	0	0	0	0	344
07:15 AM	22	82	0	0	1	0	1	0	0	27	71	0	0	0	0	0	204
07:30 AM	1	19	0	0	2	0	0	0	0	15	0	0	0	0	0	0	37
07:45 AM	1	25	0	0	0	0	0	0	0	15	4	0	0	0	0	0	45
Total	64	215	0	0	4	0	2	0	0	126	219	0	0	0	0	0	630
08:00 AM	1	22	0	0	1	0	0	0	0	13	0	0	0	0	0	0	37
08:15 AM	0	22	0	0	1	0	0	0	0	12	2	0	0	0	0	0	37
08:30 AM	0	15	0	0	0	0	0	0	0	14	2	0	0	0	0	0	31
08:45 AM	4	19	0	0	6	0	0	0	0	14	15	0	0	0	0	0	58
Total	5	78	0	0	8	0	0	0	0	53	19	0	0	0	0	0	163
04:00 PM	1	16	0	0	0	0	0	0	0	12	8	0	0	0	0	0	37
04:15 PM	0	20	0	0	1	0	0	0	0	23	3	0	0	0	0	0	47
04:30 PM	4	25	0	0	4	0	1	1	0	18	8	0	0	0	0	0	61
04:45 PM	3	18	0	0	2	0	1	0	0	25	14	0	0	0	0	0	63
Total	8	79	0	0	7	0	2	1	0	78	33	0	0	0	0	0	208
05:00 PM	5	29	0	0	8	0	0	1	0	17	11	0	0	0	0	0	71
05:15 PM	3	22	0	0	4	0	0	0	0	22	19	0	0	0	0	0	70
05:30 PM	7	35	0	0	3	0	0	0	0	24	29	0	0	0	0	0	98
05:45 PM	3	26	0	0	5	0	0	2	0	12	74	0	0	0	0	0	122
Total	18	112	0	0	20	0	0	3	0	75	133	0	0	0	0	0	361
Grand Total	95	484	0	0	39	0	4	4	0	332	404	0	0	0	0	0	1362
Apprch %	16.4	83.6	0.0	0.0	83.0	0.0	8.5	8.5	0.0	45.1	54.9	0.0	0.0	0.0	0.0	0.0	
Total %	7.0	35.5	0.0	0.0	2.9	0.0	0.3	0.3	0.0	24.4	29.7	0.0	0.0	0.0	0.0	0.0	

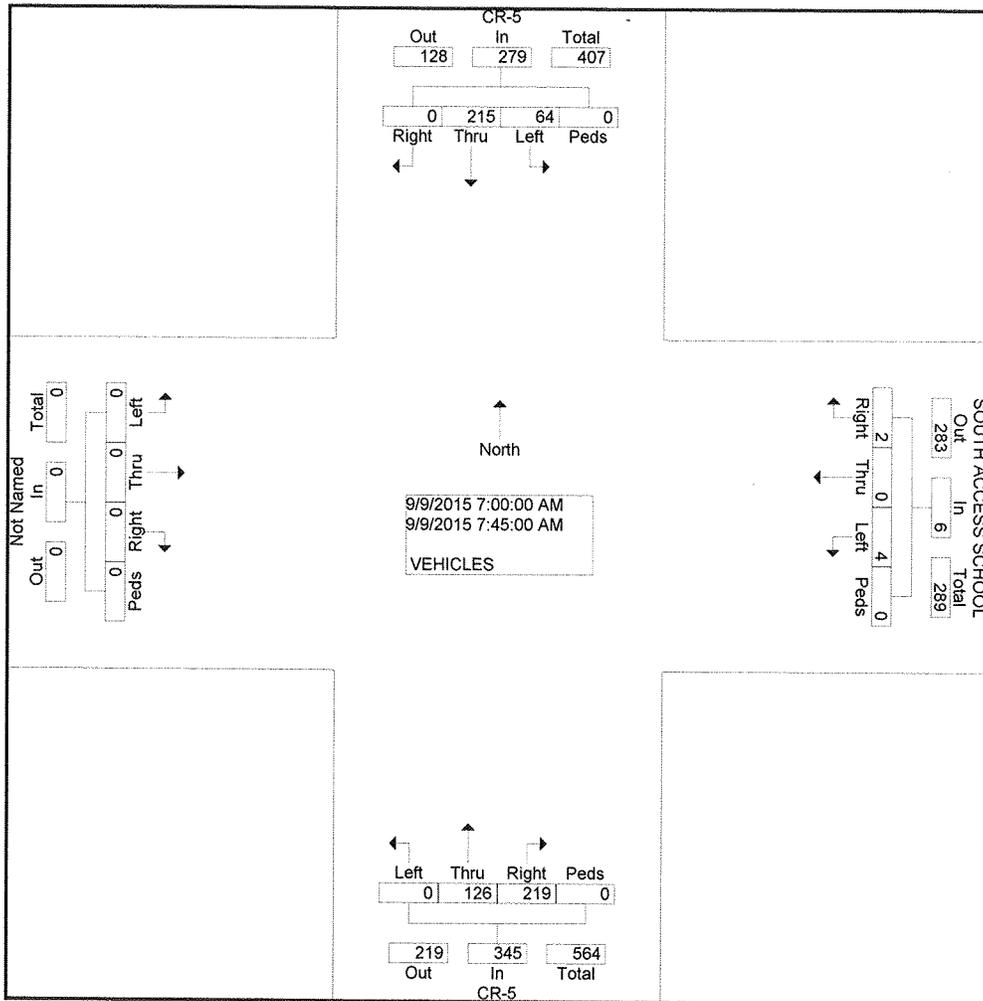
COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO
303-333-7409

N/S STREET: CR-5
E/W STREET: SOUTH ACCESS SCHOOL
CITY: ERIE
COUNTY: WELD

File Name : CR-5SOUT
Site Code : 00000001
Start Date : 9/9/2015
Page No : 2

Start Time	CR-5 Southbound					SOUTH ACCESS SCHOOL Westbound					CR-5 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 07:00 AM to 09:00 AM - Peak 1 of 1																				
Intersection	07:00 AM																				
Volume	64	215	0	0	279	4	0	2	0	6	0	126	219	0	345	0	0	0	0	0	630
Percent	22.9	77.1	0.0	0.0		66.7	0.0	33.3	0.0		0.0	36.5	63.5	0.0		0.0	0.0	0.0	0.0		
07:00 Volume	40	89	0	0	129	1	0	1	0	2	0	69	144	0	213	0	0	0	0	0	344
Peak Factor	0.458																				
High Int. Volume	07:00 AM					07:00 AM					07:00 AM					6:45:00 AM					
Peak Factor	40	89	0	0	129	1	0	1	0	2	0	69	144	0	213						
	0.54					0.75					0.40					0.5					
	1					0					5										



COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO
303-333-7409

N/S STREET: CR-5
E/W STREET: SOUTH ACCESS SCHOOL
CITY: ERIE
COUNTY: WELD

File Name : CR-5SOUT
Site Code : 00000001
Start Date : 9/9/2015
Page No : 2

Start Time	CR-5 Southbound					SOUTH ACCESS SCHOOL Westbound					CR-5 Northbound					Eastbound					Int. Total
	Left	Thru	Rght	Peds	App. Total	Left	Thru	Rght	Peds	App. Total	Left	Thru	Rght	Peds	App. Total	Left	Thru	Rght	Peds	App. Total	
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersect on	05:00 PM																				
Volume	18	112	0	0	130	20	0	0	3	23	0	75	133	0	208	0	0	0	0	0	361
Percent	13.8	86.2	0.0	0.0		87.0	0.0	0.0	13.0		0.0	36.1	63.9	0.0		0.0	0.0	0.0	0.0		
05:45 Volume	3	26	0	0	29	5	0	0	2	7	0	12	74	0	86	0	0	0	0	0	122
Peak Factor																					
High Int.	05:30 PM																				
Volume	7	35	0	0	42	8	0	0	1	9	0	12	74	0	86						0.740
Peak Factor	0.774										0.639										



COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO
303-333-7409

N/S STREET: CR-5
E/W STREET: MIDDLE ACCESS TO SCHOOL
CITY: ERIE
COUNTY: WELD

File Name : CR-5MIDD
Site Code : 00000008
Start Date : 9/9/2015
Page No : 1

Groups Printed- VEHICLES

Start Time	Southbound				Westbound				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	1.0
07:00 AM	43	53	0	0	76	0	36	0	0	30	40	0	0	0	0	0	278
07:15 AM	24	44	0	0	60	0	28	0	0	3	25	0	0	0	0	0	184
07:30 AM	1	20	0	0	0	0	3	1	1	13	1	0	0	0	0	0	40
07:45 AM	1	24	0	0	0	0	1	0	0	14	1	0	0	0	2	0	43
Total	69	141	0	0	136	0	68	1	1	60	67	0	0	0	2	0	545
08:00 AM	0	22	0	0	1	0	2	0	0	12	1	0	0	0	0	0	38
08:15 AM	0	21	0	0	1	0	1	0	1	10	1	0	0	0	0	1	36
08:30 AM	3	14	0	0	1	0	0	0	2	12	0	0	0	0	0	0	32
08:45 AM	4	10	0	0	12	0	4	0	0	12	2	0	0	0	1	0	45
Total	7	67	0	0	15	0	7	0	3	46	4	0	0	0	1	1	151
04:00 PM	2	15	0	0	2	0	1	0	0	12	0	0	0	0	0	0	32
04:15 PM	2	17	0	0	3	0	1	0	0	23	0	0	0	0	0	0	46
04:30 PM	0	19	0	0	10	0	3	1	0	19	0	0	0	0	0	0	52
04:45 PM	1	17	0	0	4	0	1	0	0	26	0	0	1	0	0	1	51
Total	5	68	0	0	19	0	6	1	0	80	0	0	1	0	0	1	181
05:00 PM	1	25	0	0	9	0	5	1	0	16	1	0	0	0	0	2	60
05:15 PM	2	15	0	0	9	0	6	0	0	20	2	0	0	0	1	0	55
05:30 PM	1	30	0	0	7	0	4	0	1	23	0	0	1	0	5	0	72
05:45 PM	17	21	0	0	6	0	2	2	0	7	5	0	2	0	2	1	65
Total	21	91	0	0	31	0	17	3	1	66	8	0	3	0	8	3	252
Grand Total	102	367	0	0	201	0	98	5	5	252	79	0	4	0	11	5	1129
Apprch %	21.7	78.3	0.0	0.0	66.1	0.0	32.2	1.6	1.5	75.0	23.5	0.0	20.0	0.0	55.0	25.0	
Total %	9.0	32.5	0.0	0.0	17.8	0.0	8.7	0.4	0.4	22.3	7.0	0.0	0.4	0.0	1.0	0.4	

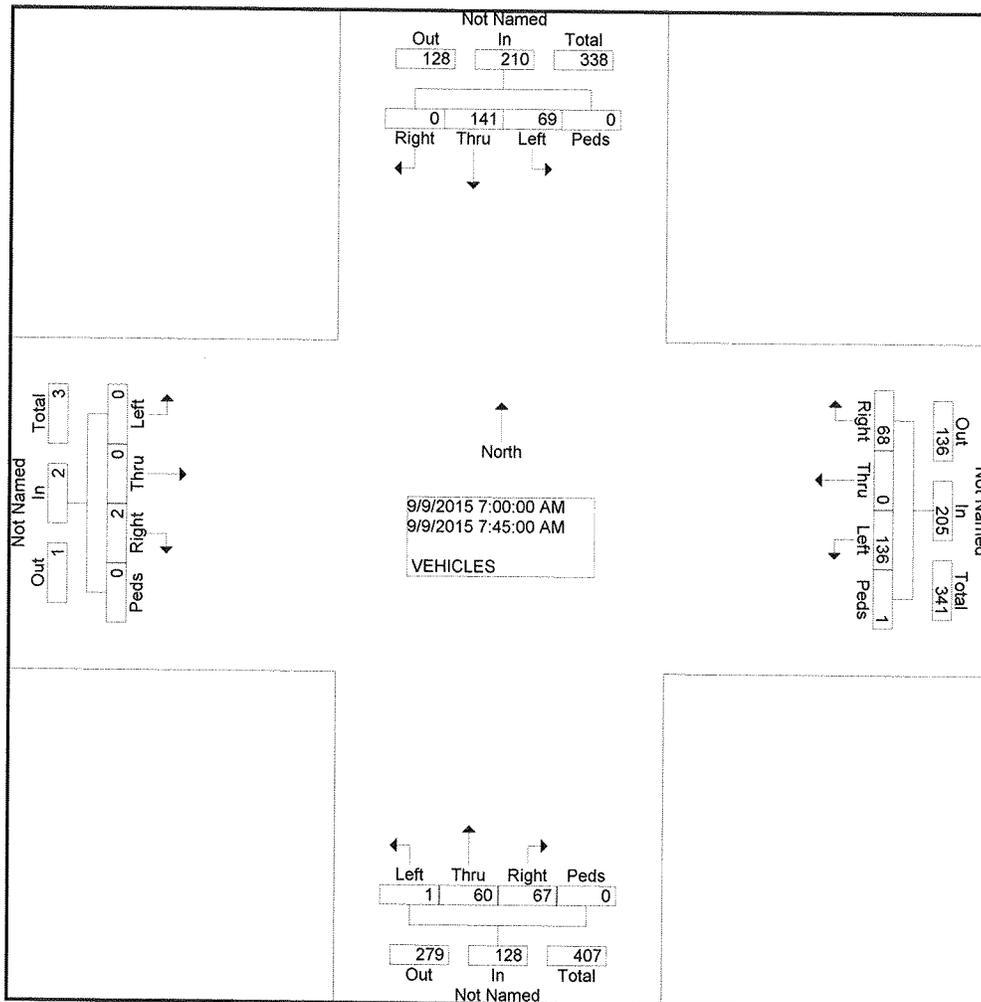
COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO
303-333-7409

N/S STREET: CR-5
E/W STREET: MIDDLE ACCESS TO SCHOOL
CITY: ERIE
COUNTY: WELD

File Name : CR-5MIDD
Site Code : 00000008
Start Date : 9/9/2015
Page No : 2

Start Time	Southbound					Westbound					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 07:00 AM to 09:00 AM - Peak 1 of 1																					
Intersect on	07:00 AM																				
Volume	69	141	0	0	210	136	0	68	1	205	1	60	67	0	128	0	0	2	0	2	545
Percent	32.9	67.1	0.0	0.0		66.3	0.0	33.2	0.5		0.8	46.9	52.3	0.0		0.0	0.0	100.0	0.0		
07:00 Volume	43	53	0	0	96	76	0	36	0	112	0	30	40	0	70	0	0	0	0	0	278
Peak Factor																					0.490
High Int.	07:00 AM					07:00 AM					07:00 AM					07:45 AM					
Volume	43	53	0	0	96	76	0	36	0	112	0	30	40	0	70	0	0	2	0	2	
Peak Factor						0.547					0.458					0.457					0.250



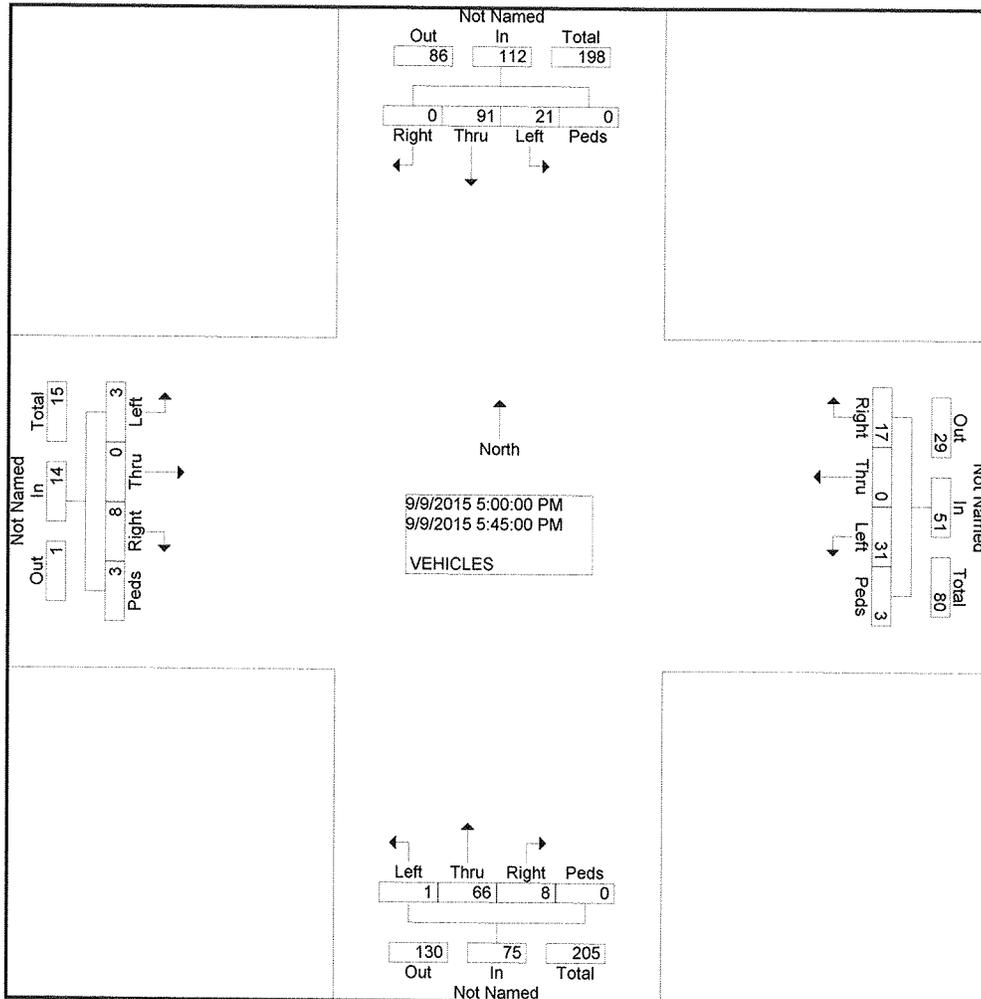
COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO
303-333-7409

N/S STREET: CR-5
E/W STREET: MIDDLE ACCESS TO SCHOOL
CITY: ERIE
COUNTY: WELD

File Name : CR-5MIDD
Site Code : 00000008
Start Date : 9/9/2015
Page No : 2

Start Time	Southbound					Westbound					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 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	05:00 PM																				
Volume	21	91	0	0	112	31	0	17	3	51	1	66	8	0	75	3	0	8	3	14	252
Percent	18.8	81.3	0.0	0.0		60.8	0.0	33.3	5.9		1.3	88.0	10.7	0.0		21.4	0.0	57.1	21.4		
05:30 Volume	1	30	0	0	31	7	0	4	0	11	1	23	0	0	24	1	0	5	0	6	72
Peak Factor	0.875																				
High Int. Volume	05:45 PM					05:00 PM					05:30 PM					05:30 PM					
Peak Factor	17	21	0	0	38	9	0	5	1	15	1	23	0	0	24	1	0	5	0	6	0.58
					0.73					0.85					0.78					0.58	3



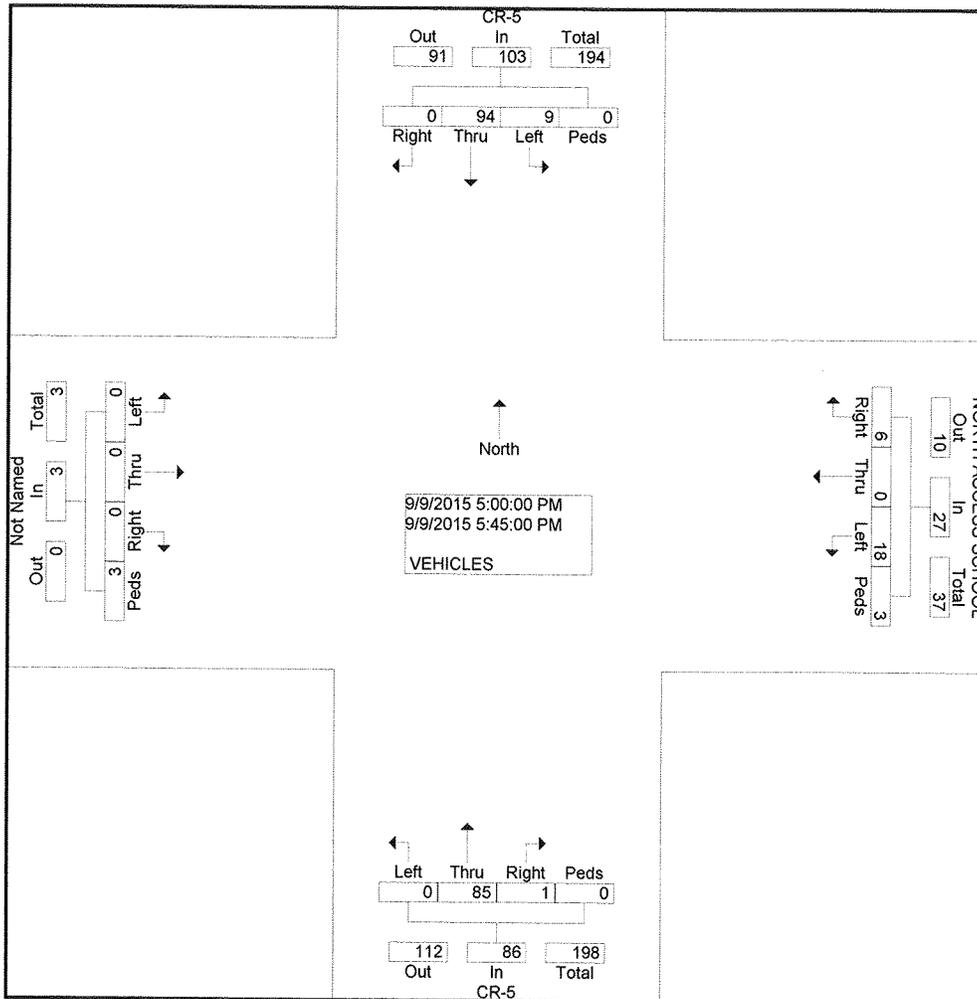
COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO
303-333-7409

N/S STREET: CR-5
E/W STREET: NORTH ACCESS SCHOOL
CITY: ERIE
COUNTY: WELD

File Name : CR-5NORT
Site Code : 00000002
Start Date : 9/9/2015
Page No : 2

Start Time	CR-5 Southbound					NORTH ACCESS SCHOOL Westbound					CR-5 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 04:00 PM to 05:45 PM - Peak 1 of 1																									
Intersection	05:00 PM																								
Volume	9	94	0	0	103	18	0	6	3	27	0	85	1	0	86	0	0	0	3	3	219				
Percent	8.7	91.3	0.0	0.0		66.7	0.0	22.2	11.1		0.0	98.8	1.2	0.0		0.0	0.0	0.0	100.0						
05:30 Volume	3	24	0	0	27	7	0	1	0	8	0	28	0	0	28	0	0	0	0	0	63				
Peak Factor	0.869																								
High Int. Volume	05:45 PM					05:00 PM					05:30 PM					05:00 PM									
Peak Factor	4	33	0	0	37	5	0	3	1	9	0	28	0	0	28	0	0	0	2	2	0.69	0.75	0.76	0.37	5



COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO
303-333-7409

N/S STREET: CR-5
E/W STREET: CR-10
CITY: ERIE
COUNTY: WELD

File Name : CR-5CR10
Site Code : 0000013
Start Date : 9/9/2015
Page No : 1

Groups Printed- VEHICLES

Start Time	CR-5 Southbound				CR-10 Westbound				CR-5 Northbound				CR-10 Eastbound				Int. Total	
	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	1.0	
07:00 AM	0	100	0	0	2	0	1	0	7	51	2	0	0	1	15	0		179
07:15 AM	0	57	0	0	2	0	1	0	4	32	0	0	0	0	6	0		102
07:30 AM	0	20	0	0	1	1	0	0	1	14	1	0	0	0	4	0		42
07:45 AM	0	24	0	0	1	1	0	1	0	14	1	0	0	1	0	0		43
Total	0	201	0	0	6	2	2	1	12	111	4	0	0	2	25	0		366
08:00 AM	1	20	1	0	1	1	1	0	0	13	1	0	0	0	2	0		41
08:15 AM	1	21	0	0	0	0	1	0	0	11	0	0	1	0	0	1		36
08:30 AM	1	17	0	0	0	2	1	0	1	11	0	0	0	0	0	0		33
08:45 AM	0	14	0	0	0	2	0	0	0	16	0	0	0	0	0	0		32
Total	3	72	1	0	1	5	3	0	1	51	1	0	1	0	2	1		142
04:00 PM	3	14	0	0	0	0	2	0	0	12	1	0	0	1	1	0		34
04:15 PM	0	16	0	0	0	0	0	0	0	25	0	0	0	0	1	0		42
04:30 PM	0	20	0	0	0	0	0	0	0	22	0	0	0	0	1	0		43
04:45 PM	0	16	0	0	0	2	1	0	1	26	2	0	0	1	0	1		50
Total	3	66	0	0	0	2	3	0	1	85	3	0	0	2	3	1		169
05:00 PM	1	23	0	0	0	2	0	0	2	22	0	0	0	1	2	2		55
05:15 PM	0	16	0	0	0	1	0	0	2	21	2	0	0	1	5	0		48
05:30 PM	0	26	0	0	0	0	1	0	2	27	0	0	1	1	1	0		59
05:45 PM	1	36	0	0	0	0	1	0	0	13	0	2	0	0	6	1		60
Total	2	101	0	0	0	3	2	0	6	83	2	2	1	3	14	3		222
Grand Total	8	440	1	0	7	12	10	1	20	330	10	2	2	7	44	5		899
Apprch %	1.8	98.0	0.2	0.0	23.3	40.0	33.3	3.3	5.5	91.2	2.8	0.6	3.4	12.1	75.9	8.6		
Total %	0.9	48.9	0.1	0.0	0.8	1.3	1.1	0.1	2.2	36.7	1.1	0.2	0.2	0.8	4.9	0.6		

