ERIE GATEWAY SOUTH ANNEXATION NO. 8
EXHIBIT A

NEIL S. BRESLER
1002 N. 119TH ST.
LAFAYETTE, CO. 80026-9411

146536000016

ZONING: AGRICULTURE (A)
ERIE LAND USE: LOW DENSITY RESIDENTIAL (LDR)

TOWN OF ERIE (ORANGE)

PARKDALE FILING NO. 1 SUBDIVISION
ZONING: LOW DENSITY RESIDENTIAL (LDR)
ERIE LAND USE: LOW DENSITY RESIDENTIAL (LDR)

WATERLINE CONNECTION TO PARKDALE F1 8" MAIN

SANITARY SEWER OUTFALL TO PARKDALE F1 8" MAIN

STORM SEWER OUTFALL INTO PARKDALE CHANNEL A TO POND B

TOWN OF ERIE (ORANGE)

PARKDALE FILING NO. 3 SUBDIVISION
ZONING: LOW DENSITY RESIDENTIAL (LDR)
ERIE LAND USE: LOW DENSITY RESIDENTIAL (LDR)

ARLENE PENNER
12177 BASELINE RD.
LAFAYETTE, CO. 80026

146536000019

ZONING: LOW DENSITY RESIDENTIAL (LDR)
ERIE LAND USE: LOW DENSITY RESIDENTIAL (LDR)

ELLA MASTERS
12257 BASELEINE RD.
LAFAYETTE, CO. 80026-9418

146536000027

ZONING: AGRICULTURE (A)
ERIE LAND USE: LOW DENSITY RESIDENTIAL (LDR)

WATERLINE CONNECTION TO PARKDALE F3 8" MAIN

SANITARY SEWER OUTFALL TO PARKDALE F3 8" MAIN

ERIE GATEWAY SOUTH
ANNEXATION NO. 8

TOWN OF ERIE (ORANGE)

PARKDALE FILING NO. 1 SUBDIVISION
ZONING: LOW DENSITY RESIDENTIAL (LDR)
ERIE LAND USE: LOW DENSITY RESIDENTIAL (LDR) / OPEN SPACE (OS)

RIGHT-OF-WAY DEDICATION
WITH FUTURE PARKDALE FILING NO. 3

JERALD AND SHERYL HOWARD
2788 ODELL DR
ERIE, CO. 80516

146536000022

ZONING: AGRICULTURE (A)
ERIE LAND USE: COMMUNITY COMMERCIAL (CC)

WILMA ERICKSON
12004 E. BASELINE RD.
ERIE, CO. 80026

146536000023

ZONING: AGRICULTURE (A)
ERIE LAND USE: COMMUNITY COMMERCIAL (CC)

CMKC LLC
2565 OUTLOOK TR
BROOMFIELD, CO. 80020

146536000024

ZONING: AGRICULTURE (A)
ERIE LAND USE: LOW DENSITY RESIDENTIAL (LDR) / COMMUNITY COMMERCIAL (CC)

1ST GREEN LAWNS
12148 E. BASELINE RD.
LAFAYETTE, CO. 80026

146536000025

ZONING: AGRICULTURE (A)
ERIE LAND USE: LOW DENSITY RESIDENTIAL (LDR)

SALLY TERRY
HENDRICKS REV TRUST
PO BOX 246
LAFAYETTE, CO. 80026

146536000026

ZONING: AGRICULTURE (A)
ERIE LAND USE: LOW DENSITY RESIDENTIAL (LDR)

CITY OF LAFAYETTE (YELLOW)

COLORADO STATE HWY NO. 7 (BASELINE ROAD)

N

100 0 50 100 200

SCALE: 1" = 100' HORIZ.

DATE: 03.18.2021

KT ENGINEERING
ENGINEERS • SURVEYORS
12500 W. 58th AVE. #230
ARVADA, CO 80002
PH: 720.638.5190

LSC TRANSPORTATION CONSULTANTS, INC.

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

April 17, 2020

Mr. Corey Elliott
OEO, LLC
7353 S. Alton Way, Suite A-100
Englewood, CO 80112

Re: Parkdale Phases 1 - 4
Traffic Impact Analysis
Erie, CO
LSC #160131

Dear Mr. Elliott:

In response to your request, LSC Transportation Consultants, Inc. has prepared this updated Traffic Impact Analysis (Parkdale TIA) for the proposed Parkdale Phases 1 - 4 residential development to address Town and/or CDOT comments. As shown on Figure 1, the site is located north of E. Baseline Road (SH 7), south of Arapahoe Road, east of N. 119th Street, and west of County Line Road 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 site-generated traffic volume projections for the site; the 2025 and 2040 assignment of the projected traffic volumes to the area roadways; the projected 2025 and 2040 background and resulting total traffic volumes on the area roadways; the site's projected traffic impacts; and any recommended roadway improvements to mitigate growth in background traffic or the site's traffic impacts.

LAND USE AND ACCESS

The existing site is primarily agricultural and large ranch properties and is proposed to include about 1,550 residential units. Access is proposed at several locations as shown in the conceptual site plan in Figure 2.

ROADWAY AND TRAFFIC CONDITIONS

Area Roadways

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

- **Baseline Road (SH 7)** is an east-west, two-lane state highway south of the site and is classified as a Non-Rural Principal Highway (NR-A) by CDOT. The intersections with N. 119th Street and County Line Road are signalized with auxiliary turn lanes. The posted speed limit in the vicinity of N. 119th Street is 45 mph and in the vicinity of County Line Road is 55 mph. The *Erie Transportation Master Plan* shows a four-lane cross-section by 2030. A four-lane cross-section is assumed to be constructed between 2025 and 2040.

- **N. 119th Street** is a north-south, two-lane arterial roadway west of the site. The intersections with Baseline Road (SH 7) and Arapahoe Road are signalized with auxiliary turn lanes. The posted speed limit in the vicinity of the site is 40 mph. The *Erie Transportation Master Plan* assumes a two-lane principal arterial in 2030 and a six-lane principal arterial for buildout conditions. A four-lane arterial is assumed by 2040.

- **County Line Road** is a north-south, two-lane arterial roadway east of the site. The posted speed limit in the vicinity of the site is 50 mph. The *Erie Transportation Master Plan* assumes a two-lane principal arterial in 2030 and a six-lane principal arterial for buildout conditions. Through traffic on County Line Road is planned to be diverted to proposed Coal Creek Boulevard with the existing County Line Road intersection with SH 7 remaining as a limited right-in/right-out movement intersection to serve local traffic. There will be limited or no access for through traffic.

- **Coal Creek Boulevard** is a future arterial roadway proposed to be constructed one-half mile east of N. 119th Street and provide access to SH 7 for the Parkdale neighborhood and existing County Line Road regional traffic.

- **Arapahoe Road** is an east-west, two-lane arterial roadway north of the site. The posted speed limit in the vicinity of the site is 40 mph. The *Erie Transportation Master Plan* assumes a two-lane minor arterial in 2030 and a four-lane minor arterial for buildout conditions. A four-lane minor arterial is assumed by 2040.

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 volumes are from the attached traffic counts conducted by Counter Measures in September, 2018 and July, 2019.

2025 and 2040 Background Traffic

Figures 4a and 4b show the estimated 2025 background traffic, lane geometry, and traffic control and Figures 5a and 5b show the estimated 2040 background traffic, lane geometry, and traffic control. The 2025 and 2040 background traffic is based on an annual growth rate of two percent on all roadways.

Existing, 2025, and 2040 Background Levels of Service

Level of service (LOS) is a quantitative measure of the level of congestion or delay at an intersection. Level of service is indicated on a scale from "A" to "F." LOS A is indicative of little

congestion or delay and LOS F is indicative of a high level of congestion or delay. Attached are specific level of service definitions for signalized and unsignalized intersections.

The intersections in Figures 3, 4a, 4b, 5a, and 5b were analyzed as appropriate to determine the existing, 2025, and 2040 background levels of service using Synchro. Table 1 shows the level of service analysis results. The level of service reports are attached.

1. **Arapahoe Road/N. 119th Street:** This signalized intersection currently operates at an overall LOS "C" during both morning and afternoon peak-hour and is expected to do so through 2040 with implementation of the recommended improvements.

4. **Arapahoe Road/County Line Road:** This signalized intersection currently operates at an overall LOS "A" during the morning peak-hour and LOS "B" during the afternoon peak-hours and is expected to do so through 2040 with the recommended improvements.

8. **Coal Creek Boulevard/Main Site Access/Old County Line Road:** This future signalized intersection is expected to operate at LOS "A" during both peak-hours through 2040 with the recommended improvements.

9. **Coal Cerek Boulevard/Three-Quarter Site Access:** All movements at this future unsignalized intersection are expected to operate at LOS "A" during both peak-hours through 2040.

10. **N. 119th Street/Full Movement Site Access:** This future signalized intersection is expected to operate at LOS "A" during both peak-hours through 2040.

13. **N. 119th Street/Three-Quarter Site Access:** All movements at this future unsignalized intersection are expected to operate at LOS "A" during both peak-hours through 2040. This intersection is not expected to meet traffic signal warrants based on the estimated residential trips so is shown as a three-quarter movement intersection to mitigate poor levels of service for the westbound left-turn movement. If the parcel to the south is developed as commercial or other higher trip-generating land use, then the additional trips to this intersection could result in a full movement access and traffic signal control.

14. **SH 7 (E. Baseline Road)/N. 119th Street:** This signalized intersection currently operates at an overall LOS "E" during both peak-hours. By 2025, with implementation of the recommended improvements, the intersection is expected to operate at LOS "C" during both peak-hours through 2040.

15. **SH 7 (E. Baseline Road)/Coal Creek Boulevard:** This proposed signalized intersection is expected to operate at an overall LOS "C" or better through 2040.

16. **SH 7 (E. Baseline Road)/County Line Road:** This signalized intersection currently operates at an overall LOS "C" during both peak-hours. Regional traffic is expected to be relocated from County Line Road to Coal Creek Boulevard by 2025 with this intersection remaining to serve local properties north of SH 7. All movements are expected to operate at LOS "D" or better through 2040 if the intersection is converted to right-in/right-out only.

17. **SH 7 (Baseline Road)/Future Commercial RIRO:** All movements at this future unsignalized intersection are expected to operate at LOS "B" during both peak-hours through 2040.

TRIP GENERATION

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

The proposed land use on the site is projected to generate about 13,785 new vehicle-trips on the average weekday, with about half entering and half exiting the site 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 256 vehicles would enter and about 780 vehicles would exit the site. During the afternoon peak-hour, which generally occurs for one hour between 4:00 and 6:30 p.m., about 857 vehicles would enter and about 505 vehicles would exit the site.

TRIP DISTRIBUTION

Figure 6 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

Figures 7a and 7b show the assignment of the 2025 and 2040 site-generated traffic volumes based on the appropriate directional distribution percentages (from Figure 6) and the trip generation estimate (from Table 2).

2025 AND 2040 TOTAL TRAFFIC

Figure 8a shows the 2025 total traffic which is the sum of the 2025 background traffic volumes (from Figure 4a) and the 2025 site-generated traffic volumes (from Figure 7a). Figures 8b and 8c show the recommended 2025 lane geometry and traffic control. Coal Creek Boulevard was assumed to have a posted speed limit of 45 mph. Figure 8c also provides alternative lengths for the turn lanes at Intersections 8, 11, and 12 assuming these lanes are constructed prior to the full construction of Coal Creek Boulevard between SH 7 (Baseline Road) and Arapahoe Road.

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

PROJECTED LEVELS OF SERVICE

The intersections in Figures 8a, 8b, 9a, and 9b were analyzed to determine the 2025 and 2040 total levels of service. Table 1 shows the level of service analysis results. The level of service reports are attached.

1. **Arapahoe Road/N. 119th Street:** This signalized intersection is expected to operate at an overall LOS "D" or better during both peak-hours through 2025. In 2040, with implementation of the recommended improvements, both peak-hours are expected to operate at LOS "C" or better.

2. **Arapahoe Road/West Site Access:** All movements at this future stop-sign controlled intersection are expected to operate at LOS "C" or better through 2040.

3. **Arapahoe Road/East Site Access:** All movements at this future stop-sign controlled intersection are expected to operate at LOS "C" or better through 2040.

4. **Arapahoe Road/County Line Road:** This signalized intersection is expected to operate at an overall LOS "A" during the morning peak-hour and LOS "B" during the afternoon peak-hour through 2025 and is expected to do so through 2040 with implementation of the recommended improvements.

5. **Intentionally left blank.**

6. **Coal Creek Boulevard/Phase 4 North Access:** All movements at this future stop-sign controlled intersection are expected to operate at LOS "D" or better through 2040.

7. **Coal Creek Boulevard/Phase 4 South Access:** All movements at this future stop-sign controlled intersection are expected to operate at LOS "D" or better through 2040.

8. **Coal Creek Boulevard/Main Site Access/Old County Line Road:** This future signalized intersection is expected to operate at LOS "A" during both peak-hours through 2040 with implementation of the recommended improvements.

9. **Coal Creek Boulevard/Three-Quarter Site Access:** All movements at this future stop-sign controlled intersection are expected to operate at LOS "B" or better through 2040.

10. **N. 119th Street/Full Movement Site Access:** This future signalized intersection is expected to operate at LOS "A" during both peak-hours through 2040.

11. **Old County Line Road/West Site Access:** All movements at this unsignalized intersection are expected to operate at LOS "A" during both peak-hours through 2040.

12. **Old County Line Road/East Site Access:** All movements at this unsignalized intersection are expected to operate at LOS "A" during both peak-hours through 2040.

13. **N. 119th Street/Three-Quarter Movement Site Access:** All movements at this unsignalized intersection are expected to operate at LOS "B" or better through 2040. This intersection is not expected to meet traffic signal warrants based on the estimated residential trips so is shown as a three-quarter movement intersection to mitigate poor levels of service for the westbound left-turn movement. If the parcel to the south is developed as commercial or other higher trip-generating land use, then the additional trips to this intersection could result in a full movement access and traffic signal control.

14. **(SH 7) E. Baseline Road/N. 119th Street:** This signalized intersection is expected to operate at an overall LOS "D" during both morning and afternoon peak-hours through 2025 with implementation of the recommended improvements. By 2040, the intersection is expected to operate at LOS "C" during both peak-hours with implementation of the recommended improvements.

15. **(SH 7) E. Baseline Road/Coal Creek Boulevard:** This future signalized intersection is expected to operate at an overall LOS "C" during both peak-hours through 2025. By 2040, with implementation of the recommended improvements, the intersection is expected to operate at LOS "C" or better during both peak-hours.

16. **(SH 7) E. Baseline Road/County Line Road:** All movements at this stop-sign controlled intersection are expected to operate at LOS "D" or better during both morning and afternoon peak-hours through 2040 once it is converted to right-in/right-out only.

17. **SH 7 (Baseline Road)/Future Commercial RIRO:** All movements at this future unsignalized intersection are expected to operate at LOS "C" or better during both peak-hours through 2040.

CONCLUSIONS AND RECOMMENDATIONS

Trip Generation

1. The site is projected to generate about 13,785 vehicle-trips on the average weekday, with about half entering and half exiting during a 24-hour period. During the morning peak-hour, about 256 vehicles would enter and about 780 vehicles would exit the site. During the afternoon peak-hour, about 857 vehicles would enter and about 505 vehicles would exit.

Projected Levels of Service

2. All of the signalized intersections in the study area are expected to operate at acceptable levels of service during both morning and afternoon peak-hours through 2040 with the recommended lane geometry and traffic control.

3. All movements at the unsignalized intersections in the study are are expected to operate at acceptable levels of service during both morning and afternoon peak-hours through 2040 with the recommended lane geometry and traffic control.

Conclusions

4. The impact of the growth in background traffic and the impact of the Parkdale residential development can be accommodated by the existing and proposed roadway network with the recommended improvements shown in Figures 8b, 8c, and 9b.

Recommendations

5. Figures 8b and 8c show the recommended improvements for 2025.

6. Figure 9b shows the recommended improvements for 2040.

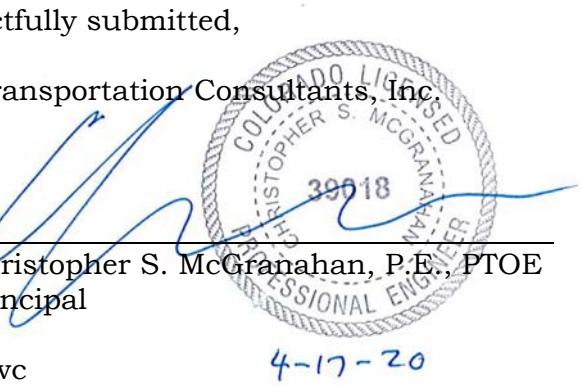
7. The proposed three-quarter movement site access to N. 119th Street could be converted to full movement if the property to the south develops as commercial or other high trip-generating land use and results in a signal warrant being met.

* * * * *

We trust this information will assist you in planning for the proposed Parkdale residential development.

Respectfully submitted,

LSC Transportation Consultants, Inc.



By: _____
Christopher S. McGranahan, P.E., PTOE
Principal

CSM/wc

Enclosure: Tables 1 and 2
Figures 1 - 9b
Traffic Count Reports
Level of Service Definitions
Level of Service Reports

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Table 1 (Page 1 of 4)
Intersection Levels of Service Analysis
Parkdale Phases 1 - 4
Erie, CO
LSC #160131; April, 2020

Intersection No. and Location	Traffic Control	Existing Traffic Level of Service AM	Existing Traffic Level of Service PM	2025 Background Traffic Level of Service AM	2025 Background Traffic Level of Service PM	2025 Total Traffic Level of Service AM	2025 Total Traffic Level of Service PM	2040 Background Traffic Level of Service AM	2040 Background Traffic Level of Service PM	2040 Total Traffic Level of Service AM	2040 Total Traffic Level of Service PM
1) Arapahoe Road/N. 119th Street	Signalized										
EB Left		B	B	B	B	B	B	C	C	B	C
EB Through/Right		B	D	B	D	B	E	--	--	--	--
EB Through		--	--	--	--	--	--	C	D	C	D
EB Right		--	--	--	--	--	--	A	A	A	A
WB Left		C	E	B	B	B	C	C	C	C	C
WB Through/Right		D	C	D	C	D	C	--	--	--	--
WB Through		--	--	--	--	--	--	D	C	D	C
WB Right		--	--	--	--	--	--	A	A	A	A
NB Left		B	B	C	C	D	D	B	A	B	A
NB Through/Right		B	B	C	D	C	E	--	--	--	--
NB Through		--	--	--	--	--	--	B	A	B	A
NB Right		--	--	--	--	--	--	A	A	A	A
SB Left		C	C	B	B	B	C	B	B	B	B
SB Through		C	C	C	C	C	C	C	C	C	C
SB Right		A	A	A	A	A	A	A	A	B	A
Entire Intersection Delay (sec /veh)		26.7	29.5	29.6	34.8	31.2	46.6	24.0	18.9	24.3	19.7
Entire Intersection LOS		C	C	C	C	C	D	C	B	C	B
2) Arapahoe Road/West Site Access	TWSC										
NB Left		--	--	--	--	C	C	--	--	C	C
NB Right		--	--	--	--	A	B	--	--	A	B
WB Left		--	--	--	--	A	A	--	--	A	A
Critical Movement Delay (sec./veh)		--	--	--	--	18.7	20.2	--	--	15.2	22.2
3) Arapahoe Road/East Site Access	TWSC										
NB Left		--	--	--	--	C	C	--	--	C	C
NB Right		--	--	--	--	A	B	--	--	A	B
WB Left		--	--	--	--	A	A	--	--	A	A
Critical Movement Delay (sec./veh)		--	--	--	--	19.0	20.5	--	--	15.4	22.8
4) Arapahoe Road/County Line Road	Signalized										
EB Left		C	C	D	C	D	D	C	D	C	D
EB Through/Right		A	A	B	A	B	A	A	C	A	C
WB Left/Through/Right		B	B	D	D	D	D	D	D	D	D
NB Left		A	B	A	A	A	A	A	A	A	A
NB Through/Right		A	B	A	A	A	B	A	A	A	A
SB Left		--	--	--	--	--	--	A	B	A	B
SB Left/Through		A	B	B	B	B	B	--	--	--	--
SB Through		--	--	--	--	--	--	A	B	A	B
SB Right		A	A	A	A	A	A	A	A	A	A
Entire Intersection Delay (sec /veh)		6.3	15.5	7.7	14.4	9.9	16.1	6.1	19.3	7.4	17.8
Entire Intersection LOS		A	B	A	B	A	B	A	B	A	B

Table 1 (Page 2 of 4)
Intersection Levels of Service Analysis
Parkdale Phases 1 - 4
Erie, CO
LSC #160131; April, 2020

Intersection Location	Traffic Control	Existing Traffic Level of Service AM	Existing Traffic Level of Service PM	2025 Background Traffic Level of Service AM	2025 Background Traffic Level of Service PM	2025 Total Traffic Level of Service AM	2025 Total Traffic Level of Service PM	2040 Background Traffic Level of Service AM	2040 Background Traffic Level of Service PM	2040 Total Traffic Level of Service AM	2040 Total Traffic Level of Service PM
5) Intentionally Left Blank											
6) Coal Creek Boulevard/Phase 4 North Access	TWSC										
EB Left		--	--	--	--	A	A	--	--	A	A
SB Left		--	--	--	--	C	C	--	--	C	D
SB Right		--	--	--	--	B	B	--	--	B	B
Critical Movement Delay (sec./veh)		--	--	--	--	17.5	20.5	--	--	21.5	26.4
7) Coal Creek Boulevard/Phase 4 South Access	TWSC										
NB Left		--	--	--	--	A	A	--	--	A	A
EB Left		--	--	--	--	C	C	--	--	C	D
EB Right		--	--	--	--	B	B	--	--	B	B
Critical Movement Delay (sec./veh)		--	--	--	--	19.1	23.3	--	--	23.6	30.3
8) E. County Line Road/Coal Creek Boulevard/Main Site Access											
EB Left		--	--	--	--	C	D	D	D	D	D
EB Through		--	--	--	--	A	A	A	A	D	D
EB Right		--	--	--	--	A	A	A	A	A	A
WB Left		--	--	--	--	D	D	D	D	D	D
WB Through/Right		--	--	--	--	A	A	A	A	A	A
NB Left		--	--	--	--	A	A	A	A	A	A
NB Through		--	--	--	--	A	A	A	A	A	A
NB Right		--	--	--	--	A	A	A	A	A	A
SB Left		--	--	--	--	A	A	A	A	A	A
SB Through		--	--	--	--	A	A	A	A	B	B
SB Right		--	--	--	--	A	A	A	A	A	A
Entire Intersection Delay (sec /veh)		--	--	--	--	9.5	8.6	3.5	3.6	10.0	8.9
Entire Intersection LOS		--	--	--	--	A	A	A	A	A	A
9) Coal Creek Boulevard/Three-Quarter Site Access	TWSC										
NB Left	Three-	--	--	--	--	A	A	A	A	A	A
EB Right	Quarter	--	--	--	--	B	B	A	A	B	B
Critical Movement Delay (sec./veh)		--	--	--	--	12.7	11.3	9.4	9.8	11.3	11.1
10) N. 119th Street/Full Movement Site Access	Signalized										
WB Left		--	--	--	--	D	D	D	D	D	D
WB Right		--	--	--	--	A	A	C	C	B	B
NB Through		--	--	--	--	A	A	A	A	A	A
NB Right		--	--	--	--	A	A	A	A	A	A
SB Left		--	--	--	--	A	A	A	A	A	A
SB Through		--	--	--	--	A	A	A	A	A	A
Entire Intersection Delay (sec /veh)		--	--	--	--	8.1	4.9	1.0	0.6	5.8	3.4
Entire Intersection LOS		--	--	--	--	A	A	A	A	A	A

Table 1 (Page 3 of 4)
Intersection Levels of Service Analysis
Parkdale Phases 1 - 4
Erie, CO
LSC #160131; April, 2020

Intersection Location	Traffic Control	Existing Traffic Level of Service AM	Existing Traffic Level of Service PM	2025 Background Traffic Level of Service AM	2025 Background Traffic Level of Service PM	2025 Total Traffic Level of Service AM	2025 Total Traffic Level of Service PM	2040 Background Traffic Level of Service AM	2040 Background Traffic Level of Service PM	2040 Total Traffic Level of Service AM	2040 Total Traffic Level of Service PM
11) Old County Line Road/West Site Access											
EB Left		--	--	--	--	A	A	--	--	A	A
SB Approach		--	--	--	--	A	A	--	--	A	A
Critical Movement Delay (sec./veh)		--	--	--	--	8.9	8.9	--	--	8.9	8.8
12) Old County Line Road/East Site Access	TWSC										
EB Left		--	--	--	--	A	A	--	--	A	A
SB Left		--	--	--	--	A	A	--	--	A	A
SB Right		--	--	--	--	A	A	--	--	A	A
Critical Movement Delay (sec./veh)		--	--	--	--	9.1	9.8	--	--	9.1	9.7
13) N. 119th Street/Three-Quarter Movement Site Access	TWSC										
WB Right	Three-	--	--	--	--	A	B	A	A	A	B
SB Left	Quarter	--	--	--	--	A	A	A	A	A	A
Critical Movement Delay (sec./veh)		--	--	--	--	9.5	11.0	8.9	9.6	9.1	10.2
14) SH 7 (Baseline Road)/N. 119th Street	Signalized										
EB Left		B	B	B	B	B	B	D	D	D	D
EB Through/Right		D	E	B	D	C	E	--	--	--	--
EB Through		--	--	--	--	--	--	C	C	C	C
EB Right		--	--	--	--	--	--	A	A	A	A
WB Left		D	E	D	D	D	D	D	D	D	D
WB Through/Right		F	D	--	--	--	--	--	--	--	--
WB Through		--	--	D	D	D	D	B	D	B	D
WB Right		--	--	A	A	A	B	A	A	A	B
NB Left/Through		E	F	--	--	--	--	--	--	--	--
NB Left		--	--	C	C	C	C	D	D	D	D
NB Through		--	--	D	D	D	E	C	D	C	D
NB Right		A	C	A	A	A	A	A	A	A	A
SB Left/Through/Right		F	F	--	--	--	--	--	--	--	--
SB Left		--	--	C	D	C	D	D	D	D	D
SB Through		--	--	D	C	D	C	C	C	C	C
SB Right		--	--	A	A	A	A	A	A	A	A
Entire Intersection Delay (sec /veh)		72.1	66.2	29.7	30.1	35.4	41.7	25.7	28.2	26.0	30.2
Entire Intersection LOS		E	E	C	C	D	D	C	C	C	C

Table 1 (Page 4 of 4)
Intersection Levels of Service Analysis
Parkdale Phases 1 - 4
Erie, CO
LSC #160131; April, 2020

Intersection Location	Traffic Control	Existing Traffic Level of Service AM	Existing Traffic Level of Service PM	2025 Background Traffic Level of Service AM	2025 Background Traffic Level of Service PM	2025 Total Traffic Level of Service AM	2025 Total Traffic Level of Service PM	2040 Background Traffic Level of Service AM	2040 Background Traffic Level of Service PM	2040 Total Traffic Level of Service AM	2040 Total Traffic Level of Service PM
15) SH 7 (Baseline Road)/Coal Creek Boulevard	Signalized										
EB Left		--	--	D	D	D	D	D	D	D	D
EB Through		--	--	A	B	A	C	A	C	A	C
WB Through		--	--	C	B	D	C	B	B	B	C
WB Right		--	--	A	A	A	A	A	A	A	A
SB Left		--	--	D	D	D	D	D	D	D	D
SB Right		--	--	A	A	A	A	A	A	A	A
Entire Intersection Delay (sec /veh)		--	--	16.5	20.1	24.2	23.7	15.4	21.6	19.3	24.6
Entire Intersection LOS		--	--	B	C	C	C	B	C	B	C
16) SH 7 (Baseline Road)/County Line Road	TWSC										
SB Right	RIRO	--	--	D	C	D	D	C	B	C	C
Critical Movement Delay (sec./veh)		--	--	29.4	18.6	32.4	25.2	19.8	14.3	20.7	16.4
	Signalized										
EB Left		A	A	--	--	--	--	--	--	--	--
EB Through		A	B	--	--	--	--	--	--	--	--
WB Through		C	B	--	--	--	--	--	--	--	--
WB Right		A	A	--	--	--	--	--	--	--	--
SB Left		E	F	--	--	--	--	--	--	--	--
SB Right		B	B	--	--	--	--	--	--	--	--
Entire Intersection Delay (sec /veh)		21.1	25.4	--	--	--	--	--	--	--	--
Entire Intersection LOS		C	C	--	--	--	--	--	--	--	--
17) SH 7 (Baseline Road)/Future Commercial RIRO	TWSC										
SB Right		--	--	--	--	--	--	B	B	C	B
Critical Movement Delay (sec./veh)		--	--	--	--	--	--	13.7	11.1	15.3	11.9

Table 2
ESTIMATED TRAFFIC GENERATION
Parkdale Phases 1 - 4
Erie, CO
LSC #160131; April, 2020

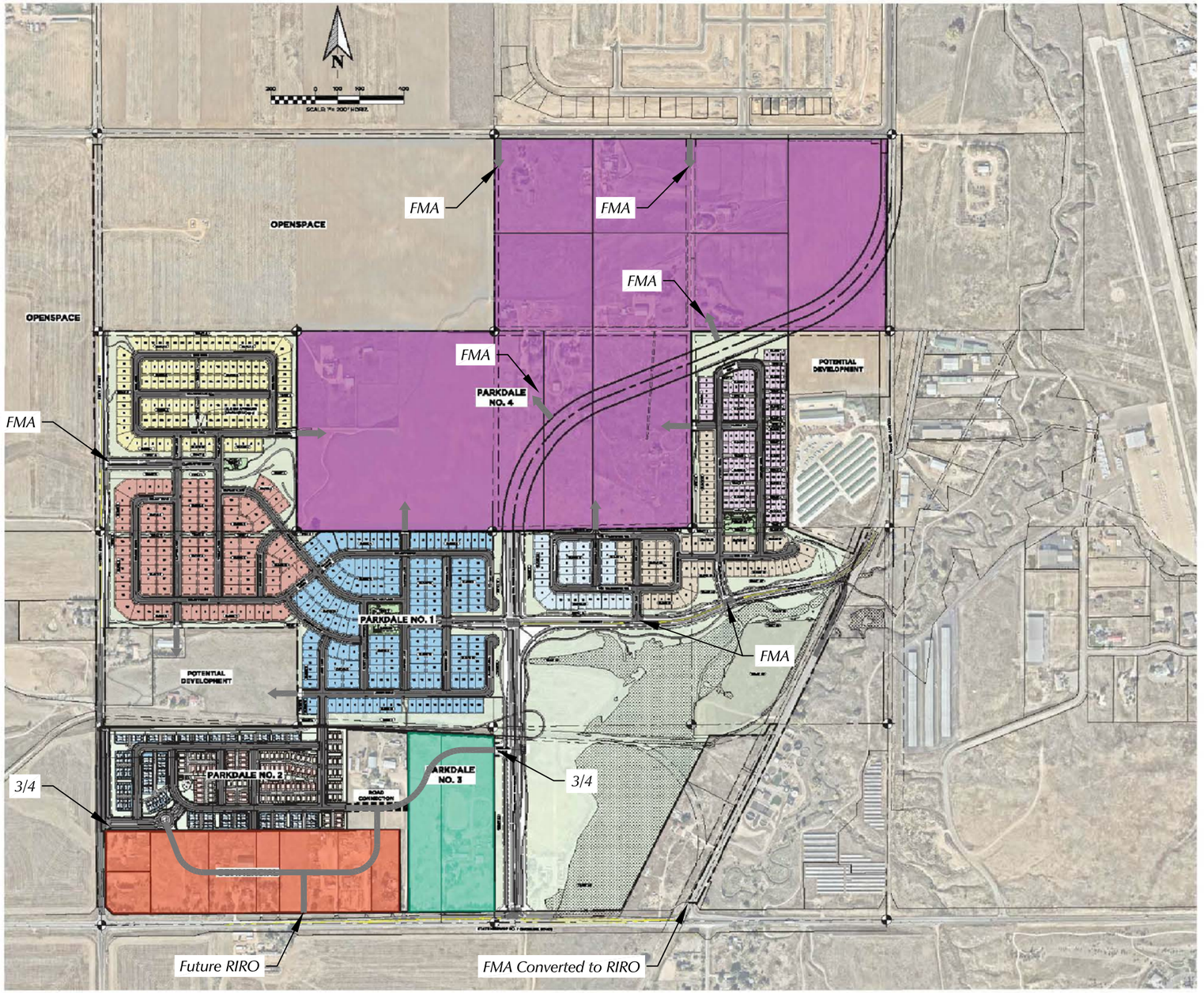
Land Use Description	Trip Generation Units	Trip Generation Rates [1] Average Weekday	AM Peak-Hour In	AM Peak-Hour Out	PM Peak-Hour In	PM Peak-Hour Out	Total Trips Generated Average Weekday	AM Peak-Hour In	AM Peak-Hour Out	PM Peak-Hour In	PM Peak-Hour Out
Multifamily Housing [2]	400 DU [3]	7.32	0.106	0.354	0.353	0.207	2,928	42	142	140	83
Single-Family Detached [4]	1,150 DU	9.44	0.185	0.555	0.624	0.366	10,856	214	638	717	421
						Total	**13,785**	**256**	**780**	**857**	**505**

Notes:
(1) Source: *Trip Generation*, Institute of Transportation Engineers, 10th Edition, 2017.
(2) ITE Land Use No. 220 - Multifamily Housing (Low-Rise)
(3) DU = Dwelling Unit
(4) ITE Land Use No. 210 - Single-Family Detached Housing

Figure 1

Vicinity Map

Parkdale Phases 1-4 (LSC #160131)



Approximate Scale
Scale: NTS

Note: Commercial area is not included in the Parkdale Phases 1-4 site.

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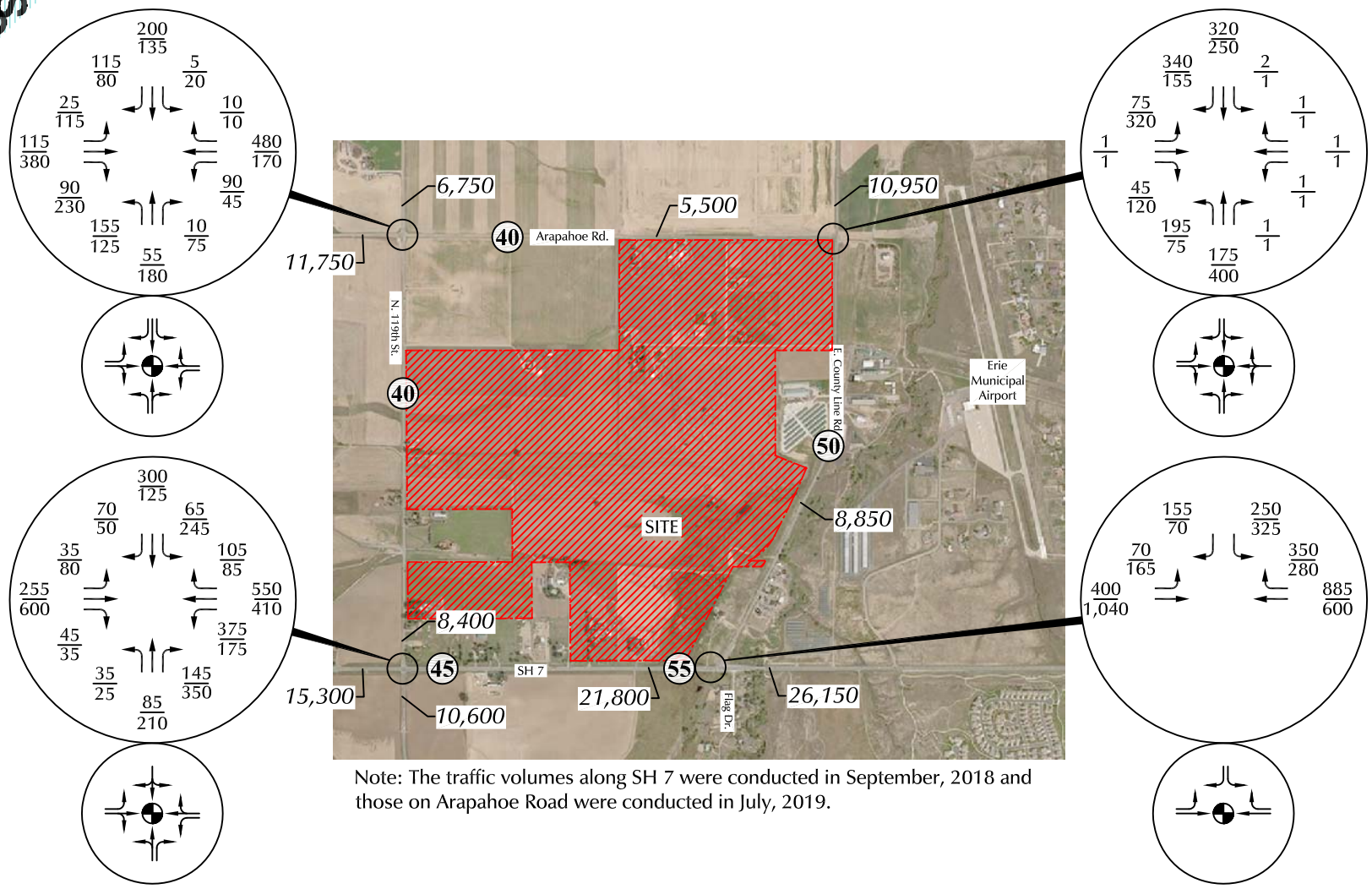
Figure 2

Site Plan

Parkdale Phases 1-4 (LSC #160131)



Note: The traffic volumes along SH 7 were conducted in September, 2018 and those on Arapahoe Road were conducted in July, 2019.

LEGEND:

= Stop Sign

= Traffic Signal

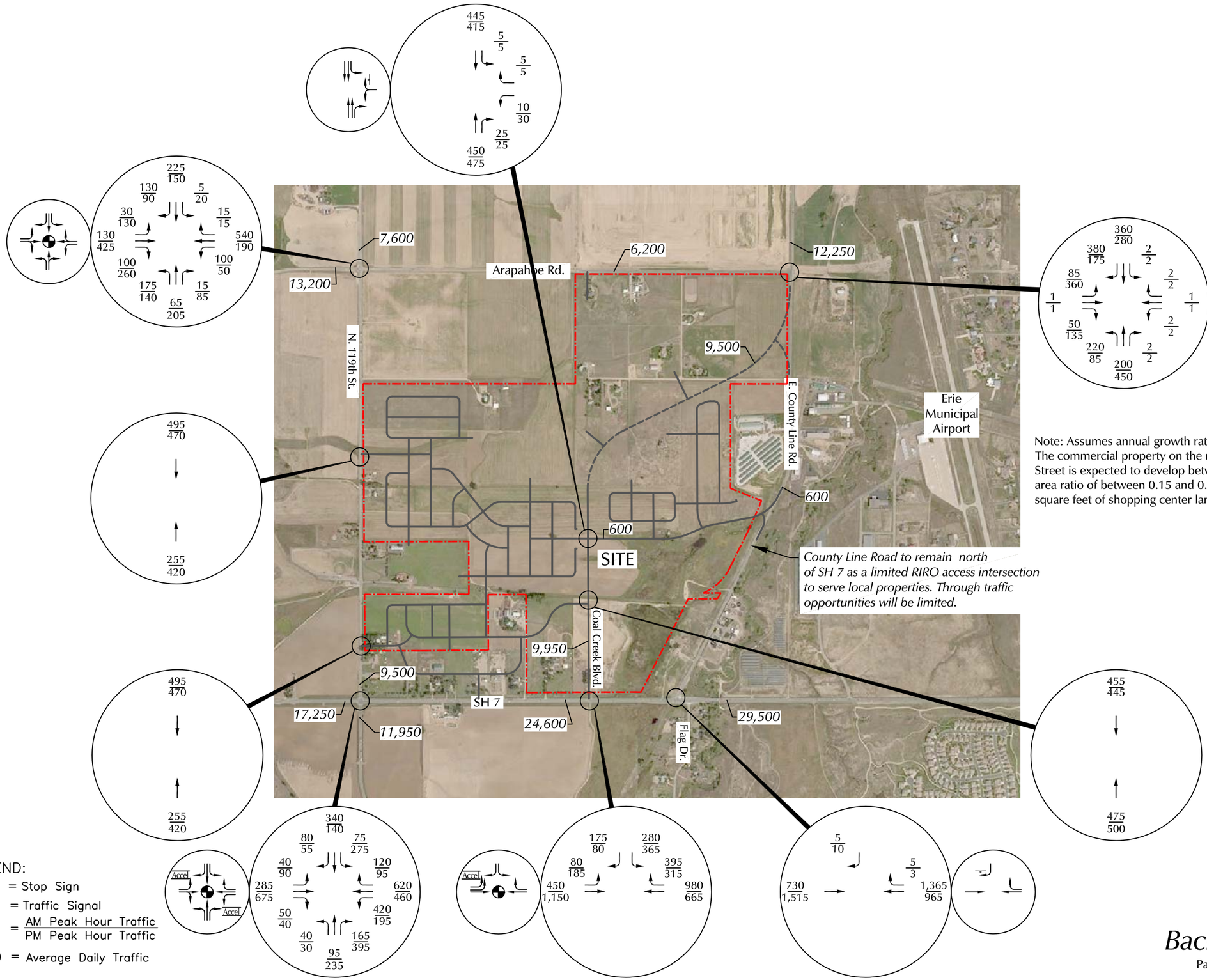
$\frac{26}{35}$ = $\frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$

2,500 = Average Daily Traffic

Figure 3

Existing Traffic, Lane Geometry and Traffic Control

Parkdale Phases 1-4 (LSC #160131)



Note: Assumes annual growth rate of two percent on all roadways. The commercial property on the northeast corner of SH 7/N. 119th Street is expected to develop between 2025 and 2040 at a floor area ratio of between 0.15 and 0.20 for a total of about 200,000 square feet of shopping center land use.

LEGEND:

- = Stop Sign
- = Traffic Signal
- 26/35 = AM Peak Hour Traffic / PM Peak Hour Traffic
- 2,500 = Average Daily Traffic

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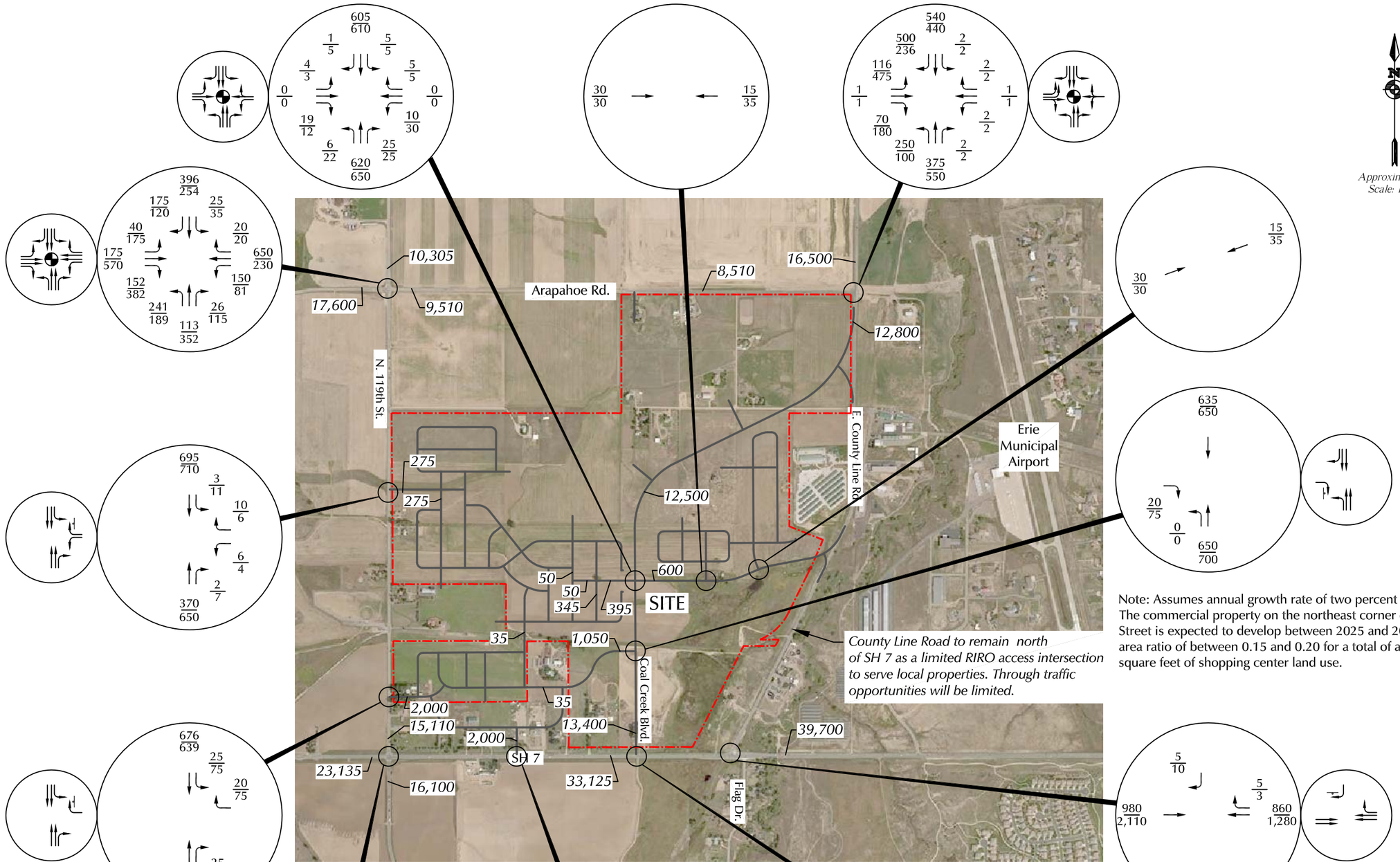
Figure 4

Year 2025 Background Traffic

Parkdale Phases 1-4 (LSC #160131)



Approximate Scale
Scale: 1"= 1,200'

Note: Assumes annual growth rate of two percent on all roadways. The commercial property on the northeast corner of SH 7/N. 119th Street is expected to develop between 2025 and 2040 at a floor area ratio of between 0.15 and 0.20 for a total of about 200,000 square feet of shopping center land use.

LEGEND:

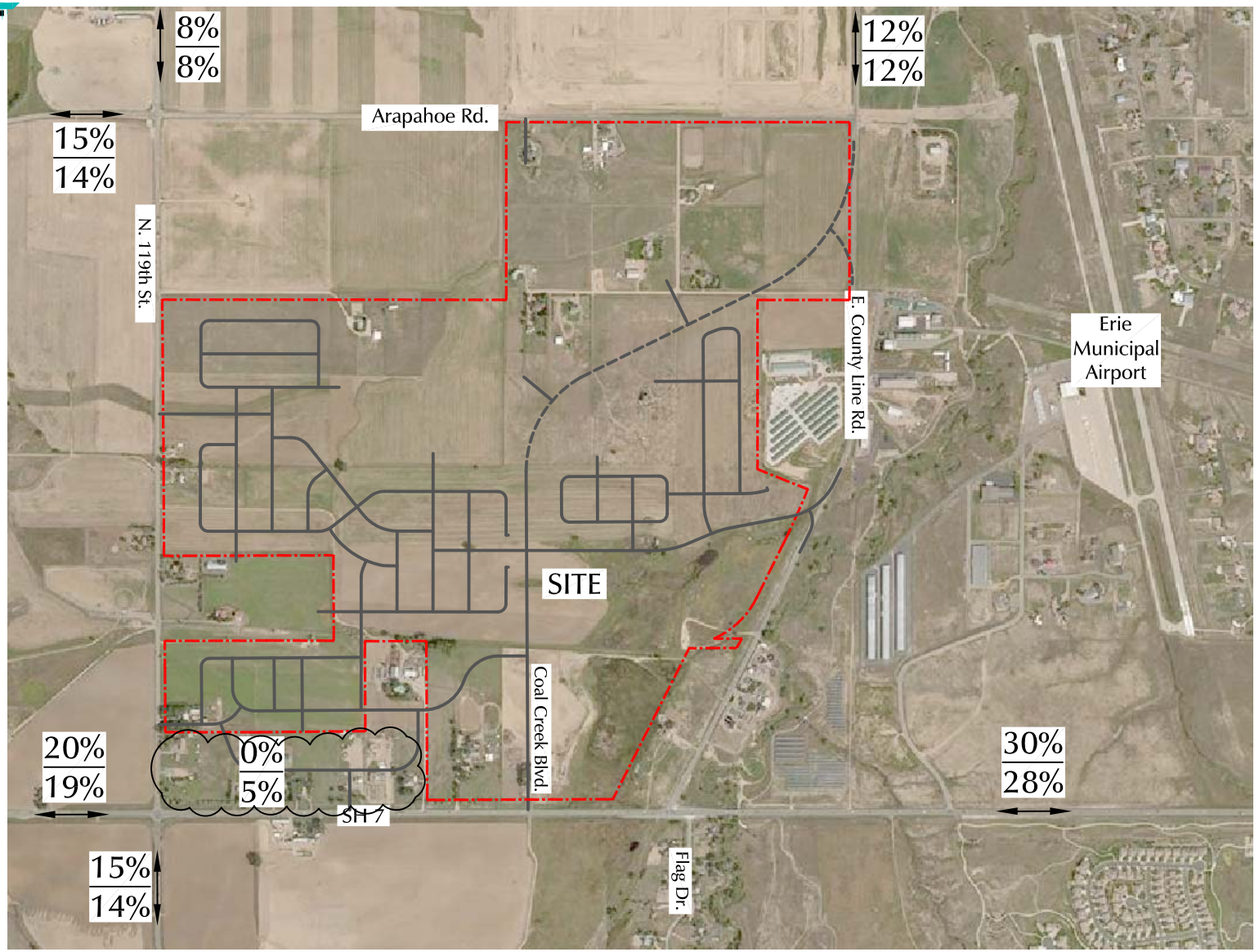
- = Stop Sign
- = Traffic Signal
- $\frac{26}{35}$ = $\frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$
- 2,500 = Average Daily Traffic

LSC TRANSPORTATION CONSULTANTS, INC.

Figure 5

Year 2040 Background Traffic

Parkdale Phases 1-4 (LSC #160131)



Approximate Scale
Scale: 1"=1,200'

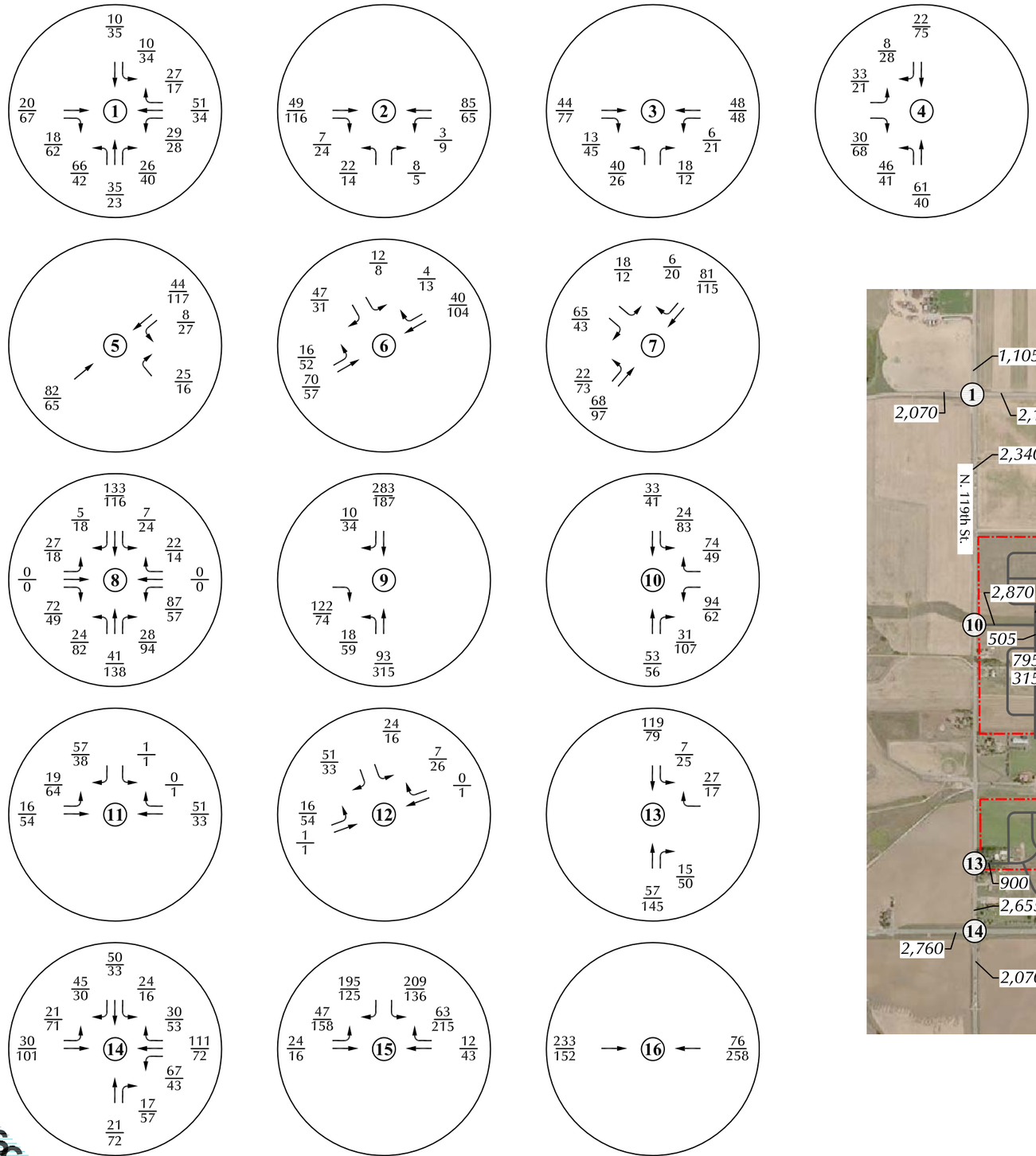
LEGEND:

5% / 5% = 2025 Percent Directional Distribution / 2040 Percent Directional Distribution

Figure 6

Directional Distribution of Site-Generated Traffic

Parkdale Phases 1-4 (LSC #160131)



LEGEND:

$\frac{26}{35} = \frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$

Approximate Scale
Scale: 1"= 1,200'

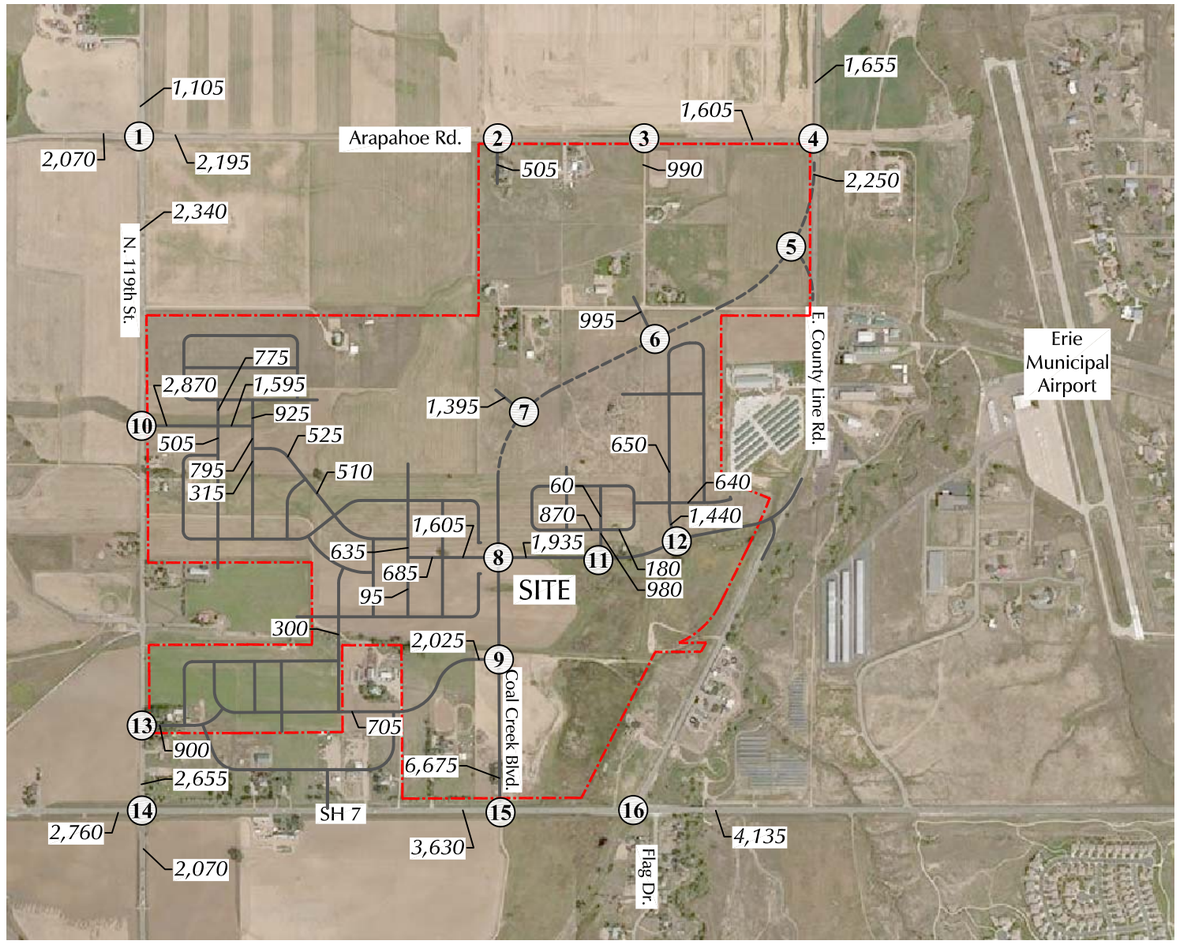
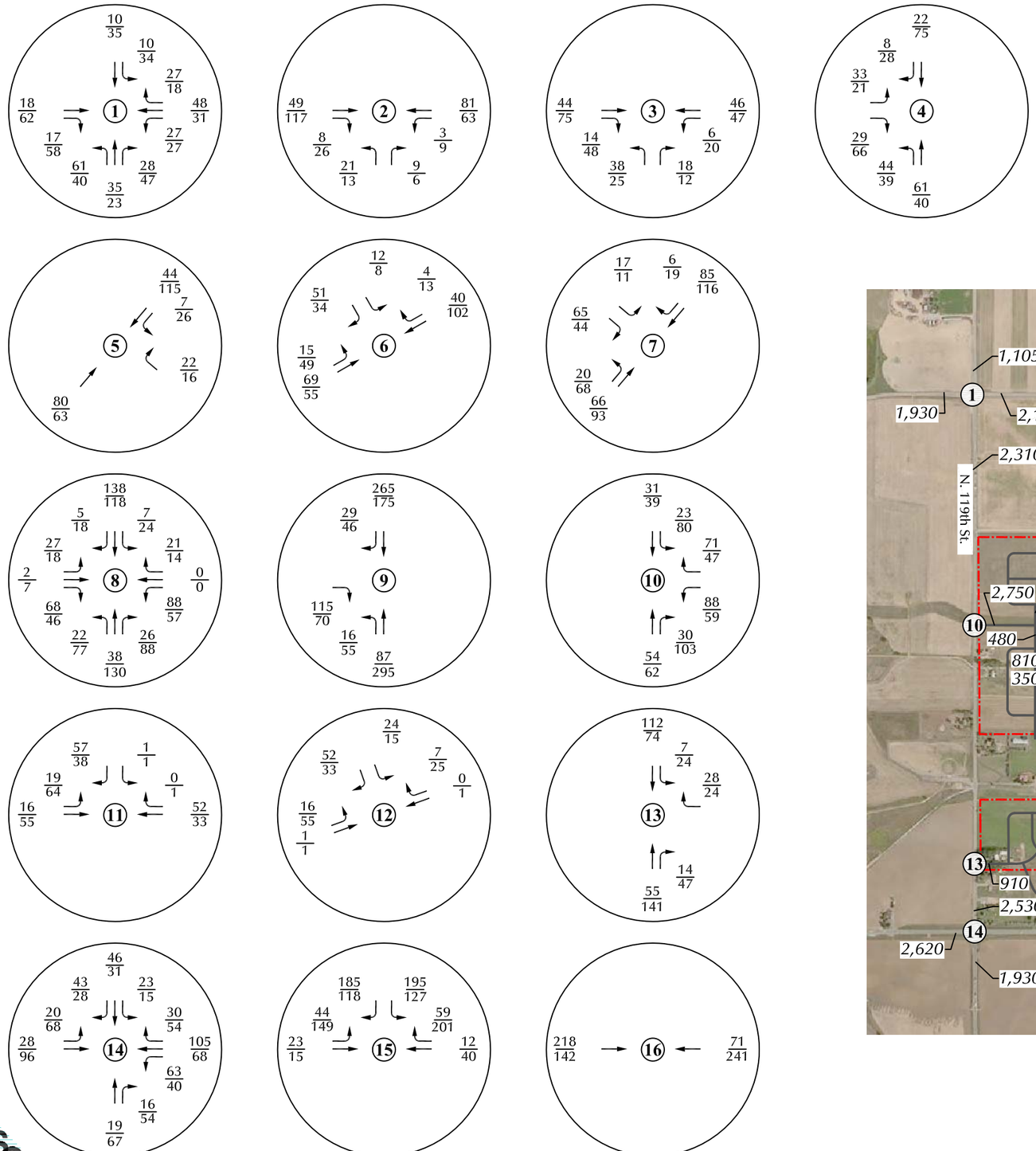


Figure 7a

Assignment of 2025 Site-Generated Traffic

Parkdale Phases 1-4 (LSC #160131)

LSC TRANSPORTATION CONSULTANTS, INC.



LEGEND:

$\frac{26}{35}$ = $\frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$

Approximate Scale
Scale: 1"= 1,200'

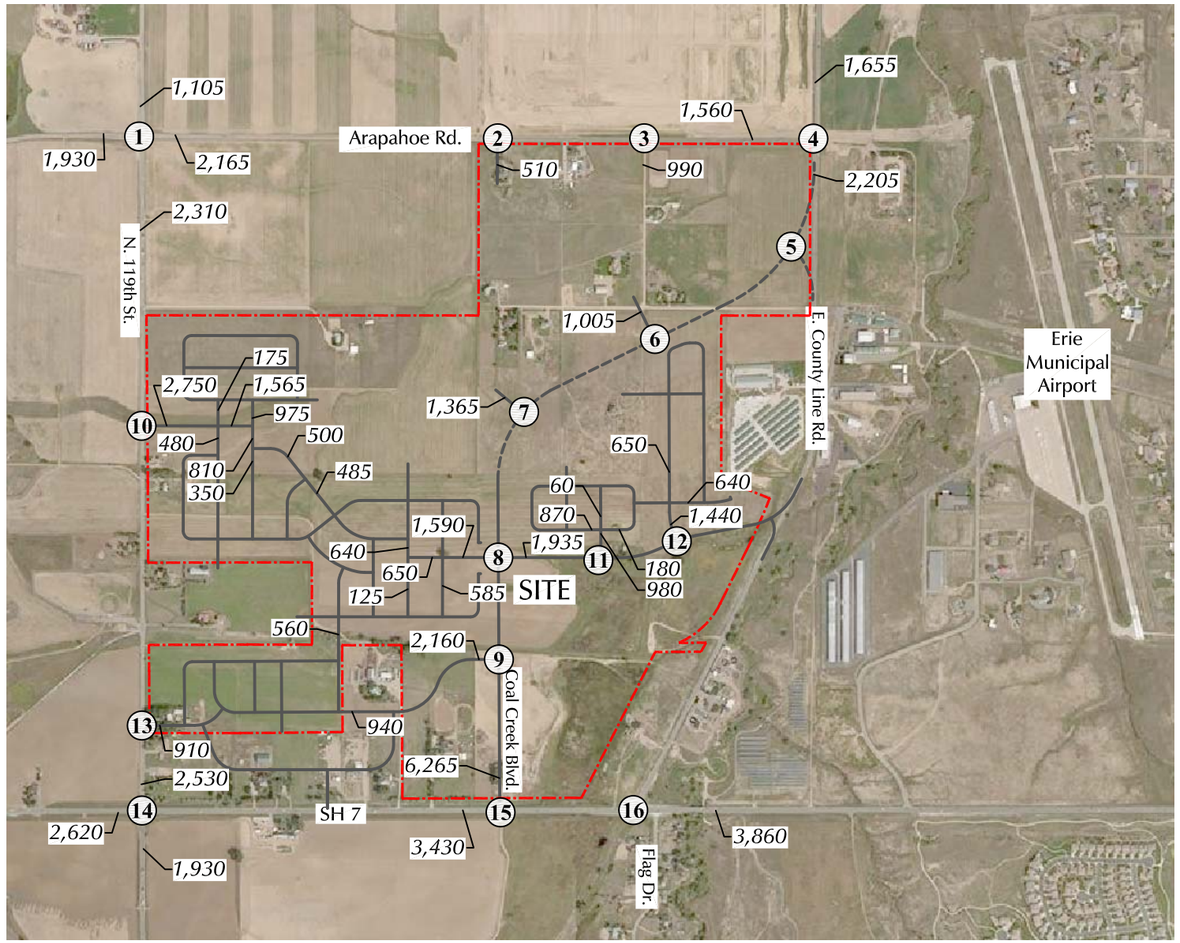
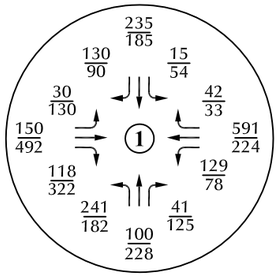


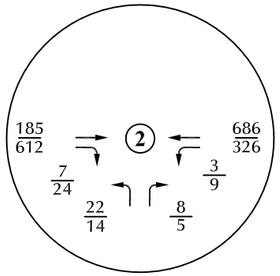
Figure 7b

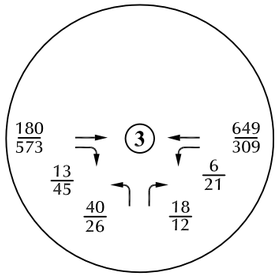
Assignment of 2040 Site-Generated Traffic

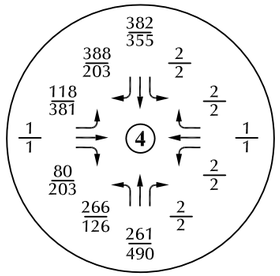
Parkdale Phases 1-4 (LSC #160131)

LSC TRANSPORTATION CONSULTANTS, INC.









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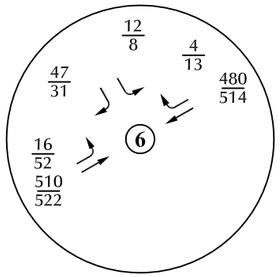

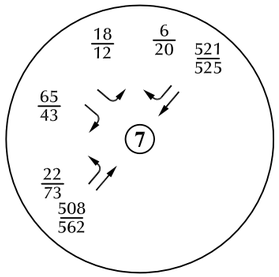

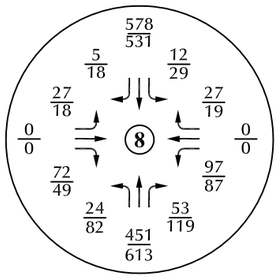

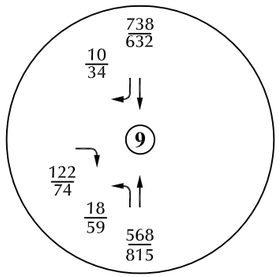

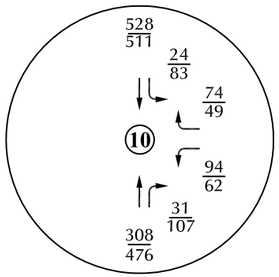

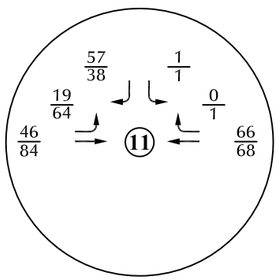

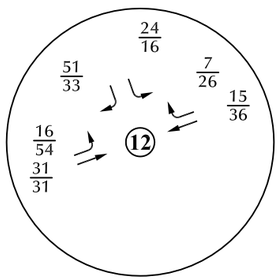

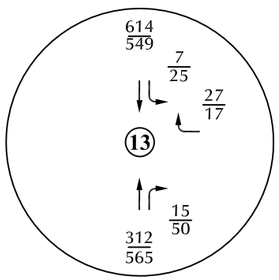

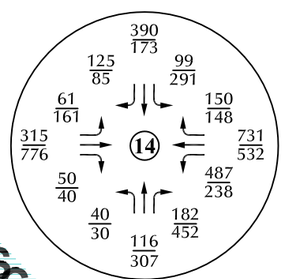

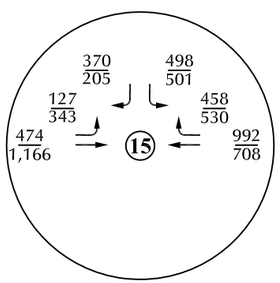

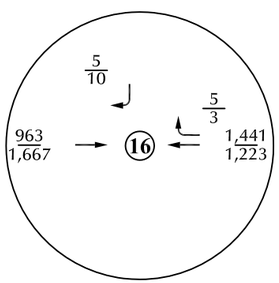

LEGEND:

$\frac{26}{35} = \frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$

Approximate Scale
Scale: 1"= 1,200'

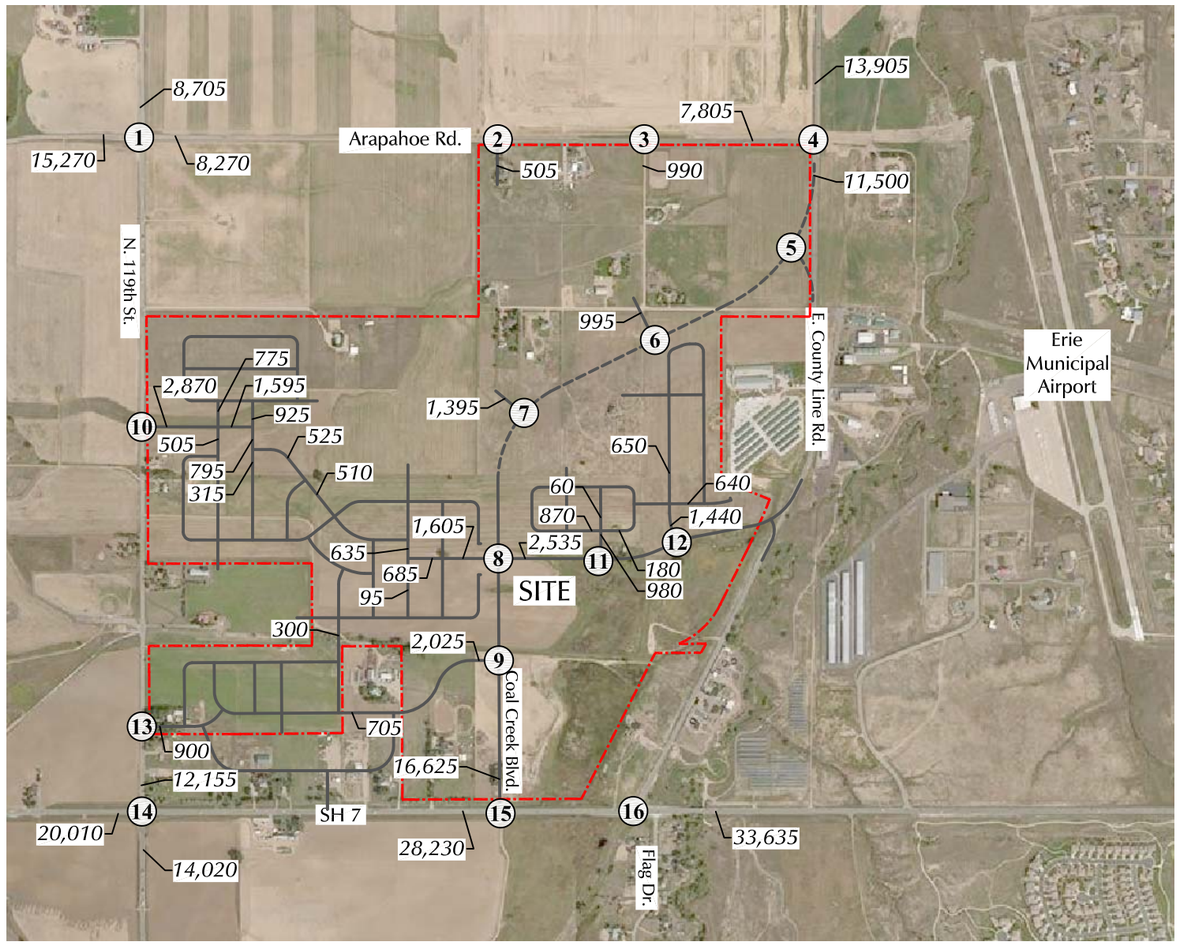

Figure 8a

Year 2025 Total Traffic

Parkdale Phases 1-4 (LSC #160131)

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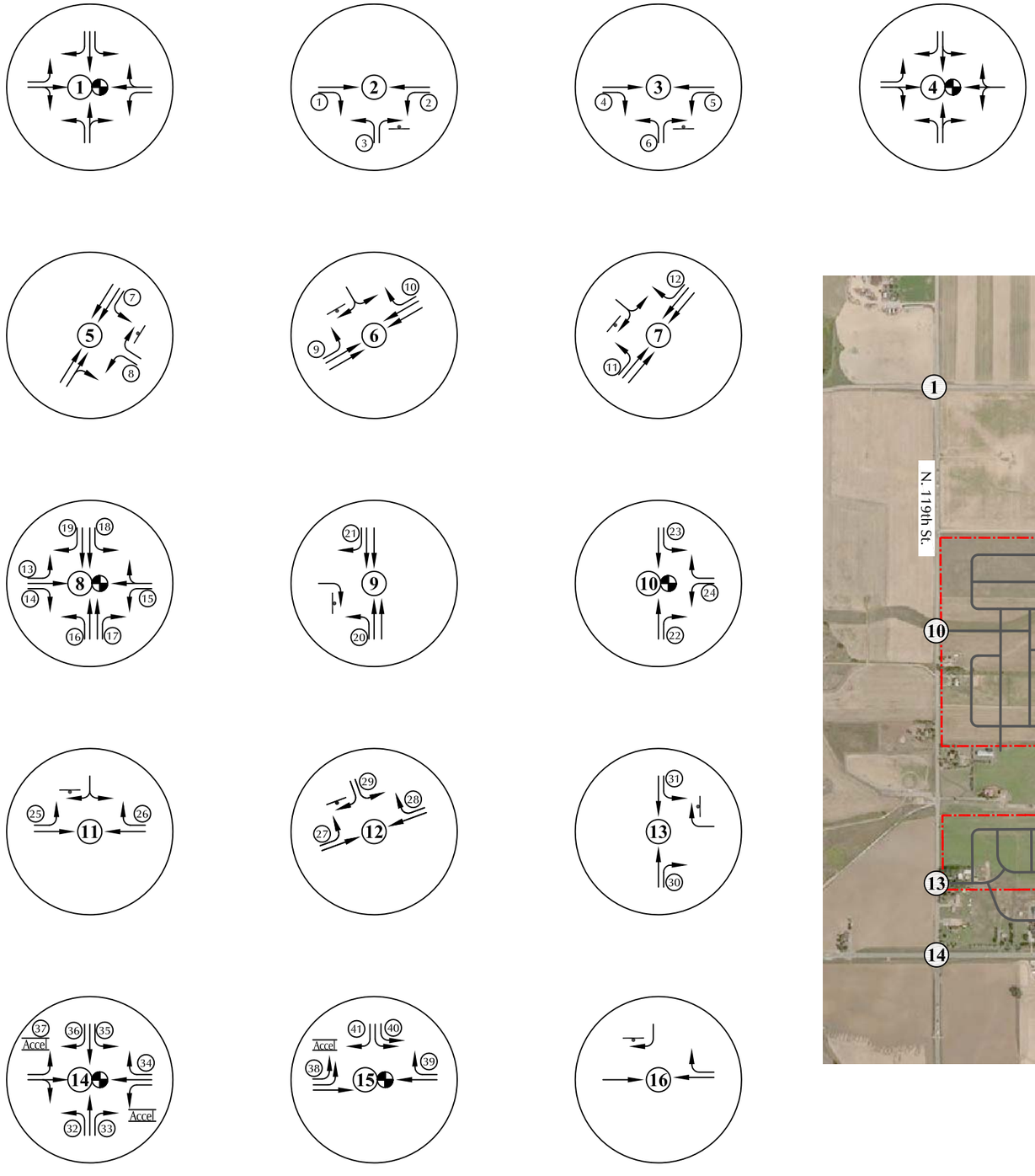


LEGEND:

= Stop Sign

= Traffic Signal

N

Approximate Scale
Scale: 1"= 1,200'

See Figure 8c for Detail on Turn Lane Lengths.

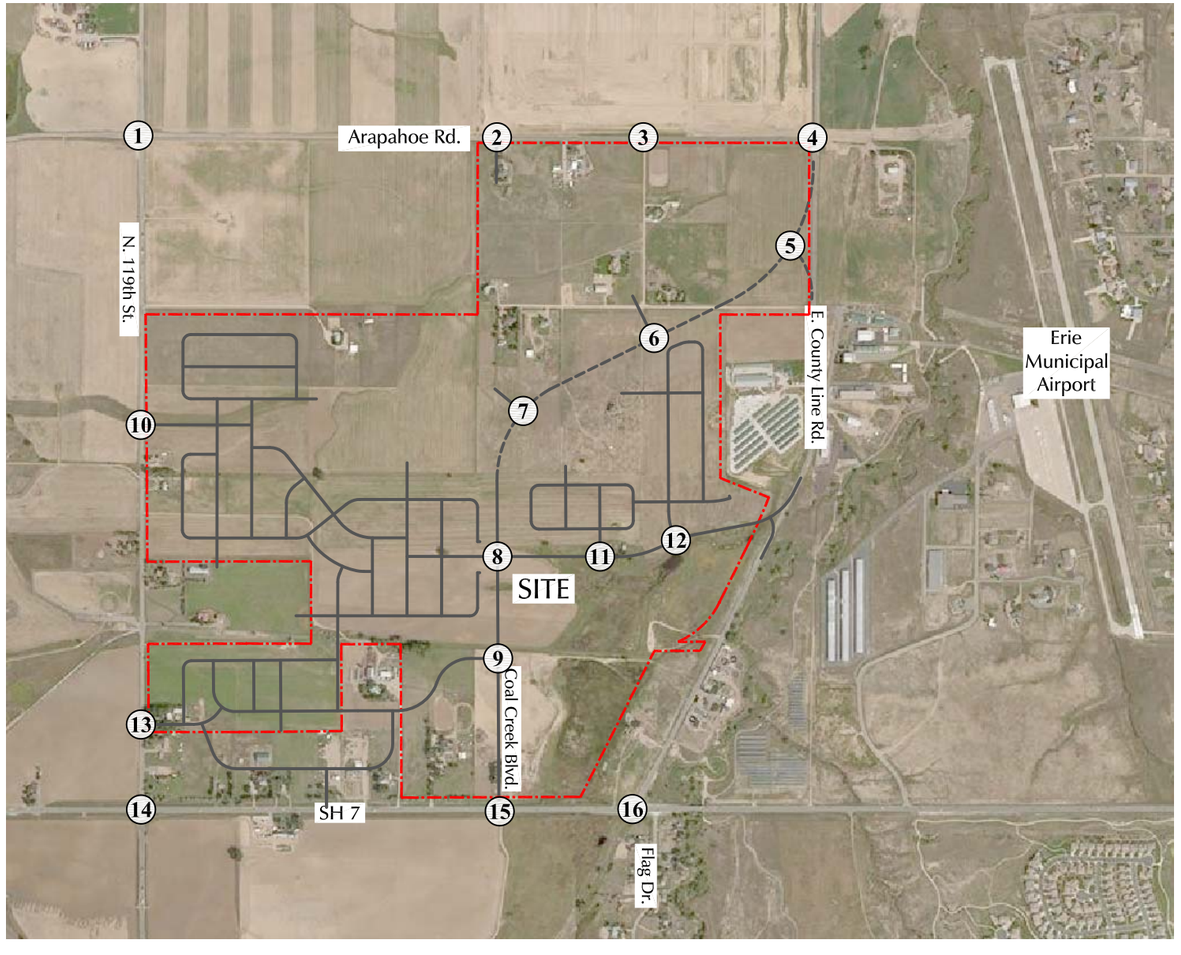


Figure 8b

Year 2025 Total Lane Geometry and Traffic Control

Parkdale Phases 1-4 (LSC #160131)

LSC TRANSPORTATION CONSULTANTS, INC.

TRANSPORTATION CONSULTANTS, INC.

① EB RT = 225 feet + 145-foot transition taper
② WB LT = 235 feet + 145-foot transition taper
③ NB LT = 100 feet + 100-foot transition taper
④ EB RT = 225 feet + 145-foot transition taper
⑤ WB LT = 245 feet + 145-foot transition taper
⑥ NB LT = 100 feet + 100-foot transition taper
⑦ SB LT = 325 feet + 160-foot transition taper
⑧ WB LT = 200 feet + 120-foot transition taper
⑨ EB LT = 325 feet + 160-foot transition taper
⑩ WB LT = 275 feet + 160-foot transition taper
⑪ NB LT = 350 feet + 160-foot transition taper
⑫ SB RT = 275 feet + 160-foot transition taper
⑬ EB LT = 230 feet + 120-foot transition taper
⑭ EB RT = 200 feet + 120-foot transition taper
⑮ WB LT = 290 feet + 120-foot transition taper (1)
⑯ NB LT = 375 feet + 160-foot transition taper
⑰ NB RT = 275 feet + 160-foot transition taper
⑱ SB LT = 305 feet + 160-foot transition taper
⑲ SB RT = 275 feet + 160-foot transition taper
⑳ NB LT = 335 feet + 160-foot transition taper
㉑ SB RT = 275 feet + 160-foot transition taper
㉒ NB RT = 225 feet + 145-foot transition taper
㉓ SB LT = 325 feet + 145-foot transition taper
㉔ WB LT = 200 feet + 120-foot transition taper
㉕ EB LT = 255 feet + 120-foot transition taper (2)
㉖ WB RT = 190 feet + 120-foot transition taper (3)
㉗ EB LT = 245 feet + 120-foot transition taper (4)
㉘ WB RT = 190 feet + 120-foot transition taper (5)
㉙ SB LT = 100 feet + 100-foot transition taper
㉚ NB RT = 225 feet + 145-foot transition taper
㉛ SB LT = 325 feet 145-foot transition taper
㉜ NB LT = 280 feet + 145-foot transition taper
㉝ NB to EB Accel Lane = 390 feet + 160-foot transition taper
㉞ WB RT = 275 feet + 160-foot transition taper
㉟ SB LT = 515 feet + 145-foot transition taper
㊱ SB RT = 225 feet + 145-foot transition taper
㊲ SB to WB Accel Lane = 390 feet + 160-foot transition taper
㊳ EB LT = 2 @ 215 feet (storage) + 380 feet (decel) + 220-foot transition taper
㊴ WB RT = 380 feet + 220-foot transition taper
㊵ SB LT = 345 feet + 160 feet transition taper (second SB LT will be easternmost through lane)
㊶ SB to WB Accel Lane = 740 feet + 220-foot transition taper

Deceleration Length *

35 mph = 190 feet + 120-foot transition taper
40 mph = 225 feet + 145-foot transition taper
45 mph = 275 feet + 160-foot transition taper
50 mph = 320 feet + 180-foot transition taper
55 mph = 380 feet + 220-foot transition taper

* Left-turn deceleration lanes also have a vehicle storage requirement.

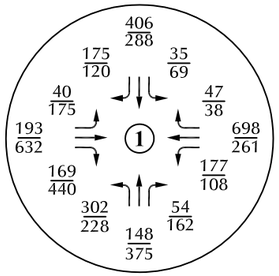
The following turn lane lengths will be needed if these lanes are built prior to the completion of Coal Creek Boulevard between SH 7 and Arapahoe Road

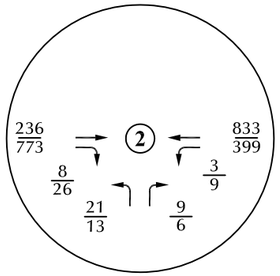
(1) 600 feet + 160-foot transition taper
(2) Access will be right-in/right-out in the interim so EB LT is not needed
(3) 275 feet + 160-foot transition taper
(4) 355 feet + 160-foot transition taper
(5) 275 feet + 160-foot transition taper

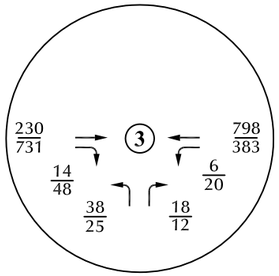
Figure 8c

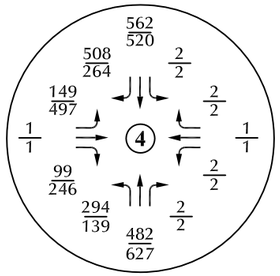
Year 2025 Total Turn Lane Details

Parkdale Phases 1-4 (LSC #160131)









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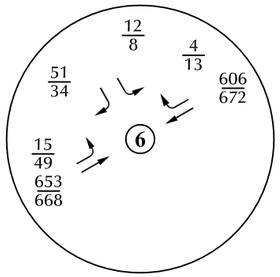
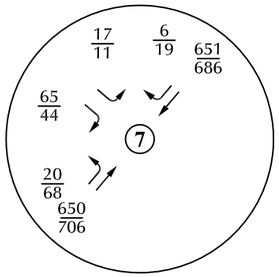
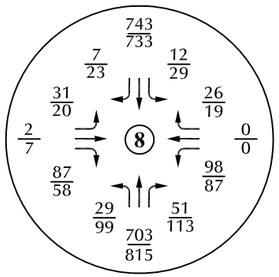
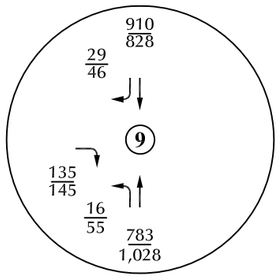
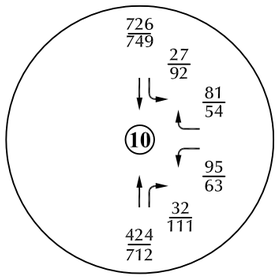
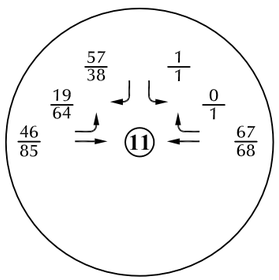


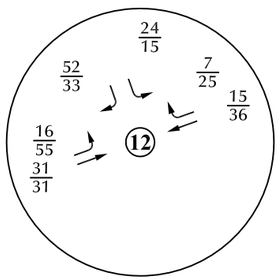


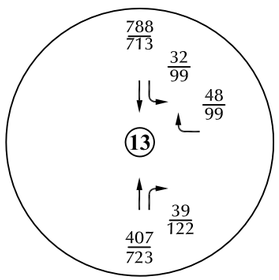


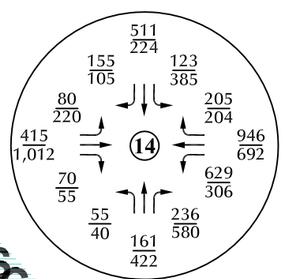


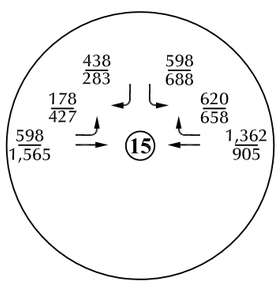


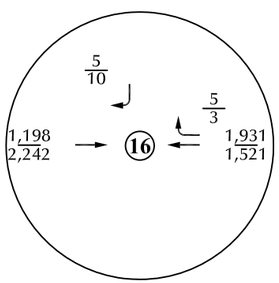












LEGEND:

$\frac{26}{35} = \frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$

Approximate Scale
Scale: 1"= 1,200'

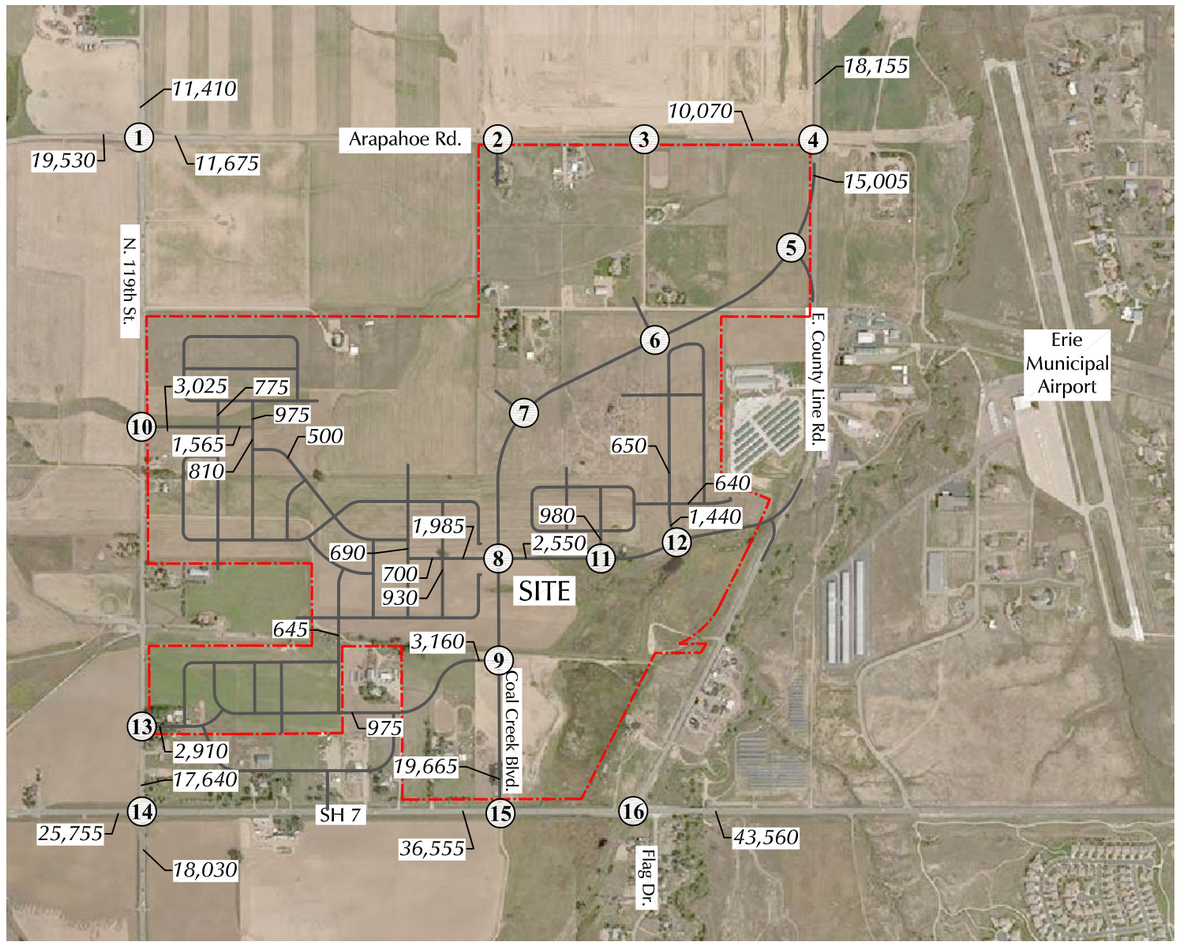
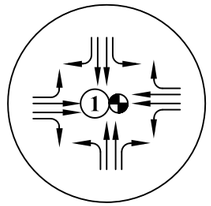


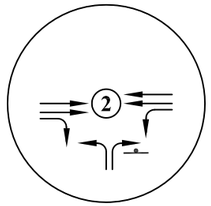
Figure 9a

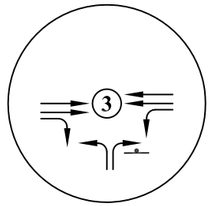
Year 2040 Total Traffic

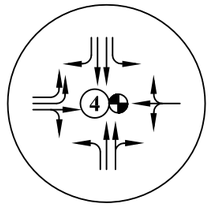
Parkdale Phases 1-4 (LSC #160131)

TRANSPORTATION CONSULTANTS, INC.

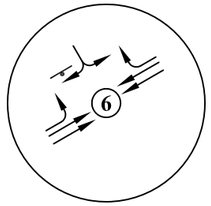


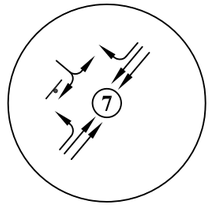


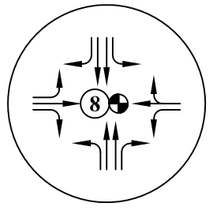


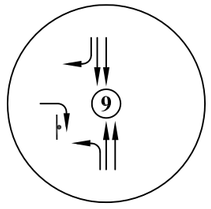


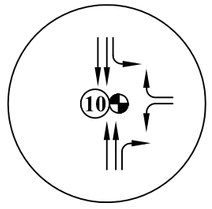
Intentially
5
Left Blank

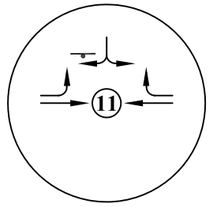


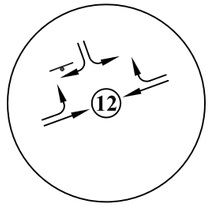


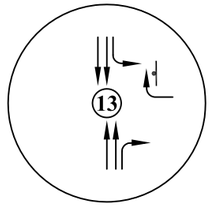


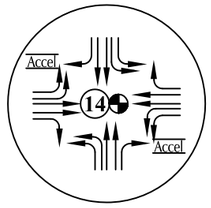


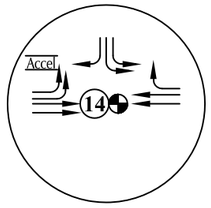


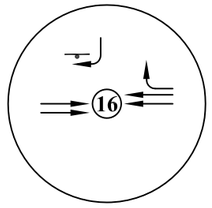












LEGEND:
= Stop Sign
= Traffic Signal

Approximate Scale
Scale: 1"= 1,200'

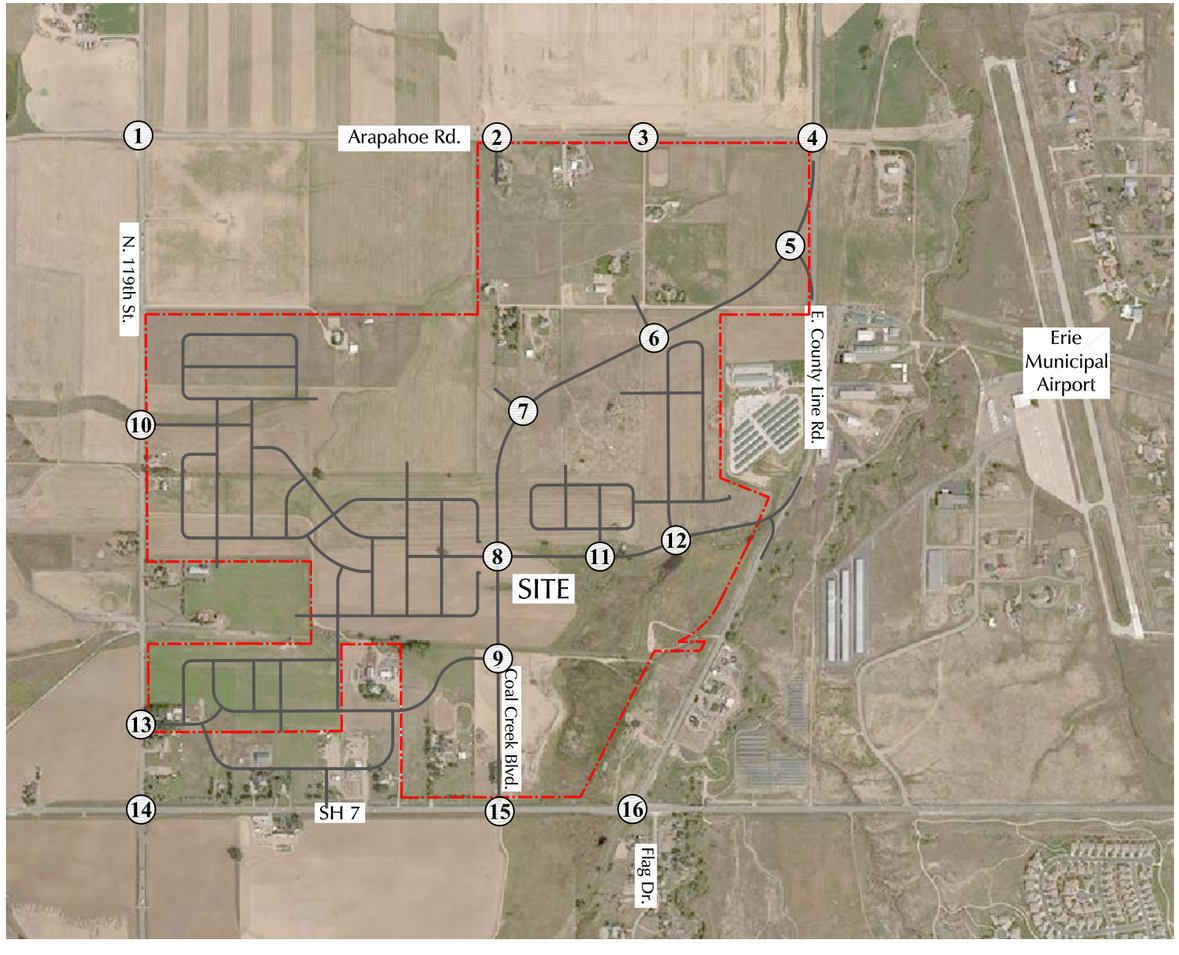


Figure 9b

Year 2040 Total
Lane Geometry and Traffic Control

Parkdale Phases 1-4 (LSC #160131)

LSC TRANSPORTATION CONSULTANTS, INC.

COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: 119TH ST
E/W STREET: ARAPAHOE RD
CITY: ERIE
COUNTY: BOULDER

File Name : 119TH ST ARAPAHOE RD
Site Code : 00000022
Start Date : 8/7/2019
Page No : 1

Groups Printed- VEHICLES

	119TH ST Southbound				ARAPAHOE RD Westbound				119TH ST Northbound				ARAPAHOE RD Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	1	24	18	0	9	54	1	0	52	14	0	0	3	12	8	2	198
06:45 AM	0	37	22	0	16	73	5	0	37	12	2	0	4	14	30	0	252
Total	1	61	40	0	25	127	6	0	89	26	2	0	7	26	38	2	450
07:00 AM	0	26	22	0	16	113	3	0	45	7	4	0	5	18	33	0	292
07:15 AM	1	50	27	0	14	111	3	0	41	14	2	0	6	26	22	0	317
07:30 AM	1	49	37	2	30	134	2	0	33	9	3	0	3	35	27	0	365
07:45 AM	0	56	31	0	32	108	3	0	41	15	2	0	9	31	24	1	353
Total	2	181	117	2	92	466	11	0	160	45	11	0	23	110	106	1	1327
08:00 AM	0	45	22	0	16	127	3	0	39	14	5	0	5	20	19	1	316
08:15 AM	3	41	21	0	19	101	3	1	27	13	6	0	3	28	28	0	294
Total	3	86	43	0	35	228	6	1	66	27	11	0	8	48	47	1	610
04:00 PM	3	28	15	0	6	37	1	0	19	44	8	0	14	82	54	0	311
04:15 PM	6	27	15	0	10	34	2	0	34	42	16	0	25	85	62	0	358
04:30 PM	9	32	24	0	10	47	3	0	27	44	19	1	22	92	61	0	391
04:45 PM	2	40	17	1	15	43	3	0	27	34	17	0	17	88	67	0	371
Total	20	127	71	1	41	161	9	0	107	164	60	1	78	347	244	0	1431
05:00 PM	2	30	22	0	6	43	3	0	27	52	19	0	39	98	46	1	388
05:15 PM	5	33	16	0	13	37	1	0	44	51	20	2	34	102	56	0	414
05:30 PM	1	22	16	0	7	41	1	0	32	62	21	0	37	99	51	0	390
05:45 PM	2	28	12	0	8	45	2	0	29	41	17	0	27	87	42	0	340
Total	10	113	66	0	34	166	7	0	132	206	77	2	137	386	195	1	1532
Grand Total	36	568	337	3	227	1148	39	1	554	468	161	3	253	917	630	5	5350
Apprch %	3.8	60.2	35.7	0.3	16.0	81.1	2.8	0.1	46.7	39.5	13.6	0.3	14.0	50.8	34.9	0.3	
Total %	0.7	10.6	6.3	0.1	4.2	21.5	0.7	0.0	10.4	8.7	3.0	0.1	4.7	17.1	11.8	0.1	

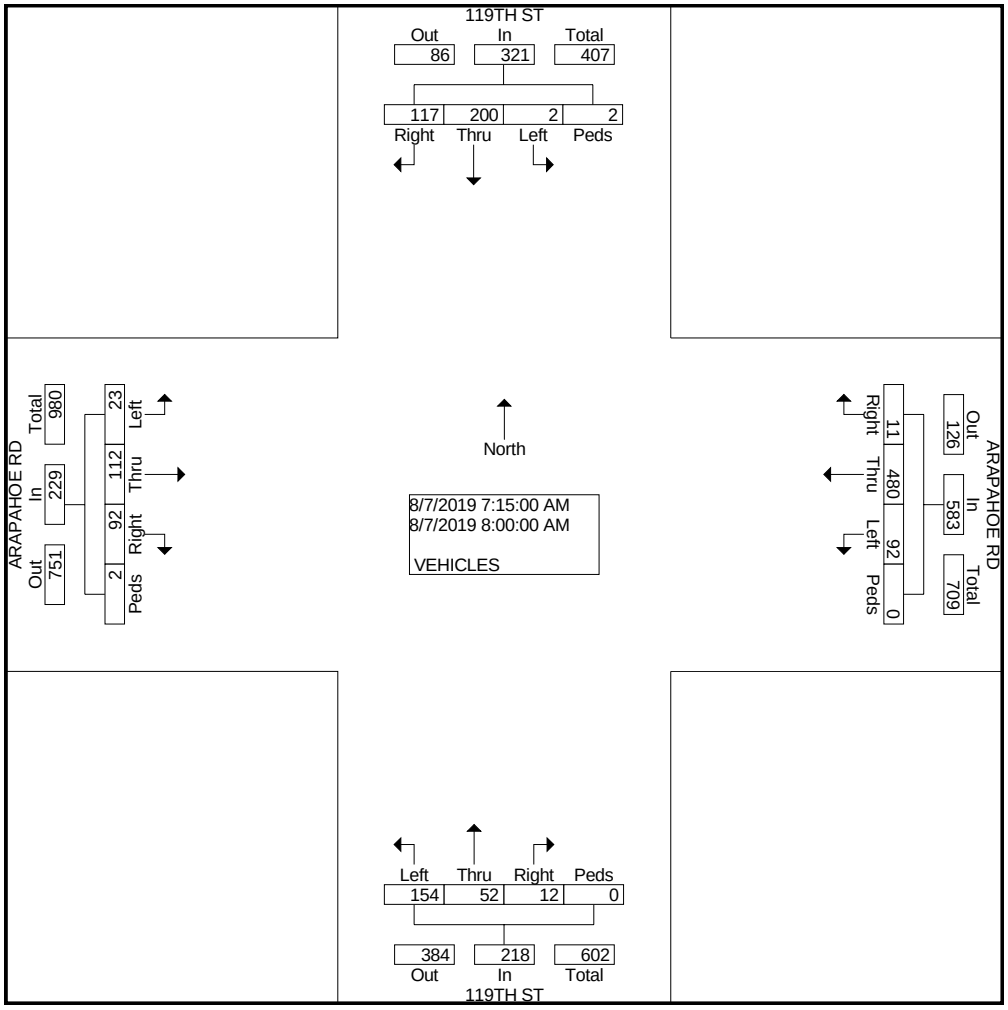
COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: 119TH ST
E/W STREET: ARAPAHOE RD
CITY: ERIE
COUNTY: BOULDER

File Name : 119TH ST ARAPAHOE RD
Site Code : 00000022
Start Date : 8/7/2019

	119TH ST Southbound					ARAPAHOE RD Westbound					119TH ST Northbound					ARAPAHOE RD Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 06:30 AM to 08:30 AM - Peak 1 of 1																					
Intersection	07:15 AM																				
Volume	2	200	117	2	321	92	480	11	0	583	154	52	12	0	218	23	112	92	2	229	1351
Percent	0.6	62.3	36.4	0.6		15.8	82.3	1.9	0.0		70.6	23.9	5.5	0.0		10.0	48.9	40.2	0.9		
07:30 Volume	1	49	37	2	89	30	134	2	0	166	33	9	3	0	45	3	35	27	0	65	365
Peak Factor																					0.925
High Int.	07:30 AM					07:30 AM					07:45 AM					07:30 AM					
Volume	1	49	37	2	89	30	134	2	0	166	41	15	2	0	58	3	35	27	0	65	
Peak Factor					0.902					0.878					0.940					0.881	



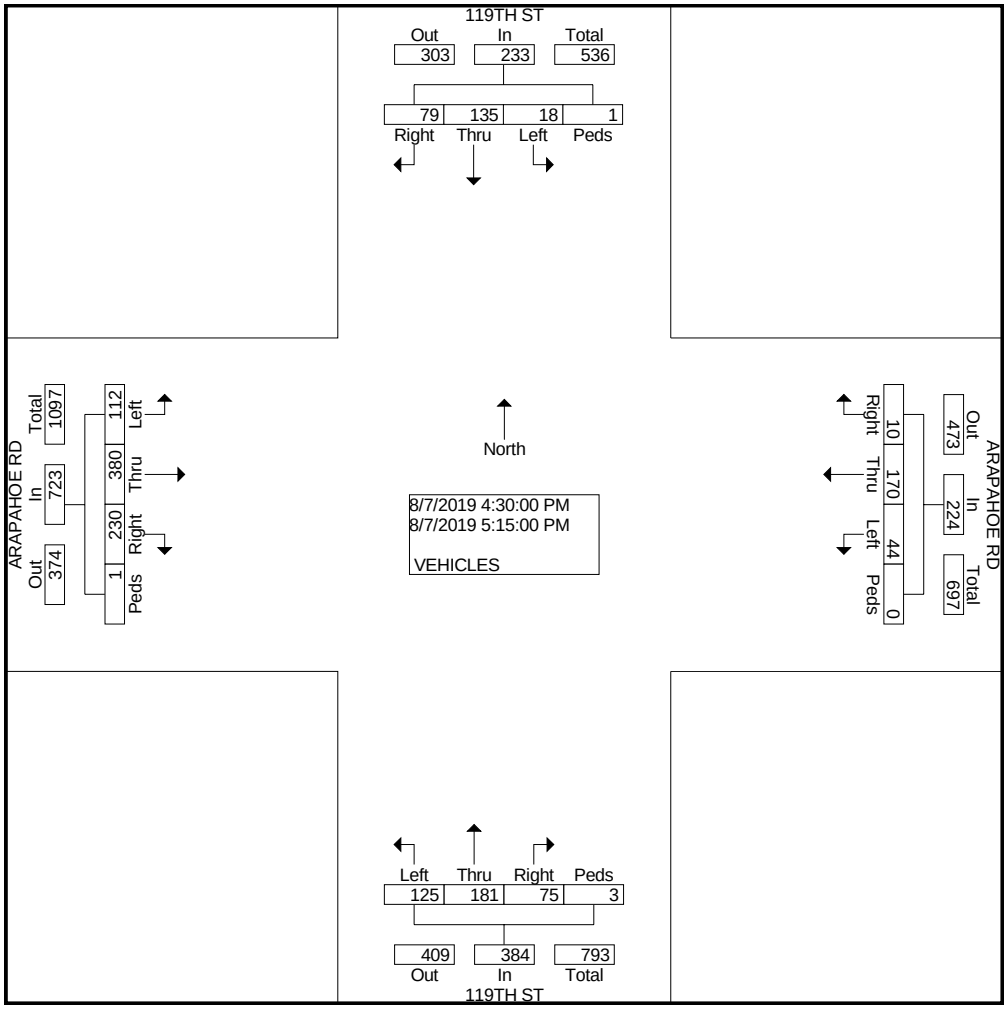
COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: 119TH ST
E/W STREET: ARAPAHOE RD
CITY: ERIE
COUNTY: BOULDER

File Name : 119TH ST ARAPAHOE RD
Site Code : 00000022
Start Date : 8/7/2019

	119TH ST Southbound					ARAPAHOE RD Westbound					119TH ST Northbound					ARAPAHOE RD Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	04:30 PM																				
Volume	18	135	79	1	233	44	170	10	0	224	125	181	75	3	384	112	380	230	1	723	1564
Percent	7.7	57.9	33.9	0.4		19.6	75.9	4.5	0.0		32.6	47.1	19.5	0.8		15.5	52.6	31.8	0.1		
05:15 Volume	5	33	16	0	54	13	37	1	0	51	44	51	20	2	117	34	102	56	0	192	414
Peak Factor																					0.944
High Int.	04:30 PM					04:45 PM					05:15 PM					05:15 PM					
Volume	9	32	24	0	65	15	43	3	0	61	44	51	20	2	117	34	102	56	0	192	
Peak Factor					0.896					0.918					0.821					0.941	



COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: COUNTY LINE RD
E/W STREET: ARAPAHOE RD
CITY: ERIE
COUNTY: BOULDER

File Name : COUNTARAP
Site Code : 00000020
Start Date : 8/7/2019
Page No : 1

Groups Printed- VEHICLES

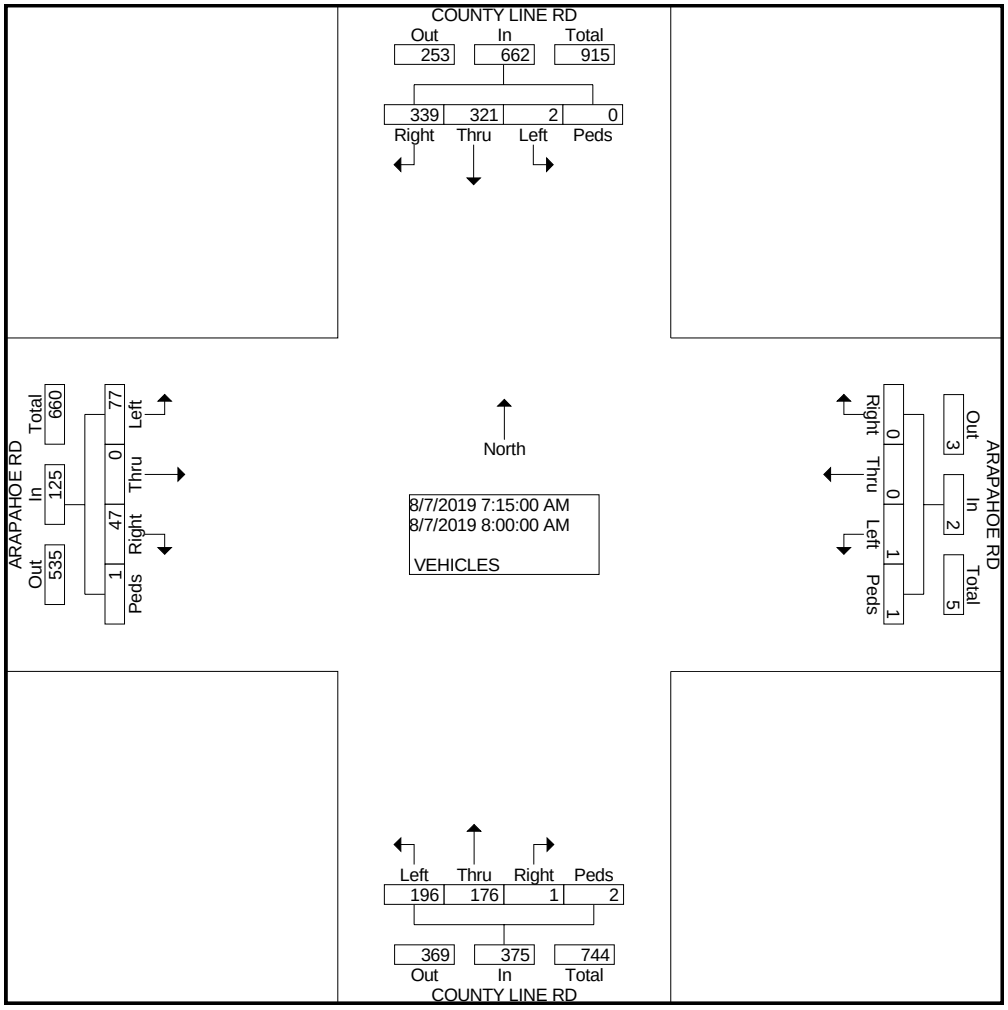
	COUNTY LINE RD Southbound				ARAPAHOE RD Westbound				COUNTY LINE RD Northbound				ARAPAHOE RD Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	57	40	0	0	0	0	0	29	33	0	0	6	2	9	0	176
06:45 AM	0	60	50	2	0	0	0	0	40	48	0	0	10	0	9	0	219
Total	0	117	90	2	0	0	0	0	69	81	0	0	16	2	18	0	395
07:00 AM	0	90	71	0	0	0	0	0	58	49	0	0	7	0	18	0	293
07:15 AM	1	84	76	0	0	0	0	0	50	48	0	0	13	0	13	0	285
07:30 AM	1	90	98	0	0	0	0	0	53	53	0	0	28	0	15	0	338
07:45 AM	0	84	79	0	1	0	0	1	43	40	1	2	20	0	9	1	281
Total	2	348	324	0	1	0	0	1	204	190	1	2	68	0	55	1	1197
08:00 AM	0	63	86	0	0	0	0	0	50	35	0	0	16	0	10	0	260
08:15 AM	0	60	63	0	0	0	1	0	47	48	1	0	22	0	9	0	251
Total	0	123	149	0	0	0	1	0	97	83	1	0	38	0	19	0	511
04:00 PM	0	91	32	0	0	0	0	0	14	78	0	0	58	3	27	0	303
04:15 PM	1	66	31	1	0	0	1	0	13	109	0	0	63	0	32	0	317
04:30 PM	0	57	40	0	0	0	1	0	21	88	0	0	69	0	33	0	309
04:45 PM	0	54	47	0	0	0	0	0	12	103	0	0	86	0	22	0	324
Total	1	268	150	1	0	0	2	0	60	378	0	0	276	3	114	0	1253
05:00 PM	0	70	33	0	0	0	0	0	18	101	0	0	88	0	31	0	341
05:15 PM	0	70	33	0	0	0	0	0	23	110	0	0	78	0	35	0	349
05:30 PM	0	57	33	0	0	0	0	0	19	115	0	0	90	0	31	0	345
05:45 PM	0	61	37	0	0	0	0	0	12	90	0	1	75	4	21	0	301
Total	0	258	136	0	0	0	0	0	72	416	0	1	331	4	118	0	1336
Grand Total	3	1114	849	3	1	0	3	1	502	1148	2	3	729	9	324	1	4692
Apprch %	0.2	56.6	43.1	0.2	20.0	0.0	60.0	20.0	30.3	69.4	0.1	0.2	68.6	0.8	30.5	0.1	
Total %	0.1	23.7	18.1	0.1	0.0	0.0	0.1	0.0	10.7	24.5	0.0	0.1	15.5	0.2	6.9	0.0	

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

N/S STREET: COUNTY LINE RD
E/W STREET: ARAPAHOE RD
CITY: ERIE
COUNTY: BOULDER

File Name : COUNTARAP
Site Code : 00000020
Start Date : 8/7/2019
Page No : 2

	COUNTY LINE RD Southbound					ARAPAHOE RD Westbound					COUNTY LINE RD Northbound					ARAPAHOE RD Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 07:15 AM to 08:00 AM - Peak 1 of 1																					
Intersection	07:15 AM																				
Volume	2	321	339	0	662	1	0	0	1	2	196	176	1	2	375	77	0	47	1	125	1164
Percent	0.3	48.5	51.2	0.0		50.0	0.0	0.0	50.0		52.3	46.9	0.3	0.5		61.6	0.0	37.6	0.8		
07:30 Volume	1	90	98	0	189	0	0	0	0	0	53	53	0	0	106	28	0	15	0	43	338
Peak Factor																					0.861
High Int.	07:30 AM					07:45 AM					07:30 AM					07:30 AM					
Volume	1	90	98	0	189	1	0	0	1	2	53	53	0	0	106	28	0	15	0	43	
Peak Factor					0.876					0.250					0.884					0.727	

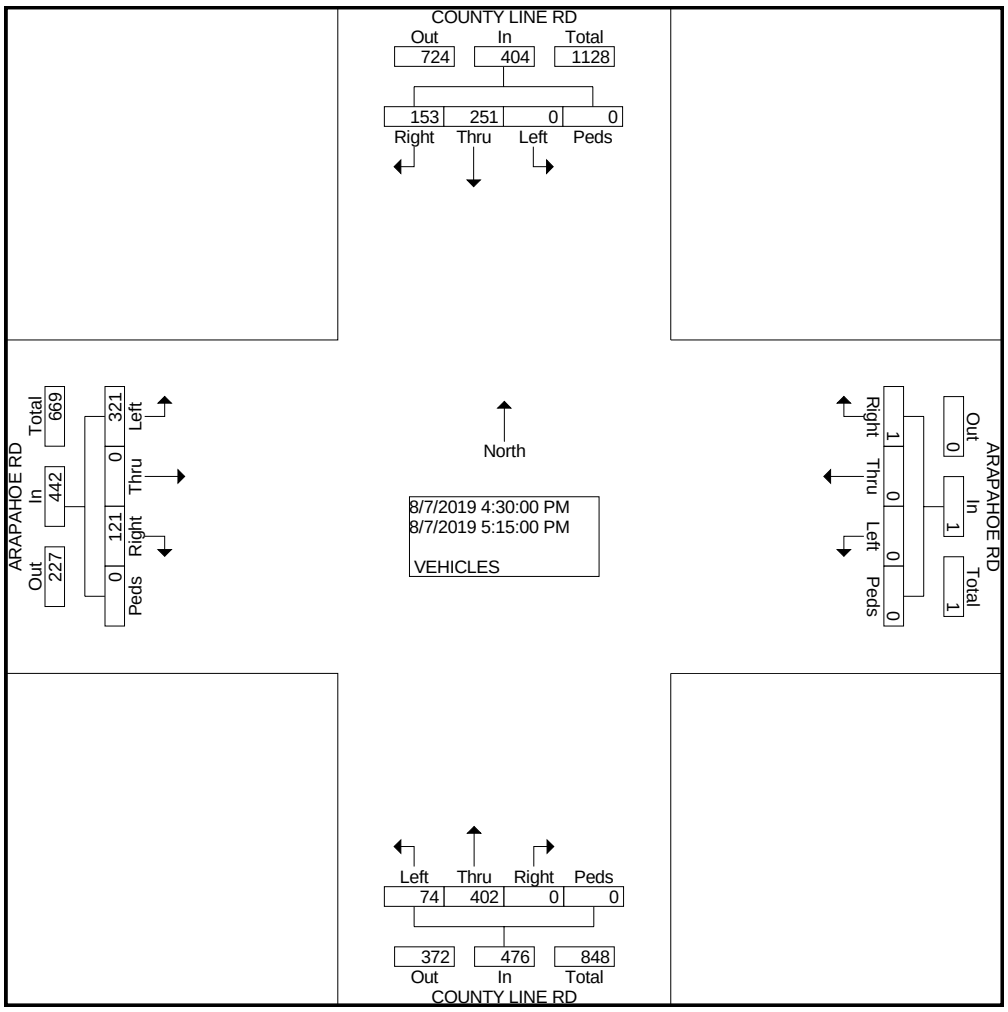


COUNTER MEASURES INC.
1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: COUNTY LINE RD
E/W STREET: ARAPAHOE RD
CITY: ERIE
COUNTY: BOULDER

File Name : COUNTARAP
Site Code : 00000020
Start Date : 8/7/2019
Page No : 2

	COUNTY LINE RD Southbound					ARAPAHOE RD Westbound					COUNTY LINE RD Northbound					ARAPAHOE RD Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Intersection	04:30 PM																				
Volume	0	251	153	0	404	0	0	1	0	1	74	402	0	0	476	321	0	121	0	442	1323
Percent	0.0	62.1	37.9	0.0		0.0	0.0	100.0	0.0		15.5	84.5	0.0	0.0		72.6	0.0	27.4	0.0		
05:15 Volume	0	70	33	0	103	0	0	0	0	0	23	110	0	0	133	78	0	35	0	113	349
Peak Factor																					0.948
High Int.	05:00 PM					04:30 PM					05:15 PM					05:00 PM					
Volume	0	70	33	0	103	0	0	1	0	1	23	110	0	0	133	88	0	31	0	119	
Peak Factor					0.981					0.250					0.895					0.929	



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

N/S STREET: COUNTY LINE RD
E/W STREET: SH-7 / BASELINE RD
CITY: LOUISVILLE
COUNTY: BOULDER

File Name : COUNSH7
Site Code : 00000011
Start Date : 9/18/2018
Page No : 1

Groups Printed- VEHICLES

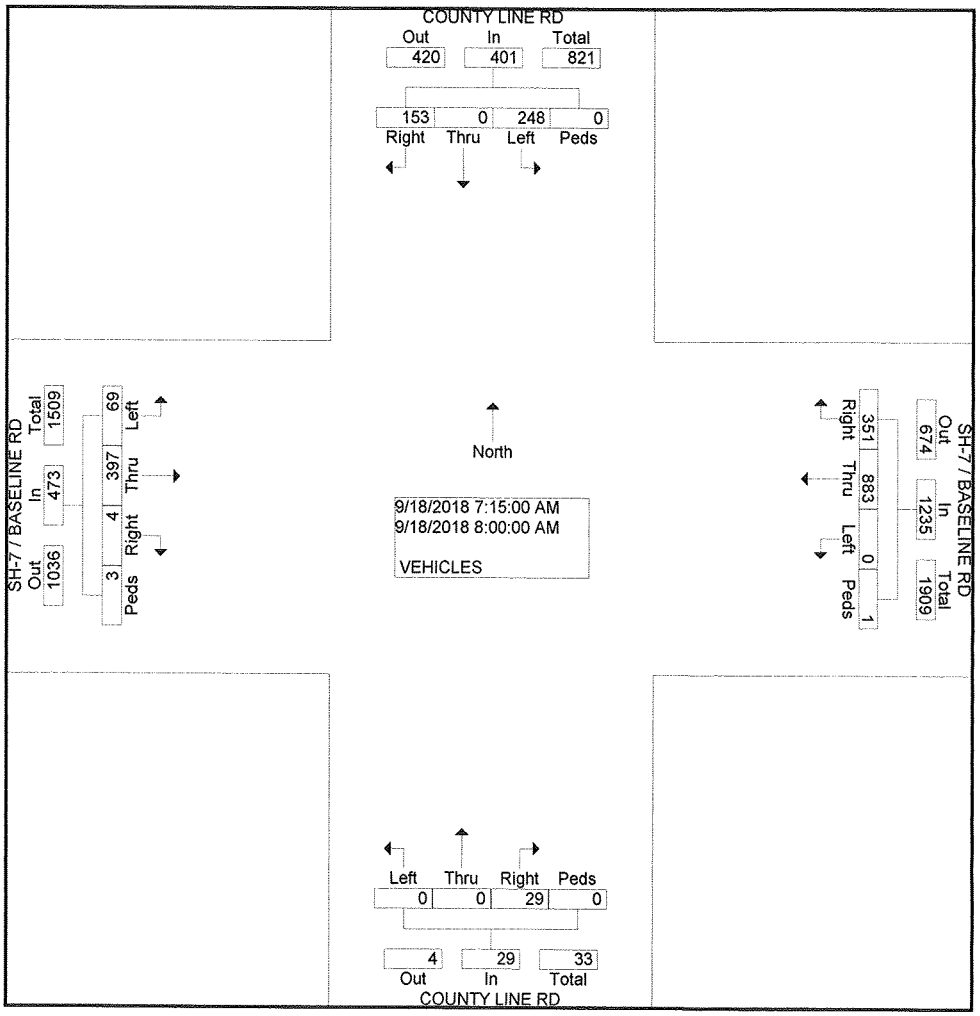
	COUNTY LINE RD Southbound				SH-7 / BASELINE RD Westbound				COUNTY LINE RD Northbound				SH-7 / BASELINE RD Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	32	0	31	0	0	215	57	0	0	0	3	0	13	81	1	0	433
06:45 AM	43	0	30	0	0	228	58	1	0	0	4	0	19	89	0	0	472
Total	75	0	61	0	0	443	115	1	0	0	7	0	32	170	1	0	905
07:00 AM	40	0	26	0	0	221	103	0	0	0	2	0	10	89	0	0	491
07:15 AM	52	0	39	0	0	272	98	1	0	0	2	0	11	75	2	1	553
07:30 AM	73	0	51	0	0	218	84	0	0	0	13	0	13	86	2	0	540
07:45 AM	70	0	36	0	0	196	72	0	0	0	7	0	20	125	0	0	526
Total	235	0	152	0	0	907	357	1	0	0	24	0	54	375	4	1	2110
08:00 AM	53	0	27	0	0	197	97	0	0	0	7	0	25	111	0	2	519
08:15 AM	47	0	30	1	0	152	86	1	0	0	2	0	21	103	0	1	444
Total	100	0	57	1	0	349	183	1	0	0	9	0	46	214	0	3	963
04:00 PM	68	0	17	0	0	122	52	0	0	0	3	0	43	225	0	1	531
04:15 PM	66	0	23	0	0	239	56	0	0	0	1	0	49	228	1	0	663
04:30 PM	77	0	5	0	0	181	55	0	0	0	11	0	42	274	1	0	646
04:45 PM	82	0	23	0	0	130	72	0	0	0	3	0	37	270	0	0	617
Total	293	0	68	0	0	672	235	0	0	0	18	0	171	997	2	1	2457
05:00 PM	85	0	22	0	0	113	73	0	0	0	3	0	47	230	0	1	574
05:15 PM	83	0	20	0	0	175	79	0	0	0	2	0	37	266	0	0	662
05:30 PM	62	0	15	0	0	153	66	0	0	0	12	0	47	248	0	0	603
05:45 PM	71	0	21	0	0	133	57	0	0	0	4	0	54	235	0	0	575
Total	301	0	78	0	0	574	275	0	0	0	21	0	185	979	0	1	2414
Grand Total	1004	0	416	1	0	2945	1165	3	0	0	79	0	488	2735	7	6	8849
Apprch %	70.7	0.0	29.3	0.1	0.0	71.6	28.3	0.1	0.0	0.0	100.0	0.0	15.1	84.5	0.2	0.2	
Total %	11.3	0.0	4.7	0.0	0.0	33.3	13.2	0.0	0.0	0.0	0.9	0.0	5.5	30.9	0.1	0.1	

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

N/S STREET: COUNTY LINE RD
E/W STREET: SH-7 / BASELINE RD
CITY: LOUISVILLE
COUNTY: BOULDER

File Name : COUNSH7
Site Code : 00000011
Start Date : 9/18/2018
Page No : 2

	COUNTY LINE RD Southbound					SH-7 / BASELINE RD Westbound					COUNTY LINE RD Northbound					SH-7 / BASELINE RD Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 07:15 AM to 08:00 AM - Peak 1 of 1																					
Intersection	07:15 AM																				
Volume	248	0	153	0	401	0	883	351	1	1235	0	0	29	0	29	69	397	4	3	473	2138
Percent	61.8	0.0	38.2	0.0		0.0	71.5	28.4	0.1		0.0	0.0	100.0	0.0		14.6	83.9	0.8	0.6		
07:15 Volume	52	0	39	0	91	0	272	98	1	371	0	0	2	0	2	11	75	2	1	89	553
Peak Factor																					0.967
High Int.	07:30 AM					07:15 AM					07:30 AM					07:45 AM					
Volume	73	0	51	0	124	0	272	98	1	371	0	0	13	0	13	20	125	0	0	145	
Peak Factor					0.808					0.832					0.558					0.816	

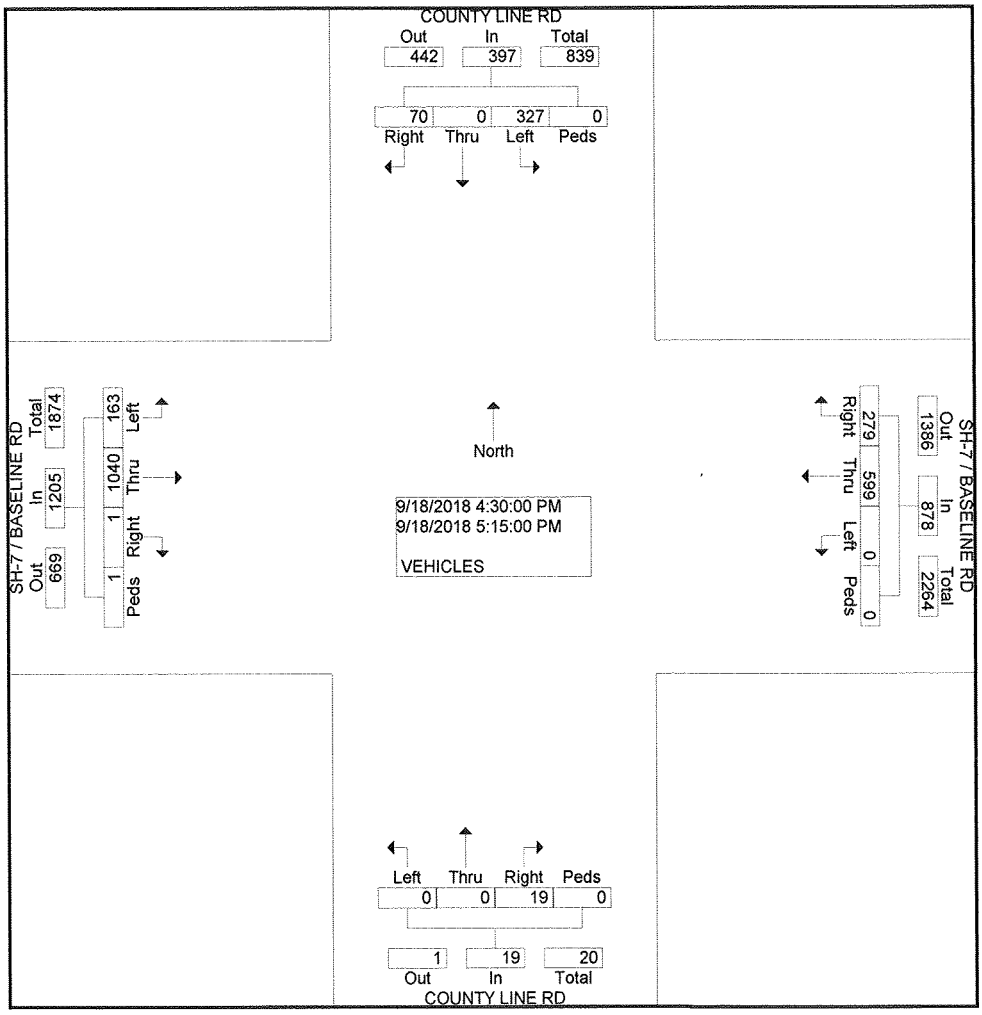


COUNTER MEASURES INC.
1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: COUNTY LINE RD
E/W STREET: SH-7 / BASELINE RD
CITY: LOUISVILLE
COUNTY: BOULDER

File Name : COUNSH7
Site Code : 00000011
Start Date : 9/18/2018
Page No : 2

	COUNTY LINE RD Southbound					SH-7 / BASELINE RD Westbound					COUNTY LINE RD Northbound					SH-7 / BASELINE RD Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Intersection	04:30 PM																				
Volume	327	0	70	0	397	0	599	279	0	878	0	0	19	0	19	163	1040	1	1	1205	2499
Percent	82.4	0.0	17.6	0.0		0.0	68.2	31.8	0.0		0.0	0.0	100.0	0.0		13.5	86.3	0.1	0.1		
05:15 Volume	83	0	20	0	103	0	175	79	0	254	0	0	2	0	2	37	266	0	0	303	662
Peak Factor																					0.944
High Int.	05:00 PM					05:15 PM					04:30 PM					04:30 PM					
Volume	85	0	22	0	107	0	175	79	0	254	0	0	11	0	11	42	274	1	0	317	
Peak Factor					0.928					0.864					0.432					0.950	



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

N/S STREET: 119THST
E/W STREET: SH-7 / BASELINE RD
CITY: LOUISVILLE
COUNTY: BOULDER

File Name : 119TSH7
Site Code : 00000017
Start Date : 9/18/2018
Page No : 1

Groups Printed- VEHICLES

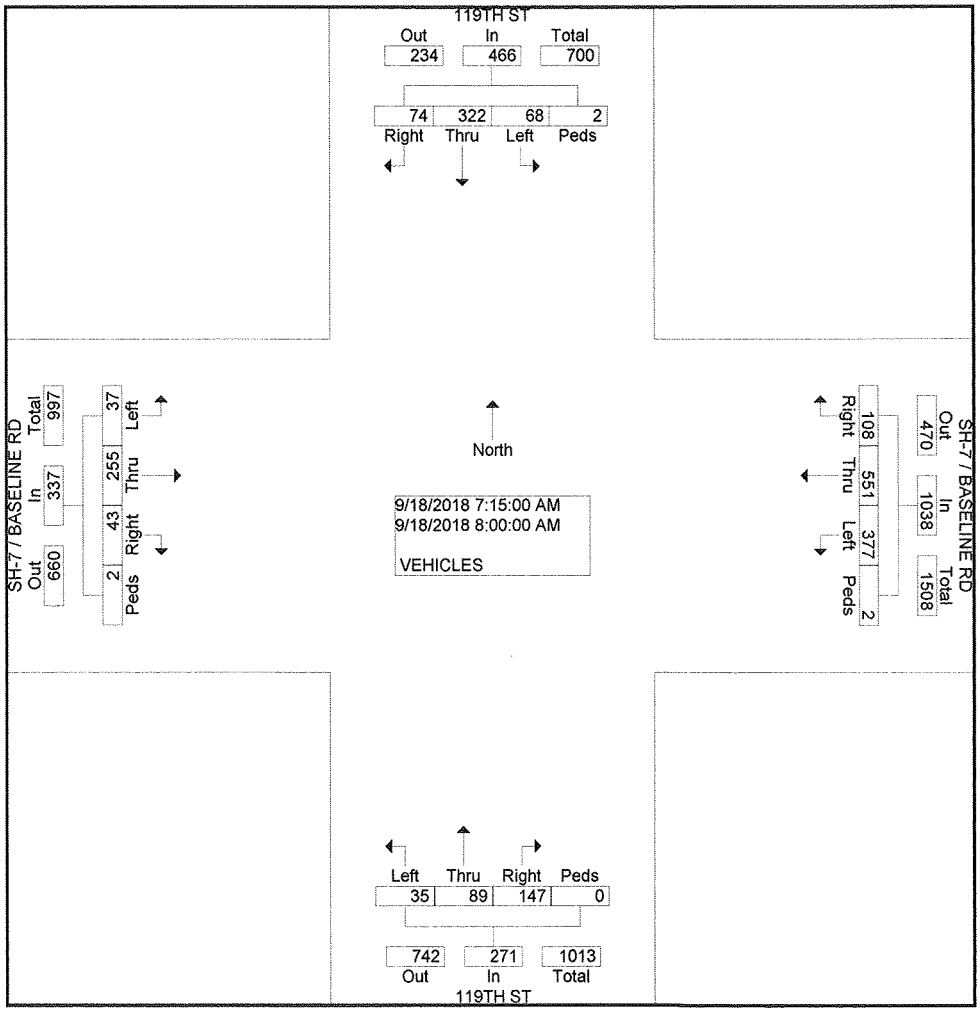
	119TH ST Southbound				SH-7 / BASELINE RD Westbound				119TH ST Northbound				SH-7 / BASELINE RD Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	15	21	3	0	65	134	47	0	5	8	21	0	2	59	3	0	383
06:45 AM	21	42	5	0	72	148	38	2	4	14	36	1	3	51	3	0	440
Total	36	63	8	0	137	282	85	2	9	22	57	1	5	110	6	0	823
07:00 AM	19	47	6	0	67	140	40	0	8	13	27	0	4	53	5	1	430
07:15 AM	14	79	15	0	107	171	33	1	5	13	29	0	3	45	7	0	522
07:30 AM	12	103	19	2	112	138	19	0	8	15	25	0	10	64	9	0	536
07:45 AM	20	91	23	0	78	127	27	1	15	31	49	0	17	76	11	1	567
Total	65	320	63	2	364	576	119	2	36	72	130	0	34	238	32	2	2055
08:00 AM	22	49	17	0	80	115	29	0	7	30	44	0	7	70	16	1	487
08:15 AM	20	59	6	0	89	55	38	0	2	18	41	0	7	63	2	1	401
Total	42	108	23	0	169	170	67	0	9	48	85	0	14	133	18	2	888
04:00 PM	51	34	13	0	44	82	13	0	9	45	84	0	13	133	10	1	532
04:15 PM	60	32	5	0	50	188	24	0	5	42	93	2	15	125	14	0	655
04:30 PM	54	23	13	0	34	130	22	0	7	51	102	0	17	161	8	0	622
04:45 PM	64	37	15	0	44	79	30	0	5	50	85	0	22	158	10	0	599
Total	229	126	46	0	172	479	89	0	26	188	364	2	67	577	42	1	2408
05:00 PM	62	29	15	0	54	67	14	0	7	52	82	0	23	133	3	1	542
05:15 PM	69	38	10	0	41	134	20	0	7	59	85	1	16	149	13	0	642
05:30 PM	58	34	7	0	44	100	24	0	5	58	85	0	22	152	9	0	598
05:45 PM	53	28	12	0	59	79	16	0	6	47	93	0	31	143	8	1	576
Total	242	129	44	0	198	380	74	0	25	216	345	1	92	577	33	2	2358
Grand Total	614	746	184	2	1040	1887	434	4	105	546	981	4	212	1635	131	7	8532
Apprch %	39.7	48.3	11.9	0.1	30.9	56.1	12.9	0.1	6.4	33.4	60.0	0.2	10.7	82.4	6.6	0.4	
Total %	7.2	8.7	2.2	0.0	12.2	22.1	5.1	0.0	1.2	6.4	11.5	0.0	2.5	19.2	1.5	0.1	

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

N/S STREET: 119THST
E/W STREET: SH-7 / BASELINE RD
CITY: LOUISVILLE
COUNTY: BOULDER

File Name : 119TSH7
Site Code : 00000017
Start Date : 9/18/2018
Page No : 2

	119TH ST Southbound					SH-7 / BASELINE RD Westbound					119TH ST Northbound					SH-7 / BASELINE RD Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 07:15 AM to 08:00 AM - Peak 1 of 1																					
Intersection	07:15 AM																				
Volume	68	322	74	2	466	377	551	108	2	1038	35	89	147	0	271	37	255	43	2	337	2112
Percent	14.6	69.1	15.9	0.4		36.3	53.1	10.4	0.2		12.9	32.8	54.2	0.0		11.0	75.7	12.8	0.6		
07:45 Volume	20	91	23	0	134	78	127	27	1	233	15	31	49	0	95	17	76	11	1	105	567
Peak Factor																					0.931
High Int.	07:30 AM					07:15 AM					07:45 AM					07:45 AM					
Volume	12	103	19	2	136	107	171	33	1	312	15	31	49	0	95	17	76	11	1	105	
Peak Factor					0.857					0.832					0.713					0.802	

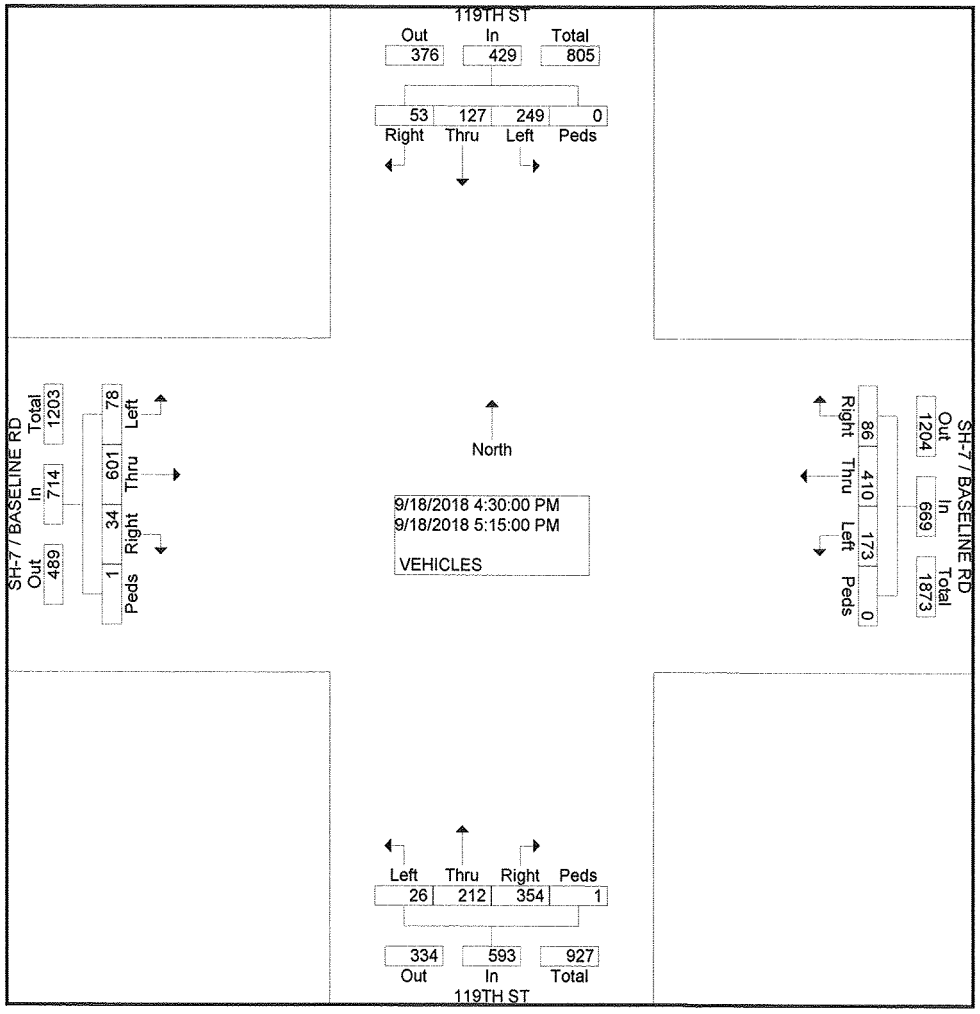


COUNTER MEASURES INC.
1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: 119THST
E/W STREET: SH-7 / BASELINE RD
CITY: LOUISVILLE
COUNTY: BOULDER

File Name : 119TSH7
Site Code : 00000017
Start Date : 9/18/2018

	119TH ST Southbound					SH-7 / BASELINE RD Westbound					119TH ST Northbound					SH-7 / BASELINE RD Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Intersection	04:30 PM																				
Volume	249	127	53	0	429	173	410	86	0	669	26	212	354	1	593	78	601	34	1	714	2405
Percent	58.0	29.6	12.4	0.0		25.9	61.3	12.9	0.0		4.4	35.8	59.7	0.2		10.9	84.2	4.8	0.1		
05:15 Volume	69	38	10	0	117	41	134	20	0	195	7	59	85	1	152	16	149	13	0	178	642
Peak Factor																					0.937
High Int.	05:15 PM					05:15 PM					04:30 PM					04:45 PM					
Volume	69	38	10	0	117	41	134	20	0	195	7	51	102	0	160	22	158	10	0	190	
Peak Factor					0.917					0.858					0.927					0.939	