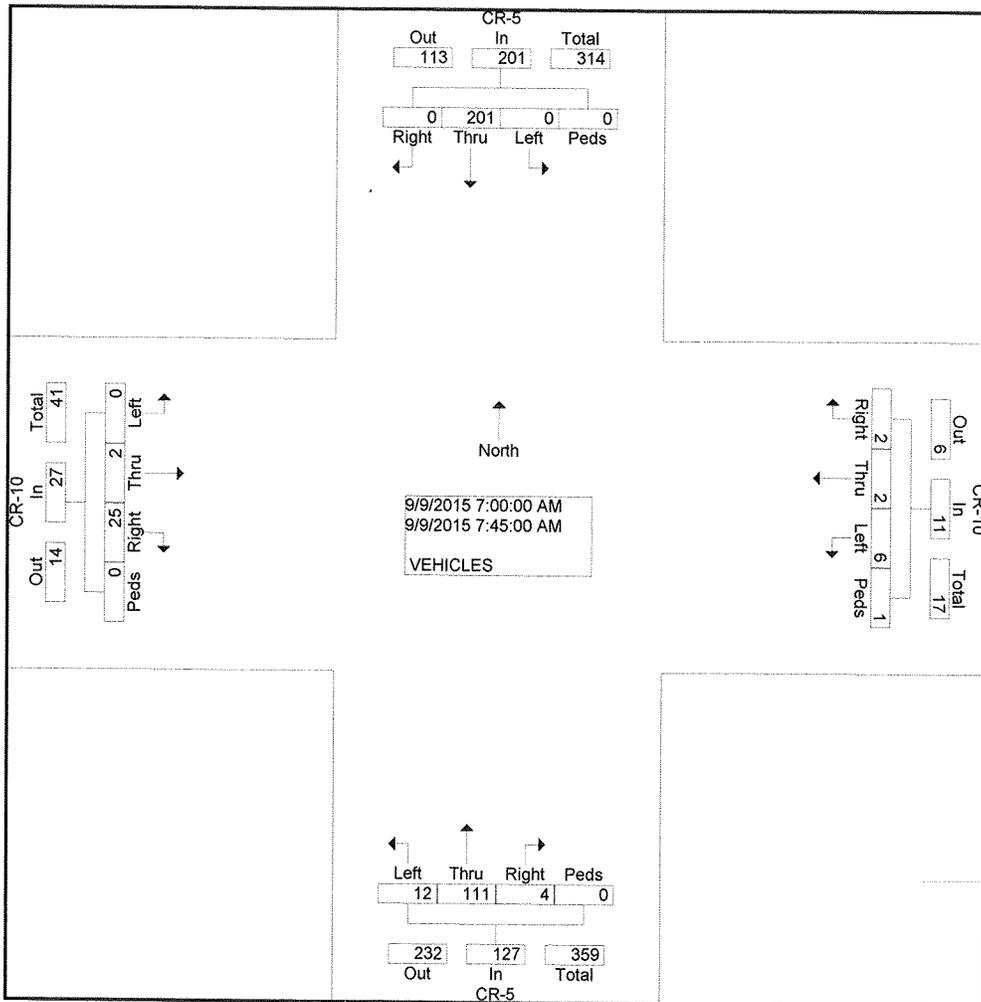
COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO
303-333-7409

N/S STREET: CR-5
E/W STREET: CR-10
CITY: ERIE
COUNTY: WELD

File Name : CR-5CR10
Site Code : 00000013
Start Date : 9/9/2015
Page No : 2

Start Time	CR-5 Southbound					CR-10 Westbound					CR-5 Northbound					CR-10 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 07:00 AM to 09:00 AM - Peak 1 of 1																					
Intersection	07:00 AM																				
Volume	0	201	0	0	201	6	2	2	1	11	12	111	4	0	127	0	2	25	0	27	366
Percent	0.0	100.0	0.0	0.0		54.5	18.2	18.2	9.1		9.4	87.4	3.1	0.0		0.0	7.4	92.6	0.0		
07:00 Volume	0	100	0	0	100	2	0	1	0	3	7	51	2	0	60	0	1	15	0	16	179
Peak Factor	0.511																				
High Int. Volume	07:00 AM					07:00 AM					07:00 AM					07:00 AM					
Peak Factor	0	100	0	0	100	2	0	1	0	3	7	51	2	0	60	0	1	15	0	16	16
	0.50					0.91					0.52					0.42					
	3					7					9					2					



COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: COLLIERS BLVD (CR-3)
E/W STREET: ERIE PKWY (CR-8)
CITY: ERIE
COUNTY: WELD

File Name : COLLIERIE
Site Code : 00000016
Start Date : 9/10/2015
Page No : 1

Groups Printed- VEHICLES

Start Time	COLLIERS BLVD (CR-3) Southbound				ERIE PKWY (CR-8) Westbound				COLLIERS BLVD (CR-3) Northbound				ERIE PKWY (CR-8) 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	
07:00 AM	9	2	13	1	2	109	24	0	12	3	18	0	8	113	4	1	319
07:15 AM	7	1	13	0	4	171	28	0	15	5	12	0	1	83	6	0	346
07:30 AM	5	1	13	0	0	139	21	0	12	3	5	0	10	67	3	0	279
07:45 AM	9	1	15	0	2	119	26	1	16	0	5	0	7	59	9	2	271
Total	30	5	54	1	8	538	99	1	55	11	40	0	26	322	22	3	1215
08:00 AM	9	0	13	0	3	112	20	0	18	2	8	0	3	46	6	0	240
08:15 AM	11	1	13	1	3	99	22	0	13	4	4	0	13	75	5	0	264
08:30 AM	8	0	12	1	1	90	8	0	12	1	6	0	10	44	4	2	199
08:45 AM	4	0	10	0	1	62	11	0	11	0	4	0	9	62	4	1	179
Total	32	1	48	2	8	363	61	0	54	7	22	0	35	227	19	3	882
04:00 PM	15	1	7	0	3	63	8	0	7	0	9	0	12	94	12	0	231
04:15 PM	13	2	5	0	2	41	21	1	9	0	5	0	9	97	11	0	216
04:30 PM	12	1	11	1	5	79	13	0	9	1	7	0	13	125	16	0	293
04:45 PM	19	1	8	0	7	91	8	0	4	1	1	1	17	120	10	0	288
Total	59	5	31	1	17	274	50	1	29	2	22	1	51	436	49	0	1028
05:00 PM	26	1	5	2	7	79	8	0	15	0	6	0	10	124	14	0	297
05:15 PM	18	4	7	0	10	79	6	0	15	0	8	0	9	126	15	0	297
05:30 PM	12	1	6	1	3	86	8	1	16	1	6	2	11	102	19	0	275
05:45 PM	11	0	8	1	10	79	7	2	8	0	5	2	11	118	16	0	278
Total	67	6	26	4	30	323	29	3	54	1	25	4	41	470	64	0	1147
Grand Total	188	17	159	8	63	1498	239	5	192	21	109	5	153	1455	154	6	4272
Apprch %	50.5	4.6	42.7	2.2	3.5	83.0	13.2	0.3	58.7	6.4	33.3	1.5	8.7	82.3	8.7	0.3	
Total %	4.4	0.4	3.7	0.2	1.5	35.1	5.6	0.1	4.5	0.5	2.6	0.1	3.6	34.1	3.6	0.1	

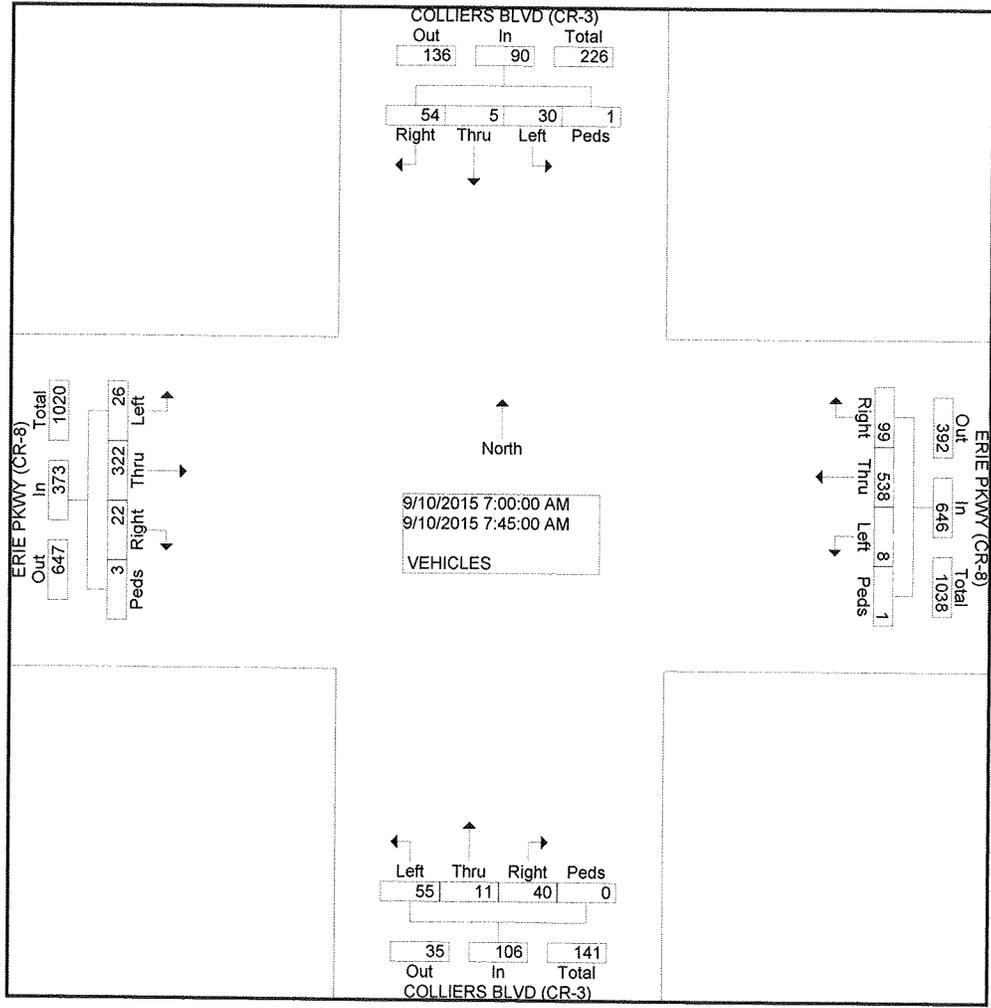
COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO
303-333-7409

N/S STREET: COLLIERS BLVD (CR-3)
E/W STREET: ERIE PKWY (CR-8)
CITY: ERIE
COUNTY: WELD

File Name : COLLERIE
Site Code : 00000016
Start Date : 9/10/2015
Page No : 2

Start Time	COLLIERS BLVD (CR-3) Southbound					ERIE PKWY (CR-8) Westbound					COLLIERS BLVD (CR-3) Northbound					ERIE PKWY (CR-8) 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 07:00 AM to 09:00 AM - Peak 1 of 1																					
Intersection	07:00 AM																				
Volume	30	5	54	1	90	8	538	99	1	646	55	11	40	0	106	26	322	22	3	373	1215
Percent	33.3	5.6	60.0	1.1		1.2	83.3	15.3	0.2		51.9	10.4	37.7	0.0		7.0	86.3	5.9	0.8		
07:15 Volume	7	1	13	0	21	4	171	28	0	203	15	5	12	0	32	1	83	6	0	90	346
Peak Factor	0.878																				
High Int. Volume	07:00 AM					07:15 AM					07:00 AM					07:00 AM					
Peak Factor	9	2	13	1	25	4	171	28	0	203	12	3	18	0	33	8	113	4	1	126	0.74
	0					0.79					0.80					0					



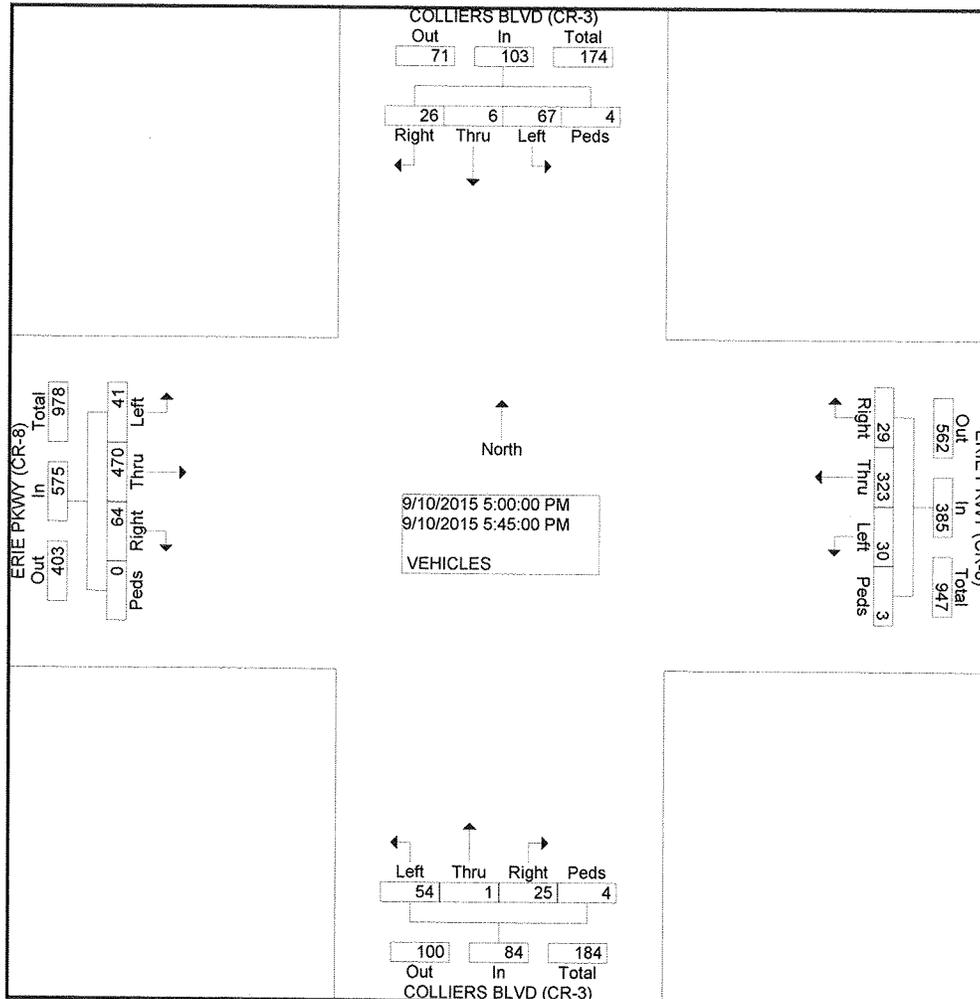
COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO
303-333-7409

N/S STREET: COLLIERS BLVD (CR-3)
E/W STREET: ERIE PKWY (CR-8)
CITY: ERIE
COUNTY: WELD

File Name : COLLIERIE
Site Code : 00000016
Start Date : 9/10/2015
Page No : 2

Start Time	COLLIERS BLVD (CR-3) Southbound					ERIE PKWY (CR-8) Westbound					COLLIERS BLVD (CR-3) Northbound					ERIE PKWY (CR-8) 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 05:00 PM to 05:45 PM - Peak 1 of 1																					
Intersect on	05:00 PM																				
Volume	67	6	26	4	103	30	323	29	3	385	54	1	25	4	84	41	470	64	0	575	1147
Percent	65.0	5.8	25.2	3.9		7.8	83.9	7.5	0.8		64.3	1.2	29.8	4.8		7.1	81.7	11.1	0.0		
05:15 Peak Volume	18	4	7	0	29	10	79	6	0	95	15	0	8	0	23	9	126	15	0	150	297
Peak Factor																					
High Int. Volume	05:00 PM					05:30 PM					05:30 PM					05:15 PM					
Peak Factor	26	1	5	2	34	3	86	8	1	98	16	1	6	2	25	9	126	15	0	150	0.95
																					0.965
																					8



COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO
303-333-7409

N/S STREET: COLLIERS BLVD (CR-3)
E/W STREET: COLLIER HILL PKWY
CITY: ERIE
COUNTY: WELD

File Name : COLLCOLL
Site Code : 00000008
Start Date : 9/10/2015
Page No : 1

Groups Printed- VEHICLES

Start Time	COLLIERS BLVD (CR-3) Southbound				COLLIER HILL PKWY Westbound				COLLIERS BLVD (CR-3) 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	1.0	
07:00 AM	0	12	0	0	0	0	0	0	0	12	5	0	0	0	0	0	0	29
07:15 AM	0	12	0	0	0	0	0	0	0	17	7	0	0	0	0	0	3	39
07:30 AM	0	12	0	0	1	0	0	0	0	15	1	0	0	0	0	0	0	29
07:45 AM	0	15	0	0	1	0	0	1	0	14	2	1	0	0	0	0	0	34
Total	0	51	0	0	2	0	0	1	0	58	15	1	0	0	0	0	3	131
08:00 AM	1	11	0	0	5	0	0	0	0	12	4	0	0	0	0	0	0	33
08:15 AM	0	7	0	0	2	0	0	0	0	17	4	0	0	0	0	0	0	30
08:30 AM	0	10	0	0	3	0	0	0	0	12	0	0	0	0	0	0	0	25
08:45 AM	0	8	0	0	2	0	0	0	0	6	3	0	0	0	0	0	0	19
Total	1	36	0	0	12	0	0	0	0	47	11	0	0	0	0	0	0	107
04:00 PM	0	6	0	0	2	0	0	0	0	3	0	0	0	0	0	0	0	11
04:15 PM	1	9	0	0	1	0	0	0	0	3	0	0	0	0	0	0	0	14
04:30 PM	0	8	0	0	1	0	0	0	0	9	1	0	0	0	0	0	0	19
04:45 PM	0	17	0	0	3	0	0	0	0	11	0	0	0	0	0	0	0	31
Total	1	40	0	0	7	0	0	0	0	26	1	0	0	0	0	0	0	75
05:00 PM	0	8	0	0	2	0	0	0	0	8	1	0	0	0	0	0	0	19
05:15 PM	1	18	0	0	1	0	0	0	0	7	0	0	0	0	0	0	0	27
05:30 PM	0	13	0	0	0	0	0	1	0	6	0	0	0	0	0	0	0	20
05:45 PM	0	11	0	0	0	0	1	2	0	7	2	3	0	0	0	0	3	29
Total	1	50	0	0	3	0	1	3	0	28	3	3	0	0	0	0	3	95
Grand Total	3	177	0	0	24	0	1	4	0	159	30	4	0	0	0	6		408
Apprch %	1.7	98.3	0.0	0.0	82.8	0.0	3.4	13.8	0.0	82.4	15.5	2.1	0.0	0.0	0.0	100.0		
Total %	0.7	43.4	0.0	0.0	5.9	0.0	0.2	1.0	0.0	39.0	7.4	1.0	0.0	0.0	0.0	1.5		

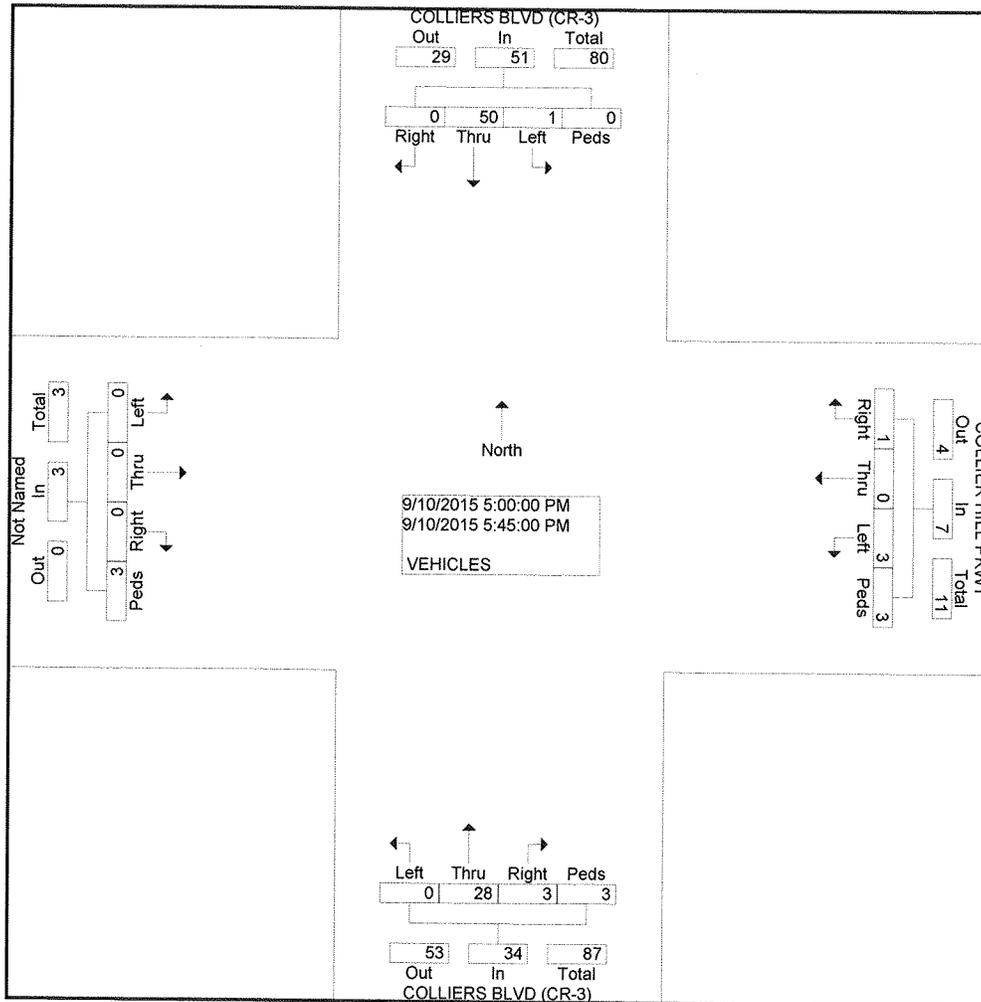
COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO
303-333-7409

N/S STREET: COLLIERS BLVD (CR-3)
E/W STREET: COLLIER HILL PKWY
CITY: ERIE
COUNTY: WELD

File Name : COLLCOLL
Site Code : 00000008
Start Date : 9/10/2015
Page No : 2

Start Time	COLLIERS BLVD (CR-3) Southbound					COLLIER HILL PKWY Westbound					COLLIERS BLVD (CR-3) 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 05:00 PM to 05:45 PM - Peak 1 of 1																					
Intersect on	05:00 PM																				
Volume	1	50	0	0	51	3	0	1	3	7	0	28	3	3	34	0	0	0	3	3	95
Percent	2.0	98.0	0.0	0.0		42.9	0.0	14.3	42.9		0.0	82.4	8.8	8.8		0.0	0.0	0.0	100.0		
05:45 Peak Volume	0	11	0	0	11	0	0	1	2	3	0	7	2	3	12	0	0	0	3	3	29
Factor																					
High Int. Volume	05:15 PM					05:45 PM					05:45 PM					05:45 PM					
Peak Volume	1	18	0	0	19	0	0	1	2	3	0	7	2	3	12	0	0	0	3	3	0.819
Factor	0.67					0.58					0.70					0.25					
	1					3					8					0					



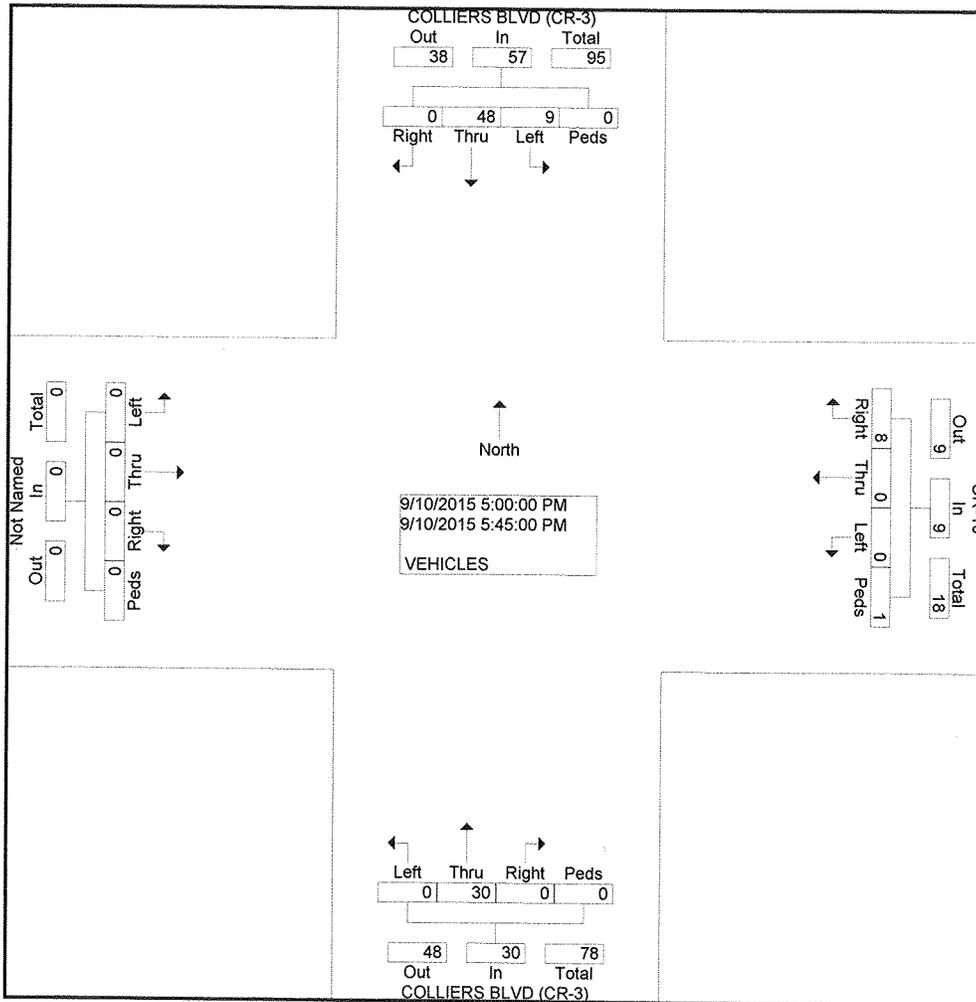
COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO
303-333-7409

N/S STREET: COLLIERS BLVD (CR-3)
E/W STREET: CR-10
CITY: ERIE
COUNTY: WELD

File Name : COLLCR-10
Site Code : 00000001
Start Date : 9/10/2015
Page No : 2

Start Time	COLLIERS BLVD (CR-3) Southbound					CR-10 Westbound					COLLIERS BLVD (CR-3) 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 05:00 PM to 05:45 PM - Peak 1 of 1																					
Intersect on	05:00 PM																				
Volume	9	48	0	0	57	0	0	8	1	9	0	30	0	0	30	0	0	0	0	0	96
Percent	15.8	84.2	0.0	0.0		0.0	0.0	88.9	11.1		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
05:15 Volume	0	18	0	0	18	0	0	3	0	3	0	7	0	0	7	0	0	0	0	0	28
Peak Factor																					0.857
High Int. Volume	05:15 PM					05:15 PM					05:45 PM										
Peak Factor	0.79					0.75					0.83										