Agency Name:Counter Measures Inc

Site ID:020968000000
Station Name:
Description:COUNTY LINE RD N/O ARAPAHOE RD
City:ERIE
County:WELD

2/10/2016	Lane 1 (North)	Lane 2 (South)	All Lanes
00:00	16	9	25
01:00	10	5	15
02:00	6	2	8
03:00	5	13	18
04:00	18	35	53
05:00	31	88	119
06:00	106	314	420
07:00	206	709	915
08:00	275	476	751
09:00	193	360	553
10:00	228	318	546
11:00	261	342	603
12:00	338	310	648
13:00	322	310	632
14:00	352	306	658
15:00	513	448	961
16:00	501	392	893
17:00	623	397	1020
18:00	475	252	727
19:00	282	186	468
20:00	205	107	312
21:00	130	80	210
22:00	64	36	100
23:00	28	11	39
AM Peak Hour	08:00 - 08:59	07:00 - 07:59	07:00 - 07:59
AM Peak Value	275	709	915
PM Peak Hour	17:00 - 17:59	15:00 - 15:59	17:00 - 17:59
PM Peak Value	623	448	1020
Total	5188	5506	10694
Percentages	48.51%	51.49%	100.00%

Agency Name:Counter Measures Inc

Site ID:020953000000
Station Name:
Description:ARAPAHOE RD W/O COUNTY LINE RD
City:ERIE
County:WELD

2/10/2016	Lane 1 (East)	Lane 2 (West)	All Lanes
00:00	10	3	13
01:00	5	1	6
02:00	1	2	3
03:00	0	4	4
04:00	2	5	7
05:00	8	40	48
06:00	27	181	208
07:00	75	516	591
08:00	97	401	498
09:00	111	201	312
10:00	100	163	263
11:00	152	178	330
12:00	172	146	318
13:00	168	136	304
14:00	183	151	334
15:00	205	182	387
16:00	298	183	481
17:00	339	166	505
18:00	256	95	351
19:00	121	63	184
20:00	108	44	152
21:00	64	32	96
22:00	30	9	39
23:00	8	3	11
AM Peak Hour	11:00 - 11:59	07:00 - 07:59	07:00 - 07:59
AM Peak Value	152	516	591
PM Peak Hour	17:00 - 17:59	16:00 - 16:59	17:00 - 17:59
PM Peak Value	339	183	505
Total	2540	2905	5445
Percentages	46.65%	53.35%	100.00%

Agency Name:Counter Measures Inc

Site ID:020971000000
Station Name:
Description:ARAPAHOE RD W/O 119TH ST
City:ERIE
County:WELD

2/10/2016	Lane 1 (East)	Lane 2 (West)	All Lanes
00:00	24	8	32
01:00	10	5	15
02:00	6	8	14
03:00	1	11	12
04:00	10	32	42
05:00	20	156	176
06:00	83	404	487
07:00	186	779	965
08:00	207	640	847
09:00	213	367	580
10:00	223	259	482
11:00	358	316	674
12:00	359	224	583
13:00	347	225	572
14:00	440	229	669
15:00	620	318	938
16:00	718	295	1013
17:00	846	267	1113
18:00	610	208	818
19:00	318	121	439
20:00	209	95	304
21:00	146	60	206
22:00	68	36	104
23:00	35	13	48
AM Peak Hour	11:00 - 11:59	07:00 - 07:59	07:00 - 07:59
AM Peak Value	358	779	965
PM Peak Hour	17:00 - 17:59	15:00 - 15:59	17:00 - 17:59
PM Peak Value	846	318	1113
Total	6057	5076	11133
Percentages	54.41%	45.59%	100.00%

Agency Name:Counter Measures Inc

Site ID:020952000000
Station Name:
Description:119TH ST N/O ARAPAHOE RD
City:ERIE
County:WELD

2/10/2016	Lane 1 (North)	Lane 2 (South)	All Lanes
00:00	9	5	14
01:00	5	3	8
02:00	2	2	4
03:00	2	3	5
04:00	0	21	21
05:00	5	57	62
06:00	38	156	194
07:00	119	474	593
08:00	125	276	401
09:00	83	180	263
10:00	135	144	279
11:00	133	233	366
12:00	135	137	272
13:00	151	130	281
14:00	175	160	335
15:00	286	200	486
16:00	277	226	503
17:00	399	210	609
18:00	237	128	365
19:00	149	73	222
20:00	123	33	156
21:00	74	27	101
22:00	28	18	46
23:00	13	5	18
AM Peak Hour	10:00 - 10:59	07:00 - 07:59	07:00 - 07:59
AM Peak Value	135	474	593
PM Peak Hour	17:00 - 17:59	16:00 - 16:59	17:00 - 17:59
PM Peak Value	399	226	609
Total	2703	2901	5604
Percentages	48.23%	51.77%	100.00%

Agency Name:Counter Measures Inc

Site ID:020964000000
Station Name:
Description:119TH ST S/O SH-7
City:ERIE
County:WELD

2/10/2016	Lane 1 (North)	Lane 2 (South)	All Lanes
00:00	13	4	17
01:00	4	5	9
02:00	17	5	22
03:00	5	7	12
04:00	18	39	57
05:00	43	117	160
06:00	121	412	533
07:00	277	710	987
08:00	180	490	670
09:00	185	280	465
10:00	190	241	431
11:00	247	264	511
12:00	251	257	508
13:00	259	276	535
14:00	328	289	617
15:00	546	346	892
16:00	526	290	816
17:00	598	296	894
18:00	318	183	501
19:00	187	142	329
20:00	158	69	227
21:00	100	72	172
22:00	35	38	73
23:00	18	17	35
AM Peak Hour	07:00 - 07:59	07:00 - 07:59	07:00 - 07:59
AM Peak Value	277	710	987
PM Peak Hour	17:00 - 17:59	15:00 - 15:59	17:00 - 17:59
PM Peak Value	598	346	894
Total	4624	4849	9473
Percentages	48.81%	51.19%	100.00%

Agency Name:Counter Measures Inc

Site ID:020957000000
Station Name:
Description:119TH ST N/O SH-7
City:ERIE
County:WELD

2/10/2016	Lane 1 (North)	Lane 2 (South)	All Lanes
00:00	5	10	15
01:00	4	6	10
02:00	5	4	9
03:00	8	2	10
04:00	20	19	39
05:00	104	43	147
06:00	199	140	339
07:00	298	464	762
08:00	218	278	496
09:00	158	190	348
10:00	158	150	308
11:00	147	166	313
12:00	160	157	317
13:00	181	175	356
14:00	200	233	433
15:00	297	346	643
16:00	261	341	602
17:00	304	371	675
18:00	193	179	372
19:00	102	100	202
20:00	99	56	155
21:00	53	57	110
22:00	26	32	58
23:00	14	23	37
AM Peak Hour	07:00 - 07:59	07:00 - 07:59	07:00 - 07:59
AM Peak Value	298	464	762
PM Peak Hour	17:00 - 17:59	17:00 - 17:59	17:00 - 17:59
PM Peak Value	304	371	675
Total	3214	3542	6756
Percentages	47.57%	52.43%	100.00%

Agency Name:Counter Measures Inc

Site ID:020961000000
Station Name:
Description:COUNTY LINE RD N/O SH-7
City:ERIE
County:WELD

2/10/2016	Lane 1 (North)	Lane 2 (South)	All Lanes
00:00	7	8	15
01:00	7	4	11
02:00	5	1	6
03:00	6	11	17
04:00	24	25	49
05:00	36	59	95
06:00	174	201	375
07:00	460	401	861
08:00	386	271	657
09:00	169	253	422
10:00	193	208	401
11:00	199	264	463
12:00	239	237	476
13:00	217	242	459
14:00	265	225	490
15:00	399	359	758
16:00	344	378	722
17:00	436	392	828
18:00	308	237	545
19:00	199	166	365
20:00	132	90	222
21:00	86	68	154
22:00	43	33	76
23:00	21	11	32
AM Peak Hour	07:00 - 07:59	07:00 - 07:59	07:00 - 07:59
AM Peak Value	460	401	861
PM Peak Hour	17:00 - 17:59	17:00 - 17:59	17:00 - 17:59
PM Peak Value	436	392	828
Total	4355	4144	8499
Percentages	51.24%	48.76%	100.00%

Agency Name:Counter Measures Inc

Site ID:020973000000
Station Name:
Description:SH-7 W/O COUNTY LINE RD
City:ERIE
County:WELD

2/10/2016	Lane 1 (West)	Lane 2 (East)	All Lanes
00:00	20	39	59
01:00	16	27	43
02:00	21	28	49
03:00	27	14	41
04:00	82	43	125
05:00	312	111	423
06:00	853	236	1089
07:00	1104	466	1570
08:00	973	454	1427
09:00	675	455	1130
10:00	618	473	1091
11:00	649	584	1233
12:00	570	589	1159
13:00	620	614	1234
14:00	581	728	1309
15:00	694	1029	1723
16:00	630	1104	1734
17:00	574	1163	1737
18:00	479	827	1306
19:00	385	457	842
20:00	221	359	580
21:00	173	272	445
22:00	91	125	216
23:00	60	61	121
AM Peak Hour	07:00 - 07:59	11:00 - 11:59	07:00 - 07:59
AM Peak Value	1104	584	1570
PM Peak Hour	15:00 - 15:59	17:00 - 17:59	17:00 - 17:59
PM Peak Value	694	1163	1737
Total	10428	10258	20686
Percentages	50.41%	49.59%	100.00%

Agency Name:Counter Measures Inc

Site ID:020972000000
Station Name:
Description:SH-7 W/O 119TH ST
City:ERIE
County:WELD

2/10/2016	Lane 1 (West)	Lane 2 (East)	All Lanes
00:00	16	22	38
01:00	10	19	29
02:00	15	14	29
03:00	15	7	22
04:00	33	24	57
05:00	127	69	196
06:00	383	152	535
07:00	680	338	1018
08:00	629	323	952
09:00	469	317	786
10:00	438	360	798
11:00	501	447	948
12:00	430	453	883
13:00	419	442	861
14:00	417	493	910
15:00	482	632	1114
16:00	509	679	1188
17:00	434	670	1104
18:00	319	546	865
19:00	274	285	559
20:00	146	237	383
21:00	111	170	281
22:00	58	87	145
23:00	37	25	62
AM Peak Hour	07:00 - 07:59	11:00 - 11:59	07:00 - 07:59
AM Peak Value	680	447	1018
PM Peak Hour	16:00 - 16:59	16:00 - 16:59	16:00 - 16:59
PM Peak Value	509	679	1188
Total	6952	6811	13763
Percentages	50.51%	49.49%	100.00%

Agency Name:Counter Measures Inc

Site ID:020958000000
Station Name:
Description:SH-7 E/O COUNTY LINE RD
City:ERIE
County:WELD

2/10/2016	Lane 1 (West)	Lane 2 (East)	All Lanes
00:00	22	43	65
01:00	18	25	43
02:00	26	26	52
03:00	29	18	47
04:00	88	57	145
05:00	329	139	468
06:00	929	325	1254
07:00	1467	783	2250
08:00	1168	597	1765
09:00	724	610	1334
10:00	691	588	1279
11:00	699	720	1419
12:00	676	707	1383
13:00	691	728	1419
14:00	710	812	1522
15:00	817	1212	2029
16:00	754	1332	2086
17:00	732	1381	2113
18:00	549	931	1480
19:00	420	498	918
20:00	276	396	672
21:00	193	297	490
22:00	114	140	254
23:00	73	58	131
AM Peak Hour	07:00 - 07:59	07:00 - 07:59	07:00 - 07:59
AM Peak Value	1467	783	2250
PM Peak Hour	15:00 - 15:59	17:00 - 17:59	17:00 - 17:59
PM Peak Value	817	1381	2113
Total	12195	12423	24618
Percentages	49.54%	50.46%	100.00%

LEVEL OF SERVICE DEFINITIONS

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

SIGNALIZED INTERSECTION LEVEL OF SERVICE (LOS)

LOS	Average Vehicle Delay sec/vehicle	Operational Characteristics
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, 2016, 6th Edition

UNSIGNALIZED INTERSECTION LEVEL OF SERVICE (LOS)

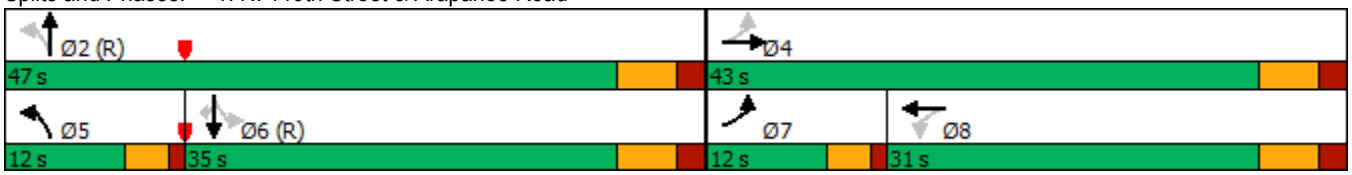
Applicable to Two-Way Stop Control, All-Way Stop Control, and Roundabouts

LOS	Average Vehicle Control Delay	Operational Characteristics
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. The delay could be up to 15 seconds. 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. 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.
D	25 to 35 seconds	This is the point at which a traffic signal may be warranted for this intersection. 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. There is a high probability that this intersection will meet traffic signal warrants. 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. The only remedy for these long delays is installing a traffic signal or restricting the accesses. 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.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	25	115	90	480	155	55	2	200	115
Future Volume (vph)	25	115	90	480	155	55	2	200	115
Turn Type	pm+pt	NA	Perm	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases	7	4		8	5	2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	7	4	8	8	5	2	6	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	24.0	24.0	24.0	9.5	24.0	24.0	24.0	24.0
Total Split (s)	12.0	43.0	31.0	31.0	12.0	47.0	35.0	35.0	35.0
Total Split (%)	13.3%	47.8%	34.4%	34.4%	13.3%	52.2%	38.9%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	1.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead		Lag	Lag	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	36.8	34.8	30.1	30.1	45.2	43.2	30.9	30.9	30.9
Actuated g/C Ratio	0.41	0.39	0.33	0.33	0.50	0.48	0.34	0.34	0.34
v/c Ratio	0.12	0.31	0.25	0.85	0.31	0.08	0.00	0.34	0.20
Control Delay	16.3	15.4	25.5	44.2	14.5	12.0	21.0	24.5	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.3	15.4	25.5	44.2	14.5	12.0	21.0	24.5	4.5
LOS	B	B	C	D	B	B	C	C	A
Approach Delay		15.5		41.3		13.8		17.2	
Approach LOS		B		D		B		B	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 26.7	Intersection LOS: C
Intersection Capacity Utilization 65.8%	ICU Level of Service C
Analysis Period (min) 15	

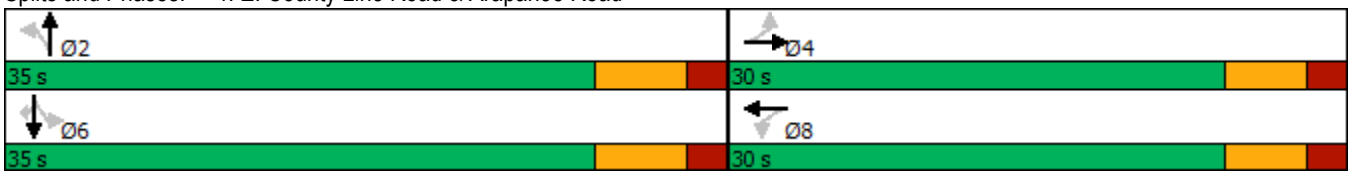
Splits and Phases: 1: N. 119th Street & Arapahoe Road



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	75	1	1	1	195	175	2	320	340
Future Volume (vph)	75	1	1	1	195	175	2	320	340
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4		8		2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	4	4	8	8	2	2	6	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.5	24.5	24.5	24.5	24.5
Total Split (s)	30.0	30.0	30.0	30.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	46.2%	46.2%	46.2%	46.2%	53.8%	53.8%	53.8%	53.8%	53.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.5	6.5		6.5	6.5
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max
Act Effct Green (s)	8.7	8.7		8.7	36.6	36.6		36.6	36.6
Actuated g/C Ratio	0.16	0.16		0.16	0.68	0.68		0.68	0.68
v/c Ratio	0.39	0.18		0.01	0.33	0.16		0.30	0.33
Control Delay	24.4	7.8		15.0	7.8	5.6		6.3	1.7
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Delay	24.4	7.8		15.0	7.8	5.6		6.3	1.7
LOS	C	A		B	A	A		A	A
Approach Delay		18.1		15.0		6.7		3.9	
Approach LOS		B		B		A		A	

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 54	
Natural Cycle: 50	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.39	
Intersection Signal Delay: 6.3	Intersection LOS: A
Intersection Capacity Utilization 54.0%	ICU Level of Service A
Analysis Period (min) 15	

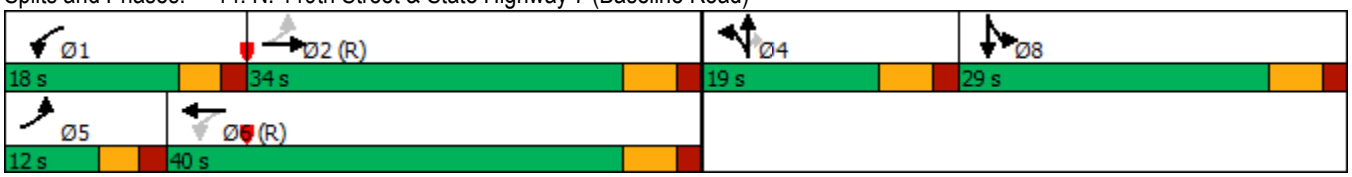
Splits and Phases: 4: E. County Line Road & Arapahoe Road



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Configurations							
Traffic Volume (vph)	35	255	375	550	85	145	300
Future Volume (vph)	35	255	375	550	85	145	300
Turn Type	pm+pt	NA	pm+pt	NA	NA	Perm	NA
Protected Phases	5	2	1	6	4		8
Permitted Phases	2		6			4	
Detector Phase	5	2	1	6	4	4	8
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	24.0	10.0	24.0	19.0	19.0	19.0
Total Split (s)	12.0	34.0	18.0	40.0	19.0	19.0	29.0
Total Split (%)	12.0%	34.0%	18.0%	40.0%	19.0%	19.0%	29.0%
Yellow Time (s)	3.0	4.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag			
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			
Recall Mode	Max	C-Max	Max	C-Max	None	None	None
Act Effct Green (s)	36.0	28.0	47.0	34.0	11.3	11.3	24.7
Actuated g/C Ratio	0.36	0.28	0.47	0.34	0.11	0.11	0.25
v/c Ratio	0.19	0.62	0.94	1.13	0.63	0.43	1.03
Control Delay	17.4	36.7	53.0	108.8	55.6	6.0	88.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.4	36.7	53.0	108.8	55.6	6.0	88.9
LOS	B	D	D	F	E	A	F
Approach Delay		34.7		88.5	28.5		88.9
Approach LOS		C		F	C		F

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 35 (35%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.13	
Intersection Signal Delay: 72.1	Intersection LOS: E
Intersection Capacity Utilization 84.0%	ICU Level of Service E
Analysis Period (min) 15	

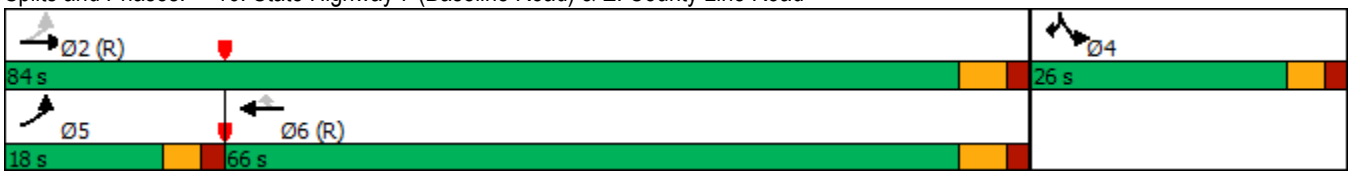
Splits and Phases: 14: N. 119th Street & State Highway 7 (Baseline Road)



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	70	400	885	350	250	155
Future Volume (vph)	70	400	885	350	250	155
Turn Type	pm+pt	NA	NA	Perm	Prot	Prot
Protected Phases	5	2	6		4	4
Permitted Phases	2			6		
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	24.0	24.0	24.0	10.0	10.0
Total Split (s)	18.0	84.0	66.0	66.0	26.0	26.0
Total Split (%)	16.4%	76.4%	60.0%	60.0%	23.6%	23.6%
Yellow Time (s)	3.0	4.0	4.0	4.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	6.0	5.0	5.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	None	None
Act Effct Green (s)	80.5	79.5	69.6	69.6	19.5	19.5
Actuated g/C Ratio	0.73	0.72	0.63	0.63	0.18	0.18
v/c Ratio	0.27	0.32	0.80	0.34	0.85	0.42
Control Delay	7.0	6.4	23.3	4.7	68.2	13.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.0	6.4	23.3	4.7	68.2	13.7
LOS	A	A	C	A	E	B
Approach Delay		6.5	18.1		47.3	
Approach LOS		A	B		D	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 6 (5%), Referenced to phase 2:EBTL and 6:WBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 21.1	Intersection LOS: C
Intersection Capacity Utilization 77.9%	ICU Level of Service D
Analysis Period (min) 15	

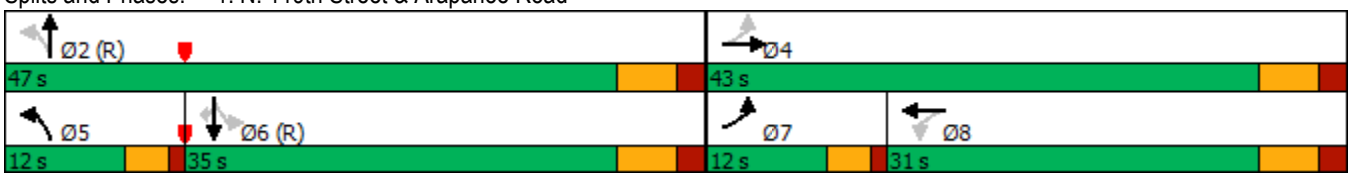
Splits and Phases: 16: State Highway 7 (Baseline Road) & E. County Line Road



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	115	380	45	170	125	180	18	135	80
Future Volume (vph)	115	380	45	170	125	180	18	135	80
Turn Type	pm+pt	NA	Perm	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases	7	4		8	5	2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	7	4	8	8	5	2	6	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	24.0	24.0	24.0	9.5	24.0	24.0	24.0	24.0
Total Split (s)	12.0	43.0	31.0	31.0	12.0	47.0	35.0	35.0	35.0
Total Split (%)	13.3%	47.8%	34.4%	34.4%	13.3%	52.2%	38.9%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	1.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead		Lag	Lag	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	36.9	34.9	23.2	23.2	45.1	43.1	31.5	31.5	31.5
Actuated g/C Ratio	0.41	0.39	0.26	0.26	0.50	0.48	0.35	0.35	0.35
v/c Ratio	0.27	0.92	0.57	0.40	0.22	0.31	0.05	0.22	0.13
Control Delay	17.8	44.4	56.7	29.5	14.0	14.4	21.6	23.0	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.8	44.4	56.7	29.5	14.0	14.4	21.6	23.0	1.8
LOS	B	D	E	C	B	B	C	C	A
Approach Delay		40.2		34.9		14.3		15.6	
Approach LOS		D		C		B		B	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 29.5	Intersection LOS: C
Intersection Capacity Utilization 76.4%	ICU Level of Service D
Analysis Period (min) 15	

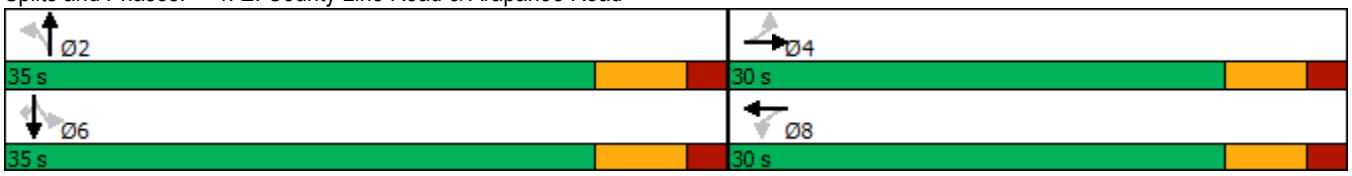
Splits and Phases: 1: N. 119th Street & Arapahoe Road



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	320	1	1	1	75	400	1	250	155
Future Volume (vph)	320	1	1	1	75	400	1	250	155
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4		8		2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	4	4	8	8	2	2	6	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.5	24.5	24.5	24.5	24.5
Total Split (s)	30.0	30.0	30.0	30.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	46.2%	46.2%	46.2%	46.2%	53.8%	53.8%	53.8%	53.8%	53.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.5	6.5		6.5	6.5
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max
Act Effct Green (s)	18.5	18.5		18.5	28.8	28.8		28.8	28.8
Actuated g/C Ratio	0.31	0.31		0.31	0.48	0.48		0.48	0.48
v/c Ratio	0.78	0.22		0.01	0.15	0.47		0.30	0.19
Control Delay	31.7	4.3		12.0	11.3	13.8		11.8	2.9
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Delay	31.7	4.3		12.0	11.3	13.8		11.8	2.9
LOS	C	A		B	B	B		B	A
Approach Delay		24.2		12.0		13.4		8.4	
Approach LOS		C		B		B		A	

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 59.8	
Natural Cycle: 50	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 15.5	Intersection LOS: B
Intersection Capacity Utilization 74.6%	ICU Level of Service D
Analysis Period (min) 15	

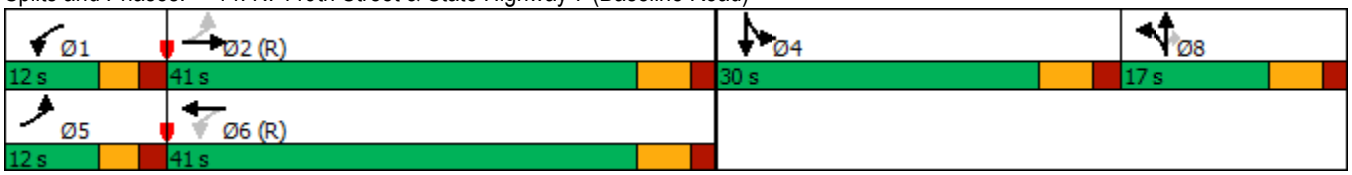
Splits and Phases: 4: E. County Line Road & Arapahoe Road



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Configurations							
Traffic Volume (vph)	80	600	175	410	210	350	125
Future Volume (vph)	80	600	175	410	210	350	125
Turn Type	pm+pt	NA	pm+pt	NA	NA	Perm	NA
Protected Phases	5	2	1	6	8		4
Permitted Phases	2		6			8	
Detector Phase	5	2	1	6	8	8	4
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	17.0	10.0	24.0	17.0	17.0	24.0
Total Split (s)	12.0	41.0	12.0	41.0	17.0	17.0	30.0
Total Split (%)	12.0%	41.0%	12.0%	41.0%	17.0%	17.0%	30.0%
Yellow Time (s)	3.0	4.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag			
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			
Recall Mode	Max	C-Max	Max	C-Max	None	None	None
Act Effct Green (s)	43.0	35.0	43.0	35.0	11.0	11.0	24.0
Actuated g/C Ratio	0.43	0.35	0.43	0.35	0.11	0.11	0.24
v/c Ratio	0.31	1.00	0.90	0.79	1.18	0.85	0.99
Control Delay	17.5	69.0	62.9	38.8	161.4	31.8	80.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.5	69.0	62.9	38.8	161.4	31.8	80.5
LOS	B	E	E	D	F	C	F
Approach Delay		63.2		45.1	83.9		80.5
Approach LOS		E		D	F		F

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 32 (32%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.18	
Intersection Signal Delay: 66.2	Intersection LOS: E
Intersection Capacity Utilization 98.2%	ICU Level of Service F
Analysis Period (min) 15	

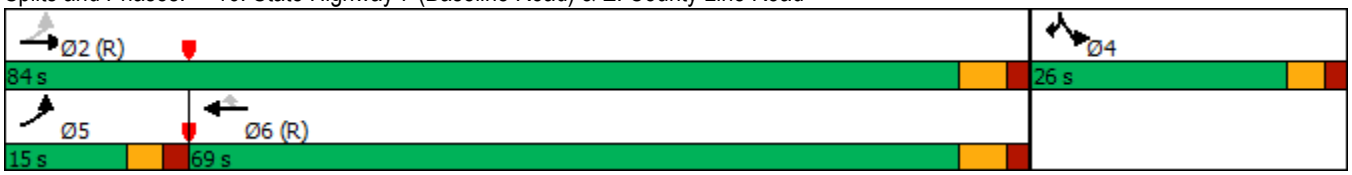
Splits and Phases: 14: N. 119th Street & State Highway 7 (Baseline Road)



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	165	1040	600	280	325	70
Future Volume (vph)	165	1040	600	280	325	70
Turn Type	pm+pt	NA	NA	Perm	Prot	Prot
Protected Phases	5	2	6		4	4
Permitted Phases	2			6		
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.0	24.0	24.0	24.0	23.0	23.0
Total Split (s)	15.0	84.0	69.0	69.0	26.0	26.0
Total Split (%)	13.6%	76.4%	62.7%	62.7%	23.6%	23.6%
Yellow Time (s)	3.0	4.0	4.0	4.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	6.0	5.0	5.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	None	None
Act Effct Green (s)	79.0	78.0	64.4	64.4	21.0	21.0
Actuated g/C Ratio	0.72	0.71	0.59	0.59	0.19	0.19
v/c Ratio	0.36	0.82	0.57	0.28	1.01	0.21
Control Delay	7.0	17.8	17.1	2.0	95.8	18.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.0	17.8	17.1	2.0	95.8	18.7
LOS	A	B	B	A	F	B
Approach Delay		16.4	12.3		82.1	
Approach LOS		B	B		F	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 48 (44%), Referenced to phase 2:EBTL and 6:WBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.01	
Intersection Signal Delay: 25.4	Intersection LOS: C
Intersection Capacity Utilization 81.9%	ICU Level of Service D
Analysis Period (min) 15	

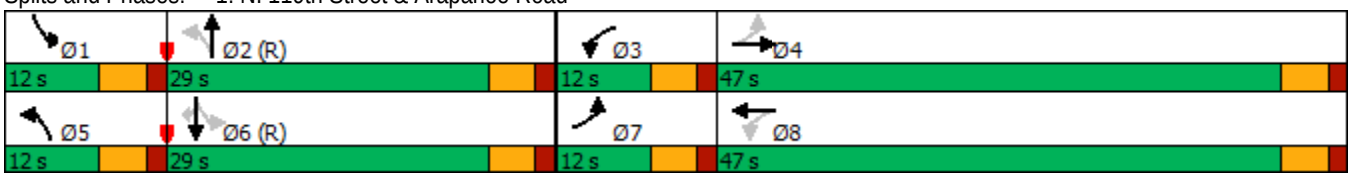
Splits and Phases: 16: State Highway 7 (Baseline Road) & E. County Line Road



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	30	130	100	540	175	65	5	225	130
Future Volume (vph)	30	130	100	540	175	65	5	225	130
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perm
Protected Phases	7	4	3	8	5	2	1	6	
Permitted Phases	4		8		2		6		6
Detector Phase	7	4	3	8	5	2	1	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	23.0	10.0	23.0	10.0	23.0	10.0	23.0	23.0
Total Split (s)	12.0	47.0	12.0	47.0	12.0	29.0	12.0	29.0	29.0
Total Split (%)	12.0%	47.0%	12.0%	47.0%	12.0%	29.0%	12.0%	29.0%	29.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	2.0	-2.0	-2.0	2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	7.0	3.0	3.0	7.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	42.4	34.0	44.2	38.8	47.6	41.8	42.5	34.7	30.7
Actuated g/C Ratio	0.42	0.34	0.44	0.39	0.48	0.42	0.42	0.35	0.31
v/c Ratio	0.14	0.40	0.24	0.83	0.39	0.11	0.01	0.37	0.24
Control Delay	12.5	19.8	17.4	40.4	33.9	31.5	19.2	30.0	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.5	19.8	17.4	40.4	33.9	31.5	19.2	30.0	6.8
LOS	B	B	B	D	C	C	B	C	A
Approach Delay		18.9		36.9		33.2		21.5	
Approach LOS		B		D		C		C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 29.6	Intersection LOS: C
Intersection Capacity Utilization 68.4%	ICU Level of Service C
Analysis Period (min) 15	

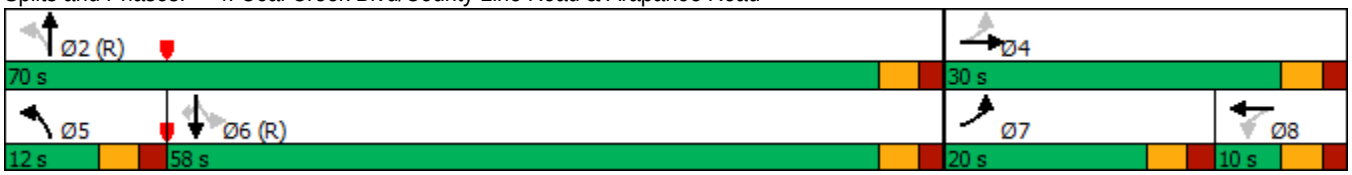
Splits and Phases: 1: N. 119th Street & Arapahoe Road



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	85	1	2	1	220	200	2	360	380
Future Volume (vph)	85	1	2	1	220	200	2	360	380
Turn Type	pm+pt	NA	Perm	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases	7	4		8	5	2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	7	4	8	8	5	2	6	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	20.0	30.0	10.0	10.0	12.0	70.0	58.0	58.0	58.0
Total Split (%)	20.0%	30.0%	10.0%	10.0%	12.0%	70.0%	58.0%	58.0%	58.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0
Lead/Lag	Lead		Lag	Lag	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	12.9	12.7		5.5	79.4	80.4		66.5	66.5
Actuated g/C Ratio	0.13	0.13		0.06	0.79	0.80		0.66	0.66
v/c Ratio	0.46	0.24		0.05	0.36	0.16		0.34	0.37
Control Delay	36.4	12.6		39.2	4.7	3.1		10.2	2.0
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Delay	36.4	12.6		39.2	4.7	3.1		10.2	2.0
LOS	D	B		D	A	A		B	A
Approach Delay		27.5		39.3		4.0		6.0	
Approach LOS		C		D		A		A	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.46	
Intersection Signal Delay: 7.7	Intersection LOS: A
Intersection Capacity Utilization 53.8%	ICU Level of Service A
Analysis Period (min) 15	

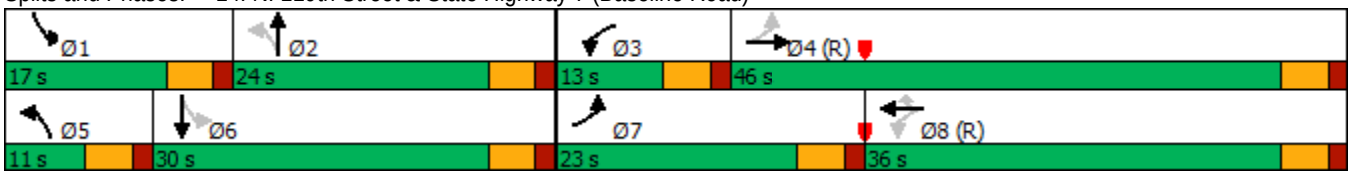
Splits and Phases: 4: Coal Creek Blvd/County Line Road & Arapahoe Road



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	40	285	420	620	120	40	95	165	75	340	80
Future Volume (vph)	40	285	420	620	120	40	95	165	75	340	80
Turn Type	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases	4		8		8	2		Free	6		Free
Detector Phase	7	4	3	8	8	5	2		1	6	
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	23.0	10.0	23.0	23.0	10.0	22.0		10.0	23.0	
Total Split (s)	23.0	46.0	13.0	36.0	36.0	11.0	24.0		17.0	30.0	
Total Split (%)	23.0%	46.0%	13.0%	36.0%	36.0%	11.0%	24.0%		17.0%	30.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	-2.0	-3.0	-2.0	2.0	2.0	2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	3.0	2.0	3.0	7.0	7.0	7.0	3.0		3.0	3.0	
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	C-Max	C-Max	None	None		None	None	
Act Effct Green (s)	55.0	47.4	61.4	51.4	51.4	19.2	20.0	100.0	31.2	24.7	100.0
Actuated g/C Ratio	0.55	0.47	0.61	0.51	0.51	0.19	0.20	1.00	0.31	0.25	1.00
v/c Ratio	0.12	0.41	0.79	0.70	0.14	0.32	0.27	0.11	0.20	0.79	0.05
Control Delay	10.3	19.5	35.2	36.2	3.3	30.4	35.3	0.1	26.7	53.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.3	19.5	35.2	36.2	3.3	30.4	35.3	0.1	26.7	53.3	0.1
LOS	B	B	D	D	A	C	D	A	C	D	A
Approach Delay		18.5		32.4			15.3			40.7	
Approach LOS		B		C			B			D	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 29.7	Intersection LOS: C
Intersection Capacity Utilization 77.5%	ICU Level of Service D
Analysis Period (min) 15	

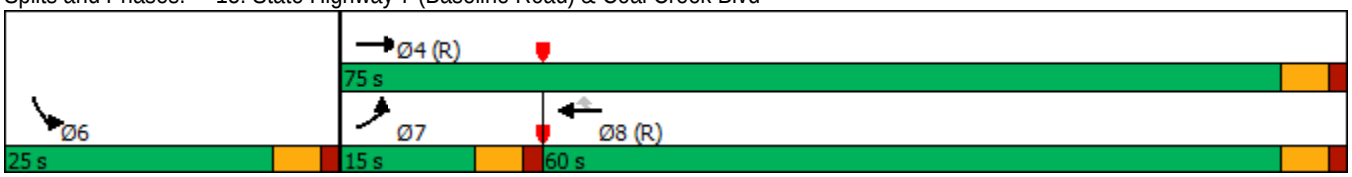
Splits and Phases: 14: N. 119th Street & State Highway 7 (Baseline Road)



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	80	450	980	395	280	175
Future Volume (vph)	80	450	980	395	280	175
Turn Type	Prot	NA	NA	Perm	Prot	Free
Protected Phases	7	4	8		6	
Permitted Phases				8		Free
Detector Phase	7	4	8	8	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	10.0	23.0	23.0	23.0	23.0	
Total Split (s)	15.0	75.0	60.0	60.0	25.0	
Total Split (%)	15.0%	75.0%	60.0%	60.0%	25.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	None	
Act Effct Green (s)	8.9	77.0	66.3	66.3	15.0	100.0
Actuated g/C Ratio	0.09	0.77	0.66	0.66	0.15	1.00
v/c Ratio	0.28	0.34	0.83	0.36	0.58	0.12
Control Delay	37.5	4.4	22.4	1.8	41.1	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.5	4.4	22.4	1.8	41.1	0.1
LOS	D	A	C	A	D	A
Approach Delay		9.4	16.3		25.4	
Approach LOS		A	B		C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 16.5	Intersection LOS: B
Intersection Capacity Utilization 66.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 15: State Highway 7 (Baseline Road) & Coal Creek Blvd



Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↱		↱
Traffic Vol, veh/h	0	730	1365	5	0	5
Future Vol, veh/h	0	730	1365	5	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Yield	-	None
Storage Length	-	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	793	1484	5	0	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	1484
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	153
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	153
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

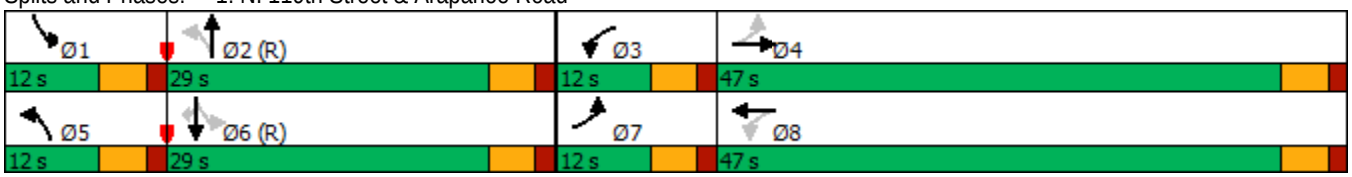
Approach	EB	WB	SB
HCM Control Delay, s	0	0	29.4
HCM LOS			D

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	153
HCM Lane V/C Ratio	-	-	-	0.036
HCM Control Delay (s)	-	-	-	29.4
HCM Lane LOS	-	-	-	D
HCM 95th %tile Q(veh)	-	-	-	0.1

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	130	425	50	190	140	205	20	150	90
Future Volume (vph)	130	425	50	190	140	205	20	150	90
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perm
Protected Phases	7	4	3	8	5	2	1	6	
Permitted Phases	4		8		2		6		6
Detector Phase	7	4	3	8	5	2	1	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	23.0	10.0	23.0	10.0	23.0	10.0	23.0	23.0
Total Split (s)	12.0	47.0	12.0	47.0	12.0	29.0	12.0	29.0	29.0
Total Split (%)	12.0%	47.0%	12.0%	47.0%	12.0%	29.0%	12.0%	29.0%	29.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	2.0	-2.0	-2.0	2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	7.0	3.0	3.0	7.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	50.4	43.2	49.1	40.6	40.3	32.7	37.7	29.5	25.5
Actuated g/C Ratio	0.50	0.43	0.49	0.41	0.40	0.33	0.38	0.30	0.26
v/c Ratio	0.24	0.93	0.24	0.29	0.33	0.52	0.05	0.29	0.19
Control Delay	12.4	46.3	18.2	25.4	32.1	41.5	19.9	30.9	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.4	46.3	18.2	25.4	32.1	41.5	19.9	30.9	3.5
LOS	B	D	B	C	C	D	B	C	A
Approach Delay		40.9		24.0		38.4		20.6	
Approach LOS		D		C		D		C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 34.8	Intersection LOS: C
Intersection Capacity Utilization 78.4%	ICU Level of Service D
Analysis Period (min) 15	

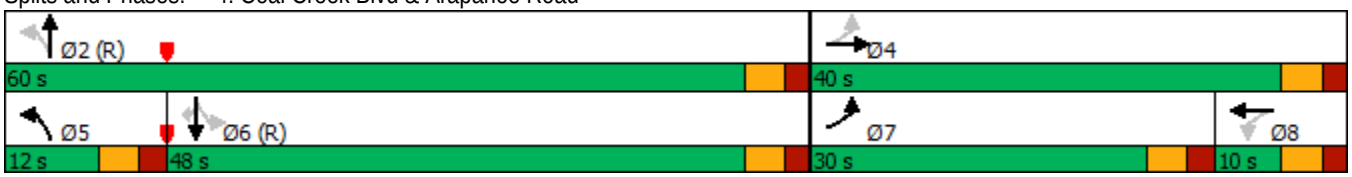
Splits and Phases: 1: N. 119th Street & Arapahoe Road



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	360	1	2	1	85	450	2	280	175
Future Volume (vph)	360	1	2	1	85	450	2	280	175
Turn Type	pm+pt	NA	Perm	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases	7	4		8	5	2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	7	4	8	8	5	2	6	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	30.0	40.0	10.0	10.0	12.0	60.0	48.0	48.0	48.0
Total Split (%)	30.0%	40.0%	10.0%	10.0%	12.0%	60.0%	48.0%	48.0%	48.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0
Lead/Lag	Lead		Lag	Lag	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	25.4	25.4		5.2	64.6	64.6		54.8	54.8
Actuated g/C Ratio	0.25	0.25		0.05	0.65	0.65		0.55	0.55
v/c Ratio	0.87	0.28		0.05	0.14	0.40		0.29	0.19
Control Delay	34.2	2.8		39.6	5.7	7.3		15.3	3.0
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Delay	34.2	2.8		39.6	5.7	7.3		15.3	3.0
LOS	C	A		D	A	A		B	A
Approach Delay		25.6		39.6		7.0		10.6	
Approach LOS		C		D		A		B	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 14.4	Intersection LOS: B
Intersection Capacity Utilization 77.8%	ICU Level of Service D
Analysis Period (min) 15	

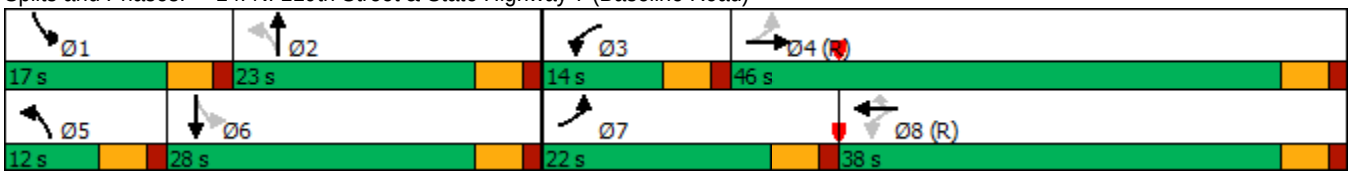
Splits and Phases: 4: Coal Creek Blvd & Arapahoe Road



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	90	675	195	460	95	30	235	395	275	140	55
Future Volume (vph)	90	675	195	460	95	30	235	395	275	140	55
Turn Type	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases	4		8		8	2		Free	6		Free
Detector Phase	7	4	3	8	8	5	2		1	6	
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	23.0	10.0	23.0	23.0	10.0	22.0		10.0	23.0	
Total Split (s)	22.0	46.0	14.0	38.0	38.0	12.0	23.0		17.0	28.0	
Total Split (%)	22.0%	46.0%	14.0%	38.0%	38.0%	12.0%	23.0%		17.0%	28.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	-2.0	-3.0	-2.0	2.0	2.0	2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	3.0	2.0	3.0	7.0	7.0	7.0	3.0		3.0	3.0	
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	C-Max	C-Max	None	None		None	None	
Act Effct Green (s)	54.5	45.7	57.1	44.1	44.1	18.7	18.2	100.0	35.2	28.1	100.0
Actuated g/C Ratio	0.54	0.46	0.57	0.44	0.44	0.19	0.18	1.00	0.35	0.28	1.00
v/c Ratio	0.19	0.86	0.73	0.57	0.12	0.12	0.71	0.25	0.78	0.27	0.04
Control Delay	10.6	37.2	37.6	41.0	7.9	25.0	50.1	0.4	36.3	25.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.6	37.2	37.6	41.0	7.9	25.0	50.1	0.4	36.3	25.7	0.0
LOS	B	D	D	D	A	C	D	A	D	C	A
Approach Delay		34.3		35.9			19.2			28.9	
Approach LOS		C		D			B			C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 30.1	Intersection LOS: C
Intersection Capacity Utilization 89.7%	ICU Level of Service E
Analysis Period (min) 15	

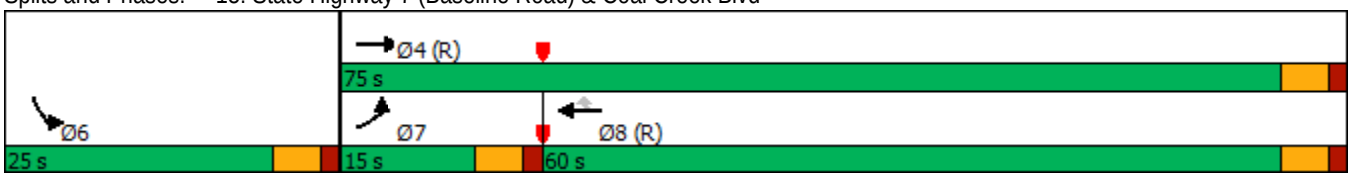
Splits and Phases: 14: N. 119th Street & State Highway 7 (Baseline Road)