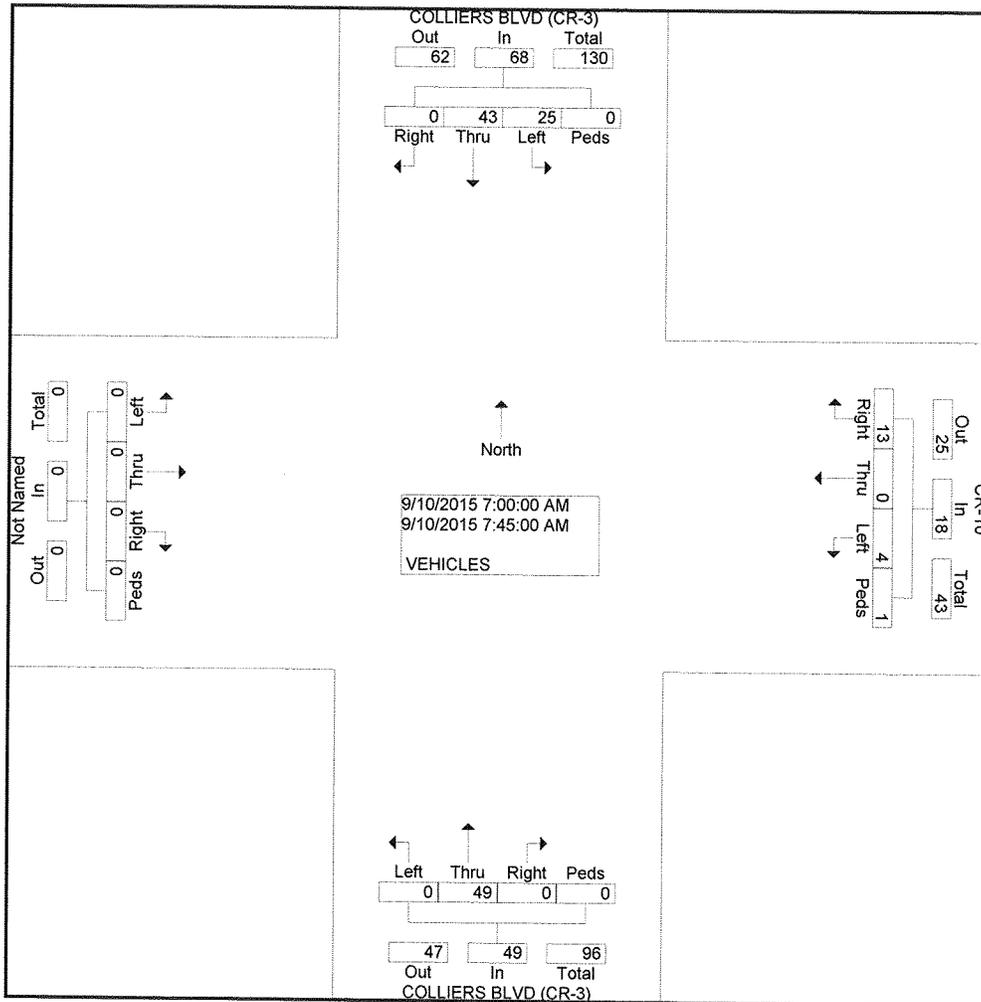
COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO
303-333-7409

N/S STREET: COLLIERS BLVD (CR-3)
E/W STREET: CR-10
CITY: ERIE
COUNTY: WELD

File Name : COLLCR-10
Site Code : 00000001
Start Date : 9/10/2015
Page No : 2

Start Time	COLLIERS BLVD (CR-3) Southbound					CR-10 Westbound					COLLIERS BLVD (CR-3) Northbound					Eastbound					Int. Total
	Left	Thru	Rght	Peds	App. Total	Left	Thru	Rght	Peds	App. Total	Left	Thru	Rght	Peds	App. Total	Left	Thru	Rght	Peds	App. Total	
Peak Hour From 07:00 AM to 09:00 AM - Peak 1 of 1																					
Intersect on	07:00 AM																				
Volume	25	43	0	0	68	4	0	13	1	18	0	49	0	0	49	0	0	0	0	0	135
Percent	36.8	63.2	0.0	0.0		22.2	0.0	72.2	5.6		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
07:00 Volume Peak Factor	14	11	0	0	25	1	0	4	0	5	0	9	0	0	9	0	0	0	0	0	39
High Int. Volume Peak Factor	14	11	0	0	25	3	0	3	0	6	0	14	0	0	14	6:45:00 AM					0.865
					0.68					0.75					0.87						
					0					0					5						



COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO
303-333-7409

N/S STREET: COLLIERS BLVD (CR-3)
E/W STREET: CR-1.5
CITY: ERIE
COUNTY: WELD

File Name : COLLCR1.5
Site Code : 00000002
Start Date : 9/10/2015
Page No : 1

Groups Printed- VEHICLES

Start Time	COLLIERS BLVD (CR-3) Southbound				CR-1.5 Westbound				COLLIERS BLVD (CR-3) Northbound				CR-1.5 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	1.0	
07:00 AM	0	21	2	0	0	0	0	0	3	11	0	0	9	0	9	0	0	55
07:15 AM	0	5	9	0	0	0	0	0	2	15	0	1	5	0	5	4	0	46
07:30 AM	0	8	32	0	0	0	0	0	4	12	0	0	5	0	3	0	0	64
07:45 AM	0	13	18	0	0	0	0	1	3	13	0	0	13	0	4	0	0	65
Total	0	47	61	0	0	0	0	1	12	51	0	1	32	0	21	4	0	230
08:00 AM	0	9	9	0	0	0	0	0	1	7	0	0	4	0	0	0	0	30
08:15 AM	0	5	11	0	0	0	0	0	3	12	0	0	5	0	0	0	0	36
08:30 AM	0	4	11	0	0	0	0	0	3	8	0	1	4	0	3	0	0	34
08:45 AM	0	8	6	1	0	0	0	0	2	8	0	3	3	0	1	0	0	32
Total	0	26	37	1	0	0	0	0	9	35	0	4	16	0	4	0	0	132
04:00 PM	0	5	10	0	0	0	0	0	0	3	0	0	4	0	3	0	0	25
04:15 PM	1	8	9	0	1	0	0	0	3	1	0	0	10	0	1	0	0	34
04:30 PM	0	7	7	0	0	0	0	0	2	8	0	0	7	0	0	0	0	31
04:45 PM	0	9	4	0	0	0	0	0	4	10	0	0	5	0	6	0	0	38
Total	1	29	30	0	1	0	0	0	9	22	0	0	26	0	10	0	0	128
05:00 PM	0	10	5	1	0	0	0	0	2	7	0	0	10	0	2	0	0	37
05:15 PM	0	17	8	0	0	0	0	0	2	10	0	0	9	0	3	0	0	49
05:30 PM	0	12	7	0	0	0	0	0	0	9	0	0	4	0	2	0	0	34
05:45 PM	0	10	6	0	0	0	0	1	1	9	0	0	4	0	3	0	0	34
Total	0	49	26	1	0	0	0	1	5	35	0	0	27	0	10	0	0	154
Grand Total	1	151	154	2	1	0	0	2	35	143	0	5	101	0	45	4	0	644
Apprch %	0.3	49.0	50.0	0.6	33.3	0.0	0.0	66.7	19.1	78.1	0.0	2.7	67.3	0.0	30.0	2.7	0.0	
Total %	0.2	23.4	23.9	0.3	0.2	0.0	0.0	0.3	5.4	22.2	0.0	0.8	15.7	0.0	7.0	0.6	0.0	

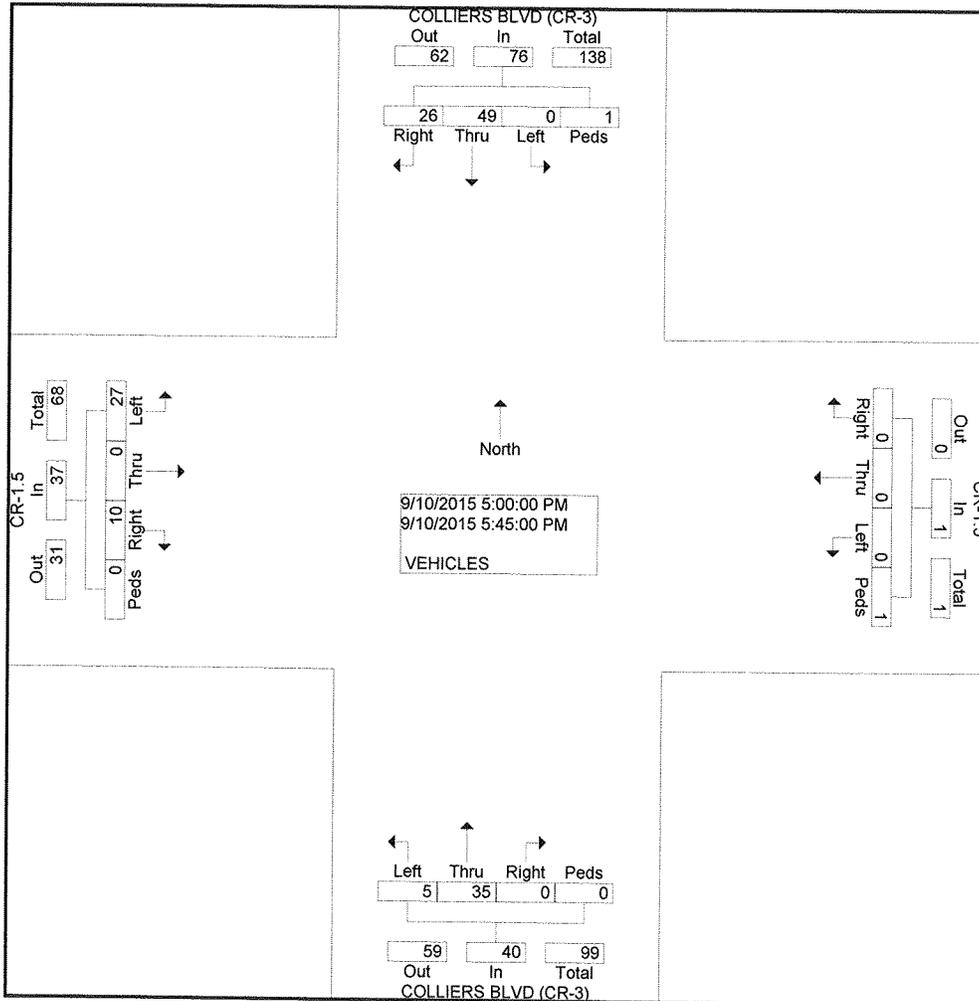
COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO
303-333-7409

N/S STREET: COLLIERS BLVD (CR-3)
E/W STREET: CR-1.5
CITY: ERIE
COUNTY: WELD

File Name : COLLCR1.5
Site Code : 00000002
Start Date : 9/10/2015
Page No : 2

Start Time	COLLIERS BLVD (CR-3) Southbound					CR-1.5 Westbound					COLLIERS BLVD (CR-3) Northbound					CR-1.5 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 05:00 PM to 05:45 PM - Peak 1 of 1																					
Intersect on	05:00 PM																				
Volume	0	49	26	1	76	0	0	0	1	1	5	35	0	0	40	27	0	10	0	37	154
Percent	0.0	64.5	34.2	1.3		0.0	0.0	0.0	100.0		12.5	87.5	0.0	0.0		73.0	0.0	27.0	0.0		
05:15 Volume	0	17	8	0	25	0	0	0	0	0	2	10	0	0	12	9	0	3	0	12	49
Peak Factor																					
High Int. Volume	05:15 PM					05:45 PM					05:15 PM					05:00 PM					
Peak Factor	0	17	8	0	0.76	0	0	0	1	0.25	2	10	0	0	0.83	10	0	2	0	0.77	1



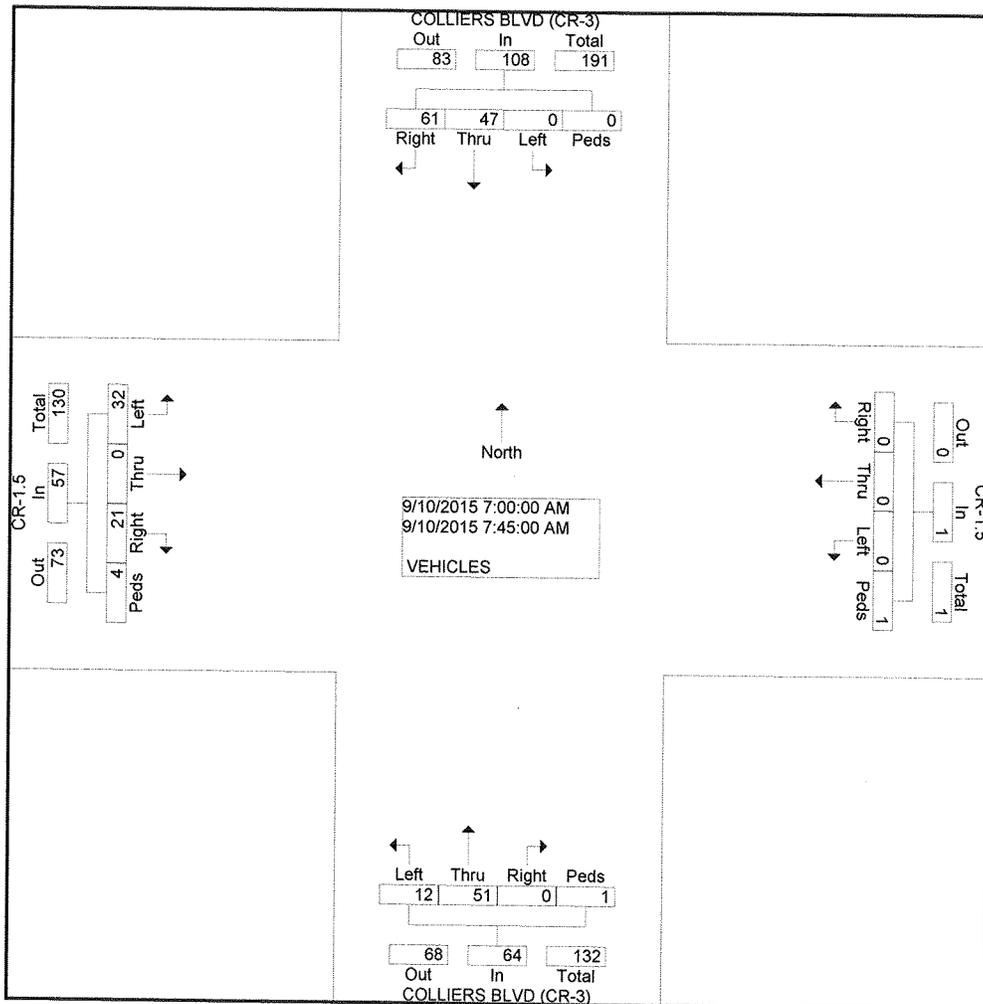
COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO
303-333-7409

N/S STREET: COLLIERS BLVD (CR-3)
E/W STREET: CR-1.5
CITY: ERIE
COUNTY: WELD

File Name : COLLCR1.5
Site Code : 00000002
Start Date : 9/10/2015
Page No : 2

Start Time	COLLIERS BLVD (CR-3) Southbound					CR-1.5 Westbound					COLLIERS BLVD (CR-3) Northbound					CR-1.5 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 07:00 AM to 09:00 AM - Peak 1 of 1																					
Intersecti on	07:00 AM																				
Volume	0	47	61	0	108	0	0	0	1	1	12	51	0	1	64	32	0	21	4	57	230
Percent	0.0	43.5	56.5	0.0		0.0	0.0	0.0	100.0		18.8	79.7	0.0	1.6		56.1	0.0	36.8	7.0		
07:45 Volume	0	13	18	0	31	0	0	0	1	1	3	13	0	0	16	13	0	4	0	17	65
Peak Factor																					0.885
High Int. Volume	07:30 AM					07:45 AM					07:15 AM					07:00 AM					
Peak Factor	0.675										0.250					0.889					



COUNTER MEASURES INC.

Location: ERIE PKWY W/O CR-5
 City: ERIE
 County: WELD
 Direction: EASTBOUND-WESTBOUND

1889 YORK STREET
 DENVER, COLORADO 80206
 303-333-7409

Site Code: 090816
 Station ID: 090816

Start Time	09-Sep-1 Wed	EB	WB	Total
12:00 AM		12	14	26
01:00		3	8	11
02:00		2	3	5
03:00		14	10	24
04:00		32	18	50
05:00		116	43	159
06:00		250	294	544
07:00		466	776	1242
08:00		280	444	724
09:00		262	216	478
10:00		208	226	434
11:00		288	202	490
12:00 PM		246	212	458
01:00		229	246	475
02:00		304	384	688
03:00		452	344	796
04:00		526	335	861
05:00		760	423	1183
06:00		410	289	699
07:00		213	198	411
08:00		98	190	288
09:00		60	122	182
10:00		26	50	76
11:00		10	24	34
Total		5267	5071	10338
Percent		50.9%	49.1%	
AM Peak	-	07:00	07:00	07:00
Vol.	-	466	776	1242
PM Peak	-	17:00	17:00	17:00
Vol.	-	760	423	1183
Grand Total		5267	5071	10338
Percent		50.9%	49.1%	
ADT	ADT 10,338		AADT 10,338	

COUNTER MEASURES INC.

Location: CR-5 S/O ERIE PKWY
 City: ERIE
 County: WELD
 Direction: NORTHBOUND-SOUTHBOUND

1889 YORK STREET
 DENVER, COLORADO 80206
 303-333-7409

Site Code: 090817
 Station ID: 090817

Start Time	09-Sep-1 Wed	NB	SB	Total
12:00 AM		2	2	4
01:00		0	4	4
02:00		4	4	8
03:00		0	2	2
04:00		4	8	12
05:00		10	22	32
06:00		82	70	152
07:00		220	154	374
08:00		132	121	253
09:00		108	120	228
10:00		142	126	268
11:00		126	136	262
12:00 PM		134	125	259
01:00		122	157	279
02:00		168	161	329
03:00		162	152	314
04:00		152	121	273
05:00		130	118	248
06:00		88	106	194
07:00		44	66	110
08:00		25	46	71
09:00		17	28	45
10:00		6	6	12
11:00		1	2	3
Total		1879	1857	3736
Percent		50.3%	49.7%	
AM Peak	-	07:00	07:00	07:00
Vol.	-	220	154	374
PM Peak	-	14:00	14:00	14:00
Vol.	-	168	161	329
Grand Total		1879	1857	3736
Percent		50.3%	49.7%	
ADT	ADT 3,736		AADT 3,736	

COUNTER MEASURES INC.

Location: CR-5 N/O ERIE PKWY
 City: ERIE
 County: WELD
 Direction: NORTHBOUND-SOUTHBOUND

1889 YORK ST
 DENVER, COLORADO 80206
 303-333-7409

Site Code: 9814

Start Time	09-Sep-15 Wed	NB	SB	Total
12:00 AM		4	1	5
01:00		1	1	2
02:00		0	1	1
03:00		1	2	3
04:00		0	4	4
05:00		5	6	11
06:00		42	32	74
07:00		408	263	671
08:00		71	100	171
09:00		84	78	162
10:00		72	88	160
11:00		118	138	256
12:00 PM		76	77	153
01:00		97	125	222
02:00		181	231	412
03:00		138	138	276
04:00		108	78	186
05:00		150	140	290
06:00		243	122	365
07:00		76	85	161
08:00		28	138	166
09:00		35	56	91
10:00		11	28	39
11:00		3	2	5
Total		1952	1934	3886
Percent		50.2%	49.8%	
AM Peak		07:00	07:00	07:00
Vol.		408	263	671
PM Peak		18:00	14:00	14:00
Vol.		243	231	474
Grand Total		1952	1934	3886
Percent		50.2%	49.8%	
ADT		Not Calculated		

COUNTER MEASURES INC.

Location: CR-5 S/O CR-10
 City: ERIE
 County: WELD
 Direction: NORTHBOUND-SOUTHBOUND

1889 YORK STREET
 DENVER, COLORADO 80206
 303-333-7409

Site Code: 090813
 Station ID: 090813

Start Time	09-Sep-1 Wed	NB	SB	Total
12:00 AM		5	2	7
01:00		0	2	2
02:00		0	1	1
03:00		1	1	2
04:00		0	4	4
05:00		4	10	14
06:00		30	66	96
07:00		135	250	385
08:00		60	86	146
09:00		53	68	121
10:00		82	76	158
11:00		68	88	156
12:00 PM		74	68	142
01:00		66	72	138
02:00		140	98	238
03:00		108	66	174
04:00		100	72	172
05:00		110	110	220
06:00		92	99	191
07:00		56	38	94
08:00		84	20	104
09:00		42	16	58
10:00		8	2	10
11:00		3	2	5
Total		1321	1317	2638
Percent		50.1%	49.9%	
AM Peak	-	07:00	07:00	07:00
Vol.	-	135	250	385
PM Peak	-	14:00	17:00	14:00
Vol.	-	140	110	238
Grand Total		1321	1317	2638
Percent		50.1%	49.9%	
ADT	ADT 2,638		AADT 2,638	

COUNTER MEASURES INC.

Location: CR-10 W/O CR-5
 City: ERIE
 County: WELD
 Direction: EASTBOUND-WESTBOUND

1889 YORK STREET
 DENVER, COLORADO 80206
 303-333-7409

Site Code: 090812
 Station ID: 090812

Start Time	09-Sep-1 Wed	EB	WB	Total
12:00 AM		0	0	0
01:00		0	0	0
02:00		0	0	0
03:00		0	0	0
04:00		0	0	0
05:00		1	0	1
06:00		2	2	4
07:00		28	16	44
08:00		4	5	9
09:00		1	2	3
10:00		6	2	8
11:00		7	5	12
12:00 PM		2	2	4
01:00		5	6	11
02:00		6	7	13
03:00		6	5	11
04:00		6	2	8
05:00		13	13	26
06:00		14	1	15
07:00		2	4	6
08:00		2	4	6
09:00		1	2	3
10:00		0	0	0
11:00		1	1	2
Total		107	79	186
Percent		57.5%	42.5%	
AM Peak	-	07:00	07:00	07:00
Vol.	-	28	16	44
PM Peak	-	18:00	17:00	17:00
Vol.	-	14	13	26
Grand Total		107	79	186
Percent		57.5%	42.5%	
ADT		ADT 186	AADT 186	

COUNTER MEASURES INC.

Location: CR-3 N/O CR-10
 City: ERIE
 County: WELD
 Direction: SOUTHBOUND-NORTHBOUND

1889 YORK STREET
 DENVER, COLORADO 80206
 303-333-7409

Site Code: 090809
 Station ID: 090809

Start Time	09-Sep-1 Wed	SB	NB	Total						
12:00 AM		2	1	3						
01:00		1	0	1						
02:00		0	0	0						
03:00		1	0	1						
04:00		0	0	0						
05:00		6	2	8						
06:00		16	18	34						
07:00		68	58	126						
08:00		38	60	98						
09:00		26	35	61						
10:00		37	23	60						
11:00		24	30	54						
12:00 PM		32	28	60						
01:00		24	22	46						
02:00		25	28	53						
03:00		30	52	82						
04:00		32	32	64						
05:00		77	50	127						
06:00		45	27	72						
07:00		24	29	53						
08:00		13	20	33						
09:00		12	8	20						
10:00		3	4	7						
11:00		3	7	10						
Total		539	534	1073						
Percent		50.2%	49.8%							
AM Peak	-	07:00	08:00	-	-	-	-	-	-	07:00
Vol.	-	68	60	-	-	-	-	-	-	126
PM Peak	-	17:00	15:00	-	-	-	-	-	-	17:00
Vol.	-	77	52	-	-	-	-	-	-	127
Grand Total		539	534							1073
Percent		50.2%	49.8%							
ADT		ADT 1,073	AADT 1,073							

COUNTER MEASURES INC.

Location: CR-3 S/O CR-10
 City: ERIE
 County: WELD
 Direction: SOUTHBOUND-NORTHBOUND

1889 YORK ST
 DENVER, COLORADO 80206
 303-333-7409

Site Code: 090811

Start Time	09-Sep-15 Wed	SB	NB	Total
12:00 AM		2	2	4
01:00		1	0	1
02:00		0	0	0
03:00		1	0	1
04:00		0	0	0
05:00		4	1	5
06:00		14	15	29
07:00		43	48	91
08:00		38	51	89
09:00		18	32	50
10:00		32	17	49
11:00		16	21	37
12:00 PM		20	19	39
01:00		24	14	38
02:00		22	22	44
03:00		24	46	70
04:00		30	28	58
05:00		59	36	95
06:00		37	23	60
07:00		18	21	39
08:00		11	16	27
09:00		10	6	16
10:00		5	5	10
11:00		1	5	6
Total		430	428	858
Percent		50.1%	49.9%	
AM Peak		07:00	08:00	07:00
Vol.		43	51	91
PM Peak		17:00	15:00	17:00
Vol.		59	46	95
Grand Total		430	428	858
Percent		50.1%	49.9%	
ADT		Not Calculated		

COUNTER MEASURES INC.

Location: CR1.5 W/O CR-3
 City: ERIE
 County: WELD
 Direction: EASTBOUND-WESTBOUND

1889 YORK ST
 DENVER, COLORADO 80206
 303-333-7409

Site Code: 090810

Start Time	09-Sep-15 Wed	EB	WB	Total
12:00 AM		1	1	2
01:00		0	0	0
02:00		0	1	1
03:00		0	0	0
04:00		2	1	3
05:00		4	2	6
06:00		21	6	27
07:00		49	59	108
08:00		36	40	76
09:00		29	25	54
10:00		26	28	54
11:00		34	30	64
12:00 PM		30	22	52
01:00		28	26	54
02:00		31	34	65
03:00		42	43	85
04:00		36	30	66
05:00		50	34	84
06:00		27	28	55
07:00		35	31	66
08:00		20	20	40
09:00		13	6	19
10:00		2	3	5
11:00		4	4	8
Total		520	474	994
Percent		52.3%	47.7%	
AM Peak		07:00	07:00	07:00
Vol.		49	59	108
PM Peak		17:00	15:00	15:00
Vol.		50	43	85
Grand Total		520	474	994
Percent		52.3%	47.7%	
ADT		Not Calculated		

COUNTER MEASURES INC.

Location: COLLIERS PKWY E/O CR-3
 City: ERIE
 County: WELD
 Direction: EASTBOUND-WESTBOUND

1889 YORK ST
 DENVER, COLORADO 80206
 303-333-7409

Site Code: 090806

Start Time	09-Sep-15 Wed	EB	WB	Total
12:00 AM		0	0	0
01:00		0	0	0
02:00		0	0	0
03:00		0	0	0
04:00		0	0	0
05:00		1	1	2
06:00		7	1	8
07:00		15	7	22
08:00		4	3	7
09:00		9	5	14
10:00		6	6	12
11:00		6	5	11
12:00 PM		12	8	20
01:00		8	7	15
02:00		5	10	15
03:00		5	10	15
04:00		4	9	13
05:00		1	4	5
06:00		3	3	6
07:00		1	1	2
08:00		0	0	0
09:00		0	0	0
10:00		1	0	1
11:00		0	0	0
Total		88	80	168
Percent		52.4%	47.6%	
AM Peak		07:00	07:00	07:00
Vol.		15	7	22
PM Peak		12:00	14:00	12:00
Vol.		12	10	20
Grand Total		88	80	168
Percent		52.4%	47.6%	
ADT		Not Calculated		

COUNTER MEASURES INC.

Location: CR-3 N/O ERIE PKWY
 City: ERIE
 County: WELD
 Direction: NORTHBOUND-SOUTHBOUND

1889 YORK ST
 DENVER, COLORADO 80206
 303-333-7409

Site Code: 090805

Start Time	09-Sep-15 Wed	NB	SB	Total
12:00 AM		1	3	4
01:00		1	0	1
02:00		1	2	3
03:00		0	3	3
04:00		0	0	0
05:00		5	11	16
06:00		27	19	46
07:00		153	76	229
08:00		113	80	193
09:00		80	62	142
10:00		58	66	124
11:00		80	99	179
12:00 PM		68	78	146
01:00		66	57	123
02:00		76	74	150
03:00		70	84	154
04:00		68	82	150
05:00		64	123	187
06:00		62	112	174
07:00		45	33	78
08:00		36	19	55
09:00		16	13	29
10:00		8	5	13
11:00		5	1	6
Total		1103	1102	2205
Percent		50.0%	50.0%	
AM Peak		07:00	11:00	07:00
Vol.		153	99	229
PM Peak		14:00	17:00	17:00
Vol.		76	123	187
Grand Total		1103	1102	2205
Percent		50.0%	50.0%	
ADT		Not Calculated		

COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO
303-333-7409

N/S STREET: CR-5
E/W STREET: MIDDLE ACCESS TO SCHOOL
CITY: ERIE
COUNTY: WELD

File Name : CR-5MIDD
Site Code : 00000008
Start Date : 9/9/2015
Page No : 1

Groups Printed- VEHICLES

Start Time	Southbound				Westbound				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	1.0	
07:00 AM	43	53	0	0	76	0	36	0	0	30	40	0	0	0	0	0	0	278
07:15 AM	24	44	0	0	60	0	28	0	0	3	25	0	0	0	0	0	0	184
07:30 AM	1	20	0	0	0	0	3	1	1	13	1	0	0	0	0	0	0	40
07:45 AM	1	24	0	0	0	0	1	0	0	14	1	0	0	0	0	2	0	43
Total	69	141	0	0	136	0	68	1	1	60	67	0	0	0	2	0	0	545
08:00 AM	0	22	0	0	1	0	2	0	0	12	1	0	0	0	0	0	0	38
08:15 AM	0	21	0	0	1	0	1	0	1	10	1	0	0	0	0	0	1	36
08:30 AM	3	14	0	0	1	0	0	0	2	12	0	0	0	0	0	0	0	32
08:45 AM	4	10	0	0	12	0	4	0	0	12	2	0	0	0	1	0	0	45
Total	7	67	0	0	15	0	7	0	3	46	4	0	0	0	1	1	0	151
04:00 PM	2	15	0	0	2	0	1	0	0	12	0	0	0	0	0	0	0	32
04:15 PM	2	17	0	0	3	0	1	0	0	23	0	0	0	0	0	0	0	46
04:30 PM	0	19	0	0	10	0	3	1	0	19	0	0	0	0	0	0	0	52
04:45 PM	1	17	0	0	4	0	1	0	0	26	0	0	1	0	0	1	0	51
Total	5	68	0	0	19	0	6	1	0	80	0	0	1	0	0	1	0	181
05:00 PM	1	25	0	0	9	0	5	1	0	16	1	0	0	0	0	2	0	60
05:15 PM	2	15	0	0	9	0	6	0	0	20	2	0	0	0	1	0	0	55
05:30 PM	1	30	0	0	7	0	4	0	1	23	0	0	1	0	5	0	0	72
05:45 PM	17	21	0	0	6	0	2	2	0	7	5	0	2	0	2	1	0	65
Total	21	91	0	0	31	0	17	3	1	66	8	0	3	0	8	3	0	252
Grand Total	102	367	0	0	201	0	98	5	5	252	79	0	4	0	11	5	0	1129
Apprch %	21.7	78.3	0.0	0.0	66.1	0.0	32.2	1.6	1.5	75.0	23.5	0.0	20.0	0.0	55.0	25.0	0.0	
Total %	9.0	32.5	0.0	0.0	17.8	0.0	8.7	0.4	0.4	22.3	7.0	0.0	0.4	0.0	1.0	0.4	0.0	

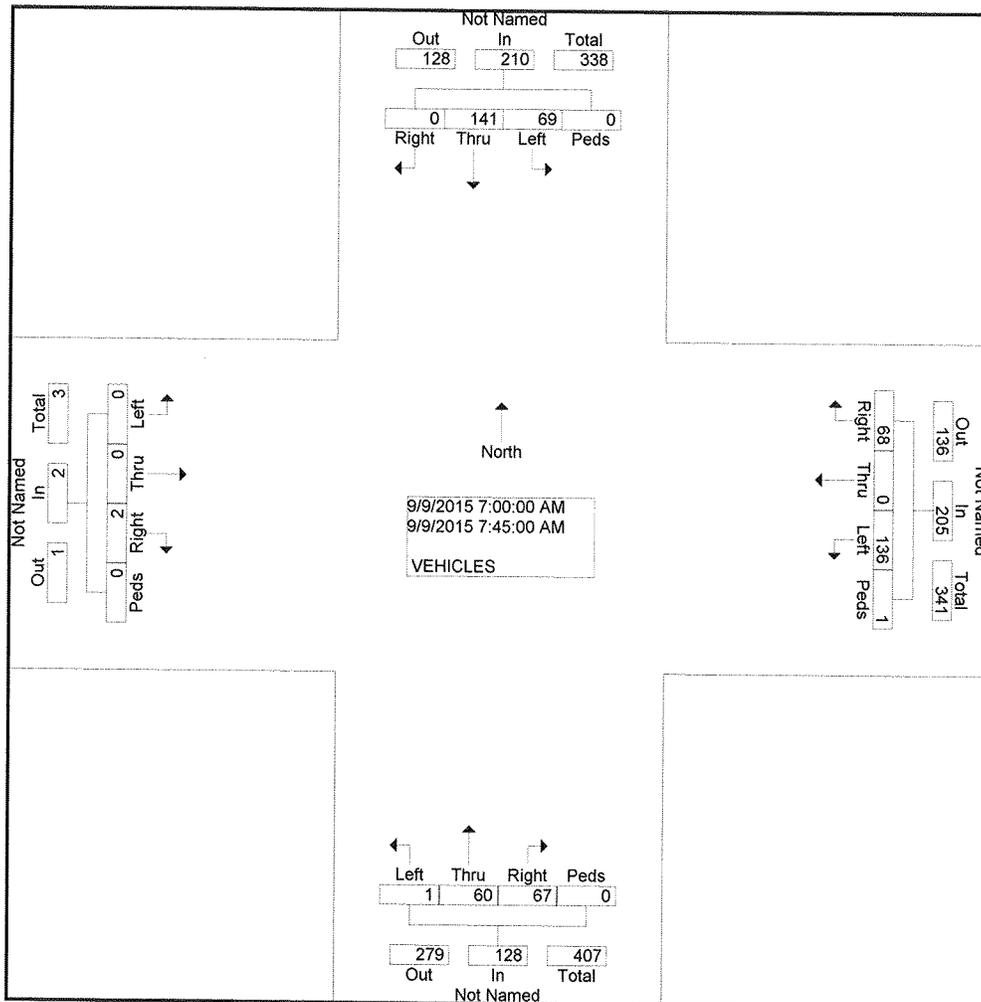
COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO
303-333-7409

N/S STREET: CR-5
E/W STREET: MIDDLE ACCESS TO SCHOOL
CITY: ERIE
COUNTY: WELD

File Name : CR-5MIDD
Site Code : 00000008
Start Date : 9/9/2015
Page No : 2

Start Time	Southbound					Westbound					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 07:00 AM to 09:00 AM - Peak 1 of 1																					
Intersect on	07:00 AM																				
Volume	69	141	0	0	210	136	0	68	1	205	1	60	67	0	128	0	0	2	0	2	545
Percent	32.9	67.1	0.0	0.0		66.3	0.0	33.2	0.5		0.8	46.9	52.3	0.0		0.0	0.0	100.0	0.0		
07:00 Volume	43	53	0	0	96	76	0	36	0	112	0	30	40	0	70	0	0	0	0	0	278
Peak Factor																					0.490
High Int.	07:00 AM					07:00 AM					07:00 AM					07:45 AM					
Volume	43	53	0	0	96	76	0	36	0	112	0	30	40	0	70	0	0	2	0	2	
Peak Factor						0.547					0.458					0.457					0.250



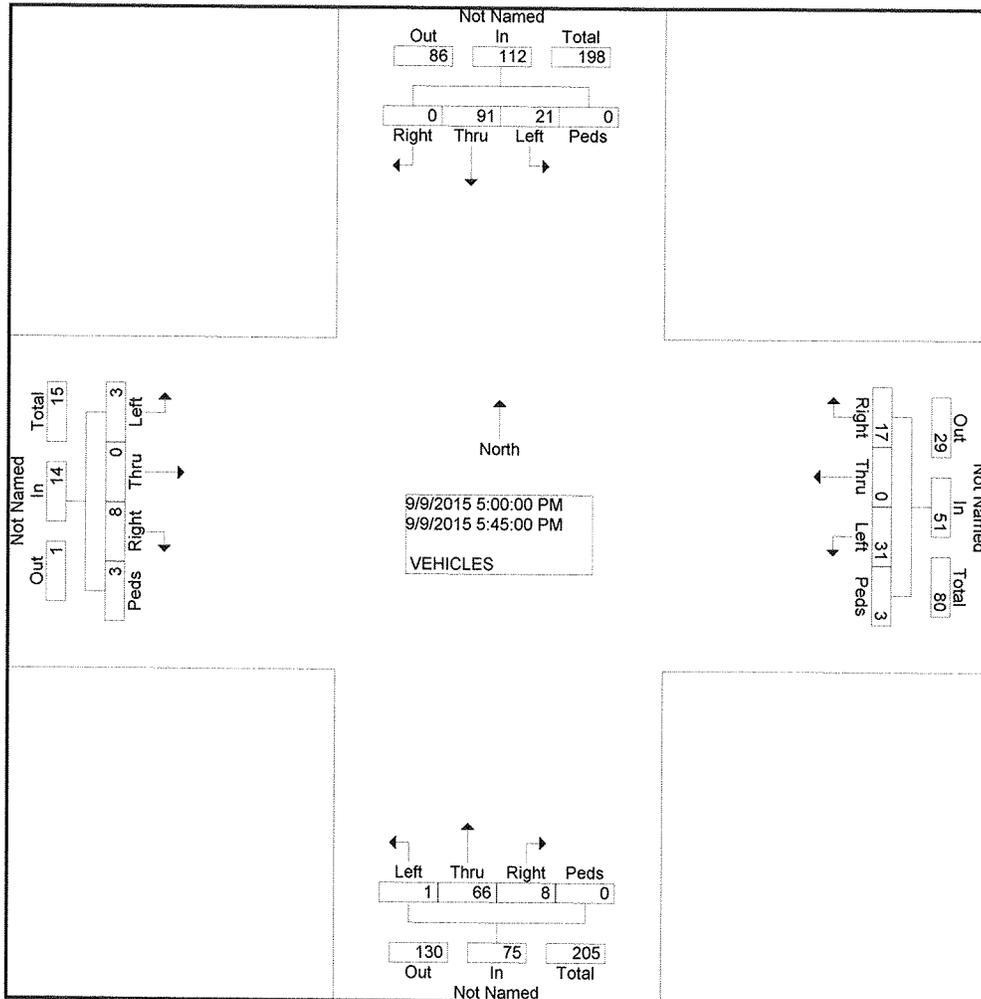
COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO
303-333-7409

N/S STREET: CR-5
E/W STREET: MIDDLE ACCESS TO SCHOOL
CITY: ERIE
COUNTY: WELD

File Name : CR-5MIDD
Site Code : 00000008
Start Date : 9/9/2015
Page No : 2

Start Time	Southbound					Westbound					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 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	05:00 PM																				
Volume	21	91	0	0	112	31	0	17	3	51	1	66	8	0	75	3	0	8	3	14	252
Percent	18.8	81.3	0.0	0.0		60.8	0.0	33.3	5.9		1.3	88.0	10.7	0.0		21.4	0.0	57.1	21.4		
05:30 Volume	1	30	0	0	31	7	0	4	0	11	1	23	0	0	24	1	0	5	0	6	72
Peak Factor	0.875																				
High Int. Volume	05:45 PM					05:00 PM					05:30 PM					05:30 PM					
Peak Factor	17	21	0	0	38	9	0	5	1	15	1	23	0	0	24	1	0	5	0	6	0.58
					0.73					0.85					0.78					0.58	3



LEVEL OF SERVICE DEFINITIONS

From *Highway Capacity Manual*, Transportation Research Board, 2010

SIGNALIZED INTERSECTION LEVEL OF SERVICE (LOS)

<u>LOS</u>	<u>Average Vehicle Delay</u> sec/vehicle	<u>Operational Characteristics</u>
A	<10 seconds	Describes operations with low control delay, up to 10 sec/veh. This LOS occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.
B	10 to 20 seconds	Describes operations with control delay greater than 10 seconds and up to 20 sec/veh. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.
C	20 to 35 seconds	Describes operations with control delay greater than 20 and up to 35 sec/veh. These higher delays may result from only fair progression, longer cycle length, or both. Individual cycle failures may begin to appear at this level. Cycle failure occurs when a given green phase does not serve queued vehicles, and overflows occur. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.
D	35 to 55 seconds	Describes operations with control delay greater than 35 and up to 55 sec/veh. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, and high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	55 to 80 seconds	Describes operations with control delay greater than 55 and up to 80 sec/veh. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent.
F	>80 seconds	Describes operations with control delay in excess of 80 sec/veh. This level, considered unacceptable to most drivers, often occurs with over-saturation, that is, when arrival flow rates exceed the capacity of lane groups. It may also occur at high v/c ratios with many individual cycle failures. Poor progression and long cycle lengths may also contribute significantly to high delay levels.

LEVEL OF SERVICE DEFINITIONS

From *Highway Capacity Manual*, Transportation Research Board, 2010

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.

Intersection

Intersection Delay, s/veh 1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	0	8	30	0	9	48
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	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	9	35	0	10	56

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	112	35	0
Stage 1	35	-	-
Stage 2	77	-	-
Follow-up Headway	3.518	3.318	-
Pot Capacity-1 Maneuver	885	1038	-
Stage 1	987	-	-
Stage 2	946	-	-
Time blocked-Platoon, %			
Mov Capacity-1 Maneuver	879	1038	-
Mov Capacity-2 Maneuver	879	-	-
Stage 1	987	-	-
Stage 2	939	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.5	0	1.2
HCM LOS	A		

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1038	1576	-
HCM Lane V/C Ratio	-	-	0.009	0.007	-
HCM Control Delay (s)	-	-	8.5	7.3	0
HCM Lane LOS			A	A	A
HCM 95th %tile Q(veh)	-	-	0.027	0.02	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 Signalized Intersection Summary
 6: Bonanza Drive/Colliers Blvd. (WCR 3) & Erie Parkway

Existing
 AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	26	322	22	8	538	99	55	11	40	30	5	54
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Lanes	1	1	1	1	2	1	1	1	0	1	1	0
Cap, veh/h	620	1328	1129	778	2656	1129	263	44	166	273	18	188
Arrive On Green	0.71	0.71	0.71	0.71	0.71	0.71	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	727	1863	1583	989	3725	1583	1329	344	1291	1341	144	1461
Grp Volume(v), veh/h	30	366	25	9	611	112	62	0	57	34	0	67
Grp Sat Flow(s),veh/h/ln	727	1863	1583	989	1863	1583	1329	0	1635	1341	0	1605
Q Serve(g_s), s	0.7	3.5	0.2	0.2	2.8	1.1	2.2	0.0	1.6	1.2	0.0	1.9
Cycle Q Clear(g_c), s	3.6	3.5	0.2	3.7	2.8	1.1	4.2	0.0	1.6	2.8	0.0	1.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.79	1.00		0.91
Lane Grp Cap(c), veh/h	620	1328	1129	778	2656	1129	263	0	210	273	0	206
V/C Ratio(X)	0.05	0.28	0.02	0.01	0.23	0.10	0.24	0.00	0.27	0.12	0.00	0.32
Avail Cap(c_a), veh/h	620	1328	1129	778	2656	1129	513	0	518	525	0	509
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	3.1	2.6	2.1	3.3	2.5	2.2	21.9	0.0	19.9	21.1	0.0	20.0
Incr Delay (d2), s/veh	0.1	0.5	0.0	0.0	0.2	0.2	0.5	0.0	0.7	0.2	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.1	0.9	0.1	0.0	0.7	0.2	0.7	0.0	0.6	0.4	0.0	0.7
Lane Grp Delay (d), s/veh	3.3	3.1	2.2	3.3	2.7	2.4	22.4	0.0	20.5	21.3	0.0	20.9
Lane Grp LOS	A	A	A	A	A	A	C		C	C		C
Approach Vol, veh/h		421			732			119			101	
Approach Delay, s/veh		3.1			2.7			21.5			21.0	
Approach LOS		A			A			C			C	
Timer												
Assigned Phs		4			8			2			6	
Phs Duration (G+Y+Rc), s		40.0			40.0			10.5			10.5	
Change Period (Y+Rc), s		4.0			4.0			4.0			4.0	
Max Green Setting (Gmax), s		36.0			36.0			16.0			16.0	
Max Q Clear Time (g_c+I1), s		5.6			5.7			6.2			4.8	
Green Ext Time (p_c), s		7.7			7.7			0.6			0.7	
Intersection Summary												
HCM 2010 Ctrl Delay				5.8								
HCM 2010 LOS				A								
Notes												

Intersection

Intersection Delay, s/veh 2.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	27	10	5	35	49	26
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	79	79	79	79	79	79
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	34	13	6	44	62	33

Major/Minor	Minor2	Major1			Major2	
Conflicting Flow All	135	78	95	0	-	0
Stage 1	78	-	-	-	-	-
Stage 2	57	-	-	-	-	-
Follow-up Headway	3.518	3.318	2.218	-	-	-
Pot Capacity-1 Maneuver	859	983	1499	-	-	-
Stage 1	945	-	-	-	-	-
Stage 2	966	-	-	-	-	-
Time blocked-Platoon, %				-	-	-
Mov Capacity-1 Maneuver	856	983	1499	-	-	-
Mov Capacity-2 Maneuver	856	-	-	-	-	-
Stage 1	945	-	-	-	-	-
Stage 2	962	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.3	0.9	0
HCM LOS	A		

Minor Lane / Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1499	-	887	-	-
HCM Lane V/C Ratio	0.004	-	0.053	-	-
HCM Control Delay (s)	7.412	0	9.3	-	-
HCM Lane LOS	A	A	A		
HCM 95th %tile Q(veh)	0.013	-	0.167	-	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 Roundabout
 14: Colliers Blvd. (WCR 3) & Colliers Parkway

Existing
 AM Peak

Intersection				
Intersection Delay, s/veh	3.8			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	0	2	87	61
Demand Flow Rate, veh/h	0	2	88	62
Vehicles Circulating, veh/h	64	70	0	2
Vehicles Exiting, veh/h	0	18	64	70
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	0.0	3.4	3.9	3.7
Approach LOS	-	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	0	2	88	62
Cap Entry Lane, veh/h	1060	1054	1130	1128
Entry HV Adj Factor	1.000	1.000	0.984	0.980
Flow Entry, veh/h	0	2	87	61
Cap Entry, veh/h	1060	1054	1112	1106
V/C Ratio	0.000	0.002	0.078	0.055
Control Delay, s/veh	3.4	3.4	3.9	3.7
LOS	A	A	A	A
95th %tile Queue, veh	0	0	0	0

HCM 2010 Signalized Intersection Summary
 16: WCR 5 & Erie Parkway

Existing
 AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	139	317	27	14	535	105	41	101	33	51	57	111
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	186.3
Lanes	1	1	0	1	1	1	1	1	0	1	1	1
Cap, veh/h	406	1106	93	625	1216	1033	324	271	90	265	377	320
Arrive On Green	0.65	0.65	0.65	0.65	0.65	0.65	0.20	0.20	0.20	0.20	0.20	0.20
Sat Flow, veh/h	637	1695	143	925	1863	1583	1149	1341	444	1198	1863	1583
Grp Volume(v), veh/h	188	0	464	19	723	142	55	0	181	69	77	150
Grp Sat Flow(s),veh/h/ln	637	0	1838	925	1863	1583	1149	0	1784	1198	1863	1583
Q Serve(g_s), s	13.1	0.0	6.5	0.5	12.2	1.9	2.3	0.0	5.0	3.0	1.9	4.6
Cycle Q Clear(g_c), s	25.3	0.0	6.5	7.0	12.2	1.9	4.2	0.0	5.0	8.0	1.9	4.6
Prop In Lane	1.00		0.08	1.00		1.00	1.00		0.25	1.00		1.00
Lane Grp Cap(c), veh/h	406	0	1199	625	1216	1033	324	0	361	265	377	320
V/C Ratio(X)	0.46	0.00	0.39	0.03	0.59	0.14	0.17	0.00	0.50	0.26	0.20	0.47
Avail Cap(c_a), veh/h	406	0	1199	625	1216	1033	424	0	518	370	540	459
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.6	0.0	4.5	6.1	5.4	3.7	20.1	0.0	19.5	23.1	18.3	19.4
Incr Delay (d2), s/veh	3.8	0.0	0.9	0.1	2.1	0.3	0.2	0.0	1.1	0.5	0.3	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	2.1	0.0	2.1	0.1	3.5	0.4	0.6	0.0	2.0	0.8	0.8	1.7
Lane Grp Delay (d), s/veh	16.4	0.0	5.4	6.2	7.6	3.9	20.3	0.0	20.6	23.6	18.6	20.4
Lane Grp LOS	B		A	A	A	A	C		C	C	B	C
Approach Vol, veh/h		652			884			236			296	
Approach Delay, s/veh		8.6			7.0			20.5			20.7	
Approach LOS		A			A			C			C	
Timer												
Assigned Phs		4			8			2			6	
Phs Duration (G+Y+Rc), s		40.0			40.0			15.2			15.2	
Change Period (Y+Rc), s		4.0			4.0			4.0			4.0	
Max Green Setting (Gmax), s		36.0			36.0			16.0			16.0	
Max Q Clear Time (g_c+I1), s		27.3			14.2			7.0			10.0	
Green Ext Time (p_c), s		5.2			8.9			1.5			1.2	
Intersection Summary												
HCM 2010 Ctrl Delay				11.0								
HCM 2010 LOS				B								
Notes												

HCM 2010 TWSC
 21: WCR 5 & Colliers Parkway/Middle School Access

Existing
 AM Peak

Intersection

Intersection Delay, s/veh 29.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	2	136	0	68	1	60	67	69	141	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	0	315	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	49	49	49	49	49	49	49	49	49	49	49	49
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	4	278	0	139	2	122	137	141	288	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	765	696	288	698	696	122	288	0	0	122	0	0
Stage 1	569	569	-	127	127	-	-	-	-	-	-	-
Stage 2	196	127	-	571	569	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	320	365	751	355	365	929	1274	-	-	1465	-	-
Stage 1	507	506	-	877	791	-	-	-	-	-	-	-
Stage 2	806	791	-	506	506	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-	-	-	-
Mov Capacity-1 Maneuver	252	329	751	327	329	929	1274	-	-	1465	-	-
Mov Capacity-2 Maneuver	252	329	-	327	329	-	-	-	-	-	-	-
Stage 1	506	457	-	875	789	-	-	-	-	-	-	-
Stage 2	684	789	-	455	457	-	-	-	-	-	-	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	9.8			75.5			0.1			2.5		
HCM LOS	A			F								

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1274	-	-	751	417	1465	-	-
HCM Lane V/C Ratio	0.002	-	-	0.005	0.998	0.096	-	-
HCM Control Delay (s)	7.83	0	-	9.8	75.5	7.718	-	-
HCM Lane LOS	A	A	-	A	F	A	-	-
HCM 95th %tile Q(veh)	0.005	-	-	0.016	12.453	0.318	-	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection

Intersection Delay, s/veh 1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	2	25	6	2	2	12	111	4	0	201	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	51	51	51	51	51	51	51	51	51	51	51	51
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	4	49	12	4	4	24	218	8	0	394	0

Major/Minor

	Minor2	Minor1		Major1		Major2						
Conflicting Flow All	667	667	394	690	663	222	394	0	0	225	0	0
Stage 1	394	394	-	269	269	-	-	-	-	-	-	-
Stage 2	273	273	-	421	394	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	372	380	655	359	382	818	1165	-	-	1344	-	-
Stage 1	631	605	-	737	687	-	-	-	-	-	-	-
Stage 2	733	684	-	610	605	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-	-	-	-
Mov Capacity-1 Maneuver	361	371	655	323	373	818	1165	-	-	1344	-	-
Mov Capacity-2 Maneuver	361	371	-	323	373	-	-	-	-	-	-	-
Stage 1	616	605	-	719	671	-	-	-	-	-	-	-
Stage 2	708	668	-	561	605	-	-	-	-	-	-	-

Approach

	EB	WB	NB	SB
HCM Control Delay, s	11.3	15	0.8	0
HCM LOS	B	C		

Minor Lane / Major Mvmt

	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1165	-	-	620	379	1344	-	-
HCM Lane V/C Ratio	0.02	-	-	0.085	0.052	-	-	-
HCM Control Delay (s)	8.154	0	-	11.3	15	0	-	-
HCM Lane LOS	A	A	-	B	C	A	-	-
HCM 95th %tile Q(veh)	0.062	-	-	0.279	0.163	0	-	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 TWSC
 3: Colliers Blvd. (WCR 3)/WCR 3 & WCR 10

Existing
 PM Peak

Intersection

Intersection Delay, s/veh 2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	4	13	49	0	25	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	15	56	0	29	49

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	163	56	0
Stage 1	56	-	-
Stage 2	107	-	-
Follow-up Headway	3.518	3.318	-
Pot Capacity-1 Maneuver	828	1011	-
Stage 1	967	-	-
Stage 2	917	-	-
Time blocked-Platoon, %			
Mov Capacity-1 Maneuver	812	1011	-
Mov Capacity-2 Maneuver	812	-	-
Stage 1	967	-	-
Stage 2	900	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	2.7
HCM LOS	A		

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	956	1549	-
HCM Lane V/C Ratio	-	-	0.02	0.019	-
HCM Control Delay (s)	-	-	8.8	7.368	0
HCM Lane LOS			A	A	A
HCM 95th %tile Q(veh)	-	-	0.063	0.057	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 Signalized Intersection Summary
 6: Bonanza Drive/Colliers Blvd. (WCR 3) & Erie Parkway

Existing
 PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	41	470	64	30	323	29	54	1	25	67	6	26
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Lanes	1	1	1	1	2	1	1	1	0	1	1	0
Cap, veh/h	863	1365	1160	691	2730	1160	264	6	160	269	31	139
Arrive On Green	0.73	0.73	0.73	0.73	0.73	0.73	0.10	0.10	0.10	0.10	0.10	0.10
Sat Flow, veh/h	1015	1863	1583	853	3725	1583	1370	59	1533	1378	296	1332
Grp Volume(v), veh/h	42	485	66	31	333	30	56	0	27	69	0	33
Grp Sat Flow(s),veh/h/ln	1015	1863	1583	853	1863	1583	1370	0	1592	1378	0	1628
Q Serve(g_s), s	0.6	4.6	0.6	0.7	1.3	0.3	1.9	0.0	0.8	2.4	0.0	0.9
Cycle Q Clear(g_c), s	1.9	4.6	0.6	5.3	1.3	0.3	2.8	0.0	0.8	3.1	0.0	0.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.96	1.00		0.82
Lane Grp Cap(c), veh/h	863	1365	1160	691	2730	1160	264	0	166	269	0	170
V/C Ratio(X)	0.05	0.36	0.06	0.04	0.12	0.03	0.21	0.00	0.16	0.26	0.00	0.19
Avail Cap(c_a), veh/h	863	1365	1160	691	2730	1160	567	0	519	574	0	530
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	2.2	2.4	1.8	3.3	1.9	1.8	21.4	0.0	20.0	21.5	0.0	20.1
Incr Delay (d2), s/veh	0.1	0.7	0.1	0.1	0.1	0.0	0.4	0.0	0.5	0.5	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.1	1.1	0.1	0.1	0.3	0.1	0.6	0.0	0.3	0.7	0.0	0.3
Lane Grp Delay (d), s/veh	2.3	3.1	1.9	3.5	2.0	1.8	21.8	0.0	20.5	22.0	0.0	20.7
Lane Grp LOS	A	A	A	A	A	A	C		C	C		C
Approach Vol, veh/h		593			394			83			102	
Approach Delay, s/veh		2.9			2.1			21.4			21.5	
Approach LOS		A			A			C			C	
Timer												
Assigned Phs		4			8			2			6	
Phs Duration (G+Y+Rc), s		40.0			40.0			9.1			9.1	
Change Period (Y+Rc), s		4.0			4.0			4.0			4.0	
Max Green Setting (Gmax), s		36.0			36.0			16.0			16.0	
Max Q Clear Time (g_c+I1), s		6.6			7.3			4.8			5.1	
Green Ext Time (p_c), s		6.2			6.2			0.5			0.5	
Intersection Summary												
HCM 2010 Ctrl Delay				5.6								
HCM 2010 LOS				A								
Notes												