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	185	1150	665	315	365	80
Future Volume (vph)	185	1150	665	315	365	80
Turn Type	Prot	NA	NA	Perm	Prot	Free
Protected Phases	7	4	8		6	
Permitted Phases				8		Free
Detector Phase	7	4	8	8	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	10.0	23.0	23.0	23.0	23.0	
Total Split (s)	15.0	75.0	60.0	60.0	25.0	
Total Split (%)	15.0%	75.0%	60.0%	60.0%	25.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	None	
Act Effct Green (s)	11.1	74.8	59.7	59.7	17.2	100.0
Actuated g/C Ratio	0.11	0.75	0.60	0.60	0.17	1.00
v/c Ratio	0.51	0.84	0.63	0.31	0.65	0.05
Control Delay	37.1	17.7	17.1	2.0	44.1	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.1	17.7	17.1	2.0	44.1	0.1
LOS	D	B	B	A	D	A
Approach Delay		20.5	12.2		36.2	
Approach LOS		C	B		D	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 20.1	Intersection LOS: C
Intersection Capacity Utilization 77.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 15: State Highway 7 (Baseline Road) & Coal Creek Blvd



Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↱		↱
Traffic Vol, veh/h	0	1515	965	3	0	10
Future Vol, veh/h	0	1515	965	3	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Yield	-	None
Storage Length	-	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1647	1049	3	0	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	1049
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	276
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	276
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

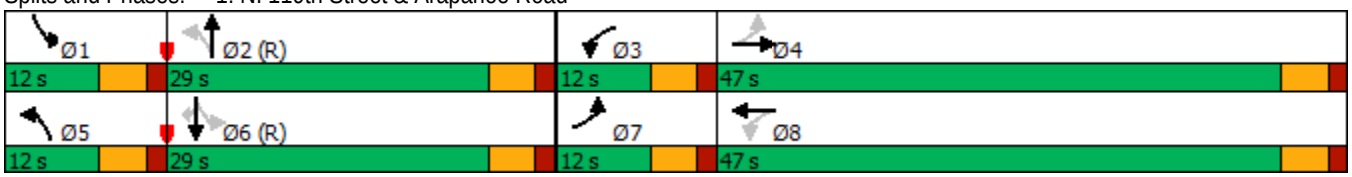
Approach	EB	WB	SB
HCM Control Delay, s	0	0	18.6
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	276
HCM Lane V/C Ratio	-	-	-	0.039
HCM Control Delay (s)	-	-	-	18.6
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.1

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	30	150	129	591	241	100	15	235	130
Future Volume (vph)	30	150	129	591	241	100	15	235	130
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perm
Protected Phases	7	4	3	8	5	2	1	6	
Permitted Phases	4		8		2		6		6
Detector Phase	7	4	3	8	5	2	1	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	23.0	10.0	23.0	10.0	23.0	10.0	23.0	23.0
Total Split (s)	12.0	47.0	12.0	47.0	12.0	29.0	12.0	29.0	29.0
Total Split (%)	12.0%	47.0%	12.0%	47.0%	12.0%	29.0%	12.0%	29.0%	29.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	2.0	-2.0	-2.0	2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	7.0	3.0	3.0	7.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	45.2	36.8	47.0	41.6	44.1	36.5	39.8	31.7	27.7
Actuated g/C Ratio	0.45	0.37	0.47	0.42	0.44	0.36	0.40	0.32	0.28
v/c Ratio	0.15	0.43	0.30	0.88	0.60	0.23	0.03	0.43	0.26
Control Delay	12.1	19.9	16.2	41.7	38.0	34.5	19.5	32.0	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.1	19.9	16.2	41.7	38.0	34.5	19.5	32.0	7.0
LOS	B	B	B	D	D	C	B	C	A
Approach Delay		19.1		37.4		36.7		23.0	
Approach LOS		B		D		D		C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 31.2	Intersection LOS: C
Intersection Capacity Utilization 76.9%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: N. 119th Street & Arapahoe Road



Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	185	7	3	686	22	8
Future Vol, veh/h	185	7	3	686	22	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	225	275	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	201	8	3	746	24	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	209	0	953	201
Stage 1	-	-	-	-	201	-
Stage 2	-	-	-	-	752	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1362	-	287	840
Stage 1	-	-	-	-	833	-
Stage 2	-	-	-	-	466	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1362	-	286	840
Mov Cap-2 Maneuver	-	-	-	-	286	-
Stage 1	-	-	-	-	833	-
Stage 2	-	-	-	-	465	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	16.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	286	840	-	-	1362	-
HCM Lane V/C Ratio	0.084	0.01	-	-	0.002	-
HCM Control Delay (s)	18.7	9.3	-	-	7.7	-
HCM Lane LOS	C	A	-	-	A	-
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	180	13	6	649	40	18
Future Vol, veh/h	180	13	6	649	40	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	225	275	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	196	14	7	705	43	20

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	210	0	915	196
Stage 1	-	-	-	-	196	-
Stage 2	-	-	-	-	719	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1361	-	303	845
Stage 1	-	-	-	-	837	-
Stage 2	-	-	-	-	483	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1361	-	301	845
Mov Cap-2 Maneuver	-	-	-	-	301	-
Stage 1	-	-	-	-	837	-
Stage 2	-	-	-	-	481	-

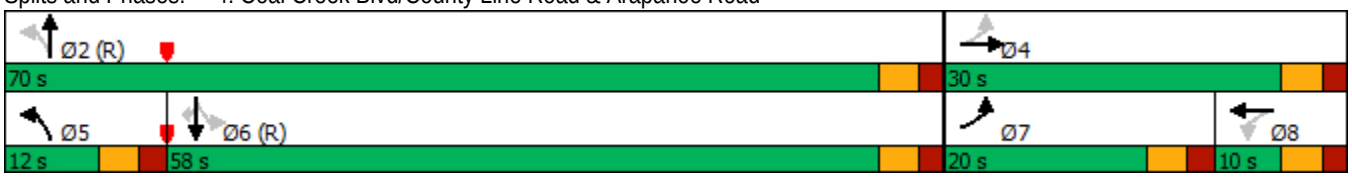
Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	16
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	301	845	-	-	1361	-
HCM Lane V/C Ratio	0.144	0.023	-	-	0.005	-
HCM Control Delay (s)	19	9.4	-	-	7.7	-
HCM Lane LOS	C	A	-	-	A	-
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	118	1	2	1	266	261	2	382	388
Future Volume (vph)	118	1	2	1	266	261	2	382	388
Turn Type	pm+pt	NA	Perm	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases	7	4		8	5	2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	7	4	8	8	5	2	6	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	20.0	30.0	10.0	10.0	12.0	70.0	58.0	58.0	58.0
Total Split (%)	20.0%	30.0%	10.0%	10.0%	12.0%	70.0%	58.0%	58.0%	58.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0
Lead/Lag	Lead		Lag	Lag	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	14.4	14.4		5.3	75.6	75.6		61.5	61.5
Actuated g/C Ratio	0.14	0.14		0.05	0.76	0.76		0.62	0.62
v/c Ratio	0.56	0.31		0.05	0.48	0.22		0.39	0.39
Control Delay	43.0	11.3		39.5	7.4	4.8		12.2	2.2
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Delay	43.0	11.3		39.5	7.4	4.8		12.2	2.2
LOS	D	B		D	A	A		B	A
Approach Delay		30.1		39.5		6.1		7.2	
Approach LOS		C		D		A		A	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.56	
Intersection Signal Delay: 9.9	Intersection LOS: A
Intersection Capacity Utilization 60.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: Coal Creek Blvd/County Line Road & Arapahoe Road



Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	16	510	480	4	12	47
Future Vol, veh/h	16	510	480	4	12	47
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	325	-	-	275	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	554	522	4	13	51

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	526	0	-	0	833	261			
Stage 1	-	-	-	-	522	-			
Stage 2	-	-	-	-	311	-			
Critical Hdwy	4.14	-	-	-	6.84	6.94			
Critical Hdwy Stg 1	-	-	-	-	5.84	-			
Critical Hdwy Stg 2	-	-	-	-	5.84	-			
Follow-up Hdwy	2.22	-	-	-	3.52	3.32			
Pot Cap-1 Maneuver	1037	-	-	-	307	738			
Stage 1	-	-	-	-	560	-			
Stage 2	-	-	-	-	716	-			
Platoon blocked, %		-	-	-					
Mov Cap-1 Maneuver	1037	-	-	-	302	738			
Mov Cap-2 Maneuver	-	-	-	-	302	-			
Stage 1	-	-	-	-	551	-			
Stage 2	-	-	-	-	716	-			

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	11.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1037	-	-	-	302	738
HCM Lane V/C Ratio	0.017	-	-	-	0.043	0.069
HCM Control Delay (s)	8.5	-	-	-	17.5	10.2
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1	0.2

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	18	65	22	508	521	6
Future Vol, veh/h	18	65	22	508	521	6
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	0	350	-	-	275
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	20	71	24	552	566	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	890	283	573	0	-	0
Stage 1	566	-	-	-	-	-
Stage 2	324	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	282	714	996	-	-	-
Stage 1	532	-	-	-	-	-
Stage 2	705	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	275	714	996	-	-	-
Mov Cap-2 Maneuver	275	-	-	-	-	-
Stage 1	519	-	-	-	-	-
Stage 2	705	-	-	-	-	-

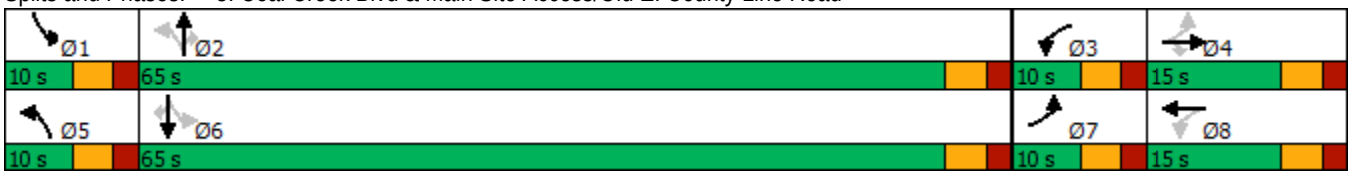
Approach	EB	NB	SB
HCM Control Delay, s	12.4	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	996	-	275	714	-	-
HCM Lane V/C Ratio	0.024	-	0.071	0.099	-	-
HCM Control Delay (s)	8.7	-	19.1	10.6	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	0.3	-	-

Lane Group	EBL	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	27	72	97	0	24	451	53	12	578	5
Future Volume (vph)	27	72	97	0	24	451	53	12	578	5
Turn Type	pm+pt	Perm	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7		3	8	5	2		1	6	
Permitted Phases	4	4	8		2		2	6		6
Detector Phase	7	4	3	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	10.0	15.0	10.0	15.0	10.0	65.0	65.0	10.0	65.0	65.0
Total Split (%)	10.0%	15.0%	10.0%	15.0%	10.0%	65.0%	65.0%	10.0%	65.0%	65.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Max	Max	Max	None	Min	Min
Act Effct Green (s)	9.3	5.6	11.2	9.5	61.9	62.3	62.3	57.7	52.6	52.6
Actuated g/C Ratio	0.11	0.07	0.13	0.11	0.74	0.75	0.75	0.69	0.63	0.63
v/c Ratio	0.16	0.18	0.57	0.05	0.05	0.19	0.05	0.02	0.28	0.00
Control Delay	33.9	1.0	47.2	0.1	3.9	5.1	0.1	3.8	8.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.9	1.0	47.2	0.1	3.9	5.1	0.1	3.8	8.3	0.0
LOS	C	A	D	A	A	A	A	A	A	A
Approach Delay				37.0		4.5			8.2	
Approach LOS				D		A			A	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 83.4	
Natural Cycle: 45	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.57	
Intersection Signal Delay: 9.5	Intersection LOS: A
Intersection Capacity Utilization 40.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 8: Coal Creek Blvd & Main Site Access/Old E. County Line Road



Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	122	18	568	738	10
Future Vol, veh/h	0	122	18	568	738	10
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	380	-	-	275
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	133	20	617	802	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	401	813	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	0	599	810	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	599	810	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.7	0.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	810	-	599	-	-
HCM Lane V/C Ratio	0.024	-	0.221	-	-
HCM Control Delay (s)	9.6	-	12.7	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.8	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	94	74	308	31	24	528
Future Volume (vph)	94	74	308	31	24	528
Turn Type	Prot	pt+ov	NA	Perm	pm+pt	NA
Protected Phases	8	8 1	2		1	6
Permitted Phases				2	6	
Detector Phase	8	8 1	2	2	1	6
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	23.0		23.0	23.0	10.0	23.0
Total Split (s)	30.0		58.0	58.0	12.0	70.0
Total Split (%)	30.0%		58.0%	58.0%	12.0%	70.0%
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	1.5		1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None		C-Max	C-Max	None	C-Max
Act Effct Green (s)	11.1	22.0	70.1	70.1	78.9	78.9
Actuated g/C Ratio	0.11	0.22	0.70	0.70	0.79	0.79
v/c Ratio	0.52	0.20	0.26	0.03	0.03	0.39
Control Delay	50.7	8.0	2.7	0.1	2.8	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.7	8.0	2.7	0.1	2.8	4.5
LOS	D	A	A	A	A	A
Approach Delay	31.9		2.5			4.4
Approach LOS	C		A			A

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.52	
Intersection Signal Delay: 8.1	Intersection LOS: A
Intersection Capacity Utilization 41.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 10: N. 119th Street & West Full Movement Site Access

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	19	46	66	0	1	57
Future Vol, veh/h	19	46	66	0	1	57
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	150	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	50	72	0	1	62

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	72	0	-	0	164	72
Stage 1	-	-	-	-	72	-
Stage 2	-	-	-	-	92	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1528	-	-	-	827	990
Stage 1	-	-	-	-	951	-
Stage 2	-	-	-	-	932	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1528	-	-	-	815	990
Mov Cap-2 Maneuver	-	-	-	-	815	-
Stage 1	-	-	-	-	938	-
Stage 2	-	-	-	-	932	-

Approach	EB	WB	SB
HCM Control Delay, s	2.2	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1528	-	-	-	986
HCM Lane V/C Ratio	0.014	-	-	-	0.064
HCM Control Delay (s)	7.4	-	-	-	8.9
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	16	31	15	7	24	51
Future Vol, veh/h	16	31	15	7	24	51
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	150	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	34	16	8	26	55

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	24	0	-	0	84	16
Stage 1	-	-	-	-	16	-
Stage 2	-	-	-	-	68	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1591	-	-	-	918	1063
Stage 1	-	-	-	-	1007	-
Stage 2	-	-	-	-	955	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1591	-	-	-	908	1063
Mov Cap-2 Maneuver	-	-	-	-	908	-
Stage 1	-	-	-	-	996	-
Stage 2	-	-	-	-	955	-

Approach	EB	WB	SB
HCM Control Delay, s	2.5	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1591	-	-	-	908	1063
HCM Lane V/C Ratio	0.011	-	-	-	0.029	0.052
HCM Control Delay (s)	7.3	-	-	-	9.1	8.6
HCM Lane LOS	A	-	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0.2

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	27	312	15	7	614
Future Vol, veh/h	0	27	312	15	7	614
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	-	225	250	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	29	339	16	8	667

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	339	0	0	355	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	0	*832	-	-	1237	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %		1	-	-	1	-
Mov Cap-1 Maneuver	-	*832	-	-	1237	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

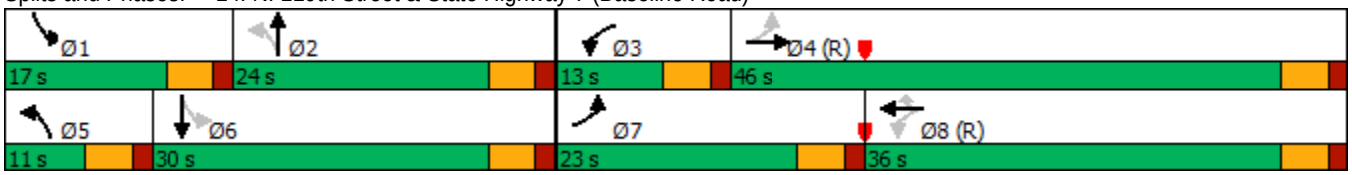
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	832	1237	-
HCM Lane V/C Ratio	-	-	0.035	0.006	-
HCM Control Delay (s)	-	-	9.5	7.9	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

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

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	61	315	487	731	150	40	116	182	99	390	125
Future Volume (vph)	61	315	487	731	150	40	116	182	99	390	125
Turn Type	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases	4		8		8	2		Free	6		Free
Detector Phase	7	4	3	8	8	5	2		1	6	
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	23.0	10.0	23.0	23.0	10.0	22.0		10.0	23.0	
Total Split (s)	23.0	46.0	13.0	36.0	36.0	11.0	24.0		17.0	30.0	
Total Split (%)	23.0%	46.0%	13.0%	36.0%	36.0%	11.0%	24.0%		17.0%	30.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	-2.0	-3.0	-2.0	2.0	2.0	2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	3.0	2.0	3.0	7.0	7.0	7.0	3.0		3.0	3.0	
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	C-Max	C-Max	None	None		None	None	
Act Effct Green (s)	52.1	44.0	59.6	47.3	47.3	18.0	18.1	100.0	32.6	26.0	100.0
Actuated g/C Ratio	0.52	0.44	0.60	0.47	0.47	0.18	0.18	1.00	0.33	0.26	1.00
v/c Ratio	0.27	0.49	0.97	0.89	0.18	0.32	0.37	0.12	0.26	0.86	0.08
Control Delay	12.5	21.9	54.3	44.5	4.4	30.5	37.9	0.2	22.6	54.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.5	21.9	54.3	44.5	4.4	30.5	37.9	0.2	22.6	54.0	0.1
LOS	B	C	D	D	A	C	D	A	C	D	A
Approach Delay		20.6		43.6			16.7			38.0	
Approach LOS		C		D			B			D	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 35.4	Intersection LOS: D
Intersection Capacity Utilization 86.6%	ICU Level of Service E
Analysis Period (min) 15	

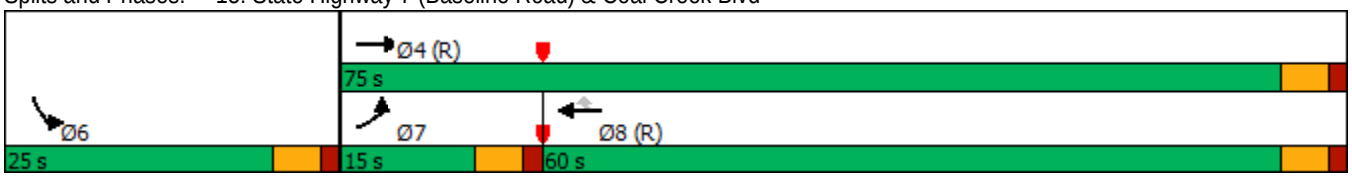
Splits and Phases: 14: N. 119th Street & State Highway 7 (Baseline Road)



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	127	474	992	458	489	370
Future Volume (vph)	127	474	992	458	489	370
Turn Type	Prot	NA	NA	Perm	Prot	Free
Protected Phases	7	4	8		6	
Permitted Phases				8		Free
Detector Phase	7	4	8	8	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	10.0	23.0	23.0	23.0	23.0	
Total Split (s)	15.0	75.0	60.0	60.0	25.0	
Total Split (%)	15.0%	75.0%	60.0%	60.0%	25.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	None	
Act Effct Green (s)	9.9	72.3	58.4	58.4	19.7	100.0
Actuated g/C Ratio	0.10	0.72	0.58	0.58	0.20	1.00
v/c Ratio	0.40	0.38	0.95	0.44	0.78	0.25
Control Delay	40.2	6.2	39.2	2.3	46.6	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.2	6.2	39.2	2.3	46.6	0.4
LOS	D	A	D	A	D	A
Approach Delay		13.4	27.3		26.7	
Approach LOS		B	C		C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 24.2	Intersection LOS: C
Intersection Capacity Utilization 75.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 15: State Highway 7 (Baseline Road) & Coal Creek Blvd



Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↱		↱
Traffic Vol, veh/h	0	963	1441	5	0	5
Future Vol, veh/h	0	963	1441	5	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Yield	-	None
Storage Length	-	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1047	1566	5	0	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	1566
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	137
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	137
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

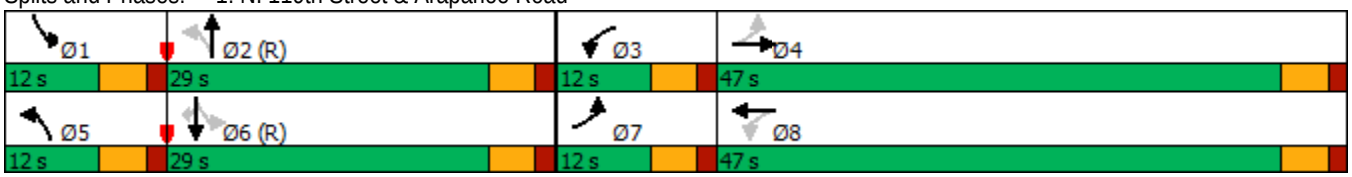
Approach	EB	WB	SB
HCM Control Delay, s	0	0	32.4
HCM LOS			D

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	137
HCM Lane V/C Ratio	-	-	-	0.04
HCM Control Delay (s)	-	-	-	32.4
HCM Lane LOS	-	-	-	D
HCM 95th %tile Q(veh)	-	-	-	0.1

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	130	492	78	224	182	228	54	185	90
Future Volume (vph)	130	492	78	224	182	228	54	185	90
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perm
Protected Phases	7	4	3	8	5	2	1	6	
Permitted Phases	4		8		2		6		6
Detector Phase	7	4	3	8	5	2	1	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	23.0	10.0	23.0	10.0	23.0	10.0	23.0	23.0
Total Split (s)	12.0	47.0	12.0	47.0	12.0	29.0	12.0	29.0	29.0
Total Split (%)	12.0%	47.0%	12.0%	47.0%	12.0%	29.0%	12.0%	29.0%	29.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	2.0	-2.0	-2.0	2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	7.0	3.0	3.0	7.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	53.6	46.4	52.8	44.1	35.7	24.5	34.6	26.0	22.0
Actuated g/C Ratio	0.54	0.46	0.53	0.44	0.36	0.24	0.35	0.26	0.22
v/c Ratio	0.24	1.04	0.37	0.34	0.51	0.84	0.20	0.41	0.21
Control Delay	11.8	68.4	20.1	20.3	35.8	61.1	21.8	33.7	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.8	68.4	20.1	20.3	35.8	61.1	21.8	33.7	3.7
LOS	B	E	C	C	D	E	C	C	A
Approach Delay		60.6		20.2		52.5		23.5	
Approach LOS		E		C		D		C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 46.6	Intersection LOS: D
Intersection Capacity Utilization 89.5%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: N. 119th Street & Arapahoe Road



Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	612	24	9	326	14	5
Future Vol, veh/h	612	24	9	326	14	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	225	275	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	665	26	10	354	15	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	691	0	1039	665
Stage 1	-	-	-	-	665	-
Stage 2	-	-	-	-	374	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	904	-	255	460
Stage 1	-	-	-	-	511	-
Stage 2	-	-	-	-	696	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	904	-	252	460
Mov Cap-2 Maneuver	-	-	-	-	252	-
Stage 1	-	-	-	-	511	-
Stage 2	-	-	-	-	688	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	18.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	252	460	-	-	904	-
HCM Lane V/C Ratio	0.06	0.012	-	-	0.011	-
HCM Control Delay (s)	20.2	12.9	-	-	9	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	573	45	21	309	26	12
Future Vol, veh/h	573	45	21	309	26	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	225	275	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	623	49	23	336	28	13

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	672	0	1005	623
Stage 1	-	-	-	-	623	-
Stage 2	-	-	-	-	382	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	919	-	268	486
Stage 1	-	-	-	-	535	-
Stage 2	-	-	-	-	690	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	919	-	261	486
Mov Cap-2 Maneuver	-	-	-	-	261	-
Stage 1	-	-	-	-	535	-
Stage 2	-	-	-	-	673	-

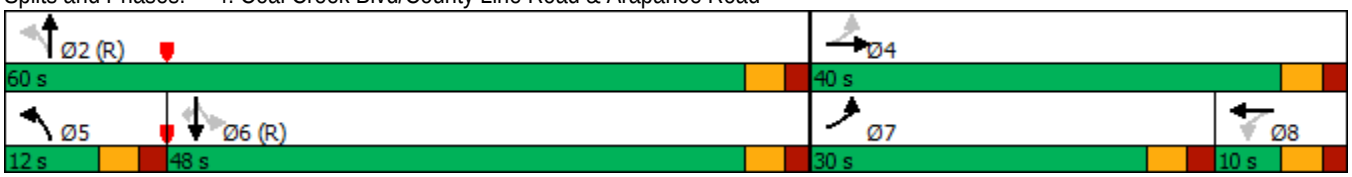
Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	18
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	261	486	-	-	919	-
HCM Lane V/C Ratio	0.108	0.027	-	-	0.025	-
HCM Control Delay (s)	20.5	12.6	-	-	9	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0.1	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	381	1	2	1	126	490	2	355	203
Future Volume (vph)	381	1	2	1	126	490	2	355	203
Turn Type	pm+pt	NA	Perm	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases	7	4		8	5	2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	7	4	8	8	5	2	6	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	30.0	40.0	10.0	10.0	12.0	60.0	48.0	48.0	48.0
Total Split (%)	30.0%	40.0%	10.0%	10.0%	12.0%	60.0%	48.0%	48.0%	48.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0
Lead/Lag	Lead		Lag	Lag	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	25.8	25.8		5.2	64.2	64.2		51.5	51.5
Actuated g/C Ratio	0.26	0.26		0.05	0.64	0.64		0.52	0.52
v/c Ratio	0.90	0.38		0.05	0.24	0.43		0.39	0.23
Control Delay	37.5	2.5		39.6	9.2	11.3		17.5	3.0
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Delay	37.5	2.5		39.6	9.2	11.3		17.5	3.0
LOS	D	A		D	A	B		B	A
Approach Delay		25.3		39.6		10.8		12.2	
Approach LOS		C		D		B		B	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 16.1	Intersection LOS: B
Intersection Capacity Utilization 85.0%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 4: Coal Creek Blvd/County Line Road & Arapahoe Road



Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	52	522	514	13	8	31
Future Vol, veh/h	52	522	514	13	8	31
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	325	-	-	275	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	57	567	559	14	9	34

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	573	0	-	0	957	280
Stage 1	-	-	-	-	559	-
Stage 2	-	-	-	-	398	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	996	-	-	-	256	717
Stage 1	-	-	-	-	536	-
Stage 2	-	-	-	-	647	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	996	-	-	-	241	717
Mov Cap-2 Maneuver	-	-	-	-	241	-
Stage 1	-	-	-	-	505	-
Stage 2	-	-	-	-	647	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	12.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	996	-	-	-	241	717
HCM Lane V/C Ratio	0.057	-	-	-	0.036	0.047
HCM Control Delay (s)	8.8	-	-	-	20.5	10.3
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.1	0.1

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	43	73	562	525	20
Future Vol, veh/h	12	43	73	562	525	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	0	0	350	-	-	275
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	13	47	79	611	571	22

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1035	286	593	0	-	0
Stage 1	571	-	-	-	-	-
Stage 2	464	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	228	711	979	-	-	-
Stage 1	529	-	-	-	-	-
Stage 2	599	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	210	711	979	-	-	-
Mov Cap-2 Maneuver	210	-	-	-	-	-
Stage 1	486	-	-	-	-	-
Stage 2	599	-	-	-	-	-

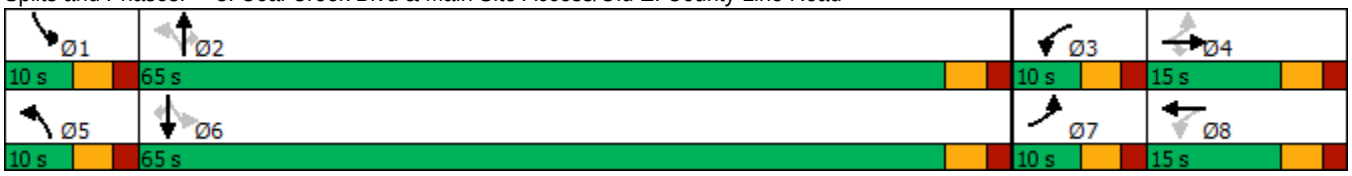
Approach	EB	NB	SB
HCM Control Delay, s	13.2	1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	979	-	210	711	-	-
HCM Lane V/C Ratio	0.081	-	0.062	0.066	-	-
HCM Control Delay (s)	9	-	23.3	10.4	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.2	0.2	-	-

Lane Group	EBL	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	18	49	87	0	82	613	119	29	531	18
Future Volume (vph)	18	49	87	0	82	613	119	29	531	18
Turn Type	pm+pt	Perm	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7		3	8	5	2		1	6	
Permitted Phases	4	4	8		2		2	6		6
Detector Phase	7	4	3	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	10.0	15.0	10.0	15.0	10.0	65.0	65.0	10.0	65.0	65.0
Total Split (%)	10.0%	15.0%	10.0%	15.0%	10.0%	65.0%	65.0%	10.0%	65.0%	65.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Max	Max	Max	None	Min	Min
Act Effct Green (s)	8.1	5.6	9.1	7.4	64.2	62.8	62.8	61.8	56.6	56.6
Actuated g/C Ratio	0.09	0.07	0.11	0.09	0.75	0.74	0.74	0.72	0.66	0.66
v/c Ratio	0.12	0.12	0.58	0.04	0.14	0.26	0.11	0.05	0.25	0.02
Control Delay	35.8	0.5	51.4	0.2	4.0	6.4	1.5	3.7	7.1	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.8	0.5	51.4	0.2	4.0	6.4	1.5	3.7	7.1	0.1
LOS	D	A	D	A	A	A	A	A	A	A
Approach Delay				42.1		5.5			6.7	
Approach LOS				D		A			A	

Intersection Summary		
Cycle Length: 100		
Actuated Cycle Length: 85.4		
Natural Cycle: 45		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.58		
Intersection Signal Delay: 8.6	Intersection LOS: A	
Intersection Capacity Utilization 45.1%	ICU Level of Service A	
Analysis Period (min) 15		

Splits and Phases: 8: Coal Creek Blvd & Main Site Access/Old E. County Line Road



Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	74	59	815	632	34
Future Vol, veh/h	0	74	59	815	632	34
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	380	-	-	275
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	80	64	886	687	37

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	344	724	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	0	652	874	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	652	874	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

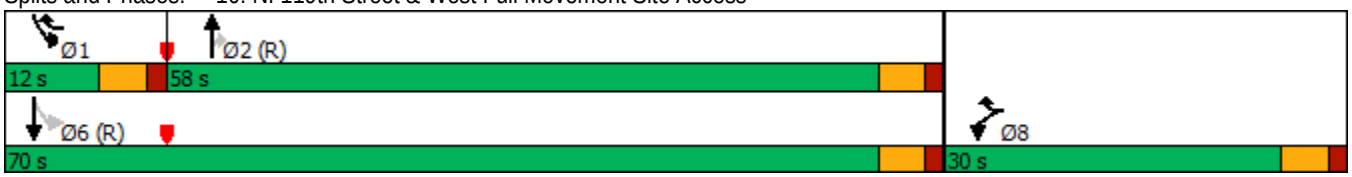
Approach	EB	NB	SB
HCM Control Delay, s	11.3	0.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	874	-	652	-	-
HCM Lane V/C Ratio	0.073	-	0.123	-	-
HCM Control Delay (s)	9.4	-	11.3	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.4	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	62	49	476	107	83	511
Future Volume (vph)	62	49	476	107	83	511
Turn Type	Prot	pt+ov	NA	Perm	pm+pt	NA
Protected Phases	8	8 1	2		1	6
Permitted Phases				2	6	
Detector Phase	8	8 1	2	2	1	6
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	23.0		23.0	23.0	10.0	23.0
Total Split (s)	30.0		58.0	58.0	12.0	70.0
Total Split (%)	30.0%		58.0%	58.0%	12.0%	70.0%
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	1.5		1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None		C-Max	C-Max	None	C-Max
Act Effct Green (s)	9.2	18.6	74.5	74.5	83.0	84.0
Actuated g/C Ratio	0.09	0.19	0.74	0.74	0.83	0.84
v/c Ratio	0.41	0.16	0.37	0.10	0.13	0.35
Control Delay	49.8	9.6	3.6	0.6	1.4	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.8	9.6	3.6	0.6	1.4	1.7
LOS	D	A	A	A	A	A
Approach Delay	32.0		3.1			1.6
Approach LOS	C		A			A

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.41	
Intersection Signal Delay: 4.9	Intersection LOS: A
Intersection Capacity Utilization 46.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 10: N. 119th Street & West Full Movement Site Access



Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	64	84	68	1	1	38
Future Vol, veh/h	64	84	68	1	1	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	150	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	70	91	74	1	1	41

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	75	0	-	0	305	74
Stage 1	-	-	-	-	74	-
Stage 2	-	-	-	-	231	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1524	-	-	-	687	988
Stage 1	-	-	-	-	949	-
Stage 2	-	-	-	-	807	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1524	-	-	-	655	988
Mov Cap-2 Maneuver	-	-	-	-	655	-
Stage 1	-	-	-	-	905	-
Stage 2	-	-	-	-	807	-

Approach	EB	WB	SB
HCM Control Delay, s	3.2	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1524	-	-	-	975
HCM Lane V/C Ratio	0.046	-	-	-	0.043
HCM Control Delay (s)	7.5	-	-	-	8.9
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	54	31	36	26	16	33
Future Vol, veh/h	54	31	36	26	16	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	150	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	59	34	39	28	17	36

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	67	0	-	0	191	39
Stage 1	-	-	-	-	39	-
Stage 2	-	-	-	-	152	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1535	-	-	-	798	1033
Stage 1	-	-	-	-	983	-
Stage 2	-	-	-	-	876	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1535	-	-	-	768	1033
Mov Cap-2 Maneuver	-	-	-	-	768	-
Stage 1	-	-	-	-	946	-
Stage 2	-	-	-	-	876	-

Approach	EB	WB	SB
HCM Control Delay, s	4.7	0	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1535	-	-	-	768	1033
HCM Lane V/C Ratio	0.038	-	-	-	0.023	0.035
HCM Control Delay (s)	7.4	-	-	-	9.8	8.6
HCM Lane LOS	A	-	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1	0.1

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	17	565	51	25	549
Future Vol, veh/h	0	17	565	51	25	549
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	-	225	250	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	18	614	55	27	597

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	614	0	0	669	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	0	*618	-	-	893	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %		1	-	-	1	-
Mov Cap-1 Maneuver	-	*618	-	-	893	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11	0	0.4
HCM LOS	B		

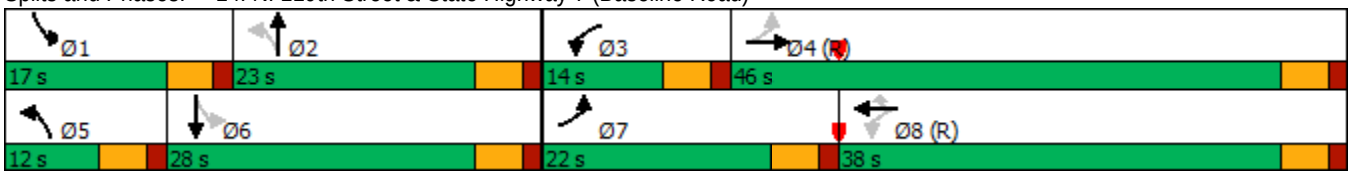
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	618	893	-
HCM Lane V/C Ratio	-	-	0.03	0.03	-
HCM Control Delay (s)	-	-	11	9.2	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

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

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	161	776	238	532	148	30	307	452	291	173	85
Future Volume (vph)	161	776	238	532	148	30	307	452	291	173	85
Turn Type	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases	4		8		8	2		Free	6		Free
Detector Phase	7	4	3	8	8	5	2		1	6	
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	23.0	10.0	23.0	23.0	10.0	22.0		10.0	23.0	
Total Split (s)	22.0	46.0	14.0	38.0	38.0	12.0	23.0		17.0	28.0	
Total Split (%)	22.0%	46.0%	14.0%	38.0%	38.0%	12.0%	23.0%		17.0%	28.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	-2.0	-3.0	-2.0	2.0	2.0	2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	3.0	2.0	3.0	7.0	7.0	7.0	3.0		3.0	3.0	
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	C-Max	C-Max	None	None		None	None	
Act Effct Green (s)	54.7	44.0	53.6	38.4	38.4	20.0	19.6	100.0	36.6	29.5	100.0
Actuated g/C Ratio	0.55	0.44	0.54	0.38	0.38	0.20	0.20	1.00	0.37	0.30	1.00
v/c Ratio	0.42	1.02	0.87	0.76	0.21	0.12	0.86	0.29	0.91	0.32	0.05
Control Delay	13.7	66.3	49.2	46.6	11.9	24.8	62.0	0.5	54.1	25.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.7	66.3	49.2	46.6	11.9	24.8	62.0	0.5	54.1	25.7	0.1
LOS	B	E	D	D	B	C	E	A	D	C	A
Approach Delay		57.6		41.7			25.3			36.7	
Approach LOS		E		D			C			D	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.02	
Intersection Signal Delay: 41.7	Intersection LOS: D
Intersection Capacity Utilization 102.1%	ICU Level of Service G
Analysis Period (min) 15	

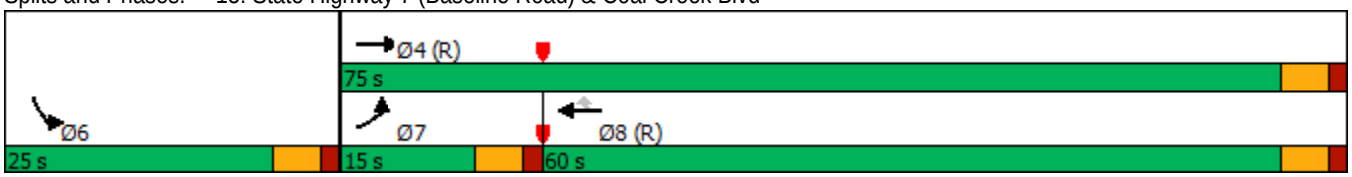
Splits and Phases: 14: N. 119th Street & State Highway 7 (Baseline Road)



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	343	1166	708	530	501	205
Future Volume (vph)	343	1166	708	530	501	205
Turn Type	Prot	NA	NA	Perm	Prot	Free
Protected Phases	7	4	8		6	
Permitted Phases				8		Free
Detector Phase	7	4	8	8	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	10.0	23.0	23.0	23.0	23.0	
Total Split (s)	15.0	75.0	60.0	60.0	25.0	
Total Split (%)	15.0%	75.0%	60.0%	60.0%	25.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	None	
Act Effct Green (s)	12.1	72.3	56.1	56.1	19.7	100.0
Actuated g/C Ratio	0.12	0.72	0.56	0.56	0.20	1.00
v/c Ratio	0.87	0.88	0.71	0.49	0.78	0.14
Control Delay	50.7	21.3	20.9	2.6	46.7	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.7	21.3	20.9	2.6	46.7	0.2
LOS	D	C	C	A	D	A
Approach Delay		28.1	13.0		33.2	
Approach LOS		C	B		C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 23.7	Intersection LOS: C
Intersection Capacity Utilization 82.3%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 15: State Highway 7 (Baseline Road) & Coal Creek Blvd



Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↱		↱
Traffic Vol, veh/h	0	1667	1223	3	0	10
Future Vol, veh/h	0	1667	1223	3	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Yield	-	None
Storage Length	-	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1812	1329	3	0	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	1329
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	189
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	189
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

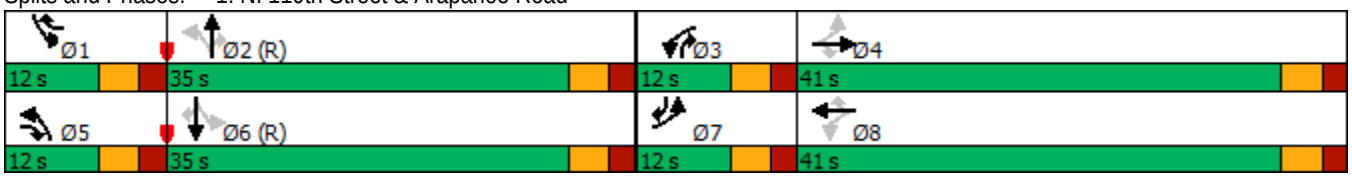
Approach	EB	WB	SB
HCM Control Delay, s	0	0	25.2
HCM LOS			D

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	189
HCM Lane V/C Ratio	-	-	-	0.058
HCM Control Delay (s)	-	-	-	25.2
HCM Lane LOS	-	-	-	D
HCM 95th %tile Q(veh)	-	-	-	0.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	175	152	150	650	20	241	113	26	25	396	175
Future Volume (vph)	40	175	152	150	650	20	241	113	26	25	396	175
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	12.0	41.0	12.0	12.0	41.0	12.0	12.0	35.0	12.0	12.0	35.0	12.0
Total Split (%)	12.0%	41.0%	12.0%	12.0%	41.0%	12.0%	12.0%	35.0%	12.0%	12.0%	35.0%	12.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	32.0	25.4	42.2	32.8	25.8	37.1	52.2	45.5	57.5	42.1	35.8	47.4
Actuated g/C Ratio	0.32	0.25	0.42	0.33	0.26	0.37	0.52	0.46	0.58	0.42	0.36	0.47
v/c Ratio	0.20	0.20	0.21	0.37	0.75	0.03	0.50	0.07	0.03	0.05	0.33	0.23
Control Delay	20.5	28.6	3.1	24.2	39.4	0.1	12.4	11.0	2.0	14.4	25.7	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.5	28.6	3.1	24.2	39.4	0.1	12.4	11.0	2.0	14.4	25.7	8.7
LOS	C	C	A	C	D	A	B	B	A	B	C	A
Approach Delay		17.2			35.7			11.3			20.2	
Approach LOS		B			D			B			C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 84 (84%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 24.0	Intersection LOS: C
Intersection Capacity Utilization 63.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: N. 119th Street & Arapahoe Road

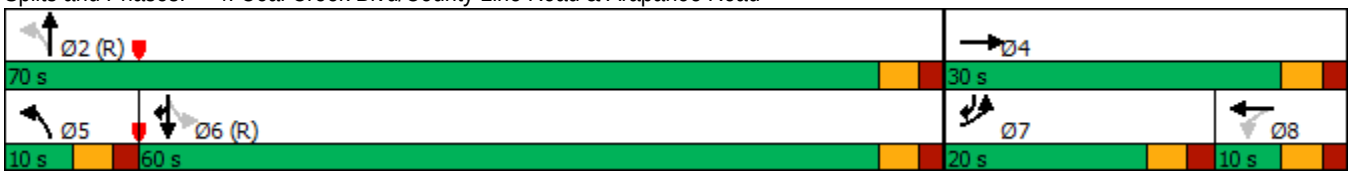


4: Coal Creek Blvd/County Line Road & Arapahoe Road

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	116	1	2	1	250	375	2	540	500
Future Volume (vph)	116	1	2	1	250	375	2	540	500
Turn Type	Prot	NA	Perm	NA	pm+pt	NA	Perm	NA	pt+ov
Protected Phases	7	4		8	5	2		6	6 7
Permitted Phases			8		2		6		
Detector Phase	7	4	8	8	5	2	6	6	6 7
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	
Total Split (s)	20.0	30.0	10.0	10.0	10.0	70.0	60.0	60.0	
Total Split (%)	20.0%	30.0%	10.0%	10.0%	10.0%	70.0%	60.0%	60.0%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead		Lag	Lag	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	
Act Effct Green (s)	9.3	11.7		5.9	78.3	78.3	65.5	65.5	79.8
Actuated g/C Ratio	0.09	0.12		0.06	0.78	0.78	0.66	0.66	0.80
v/c Ratio	0.38	0.30		0.05	0.41	0.14	0.00	0.25	0.38
Control Delay	26.5	4.0		38.2	6.1	3.1	8.5	8.3	1.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.5	4.0		38.2	6.1	3.1	8.5	8.3	1.2
LOS	C	A		D	A	A	A	A	A
Approach Delay		18.0		38.2		4.3		4.9	
Approach LOS		B		D		A		A	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 62 (62%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.41	
Intersection Signal Delay: 6.1	Intersection LOS: A
Intersection Capacity Utilization 61.5%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: Coal Creek Blvd/County Line Road & Arapahoe Road



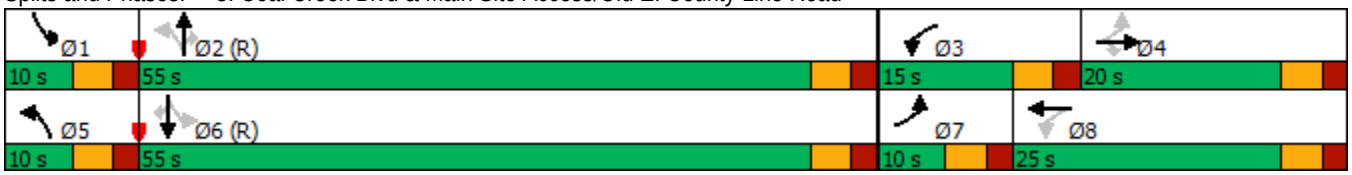
8: Coal Creek Blvd & Main Site Access/Old E. County Line Road

Lane Group	EBL	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	4	19	10	0	6	620	25	5	605	1
Future Volume (vph)	4	19	10	0	6	620	25	5	605	1
Turn Type	pm+pt	Perm	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7		3	8	5	2		1	6	
Permitted Phases	4	4	8		2		2	6		6
Detector Phase	7	4	3	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	10.0	20.0	15.0	25.0	10.0	55.0	55.0	10.0	55.0	55.0
Total Split (%)	10.0%	20.0%	15.0%	25.0%	10.0%	55.0%	55.0%	10.0%	55.0%	55.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	6.2	5.5	7.7	5.9	87.4	89.2	89.2	87.4	89.2	89.2
Actuated g/C Ratio	0.06	0.06	0.08	0.06	0.87	0.89	0.89	0.87	0.89	0.89
v/c Ratio	0.04	0.05	0.08	0.01	0.01	0.21	0.02	0.01	0.20	0.00
Control Delay	39.5	0.2	40.2	0.0	2.2	2.3	0.0	4.2	4.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.5	0.2	40.2	0.0	2.2	2.3	0.0	4.2	4.0	0.0
LOS	D	A	D	A	A	A	A	A	A	A
Approach Delay				27.6		2.2			4.0	
Approach LOS				C		A			A	

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.21
Intersection Signal Delay: 3.5 — Intersection LOS: A
Intersection Capacity Utilization 37.6% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 8: Coal Creek Blvd & Main Site Access/Old E. County Line Road



Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	20	0	650	635	0
Future Vol, veh/h	0	20	0	650	635	0
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	380	-	-	275
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	21	0	684	668	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	334	668	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	0	*831	*1244	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %		1	1	-	-	-
Mov Cap-1 Maneuver	-	*831	*1244	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

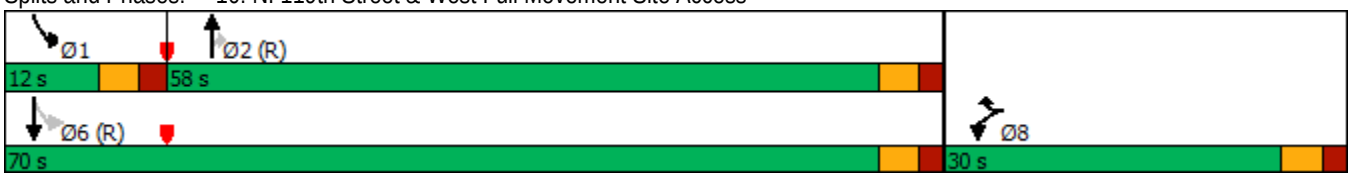
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	* 1244	-	831	-	-
HCM Lane V/C Ratio	-	-	0.025	-	-
HCM Control Delay (s)	0	-	9.4	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