Intersection

Intersection Delay, s/veh 2.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	32	21	12	51	47	61
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	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	24	13	57	53	69

Major/Minor	Minor2	Major1			Major2	
Conflicting Flow All	171	87	121	0	-	0
Stage 1	87	-	-	-	-	-
Stage 2	84	-	-	-	-	-
Follow-up Headway	3.518	3.318	2.218	-	-	-
Pot Capacity-1 Maneuver	819	971	1467	-	-	-
Stage 1	936	-	-	-	-	-
Stage 2	939	-	-	-	-	-
Time blocked-Platoon, %				-	-	-
Mov Capacity-1 Maneuver	812	971	1467	-	-	-
Mov Capacity-2 Maneuver	812	-	-	-	-	-
Stage 1	936	-	-	-	-	-
Stage 2	931	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.5	1.4	0
HCM LOS	A		

Minor Lane / Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1467	-	868	-	-
HCM Lane V/C Ratio	0.009	-	0.069	-	-
HCM Control Delay (s)	7.477	0	9.5	-	-
HCM Lane LOS	A	A	A		
HCM 95th %tile Q(veh)	0.028	-	0.22	-	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 Roundabout
 14: Colliers Blvd. (WCR 3) & Colliers Parkway

Existing
 PM Peak

Intersection				
Intersection Delay, s/veh	3.6			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	0	5	38	62
Demand Flow Rate, veh/h	0	5	39	63
Vehicles Circulating, veh/h	67	35	1	4
Vehicles Exiting, veh/h	0	5	66	36
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	0.0	3.3	3.5	3.7
Approach LOS	-	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	0	5	39	63
Cap Entry Lane, veh/h	1057	1091	1129	1125
Entry HV Adj Factor	1.000	1.000	0.982	0.981
Flow Entry, veh/h	0	5	38	62
Cap Entry, veh/h	1057	1091	1109	1104
V/C Ratio	0.000	0.005	0.035	0.056
Control Delay, s/veh	3.4	3.3	3.5	3.7
LOS	A	A	A	A
95th %tile Queue, veh	0	0	0	0

HCM 2010 Signalized Intersection Summary
 16: WCR 5 & Erie Parkway

Existing
 PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	105	548	63	16	299	57	55	46	25	54	26	52
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	186.3
Lanes	1	1	0	1	1	1	1	1	0	1	1	1
Cap, veh/h	803	1169	135	584	1328	1129	294	146	79	262	240	204
Arrive On Green	0.71	0.71	0.71	0.71	0.71	0.71	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	1008	1640	190	788	1863	1583	1312	1138	616	1320	1863	1583
Grp Volume(v), veh/h	109	0	637	17	311	59	57	0	74	56	27	54
Grp Sat Flow(s),veh/h/ln	1008	0	1829	788	1863	1583	1312	0	1754	1320	1863	1583
Q Serve(g_s), s	2.1	0.0	7.7	0.5	2.9	0.6	2.0	0.0	1.9	2.0	0.6	1.6
Cycle Q Clear(g_c), s	5.0	0.0	7.7	8.2	2.9	0.6	2.7	0.0	1.9	4.0	0.6	1.6
Prop In Lane	1.00		0.10	1.00		1.00	1.00		0.35	1.00		1.00
Lane Grp Cap(c), veh/h	803	0	1304	584	1328	1129	294	0	226	262	240	204
V/C Ratio(X)	0.14	0.00	0.49	0.03	0.23	0.05	0.19	0.00	0.33	0.21	0.11	0.27
Avail Cap(c_a), veh/h	803	0	1304	584	1328	1129	542	0	556	510	590	502
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	3.4	0.0	3.2	5.0	2.5	2.2	20.6	0.0	20.0	21.8	19.5	19.8
Incr Delay (d2), s/veh	0.4	0.0	1.3	0.1	0.4	0.1	0.3	0.0	0.8	0.4	0.2	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.4	0.0	2.1	0.1	0.5	0.1	0.6	0.0	0.8	0.6	0.3	0.6
Lane Grp Delay (d), s/veh	3.7	0.0	4.5	5.1	2.9	2.2	21.0	0.0	20.9	22.2	19.7	20.5
Lane Grp LOS	A		A	A	A	A	C		C	C	B	C
Approach Vol, veh/h		746			387			131			137	
Approach Delay, s/veh		4.4			2.9			20.9			21.1	
Approach LOS		A			A			C			C	
Timer												
Assigned Phs		4			8			2			6	
Phs Duration (G+Y+Rc), s		40.0			40.0			10.5			10.5	
Change Period (Y+Rc), s		4.0			4.0			4.0			4.0	
Max Green Setting (Gmax), s		36.0			36.0			16.0			16.0	
Max Q Clear Time (g_c+I1), s		9.7			10.2			4.7			6.0	
Green Ext Time (p_c), s		6.9			6.9			0.7			0.7	
Intersection Summary												
HCM 2010 Ctrl Delay				7.2								
HCM 2010 LOS				A								
Notes												

HCM 2010 TWSC
 21: WCR 5 & Colliers Parkway/Middle School Access

Existing
 PM Peak

Intersection

Intersection Delay, s/veh 3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	3	0	8	31	0	17	1	66	8	21	91	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	0	315	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	0	9	35	0	19	1	75	9	24	103	0

Major/Minor	Minor2		Minor1			Major1		Major2				
Conflicting Flow All	238	228	103	233	228	75	103	0	0	75	0	0
Stage 1	151	151	-	77	77	-	-	-	-	-	-	-
Stage 2	87	77	-	156	151	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	716	671	952	722	671	986	1489	-	-	1524	-	-
Stage 1	851	772	-	932	831	-	-	-	-	-	-	-
Stage 2	921	831	-	846	772	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-	-	-	-
Mov Capacity-1 Maneuver	693	660	952	706	660	986	1489	-	-	1524	-	-
Mov Capacity-2 Maneuver	693	660	-	706	660	-	-	-	-	-	-	-
Stage 1	850	760	-	931	830	-	-	-	-	-	-	-
Stage 2	902	830	-	825	760	-	-	-	-	-	-	-

Approach	EB		WB			NB		SB		
HCM Control Delay, s	9.2		9.9			0.1		1.4		
HCM LOS	A		A							

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1489	-	-	864	785	1524	-	-
HCM Lane V/C Ratio	0.001	-	-	0.014	0.069	0.016	-	-
HCM Control Delay (s)	7.42	0	-	9.2	9.9	7.4	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0.002	-	-	0.044	0.223	0.048	-	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection

Intersection Delay, s/veh 1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	3	14	0	3	2	6	83	2	2	101	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	3	15	0	3	2	6	89	2	2	109	0

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	219	217	109	225	216	90	109	0	0	91	0	0
Stage 1	113	113	-	103	103	-	-	-	-	-	-	-
Stage 2	106	104	-	122	113	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	737	681	945	730	682	968	1481	-	-	1504	-	-
Stage 1	892	802	-	903	810	-	-	-	-	-	-	-
Stage 2	900	809	-	882	802	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-	-	-	-
Mov Capacity-1 Maneuver	730	678	945	713	679	968	1481	-	-	1504	-	-
Mov Capacity-2 Maneuver	730	678	-	713	679	-	-	-	-	-	-	-
Stage 1	888	801	-	899	807	-	-	-	-	-	-	-
Stage 2	891	806	-	864	801	-	-	-	-	-	-	-

Approach	EB		WB			NB			SB		
HCM Control Delay, s	9.2		9.7			0.5			0.1		
HCM LOS	A		A								

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1481	-	-	873	771	1504	-	-
HCM Lane V/C Ratio	0.004	-	-	0.022	0.007	0.001	-	-
HCM Control Delay (s)	7.441	0	-	9.2	9.7	7.397	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0.013	-	-	0.068	0.021	0.004	-	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection

Int Delay, s/veh 2.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	20	50	100	10	20	95
Future Vol, veh/h	20	50	100	10	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	200	-	-	200	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	56	111	11	22	106

Major/Minor	Minor1	Minor2	Major1	Major2	Major3	Major4
Conflicting Flow All	261	111	0	0	111	0
Stage 1	111	-	-	-	-	-
Stage 2	150	-	-	-	-	-
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	728	942	-	-	1479	-
Stage 1	914	-	-	-	-	-
Stage 2	878	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	717	942	-	-	1479	-
Mov Cap-2 Maneuver	717	-	-	-	-	-
Stage 1	914	-	-	-	-	-
Stage 2	865	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	1.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	717	942	1479	-
HCM Lane V/C Ratio	-	-	0.031	0.059	0.015	-
HCM Control Delay (s)	-	-	10.2	9.1	7.5	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0.2	0	-

HCM 2010 Signalized Intersection Summary
 6: Bonanza Drive/Colliers Blvd. (WCR 3) & Erie Parkway

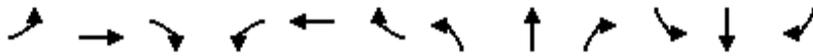
2021 Background
 AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	530	50	45	825	85	150	25	65	120	15	110
Future Volume (veh/h)	45	530	50	45	825	85	150	25	65	120	15	110
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	49	576	54	49	897	92	163	27	71	130	16	120
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	392	2221	993	548	2221	993	318	49	128	258	178	194
Arrive On Green	0.03	0.63	0.63	0.03	0.63	0.63	0.08	0.11	0.11	0.08	0.10	0.10
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	455	1197	1774	1863	1583
Grp Volume(v), veh/h	49	576	54	49	897	92	163	0	98	130	16	120
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	0	1652	1774	1863	1583
Q Serve(g_s), s	1.2	8.7	1.6	1.2	15.2	2.8	10.0	0.0	6.8	7.8	0.9	8.6
Cycle Q Clear(g_c), s	1.2	8.7	1.6	1.2	15.2	2.8	10.0	0.0	6.8	7.8	0.9	8.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.72	1.00		1.00
Lane Grp Cap(c), veh/h	392	2221	993	548	2221	993	318	0	176	258	178	194
V/C Ratio(X)	0.13	0.26	0.05	0.09	0.40	0.09	0.51	0.00	0.56	0.50	0.09	0.62
Avail Cap(c_a), veh/h	447	2221	993	604	2221	993	318	0	358	262	388	372
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.91	0.91	0.91	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	8.4	9.9	8.6	7.7	11.2	8.8	44.5	0.0	50.9	44.1	49.5	50.0
Incr Delay (d2), s/veh	0.1	0.3	0.1	0.1	0.5	0.2	1.4	0.0	2.7	1.5	0.2	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	4.3	0.7	0.6	7.5	1.2	5.0	0.0	3.2	3.9	0.5	3.9
LnGrp Delay(d),s/veh	8.6	10.2	8.7	7.8	11.7	9.0	45.9	0.0	53.6	45.6	49.7	53.2
LnGrp LOS	A	B	A	A	B	A	D		D	D	D	D
Approach Vol, veh/h		679			1038			261			266	
Approach Delay, s/veh		10.0			11.2			48.8			49.3	
Approach LOS		A			B			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.7	16.8	8.2	80.3	15.0	16.5	8.2	80.3				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	10.0	25.0	7.0	58.0	10.0	25.0	7.0	58.0				
Max Q Clear Time (g_c+I1), s	9.8	8.8	3.2	10.7	12.0	10.6	3.2	17.2				
Green Ext Time (p_c), s	0.0	0.9	0.0	14.8	0.0	0.9	0.0	14.2				
Intersection Summary												
HCM 2010 Ctrl Delay			19.7									
HCM 2010 LOS			B									

Intersection				
Intersection Delay, s/veh	5.9			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	154	207	158	229
Demand Flow Rate, veh/h	157	211	162	234
Vehicles Circulating, veh/h	305	178	96	140
Vehicles Exiting, veh/h	69	80	366	249
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	6.4	6.1	5.1	6.1
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	157	211	162	234
Cap Entry Lane, veh/h	833	946	1027	982
Entry HV Adj Factor	0.981	0.981	0.977	0.978
Flow Entry, veh/h	154	207	158	229
Cap Entry, veh/h	817	928	1003	961
V/C Ratio	0.188	0.223	0.158	0.238
Control Delay, s/veh	6.4	6.1	5.1	6.1
LOS	A	A	A	A
95th %tile Queue, veh	1	1	1	1

HCM 2010 Signalized Intersection Summary
 16: WCR 5 & Erie Parkway

2021 Background
 AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	450	65	50	620	175	75	175	75	270	85	260
Future Volume (veh/h)	200	450	65	50	620	175	75	175	75	270	85	260
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	217	489	71	54	674	190	82	190	82	293	92	283
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	434	1925	861	508	1760	787	310	559	250	415	744	333
Arrive On Green	0.07	0.54	0.54	0.03	0.50	0.50	0.05	0.16	0.16	0.12	0.21	0.21
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	217	489	71	54	674	190	82	190	82	293	92	283
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	1770	1583	1721	1770	1583
Q Serve(g_s), s	6.9	8.8	2.6	1.8	14.2	8.2	4.6	5.7	5.5	9.8	2.5	20.6
Cycle Q Clear(g_c), s	6.9	8.8	2.6	1.8	14.2	8.2	4.6	5.7	5.5	9.8	2.5	20.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	434	1925	861	508	1760	787	310	559	250	415	744	333
V/C Ratio(X)	0.50	0.25	0.08	0.11	0.38	0.24	0.26	0.34	0.33	0.71	0.12	0.85
Avail Cap(c_a), veh/h	449	1925	861	606	1760	787	322	737	330	631	1121	501
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.96	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.2	14.5	13.1	14.0	18.7	17.2	39.3	45.0	44.9	50.7	38.4	45.6
Incr Delay (d2), s/veh	0.9	0.3	0.2	0.1	0.6	0.7	0.5	0.4	0.8	2.2	0.1	8.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.4	4.4	1.2	0.9	7.1	3.8	2.3	2.8	2.5	4.8	1.2	9.8
LnGrp Delay(d),s/veh	14.1	14.8	13.2	14.1	19.4	18.0	39.8	45.3	45.6	53.0	38.5	54.2
LnGrp LOS	B	B	B	B	B	B	D	D	D	D	D	D
Approach Vol, veh/h		777			918			354			668	
Approach Delay, s/veh		14.5			18.8			44.1			51.5	
Approach LOS		B			B			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.5	23.9	8.3	70.3	11.2	30.2	13.9	64.7				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	20.0	25.0	10.0	45.0	7.0	38.0	10.0	45.0				
Max Q Clear Time (g_c+I), s	11.8	7.7	3.8	10.8	6.6	22.6	8.9	16.2				
Green Ext Time (p_c), s	0.6	2.7	0.0	9.9	0.0	2.6	0.1	9.4				
Intersection Summary												
HCM 2010 Ctrl Delay					28.9							
HCM 2010 LOS					C							

HCM 2010 Signalized Intersection Summary
 21: WCR 5 & Colliers Parkway/Middle School Access

2021 Background
 AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	40	100	295	11	154	40	175	115	196	220	20
Future Volume (veh/h)	50	40	100	295	11	154	40	175	115	196	220	20
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	54	67	109	492	18	257	43	190	192	327	239	22
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	1
Peak Hour Factor	0.92	0.60	0.92	0.60	0.60	0.60	0.92	0.92	0.60	0.60	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	275	99	161	554	33	467	490	478	427	456	1156	517
Arrive On Green	0.16	0.16	0.13	0.31	0.31	0.29	0.06	0.27	0.24	0.11	0.33	0.33
Sat Flow, veh/h	1774	639	1040	1774	105	1494	1774	1770	1583	1774	3539	1583
Grp Volume(v), veh/h	54	0	176	492	0	275	43	190	192	327	239	22
Grp Sat Flow(s),veh/h/ln	1774	0	1679	1774	0	1599	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	2.1	0.0	8.0	21.1	0.0	11.6	1.3	7.0	8.2	9.0	3.9	0.8
Cycle Q Clear(g_c), s	2.1	0.0	8.0	21.1	0.0	11.6	1.3	7.0	8.2	9.0	3.9	0.8
Prop In Lane	1.00		0.62	1.00		0.93	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	275	0	260	554	0	500	490	478	427	456	1156	517
V/C Ratio(X)	0.20	0.00	0.68	0.89	0.00	0.55	0.09	0.40	0.45	0.72	0.21	0.04
Avail Cap(c_a), veh/h	377	0	357	554	0	500	590	478	427	456	1156	517
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.5	0.0	32.5	26.2	0.0	23.7	18.6	23.9	25.2	19.7	19.4	18.4
Incr Delay (d2), s/veh	0.3	0.0	3.1	16.0	0.0	1.3	0.1	2.5	3.4	5.3	0.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	3.9	12.7	0.0	5.3	0.7	3.8	4.0	3.0	2.0	0.4
LnGrp Delay(d),s/veh	29.8	0.0	35.6	42.2	0.0	25.0	18.7	26.3	28.5	25.1	19.9	18.5
LnGrp LOS	C		D	D		C	B	C	C	C	B	B
Approach Vol, veh/h		230			767			425			588	
Approach Delay, s/veh		34.2			36.0			26.6			22.7	
Approach LOS		C			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.0	24.6		15.4	7.5	29.1		28.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	7.0	15.0		15.0	7.0	15.0		23.0				
Max Q Clear Time (g_c+I1), s	11.0	10.2		10.0	3.3	5.9		23.1				
Green Ext Time (p_c), s	0.0	1.6		0.5	0.0	2.6		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			29.9									
HCM 2010 LOS			C									

Intersection

Int Delay, s/veh 1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	5	50	10	5	5	20	350	10	5	375	5
Future Vol, veh/h	10	5	50	10	5	5	20	350	10	5	375	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	6	56	11	6	6	22	389	11	6	417	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	875	875	419	900	872	394	422	0	0	400	0	0
Stage 1	431	431	-	439	439	-	-	-	-	-	-	-
Stage 2	444	444	-	461	433	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	270	288	634	259	289	655	1137	-	-	1159	-	-
Stage 1	603	583	-	597	578	-	-	-	-	-	-	-
Stage 2	593	575	-	581	582	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	257	279	634	227	280	655	1137	-	-	1159	-	-
Mov Cap-2 Maneuver	257	279	-	227	280	-	-	-	-	-	-	-
Stage 1	588	579	-	582	564	-	-	-	-	-	-	-
Stage 2	568	561	-	521	578	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.8	18.5	0.4	0.1
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1137	-	-	479	288	1159	-	-
HCM Lane V/C Ratio	0.02	-	-	0.151	0.077	0.005	-	-
HCM Control Delay (s)	8.2	0	-	13.8	18.5	8.1	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5	0.2	0	-	-

Intersection

Int Delay, s/veh 2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	15	40	125	20	45	120
Future Vol, veh/h	15	40	125	20	45	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	200	-	-	200	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	44	139	22	50	133

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	372	139	0
Stage 1	139	-	-
Stage 2	233	-	-
Critical Hdwy	7.12	6.22	4.12
Critical Hdwy Stg 1	6.12	-	-
Critical Hdwy Stg 2	6.12	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pot Cap-1 Maneuver	585	909	1445
Stage 1	864	-	-
Stage 2	770	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	570	909	1445
Mov Cap-2 Maneuver	570	-	-
Stage 1	864	-	-
Stage 2	743	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	0	2.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	570	909	1445	-
HCM Lane V/C Ratio	-	-	0.029	0.049	0.035	-
HCM Control Delay (s)	-	-	11.5	9.2	7.6	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0.2	0.1	-

HCM 2010 Signalized Intersection Summary
 6: Bonanza Drive/Colliers Blvd. (WCR 3) & Erie Parkway

2021 Background
 PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	825	150	65	465	150	125	30	60	100	25	70
Future Volume (veh/h)	125	825	150	65	465	150	125	30	60	100	25	70
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	136	897	163	71	505	163	136	33	65	109	27	76
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	590	2352	1052	405	2310	1033	249	57	112	195	150	194
Arrive On Green	0.04	0.66	0.66	0.03	0.65	0.65	0.06	0.10	0.10	0.06	0.08	0.08
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	562	1106	1774	1863	1583
Grp Volume(v), veh/h	136	897	163	71	505	163	136	0	98	109	27	76
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	0	1668	1774	1863	1583
Q Serve(g_s), s	3.0	13.7	4.6	1.6	6.9	4.8	7.0	0.0	6.7	6.8	1.6	5.3
Cycle Q Clear(g_c), s	3.0	13.7	4.6	1.6	6.9	4.8	7.0	0.0	6.7	6.8	1.6	5.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.66	1.00		1.00
Lane Grp Cap(c), veh/h	590	2352	1052	405	2310	1033	249	0	169	195	150	194
V/C Ratio(X)	0.23	0.38	0.15	0.18	0.22	0.16	0.55	0.00	0.58	0.56	0.18	0.39
Avail Cap(c_a), veh/h	619	2352	1052	455	2310	1033	249	0	452	195	466	462
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.97	0.97	0.97	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	6.3	9.0	7.5	7.0	8.4	8.1	48.6	0.0	51.5	47.6	51.5	48.5
Incr Delay (d2), s/veh	0.2	0.5	0.3	0.2	0.2	0.3	2.5	0.0	3.1	3.6	0.6	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	6.8	2.1	0.8	3.4	2.2	1.0	0.0	3.3	3.5	0.9	2.4
LnGrp Delay(d),s/veh	6.5	9.5	7.8	7.2	8.7	8.4	51.0	0.0	54.6	51.2	52.1	49.8
LnGrp LOS	A	A	A	A	A	A	D		D	D	D	D
Approach Vol, veh/h		1196			739			234			212	
Approach Delay, s/veh		8.9			8.5			52.5			50.8	
Approach LOS		A			A			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	14.6	8.6	84.7	12.0	14.6	10.0	83.3				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	7.0	30.0	7.0	56.0	7.0	30.0	7.0	56.0				
Max Q Clear Time (g_c+I1), s	8.8	8.7	3.6	15.7	9.0	7.3	5.0	8.9				
Green Ext Time (p_c), s	0.0	0.9	0.0	14.7	0.0	0.9	0.1	15.3				
Intersection Summary												
HCM 2010 Ctrl Delay			16.8									
HCM 2010 LOS			B									

Intersection				
Intersection Delay, s/veh	7.1			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	104	149	343	288
Demand Flow Rate, veh/h	106	152	349	294
Vehicles Circulating, veh/h	322	266	151	197
Vehicles Exiting, veh/h	168	234	277	221
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.8	6.0	7.7	7.4
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	106	152	349	294
Cap Entry Lane, veh/h	819	866	972	928
Entry HV Adj Factor	0.981	0.980	0.982	0.981
Flow Entry, veh/h	104	149	343	288
Cap Entry, veh/h	803	849	954	911
V/C Ratio	0.129	0.176	0.359	0.317
Control Delay, s/veh	5.8	6.0	7.7	7.4
LOS	A	A	A	A
95th %tile Queue, veh	0	1	2	1

HCM 2010 Signalized Intersection Summary
 16: WCR 5 & Erie Parkway

2021 Background
 PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	175	700	110	80	450	125	100	100	60	135	50	130
Future Volume (veh/h)	175	700	110	80	450	125	100	100	60	135	50	130
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	190	761	120	87	489	136	109	109	65	147	54	141
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	589	2195	1091	445	2101	1036	296	418	242	269	388	270
Arrive On Green	0.06	0.62	0.62	0.03	0.59	0.59	0.07	0.12	0.12	0.08	0.11	0.11
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	190	761	120	87	489	136	109	109	65	147	54	141
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	1770	1583	1721	1770	1583
Q Serve(g_s), s	5.0	12.5	3.1	2.3	7.8	3.9	6.5	3.4	4.4	4.9	1.7	9.7
Cycle Q Clear(g_c), s	5.0	12.5	3.1	2.3	7.8	3.9	6.5	3.4	4.4	4.9	1.7	9.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	589	2195	1091	445	2101	1036	296	418	242	269	388	270
V/C Ratio(X)	0.32	0.35	0.11	0.20	0.23	0.13	0.37	0.26	0.27	0.55	0.14	0.52
Avail Cap(c_a), veh/h	762	2195	1091	532	2101	1036	351	472	266	777	855	479
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.92	0.92	0.92	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	8.3	11.0	6.3	9.2	11.5	7.8	43.1	48.1	44.9	53.3	48.3	45.3
Incr Delay (d2), s/veh	0.3	0.4	0.2	0.2	0.3	0.3	0.8	0.3	0.6	1.7	0.2	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	6.1	1.4	1.1	3.9	1.8	3.2	1.7	1.9	2.4	0.8	4.4
LnGrp Delay(d),s/veh	8.6	11.4	6.5	9.4	11.8	8.1	43.9	48.5	45.5	55.0	48.5	46.9
LnGrp LOS	A	B	A	A	B	A	D	D	D	D	D	D
Approach Vol, veh/h		1071			712			283			342	
Approach Delay, s/veh		10.4			10.8			46.0			50.6	
Approach LOS		B			B			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.3	19.2	9.1	79.4	13.3	18.2	12.3	76.2				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	25.0	16.0	10.0	49.0	12.0	29.0	19.0	40.0				
Max Q Clear Time (g_c+1), s	10.5	6.4	4.3	14.5	8.5	11.7	7.0	9.8				
Green Ext Time (p_c), s	0.4	1.1	0.1	11.0	0.1	1.4	0.4	10.5				
Intersection Summary												
HCM 2010 Ctrl Delay				20.4								
HCM 2010 LOS				C								

HCM 2010 Signalized Intersection Summary
 21: WCR 5 & Colliers Parkway/Middle School Access