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

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	6	10	370	2	3	695
Future Volume (vph)	6	10	370	2	3	695
Turn Type	Prot	Prot	NA	Perm	pm+pt	NA
Protected Phases	8	8	2		1	6
Permitted Phases				2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	30.0	30.0	58.0	58.0	12.0	70.0
Total Split (%)	30.0%	30.0%	58.0%	58.0%	12.0%	70.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)	6.0	6.0	91.2	91.2	90.3	93.3
Actuated g/C Ratio	0.06	0.06	0.91	0.91	0.90	0.93
v/c Ratio	0.06	0.10	0.12	0.00	0.00	0.22
Control Delay	45.0	24.6	0.6	0.5	0.7	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.0	24.6	0.6	0.5	0.7	0.5
LOS	D	C	A	A	A	A
Approach Delay	31.8		0.6			0.5
Approach LOS	C		A			A

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 32 (32%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.22	
Intersection Signal Delay: 1.0	Intersection LOS: A
Intersection Capacity Utilization 31.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 10: N. 119th Street & West Full Movement Site Access



Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	20	352	25	25	676
Future Vol, veh/h	0	20	352	25	25	676
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	-	225	250	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	21	371	26	26	712

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	186	0	0	397	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	0	*954	-	-	1376	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %		1	-	-	1	-
Mov Cap-1 Maneuver	-	*954	-	-	1376	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	0.3
HCM LOS	A		

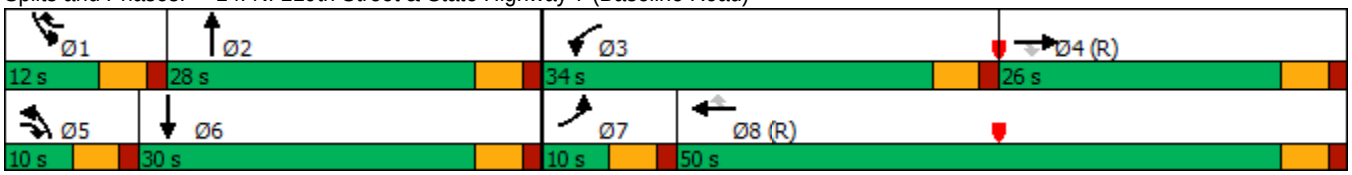
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	954	1376	-
HCM Lane V/C Ratio	-	-	0.022	0.019	-
HCM Control Delay (s)	-	-	8.9	7.7	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	387	70	566	841	175	55	141	220	100	464	112
Future Volume (vph)	61	387	70	566	841	175	55	141	220	100	464	112
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Free	Prot	NA	Free
Protected Phases	7	4	5	3	8	1	5	2		1	6	
Permitted Phases			4			8			Free			Free
Detector Phase	7	4	5	3	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	23.0	10.0	10.0	23.0	10.0	10.0	23.0		10.0	23.0	
Total Split (s)	10.0	26.0	10.0	34.0	50.0	12.0	10.0	28.0		12.0	30.0	
Total Split (%)	10.0%	26.0%	10.0%	34.0%	50.0%	12.0%	10.0%	28.0%		12.0%	30.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	8.6	36.3	46.3	24.7	54.4	66.3	7.0	18.2	100.0	8.8	22.0	100.0
Actuated g/C Ratio	0.09	0.36	0.46	0.25	0.54	0.66	0.07	0.18	1.00	0.09	0.22	1.00
v/c Ratio	0.22	0.32	0.09	0.70	0.46	0.17	0.24	0.23	0.15	0.35	0.63	0.07
Control Delay	44.4	26.1	0.8	54.4	13.3	0.4	46.7	34.2	0.2	41.6	33.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.4	26.1	0.8	54.4	13.3	0.4	46.7	34.2	0.2	41.6	33.7	0.1
LOS	D	C	A	D	B	A	D	C	A	D	C	A
Approach Delay		24.8			26.6			17.8			29.3	
Approach LOS		C			C			B			C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 48 (48%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.70	
Intersection Signal Delay: 25.7	Intersection LOS: C
Intersection Capacity Utilization 57.7%	ICU Level of Service B
Analysis Period (min) 15	

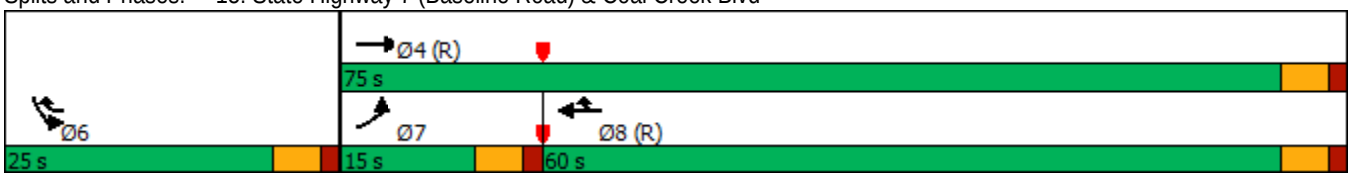
Splits and Phases: 14: N. 119th Street & State Highway 7 (Baseline Road)



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	135	575	1350	515	405	250
Future Volume (vph)	135	575	1350	515	405	250
Turn Type	Prot	NA	NA	pt+ov	Prot	Free
Protected Phases	7	4	8	8 6	6	
Permitted Phases						Free
Detector Phase	7	4	8	8 6	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	
Minimum Split (s)	10.0	23.0	23.0		23.0	
Total Split (s)	15.0	75.0	60.0		25.0	
Total Split (%)	15.0%	75.0%	60.0%		25.0%	
Yellow Time (s)	3.5	3.5	3.5		3.5	
All-Red Time (s)	1.5	1.5	1.5		1.5	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	5.0	5.0	5.0		5.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	C-Max	C-Max		None	
Act Effct Green (s)	9.0	72.4	58.4	81.0	17.6	100.0
Actuated g/C Ratio	0.09	0.72	0.58	0.81	0.18	1.00
v/c Ratio	0.46	0.24	0.69	0.41	0.71	0.17
Control Delay	44.3	4.1	17.3	2.8	41.1	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.3	4.1	17.3	2.8	41.1	0.2
LOS	D	A	B	A	D	A
Approach Delay		11.7	13.3		25.5	
Approach LOS		B	B		C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 15.4	Intersection LOS: B
Intersection Capacity Utilization 65.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 15: State Highway 7 (Baseline Road) & Coal Creek Blvd



Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Vol, veh/h	0	980	1860	5	0	5
Future Vol, veh/h	0	980	1860	5	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Yield	-	None
Storage Length	-	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1032	1958	5	0	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	979
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	249
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	249
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	19.8
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	249
HCM Lane V/C Ratio	-	-	-	0.021
HCM Control Delay (s)	-	-	-	19.8
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Vol, veh/h	0	710	1570	25	0	20
Future Vol, veh/h	0	710	1570	25	0	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	0	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	747	1653	26	0	21

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	827
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	*434
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		1
Mov Cap-1 Maneuver	-	-	-	-	-	*434
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	13.7
HCM LOS			B

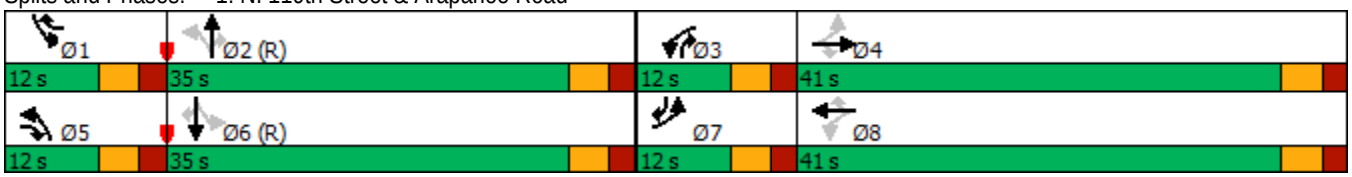
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	434
HCM Lane V/C Ratio	-	-	-	0.049
HCM Control Delay (s)	-	-	-	13.7
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.2

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	570	382	81	230	20	189	352	115	35	254	120
Future Volume (vph)	175	570	382	81	230	20	189	352	115	35	254	120
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	12.0	41.0	12.0	12.0	41.0	12.0	12.0	35.0	12.0	12.0	35.0	12.0
Total Split (%)	12.0%	41.0%	12.0%	12.0%	41.0%	12.0%	12.0%	35.0%	12.0%	12.0%	35.0%	12.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	30.1	23.1	39.1	29.7	22.9	34.4	55.1	47.9	59.7	45.7	39.1	51.1
Actuated g/C Ratio	0.30	0.23	0.39	0.30	0.23	0.34	0.55	0.48	0.60	0.46	0.39	0.51
v/c Ratio	0.50	0.74	0.47	0.40	0.30	0.04	0.32	0.22	0.12	0.07	0.19	0.14
Control Delay	28.7	41.0	4.2	23.6	29.3	1.4	4.2	4.9	0.4	12.9	22.3	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.7	41.0	4.2	23.6	29.3	1.4	4.2	4.9	0.4	12.9	22.3	3.6
LOS	C	D	A	C	C	A	A	A	A	B	C	A
Approach Delay		26.6			26.2			3.9			16.0	
Approach LOS		C			C			A			B	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 59 (59%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 18.9	Intersection LOS: B
Intersection Capacity Utilization 54.4%	ICU Level of Service A
Analysis Period (min) 15	

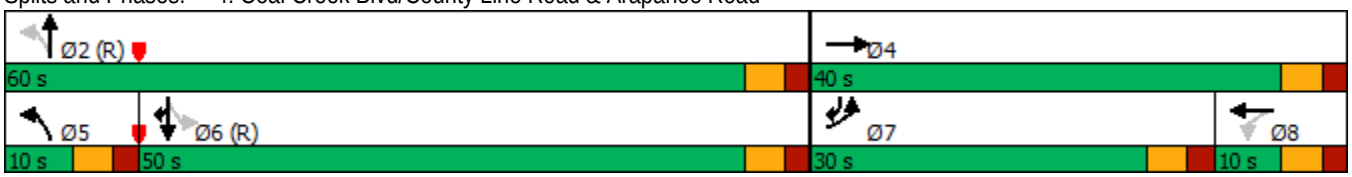
Splits and Phases: 1: N. 119th Street & Arapahoe Road



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	475	1	2	1	100	550	2	440	236
Future Volume (vph)	475	1	2	1	100	550	2	440	236
Turn Type	Prot	NA	Perm	NA	pm+pt	NA	Perm	NA	pt+ov
Protected Phases	7	4		8	5	2		6	6 7
Permitted Phases			8		2		6		
Detector Phase	7	4	8	8	5	2	6	6	6 7
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	
Total Split (s)	30.0	40.0	10.0	10.0	10.0	60.0	50.0	50.0	
Total Split (%)	30.0%	40.0%	10.0%	10.0%	10.0%	60.0%	50.0%	50.0%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead		Lag	Lag	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	
Act Effct Green (s)	20.0	22.0		5.6	68.0	68.0	58.6	58.6	84.6
Actuated g/C Ratio	0.20	0.22		0.06	0.68	0.68	0.59	0.59	0.85
v/c Ratio	0.73	0.38		0.05	0.17	0.24	0.00	0.22	0.18
Control Delay	51.9	26.5		39.2	5.3	5.0	13.5	12.0	0.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.9	26.5		39.2	5.3	5.0	13.5	12.0	0.7
LOS	D	C		D	A	A	B	B	A
Approach Delay		44.9		39.2		5.1		8.1	
Approach LOS		D		D		A		A	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 19.3	Intersection LOS: B
Intersection Capacity Utilization 52.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 4: Coal Creek Blvd/County Line Road & Arapahoe Road



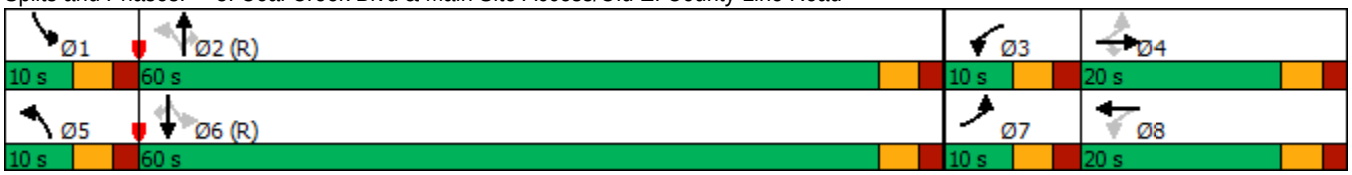
8: Coal Creek Blvd & Main Site Access/Old E. County Line Road

Lane Group	EBL	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	3	12	30	0	22	650	25	5	610	5
Future Volume (vph)	3	12	30	0	22	650	25	5	610	5
Turn Type	pm+pt	Perm	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7		3	8	5	2		1	6	
Permitted Phases	4	4	8		2		2	6		6
Detector Phase	7	4	3	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	10.0	20.0	10.0	20.0	10.0	60.0	60.0	10.0	60.0	60.0
Total Split (%)	10.0%	20.0%	10.0%	20.0%	10.0%	60.0%	60.0%	10.0%	60.0%	60.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	6.1	5.5	6.3	5.5	85.8	86.5	86.5	84.6	84.3	84.3
Actuated g/C Ratio	0.06	0.06	0.06	0.06	0.86	0.86	0.86	0.85	0.84	0.84
v/c Ratio	0.03	0.03	0.28	0.01	0.03	0.22	0.02	0.01	0.22	0.00
Control Delay	40.3	0.2	48.1	0.0	1.4	1.8	0.0	0.8	3.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.3	0.2	48.1	0.0	1.4	1.8	0.0	0.8	3.6	0.0
LOS	D	A	D	A	A	A	A	A	A	A
Approach Delay				41.6		1.7			3.5	
Approach LOS				D		A			A	

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.28
Intersection Signal Delay: 3.6 — Intersection LOS: A
Intersection Capacity Utilization 37.7% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 8: Coal Creek Blvd & Main Site Access/Old E. County Line Road



Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	75	0	700	650	0
Future Vol, veh/h	0	75	0	700	650	0
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	380	-	-	275
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	79	0	737	684	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	342	684	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	0	*831	*1244	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %		1	1	-	-	-
Mov Cap-1 Maneuver	-	*831	*1244	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

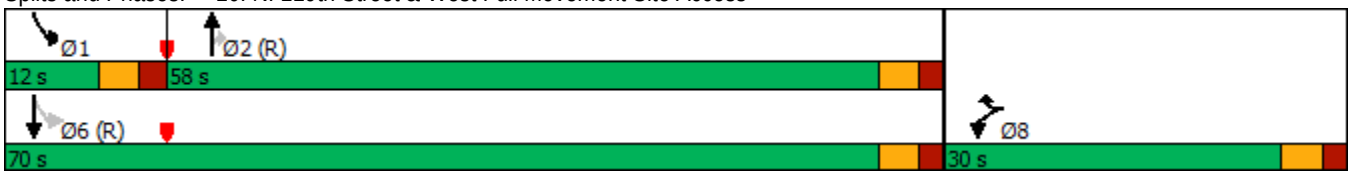
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	* 1244	-	831	-	-
HCM Lane V/C Ratio	-	-	0.095	-	-
HCM Control Delay (s)	0	-	9.8	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

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

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	6	650	7	11	710
Future Volume (vph)	4	6	650	7	11	710
Turn Type	Prot	Prot	NA	Perm	pm+pt	NA
Protected Phases	8	8	2		1	6
Permitted Phases				2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	30.0	30.0	58.0	58.0	12.0	70.0
Total Split (%)	30.0%	30.0%	58.0%	58.0%	12.0%	70.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)	5.9	5.9	94.5	94.5	92.7	96.7
Actuated g/C Ratio	0.06	0.06	0.94	0.94	0.93	0.97
v/c Ratio	0.04	0.06	0.20	0.00	0.02	0.22
Control Delay	45.0	27.7	0.3	0.0	0.5	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.0	27.7	0.3	0.0	0.5	0.4
LOS	D	C	A	A	A	A
Approach Delay	34.6		0.3			0.4
Approach LOS	C		A			A

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 6 (6%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.22	
Intersection Signal Delay: 0.6	Intersection LOS: A
Intersection Capacity Utilization 32.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 10: N. 119th Street & West Full Movement Site Access



Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	75	582	75	75	639
Future Vol, veh/h	0	75	582	75	75	639
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	-	225	250	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	79	613	79	79	673

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	307	0	0	692	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	0	*862	-	-	1186	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %		1	-	-	1	-
Mov Cap-1 Maneuver	-	*862	-	-	1186	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	0.9
HCM LOS	A		

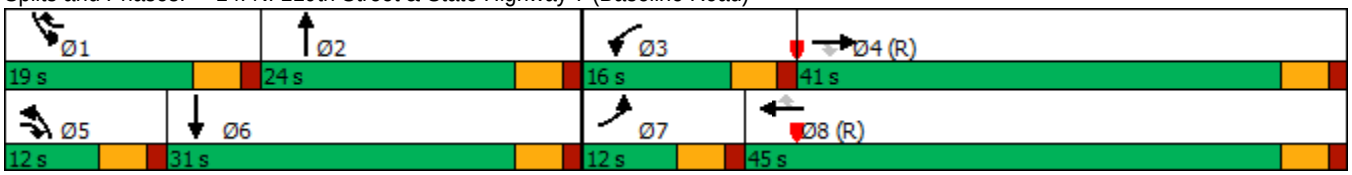
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	862	1186	-
HCM Lane V/C Ratio	-	-	0.092	0.067	-
HCM Control Delay (s)	-	-	9.6	8.3	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0.2	-

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	152	917	55	266	624	150	40	355	527	370	193	76
Future Volume (vph)	152	917	55	266	624	150	40	355	527	370	193	76
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Free	Prot	NA	Free
Protected Phases	7	4	5	3	8	1	5	2		1	6	
Permitted Phases			4			8			Free			Free
Detector Phase	7	4	5	3	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	23.0	10.0	10.0	23.0	10.0	10.0	23.0		10.0	23.0	
Total Split (s)	12.0	41.0	12.0	16.0	45.0	19.0	12.0	24.0		19.0	31.0	
Total Split (%)	12.0%	41.0%	12.0%	16.0%	45.0%	19.0%	12.0%	24.0%		19.0%	31.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	10.3	41.1	52.5	13.7	44.4	63.1	8.4	17.6	100.0	15.6	26.9	100.0
Actuated g/C Ratio	0.10	0.41	0.52	0.14	0.44	0.63	0.08	0.18	1.00	0.16	0.27	1.00
v/c Ratio	0.45	0.66	0.06	0.60	0.42	0.15	0.15	0.60	0.35	0.72	0.21	0.05
Control Delay	46.7	27.4	0.1	37.1	38.4	7.1	43.4	41.9	0.6	43.3	26.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.7	27.4	0.1	37.1	38.4	7.1	43.4	41.9	0.6	43.3	26.6	0.1
LOS	D	C	A	D	D	A	D	D	A	D	C	A
Approach Delay		28.7			33.6			18.4			33.1	
Approach LOS		C			C			B			C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 28.2	Intersection LOS: C
Intersection Capacity Utilization 66.6%	ICU Level of Service C
Analysis Period (min) 15	

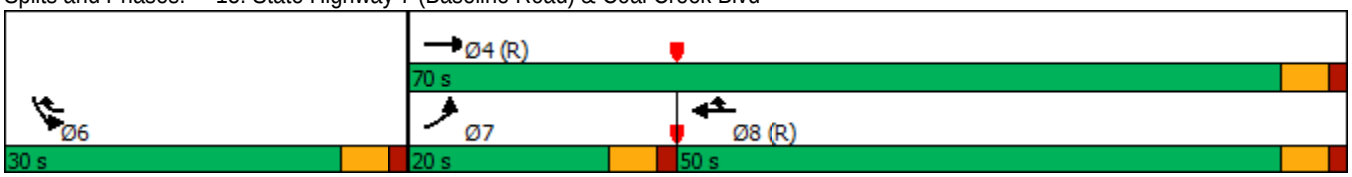
Splits and Phases: 14: N. 119th Street & State Highway 7 (Baseline Road)



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	275	1550	865	425	560	165
Future Volume (vph)	275	1550	865	425	560	165
Turn Type	Prot	NA	NA	pt+ov	Prot	Free
Protected Phases	7	4	8	8 6	6	
Permitted Phases						Free
Detector Phase	7	4	8	8 6	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	
Minimum Split (s)	10.0	23.0	23.0		23.0	
Total Split (s)	20.0	70.0	50.0		30.0	
Total Split (%)	20.0%	70.0%	50.0%		30.0%	
Yellow Time (s)	3.5	3.5	3.5		3.5	
All-Red Time (s)	1.5	1.5	1.5		1.5	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	5.0	5.0	5.0		5.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	C-Max	C-Max		None	
Act Effct Green (s)	13.1	67.8	49.7	76.9	22.2	100.0
Actuated g/C Ratio	0.13	0.68	0.50	0.77	0.22	1.00
v/c Ratio	0.64	0.68	0.52	0.36	0.77	0.11
Control Delay	36.5	21.4	19.2	4.0	38.2	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.5	21.4	19.2	4.0	38.2	0.1
LOS	D	C	B	A	D	A
Approach Delay		23.7	14.2		29.5	
Approach LOS		C	B		C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 21.6	Intersection LOS: C
Intersection Capacity Utilization 67.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 15: State Highway 7 (Baseline Road) & Coal Creek Blvd



Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Vol, veh/h	0	2110	1280	3	0	10
Future Vol, veh/h	0	2110	1280	3	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Yield	-	None
Storage Length	-	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	2221	1347	3	0	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	674
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	397
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	397
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	14.3
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	397
HCM Lane V/C Ratio	-	-	-	0.027
HCM Control Delay (s)	-	-	-	14.3
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Vol, veh/h	0	1820	930	95	0	115
Future Vol, veh/h	0	1820	930	95	0	115
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	0	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1916	979	100	0	121

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	490
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	*709
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		1
Mov Cap-1 Maneuver	-	-	-	-	-	*709
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

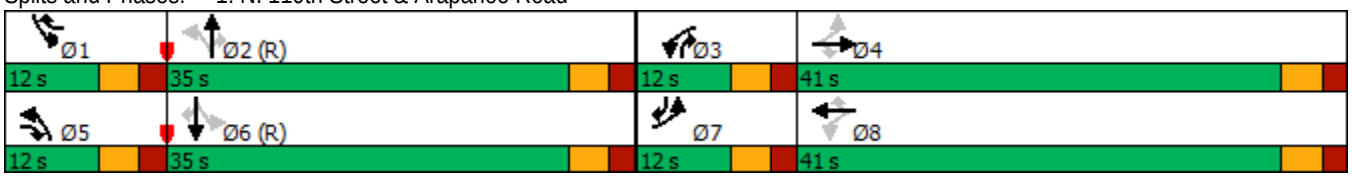
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	709
HCM Lane V/C Ratio	-	-	-	0.171
HCM Control Delay (s)	-	-	-	11.1
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.6

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	193	169	177	698	47	302	148	54	35	406	175
Future Volume (vph)	40	193	169	177	698	47	302	148	54	35	406	175
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	12.0	41.0	12.0	12.0	41.0	12.0	12.0	35.0	12.0	12.0	35.0	12.0
Total Split (%)	12.0%	41.0%	12.0%	12.0%	41.0%	12.0%	12.0%	35.0%	12.0%	12.0%	35.0%	12.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	33.5	27.0	45.1	34.4	27.4	39.0	50.2	41.5	53.5	39.6	32.9	44.5
Actuated g/C Ratio	0.34	0.27	0.45	0.34	0.27	0.39	0.50	0.42	0.54	0.40	0.33	0.44
v/c Ratio	0.21	0.21	0.22	0.43	0.76	0.07	0.65	0.11	0.06	0.07	0.37	0.25
Control Delay	19.6	27.6	3.0	24.3	38.4	2.3	19.1	12.2	4.2	15.3	27.6	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.6	27.6	3.0	24.3	38.4	2.3	19.1	12.2	4.2	15.3	27.6	11.4
LOS	B	C	A	C	D	A	B	B	A	B	C	B
Approach Delay		16.4			33.8			15.5			22.3	
Approach LOS		B			C			B			C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 84 (84%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 24.3	Intersection LOS: C
Intersection Capacity Utilization 68.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: N. 119th Street & Arapahoe Road



Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	236	8	3	833	21	9
Future Vol, veh/h	236	8	3	833	21	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	250	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	248	8	3	877	22	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	256	0	693	124
Stage 1	-	-	-	-	248	-
Stage 2	-	-	-	-	445	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1306	-	377	904
Stage 1	-	-	-	-	770	-
Stage 2	-	-	-	-	613	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1306	-	376	904
Mov Cap-2 Maneuver	-	-	-	-	376	-
Stage 1	-	-	-	-	770	-
Stage 2	-	-	-	-	612	-

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

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	376	904	-	-	1306	-
HCM Lane V/C Ratio	0.059	0.01	-	-	0.002	-
HCM Control Delay (s)	15.2	9	-	-	7.8	-
HCM Lane LOS	C	A	-	-	A	-
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	230	14	6	798	38	18
Future Vol, veh/h	230	14	6	798	38	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	250	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	242	15	6	840	40	19

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	257	0	674	121
Stage 1	-	-	-	-	242	-
Stage 2	-	-	-	-	432	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1305	-	388	908
Stage 1	-	-	-	-	776	-
Stage 2	-	-	-	-	622	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1305	-	386	908
Mov Cap-2 Maneuver	-	-	-	-	386	-
Stage 1	-	-	-	-	776	-
Stage 2	-	-	-	-	619	-

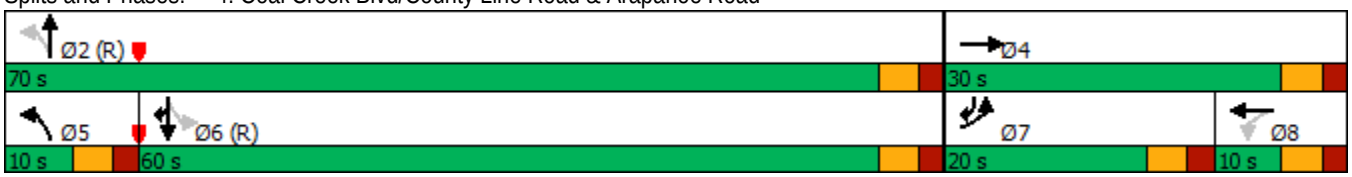
Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	13.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	386	908	-	-	1305	-
HCM Lane V/C Ratio	0.104	0.021	-	-	0.005	-
HCM Control Delay (s)	15.4	9	-	-	7.8	-
HCM Lane LOS	C	A	-	-	A	-
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	149	1	2	1	294	482	2	562	508
Future Volume (vph)	149	1	2	1	294	482	2	562	508
Turn Type	Prot	NA	Perm	NA	pm+pt	NA	Perm	NA	pt+ov
Protected Phases	7	4		8	5	2		6	6 7
Permitted Phases			8		2		6		
Detector Phase	7	4	8	8	5	2	6	6	6 7
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	
Total Split (s)	20.0	30.0	10.0	10.0	10.0	70.0	60.0	60.0	
Total Split (%)	20.0%	30.0%	10.0%	10.0%	10.0%	70.0%	60.0%	60.0%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead		Lag	Lag	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	
Act Effct Green (s)	10.3	12.6		5.9	77.4	77.4	64.1	64.1	79.4
Actuated g/C Ratio	0.10	0.13		0.06	0.77	0.77	0.64	0.64	0.79
v/c Ratio	0.45	0.36		0.05	0.49	0.19	0.00	0.26	0.39
Control Delay	32.0	5.0		38.4	8.7	3.8	9.0	8.9	1.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.0	5.0		38.4	8.7	3.8	9.0	8.9	1.2
LOS	C	A		D	A	A	A	A	A
Approach Delay		21.2		38.4		5.7		5.2	
Approach LOS		C		D		A		A	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 62 (62%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.49	
Intersection Signal Delay: 7.4	Intersection LOS: A
Intersection Capacity Utilization 64.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 4: Coal Creek Blvd/County Line Road & Arapahoe Road



Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	653	606	4	12	51
Future Vol, veh/h	15	653	606	4	12	51
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	325	-	-	275	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	687	638	4	13	54

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	642	0	-	0	1014	319
Stage 1	-	-	-	-	638	-
Stage 2	-	-	-	-	376	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	939	-	-	-	235	677
Stage 1	-	-	-	-	488	-
Stage 2	-	-	-	-	664	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	939	-	-	-	231	677
Mov Cap-2 Maneuver	-	-	-	-	231	-
Stage 1	-	-	-	-	480	-
Stage 2	-	-	-	-	664	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	12.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	939	-	-	-	231	677
HCM Lane V/C Ratio	0.017	-	-	-	0.055	0.079
HCM Control Delay (s)	8.9	-	-	-	21.5	10.8
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2	0.3

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	17	65	20	650	651	6
Future Vol, veh/h	17	65	20	650	651	6
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	0	350	-	-	275
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	68	21	684	685	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1069	343	691	0	-	0
Stage 1	685	-	-	-	-	-
Stage 2	384	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	216	653	900	-	-	-
Stage 1	462	-	-	-	-	-
Stage 2	658	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	211	653	900	-	-	-
Mov Cap-2 Maneuver	211	-	-	-	-	-
Stage 1	451	-	-	-	-	-
Stage 2	658	-	-	-	-	-

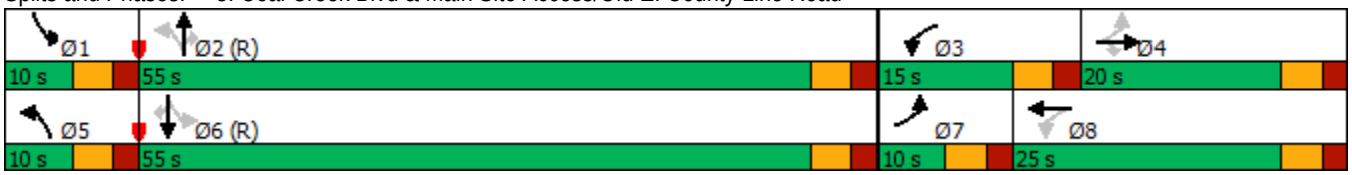
Approach	EB	NB	SB
HCM Control Delay, s	13.8	0.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	900	-	211	653	-	-
HCM Lane V/C Ratio	0.023	-	0.085	0.105	-	-
HCM Control Delay (s)	9.1	-	23.6	11.2	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	0.3	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	31	2	87	98	0	29	703	51	12	743	7
Future Volume (vph)	31	2	87	98	0	29	703	51	12	743	7
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases	4		4	8		2		2	6		6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	10.0	20.0	20.0	15.0	25.0	10.0	55.0	55.0	10.0	55.0	55.0
Total Split (%)	10.0%	20.0%	20.0%	15.0%	25.0%	10.0%	55.0%	55.0%	10.0%	55.0%	55.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	9.9	6.0	6.0	18.1	11.8	73.4	73.1	73.1	71.0	68.5	68.5
Actuated g/C Ratio	0.10	0.06	0.06	0.18	0.12	0.73	0.73	0.73	0.71	0.68	0.68
v/c Ratio	0.21	0.02	0.42	0.45	0.06	0.06	0.29	0.05	0.02	0.32	0.01
Control Delay	35.4	43.5	9.2	40.6	0.3	4.8	5.7	0.1	6.8	10.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.4	43.5	9.2	40.6	0.3	4.8	5.7	0.1	6.8	10.3	0.0
LOS	D	D	A	D	A	A	A	A	A	B	A
Approach Delay		16.5			32.2		5.3			10.1	
Approach LOS		B			C		A			B	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.45	
Intersection Signal Delay: 10.0	Intersection LOS: A
Intersection Capacity Utilization 44.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 8: Coal Creek Blvd & Main Site Access/Old E. County Line Road



Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	135	16	783	910	29
Future Vol, veh/h	0	135	16	783	910	29
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	380	-	-	275
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	142	17	824	958	31

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	479	989	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	0	*709	*1061	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %		1	1	-	-	-
Mov Cap-1 Maneuver	-	*709	*1061	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.3	0.2	0
HCM LOS	B		

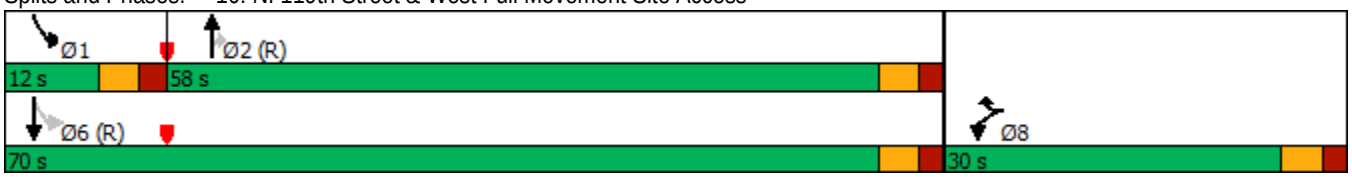
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	* 1061	-	709	-	-
HCM Lane V/C Ratio	0.016	-	0.2	-	-
HCM Control Delay (s)	8.4	-	11.3	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.7	-	-

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

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	95	81	424	32	27	726
Future Volume (vph)	95	81	424	32	27	726
Turn Type	Prot	Prot	NA	Perm	pm+pt	NA
Protected Phases	8	8	2		1	6
Permitted Phases				2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	30.0	30.0	58.0	58.0	12.0	70.0
Total Split (%)	30.0%	30.0%	58.0%	58.0%	12.0%	70.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)	11.0	11.0	72.3	72.3	79.0	79.0
Actuated g/C Ratio	0.11	0.11	0.72	0.72	0.79	0.79
v/c Ratio	0.52	0.34	0.17	0.03	0.04	0.27
Control Delay	50.7	12.6	2.7	0.8	1.3	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.7	12.6	2.7	0.8	1.3	1.3
LOS	D	B	A	A	A	A
Approach Delay	33.2		2.6			1.3
Approach LOS	C		A			A

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 32 (32%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.52	
Intersection Signal Delay: 5.8	Intersection LOS: A
Intersection Capacity Utilization 33.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 10: N. 119th Street & West Full Movement Site Access



Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	19	46	67	0	1	57
Future Vol, veh/h	19	46	67	0	1	57
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	150	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	48	71	0	1	60

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	71	0	-	0	159	71
Stage 1	-	-	-	-	71	-
Stage 2	-	-	-	-	88	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1529	-	-	-	837	991
Stage 1	-	-	-	-	952	-
Stage 2	-	-	-	-	938	-
Platoon blocked, %		-	-	-	1	
Mov Cap-1 Maneuver	1529	-	-	-	826	991
Mov Cap-2 Maneuver	-	-	-	-	826	-
Stage 1	-	-	-	-	940	-
Stage 2	-	-	-	-	938	-

Approach	EB	WB	SB
HCM Control Delay, s	2.2	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1529	-	-	-	988
HCM Lane V/C Ratio	0.013	-	-	-	0.062
HCM Control Delay (s)	7.4	-	-	-	8.9
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	16	31	15	7	24	52
Future Vol, veh/h	16	31	15	7	24	52
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	150	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	33	16	7	25	55

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	23	0	-	0	83	16
Stage 1	-	-	-	-	16	-
Stage 2	-	-	-	-	67	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1592	-	-	-	924	1063
Stage 1	-	-	-	-	1007	-
Stage 2	-	-	-	-	959	-
Platoon blocked, %		-	-	-	1	
Mov Cap-1 Maneuver	1592	-	-	-	914	1063
Mov Cap-2 Maneuver	-	-	-	-	914	-
Stage 1	-	-	-	-	996	-
Stage 2	-	-	-	-	959	-

Approach	EB	WB	SB
HCM Control Delay, s	2.5	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1592	-	-	-	914	1063
HCM Lane V/C Ratio	0.011	-	-	-	0.028	0.051
HCM Control Delay (s)	7.3	-	-	-	9.1	8.6
HCM Lane LOS	A	-	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0.2

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	48	407	39	32	788
Future Vol, veh/h	0	48	407	39	32	788
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	-	225	250	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	51	428	41	34	829

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	214	0	0	469	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	0	*923	-	-	1347	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %		1	-	-	1	-
Mov Cap-1 Maneuver	-	*923	-	-	1347	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	0.3
HCM LOS	A		

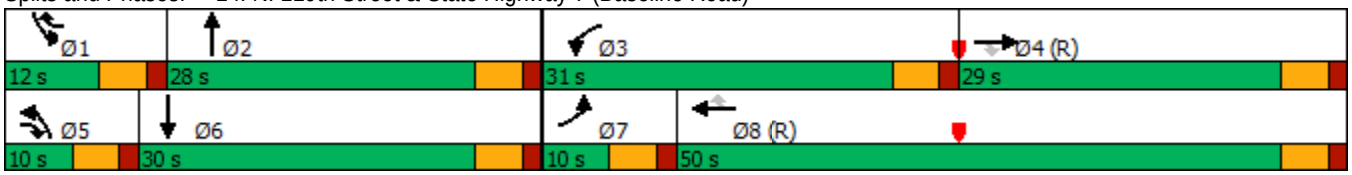
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	923	1347	-
HCM Lane V/C Ratio	-	-	0.055	0.025	-
HCM Control Delay (s)	-	-	9.1	7.7	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	415	70	629	946	205	55	161	236	123	511	155
Future Volume (vph)	80	415	70	629	946	205	55	161	236	123	511	155
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Free	Prot	NA	Free
Protected Phases	7	4	5	3	8	1	5	2		1	6	
Permitted Phases			4			8			Free			Free
Detector Phase	7	4	5	3	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	23.0	10.0	10.0	23.0	10.0	10.0	23.0		10.0	23.0	
Total Split (s)	10.0	29.0	10.0	31.0	50.0	12.0	10.0	28.0		12.0	30.0	
Total Split (%)	10.0%	29.0%	10.0%	31.0%	50.0%	12.0%	10.0%	28.0%		12.0%	30.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	8.5	34.2	44.2	25.5	53.3	65.3	7.0	19.4	100.0	8.9	23.3	100.0
Actuated g/C Ratio	0.08	0.34	0.44	0.26	0.53	0.65	0.07	0.19	1.00	0.09	0.23	1.00
v/c Ratio	0.29	0.36	0.10	0.76	0.53	0.19	0.24	0.25	0.16	0.42	0.65	0.10
Control Delay	45.9	27.8	0.7	54.7	13.8	0.4	46.7	33.5	0.2	37.2	34.9	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.9	27.8	0.7	54.7	13.8	0.4	46.7	33.5	0.2	37.2	34.9	0.1
LOS	D	C	A	D	B	A	D	C	A	D	C	A
Approach Delay		27.0			26.7			17.7			28.4	
Approach LOS		C			C			B			C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 48 (48%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 26.0	Intersection LOS: C
Intersection Capacity Utilization 61.9%	ICU Level of Service B
Analysis Period (min) 15	

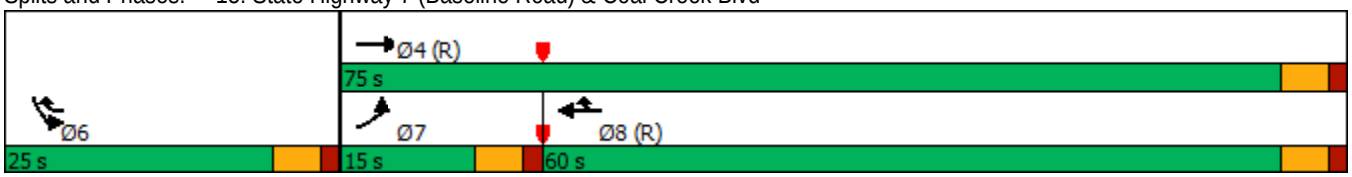
Splits and Phases: 14: N. 119th Street & State Highway 7 (Baseline Road)



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	178	598	1362	620	598	438
Future Volume (vph)	178	598	1362	620	598	438
Turn Type	Prot	NA	NA	pt+ov	Prot	Free
Protected Phases	7	4	8	8 6	6	
Permitted Phases						Free
Detector Phase	7	4	8	8 6	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	
Minimum Split (s)	10.0	23.0	23.0		23.0	
Total Split (s)	15.0	75.0	60.0		25.0	
Total Split (%)	15.0%	75.0%	60.0%		25.0%	
Yellow Time (s)	3.5	3.5	3.5		3.5	
All-Red Time (s)	1.5	1.5	1.5		1.5	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	5.0	5.0	5.0		5.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	C-Max	C-Max		None	
Act Effct Green (s)	9.5	70.0	55.5	80.5	20.0	100.0
Actuated g/C Ratio	0.10	0.70	0.56	0.80	0.20	1.00
v/c Ratio	0.58	0.25	0.73	0.51	0.92	0.29
Control Delay	51.5	3.3	19.5	4.2	54.7	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.5	3.3	19.5	4.2	54.7	0.5
LOS	D	A	B	A	D	A
Approach Delay		14.3	14.7		31.8	
Approach LOS		B	B		C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 19.3	Intersection LOS: B
Intersection Capacity Utilization 72.3%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 15: State Highway 7 (Baseline Road) & Coal Creek Blvd



Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Vol, veh/h	0	1198	1931	5	0	5
Future Vol, veh/h	0	1198	1931	5	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Yield	-	None
Storage Length	-	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1261	2033	5	0	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	1017
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	235
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	235
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	20.7
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	235
HCM Lane V/C Ratio	-	-	-	0.022
HCM Control Delay (s)	-	-	-	20.7
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Vol, veh/h	0	774	1759	25	0	21
Future Vol, veh/h	0	774	1759	25	0	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	0	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	815	1852	26	0	22

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	926
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	*372
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		1
Mov Cap-1 Maneuver	-	-	-	-	-	*372
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	15.3
HCM LOS			C

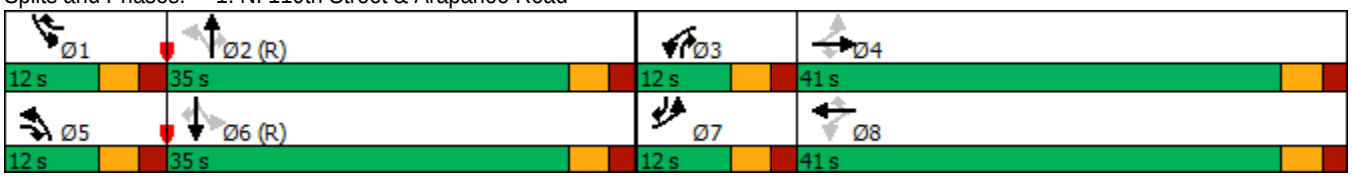
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	372
HCM Lane V/C Ratio	-	-	-	0.059
HCM Control Delay (s)	-	-	-	15.3
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.2

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	632	440	108	261	38	228	375	162	69	288	120
Future Volume (vph)	175	632	440	108	261	38	228	375	162	69	288	120
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	12.0	41.0	12.0	12.0	41.0	12.0	12.0	35.0	12.0	12.0	35.0	12.0
Total Split (%)	12.0%	41.0%	12.0%	12.0%	41.0%	12.0%	12.0%	35.0%	12.0%	12.0%	35.0%	12.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	32.2	25.2	41.9	32.1	25.1	37.8	52.1	42.3	54.3	43.7	36.1	48.1
Actuated g/C Ratio	0.32	0.25	0.42	0.32	0.25	0.38	0.52	0.42	0.54	0.44	0.36	0.48
v/c Ratio	0.48	0.75	0.55	0.54	0.31	0.06	0.42	0.26	0.18	0.15	0.24	0.15
Control Delay	26.6	39.7	8.5	26.6	27.6	2.5	7.1	8.4	1.3	14.4	24.5	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.6	39.7	8.5	26.6	27.6	2.5	7.1	8.4	1.3	14.4	24.5	3.8
LOS	C	D	A	C	C	A	A	A	A	B	C	A
Approach Delay		26.8			25.0			6.5			17.8	
Approach LOS		C			C			A			B	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 59 (59%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 19.7	Intersection LOS: B
Intersection Capacity Utilization 60.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: N. 119th Street & Arapahoe Road



Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	773	26	9	399	13	6
Future Vol, veh/h	773	26	9	399	13	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	250	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	814	27	9	420	14	6

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	841	0	1042	407
Stage 1	-	-	-	-	814	-
Stage 2	-	-	-	-	228	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	790	-	225	593
Stage 1	-	-	-	-	396	-
Stage 2	-	-	-	-	788	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	790	-	223	593
Mov Cap-2 Maneuver	-	-	-	-	223	-
Stage 1	-	-	-	-	396	-
Stage 2	-	-	-	-	779	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	18.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	223	593	-	-	790	-
HCM Lane V/C Ratio	0.061	0.011	-	-	0.012	-
HCM Control Delay (s)	22.2	11.1	-	-	9.6	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	731	48	20	383	25	12
Future Vol, veh/h	731	48	20	383	25	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	250	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	769	51	21	403	26	13

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	820	0	1013	385
Stage 1	-	-	-	-	769	-
Stage 2	-	-	-	-	244	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	805	-	235	613
Stage 1	-	-	-	-	418	-
Stage 2	-	-	-	-	774	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	805	-	229	613
Mov Cap-2 Maneuver	-	-	-	-	229	-
Stage 1	-	-	-	-	418	-
Stage 2	-	-	-	-	754	-

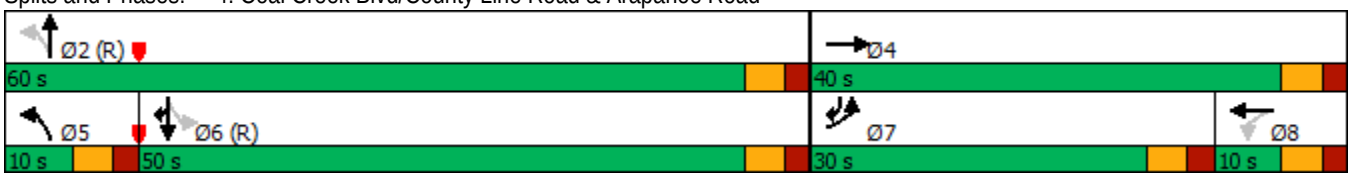
Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	19
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	229	613	-	-	805	-
HCM Lane V/C Ratio	0.115	0.021	-	-	0.026	-
HCM Control Delay (s)	22.8	11	-	-	9.6	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0.1	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	497	1	2	1	139	627	2	520	264
Future Volume (vph)	497	1	2	1	139	627	2	520	264
Turn Type	Prot	NA	Perm	NA	pm+pt	NA	Perm	NA	pt+ov
Protected Phases	7	4		8	5	2		6	6 7
Permitted Phases			8		2		6		
Detector Phase	7	4	8	8	5	2	6	6	6 7
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	
Total Split (s)	30.0	40.0	10.0	10.0	10.0	60.0	50.0	50.0	
Total Split (%)	30.0%	40.0%	10.0%	10.0%	10.0%	60.0%	50.0%	50.0%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead		Lag	Lag	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	
Act Effct Green (s)	20.6	22.6		5.6	67.4	67.4	55.1	55.1	80.8
Actuated g/C Ratio	0.21	0.23		0.06	0.67	0.67	0.55	0.55	0.81
v/c Ratio	0.74	0.47		0.05	0.27	0.28	0.00	0.28	0.21
Control Delay	49.4	23.4		39.2	4.7	4.2	13.5	13.5	0.8
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.4	23.4		39.2	4.7	4.2	13.5	13.5	0.8
LOS	D	C		D	A	A	B	B	A
Approach Delay		40.8		39.2		4.3		9.2	
Approach LOS		D		D		A		A	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 17.8	Intersection LOS: B
Intersection Capacity Utilization 55.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: Coal Creek Blvd/County Line Road & Arapahoe Road



Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	49	668	672	13	8	34
Future Vol, veh/h	49	668	672	13	8	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	325	-	-	275	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	52	703	707	14	8	36

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	721	0	-	0	1163	354
Stage 1	-	-	-	-	707	-
Stage 2	-	-	-	-	456	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	877	-	-	-	188	642
Stage 1	-	-	-	-	450	-
Stage 2	-	-	-	-	605	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	877	-	-	-	177	642
Mov Cap-2 Maneuver	-	-	-	-	177	-
Stage 1	-	-	-	-	423	-
Stage 2	-	-	-	-	605	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	13.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	877	-	-	-	177	642
HCM Lane V/C Ratio	0.059	-	-	-	0.048	0.056
HCM Control Delay (s)	9.4	-	-	-	26.4	10.9
HCM Lane LOS	A	-	-	-	D	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.1	0.2

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	44	68	706	686	19
Future Vol, veh/h	11	44	68	706	686	19
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	0	350	-	-	275
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	46	72	743	722	20