2021 Background
 PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	24	70	85	45	110	125	150	25	57	160	60
Future Volume (veh/h)	30	24	70	85	45	110	125	150	25	57	160	60
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	33	40	76	142	75	183	136	163	42	95	174	65
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	1
Peak Hour Factor	0.92	0.60	0.92	0.60	0.60	0.60	0.92	0.92	0.60	0.60	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	166	54	103	317	92	224	645	1220	306	642	1483	663
Arrive On Green	0.09	0.09	0.09	0.18	0.19	0.19	0.06	0.44	0.44	0.05	0.42	0.42
Sat Flow, veh/h	1774	576	1094	1774	481	1174	1774	2804	704	1774	3539	1583
Grp Volume(v), veh/h	33	0	116	142	0	258	136	101	104	95	174	65
Grp Sat Flow(s),veh/h/ln	1774	0	1670	1774	0	1656	1774	1770	1739	1774	1770	1583
Q Serve(g_s), s	1.4	0.0	5.5	5.9	0.0	12.3	3.5	2.8	2.9	2.5	2.5	2.0
Cycle Q Clear(g_c), s	1.4	0.0	5.5	5.9	0.0	12.3	3.5	2.8	2.9	2.5	2.5	2.0
Prop In Lane	1.00		0.66	1.00		0.71	1.00		0.40	1.00		1.00
Lane Grp Cap(c), veh/h	166	0	157	317	0	316	645	770	756	642	1483	663
V/C Ratio(X)	0.20	0.00	0.74	0.45	0.00	0.82	0.21	0.13	0.14	0.15	0.12	0.10
Avail Cap(c_a), veh/h	346	0	326	346	0	343	681	770	756	707	1483	663
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.3	0.0	36.2	30.1	0.0	31.8	11.9	13.9	13.9	12.3	14.6	14.4
Incr Delay (d2), s/veh	0.6	0.0	6.7	1.0	0.0	13.4	0.2	0.4	0.4	0.1	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	2.8	3.0	0.0	6.8	1.7	1.5	1.5	1.2	1.2	0.9
LnGrp Delay(d),s/veh	34.9	0.0	42.9	31.1	0.0	45.2	12.0	14.2	14.3	12.4	14.7	14.7
LnGrp LOS	C		D	C		D	B	B	B	B	B	B
Approach Vol, veh/h		149			400			341			334	
Approach Delay, s/veh		41.1			40.2			13.4			14.1	
Approach LOS		D			D			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.0	40.7		12.7	10.3	39.4		19.6				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	7.0	23.0		16.0	7.0	23.0		16.0				
Max Q Clear Time (g_c+I1), s	4.5	4.9		7.5	5.5	4.5		14.3				
Green Ext Time (p_c), s	0.0	2.2		0.4	0.0	2.3		0.4				
Intersection Summary												
HCM 2010 Ctrl Delay			25.7									
HCM 2010 LOS			C									

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	5	5	35	15	10	10	50	220	20	15	225	10
Future Vol, veh/h	5	5	35	15	10	10	50	220	20	15	225	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	6	39	17	11	11	56	244	22	17	250	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	667	667	256	678	661	256	261	0	0	267	0	0
Stage 1	289	289	-	367	367	-	-	-	-	-	-	-
Stage 2	378	378	-	311	294	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	372	380	783	366	383	783	1303	-	-	1297	-	-
Stage 1	719	673	-	653	622	-	-	-	-	-	-	-
Stage 2	644	615	-	699	670	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	340	355	783	327	358	783	1303	-	-	1297	-	-
Mov Cap-2 Maneuver	340	355	-	327	358	-	-	-	-	-	-	-
Stage 1	682	663	-	620	590	-	-	-	-	-	-	-
Stage 2	591	584	-	649	660	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.4	14.9	1.4	0.5
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1303	-	-	612	404	1297	-	-
HCM Lane V/C Ratio	0.043	-	-	0.082	0.096	0.013	-	-
HCM Control Delay (s)	7.9	0	-	11.4	14.9	7.8	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.3	0	-	-

Intersection

Int Delay, s/veh 2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	31	73	145	36	28	112
Future Vol, veh/h	31	73	145	36	28	112
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	200	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	34	81	161	40	31	124

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	348	161	0
Stage 1	161	-	-
Stage 2	187	-	-
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	649	884	-
Stage 1	868	-	-
Stage 2	845	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	635	884	-
Mov Cap-2 Maneuver	635	-	-
Stage 1	868	-	-
Stage 2	827	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.9	0	1.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	635	884	1418	-
HCM Lane V/C Ratio	-	-	0.054	0.092	0.022	-
HCM Control Delay (s)	-	-	11	9.5	7.6	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0.3	0.1	-

HCM 2010 Signalized Intersection Summary
 6: Bonanza Drive/Colliers Blvd. (WCR 3) & Erie Parkway

2021 Total
 AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	530	50	45	825	99	150	27	65	163	20	225
Future Volume (veh/h)	88	530	50	45	825	99	150	27	65	163	20	225
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	96	576	54	49	897	108	163	29	71	177	22	245
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	346	1964	879	479	1920	859	383	85	207	356	313	328
Arrive On Green	0.04	0.55	0.55	0.03	0.54	0.54	0.08	0.18	0.17	0.08	0.17	0.17
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	480	1175	1774	1863	1583
Grp Volume(v), veh/h	96	576	54	49	897	108	163	0	100	177	22	245
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	0	1655	1774	1863	1583
Q Serve(g_s), s	2.9	10.4	1.9	1.5	18.6	4.0	9.1	0.0	6.4	10.0	1.2	17.4
Cycle Q Clear(g_c), s	2.9	10.4	1.9	1.5	18.6	4.0	9.1	0.0	6.4	10.0	1.2	17.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.71	1.00		1.00
Lane Grp Cap(c), veh/h	346	1964	879	479	1920	859	383	0	292	356	313	328
V/C Ratio(X)	0.28	0.29	0.06	0.10	0.47	0.13	0.43	0.00	0.34	0.50	0.07	0.75
Avail Cap(c_a), veh/h	380	1964	879	535	1920	859	383	0	359	356	388	392
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.91	0.91	0.91	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.8	14.2	12.3	11.8	16.8	13.5	37.0	0.0	43.6	37.5	42.0	44.6
Incr Delay (d2), s/veh	0.4	0.4	0.1	0.1	0.7	0.3	0.7	0.0	0.7	1.1	0.1	6.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	5.1	0.8	0.7	9.3	1.8	4.5	0.0	3.0	4.9	0.6	8.2
LnGrp Delay(d),s/veh	13.3	14.6	12.4	11.9	17.6	13.7	37.8	0.0	44.3	38.6	42.1	50.9
LnGrp LOS	B	B	B	B	B	B	D		D	D	D	D
Approach Vol, veh/h		726			1054			263			444	
Approach Delay, s/veh		14.2			16.9			40.3			45.6	
Approach LOS		B			B			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	25.2	8.2	71.6	15.0	25.2	9.7	70.1				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	10.0	25.0	7.0	58.0	10.0	25.0	7.0	58.0				
Max Q Clear Time (g_c+I1), s	12.0	8.4	3.5	12.4	11.1	19.4	4.9	20.6				
Green Ext Time (p_c), s	0.0	1.4	0.0	14.8	0.0	0.8	0.0	14.0				
Intersection Summary												
HCM 2010 Ctrl Delay			23.7									
HCM 2010 LOS			C									

HCM 2010 Roundabout
 14: Colliers Blvd. (WCR 3) & Colliers Parkway

2021 Total
 AM Peak

Intersection				
Intersection Delay, s/veh	7.5			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	154	293	223	330
Demand Flow Rate, veh/h	157	299	227	337
Vehicles Circulating, veh/h	490	211	100	222
Vehicles Exiting, veh/h	69	116	547	288
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	8.0	7.6	5.7	8.3
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	157	299	227	337
Cap Entry Lane, veh/h	692	915	1022	905
Entry HV Adj Factor	0.981	0.980	0.981	0.979
Flow Entry, veh/h	154	293	223	330
Cap Entry, veh/h	679	897	1003	886
V/C Ratio	0.227	0.327	0.222	0.372
Control Delay, s/veh	8.0	7.6	5.7	8.3
LOS	A	A	A	A
95th %tile Queue, veh	1	1	1	2

HCM 2010 Signalized Intersection Summary
 16: WCR 5 & Erie Parkway

2021 Total
 AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	482	76	50	631	218	79	189	75	382	122	260
Future Volume (veh/h)	200	482	76	50	631	218	79	189	75	382	122	260
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	217	524	83	54	686	237	86	205	82	415	133	283
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	416	1905	852	480	1737	777	283	459	205	531	752	336
Arrive On Green	0.08	0.54	0.54	0.03	0.49	0.49	0.05	0.13	0.13	0.15	0.21	0.21
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	217	524	83	54	686	237	86	205	82	415	133	283
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	1770	1583	1721	1770	1583
Q Serve(g_s), s	7.0	9.6	3.1	1.8	14.7	10.8	5.0	6.4	5.7	13.9	3.7	20.6
Cycle Q Clear(g_c), s	7.0	9.6	3.1	1.8	14.7	10.8	5.0	6.4	5.7	13.9	3.7	20.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	416	1905	852	480	1737	777	283	459	205	531	752	336
V/C Ratio(X)	0.52	0.28	0.10	0.11	0.39	0.31	0.30	0.45	0.40	0.78	0.18	0.84
Avail Cap(c_a), veh/h	430	1905	852	579	1737	777	289	737	330	631	1121	501
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.93	0.93	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.7	15.0	13.5	14.4	19.3	18.3	41.9	48.2	47.9	48.8	38.7	45.3
Incr Delay (d2), s/veh	1.0	0.3	0.2	0.1	0.7	1.0	0.6	0.7	1.3	5.3	0.1	8.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	4.7	1.4	0.9	7.3	4.9	2.5	3.2	2.6	7.0	1.8	9.8
LnGrp Delay(d),s/veh	14.7	15.4	13.7	14.5	20.0	19.3	42.5	48.9	49.2	54.1	38.8	53.4
LnGrp LOS	B	B	B	B	B	B	D	D	D	D	D	D
Approach Vol, veh/h		824			977			373			831	
Approach Delay, s/veh		15.0			19.5			47.5			51.4	
Approach LOS		B			B			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	20.6	8.3	69.6	11.6	30.5	14.0	63.9				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	20.0	25.0	10.0	45.0	7.0	38.0	10.0	45.0				
Max Q Clear Time (g_c+1.0), s	11.0	8.4	3.8	11.6	7.0	22.6	9.0	16.7				
Green Ext Time (p_c), s	0.6	3.0	0.0	10.6	0.0	2.9	0.1	10.1				
Intersection Summary												
HCM 2010 Ctrl Delay				30.6								
HCM 2010 LOS				C								

HCM 2010 Signalized Intersection Summary
 21: WCR 5 & Colliers Parkway/Middle School Access

2021 Total
 AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	50	188	295	15	156	77	195	115	201	281	26
Future Volume (veh/h)	61	50	188	295	15	156	77	195	115	201	281	26
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	66	83	204	492	25	260	84	212	192	335	305	28
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	1
Peak Hour Factor	0.92	0.60	0.92	0.60	0.60	0.60	0.92	0.92	0.60	0.60	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	377	102	250	554	44	457	411	383	330	387	880	394
Arrive On Green	0.21	0.21	0.19	0.31	0.31	0.29	0.08	0.21	0.19	0.11	0.25	0.25
Sat Flow, veh/h	1774	479	1176	1774	141	1464	1774	1805	1554	1774	3539	1583
Grp Volume(v), veh/h	66	0	287	492	0	285	84	208	196	335	305	28
Grp Sat Flow(s),veh/h/ln	1774	0	1655	1774	0	1604	1774	1770	1589	1774	1770	1583
Q Serve(g_s), s	2.4	0.0	13.3	21.1	0.0	12.1	2.8	8.4	9.0	9.0	5.7	1.1
Cycle Q Clear(g_c), s	2.4	0.0	13.3	21.1	0.0	12.1	2.8	8.4	9.0	9.0	5.7	1.1
Prop In Lane	1.00		0.71	1.00		0.91	1.00		0.98	1.00		1.00
Lane Grp Cap(c), veh/h	377	0	352	554	0	501	411	376	338	387	880	394
V/C Ratio(X)	0.18	0.00	0.82	0.89	0.00	0.57	0.20	0.55	0.58	0.87	0.35	0.07
Avail Cap(c_a), veh/h	377	0	352	554	0	501	475	376	338	387	880	394
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.8	0.0	30.7	26.2	0.0	23.8	21.3	28.1	29.2	24.9	24.7	23.0
Incr Delay (d2), s/veh	0.2	0.0	13.8	16.0	0.0	1.5	0.2	5.7	7.1	18.1	1.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	7.4	12.7	0.0	5.5	1.4	4.7	4.6	4.9	2.9	0.5
LnGrp Delay(d),s/veh	26.0	0.0	44.5	42.2	0.0	25.3	21.5	33.8	36.4	43.0	25.8	23.3
LnGrp LOS	C		D	D		C	C	C	D	D	C	C
Approach Vol, veh/h		353			777			488			668	
Approach Delay, s/veh		41.1			36.0			32.7			34.3	
Approach LOS		D			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.0	20.0		20.0	9.1	22.9		28.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	7.0	15.0		15.0	7.0	15.0		23.0				
Max Q Clear Time (g_c+I1), s	11.0	11.0		15.3	4.8	7.7		23.1				
Green Ext Time (p_c), s	0.0	1.6		0.0	0.0	2.6		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			35.6									
HCM 2010 LOS			D									

Intersection

Int Delay, s/veh 4.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	65	26	115	12	12	5	42	358	13	5	380	23
Future Vol, veh/h	65	26	115	12	12	5	42	358	13	5	380	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	200	-	-	-	-	-	200	-	-	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	72	29	128	13	13	6	47	398	14	6	422	26

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	941	939	422	1010	931	405	422	0	0	412	0	0
Stage 1	433	433	-	498	498	-	-	-	-	-	-	-
Stage 2	508	506	-	512	433	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	243	264	632	218	267	646	1137	-	-	1147	-	-
Stage 1	601	582	-	554	544	-	-	-	-	-	-	-
Stage 2	547	540	-	545	582	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	223	251	632	153	254	646	1137	-	-	1147	-	-
Mov Cap-2 Maneuver	223	251	-	153	254	-	-	-	-	-	-	-
Stage 1	576	578	-	531	522	-	-	-	-	-	-	-
Stage 2	507	518	-	410	578	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	19.7	24.5	0.8	0.1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1137	-	-	223	494	217	1147	-	-
HCM Lane V/C Ratio	0.041	-	-	0.324	0.317	0.148	0.005	-	-
HCM Control Delay (s)	8.3	-	-	28.7	15.6	24.5	8.2	0	-
HCM Lane LOS	A	-	-	D	C	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.3	1.4	0.5	0	-	-

Intersection

Int Delay, s/veh 3.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	60	97	214	76	118	244
Future Vol, veh/h	60	97	214	76	118	244
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	200	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	67	108	238	84	131	271

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	771	238	0
Stage 1	238	-	-
Stage 2	533	-	-
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	368	801	-
Stage 1	802	-	-
Stage 2	588	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	332	801	-
Mov Cap-2 Maneuver	332	-	-
Stage 1	802	-	-
Stage 2	530	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.4	0	2.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	332	801	1329	-
HCM Lane V/C Ratio	-	-	0.201	0.135	0.099	-
HCM Control Delay (s)	-	-	18.5	10.2	8	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.7	0.5	0.3	-

HCM 2010 Signalized Intersection Summary
 6: Bonanza Drive/Colliers Blvd. (WCR 3) & Erie Parkway

2021 Total
 PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	248	825	150	65	465	198	125	35	60	128	28	142
Future Volume (veh/h)	248	825	150	65	465	198	125	35	60	128	28	142
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	270	897	163	71	505	215	136	38	65	139	30	154
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	558	2152	963	366	1969	881	323	82	140	278	208	308
Arrive On Green	0.08	0.61	0.61	0.03	0.56	0.56	0.08	0.13	0.13	0.08	0.11	0.11
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	618	1058	1774	1863	1583
Grp Volume(v), veh/h	270	897	163	71	505	215	136	0	103	139	30	154
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	0	1676	1774	1863	1583
Q Serve(g_s), s	7.4	16.0	5.4	2.1	8.9	8.4	8.0	0.0	6.8	8.2	1.7	10.4
Cycle Q Clear(g_c), s	7.4	16.0	5.4	2.1	8.9	8.4	8.0	0.0	6.8	8.2	1.7	10.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.63	1.00		1.00
Lane Grp Cap(c), veh/h	558	2152	963	366	1969	881	323	0	221	278	208	308
V/C Ratio(X)	0.48	0.42	0.17	0.19	0.26	0.24	0.42	0.00	0.47	0.50	0.14	0.50
Avail Cap(c_a), veh/h	663	2152	963	386	1969	881	324	0	384	278	388	460
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.96	0.96	0.96	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.2	12.3	10.3	11.1	13.8	13.7	42.2	0.0	48.2	42.5	48.1	43.2
Incr Delay (d2), s/veh	0.7	0.6	0.4	0.2	0.3	0.6	0.9	0.0	1.5	1.4	0.3	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	7.9	2.5	1.0	4.4	3.8	4.0	0.0	3.2	4.1	0.9	4.7
LnGrp Delay(d),s/veh	9.8	12.9	10.7	11.4	14.1	14.3	43.1	0.0	49.7	43.9	48.4	44.4
LnGrp LOS	A	B	B	B	B	B	D		D	D	D	D
Approach Vol, veh/h		1330			791			239			323	
Approach Delay, s/veh		12.0			13.9			45.9			44.5	
Approach LOS		B			B			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	18.3	8.7	78.0	14.9	18.4	14.9	71.8				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	10.0	25.0	5.0	60.0	10.0	25.0	17.0	48.0				
Max Q Clear Time (g_c+I1), s	10.2	8.8	4.1	18.0	10.0	12.4	9.4	10.9				
Green Ext Time (p_c), s	0.0	1.1	0.0	15.2	0.0	1.0	0.5	14.6				
Intersection Summary												
HCM 2010 Ctrl Delay				19.5								
HCM 2010 LOS				B								

HCM 2010 Roundabout
 14: Colliers Blvd. (WCR 3) & Colliers Parkway

2021 Total
 PM Peak

Intersection				
Intersection Delay, s/veh	9.7			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	104	202	535	356
Demand Flow Rate, veh/h	106	206	545	363
Vehicles Circulating, veh/h	441	378	155	246
Vehicles Exiting, veh/h	168	322	392	338
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	6.6	7.8	11.4	9.1
Approach LOS	A	A	B	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	106	206	545	363
Cap Entry Lane, veh/h	727	774	968	884
Entry HV Adj Factor	0.981	0.980	0.981	0.981
Flow Entry, veh/h	104	202	535	356
Cap Entry, veh/h	713	759	949	867
V/C Ratio	0.146	0.266	0.563	0.411
Control Delay, s/veh	6.6	7.8	11.4	9.1
LOS	A	A	B	A
95th %tile Queue, veh	1	1	4	2

HCM 2010 Signalized Intersection Summary
 16: WCR 5 & Erie Parkway

2021 Total
 PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	175	721	117	80	486	243	112	139	60	204	73	130
Future Volume (veh/h)	175	721	117	80	486	243	112	139	60	204	73	130
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	190	784	127	87	528	264	122	151	65	222	79	141
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	517	2157	1086	426	2061	1055	302	372	222	349	398	276
Arrive On Green	0.06	0.61	0.61	0.03	0.58	0.58	0.08	0.11	0.11	0.10	0.11	0.11
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	190	784	127	87	528	264	122	151	65	222	79	141
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	1770	1583	1721	1770	1583
Q Serve(g_s), s	5.1	13.3	3.3	2.4	8.8	8.0	7.3	4.8	4.4	7.4	2.4	9.7
Cycle Q Clear(g_c), s	5.1	13.3	3.3	2.4	8.8	8.0	7.3	4.8	4.4	7.4	2.4	9.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	517	2157	1086	426	2061	1055	302	372	222	349	398	276
V/C Ratio(X)	0.37	0.36	0.12	0.20	0.26	0.25	0.40	0.41	0.29	0.64	0.20	0.51
Avail Cap(c_a), veh/h	688	2157	1086	512	2061	1055	344	472	266	777	855	481
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	8.9	11.7	6.4	9.7	12.3	8.0	43.2	50.2	46.3	51.8	48.3	44.9
Incr Delay (d2), s/veh	0.4	0.4	0.2	0.2	0.3	0.6	0.9	0.7	0.7	1.9	0.2	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	6.6	1.5	1.2	4.3	3.6	3.6	2.4	2.0	3.6	1.2	4.3
LnGrp Delay(d),s/veh	9.3	12.2	6.6	10.0	12.6	8.6	44.1	50.9	47.0	53.7	48.6	46.3
LnGrp LOS	A	B	A	A	B	A	D	D	D	D	D	D
Approach Vol, veh/h		1101			879			338			442	
Approach Delay, s/veh		11.0			11.1			47.7			50.5	
Approach LOS		B			B			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.1	17.6	9.2	78.1	14.2	18.5	12.4	74.9				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	25.0	16.0	10.0	49.0	12.0	29.0	19.0	40.0				
Max Q Clear Time (g_c+1), s	19.4	6.8	4.4	15.3	9.3	11.7	7.1	10.8				
Green Ext Time (p_c), s	0.6	1.4	0.1	12.4	0.1	1.8	0.4	11.7				
Intersection Summary												
HCM 2010 Ctrl Delay				21.9								
HCM 2010 LOS				C								

HCM 2010 Signalized Intersection Summary
 21: WCR 5 & Colliers Parkway/Middle School Access

2021 Total
 PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	30	123	85	55	115	214	218	25	60	200	68
Future Volume (veh/h)	35	30	123	85	55	115	214	218	25	60	200	68
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	38	50	134	142	92	192	233	237	42	100	217	74
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	1
Peak Hour Factor	0.92	0.60	0.92	0.60	0.60	0.60	0.92	0.92	0.60	0.60	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	245	62	166	337	109	228	564	1125	196	534	1213	543
Arrive On Green	0.14	0.14	0.14	0.19	0.20	0.20	0.09	0.37	0.37	0.05	0.34	0.34
Sat Flow, veh/h	1774	449	1202	1774	539	1125	1774	3013	526	1774	3539	1583
Grp Volume(v), veh/h	38	0	184	142	0	284	233	138	141	100	217	74
Grp Sat Flow(s),veh/h/ln	1774	0	1651	1774	0	1664	1774	1770	1770	1774	1770	1583
Q Serve(g_s), s	1.5	0.0	8.9	5.8	0.0	13.5	7.0	4.3	4.5	3.0	3.5	2.6
Cycle Q Clear(g_c), s	1.5	0.0	8.9	5.8	0.0	13.5	7.0	4.3	4.5	3.0	3.5	2.6
Prop In Lane	1.00		0.73	1.00		0.68	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	245	0	228	337	0	337	564	661	661	534	1213	543
V/C Ratio(X)	0.16	0.00	0.81	0.42	0.00	0.84	0.41	0.21	0.21	0.19	0.18	0.14
Avail Cap(c_a), veh/h	346	0	322	346	0	345	564	661	661	589	1213	543
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.1	0.0	34.3	29.2	0.0	31.5	15.6	17.5	17.5	15.8	18.9	18.6
Incr Delay (d2), s/veh	0.3	0.0	9.8	0.8	0.0	16.8	0.5	0.7	0.7	0.2	0.3	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	4.7	2.9	0.0	7.7	3.4	2.2	2.3	1.4	1.8	1.2
LnGrp Delay(d),s/veh	31.4	0.0	44.1	30.1	0.0	48.2	16.1	18.2	18.2	16.0	19.2	19.1
LnGrp LOS	C		D	C		D	B	B	B	B	B	B
Approach Vol, veh/h		222			426			512			391	
Approach Delay, s/veh		42.0			42.2			17.2			18.4	
Approach LOS		D			D			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.5	35.6		16.3	12.0	33.1		20.6				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	7.0	23.0		16.0	7.0	23.0		16.0				
Max Q Clear Time (g_c+I1), s	5.0	6.5		10.9	9.0	5.5		15.5				
Green Ext Time (p_c), s	0.0	2.9		0.5	0.0	2.9		0.1				
Intersection Summary												
HCM 2010 Ctrl Delay			27.9									
HCM 2010 LOS			C									

Intersection

Int Delay, s/veh 5.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	41	19	78	17	34	10	123	224	21	15	231	71
Future Vol, veh/h	41	19	78	17	34	10	123	224	21	15	231	71
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	200	-	-	-	-	-	200	-	-	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	46	21	87	19	38	11	137	249	23	17	257	79

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	848	836	257	878	824	261	257	0	0	272	0	0
Stage 1	290	290	-	534	534	-	-	-	-	-	-	-
Stage 2	558	546	-	344	290	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	281	303	782	268	308	778	1308	-	-	1291	-	-
Stage 1	718	672	-	530	524	-	-	-	-	-	-	-
Stage 2	514	518	-	671	672	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	225	267	782	204	271	778	1308	-	-	1291	-	-
Mov Cap-2 Maneuver	225	267	-	204	271	-	-	-	-	-	-	-
Stage 1	643	661	-	474	469	-	-	-	-	-	-	-
Stage 2	417	464	-	568	661	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.4	22.3	2.7	0.4
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1308	-	-	225	568	275	1291	-	-
HCM Lane V/C Ratio	0.104	-	-	0.202	0.19	0.246	0.013	-	-
HCM Control Delay (s)	8.1	-	-	25	12.8	22.3	7.8	0	-
HCM Lane LOS	A	-	-	D	B	C	A	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0.7	0.7	0.9	0	-	-

Intersection

Intersection Delay, s/veh 4.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	54	105	140	14	53	128
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	200	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	60	117	156	16	59	142

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	416	156	0
Stage 1	156	-	-
Stage 2	260	-	-
Follow-up Headway	3.518	3.318	-
Pot Capacity-1 Maneuver	593	890	-
Stage 1	872	-	-
Stage 2	783	-	-
Time blocked-Platoon, %			
Mov Capacity-1 Maneuver	568	890	-
Mov Capacity-2 Maneuver	568	-	-
Stage 1	872	-	-
Stage 2	751	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.5	0	2.2
HCM LOS	B		

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	568	890	1424	-
HCM Lane V/C Ratio	-	-	0.106	0.131	0.041	-
HCM Control Delay (s)	-	-	12.1	9.7	7.637	-
HCM Lane LOS			B	A	A	
HCM 95th %tile Q(veh)	-	-	0.352	0.45	0.129	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 Signalized Intersection Summary
 6: Bonanza Drive/Colliers Blvd. (WCR 3) & Erie Parkway

2035 Background
 AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	53	1150	65	70	1375	71	235	33	85	182	25	143
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	186.3
Lanes	1	2	1	1	2	1	1	1	0	1	1	1
Cap, veh/h	225	2178	926	285	2189	930	387	57	146	318	228	243
Arrive On Green	0.03	0.58	0.58	0.03	0.59	0.59	0.11	0.12	0.12	0.11	0.12	0.12
Sat Flow, veh/h	1774	3725	1583	1774	3725	1583	1774	465	1188	1774	1863	1583
Grp Volume(v), veh/h	58	1250	71	76	1495	77	255	0	128	198	27	155
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	0	1653	1774	1863	1583
Q Serve(g_s), s	1.4	21.9	2.0	1.8	28.9	2.2	11.0	0.0	7.7	10.1	1.3	9.6
Cycle Q Clear(g_c), s	1.4	21.9	2.0	1.8	28.9	2.2	11.0	0.0	7.7	10.1	1.3	9.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.72	1.00		1.00
Lane Grp Cap(c), veh/h	225	2178	926	285	2189	930	387	0	203	318	228	243
V/C Ratio(X)	0.26	0.57	0.08	0.27	0.68	0.08	0.66	0.00	0.63	0.62	0.12	0.64
Avail Cap(c_a), veh/h	272	2178	926	326	2189	930	387	0	412	318	464	444
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.65	0.65	0.65	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.7	13.6	9.4	10.7	14.8	9.3	36.7	0.0	43.5	35.3	40.8	41.4
Incr Delay (d2), s/veh	0.6	1.1	0.2	0.3	1.1	0.1	4.1	0.0	3.2	3.8	0.2	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.6	9.4	0.7	0.7	12.4	0.8	1.3	0.0	3.5	4.8	0.6	3.9
Lane Grp Delay (d), s/veh	13.3	14.7	9.6	11.0	16.0	9.4	40.7	0.0	46.8	39.1	41.0	44.2
Lane Grp LOS	B	B	A	B	B	A	D		D	D	D	D
Approach Vol, veh/h		1379			1648			383			380	
Approach Delay, s/veh		14.3			15.4			42.8			41.3	
Approach LOS		B			B			D			D	
Timer												
Assigned Phs	7	4		3	8		5	2		1	6	
Phs Duration (G+Y+Rc), s	7.3	65.0		7.6	65.3		15.0	16.8		15.0	16.8	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Max Green Setting (Gmax), s	6.0	61.0		6.0	61.0		11.0	26.0		11.0	26.0	
Max Q Clear Time (g_c+I1), s	3.4	23.9		3.8	30.9		13.0	9.7		12.1	11.6	
Green Ext Time (p_c), s	0.0	29.5		0.0	24.9		0.0	1.3		0.0	1.2	
Intersection Summary												
HCM 2010 Ctrl Delay			20.4									
HCM 2010 LOS			C									
Notes												

Intersection

Intersection Delay, s/veh 1.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	35	23	51	193	158	85
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	39	26	57	214	176	94

Major/Minor	Minor2	Major1			Major2	
Conflicting Flow All	504	176	176	0	-	0
Stage 1	176	-	-	-	-	-
Stage 2	328	-	-	-	-	-
Follow-up Headway	3.518	3.318	2.218	-	-	-
Pot Capacity-1 Maneuver	528	867	1400	-	-	-
Stage 1	855	-	-	-	-	-
Stage 2	730	-	-	-	-	-
Time blocked-Platoon, %				-	-	-
Mov Capacity-1 Maneuver	507	867	1400	-	-	-
Mov Capacity-2 Maneuver	507	-	-	-	-	-
Stage 1	855	-	-	-	-	-
Stage 2	700	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.4	1.6	0
HCM LOS	B		

Minor Lane / Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1400	-	507	867	-	-
HCM Lane V/C Ratio	0.04	-	0.077	0.029	-	-
HCM Control Delay (s)	7.68	-	12.7	9.3	-	-
HCM Lane LOS	A		B	A		
HCM 95th %tile Q(veh)	0.126	-	0.248	0.091	-	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection				
Intersection Delay, s/veh	6.5			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	154	229	178	289
Demand Flow Rate, veh/h	157	233	182	295
Vehicles Circulating, veh/h	377	190	101	151
Vehicles Exiting, veh/h	69	93	433	272
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	6.9	6.5	5.3	6.9
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	157	233	182	295
Cap Entry Lane, veh/h	775	934	1021	972
Entry HV Adj Factor	0.981	0.983	0.978	0.979
Flow Entry, veh/h	154	229	178	289
Cap Entry, veh/h	760	918	999	951
V/C Ratio	0.203	0.249	0.178	0.304
Control Delay, s/veh	6.9	6.5	5.3	6.9
LOS	A	A	A	A
95th %tile Queue, veh	1	1	1	1

HCM 2010 Signalized Intersection Summary
 16: WCR 5 & Erie Parkway

2035 Background
 AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	410	918	89	80	860	344	107	281	105	492	309	525
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	2	2	1	2	2	1	2	2	1	2	2	1
Cap, veh/h	515	1809	849	138	1401	885	174	560	301	629	1053	684
Arrive On Green	0.15	0.49	0.49	0.04	0.38	0.38	0.05	0.15	0.15	0.06	0.09	0.09
Sat Flow, veh/h	3442	3725	1583	3442	3725	1583	3442	3725	1583	3442	3725	1583
Grp Volume(v), veh/h	446	998	97	87	935	374	116	305	114	535	336	571
Grp Sat Flow(s),veh/h/ln	1721	1863	1583	1721	1863	1583	1721	1863	1583	1721	1863	1583
Q Serve(g_s), s	14.3	21.3	3.4	2.8	23.7	15.5	3.8	8.6	7.1	17.4	9.5	32.0
Cycle Q Clear(g_c), s	14.3	21.3	3.4	2.8	23.7	15.5	3.8	8.6	7.1	17.4	9.5	32.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	515	1809	849	138	1401	885	174	560	301	629	1053	684
V/C Ratio(X)	0.87	0.55	0.11	0.63	0.67	0.42	0.67	0.54	0.38	0.85	0.32	0.83
Avail Cap(c_a), veh/h	608	1809	849	182	1401	885	334	560	301	821	1053	684
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.79	0.79	0.79	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.0	20.5	13.0	53.5	29.4	14.4	52.8	44.5	40.0	51.7	41.2	35.0
Incr Delay (d2), s/veh	9.0	1.0	0.2	4.7	2.5	1.5	4.4	1.1	0.8	6.7	0.2	8.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	6.9	9.7	1.2	1.3	10.9	5.7	1.7	4.1	2.8	8.7	4.8	15.6
Lane Grp Delay (d), s/veh	56.1	21.4	13.2	58.3	32.0	15.9	57.2	45.6	40.8	58.4	41.3	43.8
Lane Grp LOS	E	C	B	E	C	B	E	D	D	E	D	D
Approach Vol, veh/h		1541			1396			535			1442	
Approach Delay, s/veh		30.9			29.3			47.1			48.6	
Approach LOS		C			C			D			D	
Timer												
Assigned Phs	7	4		3	8		5	2		1		6
Phs Duration (G+Y+Rc), s	20.9	59.0		8.5	46.6		9.7	21.0		24.7		36.0
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0		4.0	4.0		4.0		4.0
Max Green Setting (Gmax), s	20.0	55.0		6.0	41.0		11.0	16.0		27.0		32.0
Max Q Clear Time (g_c+I1), s	16.3	23.3		4.8	25.7		5.8	10.6		19.4		34.0
Green Ext Time (p_c), s	0.6	19.3		0.0	11.6		0.1	3.0		1.3		0.0
Intersection Summary												
HCM 2010 Ctrl Delay			37.4									
HCM 2010 LOS			D									
Notes												

HCM 2010 Signalized Intersection Summary
 21: WCR 5 & Colliers Parkway/Middle School Access

2035 Background
 AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	73	40	177	295	11	154	58	461	115	196	970	28
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3
Lanes	1	1	0	1	1	0	1	2	0	1	2	1
Cap, veh/h	634	174	418	634	38	533	281	930	425	448	1797	764
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.01	0.13	0.13	0.13	0.48	0.48
Sat Flow, veh/h	1774	487	1169	1774	107	1493	1774	2423	1107	1774	3725	1583
Grp Volume(v), veh/h	79	0	272	590	0	330	63	385	346	392	1054	30
Grp Sat Flow(s),veh/h/ln	1774	0	1656	1774	0	1599	1774	1863	1667	1774	1863	1583
Q Serve(g_s), s	2.9	0.0	12.0	30.5	0.0	15.9	2.0	18.5	18.6	9.8	19.5	1.0
Cycle Q Clear(g_c), s	2.9	0.0	12.0	30.5	0.0	15.9	2.0	18.5	18.6	9.8	19.5	1.0
Prop In Lane	1.00		0.71	1.00		0.93	1.00		0.66	1.00		1.00
Lane Grp Cap(c), veh/h	634	0	592	634	0	572	281	715	640	448	1797	764
V/C Ratio(X)	0.12	0.00	0.46	0.93	0.00	0.58	0.22	0.54	0.54	0.87	0.59	0.04
Avail Cap(c_a), veh/h	634	0	592	670	0	604	331	715	640	602	1797	764
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.6	0.0	23.6	29.5	0.0	24.8	17.8	33.7	33.8	17.0	17.8	13.0
Incr Delay (d2), s/veh	0.1	0.0	0.6	19.2	0.0	1.2	0.4	2.9	3.3	10.7	1.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	1.3	0.0	5.0	16.8	0.0	6.5	0.9	9.8	8.9	5.6	8.7	0.4
Lane Grp Delay (d), s/veh	20.7	0.0	24.1	48.7	0.0	26.1	18.2	36.6	37.1	27.7	19.2	13.1
Lane Grp LOS	C		C	D		C	B	D	D	C	B	B
Approach Vol, veh/h		351			920			794			1476	
Approach Delay, s/veh		23.4			40.6			35.3			21.4	
Approach LOS		C			D			D			C	
Timer												
Assigned Phs		4			8		5	2		1		6
Phs Duration (G+Y+Rc), s		38.1			38.1		7.3	40.6		16.7		50.0
Change Period (Y+Rc), s		4.0			4.0		4.0	4.0		4.0		4.0
Max Green Setting (Gmax), s		16.0			36.0		6.0	31.0		21.0		46.0
Max Q Clear Time (g_c+I1), s		14.0			32.5		4.0	20.6		11.8		21.5
Green Ext Time (p_c), s		1.3			1.5		0.0	7.6		0.9		13.8
Intersection Summary												
HCM 2010 Ctrl Delay				29.7								
HCM 2010 LOS				C								
Notes												

Intersection

Intersection Delay, s/veh 5.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	44	161	57	461	912	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	200	-	-	200
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	48	175	62	501	991	22

Major/Minor	Minor2	Major1			Major2	
Conflicting Flow All	1616	991	991	0	-	0
Stage 1	991	-	-	-	-	-
Stage 2	625	-	-	-	-	-
Follow-up Headway	3.518	3.318	2.218	-	-	-
Pot Capacity-1 Maneuver	114	299	698	-	-	-
Stage 1	359	-	-	-	-	-
Stage 2	534	-	-	-	-	-
Time blocked-Platoon, %				-	-	-
Mov Capacity-1 Maneuver	104	299	698	-	-	-
Mov Capacity-2 Maneuver	104	-	-	-	-	-
Stage 1	359	-	-	-	-	-
Stage 2	487	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	39.9	1.2	0
HCM LOS	E		

Minor Lane / Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	698	-	104	299	-	-
HCM Lane V/C Ratio	0.089	-	0.46	0.585	-	-
HCM Control Delay (s)	10.659	-	66.2	32.7	-	-
HCM Lane LOS	B		F	D		
HCM 95th %tile Q(veh)	0.291	-	1.99	3.461	-	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection

Intersection Delay, s/veh 5.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	24	15	119	18	8	10	48	381	32	20	755	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	200	-	-	200	-	-	200	-	200	200	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	17	132	20	9	11	53	423	36	22	839	14

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1423	1413	839	1488	1413	423	839	0	0	423	0	0
Stage 1	883	883	-	530	530	-	-	-	-	-	-	-
Stage 2	540	530	-	958	883	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	114	138	366	102	138	631	796	-	-	1136	-	-
Stage 1	340	364	-	533	527	-	-	-	-	-	-	-
Stage 2	526	527	-	309	364	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-	-	-	-
Mov Capacity-1 Maneuver	99	126	366	55	126	631	796	-	-	1136	-	-
Mov Capacity-2 Maneuver	99	126	-	55	126	-	-	-	-	-	-	-
Stage 1	317	357	-	498	492	-	-	-	-	-	-	-
Stage 2	474	492	-	185	357	-	-	-	-	-	-	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	36.9			57.2			1			0.2		
HCM LOS	E			F								

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR	
Capacity (veh/h)	796	-	-	99	270	55	127	1136	-	-	
HCM Lane V/C Ratio	0.067	-	-	0.18	0.584	0.242	0.21	0.02	-	-	
HCM Control Delay (s)	9.847	-	-	49.2	35.5	90.3	40.7	8.232	-	-	
HCM Lane LOS	A			E		E		F		A	
HCM 95th %tile Q(veh)	0.215	-	-	0.619	3.396	0.828	0.752	0.06	-	-	

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection

Intersection Delay, s/veh 3.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	31	82	187	56	93	198
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	200	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	34	91	208	62	103	220

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	635	208	0
Stage 1	208	-	-
Stage 2	427	-	-
Follow-up Headway	3.518	3.318	-
Pot Capacity-1 Maneuver	443	832	-
Stage 1	827	-	-
Stage 2	658	-	-
Time blocked-Platoon, %			
Mov Capacity-1 Maneuver	410	832	-
Mov Capacity-2 Maneuver	410	-	-
Stage 1	827	-	-
Stage 2	608	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.2	0	2.5
HCM LOS	B		

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	410	832	1363	-
HCM Lane V/C Ratio	-	-	0.084	0.11	0.076	-
HCM Control Delay (s)	-	-	14.6	9.9	7.858	-
HCM Lane LOS			B	A	A	
HCM 95th %tile Q(veh)	-	-	0.274	0.367	0.246	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 Signalized Intersection Summary
 6: Bonanza Drive/Colliers Blvd. (WCR 3) & Erie Parkway

2035 Background
 PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	170	1500	215	95	1390	202	175	45	85	122	42	85
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	186.3
Lanes	1	2	1	1	2	1	1	1	0	1	1	1
Cap, veh/h	264	2244	954	216	2166	920	347	66	124	262	168	241
Arrive On Green	0.06	0.60	0.60	0.04	0.58	0.58	0.11	0.11	0.11	0.09	0.09	0.09
Sat Flow, veh/h	1774	3725	1583	1774	3725	1583	1774	580	1090	1774	1863	1583
Grp Volume(v), veh/h	185	1630	234	103	1511	220	190	0	141	133	46	92
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	0	1670	1774	1863	1583
Q Serve(g_s), s	3.9	31.3	7.0	2.4	28.9	6.8	9.4	0.0	8.3	6.8	2.3	5.3
Cycle Q Clear(g_c), s	3.9	31.3	7.0	2.4	28.9	6.8	9.4	0.0	8.3	6.8	2.3	5.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.65	1.00		1.00
Lane Grp Cap(c), veh/h	264	2244	954	216	2166	920	347	0	190	262	168	241
V/C Ratio(X)	0.70	0.73	0.25	0.48	0.70	0.24	0.55	0.00	0.74	0.51	0.27	0.38
Avail Cap(c_a), veh/h	469	2244	954	248	2166	920	347	0	429	303	478	505
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.45	0.45	0.45	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.1	14.2	9.4	14.9	14.9	10.3	34.1	0.0	43.5	37.4	43.0	38.7
Incr Delay (d2), s/veh	3.4	2.1	0.6	0.7	0.9	0.3	1.8	0.0	5.7	1.5	0.9	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	4.9	13.3	2.5	1.1	12.2	2.4	4.4	0.0	3.8	3.0	1.1	2.1
Lane Grp Delay (d), s/veh	21.5	16.3	10.0	15.7	15.8	10.6	35.9	0.0	49.1	39.0	43.9	39.7
Lane Grp LOS	C	B	B	B	B	B	D		D	D	D	D
Approach Vol, veh/h		2049			1834			331			271	
Approach Delay, s/veh		16.1			15.2			41.6			40.0	
Approach LOS		B			B			D			D	
Timer												
Assigned Phs	7	4		3	8		5	2		1	6	
Phs Duration (G+Y+Rc), s	10.3	65.0		8.1	62.9		15.0	15.5		12.6	13.1	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Max Green Setting (Gmax), s	18.0	61.0		6.0	49.0		11.0	26.0		11.0	26.0	
Max Q Clear Time (g_c+I1), s	5.9	33.3		4.4	30.9		11.4	10.3		8.8	7.3	
Green Ext Time (p_c), s	0.4	25.5		0.0	17.1		0.0	1.2		0.1	1.3	
Intersection Summary												
HCM 2010 Ctrl Delay			19.0									
HCM 2010 LOS			B									
Notes												

Intersection

Intersection Delay, s/veh 3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	90	55	33	236	240	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	100	61	37	262	267	78

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	603	267	267	0	0
Stage 1	267	-	-	-	-
Stage 2	336	-	-	-	-
Follow-up Headway	3.518	3.318	2.218	-	-
Pot Capacity-1 Maneuver	462	772	1297	-	-
Stage 1	778	-	-	-	-
Stage 2	724	-	-	-	-
Time blocked-Platoon, %				-	-
Mov Capacity-1 Maneuver	449	772	1297	-	-
Mov Capacity-2 Maneuver	449	-	-	-	-
Stage 1	778	-	-	-	-
Stage 2	703	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.3	1	0
HCM LOS	B		

Minor Lane / Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1297	-	449	772	-	-
HCM Lane V/C Ratio	0.028	-	0.223	0.079	-	-
HCM Control Delay (s)	7.856	-	15.3	10.1	-	-
HCM Lane LOS	A		C	B		
HCM 95th %tile Q(veh)	0.087	-	0.843	0.257	-	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection				
Intersection Delay, s/veh	8.6			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	104	163	455	337
Demand Flow Rate, veh/h	106	166	464	344
Vehicles Circulating, veh/h	380	366	173	204
Vehicles Exiting, veh/h	168	271	313	328
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	6.2	7.0	9.9	8.2
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	106	166	464	344
Cap Entry Lane, veh/h	773	784	950	921
Entry HV Adj Factor	0.981	0.982	0.980	0.979
Flow Entry, veh/h	104	163	455	337
Cap Entry, veh/h	758	769	932	903
V/C Ratio	0.137	0.212	0.488	0.373
Control Delay, s/veh	6.2	7.0	9.9	8.2
LOS	A	A	A	A
95th %tile Queue, veh	0	1	3	2

HCM 2010 Signalized Intersection Summary
 16: WCR 5 & Erie Parkway

2035 Background
 PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	450	1104	143	140	1189	581	138	337	85	378	238	360
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	2	2	1	2	2	1	2	2	1	2	2	1
Cap, veh/h	561	1797	863	216	1424	839	215	589	350	508	905	643
Arrive On Green	0.16	0.48	0.48	0.06	0.38	0.38	0.06	0.16	0.16	0.05	0.08	0.08
Sat Flow, veh/h	3442	3725	1583	3442	3725	1583	3442	3725	1583	3442	3725	1583
Grp Volume(v), veh/h	489	1200	155	152	1292	632	150	366	92	411	259	391
Grp Sat Flow(s),veh/h/ln	1721	1863	1583	1721	1863	1583	1721	1863	1583	1721	1863	1583
Q Serve(g_s), s	14.9	26.4	5.3	4.6	35.2	33.5	4.6	9.8	5.2	12.7	7.0	20.8
Cycle Q Clear(g_c), s	14.9	26.4	5.3	4.6	35.2	33.5	4.6	9.8	5.2	12.7	7.0	20.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	561	1797	863	216	1424	839	215	589	350	508	905	643
V/C Ratio(X)	0.87	0.67	0.18	0.70	0.91	0.75	0.70	0.62	0.26	0.81	0.29	0.61
Avail Cap(c_a), veh/h	642	1797	863	353	1424	839	417	591	350	834	1042	701
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.60	0.60	0.60	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.8	21.2	12.3	49.3	31.3	19.7	49.3	42.2	34.6	49.5	40.6	30.5
Incr Delay (d2), s/veh	7.3	1.2	0.3	4.2	10.0	6.2	4.0	2.0	0.4	3.1	0.2	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	7.0	11.8	0.1	2.1	17.2	12.9	2.1	4.7	0.0	6.1	3.5	8.9
Lane Grp Delay (d), s/veh	51.1	22.4	12.6	53.4	41.3	25.9	53.3	44.2	35.0	52.7	40.7	31.8
Lane Grp LOS	D	C	B	D	D	C	D	D	C	D	D	C
Approach Vol, veh/h		1844			2076			608			1061	
Approach Delay, s/veh		29.2			37.5			45.0			42.1	
Approach LOS		C			D			D			D	
Timer												
Assigned Phs	7	4		3	8		5	2		1	6	
Phs Duration (G+Y+Rc), s	21.5	55.7		10.7	45.0		10.7	21.0		19.8	30.1	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Max Green Setting (Gmax), s	20.0	50.0		11.0	41.0		13.0	17.0		26.0	30.0	
Max Q Clear Time (g_c+I1), s	16.9	28.4		6.6	37.2		6.6	11.8		14.7	22.8	
Green Ext Time (p_c), s	0.6	18.7		0.2	3.7		0.2	2.5		1.1	3.2	
Intersection Summary												
HCM 2010 Ctrl Delay			36.4									
HCM 2010 LOS			D									
Notes												

HCM 2010 Signalized Intersection Summary
 21: WCR 5 & Colliers Parkway/Middle School Access

2035 Background
 PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	44	24	107	85	45	110	196	1038	25	57	689	81
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3
Lanes	1	1	0	1	1	0	1	2	0	1	2	1
Cap, veh/h	372	88	257	372	101	246	516	2132	79	338	2131	906
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.05	0.40	0.40	0.04	0.57	0.57
Sat Flow, veh/h	1774	422	1224	1774	481	1174	1774	3569	133	1774	3725	1583
Grp Volume(v), veh/h	48	0	156	142	0	258	213	589	581	95	749	88
Grp Sat Flow(s),veh/h/ln	1774	0	1647	1774	0	1656	1774	1863	1839	1774	1863	1583
Q Serve(g_s), s	1.8	0.0	6.7	5.5	0.0	11.7	3.6	19.3	19.3	1.7	8.7	2.0
Cycle Q Clear(g_c), s	1.8	0.0	6.7	5.5	0.0	11.7	3.6	19.3	19.3	1.7	8.7	2.0
Prop In Lane	1.00		0.74	1.00		0.71	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	372	0	345	372	0	347	516	1113	1099	338	2131	906
V/C Ratio(X)	0.13	0.00	0.45	0.38	0.00	0.74	0.41	0.53	0.53	0.28	0.35	0.10
Avail Cap(c_a), veh/h	463	0	430	684	0	638	526	1113	1099	503	2131	906
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.8	0.0	27.8	27.3	0.0	29.8	6.3	15.5	15.5	8.6	9.2	7.8
Incr Delay (d2), s/veh	0.2	0.0	0.9	0.6	0.0	3.2	0.5	1.8	1.8	0.5	0.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.8	0.0	2.8	2.5	0.0	5.1	1.2	9.4	9.3	0.6	3.5	0.7
Lane Grp Delay (d), s/veh	26.0	0.0	28.7	28.0	0.0	32.9	6.8	17.3	17.3	9.0	9.7	8.0
Lane Grp LOS	C		C	C		C	A	B	B	A	A	A
Approach Vol, veh/h		204			400			1383			932	
Approach Delay, s/veh		28.0			31.2			15.7			9.4	
Approach LOS		C			C			B			A	
Timer												
Assigned Phs		4			8		5	2		1		6
Phs Duration (G+Y+Rc), s		20.8			20.8		9.6	52.0		7.5		50.0
Change Period (Y+Rc), s		4.0			4.0		4.0	4.0		4.0		4.0
Max Green Setting (Gmax), s		21.0			31.0		6.0	41.0		11.0		46.0
Max Q Clear Time (g_c+I1), s		8.7			13.7		5.6	21.3		3.7		10.7
Green Ext Time (p_c), s		2.7			3.1		0.0	12.9		0.1		18.4
Intersection Summary												
HCM 2010 Ctrl Delay				16.7								
HCM 2010 LOS				B								
Notes												

Intersection

Intersection Delay, s/veh 6.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	25	105	180	1048	757	49
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	117	200	1164	841	54

Major/Minor	Minor2	Major1			Major2	
Conflicting Flow All	2405	841	841	0	-	0
Stage 1	841	-	-	-	-	-
Stage 2	1564	-	-	-	-	-
Follow-up Headway	3.518	3.318	2.218	-	-	-
Pot Capacity-1 Maneuver	36	365	794	-	-	-
Stage 1	423	-	-	-	-	-
Stage 2	190	-	-	-	-	-
Time blocked-Platoon, %				-	-	-
Mov Capacity-1 Maneuver	# 27	365	794	-	-	-
Mov Capacity-2 Maneuver	# 27	-	-	-	-	-
Stage 1	423	-	-	-	-	-
Stage 2	142	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	91.3	1.6	0
HCM LOS	F		

Minor Lane / Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	794	-	27	365	-	-
HCM Lane V/C Ratio	0.252	-	1.029	0.32	-	-
HCM Control Delay (s)	11.054	-	\$ 393.4	19.4	-	-
HCM Lane LOS	B		F	C		
HCM 95th %tile Q(veh)	0.997	-	3.276	1.351	-	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection

Intersection Delay, s/veh 23.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	16	7	81	42	13	25	133	811	73	70	627	33
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	200	-	-	200	-	-	200	-	200	200	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	8	90	47	14	28	148	901	81	78	697	37

Major/Minor

	Minor2		Minor1			Major1		Major2				
Conflicting Flow All	2070	2049	697	2098	2049	901	697	0	0	901	0	0
Stage 1	852	852	-	1197	1197	-	-	-	-	-	-	-
Stage 2	1218	1197	-	901	852	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	40	56	441	# 38	56	337	899	-	-	754	-	-
Stage 1	354	376	-	227	259	-	-	-	-	-	-	-
Stage 2	221	259	-	333	376	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-	-	-	-
Mov Capacity-1 Maneuver	22	42	441	# 21	42	337	899	-	-	754	-	-
Mov Capacity-2 Maneuver	22	42	-	# 21	42	-	-	-	-	-	-	-
Stage 1	296	337	-	190	216	-	-	-	-	-	-	-
Stage 2	158	216	-	232	337	-	-	-	-	-	-	-

Approach

	EB		WB			NB		SB			
HCM Control Delay, s	87.1		\$ 424.5			1.3		1			
HCM LOS	F		F								

Minor Lane / Major Mvmt

	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	899	-	-	22	157	21	50	754	-	-
HCM Lane V/C Ratio	0.164	-	-	0.539	0.661	1.481	1.156	0.103	-	-
HCM Control Delay (s)	9.791	-	-	289.4	64	\$ 639.8	\$ 308.6	10.323	-	-
HCM Lane LOS	A		F		F	F	F	B		
HCM 95th %tile Q(veh)	0.586	-	-	1.567	3.739	4.106	5.166	0.344	-	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection

Intersection Delay, s/veh 4.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	65	128	185	40	61	145
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	200	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	72	142	206	44	68	161

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	503	206	0
Stage 1	206	-	-
Stage 2	297	-	-
Follow-up Headway	3.518	3.318	-
Pot Capacity-1 Maneuver	528	835	-
Stage 1	829	-	-
Stage 2	754	-	-
Time blocked-Platoon, %			
Mov Capacity-1 Maneuver	502	835	-
Mov Capacity-2 Maneuver	502	-	-
Stage 1	829	-	-
Stage 2	716	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.3	0	2.3
HCM LOS	B		

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	502	835	1365	-
HCM Lane V/C Ratio	-	-	0.144	0.17	0.05	-
HCM Control Delay (s)	-	-	13.4	10.2	7.775	-
HCM Lane LOS			B	B	A	
HCM 95th %tile Q(veh)	-	-	0.499	0.612	0.157	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 Signalized Intersection Summary
 6: Bonanza Drive/Colliers Blvd. (WCR 3) & Erie Parkway