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1238	361	742	0	-	0
Stage 1	722	-	-	-	-	-
Stage 2	516	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	168	636	861	-	-	-
Stage 1	442	-	-	-	-	-
Stage 2	564	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	154	636	861	-	-	-
Mov Cap-2 Maneuver	154	-	-	-	-	-
Stage 1	405	-	-	-	-	-
Stage 2	564	-	-	-	-	-

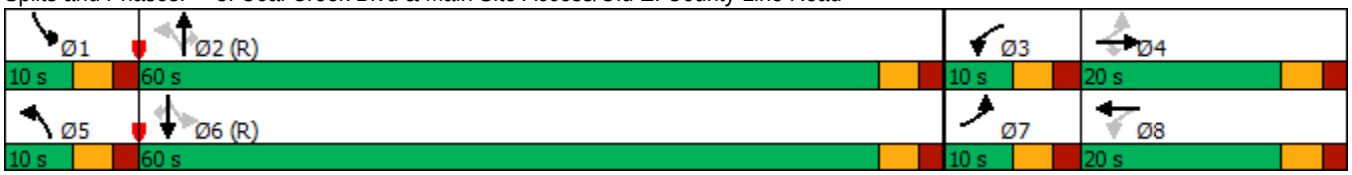
Approach	EB	NB	SB
HCM Control Delay, s	14.9	0.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	861	-	154	636	-	-
HCM Lane V/C Ratio	0.083	-	0.075	0.073	-	-
HCM Control Delay (s)	9.6	-	30.3	11.1	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.2	0.2	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	20	7	58	87	0	99	815	113	29	733	23
Future Volume (vph)	20	7	58	87	0	99	815	113	29	733	23
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases	4		4	8		2		2	6		6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	10.0	20.0	20.0	10.0	20.0	10.0	60.0	60.0	10.0	60.0	60.0
Total Split (%)	10.0%	20.0%	20.0%	10.0%	20.0%	10.0%	60.0%	60.0%	10.0%	60.0%	60.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	9.9	6.0	6.0	11.9	10.0	76.0	72.4	72.4	73.0	69.2	69.2
Actuated g/C Ratio	0.10	0.06	0.06	0.12	0.10	0.76	0.72	0.72	0.73	0.69	0.69
v/c Ratio	0.13	0.06	0.28	0.56	0.05	0.20	0.34	0.10	0.06	0.32	0.02
Control Delay	37.6	45.3	3.2	52.8	0.2	3.3	4.9	0.6	2.8	10.3	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.6	45.3	3.2	52.8	0.2	3.3	4.9	0.6	2.8	10.3	0.7
LOS	D	D	A	D	A	A	A	A	A	B	A
Approach Delay		14.6			43.4		4.2			9.7	
Approach LOS		B			D		A			A	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.56	
Intersection Signal Delay: 8.9	Intersection LOS: A
Intersection Capacity Utilization 50.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 8: Coal Creek Blvd & Main Site Access/Old E. County Line Road



Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	145	55	1028	828	46
Future Vol, veh/h	0	145	55	1028	828	46
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	380	-	-	275
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	153	58	1082	872	48

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	436	920	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	0	*740	*1106	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %		1	1	-	-	-
Mov Cap-1 Maneuver	-	*740	*1106	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.1	0.4	0
HCM LOS	B		

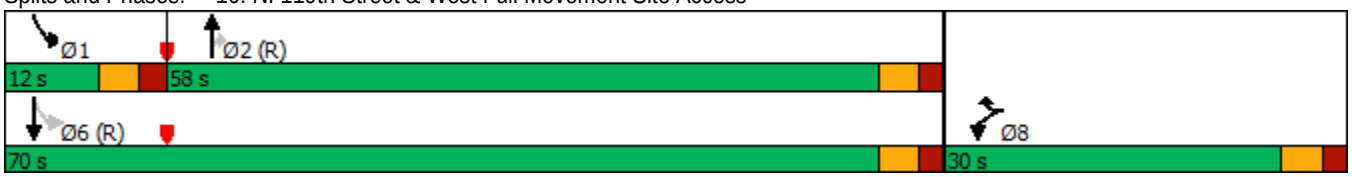
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	* 1106	-	740	-	-
HCM Lane V/C Ratio	0.052	-	0.206	-	-
HCM Control Delay (s)	8.4	-	11.1	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.8	-	-

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

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	63	54	712	111	92	749
Future Volume (vph)	63	54	712	111	92	749
Turn Type	Prot	Prot	NA	Perm	pm+pt	NA
Protected Phases	8	8	2		1	6
Permitted Phases				2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	30.0	30.0	58.0	58.0	12.0	70.0
Total Split (%)	30.0%	30.0%	58.0%	58.0%	12.0%	70.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)	9.1	9.1	74.5	74.5	83.0	84.0
Actuated g/C Ratio	0.09	0.09	0.74	0.74	0.83	0.84
v/c Ratio	0.41	0.29	0.28	0.10	0.17	0.26
Control Delay	49.8	15.2	1.2	0.2	1.9	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.8	15.2	1.2	0.2	1.9	1.4
LOS	D	B	A	A	A	A
Approach Delay	33.8		1.1			1.5
Approach LOS	C		A			A

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 6 (6%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.41	
Intersection Signal Delay: 3.4	Intersection LOS: A
Intersection Capacity Utilization 41.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 10: N. 119th Street & West Full Movement Site Access



Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	64	85	68	1	1	38
Future Vol, veh/h	64	85	68	1	1	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	150	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	67	89	72	1	1	40

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	73	0	-	0	295	72
Stage 1	-	-	-	-	72	-
Stage 2	-	-	-	-	223	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1527	-	-	-	712	990
Stage 1	-	-	-	-	951	-
Stage 2	-	-	-	-	825	-
Platoon blocked, %		-	-	-	1	
Mov Cap-1 Maneuver	1527	-	-	-	680	990
Mov Cap-2 Maneuver	-	-	-	-	680	-
Stage 1	-	-	-	-	909	-
Stage 2	-	-	-	-	825	-

Approach	EB	WB	SB
HCM Control Delay, s	3.2	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1527	-	-	-	979
HCM Lane V/C Ratio	0.044	-	-	-	0.042
HCM Control Delay (s)	7.5	-	-	-	8.8
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	55	31	36	25	15	33
Future Vol, veh/h	55	31	36	25	15	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	150	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	58	33	38	26	16	35

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	64	0	-	0	187	38
Stage 1	-	-	-	-	38	-
Stage 2	-	-	-	-	149	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1538	-	-	-	806	1034
Stage 1	-	-	-	-	984	-
Stage 2	-	-	-	-	881	-
Platoon blocked, %		-	-	-	1	
Mov Cap-1 Maneuver	1538	-	-	-	776	1034
Mov Cap-2 Maneuver	-	-	-	-	776	-
Stage 1	-	-	-	-	947	-
Stage 2	-	-	-	-	881	-

Approach	EB	WB	SB
HCM Control Delay, s	4.8	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1538	-	-	-	776	1034
HCM Lane V/C Ratio	0.038	-	-	-	0.02	0.034
HCM Control Delay (s)	7.4	-	-	-	9.7	8.6
HCM Lane LOS	A	-	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1	0.1

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	99	723	122	99	713
Future Vol, veh/h	0	99	723	122	99	713
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	-	225	250	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	104	761	128	104	751

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	381	0	0	889	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	0	*801	-	-	1060	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %		1	-	-	1	-
Mov Cap-1 Maneuver	-	*801	-	-	1060	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.2	0	1.1
HCM LOS	B		

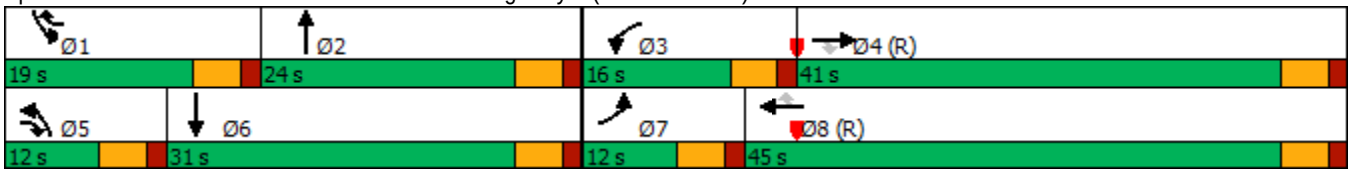
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	801	1060	-
HCM Lane V/C Ratio	-	-	0.13	0.098	-
HCM Control Delay (s)	-	-	10.2	8.8	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0.3	-

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	220	1012	55	306	692	204	40	422	580	385	224	105
Future Volume (vph)	220	1012	55	306	692	204	40	422	580	385	224	105
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Free	Prot	NA	Free
Protected Phases	7	4	5	3	8	1	5	2		1	6	
Permitted Phases			4			8			Free			Free
Detector Phase	7	4	5	3	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	23.0	10.0	10.0	23.0	10.0	10.0	23.0		10.0	23.0	
Total Split (s)	12.0	41.0	12.0	16.0	45.0	19.0	12.0	24.0		19.0	31.0	
Total Split (%)	12.0%	41.0%	12.0%	16.0%	45.0%	19.0%	12.0%	24.0%		19.0%	31.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	10.3	39.7	51.1	13.6	43.0	61.8	8.4	19.0	100.0	15.7	28.3	100.0
Actuated g/C Ratio	0.10	0.40	0.51	0.14	0.43	0.62	0.08	0.19	1.00	0.16	0.28	1.00
v/c Ratio	0.66	0.76	0.07	0.69	0.48	0.21	0.15	0.66	0.39	0.75	0.24	0.07
Control Delay	53.5	30.8	0.1	39.0	41.2	10.5	43.4	42.5	0.7	42.8	27.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.5	30.8	0.1	39.0	41.2	10.5	43.4	42.5	0.7	42.8	27.3	0.1
LOS	D	C	A	D	D	B	D	D	A	D	C	A
Approach Delay		33.4			35.4			19.3			31.6	
Approach LOS		C			D			B			C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 30.2	Intersection LOS: C
Intersection Capacity Utilization 72.7%	ICU Level of Service C
Analysis Period (min) 15	

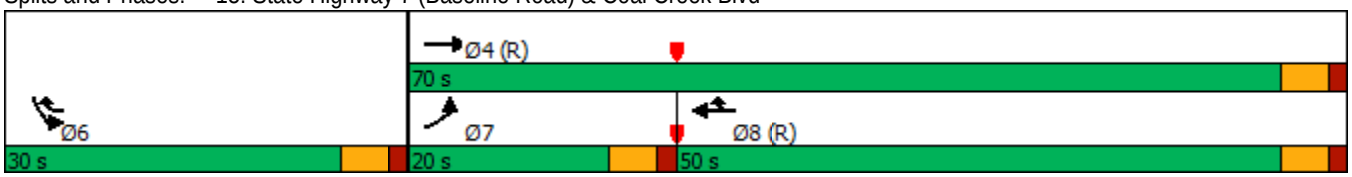
Splits and Phases: 14: N. 119th Street & State Highway 7 (Baseline Road)



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	427	1565	905	658	688	283
Future Volume (vph)	427	1565	905	658	688	283
Turn Type	Prot	NA	NA	pt+ov	Prot	Free
Protected Phases	7	4	8	8 6	6	
Permitted Phases						Free
Detector Phase	7	4	8	8 6	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	
Minimum Split (s)	10.0	23.0	23.0		23.0	
Total Split (s)	20.0	70.0	50.0		30.0	
Total Split (%)	20.0%	70.0%	50.0%		30.0%	
Yellow Time (s)	3.5	3.5	3.5		3.5	
All-Red Time (s)	1.5	1.5	1.5		1.5	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	5.0	5.0	5.0		5.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	C-Max	C-Max		None	
Act Effct Green (s)	14.9	65.7	45.8	75.1	24.3	100.0
Actuated g/C Ratio	0.15	0.66	0.46	0.75	0.24	1.00
v/c Ratio	0.88	0.71	0.59	0.58	0.87	0.19
Control Delay	45.5	24.4	22.2	7.7	41.2	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.5	24.4	22.2	7.7	41.2	0.3
LOS	D	C	C	A	D	A
Approach Delay		28.9	16.1		29.3	
Approach LOS		C	B		C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 24.6	Intersection LOS: C
Intersection Capacity Utilization 71.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 15: State Highway 7 (Baseline Road) & Coal Creek Blvd



Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Vol, veh/h	0	2242	1521	3	0	10
Future Vol, veh/h	0	2242	1521	3	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Yield	-	None
Storage Length	-	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	2360	1601	3	0	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	801
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	327
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	327
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	16.4
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	327
HCM Lane V/C Ratio	-	-	-	0.032
HCM Control Delay (s)	-	-	-	16.4
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.4

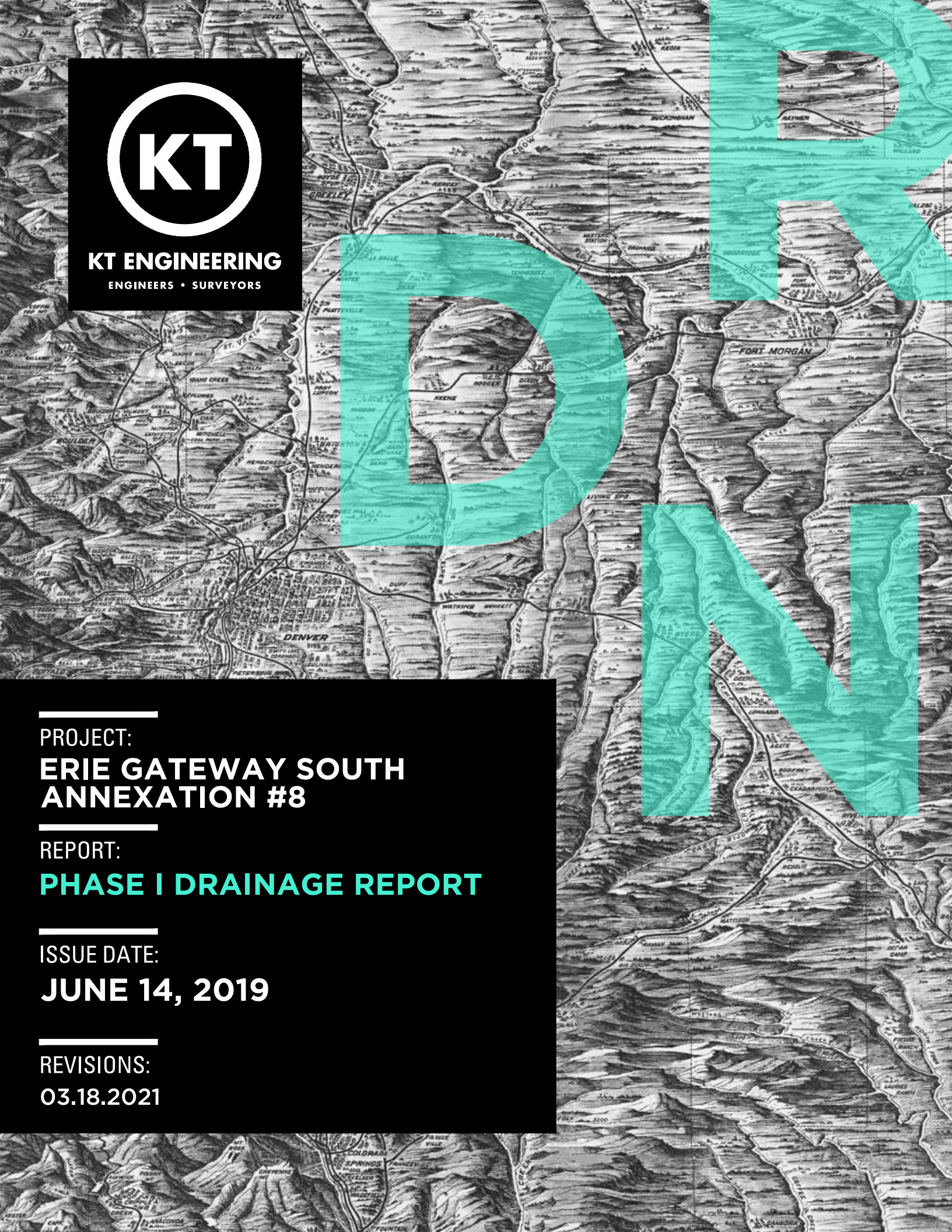
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Vol, veh/h	0	1978	1083	95	0	119
Future Vol, veh/h	0	1978	1083	95	0	119
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	0	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	2082	1140	100	0	125

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	570
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	*648
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		1
Mov Cap-1 Maneuver	-	-	-	-	-	*648
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	648
HCM Lane V/C Ratio	-	-	-	0.193
HCM Control Delay (s)	-	-	-	11.9
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.7

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



PROJECT:

ERIE GATEWAY SOUTH ANNEXATION #8

REPORT:

PHASE I DRAINAGE REPORT

ISSUE DATE:

JUNE 14, 2019

REVISIONS:

03.18.2021

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i. ENGINEER'S CERTIFICATION

"I hereby certify that this Phase I Drainage Report for the design of Erie Gateway South – Annexation #8 was prepared by me (or under my direct supervision) in accordance with the provisions of the *Town of Erie Standards and Specifications for Design and Construction* for the owners thereof. I understand that the Town of Erie does not and will not assume liability for drainage facilities designed by others, including the designs presented in this report."

Owen Keith Keenan
Registered Professional Engineer
State of Colorado No. 47677

ii. TOWN ACCEPTANCE

This report has been reviewed and found to be in general compliance with the *Town of Erie Standards and Specifications for Design and Construction* and other Town requirements. **THE ACCURACY AND VALIDITY OF THE ENGINEERING DESIGN, DETAILS, DIMENSIONS, QUANTITIES, AND CONCEPTS IN THIS REPORT REMAINS THE SOLE RESPONSIBILITY OF THE PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE APPEAR HEREON.**

Accepted by: _____ _____
Deputy Public Works Director Date

I. GENERAL LOCATION AND DESCRIPTION

A. Location

The portion of Parkdale Subdivision associated with the Erie Gateway South – Annexation #8 is a proposed 136 lot residential development on a 15.7 acre parcel of land. The development area associated the Erie Gateway South – Annexation #8 is bounded to the north and east by Parkdale Subdivision – Filing No. 1, to the south by Baseline Road, and to the west by privately owned land currently used for agriculture.

The Erie Gateway South – Annexation #8 development area is located in the SW ¼ Section 36, Township 1 North, Range 69 West of the Sixth Principal Meridian.

Coal Creek is the closest major drainage way and is located on the east side of E. County Line Road. The Coal Creek channel is located approximately 1,500 feet to the east of the site. All runoff generated from the proposed site is ultimately conveyed to Coal Creek.

A General Location Map has been provided in Appendix A.

B. Description of the Property

The Erie Gateway South – Annexation #8 parcel is approximately 15.7 acres in size. It is currently used as agricultural land with livestock. The existing property contains a residence and several barns and livestock pens.

Existing ground cover varies. Open fields with native grasses exist throughout a majority of the property. Trees primarily exist along Baseline Road frontage and buildings.

Drainageway 2 South traverses the development parcel along the south side of the parcel adjacent to Baseline Road. Drainageway 2 South was identified in the Town of Erie Outfall Systems Plan (West of Coal Creek). This document was prepared by RESPEC Consulting & Services dated January 2014 (Erie OSP). Drainageway 2 North is located just off the proposed development Parcel and is part of Parkdale Filing No. 1. Improvements were made to Drainageway 2 North as required in the Parkdale Filing No. 1 site.

There is no evidence of irrigation facilities within the Erie Gateway South – Annexation #8 parcel.

There is no evidence of wetland areas within the Erie Gateway South – Annexation #8 parcel. The Powers Marsh is located to the east of the project and contained within the Parkdale Filing No. 1 site. It is located approximately 550 feet to the east of the development parcel. The Powers Marsh has been designated as a Critical Wildlife Habitat in the Boulder County Comprehensive Plan. Boulder County acknowledges that this large wetland area is a known habitat for the Northern Harrier and Least Bittern bird species.

II. DRAINAGE BASINS

A. Major Basin Description

The Erie Gateway South – Annexation #8 parcel lies within the Coal Creek Drainage Basin. Coal Creek at its closest point to the site is approximately 1,500 feet to the east of the boundary on the east side of E. County Line Road. The development site is located approximately 1 mile downstream of the Rock Creeks confluence with Coal Creek. The entire Coal Creek and Rock Creek watershed is approximately 80 square miles and lies within Weld County, City and County of Broomfield, Boulder County, Jefferson County and Gilpin County.

Applicable Major Drainageway Studies

Coal Creek has been the subject of numerous Urban Drainage and Flood Control District (UDFCD) studies and master plans. Below is a list of the most recent UDFCD Drainage Studies and Master Plans associated with Coal Creek.

- Flood Hazard Area Delineation, Coal Creek and Rock Creek, Prepared by RESPEC Consulting Services, Dated November 2014.
- Coal Creek and Rock Creek, Major Drainageway Plan, Prepared by RESPEC Consulting Services, Dated October 2014.
- Town of Erie, Outfall Systems Plan (West of Coal Creek), Prepared by RESPEC Consulting Services, Dated January 2014.

The Erie Gateway South – Annexation #8 parcel is located in Zone X according to FEMA Flood Insurance Rate Maps (FIRM). Zone X is defined as areas determined to be outside the 0.2% annual chance floodplain. The Erie Gateway South – Annexation #8 parcel is located on map number 08013C0439J, Revised December 18, 2012.

Existing Major Basin Characteristics

Existing Coal Creek major basin characteristics include a mix of open space, parks, rural residential, low, medium and high density residential and commercial land uses. Table 1 below was obtained from the Coal Creek and Rock Creek Flood Hazard Area Delineation (Coal Creek FHAD) and summarizes percent impervious, land use, and percent of area composition of the Coal Creek Drainage basin.

Table 1: Existing Land Use Table

Percent Impervious	Land Use Type	Percent of Area
2%	Open Space	55%
3-10%	Parks	6%
11-20%	Rural Residential	5%
21-30%	Rural Residential	5%
31-40%	Rural Residential	6%
41-50%	Public Facilities/Schools	7%
51-60%	Low Density Residential	6%
61-70%	Med. Density Residential/Business Office	4%
71-80%	High Density Residential/Commercial	2%
81-90%	Retail/Roadways	2%
91-100%	Industrial	2%

The Coal Creek FHAD also developed a Future Land Use table which was developed by assigning imperviousness values to various land use categories provided from each municipalities' comprehensive plans. The Table 2 below summarizes these calculations.

Table 2: Future Land Use Table

Percent Impervious	Land Use Type	Percent of Area
2%	Open Space	33%
3-10%	Parks	11%
11-20%	Rural Residential	5%
21-30%	Rural Residential	4%
31-40%	Rural Residential	9%
41-50%	Public Facilities/Schools	7%
51-60%	Low Density Residential	9%
61-70%	Med. Density Residential/Business Office	4%
71-80%	High Density Residential/Commercial	8%
81-90%	Retail/Roadways	6%
91-100%	Industrial	4%

The Coal Creek FHAD states that the overall land use imperviousness for existing and future land use is 19.8% and 32.7%, respectively. In review of the land use map contained within the Coal Creek FHAD, the Erie Gateway South – Annexation #8 parcel was assumed open space in both existing and future analysis.

Existing Major Basin Drainage Patterns

In general, Coal Creek drains to the northeast. Coal Creek is a tributary to Boulder Creek. The Boulder Creek confluence is approximately 5 miles north of the Erie Gateway South – Annexation #8 parcel. Drainageway 2 South is within the subject property and Drainageway 2 North is just north the subject property and located within the Parkdale Filing No. 1 subdivision. It is anticipated that the North half of the Erie Gateway South – Annexation #8 parcel will outfall to Drainageway 2 North, and the South half of the site will outfall to Drainageway 2 South.

Existing Irrigation Facilities

There are no known irrigation facilities within the Erie Gateway South – Annexation #8 parcel.

Existing Ponds

There are no known ponds within the Erie Gateway South – Annexation #8 parcel.

B. Sub-basin Description

Proposed Master Plan Improvements

Improvements associated with the Erie OSP are proposed within the Erie Gateway South – Annexation #8 parcel. The Drainageway 2 South channel will be improved and constructed as part of the development improvements. The channel section will be capable of conveying 1,536 cfs, which corresponds to existing condition flows, which represents a worst case scenario in terms of peak flowrates. Once Regional Pond 1060 is constructed as part of the Erie OSP; flowrates along Drainageway 2 South would be reduced to 684 cfs. The design flow of 1,536 cfs corresponds with the triple box culvert (12'W x 5'H) design associated with the Parkdale Filing No. 1 improvements. The triple box culvert is located just downstream (or east) of the subject property. There will likely be at least one grouted boulder drop structure in the improved channel along Baseline Road.

Drainageway 2 North is located north of the subject property within Parkdale Filing No. 1. This channel is being improved for the improvements associated with Parkdale Filing No. 1. It is not anticipated that channel modifications will be necessary once the Erie Gateway South Annexation #8 parcel is developed due to the future design considerations associated with the Drainageway 2 North channel. These considerations will be discussed in greater detail below.

Existing Drainage Patterns

The Erie Gateway South – Annexation #8 parcel is sloped in two primary directions due to a ridge line or high point located in the approximate middle of the parcel. The north half of the parcel drains to the northeast, and the south half drains to the southeast. Flows along the north half enter the Drainageway 2 North associated with Parkdale Filing No. 1 and flows along the south half enter Drainageway 2 South.

Drainageway 2 South is composed of approximately 717 acres of tributary area upstream of the Erie Gateway South – Annexation #8 parcel outfall. This basin flows from west to east and is along Baseline Road through the southernmost portion of the site. Existing flooding problems are documented along the properties north of Baseline Road. This drainageway receives 100-year flows calculated as 1,536 cfs. Improvements associated with the development of the Erie Gateway South – Annexation #8 parcel will be to formalize the channel to provide capacity for 1,536 cfs. The channel will likely be constructed with at least one grouted boulder drop structure. Future improvements by others as presented in the Erie OSP include the construction of Regional Detention Pond 1060. This pond is to be located upstream of the subject site. The regional pond will reduce peak outflows to Drainageway 2 South to historical flowrates as well as diverting excess flows to the North to Drainageway 2 North.

Drainageway 2 North is composed of approximately 156 acres of tributary area adjacent to the Erie Gateway South – Annexation #8 parcel outfall. In general, this basin flows from west to east. Runoff from this basin is generated in the open space parcel located on the west side of N. 119th Street. Runoff is conveyed under N. 119th Street via a 24-inch RCP culvert. Flows proceed east through private property before being intercepted by Channel A associated with the Parkdale Filing No. 1 improvements. Flows are ultimately conveyed under Coal Creek Boulevard via a 20'W x 10'H box culvert containing a 12'W pedestrian underpass. Flows ultimately continue east before entering Regional WQCV Pond B associated with Parkdale Filing No. 1 improvements.

Downstream Flow Patterns and Impacts of Proposed Development

The Coal Creek Outfall for Drainageway 2 South is approximately 1,200 feet to the east of the Erie Gateway South – Annexation #8 parcel. The existing Drainageway 2 South outfall downstream of the subject site has been improved with the Parkdale Filing No. 1 site. Improvements consist of a triple 12'W x 5'H box culvert capable of conveying existing 100-year flows. Downstream of the Parkdale Filing No. 1 improvements are undersized infrastructure. Flooding will be an issue with the remaining private properties along Drainageway 2 South until future Regional Detention Pond 1060 is constructed. Drainageway 2 South flows continue east through the project and adjacent wetland area and ultimately outfall to Coal Creek.

Drainageway 2 North discharges into Regional WQCV Pond B associated with the Parkdale Filing No. 1 improvements. Pond B is located approximately 1,700 feet to the northeast of the subject site. Regional WQCV Pond B and Drainageway 2 North (Identified as Channel A in Parkdale Filing No. 1) was designed to accommodate developed flows from surrounding offsite parcels. The offsite parcels assumed fully developed were for Parkdale Filing No. 3, 12177 Baseline Road, and all the parcels that front Baseline Road located in Parkdale Filing No. 1 Basin G7. An assumed imperviousness of 80% was assumed for these parcels, which corresponds to mixed use land use. The subject site was considered agricultural land (2% imperviousness) in the Phase III Parkdale Filing No. 1 Drainage Report; however, Parkdale Filing No. 3 is in the Preliminary Plat process and is proposed to be single-family and duplex residences, which have significantly lower imperviousness levels than the original estimate of 80%. The Phase II Drainage Study imperviousness calculations show that the entire Filing No. 3 site is 54.89% impervious. With this change incorporated into the drainage basin calculations, along with assuming the subject site is 75% impervious yields an overall revised imperviousness less than the overall imperviousness calculated in the Phase III Parkdale Filing

No. 1 Drainage Report. The composite basin resulting in the combination of Basins G7+G8+G13+G14 in the Phase III Parkdale Filing No. 1 Drainage Report results in a total area of 53.97acres at 69.3% impervious. When Parkdale Filing No. 3 is modified from 80% impervious to 54.89% impervious and the development of the subject parcel at an assumed 75% impervious; the revised composite basin for G7+G8+G13+G14 becomes 53.54 acres at 66.9% impervious which is less in both total area and imperviousness; which in turn would yield smaller flowrates to Drainageway 2 South than was previously anticipated in the Phase III Parkdale Filing No. 1 Drainage Report. Therefore, detention along the north half of the subject site is unnecessary and is in compliance with the Phase III Parkdale Filing No. 1 Drainage Report.

III. DRAINAGE FACILITY DESIGN

A. General Concept

Existing Drainage Patterns

There are two existing drainage patterns through the site. The north half of the site drains to the northeast and ultimately enters Drainageway 2 North and the south half of the site drains to the southeast and ultimately enters Drainageway 2 South.

Compliance with off-site runoff

The north half of the subject site is proposed to be released to Drainageway 2 North without detention. Due to the original assumptions made in the design of Parkdale Filing No. 1; no detention is required on the subject site based on the fact that overall imperviousness values assumed were much higher than anticipated and this allows the subject site to be released to Drainageway 2 North. There would be no negative impact from undetained flows from the subject site as downstream infrastructure has been designed to accommodate developed flows.

The south half of the subject site is proposed to be released to Drainageway 2 South. It is anticipated that channel improvements capable of 1,536 cfs will be constructed as part of the subject sites improvements. The proposed channel capacity is based on the existing condition 100-year flows, which represents a worst case scenario; as the future plans for Regional Pond 1060 will ultimately reduce 100-year flows once constructed.

Onsite and Offsite Drainage Concerns

The only existing drainage concern on the subject site is prone to flooding along Drainageway 2 South. Formalized channel improvements are anticipated along the southern portion of the subject site capable of conveying 100-year flows.

Anticipated and Proposed Drainage Patterns & Facilities

In general, drainage patterns within the developed Erie Gateway South – Annexation #8 parcel will remain the same. It is anticipated that the north half of the developed site will drain to the north and east. Developed storm flows will be captured and conveyed in the proposed street curb and gutter system to storm drain inlets. Minor storm flows will dictate storm inlet placement based on street classification. Captured flows in the storm drain system will be conveyed to Drainageway 2 North without detention.

The southern half of the developed site will drain to the south and east. Developed storm flows will be captured and conveyed in the proposed street curb and gutter system to storm drain inlets. Minor storm flows will dictate storm inlet placement based on street classification. Captured flows in the storm drain system will be conveyed to a Full Spectrum Detention Pond. It is anticipated that the proposed detention pond will contain the Water Quality Capture Volume, Excess Urban Runoff Volume, and the 100-year storm events.

Wetland Mitigation
There are no known wetland areas within the Erie Gateway South – Annexation #8 development area.

Design Tables & Charts
Tables and charts utilized for the calculations enclosed in this report are attached in Appendix A of this report. Design tables and criteria were obtained from the 2019 Edition of the Design and Construction of Public Improvements, Town of Erie, Colorado, Section 800 Storm Drainage Facilities, and/or the Urban Storm Drainage Criteria Manual Revised August 2018.

Report Methodology
On-site Basins (M1-M4) were analyzed using the rational method. Surrounding regional hydrology has been previously analyzed in the Phase III Parkdale Filing No. 1 Drainage Report. Regional calculations included in this report were done utilizing the Colorado Urban Hydrograph Procedure (CUHP) and routed with EPA Stormwater Management Model (SWMM).

The Proposed on-site detention pond was sized utilizing UD-Detention, Version 3.07 (February 2017) as provided by the Urban Drainage and Flood Control District.

Discussion of Referenced Reports
The primary document utilized in this Report is the Phase III Parkdale Filing No. 1 Drainage Report, prepared by KT Engineering, with a last revision date of May 6, 2019. The Town of Erie, Outfall Systems Plan (West of Coal Creek), prepared by RESPEC Consulting Services, dated January 2014 was used in preparation of the Phase III Parkdale Filing No. 1 Drainage Report. The Phase III Parkdale Filing No. 1 Drainage Report is currently undergoing a third review and is not approved at this time.

The Phase II Parkdale Filing No. 3 Drainage Report was also utilized in this report. This drainage report is currently undergoing review and is not approved at this time.

B. Specific Details

Major and Minor Drainage Flows for Major Basins
Drainageway 2 South flowrates within the subject have been previously studied in the Phase III Parkdale Filing No. 1 Drainage Report. Existing calculated 2-year and 100-year flows are 275 cfs and 1,536 cfs, respectively. With the future regional detention Pond 1060 constructed, flows in Drainageway 2 South will be reduced to 67 cfs and 684 cfs for the 2-year and 100-year storm events.

Drainageway 2 North through Parkdale Filing No. 1 was designed as part of the Phase III Parkdale Filing No. 1 Drainage Report. Peak 2-year and 100-year flowrates are 135 cfs and 536 cfs, respectively. Drainageway 2 North through Parkdale Filing No. 1 was designed assuming regional Pond 1060 is in place and diverting the initial pond outflows up to a maximum of 222 cfs through the Drainageway 2 North channel. This scenario represents a worst case scenario in terms of peak flowrates. Existing flowrates without Regional Pond 1060 are calculated as 62 cfs and 362 cfs for the 2-year and 100-year storm events.

As previously discussed, flows from Basins M1 and M2 will enter Drainageway 2 North and will be undetained developed flows. This is acceptable due to the high levels of imperviousness assumed in the design of Drainageway 2 North through the Parkdale Filing No. 1 site. Specifically, the Parkdale Filing No. 3 site was assumed to be much more impervious than is currently planned, and therefore the addition of the developed Erie Gateway South – Annexation #8 parcel would not cause and adverse impact to the drainage system associated with Parkdale Filing No. 1.

Basin M3 is the total tributary area to Pond #1. Pond #1 is a proposed Full Spectrum Detention Pond. It is anticipated that Pond #1 will contain WQCV, EURV, and 100-year detention volumes. Pond #1 will contain an approximate volume of 1.07acre-feet and will outfall into the improved channel section of Drainageway 2 South along Baseline Road.

Potential Drainage Problems and Solutions

Developed flows from Basin M3 will need detention in order to not increase flowrates to Drainageway 2 South. Pond #1 is proposed in order to provide detention up to the 100-year storm event and therefore impacts on Drainageway 2 South will be mitigated.

Detention Pond Storage and Outlet Design

There is one proposed detention facility located within the Erie Gateway South – Annexation #8 site. Pond #1 is located in Basin M3 and will provide full spectrum (WQCV, EURV, and 100-year) detention for 7.9 acres of the subject site. Pond #1 will provide an approximate EURV and 100-year storage volumes of 0.70 and 1.14 acre feet. Peak flowrates out of Pond #1 for the EURV and 100-year storm events will be approximately 0.2 cfs and 7.5 cfs. The pond outlet structure will consist of a two stage outlet structure with a restrictor plate on the inside of the outlet structure. The WQCV and EURV release rate will be controlled by an orifice plate. The 100-year release rate will be controlled by the restrictor plate located on the outgoing pipe in the outlet structure. The pond will include a trickle channel and a micro-pool will be located just upstream of the outlet structure. Access to the bottom of the outlet structure will be provided via an all-weather surface access. Grading along the bottom of pond will be graded at 2 percent to the trickle channel. The trickle channel will have a longitudinal slope of 0.5% minimum draining toward the outlet structure.

Maintenance and Access of Drainage Facilities

The proposed Drainageway 2 South improved channel will have an access road located above the 100-year water surface elevation for maintenance purposes. Access to the bottom of the Pond #1 outlet structure will be provided for maintenance purposes. It is anticipated that major storm outfalls entering the pond will include a concrete forebay at the pipe outlet. Maintenance access will be provided to the proposed forebay.

Drainage Impacts to Downstream Properties

There should be no adverse impacts to downstream properties as a result of the Erie Gateway South – Annexation #8 development. Drainageway 2 North in the Parkdale Filing No. 1 Site (and ultimately Regional WQCV Pond B) has been sized to accommodate undetained flows from Basins M1 and M2. Pond #1is located in the southern half of the subject site will reduce flows from the existing condition and therefore will not adversely impact downstream properties.

C. Adaptations from Criteria

A waiver from Section 814.00 of the Town of Erie's Standards and Specifications that require detention and restricted release rates for all new development. This waiver only applies to Basins M1 and M2, or the northerly drainage outfall of the subject site. This waiver is requested because all downstream infrastructure has been designed assuming no detention from the developed site.

IV. SUMMARY

A. Conclusion

This site is designed to conform to the criteria set forth in the Town of Erie Standards and Specifications for Design and Construction of Public Improvements (2019 Edition) and the Urban Storm Drainage Criteria Manual (Revised August 2018). The facilities to be built with this subdivision will effectively prevent damage to property due to stormwater runoff and will not create any adverse effects to the downstream properties.

V. REFERENCES

1. **Urban Storm Drainage Criteria Manual**
   Urban Drainage and Flood Control District, Revised August 2018

2. **Town of Erie Standards and Specifications for Design and Construction of Public Improvements**
   Town of Erie, 2019 Edition

3. **Parkdale – Filing No. 1 Phase III Drainage Report**
   KT Engineering, Last Revision Date: May 6, 2019

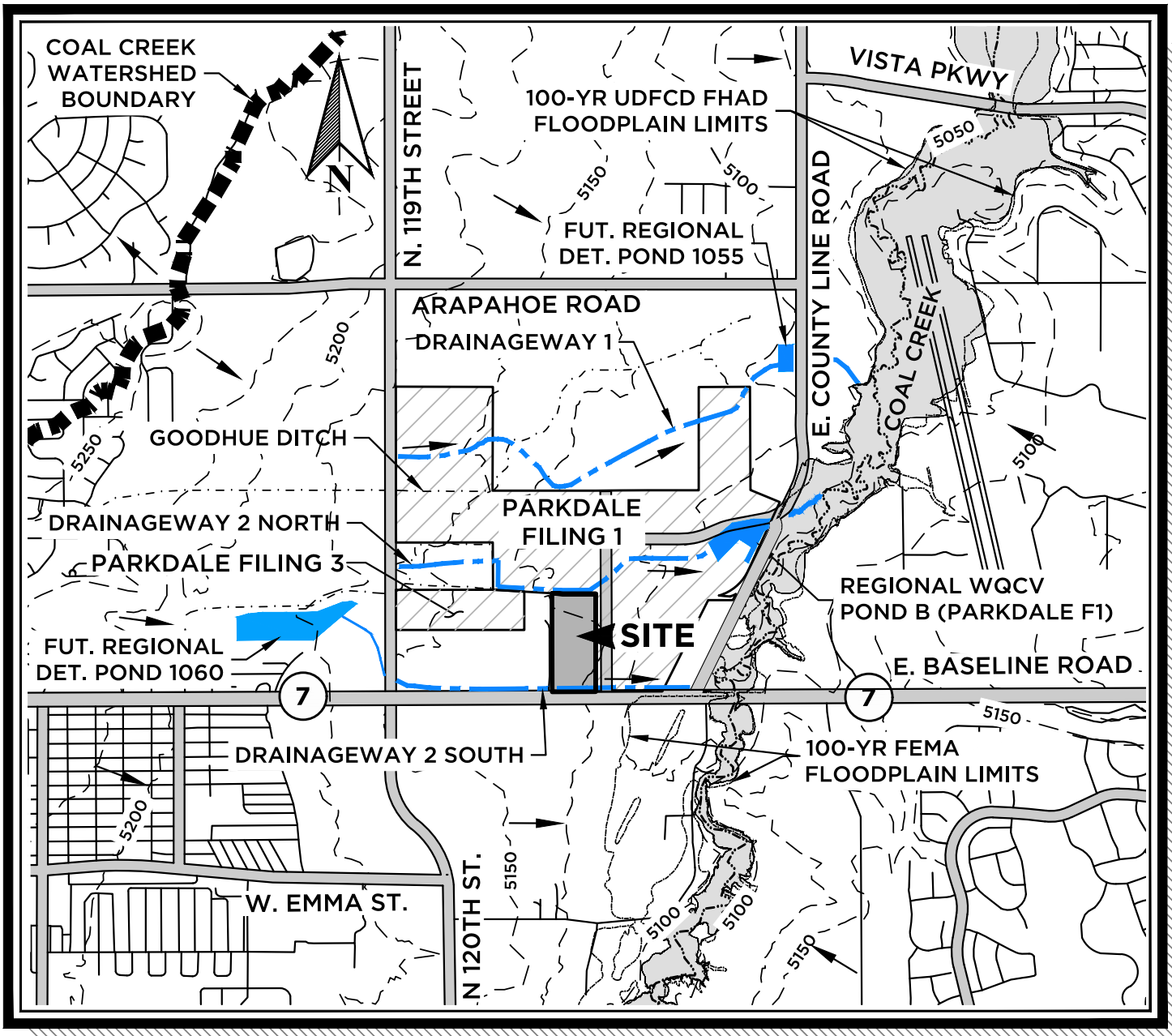
4. **Parkdale – Filing No. 3 Phase III Drainage Report**
   KT Engineering, Dated February 8, 2019

5. **FIRM Map Number 0813C0439J**
   Federal Emergency Management Agency, Maps Revised December 18, 2012

6. **Town of Erie, Outfall Systems Plan (West of Coal Creek)**
   RESPEC Consulting Services, Dated January 2014

APPENDIX A

GENERAL LOCATION MAP
DESIGN CHARTS & TABLES



GENERAL LOCATION MAP

1" = 2000'

SURFACE FLOW DIRECTION ARROW

Land Use or Zoning	Design Storm Return Period	
	Initial Storm	Major Storm
Residential	2-year	100-year
Commercial and Business	5-year	100-year
Public Building Areas	5-year	100-year
Parks, Greenbelts, etc.	2-year	100-year

813.03 Runoff Computations, Colorado Urban Hydrograph Procedure (CUHP)

The CUHP method is generally applicable to drainage basins greater than 90 acres. However, the CUHP is required for watershed areas larger than 160-acres. The procedures for the CUHP, as explained in the Urban Storm Drainage Criteria Manual, shall be followed in the preparation of drainage reports and storm drainage facility designs in the Town. The CUHP program requires the input of a design storm, either as a detailed hyetograph or as a 1-hour rainfall depth. The program for the latter using the 2-hour storm distribution recommended in the Urban Storm Drainage Criteria Manual generates a detailed hyetograph distribution. The 1-hour rainfall depths for the Town of Erie are presented in Table 800-2.

Table 800-2
TOWN OF ERIE
ONE-HOUR RAINFALL DEPTH

Design Storm	Rainfall Depth (in.)
2-Year	0.81
5-Year	1.11
10-Year	1.39
25-Year	1.84
50-Year	2.24
100-Year	2.68
500-Year	3.89

The hydrograph from the CUHP program must be routed through any proposed conveyance facility using the Storm Water Management Model (SWMM) or a similar method approved by the Town Engineer.

813.04 Runoff Computations, Rational Method

The Rational Method will be utilized for sizing storm sewers and for determining runoff magnitude from un-sewered areas. The limit of application of the Rational Method is approximately 160 acres. When the drainage basin exceeds 160 acres, the CUHP method shall be used.
The procedures for the Rational Method, as explained in the Urban Storm Drainage Criteria Manual, shall be followed in the preparation of drainage reports in the Town.

813.05 Runoff Coefficients

Rational method runoff coefficients: The runoff coefficient (C) to be used in conjunction with the Rational Method will be calculated using the percent imperviousness shown in Table 800-3 as explained in the Urban Storm Drainage Criteria Manual.

TABLE 800-3
PERCENT IMPERVIOUS FOR RATIONAL METHOD

LAND USE OR SURFACE CHARACTERISTICS	PERCENT IMPERVIOUS
Business	
Commercial Areas	95
Neighborhood Areas	75
Residential Lots (Lot Area Only):	
Single-Family	
2.5 Acres or Larger	12
0.75 – 2.49 Acres	20
0.25 – 0.74 Acres	30
0.24 Acres or Less	45
Apartments	75
Industrial:	
Light Areas	80
Heavy Areas	90
Parks, Cemeteries	10
Playgrounds	25
Schools	55
Railroad Yard Areas	50
Undeveloped Areas:	
Historic Flow Analysis	2
Greenbelts, Agricultural	2
Offsite Flow Analysis (when land use not defined)	45
Streets:	
Paved	100
Gravel (Packed)	40
Drives and Walks	90
Roofs	90
Lawns, Sandy Soil	2
Lawns, Clay Soil	2

Note: These Rational Method coefficients may not be valid for large basins.

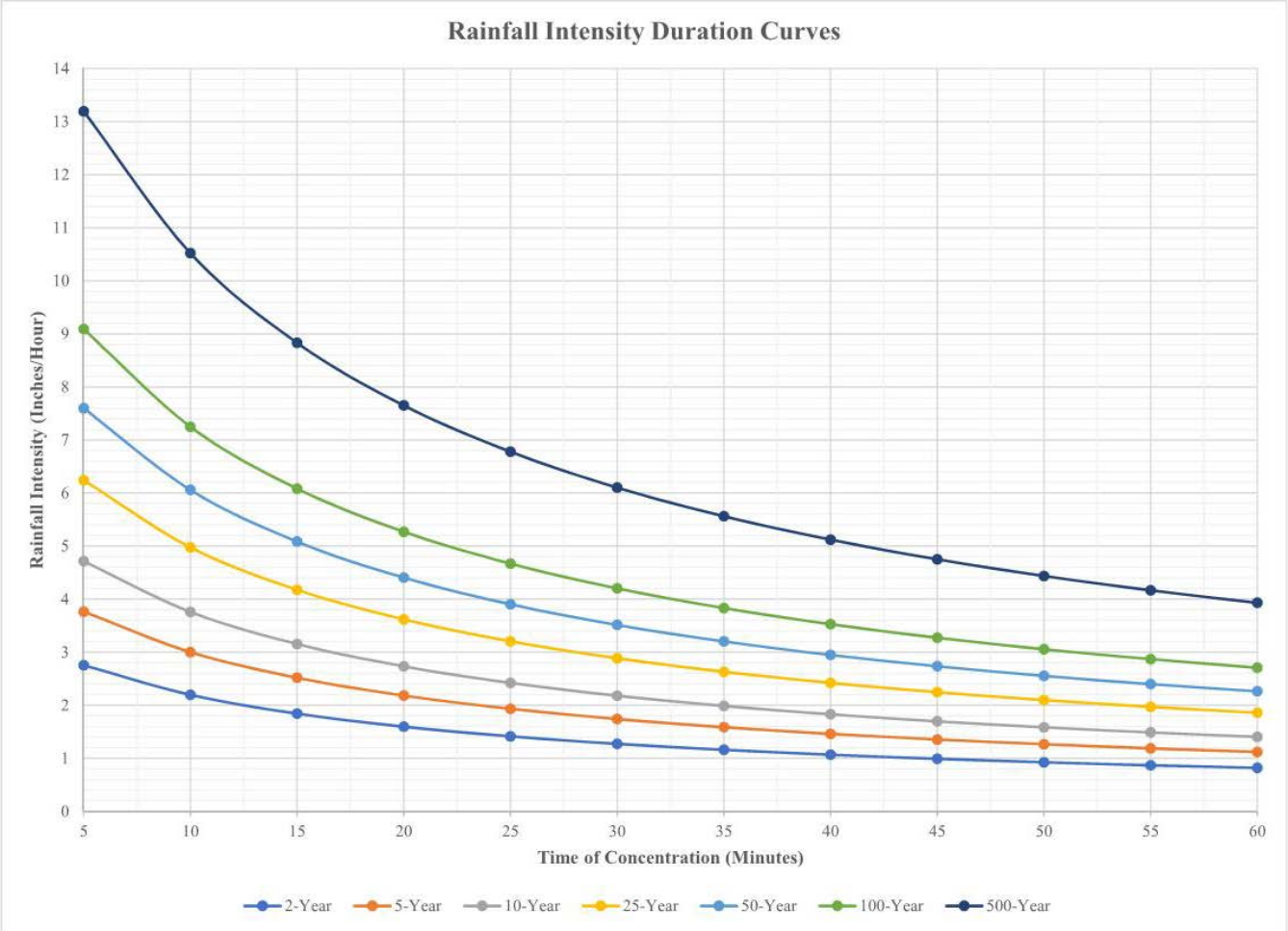
813.06 Rainfall Intensities

The rainfall intensities to be used in the computation of runoff using the Rational Method shall be obtained from the Rainfall Intensity Duration Curves for the Town of Erie, included in these STANDARDS AND SPECIFICATIONS, or can be computed using the following equation.

$$I = \frac{28.5\, P_1}{(10 + T_d)^{0.786}}$$

Where:

I = rainfall intensity (inches per hour)
P_1 = 1-hour point rainfall depth (inches)
T_d = storm duration (minutes)



814.00 Detention

814.01 General

Table 6-5. Runoff coefficients, *c*

Total or Effective % Impervious	NRCS Hydrologic Soil Group A						
	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year	500-Year
2%	0.01	0.01	0.01	0.01	0.04	0.13	0.27
5%	0.02	0.02	0.02	0.03	0.07	0.15	0.29
10%	0.04	0.05	0.05	0.07	0.11	0.19	0.32
15%	0.07	0.08	0.08	0.1	0.15	0.23	0.35
20%	0.1	0.11	0.12	0.14	0.2	0.27	0.38
25%	0.14	0.15	0.16	0.19	0.24	0.3	0.42
30%	0.18	0.19	0.2	0.23	0.28	0.34	0.45
35%	0.21	0.23	0.24	0.27	0.32	0.38	0.48
40%	0.25	0.27	0.28	0.32	0.37	0.42	0.51
45%	0.3	0.31	0.33	0.36	0.41	0.46	0.54
50%	0.34	0.36	0.37	0.41	0.45	0.5	0.58
55%	0.39	0.4	0.42	0.45	0.49	0.54	0.61
60%	0.43	0.45	0.47	0.5	0.54	0.58	0.64
65%	0.48	0.5	0.51	0.54	0.58	0.62	0.67
70%	0.53	0.55	0.56	0.59	0.62	0.65	0.71
75%	0.58	0.6	0.61	0.64	0.66	0.69	0.74
80%	0.63	0.65	0.66	0.69	0.71	0.73	0.77
85%	0.68	0.7	0.71	0.74	0.75	0.77	0.8
90%	0.73	0.75	0.77	0.79	0.79	0.81	0.84
95%	0.79	0.81	0.82	0.83	0.84	0.85	0.87
100%	0.84	0.86	0.87	0.88	0.88	0.89	0.9
Total or Effective % Impervious	**NRCS Hydrologic Soil Group B**						
	2-Year	**5-Year**	**10-Year**	**25-Year**	**50-Year**	**100-Year**	**500-Year**
2%	0.01	0.01	0.07	0.26	0.34	0.44	0.54
5%	0.03	0.03	0.1	0.28	0.36	0.45	0.55
10%	0.06	0.07	0.14	0.31	0.38	0.47	0.57
15%	0.09	0.11	0.18	0.34	0.41	0.5	0.59
20%	0.13	0.15	0.22	0.38	0.44	0.52	0.61
25%	0.17	0.19	0.26	0.41	0.47	0.54	0.63
30%	0.2	0.23	0.3	0.44	0.49	0.57	0.65
35%	0.24	0.27	0.34	0.47	0.52	0.59	0.66
40%	0.29	0.32	0.38	0.5	0.55	0.61	0.68
45%	0.33	0.36	0.42	0.53	0.58	0.64	0.7
50%	0.37	0.4	0.46	0.56	0.61	0.66	0.72
55%	0.42	0.45	0.5	0.6	0.63	0.68	0.74
60%	0.46	0.49	0.54	0.63	0.66	0.71	0.76
65%	0.5	0.54	0.58	0.66	0.69	0.73	0.77
70%	0.55	0.58	0.62	0.69	0.72	0.75	0.79
75%	0.6	0.63	0.66	0.72	0.75	0.78	0.81
80%	0.64	0.67	0.7	0.75	0.77	0.8	0.83
85%	0.69	0.72	0.74	0.78	0.8	0.82	0.85
90%	0.74	0.76	0.78	0.81	0.83	0.84	0.87
95%	0.79	0.81	0.82	0.85	0.86	0.87	0.88
100%	0.84	0.86	0.86	0.88	0.89	0.89	0.9

2.3 Limitations

The Rational Method is the simplistic approach for estimating the peak flow rate and total runoff volume from a design rainstorm in a given catchment. Under the assumption of uniform hydrologic losses, the method is limited to catchments smaller than 90 acres. Under the condition of composite soils and land uses, use an area-weighted method to derive the catchment's hydrologic parameters.

The greatest drawback to the Rational Method is that it normally provides only one point (the peak flow rate) on the runoff hydrograph. When the areas become complex and where subcatchments come together, the Rational Method will tend to overestimate the actual flow, which results in oversizing of drainage facilities. The Rational Method provides no means or methodology to generate and route hydrographs through drainage facilities. One reason the Rational Method is limited to small areas is that good design practice requires the routing of hydrographs for larger catchments to achieve an economically sound design.

Another disadvantage of the Rational Method is that with typical design procedures, one normally assumes that all of the design flow is collected at the design point and that there is no water running overland to the next design point. This is not an issue of the Rational Method but of the design procedure. Use additional analysis to account for this scenario.

2.4 Time of Concentration

One of the basic assumptions underlying the Rational Method is that runoff is linearly proportional to the average rainfall intensity during the time required for water to flow from the most remote part of the drainage area to the design point. In practice, the time of concentration is empirically estimated along the selected waterway through the catchment.

To calculate the time of concentration, first divide the waterway into overland flow length and channelized flow lengths, according to the channel characteristics. For urban areas (tributary areas of greater than 20 percent impervious), the time of concentration, t_c, consists of an initial time or overland flow time, t_i, plus the channelized flow travel time, t_t, through the storm drain, paved gutter, roadside ditch, or channel. For non-urban areas, the time of concentration consists of an overland flow time, t_i, plus the time of travel in a defined drainage path, such as a swale, channel, or stream. Estimate the channelized travel time portion, t_t, of the time of concentration from the hydraulic properties of the conveyance element. Initial or overland flow time, on the other hand, will vary with surface slope, depression storage, surface cover, antecedent rainfall, and infiltration capacity of the soil, as well as distance of surface flow. Compute the time of concentration for both urban and non-urban areas using Equation 6-2:

$$t_c = t_i + t_t \qquad \text{Equation 6-2}$$

Where:

t_c = computed time of concentration (minutes)

t_i = overland (initial) flow time (minutes)

t_t = channelized flow time (minutes).

2.4.1 Initial or Overland Flow Time

The initial or overland flow time, t_i, may be calculated using Equation 6-3:

$$t_i = \frac{0.395(1.1 - C_5)\sqrt{L_i}}{S_o^{0.33}}$$ Equation 6-3

Where:

t_i = overland (initial) flow time (minutes)
C_5 = runoff coefficient for 5-year frequency (from Table 6-4)
L_i = length of overland flow (ft)
S_o = average slope along the overland flow path (ft/ft).

Equation 6-3 is adequate for distances up to 300 feet in urban areas and 500 feet in rural areas. Note that in a highly urbanized catchment, the overland flow length is typically shorter than 300 feet due to effective man-made drainage systems that collect and convey runoff.

2.4.2 Channelized Flow Time

The channelized flow time (travel time) is calculated using the hydraulic properties of the conveyance element. The channelized flow time, t_t, is estimated by dividing the length of conveyance by the velocity. The following equation, Equation 6-4 (Guo 2013), can be used to determine the flow velocity in conjunction with Table 6-2 for the conveyance factor.

$$t_t = \frac{L_t}{60K\sqrt{S_o}} = \frac{L_t}{60V_t}$$ Equation 6-4

Where:

t_t = channelized flow time (travel time, min)
L_t = waterway length (ft)
S_o = waterway slope (ft/ft)
V_t = travel time velocity (ft/sec) = $K\sqrt{S_o}$
K = NRCS conveyance factor (see Table 6-2).

Table 6-2. NRCS Conveyance factors, K

Type of Land Surface	Conveyance Factor, K
Heavy meadow	2.5
Tillage/field	5
Short pasture and lawns	7
Nearly bare ground	10
Grassed waterway	15
Paved areas and shallow paved swales	20

The time of concentration, t_c, is the sum of the initial (overland) flow time, t_i, and the channelized flow time, t_t, as per Equation 6-2.

2.4.3 First Design Point Time of Concentration in Urban Catchments

Equation 6-4 was solely determined by the waterway characteristics and using a set of empirical formulas. A calibration study between the Rational Method and the Colorado Urban Hydrograph Procedure (CUHP) suggests that the time of concentration shall be the lesser of the values calculated by Equation 6-2 and Equation 6-5 (Guo and Urbonas 2013).

$$t_c = (26 - 17i) + \frac{L_t}{60(14i + 9)\sqrt{S_t}} \qquad \text{Equation 6-5}$$

Where:

t_c = minimum time of concentration for first design point when less than t_c from Equation 6-1.
L_t = length of channelized flow path (ft)
i = imperviousness (expressed as a decimal)
S_t = slope of the channelized flow path (ft/ft).

Equation 6-5 is the regional time of concentration that warrants the best agreement on peak flow predictions between the Rational Method and CUHP when the imperviousness of the tributary area is greater than 20 percent. It was developed using the UDFCD database that includes 295 sample urban catchments under 2-, 5-, 10-, 50, and 100-yr storm events (MacKenzie 2010). It suggests that both initial flow time and channelized flow velocity are directly related to the catchment's imperviousness (Guo and MacKenzie 2013).

The first design point is defined as a node where surface runoff enters the storm drain system. For example, all inlets are "first design points" because inlets are designed to accept flow into the storm drain.

Typically, but not always, Equation 6-5 will result in a lesser time of concentration at the first design point and will govern in an urbanized watershed. For subsequent design points, add the travel time for each relevant segment downstream.

2.4.4 Minimum Time of Concentration

Use a minimum t_c value of 5 minutes for urbanized areas and a minimum t_c value of 10 minutes for areas that are not considered urban. Use minimum values even when calculations result in a lesser time of concentration.

2.4.5 Common Errors in Calculating Time of Concentration

A common mistake in urbanized areas is to assume travel velocities that are too slow. Another common error is to not check the runoff peak resulting from only part of the catchment. Sometimes a lower portion of the catchment or a highly impervious area produces a larger peak than that computed for the whole catchment. This error is most often encountered when the catchment is long or the upper portion contains grassy open land and the lower portion is more developed.

APPENDIX B

HYDROLOGIC CALCULATIONS

PROJECT: PARKDALE – PH. III DRAINAGE
SHEET TITLE: COMPOSITE RUNOFF FACTORS

Basin Name	Total Area (Acres)	Total Area (SF)	Park Areas (SF)	Asphalt Streets (SF)	Drives and Walks (SF)	Agriculture/Open Space (SF)	Mixed Use (SF)	Parkdale Filing 3 (SF)	Annexation #8 Developed (SF)	Soil Type "B" Composite Runoff Factors				
										C_2	C_5	C_{100}	I %	
G7	46.19	2012074				21739	1990335			0.63	0.66	0.80	79.16	From Parkdale PH III. Drainage
G8	7.10	309265				293819	15446			0.03	0.03	0.45	5.90	From Parkdale PH III. Drainage
G13	0.63	27490	11288	13814	2388					0.48	0.51	0.72	62.18	From Parkdale PH III. Drainage
G14	0.04	1897	673	968	256					0.52	0.55	0.74	66.72	From Parkdale PH III. Drainage
G7+G8+G13+G14 (Updated)	53.54	2332245					849681	1156100	326464	0.52	0.55	0.74	66.85	Revised w/ Parkdale Filing 3 & Annexation #8
G7+G8+G13+G14 (As Designed)	53.97	2350726	11961	14782	2644	315558	2005781			0.54	0.57	0.75	69.31	From Parkdale PH III. Drainage

Land Use	Imp., I %
Park Areas	10.00
Asphalt Streets	100.00
Concrete Drives and Walks / Roofs	90.00
Agriculture/Open Space (OSP)	2.00
Mixed Use (OSP)	80.00
Parkdale Filing 3 (Actual)	54.89
Annexation #8 Developed	75.00

PROJECT: ERIE GATEWAY SOUTH – ANNEXATION #8
SHEET TITLE: COMPOSITE RUNOFF FACTORS

Basin Name	Total Area (Acres)	Total Area (SF)	Soil Type "B" Composite Runoff Factors				
			C_2	C_5	C_{100}	I %	
M1	1.02	44275	0.60	0.63	0.78	75.00	Single Family, Local Streets, Parks
M2	6.48	282189	0.60	0.63	0.78	75.00	Single Family, Local Streets, Parks
M3	8.40	365881	0.60	0.63	0.78	75.00	Single Family, Local Streets, Parks
M4	1.17	50750	0.01	0.01	0.44	2.00	Channel Improvements

PROJECT: ERIE GATEWAY SOUTH – ANNEXATION #8
SHEET TITLE: TIME OF CONCENTRATION

			TIME (Ti) *[Max. 300']*					TRAVEL TIME (Tt)								Tc CHECK (Urbanized Basins)					FINAL Tc	Time to Peak** Flow	Remarks
Basin No.	Area (acres)	5Yr. co-eff.	Elevations Upstream	Elevations Downstream	Dist. (ft)	Slope (ft/ft)	Ti (min)	Elevations Upstream	Elevations Downstream	Dist. (ft)	Slope (ft/ft)	*	Vel. (fps)	Tt (min)	Tc	Length (ft)	Avg Slope (ft/ft)	Imperv.	Tc (min)	(min)		
M1	1.02	0.63	5133.5	5128.8	168	0.028	7.9	5128.8	5128.7	1	0.100	5.0	4.7	0.0	7.9	1	0.10	0.75	13.3	7.9	**7.93**	Developed
M2	6.48	0.63	5141.4	5136.4	152	0.033	7.1	5136.4	5124.8	443	0.026	6.0	3.2	2.3	9.4	443	0.03	0.75	15.6	9.4	**9.42**	Developed
M3	8.40	0.63	5144.2	5143.4	33	0.024	3.7	5143.4	5131.5	950	0.013	6.0	2.2	7.1	10.8	950	0.01	0.75	20.5	10.8	**10.76**	Developed
M4	1.17	0.01	5141.4	5134.0	58	0.128	6.5	5134.0	5118.6	530	0.029	5.0	2.6	3.5	10.0	530	0.03	0.02	31.2	10.0	**9.97**	Developed

* Type of Land Surface for Overland Travel Time	VELOCITY COEFFICIENTS	
1 = Heavy Meadow	1	2.5
2 = Tillage / Field	2	5
3 = Short pasture & lawns	3	7
4 = Nearly bare ground	4	10
5 = Grassed waterway	5	15
6 = Paved areas and shallow paved swales	6	20

PROJECT: ERIE GATEWAY SOUTH – ANNEXATION #8
SHEET TITLE: SF-3 FORM (2-YR)

			DIRECT RUNOFF						TOTAL RUNOFF				STREET/CHANNEL			PIPE			TRAVEL TIME			
BASIN	DESIGN POINT	AREA DESIGN.	AREA (Acres)	RUNOFF COEFF	Tc (min)	C A (Acres)	I (in/hour)	Q (cfs)	Tc (min)	(C A) (Acres)	I (in/hour)	Q (cfs)	SLOPE (%)	STREET FLOW (cfs)	CARRYOVER (cfs)	PIPE FLOW (cfs)	SLOPE (%)	PIPE SIZE (in)	LENGTH (ft)	VELOCITY (fps)	Tt (min)	REMARKS
M1	1	M1	1.02	0.60	7.9	0.61	2.78	**1.70**														Direct Flow to DP 1
M2	2	M2	6.48	0.60	9.4	3.89	2.39	**9.3**														Direct Flow to DP 2
M3	4	M3	8.40	0.60	10.8	5.04	2.14	**10.8**														Direct Flow to DP 3
M4	6	M4	1.17	0.01	10.0	0.01	2.26	**0.03**														Direct Flow to DP 4

PROJECT: ERIE GATEWAY SOUTH – ANNEXATION #8
SHEET TITLE: SF–3 FORM (100–YR)

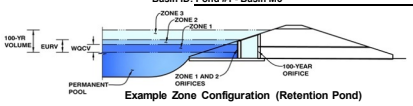
			DIRECT RUNOFF						TOTAL RUNOFF				STREET/CHANNEL			PIPE			TRAVEL TIME			
BASIN	DESIGN POINT	AREA DESIGN.	AREA (Acres)	RUNOFF COEFF	Tc (min)	C A (Acres)	I (in/hour)	Q (cfs)	Tc (min)	(C A) (Acres)	I (in/hour)	Q (cfs)	SLOPE (%)	STREET FLOW (cfs)	CARRYOVER (cfs)	PIPE FLOW (cfs)	SLOPE (%)	PIPE SIZE (in)	LENGTH (ft)	VELOCITY (fps)	Tt (min)	REMARKS
M1	1	M1	1.02	0.78	7.9	0.79	8.22	**6.5**														Direct Flow to DP 1
M2	2	M2	6.48	0.78	9.4	5.05	7.57	**38.3**														Direct Flow to DP 2
M3	4	M3	8.40	0.78	10.8	6.55	7.08	**46.4**														Direct Flow to DP 3
M4	6	M4	1.17	0.44	10.0	0.51	7.36	**3.8**														Direct Flow to DP 4

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

UD-Detention, Version 3.07 (February 2017)

Project: Erie Gateway South - Annexation #8

Basin ID: Pond #1 - Basin M3



Example Zone Configuration (Retention Pond)

Required Volume Calculation

Selected BMP Type =	EDB	
Watershed Area =	8.40	acres
Watershed Length =	1,106	ft
Watershed Slope =	0.020	ft/ft
Watershed Imperviousness =	75.00%	percent
Percentage Hydrologic Soil Group A =	0.0%	percent
Percentage Hydrologic Soil Group B =	100.0%	percent
Percentage Hydrologic Soil Groups C/D =	0.0%	percent
Desired WQCV Drain Time =	40.0	hours
Location for 1-hr Rainfall Depths =	Erie	
Water Quality Capture Volume (WQCV) =	0.210	acre-feet
Excess Urban Runoff Volume (EURV) =	0.696	acre-feet
2-yr Runoff Volume (P1 = 0.81 in.) =	0.397	acre-feet
5-yr Runoff Volume (P1 = 1.11 in.) =	0.571	acre-feet
10-yr Runoff Volume (P1 = 1.39 in.) =	0.768	acre-feet
25-yr Runoff Volume (P1 = 1.84 in.) =	1.101	acre-feet
50-yr Runoff Volume (P1 = 2.24 in.) =	1.364	acre-feet
100-yr Runoff Volume (P1 = 2.68 in.) =	1.700	acre-feet
500-yr Runoff Volume (P1 = 3.89 in.) =	2.581	acre-feet
Approximate 2-yr Detention Volume =	0.373	acre-feet
Approximate 5-yr Detention Volume =	0.537	acre-feet
Approximate 10-yr Detention Volume =	0.721	acre-feet
Approximate 25-yr Detention Volume =	0.896	acre-feet
Approximate 50-yr Detention Volume =	1.008	acre-feet
Approximate 100-yr Detention Volume =	1.143	acre-feet

Optional User Override 1-hr Precipitation	
0.81	inches
1.11	inches
1.39	inches
1.84	inches
2.24	inches
2.68	inches
3.89	inches

Stage-Storage Calculation

Zone 1 Volume (WQCV) =	0.210	acre-feet
Zone 2 Volume (EURV - Zone 1) =	0.486	acre-feet
Zone 3 Volume (100-year - Zones 1 & 2) =	0.447	acre-feet
Total Detention Basin Volume =	1.143	acre-feet
Initial Surcharge Volume (ISV) =	user	ft^3
Initial Surcharge Depth (ISD) =	user	ft
Total Available Detention Depth (H_{total}) =	user	ft
Depth of Trickle Channel (H_{TC}) =	user	ft
Slope of Trickle Channel (S_{TC}) =	user	ft/ft
Slopes of Main Basin Sides (S_{main}) =	user	H:V
Basin Length-to-Width Ratio ($R_{L/W}$) =	user	
Initial Surcharge Area (A_{ISV}) =	user	ft^2
Surcharge Volume Length (L_{ISV}) =	user	ft
Surcharge Volume Width (W_{ISV}) =	user	ft
Depth of Basin Floor (H_{FLOOR}) =	user	ft
Length of Basin Floor (L_{FLOOR}) =	user	ft
Width of Basin Floor (W_{FLOOR}) =	user	ft
Area of Basin Floor (A_{FLOOR}) =	user	ft^2
Volume of Basin Floor (V_{FLOOR}) =	user	ft^3
Depth of Main Basin (H_{MAIN}) =	user	ft
Length of Main Basin (L_{MAIN}) =	user	ft
Width of Main Basin (W_{MAIN}) =	user	ft
Area of Main Basin (A_{MAIN}) =	user	ft^2
Volume of Main Basin (V_{MAIN}) =	user	ft^3
Calculated Total Basin Volume (V_{total}) =	user	acre-feet

Depth Increment = ft

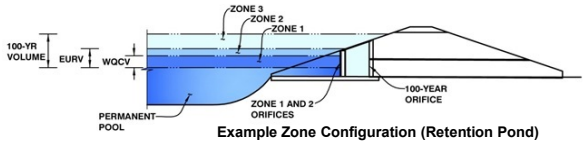
Stage - Storage Description	Stage (ft)	Optional Override Stage (ft)	Length (ft)	Width (ft)	Area (ft^2)	Optional Override Area (ft^2)	Area (acre)	Volume (ft^3)	Volume (ac-ft)
Top of Micropool	--	0.00	--	--	--	0	0.000		
	--	0.25	--	--	--	50	0.001	6	0.000
	--	0.50	--	--	--	200	0.005	36	0.001
	--	0.75	--	--	--	3,500	0.080	465	0.011
	--	1.00	--	--	--	500	0.011	994	0.023
	--	1.25	--	--	--	6,500	0.149	1,811	0.042
	--	1.50	--	--	--	8,500	0.195	3,665	0.084
	--	1.75	--	--	--	10,500	0.241	6,020	0.138
	--	2.00	--	--	--	12,500	0.287	8,875	0.204
	--	2.25	--	--	--	13,500	0.310	12,249	0.281
	--	2.50	--	--	--	14,500	0.333	15,749	0.362
	--	2.75	--	--	--	15,500	0.356	19,499	0.448
	--	3.00	--	--	--	16,500	0.379	23,499	0.539
	--	3.25	--	--	--	17,500	0.402	27,749	0.637
	--	3.50	--	--	--	18,500	0.425	32,249	0.740
	--	3.75	--	--	--	19,500	0.448	36,999	0.849
	--	4.00	--	--	--	20,500	0.471	41,999	0.964
	--	4.25	--	--	--	21,500	0.494	47,249	1.085
	--	4.50	--	--	--	22,500	0.517	52,749	1.211
	--	4.75	--	--	--	23,500	0.539	58,499	1.343
	--	5.00	--	--	--	24,500	0.562	64,499	1.481
	--	5.25	--	--	--	25,000	0.574	70,687	1.623
	--	5.50	--	--	--	25,200	0.579	76,962	1.767
	--	5.75	--	--	--	25,400	0.583	83,287	1.912
	--	6.00	--	--	--	25,600	0.588	89,662	2.058

Detention Basin Outlet Structure Design

UD-Detention, Version 3.07 (February 2017)

Project: Erie Gateway South - Annexation #8

Basin ID: Pond #1 - Basin M3



Example Zone Configuration (Retention Pond)

	Stage (ft)	Zone Volume (ac-ft)	Outlet Type
Zone 1 (WQCV)	2.02	0.210	Orifice Plate
Zone 2 (EURV)	3.40	0.486	Orifice Plate
Zone 3 (100-year)	4.37	0.447	Weir&Pipe (Restrict)
		1.143	Total

User Input: Orifice at Underdrain Outlet (typically used to drain WQCV in a Filtration BMP)

Underdrain Orifice Invert Depth =	N/A	ft (distance below the filtration media surface)
Underdrain Orifice Diameter =	N/A	inches

Calculated Parameters for Underdrain

Underdrain Orifice Area =	N/A	ft^2
Underdrain Orifice Centroid =	N/A	feet

User Input: Orifice Plate with one or more orifices or Elliptical Slot Weir (typically used to drain WQCV and/or EURV in a sedimentation BMP)

Invert of Lowest Orifice =	0.00	ft (relative to basin bottom at Stage = 0 ft)
Depth at top of Zone using Orifice Plate =	3.40	ft (relative to basin bottom at Stage = 0 ft)
Orifice Plate: Orifice Vertical Spacing =	N/A	inches
Orifice Plate: Orifice Area per Row =	1.21	sq. inches (diameter = 1-1/4 inches)

Calculated Parameters for Plate

WQ Orifice Area per Row =	8.403E-03	ft^2
Elliptical Half-Width =	N/A	feet
Elliptical Slot Centroid =	N/A	feet
Elliptical Slot Area =	N/A	ft^2

User Input: Stage and Total Area of Each Orifice Row (numbered from lowest to highest)

	Row 1 (required)	Row 2 (optional)	Row 3 (optional)	Row 4 (optional)	Row 5 (optional)	Row 6 (optional)	Row 7 (optional)	Row 8 (optional)
Stage of Orifice Centroid (ft)	0.00	1.25	2.50					
Orifice Area (sq. inches)	1.21	1.21	1.21					

	Row 9 (optional)	Row 10 (optional)	Row 11 (optional)	Row 12 (optional)	Row 13 (optional)	Row 14 (optional)	Row 15 (optional)	Row 16 (optional)
Stage of Orifice Centroid (ft)								
Orifice Area (sq. inches)								

User Input: Vertical Orifice (Circular or Rectangular)

	Not Selected	Not Selected	
Invert of Vertical Orifice =	N/A	N/A	ft (relative to basin bottom at Stage = 0 ft)
Depth at top of Zone using Vertical Orifice =	N/A	N/A	ft (relative to basin bottom at Stage = 0 ft)
Vertical Orifice Diameter =	N/A	N/A	inches

Calculated Parameters for Vertical Orifice

	Not Selected	Not Selected	
Vertical Orifice Area =	N/A	N/A	ft^2
Vertical Orifice Centroid =	N/A	N/A	feet

User Input: Overflow Weir (Dropbox) and Grate (Flat or Sloped)

	Zone 3 Weir	Not Selected	
Overflow Weir Front Edge Height, Ho =	3.75	N/A	ft (relative to basin bottom at Stage = 0 ft)
Overflow Weir Front Edge Length =	2.92	N/A	feet
Overflow Weir Slope =	0.00	N/A	H:V (enter zero for flat grate)
Horiz. Length of Weir Sides =	2.92	N/A	feet
Overflow Grate Open Area % =	70%	N/A	%, grate open area/total area
Debris Clogging % =	50%	N/A	%

Calculated Parameters for Overflow Weir

	Zone 3 Weir	Not Selected	
Height of Grate Upper Edge, H_t =	3.75	N/A	feet
Over Flow Weir Slope Length =	2.92	N/A	feet
Grate Open Area / 100-yr Orifice Area =	9.96	N/A	should be ≥ 4
Overflow Grate Open Area w/o Debris =	5.97	N/A	ft^2
Overflow Grate Open Area w/ Debris =	2.98	N/A	ft^2

User Input: Outlet Pipe w/ Flow Restriction Plate (Circular Orifice, Restrictor Plate, or Rectangular Orifice)

	Zone 3 Restrictor	Not Selected	
Depth to Invert of Outlet Pipe =	2.60	N/A	ft (distance below basin bottom at Stage = 0 ft)
Outlet Pipe Diameter =	18.00	N/A	inches
Restrictor Plate Height Above Pipe Invert =	6.70		inches

Calculated Parameters for Outlet Pipe w/ Flow Restriction Plate

	Zone 3 Restrictor	Not Selected	
Outlet Orifice Area =	0.60	N/A	ft^2
Outlet Orifice Centroid =	0.33	N/A	feet
Half-Central Angle of Restrictor Plate on Pipe =	1.31	N/A	radians

User Input: Emergency Spillway (Rectangular or Trapezoidal)

Spillway Invert Stage=	5.00	ft (relative to basin bottom at Stage = 0 ft)
Spillway Crest Length =	20.00	feet
Spillway End Slopes =	0.60	H:V
Freeboard above Max Water Surface =	1.00	feet

Calculated Parameters for Spillway

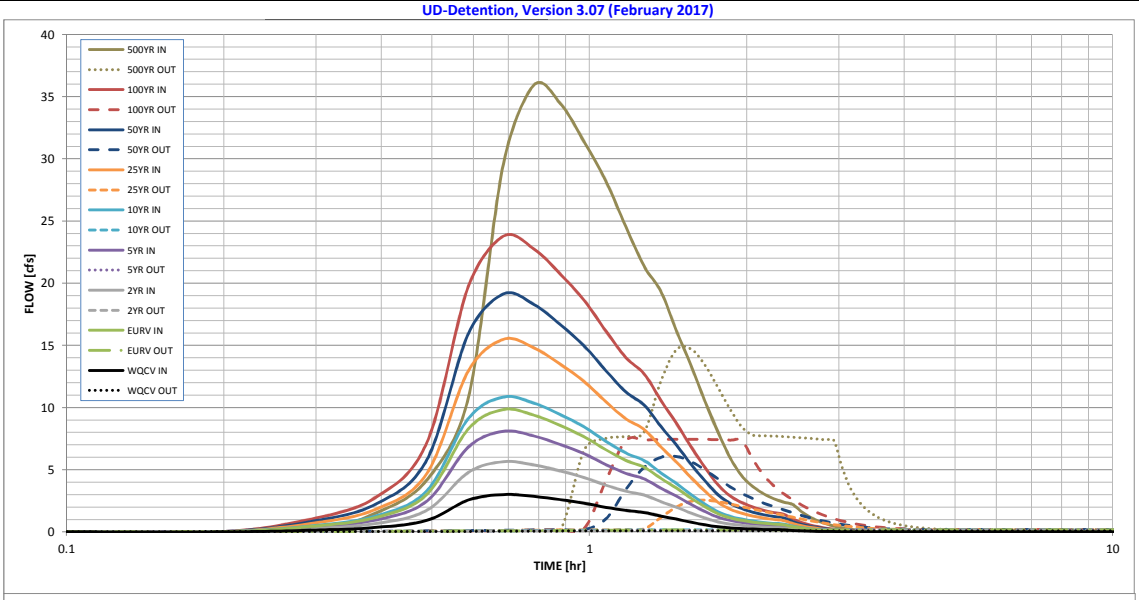
Spillway Design Flow Depth=	0.47	feet
Stage at Top of Freeboard =	6.47	feet
Basin Area at Top of Freeboard =	0.59	acres

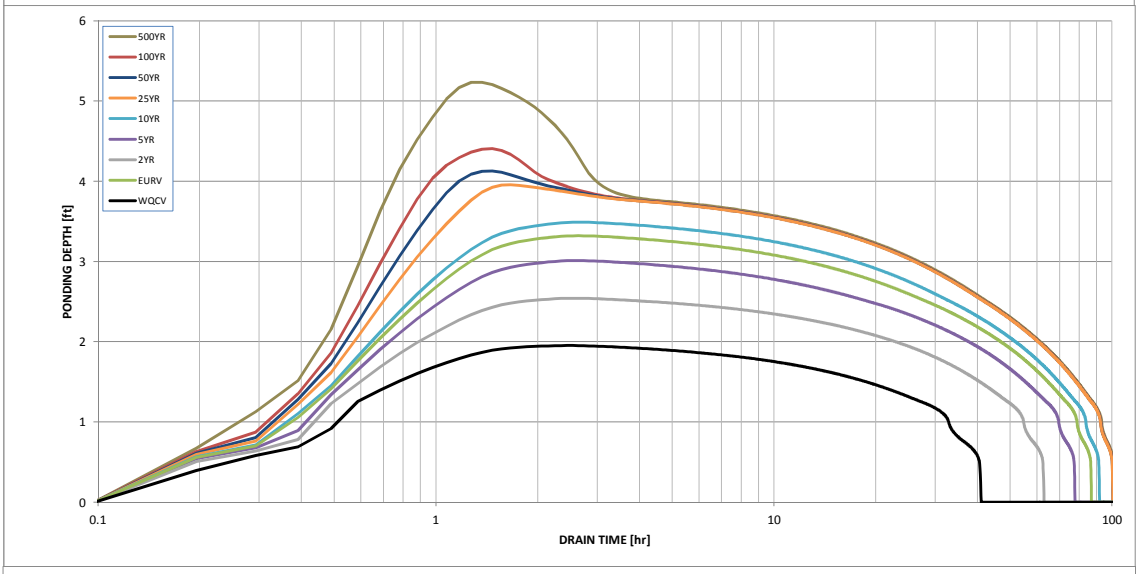
Routed Hydrograph Results

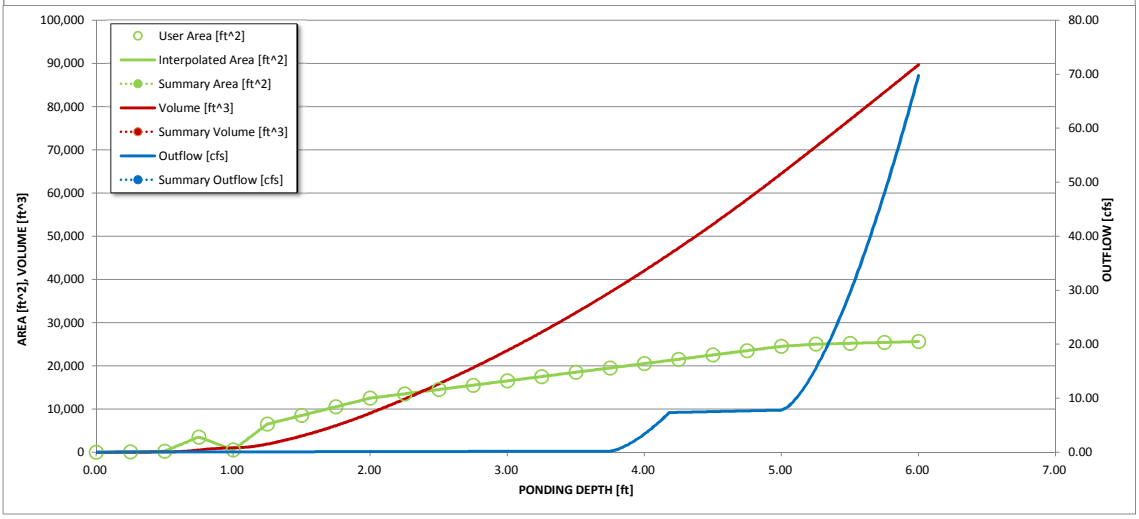
Design Storm Return Period =	WQCV	EURV	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	500 Year
One-Hour Rainfall Depth (in) =	0.53	1.07	0.81	1.11	1.39	1.84	2.24	2.68	3.89
Calculated Runoff Volume (acre-ft) =	0.210	0.696	0.397	0.571	0.768	1.101	1.364	1.700	2.581
OPTIONAL Override Runoff Volume (acre-ft) =									
Inflow Hydrograph Volume (acre-ft) =	0.209	0.696	0.397	0.571	0.768	1.102	1.365	1.701	2.583
Predevelopment Unit Peak Flow, q (cfs/acre) =	0.00	0.00	0.01	0.01	0.13	0.50	0.76	1.10	1.89
Predevelopment Peak Q (cfs) =	0.0	0.0	0.1	0.1	1.1	4.2	6.4	9.2	15.9
Peak Inflow Q (cfs) =	3.0	9.8	5.6	8.1	10.8	15.5	19.1	23.8	35.9
Peak Outflow Q (cfs) =	0.1	0.2	0.1	0.2	0.2	2.6	6.1	7.5	14.7
Ratio Peak Outflow to Predevelopment Q =	N/A	N/A	N/A	1.4	0.2	0.6	1.0	0.8	0.9
Structure Controlling Flow =	Plate	Plate	Plate	Plate	Plate	Overflow Grate 1	Overflow Grate 1	Outlet Plate 1	Spillway
Max Velocity through Grate 1 (fps) =	N/A	N/A	N/A	N/A	N/A	0.4	1.0	1.2	1.3
Max Velocity through Grate 2 (fps) =	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Time to Drain 97% of Inflow Volume (hours) =	39	80	59	72	84	90	88	85	81
Time to Drain 99% of Inflow Volume (hours) =	**40**	84	61	75	89	97	96	95	93
Maximum Ponding Depth (ft) =	1.95	3.32	2.54	3.01	3.49	3.96	4.13	4.41	5.23
Area at Maximum Ponding Depth (acres) =	0.28	0.41	0.34	0.38	0.42	0.47	0.48	0.51	0.57
Maximum Volume Stored (acre-ft) =	0.192	0.665	0.375	0.543	0.732	0.941	1.021	1.160	1.611

Detention Basin Outlet Structure Design

UD-Detention, Version 3.07 (February 2017)



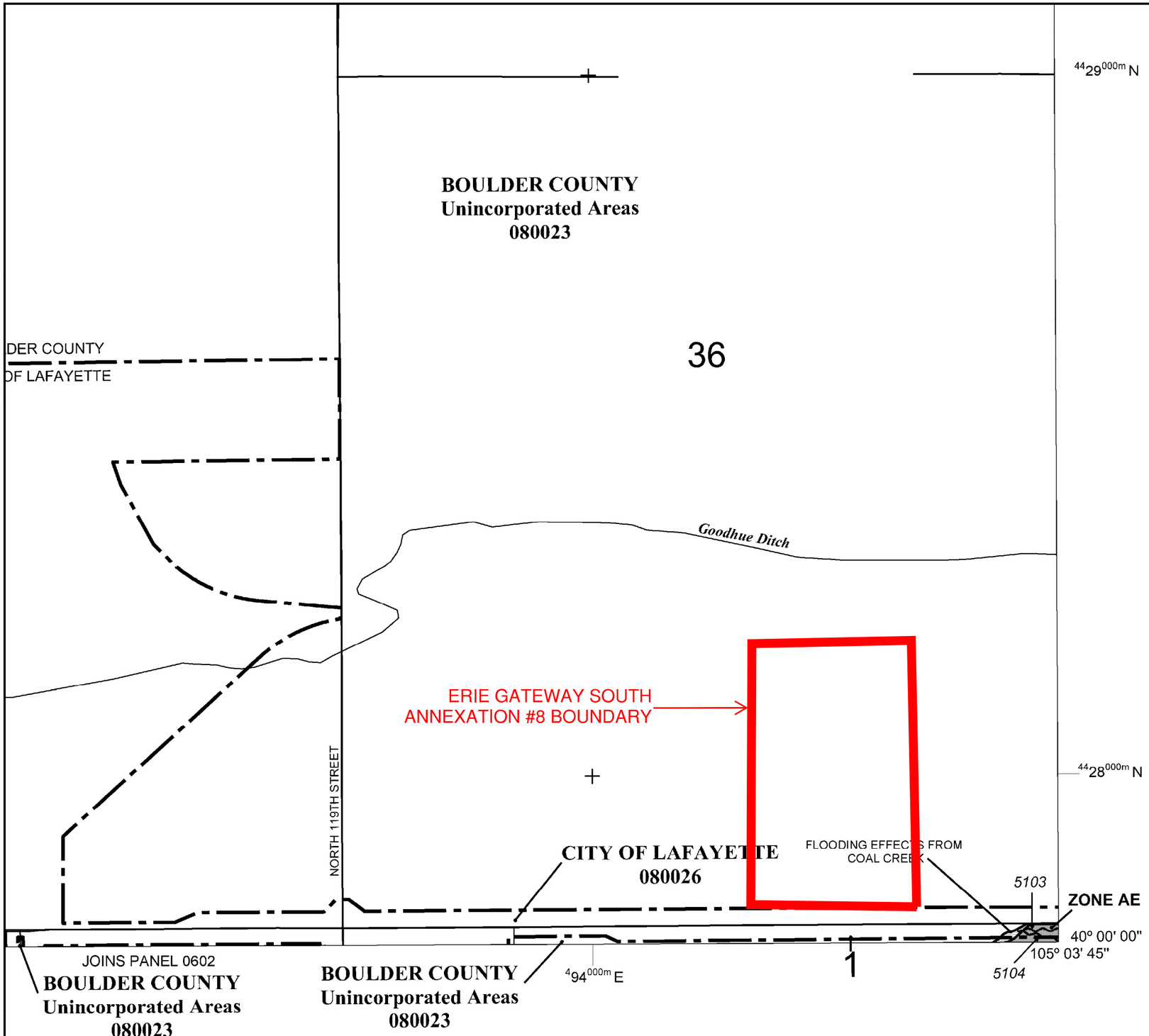




S-A-V-D Chart Axis Override	X-axis	Left Y-Axis	Right Y-Axis
minimum bound			
maximum bound			

APPENDIX C

FIRM MAPS
NRCS SOILS REPORT



MAP SCALE 1" = 500'

250 0 500 1000 FEET

METER

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0439J

FIRM

FLOOD INSURANCE RATE MAP

BOULDER COUNTY, COLORADO

AND INCORPORATED AREAS

PANEL 439 OF 615

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
BOULDER COUNTY	080023	0439	J
ERIE, TOWN OF	080181	0439	J
LAFAYETTE, CITY OF	080026	0439	J

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
08013C0439J

MAP REVISED
DECEMBER 18, 2012

Federal Emergency Management Agency

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Boulder County Area, Colorado

June 14, 2019

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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AcC—Ascalon sandy loam, 3 to 5 percent slopes.....11

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Map Scale: 1:2,480 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 35 70 140 210

Feet
0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Boulder County Area, Colorado
Survey Area Data: Version 15, Sep 10, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 1, 2018—Oct 31, 2018

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AcA	Ascalon sandy loam, 0 to 3 percent slopes	17.0	74.4%
AcC	Ascalon sandy loam, 3 to 5 percent slopes	5.8	25.6%
Totals for Area of Interest		**22.9**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Boulder County Area, Colorado

AcA—Ascalon sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2swl3
Elevation: 3,870 to 5,960 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 46 to 57 degrees F
Frost-free period: 135 to 160 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Ascalon and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ascalon

Setting

Landform: Interfluves
Landform position (two-dimensional): Summit
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Wind-reworked alluvium and/or calcareous sandy eolian deposits

Typical profile

Ap - 0 to 6 inches: sandy loam
Bt1 - 6 to 12 inches: sandy clay loam
Bt2 - 12 to 19 inches: sandy clay loam
Bk - 19 to 35 inches: sandy clay loam
C - 35 to 80 inches: sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.1 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 1.0
Available water storage in profile: Moderate (about 7.7 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: B
Ecological site: Sandy Plains (R067BY024CO)
Hydric soil rating: No

Minor Components

Olnest

Percent of map unit: 10 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Sandy Plains (R067BY024CO)
Hydric soil rating: No

Vona

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Sandy Plains (R067BY024CO)
Hydric soil rating: No

AcC—Ascalon sandy loam, 3 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2tlnt
Elevation: 3,550 to 5,970 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 46 to 57 degrees F
Frost-free period: 135 to 160 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Ascalon and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ascalon

Setting

Landform: Interfluves
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Wind-reworked alluvium and/or calcareous sandy eolian deposits

Typical profile

Ap - 0 to 6 inches: sandy loam
Bt1 - 6 to 12 inches: sandy clay loam
Bt2 - 12 to 19 inches: sandy clay loam

Bk - 19 to 35 inches: sandy clay loam
C - 35 to 80 inches: sandy loam

Properties and qualities

Slope: 3 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Salinity, maximum in profile: Nonsaline (0.1 to 1.9 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 1.0
Available water storage in profile: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: B
Ecological site: Sandy Plains (R067BY024CO), Sandy Plains (R072XY111KS)
Hydric soil rating: No

Minor Components

Stoneham

Percent of map unit: 10 percent
Landform: Interfluves
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Loamy Plains (R067BY002CO), Loamy Tableland (R072XY100KS)
Hydric soil rating: No

Vona

Percent of map unit: 8 percent
Landform: Interfluves
Landform position (two-dimensional): Backslope, footslope, shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Sandy Plains (R067BY024CO), Sandy Plains (R072XY111KS)
Hydric soil rating: No

Platner

Percent of map unit: 2 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Loamy Plains (R067BY002CO), Loamy Tableland (R072XY100KS)

ERIE GATEWAY SOUTH - ANNEXATION #8

PHASE I DRAINAGE PLAN

SHEET 1 OF 1

03/18/2021

PARKDALE - FILING NO. 1

OSP - DRAINAGEWAY 2 NORTH

PARKDALE - FILING NO. 1 - CHANNEL A

20'W x 10'H BOX CULVERT W/
12'W PEDESTRIAN UNDERPASS
RE: PARKDALE FILING NO. 1

PARKDALE - FILING NO. 3

80% IMPERVIOUS - ASSUMED IN PHASE III - PARKDALE FILING NO. 1 DRAINAGE REPORT
54.89% IMPERVIOUS - ACTUAL IN PHASE II - PARKDALE FILING NO. 3 DRAINAGE REPORT

M1 1.02 .60 .78

M2 6.48 .60 .78

NO POND IN NORTH 1/2 DUE TO OVERALL REDUCTION IN TRIBUTARY AREA AND IMPERVIOUSNESS LEVELS TO REGIONAL WQCV POND B.

G7+G8+G13+G14 BASIN CHARACTERISTICS WITH PARKDALE FILING NO. 3 AND NO. 4
(FILING NO. 3 @ 54.89%; M1+M2 @ 75.00%)
TOTAL AREA: 53.54 AC.
IMPERVIOUSNESS: 66.9%

G7+G8+G13+G14 BASIN CHARACTERISTICS PER THE PHASE III PARKDALE FILING NO. 1 DRAINAGE STUDY
TOTAL AREA: 53.97 AC.
IMPERVIOUSNESS: 69.3%

PHASE III PARKDALE FILING NO. 1
EXISTING BASIN LINE (G7+G8+G13+G14)

M3 8.40 .60 .78

POND #1
V100 = 1.14 AC. FT.
VEURV = 0.70 AC. FT.
APPROXIMATE DEPH = 5.0

M4 1.16 .01 .44

COAL CREEK BOULEVARD

PARKDALE - FILING NO. 1

POWERS MARSH
(WETLAND AREA)

OSP - DRAINAGEWAY 2 SOUTH

BASELINE ROAD

PROPOSED CHANNEL IMPROVEMENTS
FOR DRAINAGEWAY 2 SOUTH
Q100 = 1,536 CFS

TRIPLE 12'W x 5'H BOX CULVERT
RE: PARKDALE FILING NO. 1

LEGEND

A1 / 39.3 / .42 / .68

2-YR WEIGHTED C-VALUE

100-YR WEIGHTED C-VALUE

BASIN AREA (ACRES)

DRAINAGE BASIN BOUNDARY

SURFACE DIRECTIONAL FLOW ARROW

EXISTING WETLAND AREA

PROPOSED ERIE GATEWAY POND LOCATION

EXISTING DRAINAGE AS OUTLINED IN THE TOWN OF ERIE OUTFALL SYSTEMS PLAN (WEST OF COAL CREEK)

PROPOSED CHANNEL IMPROVEMENTS ASSOCIATED WITH THE ERIE GATEWAY PROJECT

ERIE GATEWAY SOUTH - ANNEXATION #8 PROJECT BOUNDARY

N

50 0 25 50 100

SCALE: 1"= 50 ' HORIZ.

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J:\MA\1913\CIVIL\DRAINAGE\PHASE I\CAD FILES\1913-PH1-DRN.DWG