2035 Total
 AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	96	1150	65	70	1375	85	235	35	85	225	30	258
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	186.3
Lanes	1	2	1	1	2	1	1	1	0	1	1	1
Cap, veh/h	207	2013	856	250	1982	842	420	92	223	385	355	368
Arrive On Green	0.04	0.54	0.54	0.03	0.53	0.53	0.10	0.19	0.19	0.10	0.19	0.19
Sat Flow, veh/h	1774	3725	1583	1774	3725	1583	1774	484	1172	1774	1863	1583
Grp Volume(v), veh/h	104	1250	71	76	1495	92	255	0	130	245	33	280
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	0	1656	1774	1863	1583
Q Serve(g_s), s	3.0	26.6	2.5	2.2	36.0	3.3	11.0	0.0	7.9	11.0	1.7	18.9
Cycle Q Clear(g_c), s	3.0	26.6	2.5	2.2	36.0	3.3	11.0	0.0	7.9	11.0	1.7	18.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.71	1.00		1.00
Lane Grp Cap(c), veh/h	207	2013	856	250	1982	842	420	0	315	385	355	368
V/C Ratio(X)	0.50	0.62	0.08	0.30	0.75	0.11	0.61	0.00	0.41	0.64	0.09	0.76
Avail Cap(c_a), veh/h	226	2013	856	283	1982	842	420	0	376	385	422	426
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.62	0.62	0.62	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.4	18.2	12.7	14.8	21.0	13.3	34.6	0.0	40.8	35.4	38.3	41.0
Incr Delay (d2), s/veh	1.9	1.5	0.2	0.4	1.7	0.2	2.5	0.0	0.9	3.4	0.1	6.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	1.3	11.9	1.0	0.9	16.0	1.2	1.3	0.0	3.4	1.3	0.8	8.1
Lane Grp Delay (d), s/veh	21.3	19.7	12.9	15.2	22.7	13.5	37.1	0.0	41.6	38.8	38.4	47.8
Lane Grp LOS	C	B	B	B	C	B	D		D	D	D	D
Approach Vol, veh/h		1425			1663			385			558	
Approach Delay, s/veh		19.5			21.8			38.6			43.3	
Approach LOS		B			C			D			D	
Timer												
Assigned Phs	7	4		3	8		5	2		1	6	
Phs Duration (G+Y+Rc), s	8.8	65.9		7.9	65.0		15.0	25.8		15.0	25.8	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Max Green Setting (Gmax), s	6.0	61.0		6.0	61.0		11.0	26.0		11.0	26.0	
Max Q Clear Time (g_c+I1), s	5.0	28.6		4.2	38.0		13.0	9.9		13.0	20.9	
Green Ext Time (p_c), s	0.0	26.4		0.0	19.8		0.0	1.8		0.0	0.9	
Intersection Summary												
HCM 2010 Ctrl Delay			25.6									
HCM 2010 LOS			C									
Notes												

HCM 2010 TWSC
 10: Colliers Blvd. (WCR 3) & Local Access/Collector

2035 Total
 AM Peak

Intersection

Intersection Delay, s/veh 3.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	2	11	72	1	60	4	155	24	25	190	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	200	-	-	200	-	-	200	-	200	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	2	12	80	1	67	4	172	27	28	211	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	483	449	212	456	450	172	213	0	0	172	0	0
Stage 1	268	268	-	181	181	-	-	-	-	-	-	-
Stage 2	215	181	-	275	269	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	494	505	828	515	504	872	1357	-	-	1405	-	-
Stage 1	738	687	-	821	750	-	-	-	-	-	-	-
Stage 2	787	750	-	731	687	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-	-	-	-
Mov Capacity-1 Maneuver	448	493	828	497	492	872	1357	-	-	1405	-	-
Mov Capacity-2 Maneuver	448	493	-	497	492	-	-	-	-	-	-	-
Stage 1	736	673	-	819	748	-	-	-	-	-	-	-
Stage 2	724	748	-	704	673	-	-	-	-	-	-	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	10.8			11.6			0.2			0.9		
HCM LOS	B			B								

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1357	-	-	448	696	497	714	1405	-	-
HCM Lane V/C Ratio	0.003	-	-	0.008	0.023	0.107	0.132	0.02	-	-
HCM Control Delay (s)	7.662	-	-	13.1	10.3	13.1	10.8	7.614	-	-
HCM Lane LOS	A			B		B		A		
HCM 95th %tile Q(veh)	0.01	-	-	0.025	0.072	0.358	0.455	0.06	-	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 Roundabout
 14: Colliers Blvd. (WCR 3) & Colliers Parkway

2035 Total
 AM Peak

Intersection				
Intersection Delay, s/veh	8.3			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	154	314	242	392
Demand Flow Rate, veh/h	157	320	248	400
Vehicles Circulating, veh/h	563	224	106	232
Vehicles Exiting, veh/h	69	130	614	312
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	8.8	8.0	6.0	9.6
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	157	320	248	400
Cap Entry Lane, veh/h	644	903	1016	896
Entry HV Adj Factor	0.981	0.981	0.977	0.979
Flow Entry, veh/h	154	314	242	392
Cap Entry, veh/h	631	886	993	878
V/C Ratio	0.244	0.354	0.244	0.446
Control Delay, s/veh	8.8	8.0	6.0	9.6
LOS	A	A	A	A
95th %tile Queue, veh	1	2	1	2

HCM 2010 Signalized Intersection Summary
 16: WCR 5 & Erie Parkway

2035 Total
 AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	410	950	100	80	871	387	111	295	105	604	346	525
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	2	2	1	2	2	1	2	2	1	2	2	1
Cap, veh/h	514	1802	849	137	1394	933	179	448	254	740	1056	685
Arrive On Green	0.15	0.48	0.48	0.04	0.37	0.37	0.05	0.12	0.12	0.07	0.09	0.09
Sat Flow, veh/h	3442	3725	1583	3442	3725	1583	3442	3725	1583	3442	3725	1583
Grp Volume(v), veh/h	446	1033	109	87	947	421	121	321	114	657	376	571
Grp Sat Flow(s),veh/h/ln	1721	1863	1583	1721	1863	1583	1721	1863	1583	1721	1863	1583
Q Serve(g_s), s	14.4	22.5	3.9	2.8	24.2	16.9	3.9	9.4	7.4	21.5	10.8	32.2
Cycle Q Clear(g_c), s	14.4	22.5	3.9	2.8	24.2	16.9	3.9	9.4	7.4	21.5	10.8	32.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	514	1802	849	137	1394	933	179	448	254	740	1056	685
V/C Ratio(X)	0.87	0.57	0.13	0.63	0.68	0.45	0.67	0.72	0.45	0.89	0.36	0.83
Avail Cap(c_a), veh/h	606	1802	849	182	1394	933	333	524	286	817	1056	685
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.74	0.74	0.74	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.2	21.0	13.1	53.7	29.8	13.1	52.9	48.1	43.2	51.4	41.8	35.1
Incr Delay (d2), s/veh	8.6	1.0	0.2	4.7	2.7	1.6	4.4	3.8	1.2	10.9	0.2	8.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	6.9	10.1	1.4	1.3	11.2	6.0	1.8	4.7	3.0	11.2	5.4	15.6
Lane Grp Delay (d), s/veh	55.9	21.9	13.4	58.5	32.5	14.6	57.3	52.0	44.4	62.3	42.0	43.8
Lane Grp LOS	E	C	B	E	C	B	E	D	D	E	D	D
Approach Vol, veh/h		1588			1455			556			1604	
Approach Delay, s/veh		30.9			28.9			51.6			51.0	
Approach LOS		C			C			D			D	
Timer												
Assigned Phs	7	4		3	8		5	2		1	6	
Phs Duration (G+Y+Rc), s	21.0	59.0		8.5	46.5		9.9	17.7		28.5	36.2	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Max Green Setting (Gmax), s	20.0	55.0		6.0	41.0		11.0	16.0		27.0	32.0	
Max Q Clear Time (g_c+I1), s	16.4	24.5		4.8	26.2		5.9	11.4		23.5	34.2	
Green Ext Time (p_c), s	0.6	19.7		0.0	11.5		0.1	2.3		0.9	0.0	
Intersection Summary												
HCM 2010 Ctrl Delay			38.7									
HCM 2010 LOS			D									
Notes												

HCM 2010 Signalized Intersection Summary
 21: WCR 5 & Colliers Parkway/Middle School Access

2035 Total
 AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	84	50	265	295	15	156	95	481	115	201	1031	34
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3
Lanes	1	1	0	1	1	0	1	2	0	1	2	1
Cap, veh/h	629	150	433	629	50	519	283	947	415	449	1755	746
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.02	0.13	0.13	0.14	0.47	0.47
Sat Flow, veh/h	1774	424	1223	1774	141	1464	1774	2459	1077	1774	3725	1583
Grp Volume(v), veh/h	91	0	388	590	0	342	103	396	357	402	1121	37
Grp Sat Flow(s),veh/h/ln	1774	0	1647	1774	0	1604	1774	1863	1673	1774	1863	1583
Q Serve(g_s), s	3.4	0.0	19.4	31.4	0.0	17.1	3.4	19.5	19.6	10.6	22.2	1.2
Cycle Q Clear(g_c), s	3.4	0.0	19.4	31.4	0.0	17.1	3.4	19.5	19.6	10.6	22.2	1.2
Prop In Lane	1.00		0.74	1.00		0.91	1.00		0.64	1.00		1.00
Lane Grp Cap(c), veh/h	629	0	584	629	0	569	283	717	644	449	1755	746
V/C Ratio(X)	0.14	0.00	0.66	0.94	0.00	0.60	0.36	0.55	0.55	0.90	0.64	0.05
Avail Cap(c_a), veh/h	629	0	584	654	0	591	300	717	644	586	1755	746
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.5	0.0	26.6	30.5	0.0	25.9	18.3	34.7	34.8	17.6	19.5	14.0
Incr Delay (d2), s/veh	0.1	0.0	2.8	21.0	0.0	1.6	0.8	3.0	3.4	13.6	1.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	1.5	0.0	8.4	17.6	0.0	7.1	1.5	10.5	9.5	6.1	9.9	0.5
Lane Grp Delay (d), s/veh	21.6	0.0	29.5	51.5	0.0	27.5	19.1	37.8	38.2	31.2	21.3	14.1
Lane Grp LOS	C		C	D		C	B	D	D	C	C	B
Approach Vol, veh/h		479			932			856			1560	
Approach Delay, s/veh		28.0			42.7			35.7			23.7	
Approach LOS		C			D			D			C	
Timer												
Assigned Phs		4			8		5	2		1		6
Phs Duration (G+Y+Rc), s		38.6			38.6		9.1	41.6		17.5		50.0
Change Period (Y+Rc), s		4.0			4.0		4.0	4.0		4.0		4.0
Max Green Setting (Gmax), s		16.0			36.0		6.0	31.0		21.0		46.0
Max Q Clear Time (g_c+I1), s		21.4			33.4		5.4	21.6		12.6		24.2
Green Ext Time (p_c), s		0.0			1.2		0.0	7.2		0.8		13.6
Intersection Summary												
HCM 2010 Ctrl Delay				31.5								
HCM 2010 LOS				C								
Notes												

Intersection

Intersection Delay, s/veh 4.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	45	220	77	474	925	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	50	244	86	527	1028	22

Major/Minor	Minor2	Major1			Major2	
Conflicting Flow All	1462	514	1028	0	-	0
Stage 1	1028	-	-	-	-	-
Stage 2	434	-	-	-	-	-
Follow-up Headway	3.52	3.32	2.22	-	-	-
Pot Capacity-1 Maneuver	120	505	671	-	-	-
Stage 1	306	-	-	-	-	-
Stage 2	621	-	-	-	-	-
Time blocked-Platoon, %				-	-	-
Mov Capacity-1 Maneuver	105	505	671	-	-	-
Mov Capacity-2 Maneuver	105	-	-	-	-	-
Stage 1	306	-	-	-	-	-
Stage 2	541	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	26.9	1.6	0
HCM LOS	D		

Minor Lane / Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	671	-	105	505	-	-
HCM Lane V/C Ratio	0.128	-	0.476	0.484	-	-
HCM Control Delay (s)	11.148	-	67.2	18.6	-	-
HCM Lane LOS	B		F	C		
HCM 95th %tile Q(veh)	0.436	-	2.091	2.606	-	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection

Intersection Delay, s/veh 20.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	78	36	125	20	15	10	50	390	35	20	760	31
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	200	-	-	200	-	-	200	-	200	200	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	87	40	139	22	17	11	56	433	39	22	844	34

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1447	1433	844	1522	1433	433	844	0	0	433	0	0
Stage 1	889	889	-	544	544	-	-	-	-	-	-	-
Stage 2	558	544	-	978	889	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	109	134	363	97	134	623	792	-	-	1127	-	-
Stage 1	338	361	-	523	519	-	-	-	-	-	-	-
Stage 2	514	519	-	301	361	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-	-	-	-
Mov Capacity-1 Maneuver	89	122	363	42	122	623	792	-	-	1127	-	-
Mov Capacity-2 Maneuver	89	122	-	42	122	-	-	-	-	-	-	-
Stage 1	314	354	-	486	482	-	-	-	-	-	-	-
Stage 2	453	482	-	162	354	-	-	-	-	-	-	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	117.5			77.7			1			0.2		
HCM LOS	F			F								

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	792	-	-	89	201	42	106	1127	-	-
HCM Lane V/C Ratio	0.07	-	-	0.649	1.034	0.353	0.332	0.02	-	-
HCM Control Delay (s)	9.888	-	-	100.9	122.1	131.7	55	8.259	-	-
HCM Lane LOS	A			F	F	F	F	A		
HCM 95th %tile Q(veh)	0.226	-	-	3.096	9.261	1.207	1.3	0.06	-	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection

Intersection Delay, s/veh 3.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	60	97	214	76	118	244
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	200	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	67	108	238	84	131	271

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	771	238	0
Stage 1	238	-	-
Stage 2	533	-	-
Follow-up Headway	3.518	3.318	-
Pot Capacity-1 Maneuver	368	801	-
Stage 1	802	-	-
Stage 2	588	-	-
Time blocked-Platoon, %			
Mov Capacity-1 Maneuver	332	801	-
Mov Capacity-2 Maneuver	332	-	-
Stage 1	802	-	-
Stage 2	530	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.4	0	2.6
HCM LOS	B		

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	332	801	1329	-
HCM Lane V/C Ratio	-	-	0.201	0.135	0.099	-
HCM Control Delay (s)	-	-	18.5	10.2	8.005	-
HCM Lane LOS			C	B	A	
HCM 95th %tile Q(veh)	-	-	0.737	0.464	0.328	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 Signalized Intersection Summary
 6: Bonanza Drive/Colliers Blvd. (WCR 3) & Erie Parkway

2035 Total
 PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	293	1500	215	95	1390	250	175	50	85	150	45	157
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	186.3
Lanes	1	2	1	1	2	1	1	1	0	1	1	1
Cap, veh/h	350	2148	913	210	1799	764	367	80	136	297	228	415
Arrive On Green	0.14	0.58	0.58	0.05	0.48	0.48	0.10	0.13	0.13	0.10	0.12	0.12
Sat Flow, veh/h	1774	3725	1583	1774	3725	1583	1774	620	1056	1774	1863	1583
Grp Volume(v), veh/h	318	1630	234	103	1511	272	190	0	146	163	49	171
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	0	1676	1774	1863	1583
Q Serve(g_s), s	12.4	34.8	7.8	3.1	37.3	11.3	9.7	0.0	8.8	8.4	2.5	9.5
Cycle Q Clear(g_c), s	12.4	34.8	7.8	3.1	37.3	11.3	9.7	0.0	8.8	8.4	2.5	9.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.63	1.00		1.00
Lane Grp Cap(c), veh/h	350	2148	913	210	1799	764	367	0	216	297	228	415
V/C Ratio(X)	0.91	0.76	0.26	0.49	0.84	0.36	0.52	0.00	0.68	0.55	0.22	0.41
Avail Cap(c_a), veh/h	404	2148	913	229	1799	764	367	0	412	309	458	610
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.35	0.35	0.35	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.7	16.9	11.1	17.5	23.8	17.1	34.9	0.0	44.0	35.8	41.8	32.3
Incr Delay (d2), s/veh	22.0	2.6	0.7	0.6	1.8	0.5	1.3	0.0	3.7	1.9	0.5	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	6.9	15.3	2.9	1.2	16.6	4.2	4.5	0.0	4.0	3.8	1.2	3.7
Lane Grp Delay (d), s/veh	54.7	19.4	11.8	18.2	25.6	17.5	36.2	0.0	47.6	37.7	42.3	33.0
Lane Grp LOS	D	B	B	B	C	B	D		D	D	D	C
Approach Vol, veh/h		2182			1886			336			383	
Approach Delay, s/veh		23.8			24.0			41.2			36.2	
Approach LOS		C			C			D			D	
Timer												
Assigned Phs	7	4		3	8		5	2		1	6	
Phs Duration (G+Y+Rc), s	18.8	65.0		8.8	55.1		15.0	17.6		14.3	16.9	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Max Green Setting (Gmax), s	18.0	61.0		6.0	49.0		11.0	26.0		11.0	26.0	
Max Q Clear Time (g_c+I1), s	14.4	36.8		5.1	39.3		11.7	10.8		10.4	11.5	
Green Ext Time (p_c), s	0.3	22.5		0.0	9.4		0.0	1.5		0.0	1.5	
Intersection Summary												
HCM 2010 Ctrl Delay			26.1									
HCM 2010 LOS			C									
Notes												

HCM 2010 TWSC
 10: Colliers Blvd. (WCR 3) & Local Access/Collector

2035 Total
 PM Peak

Intersection

Intersection Delay, s/veh 2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	3	1	7	47	2	40	12	250	81	65	235	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	200	-	-	200	-	-	200	-	200	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	1	8	52	2	44	13	278	90	72	261	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	736	712	264	717	715	278	267	0	0	278	0	0
Stage 1	408	408	-	304	304	-	-	-	-	-	-	-
Stage 2	328	304	-	413	411	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	335	358	775	345	356	761	1297	-	-	1285	-	-
Stage 1	620	597	-	705	663	-	-	-	-	-	-	-
Stage 2	685	663	-	616	595	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-	-	-	-
Mov Capacity-1 Maneuver	298	335	775	324	333	761	1297	-	-	1285	-	-
Mov Capacity-2 Maneuver	298	335	-	324	333	-	-	-	-	-	-	-
Stage 1	614	564	-	698	656	-	-	-	-	-	-	-
Stage 2	636	656	-	575	562	-	-	-	-	-	-	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	12.4			14.3			0.3			1.7		
HCM LOS	B			B								

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1297	-	-	298	585	324	539	1285	-	-
HCM Lane V/C Ratio	0.01	-	-	0.007	0.017	0.107	0.119	0.056	-	-
HCM Control Delay (s)	7.804	-	-	17.2	11.3	17.4	12.6	7.968	-	-
HCM Lane LOS	A			C		B		A		
HCM 95th %tile Q(veh)	0.031	-	-	0.023	0.052	0.358	0.402	0.178	-	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 Roundabout
 14: Colliers Blvd. (WCR 3) & Colliers Parkway

2035 Total
 PM Peak

Intersection				
Intersection Delay, s/veh	12.5			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	104	216	647	406
Demand Flow Rate, veh/h	106	221	659	414
Vehicles Circulating, veh/h	500	478	178	254
Vehicles Exiting, veh/h	168	359	428	445
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	7.1	9.2	15.8	10.2
Approach LOS	A	A	C	B
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	106	221	659	414
Cap Entry Lane, veh/h	685	701	946	876
Entry HV Adj Factor	0.981	0.977	0.981	0.980
Flow Entry, veh/h	104	216	647	406
Cap Entry, veh/h	672	685	928	859
V/C Ratio	0.155	0.315	0.697	0.472
Control Delay, s/veh	7.1	9.2	15.8	10.2
LOS	A	A	C	B
95th %tile Queue, veh	1	1	6	3

HCM 2010 Signalized Intersection Summary
 16: WCR 5 & Erie Parkway

2035 Total
 PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	450	1125	150	140	1225	699	150	376	85	447	261	360
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	2	2	1	2	2	1	2	2	1	2	2	1
Cap, veh/h	559	1780	862	215	1408	867	229	531	325	584	915	646
Arrive On Green	0.16	0.48	0.48	0.06	0.38	0.38	0.07	0.14	0.14	0.06	0.08	0.08
Sat Flow, veh/h	3442	3725	1583	3442	3725	1583	3442	3725	1583	3442	3725	1583
Grp Volume(v), veh/h	489	1223	163	152	1332	760	163	409	92	486	284	391
Grp Sat Flow(s),veh/h/ln	1721	1863	1583	1721	1863	1583	1721	1863	1583	1721	1863	1583
Q Serve(g_s), s	15.0	27.7	5.7	4.7	37.5	41.0	5.0	11.5	5.3	15.2	7.8	21.0
Cycle Q Clear(g_c), s	15.0	27.7	5.7	4.7	37.5	41.0	5.0	11.5	5.3	15.2	7.8	21.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	559	1780	862	215	1408	867	229	531	325	584	915	646
V/C Ratio(X)	0.87	0.69	0.19	0.71	0.95	0.88	0.71	0.77	0.28	0.83	0.31	0.61
Avail Cap(c_a), veh/h	635	1780	862	349	1408	867	412	584	347	825	1030	695
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.57	0.57	0.57	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.4	22.0	12.6	49.9	32.7	21.3	49.6	44.8	36.4	49.7	41.2	30.7
Incr Delay (d2), s/veh	7.3	1.3	0.3	4.2	14.1	12.1	4.1	5.7	0.5	5.1	0.2	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	7.0	12.4	0.1	2.1	19.0	18.3	2.3	5.8	0.0	7.5	3.9	9.1
Lane Grp Delay (d), s/veh	51.6	23.3	12.8	54.1	46.8	33.4	53.7	50.5	36.9	54.8	41.4	32.1
Lane Grp LOS	D	C	B	D	D	C	D	D	D	D	D	C
Approach Vol, veh/h		1875			2244			664			1161	
Approach Delay, s/veh		29.8			42.8			49.4			43.8	
Approach LOS		C			D			D			D	
Timer												
Assigned Phs	7	4		3	8		5	2		1		6
Phs Duration (G+Y+Rc), s	21.6	55.8		10.8	45.0		11.2	19.5		22.4		30.6
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0		4.0	4.0		4.0		4.0
Max Green Setting (Gmax), s	20.0	50.0		11.0	41.0		13.0	17.0		26.0		30.0
Max Q Clear Time (g_c+I1), s	17.0	29.7		6.7	43.0		7.0	13.5		17.2		23.0
Green Ext Time (p_c), s	0.6	18.2		0.2	0.0		0.2	2.0		1.2		3.4
Intersection Summary												
HCM 2010 Ctrl Delay			39.6									
HCM 2010 LOS			D									
Notes												

HCM 2010 Signalized Intersection Summary
 21: WCR 5 & Colliers Parkway/Middle School Access

2035 Total
 PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	49	30	160	85	55	115	285	1106	25	60	729	89
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3
Lanes	1	1	0	1	1	0	1	2	0	1	2	1
Cap, veh/h	403	83	289	403	123	256	487	2087	73	332	2069	879
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.07	0.58	0.58	0.04	0.56	0.56
Sat Flow, veh/h	1774	366	1273	1774	539	1125	1774	3578	125	1774	3725	1583
Grp Volume(v), veh/h	53	0	224	142	0	284	310	625	619	100	792	97
Grp Sat Flow(s),veh/h/ln	1774	0	1638	1774	0	1664	1774	1863	1841	1774	1863	1583
Q Serve(g_s), s	2.0	0.0	10.1	5.6	0.0	13.2	6.0	17.4	17.5	2.0	9.9	2.4
Cycle Q Clear(g_c), s	2.0	0.0	10.1	5.6	0.0	13.2	6.0	17.4	17.5	2.0	9.9	2.4
Prop In Lane	1.00		0.78	1.00		0.68	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	403	0	372	403	0	378	487	1087	1074	332	2069	879
V/C Ratio(X)	0.13	0.00	0.60	0.35	0.00	0.75	0.64	0.58	0.58	0.30	0.38	0.11
Avail Cap(c_a), veh/h	450	0	415	664	0	623	487	1087	1074	488	2069	879
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.5	0.0	28.6	26.9	0.0	29.8	7.7	10.8	10.8	8.8	10.4	8.7
Incr Delay (d2), s/veh	0.1	0.0	2.0	0.5	0.0	3.0	2.8	2.2	2.3	0.5	0.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.9	0.0	4.3	2.5	0.0	5.7	2.4	7.4	7.4	0.7	4.0	0.8
Lane Grp Delay (d), s/veh	25.6	0.0	30.6	27.4	0.0	32.8	10.5	13.0	13.1	9.3	10.9	9.0
Lane Grp LOS	C		C	C		C	B	B	B	A	B	A
Approach Vol, veh/h		277			426			1554			989	
Approach Delay, s/veh		29.7			31.0			12.5			10.6	
Approach LOS		C			C			B			B	
Timer												
Assigned Phs		4			8		5	2		1		6
Phs Duration (G+Y+Rc), s		22.8			22.8		10.0	52.3		7.7		50.0
Change Period (Y+Rc), s		4.0			4.0		4.0	4.0		4.0		4.0
Max Green Setting (Gmax), s		21.0			31.0		6.0	41.0		11.0		46.0
Max Q Clear Time (g_c+I1), s		12.1			15.2		8.0	19.5		4.0		11.9
Green Ext Time (p_c), s		2.7			3.7		0.0	14.6		0.1		19.5
Intersection Summary												
HCM 2010 Ctrl Delay				15.8								
HCM 2010 LOS				B								
Notes												

Intersection

Intersection Delay, s/veh 11.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	26	144	246	1060	769	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	160	273	1178	854	56

Major/Minor	Minor2	Major1			Major2	
Conflicting Flow All	2578	854	854	0	-	0
Stage 1	854	-	-	-	-	-
Stage 2	1724	-	-	-	-	-
Follow-up Headway	3.518	3.318	2.218	-	-	-
Pot Capacity-1 Maneuver	# 28	358	785	-	-	-
Stage 1	417	-	-	-	-	-
Stage 2	158	-	-	-	-	-
Time blocked-Platoon, %				-	-	-
Mov Capacity-1 Maneuver	# 18	358	785	-	-	-
Mov Capacity-2 Maneuver	# 18	-	-	-	-	-
Stage 1	417	-	-	-	-	-
Stage 2	103	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	133.3	2.3	0
HCM LOS	F		

Minor Lane / Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	785	-	18	358	-	-
HCM Lane V/C Ratio	0.348	-	1.605	0.447	-	-
HCM Control Delay (s)	12.016	-	\$ 744.8	22.9	-	-
HCM Lane LOS	B		F	C		
HCM 95th %tile Q(veh)	1.564	-	4.042	2.224	-	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection

Intersection Delay, s/veh 53.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	51	21	85	44	37	25	140	815	74	70	634	93
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	200	-	-	200	-	-	200	-	200	200	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	57	23	94	49	41	28	156	906	82	78	704	103

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2111	2077	704	2136	2077	906	704	0	0	906	0	0
Stage 1	860	860	-	1217	1217	-	-	-	-	-	-	-
Stage 2	1251	1217	-	919	860	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	# 37	54	437	# 36	54	334	894	-	-	751	-	-
Stage 1	351	373	-	221	253	-	-	-	-	-	-	-
Stage 2	211	253	-	325	373	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	-	40	437	# 12	# 40	334	894	-	-	751	-	-
Mov Capacity-2 Maneuver	-	40	-	# 12	# 40	-	-	-	-	-	-	-
Stage 1	290	334	-	182	209	-	-	-	-	-	-	-
Stage 2	128	209	-	212	334	-	-	-	-	-	-	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	+			\$ 1038			1.3			0.9		
HCM LOS	-			F								

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	894	-	-	+	+	12	35	751	-	-
HCM Lane V/C Ratio	0.174	-	-	+	+	2.716	2.434	0.104	-	-
HCM Control Delay (s)	9.873	-	-	+	+	\$ 1409.3	\$ 896	10.347	-	-
HCM Lane LOS	A			+	+	F	F	B		
HCM 95th %tile Q(veh)	0.628	-	-	+	+	5.012	9.601	0.345	-	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined