



**1889 York Street  
Denver, CO 80206  
(303) 333-1105  
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October 18, 2019

Ms. Melinda Lundquist, P.E.  
CVL Consultants of Colorado  
10333 E. Dry Creek Avenue, Suite 240  
Englewood, CO 80112

Re: ConocoPhillips Well Sites  
Rush South 4-65 29-30 3AH, 1V, 3BH,  
3CH, 3DH, 4AH, 4BH, 4CH, and 4DH  
Rush North 4-65 29-30 1AH, 1BH,  
1CH, 1DH, 2AH, 2BH, 2CH, 2DH  
Traffic Memorandum  
Aurora, Colorado  
LSC #190750 & 190755

Dear Ms. Lundquist:

In response to your request, LSC Transportation Consultants, Inc. has prepared this traffic memorandum for the proposed ConocoPhillips Rush South 4-65 29-30 3AH, 1V, 3BH, 3CH, 3DH, 4AH, 4BH, 4CH, and 4DH and the Rush North 4-65 29-30 1AH, 1BH, 1CH, 1DH, 2AH, 2BH, 2CH, 2DH well site (17 well heads) in Aurora, Colorado.

## **REPORT CONTENTS**

The report includes a review of the need for auxiliary turn lanes along the proposed haul route based on the NR-B/NR-C CDOT classifications in the *State Highway Access Code* (SHAC). The impacts of the Rush South and Rush North sites were both included in this report to demonstrate the combined impact on the existing street network. This is appropriate because the two sites share the same haul route and access intersection on E. Jewell Avenue.

## **LAND USE AND ACCESS**

The two sites are proposed as oil and gas operations with a total of 17 well heads. The private access road was constructed previously and connects to E. Jewell Avenue. The proposed haul route is south on Watkins Road from I-70 and then west on E. Jewell Avenue.

## ROADWAY AND TRAFFIC CONDITIONS

### Area Roadways

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

- **Watkins Road (CR 97)** is a north-south, two-lane paved road east of the proposed site. It connects E. Quincy Avenue (CR 30) north to Interstate 70 (I-70) and US 36. The posted speed limit is 55 mph in the vicinity of E. Jewell Avenue. The intersection with E. Jewell Avenue is stop-sign controlled.
- **E. Jewell Avenue** is an east-west, two-lane paved road north of the proposed site. It transitions to gravel east of the site closer to Watkins Road. The posted speed limit is 40 mph in the vicinity of the site. The intersections with Watkins Road (CR 97) and Powhatan Road are stop-sign controlled.
- **Existing or Proposed Private Access Roads** are gravel roadways that will provide access to the site. They will be maintained to accommodate construction traffic with a minimum width of 23 feet. The first 100 feet from the public roadway network will be improved as a hard surface.

## EXISTING CONDITIONS

Figure 1 shows the existing traffic volumes, lane geometry, traffic control, and posted speed limits along the proposed haul route. Figure 2 shows the estimated 2020 background traffic based on a three percent annual growth rate.

## SIGHT DISTANCE

The intersection entering sight distance is very good at the intersections of Watkins Road/E. Jewell Avenue and E. Jewell Avenue/Site Access due to relatively flat grades in the area.

## OPERATOR AGREEMENT BMP 27

The applicant has responded elsewhere to the various requirements of the Operator Agreement BMP 27.

## TRIP GENERATION

Table 1 shows the estimated daily traffic volumes in passenger car equivalent (PCE) vehicles each day beginning on January 1, 2020 and ending on July 30, 2021. This construction schedule of 19 months is subject to change based on field conditions, but is a good estimate of the combined impact over time from these two sites. Table 1 includes the six primary phases of the site along with sub-phases for the Drilling and Completion phases. The various vehicle types are summarized in the attached Truck Footprint table by CVL Consultants.

Table 2 shows the nine scenarios with combined daily trip generation estimates of greater than 150 PCE one-way vehicle-trips per day. Table 2 also estimates peak-hour trips by conservatively assuming the daily trips are distributed over a ten-hour day with a peaking factor of 2.0.

## **AUXILIARY TURN LANE REQUIREMENTS**

### **Watkins Road/E. Jewell Avenue:**

The *State Highway Access Code* (SHAC) threshold for a southbound right-turn deceleration lane on Watkins Road for a 55 mph posted speed limit is greater than 25 PCE vehicles per hour. If required by the City, the length required in the SHAC for 55 mph is 378 feet plus a 222-foot transition taper (18.5:1 taper rate).

### **E. Jewell Avenue/Site Access:**

The SHAC threshold for a westbound left-turn lane on E. Jewell Avenue for a 40 mph posted speed limit is greater than 25 PCE vehicles per hour. If required by the City, the length in the SHAC for 40 mph is vehicle storage plus tapers so 150 feet for the lane (storage for two trucks) plus a 144-foot transition taper (12:1 taper rate) and a 40:1 redirect taper.

## **TRIP ASSIGNMENT**

Figure 3 shows the PCE trip assignment for the two highest trip generating scenarios shown in Table 2 which are Scenarios 2 and 7.

## **TOTAL TURNING TRAFFIC**

Figure 4 shows the estimated total traffic volumes along the proposed haul route during Scenarios 2 and 7 which are both expected to occur in 2020. Scenario 7 is expected to exceed the threshold for the southbound right-turn movement from Watkins Road to E. Jewell Avenue for only about three days and the threshold for the westbound left-turn movement from E. Jewell Avenue to the site access for only about three days. Scenario 2 is expected to exceed the threshold at Watkins Road/E. Jewell Avenue for only about three days but not exceed the threshold at the site access on E. Jewell Avenue. All other scenarios have less trip generation potential than Scenario 2 so are not expected to meet or exceed the threshold at the site access on E. Jewell Avenue.

## **SUMMARY**

The threshold for a southbound right-turn deceleration lane on Watkins Road approaching E. Jewell Avenue will be met during several phases/scenarios due to the combination of existing and site traffic.

The threshold for a westbound left-turn lane on E. Jewell Avenue at the site access is only expected to be exceeded for about three days during Scenario 7. Considering the limited time this lane will be warranted by site traffic it would be appropriate to develop a temporary site-specific traffic control plan for review and approval by the City in lieu of constructing a turn lane. This approach is consistent with typical projects where construction impacts are handled with temporary traffic control plans. In addition, the impacts to the traveling public from turn lane construction will likely be as impactful as trucks turning with a traffic control plan rather than a turn lane considering the 19 month timeline. Another option would be to

limit the daily trip generation of the combined sites to 250 PCE vehicle-trips per day which would not meet or exceed the threshold.

\* \* \* \* \*

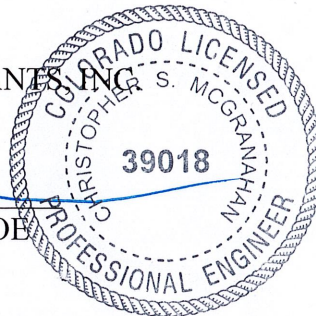
We trust this traffic memorandum will assist you in gaining approval of the proposed ConocoPhillips well sites referred to as Rush South 4-65 29-30 3AH, 1V, 3BH, 3CH, 3DH, 4AH, 4BH, 4CH, and 4DH and Rush North 4-65 29-30 1AH, 1BH, 1CH, 1DH, 2AH, 2BH, 2CH, 2DH . Please contact me if you have any questions or need further assistance.

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

By

Christopher S. McGranahan, PE, PTOE  
Principal



CSM/wc

10-18-19

Enclosures: Tables 1 and 2  
Figures 1 - 4  
Haul Route Map  
Truck Footprint Table by CVL Consultants  
Traffic Counts

**Table 1**  
**Cumulative Trips by Phase**  
**COP - Rush South & Rush North**  
**Aurora, CO**  
**LSC #190750 & #190755; October, 2019**

[illegible]

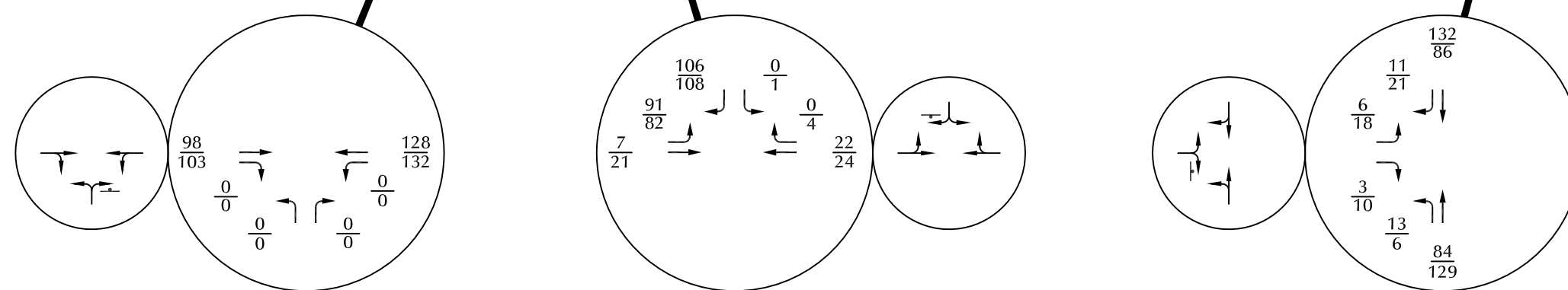
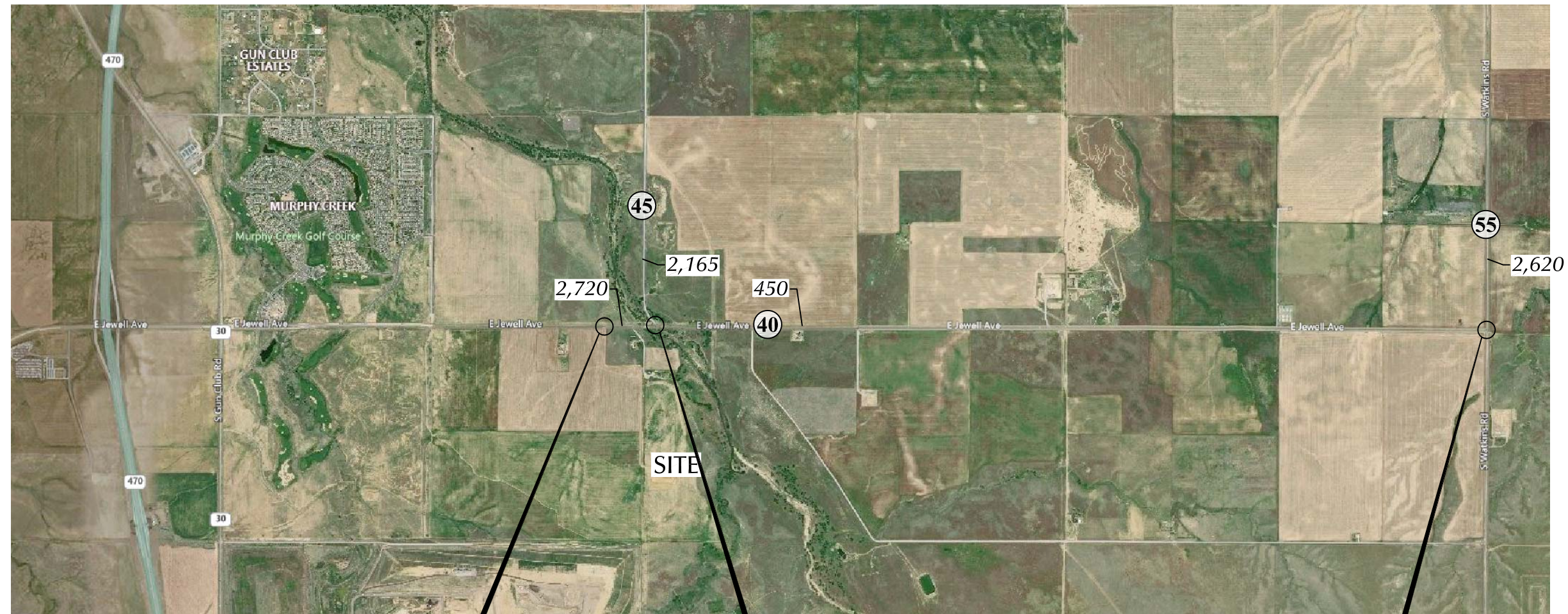
**Table 2**  
**ESTIMATED TRAFFIC GENERATION <sup>(1)</sup>**  
**COP - Rush South & Rush North**  
**Aurora, CO**  
**LSC #190750 & #190755; October, 2019**

Trip Generating Scenario	Estimated Begin Date <sup>(4)</sup>	Estimated Duration <sup>(4)</sup>	Trip Generation Rates <sup>(2)</sup>						Vehicle - Trips Generated by Scenario				
			Average Weekday	AM Peak Hour		PM Peak Hour		Average Weekday	AM Peak Hour <sup>(3)</sup>		PM Peak Hour <sup>(3)</sup>		
				In	Out	In	Out		In	Out	In	Out	
<i>Scenario</i>													
1	22-Jan-2020	14 days	-	-	-	-	-	156	16	16	16	16	
2	06-Feb-2020	3 days	-	-	-	-	-	225	23	23	23	23	
3	27-Feb-2020	14 days	-	-	-	-	-	177	18	18	18	18	
4	13-Apr-2020	3 days	-	-	-	-	-	165	17	17	17	17	
5	16-Apr-2020	3 days	-	-	-	-	-	180	18	18	18	18	
6	16-May-2020	37 days	-	-	-	-	-	183	18	18	18	18	
7	23-Jun-2020	3 days	-	-	-	-	-	321	32	32	32	32	
8	26-Jun-2020	10 days	-	-	-	-	-	162	16	16	16	16	
9	06-Oct-2020	50 days	-	-	-	-	-	183	18	18	18	18	

**Notes:**

- (1) This table summarizes the nine scenarios during which the combined sites are expected to generate more than 150 one-way passenger car equivalent trips per day.
- (2) Source: Duration and average weekday volume data provided by applicant.
- (3) Conservatively assumes daily trips are evenly distributed over a 10 hour day with a 2.0 peaking factor.
- (4) The proposed timeline is subject to change based on field conditions.





LEGEND:

- ┆ = Stop Sign
- ④① = Posted Speed Limit
- $\frac{26}{35}$  =  $\frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$
- 1,000 = Average Daily Traffic

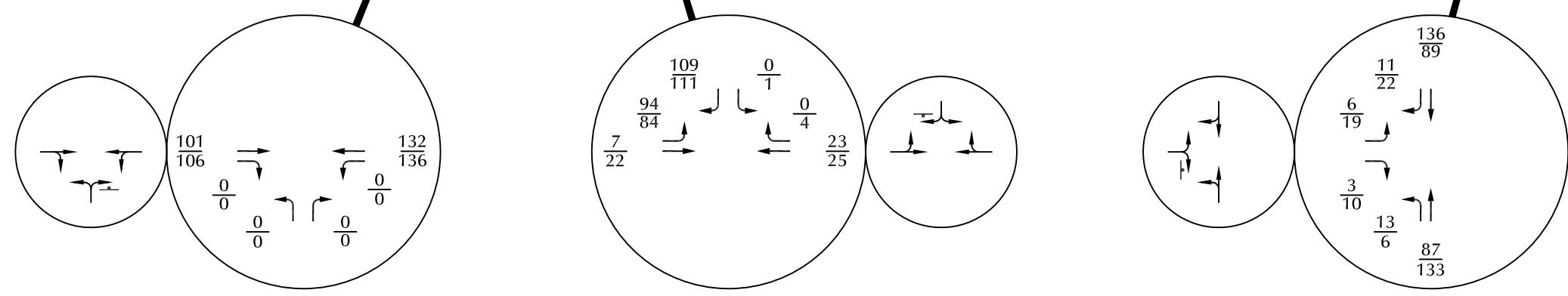
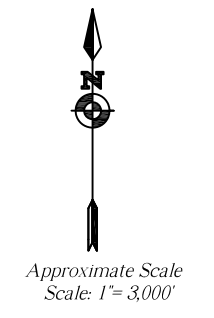
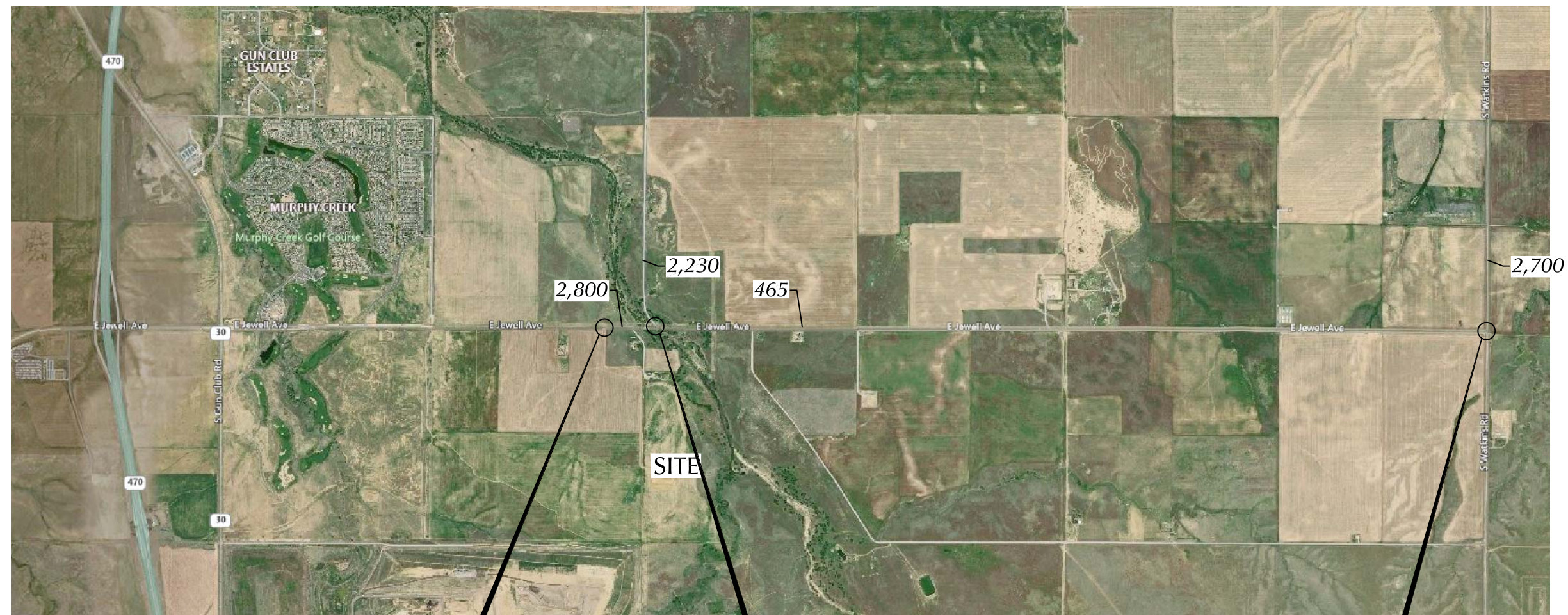


Figure 1

## Existing Traffic, Lane Geometry and Traffic Control

COP Rush South (LSC #190750)  
COP Rush North (LSC #190755)





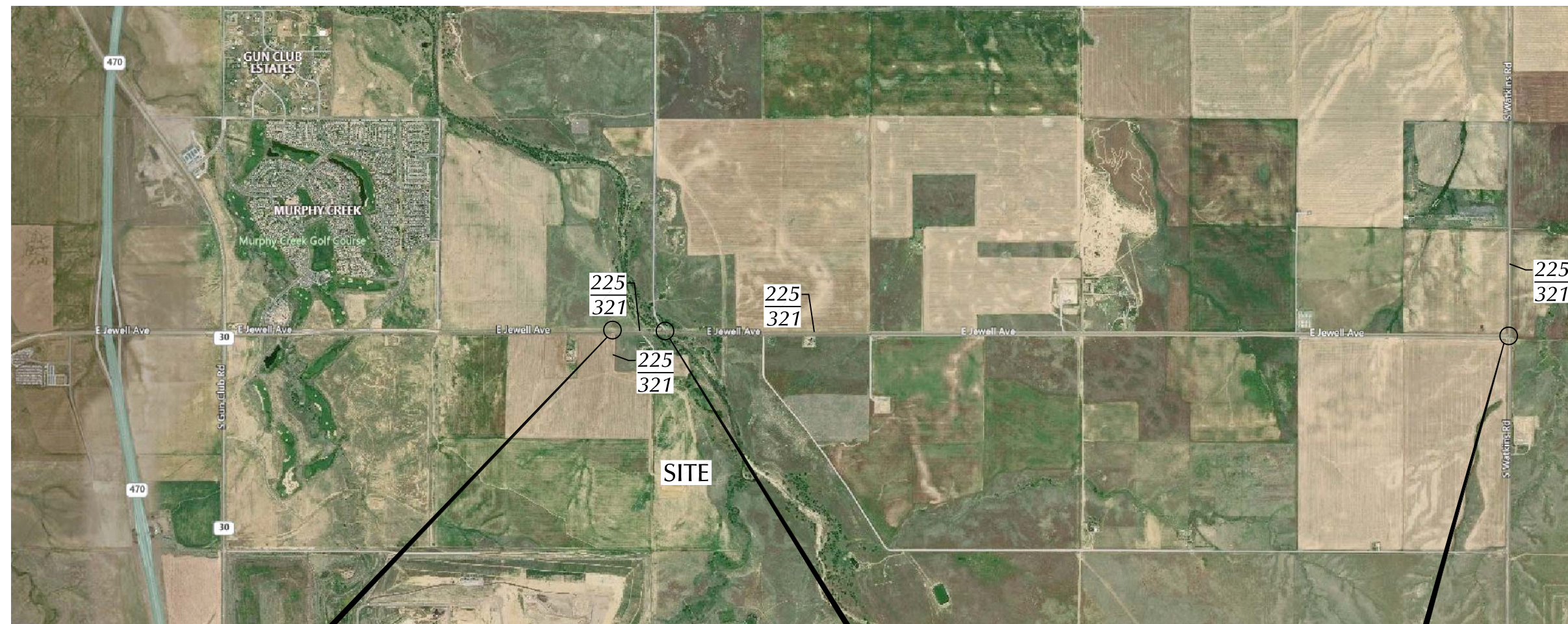
LEGEND:

- ┆ = Stop Sign
- (40) = Posted Speed Limit
- $\frac{26}{35}$  =  $\frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$
- 1,000 = Average Daily Traffic

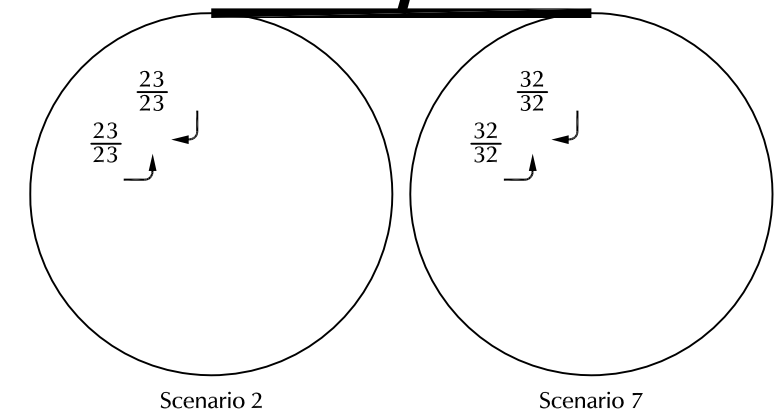
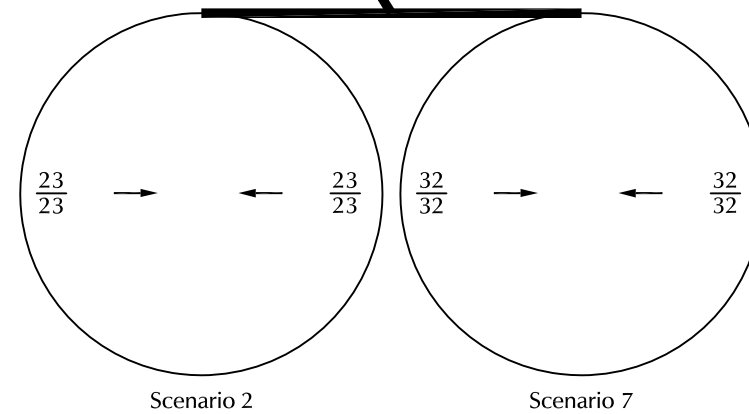
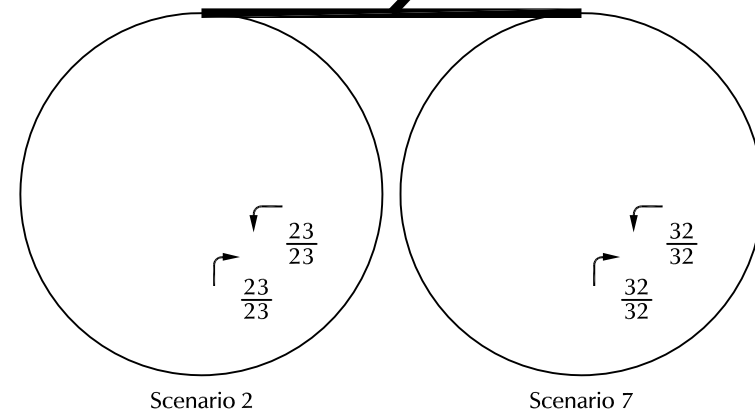


Figure 2  
**Year 2020 Background Traffic,  
Lane Geometry and Traffic Control**  
COP Rush South (LSC #190750)  
COP Rush North (LSC #190755)





Approximate Scale  
Scale: 1" = 3,000'



Note: Traffic volumes represent passenger car equivalent vehicles.

#### LEGEND:

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

$\frac{2,670}{2,700}$  = Average Daily Traffic - Scenario 2  
Average Daily Traffic - Scenario 7

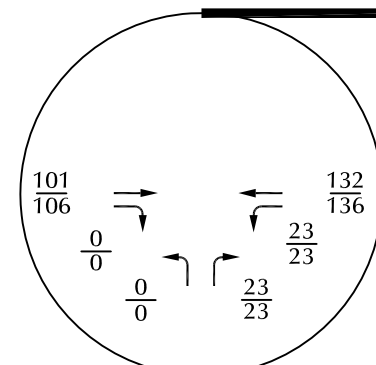
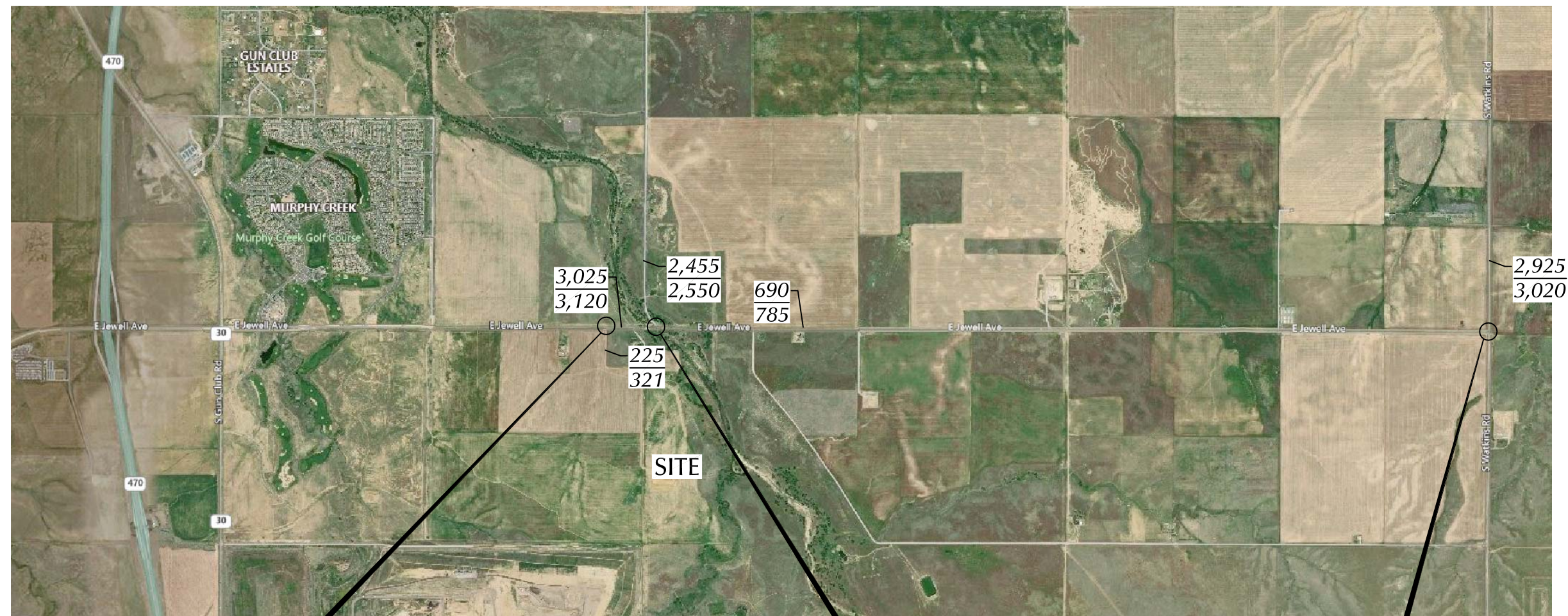


Figure 3

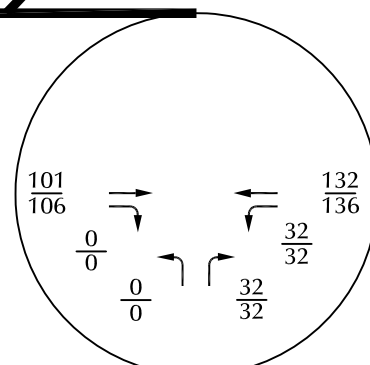
### Assignment of Site-Generated Traffic

COP Rush South (LSC #190750)  
COP Rush North (LSC #190755)

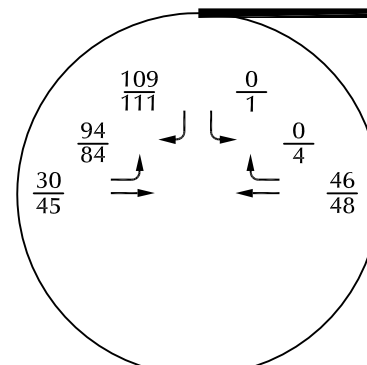




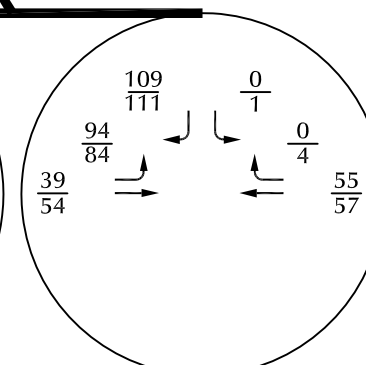
Scenario 2



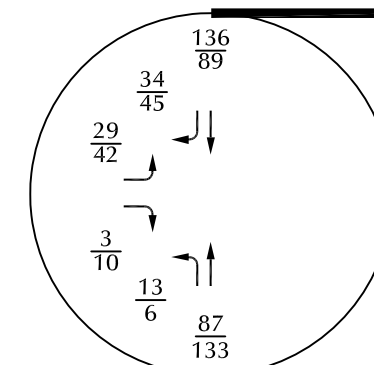
Scenario 7



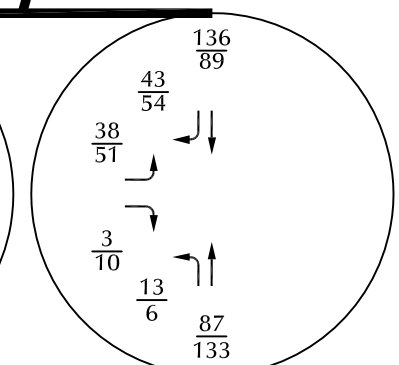
Scenario 2



Scenario 7



Scenario 2



Scenario 7

# LEGEND:

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

$\frac{2,670}{2,700}$  = Average Daily Traffic - Scenario 2  
 $\frac{2,700}{2,670}$  = Average Daily Traffic - Scenario 7



Figure 4  
**Year 2020 Total Traffic,  
 Lane Geometry and Traffic Control**  
 COP Rush South (LSC #190750)  
 COP Rush North (LSC #190755)

<u>Truck Type</u>	<u>Description</u>	<u>Weight in lbs</u>	<u>Length in Feet</u>	<u>Axel Gap</u>	<u>Wheels</u>	<u>Number on Pad</u>
Q-10 Pump Truck	Pumping unit	93,320	54'	26'	22	14 active 2 spare
HT-2000	Pumping unit	83,500	53'	26'	18	2 active
FB4K Blender	Mixing Unit	86,780	54'	29'3"	18	1 active 1 spare
ADP	Mixing Unit	80,000	55'	29'3"	18	1 active 1 spare
TCC	Data Recording Unit	68,000	53'	26'	18	1 active
Iron Floats	Iron Storage and Transport	80,000	53'	29'3"	18	3 active
Iron Truck	Crane / Iron Storage	36,120	28'	20'	10	1 active 1 spare
Missile	High and Low Pressure Manifold	60,000	50'	45'	14	1 active
Chemical Floats	Chemical Storage and Transport	65,000	53'	26'	18	3 active
Chemical Iso	Chemical Storage and Transport	75,000	53'	27'6"	18	2 active 1 spare
Acid Tankers	Chemical Storage and Transport	74,000	53'	24'	18	1 active 1 spare
Con Ex Trailer	Parts and Maintenance Storage	62,000	53'	29'	18	1 active
PM Trailer	Oil and Fluid Storage Trailer	52,000	53'	21'	18	1 active
Mechanic Trailer	Tool and Parts Storage Trailer	41,000	48'	12'	8	1 active
Hose Trailer	Hose and Fitting Storage	28,000	42'	26'	14	1 active
Power Pack	Generator for TCC	24,000	38'	14'	14	1 active
Chem-Ad	Chemical Supply Truck	26,000	24'	18'	10	1 active
Sand Structure	Sand Storage and Delivery	30,000	40'	40'	14	1 active
Sand Forklift	Sand Loading	87,500	12'	12'	4	1 active 1 spare
FDP Tanker	Chemical Storage and Transport	66,000	48'	12'	18	1 active
Fuel Tanker	Fuel Storage and Transport	48,000	60'	27'	18	1 active

**Traffic:**

**Frac Fleet: Mobilizes once monthly**

**FDP: 1 delivery per day**

**Acid: 2 Deliveries per day**

**Sand: 40-50 deliveries per day**

**Fuel: 1 Delivery**

**All other Chemicals: 3 Deliveries per week as needed**



# COUNTER MEASURES INC.

1889 YORK STREET  
DENVER.COLORADO  
303-333-7409

N/S STREET: POWHATON RD  
E/W STREET: JEWELL AVE  
CITY: AURORA  
COUNTY: ARAPAHOE

File Name : POWHJEWE  
Site Code : 00000015  
Start Date : 8/20/2019  
Page No : 1

## Groups Printed- VEHICLES

	POWHATON RD Southbound				JEWELL AVE Westbound				Northbound				JEWELL AVE Eastbound				Int. Total
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	0	23	0	0	4	0	0	0	0	0	0	26	2	0	0	55
06:45 AM	0	0	25	0	0	5	0	0	0	0	0	1	27	1	0	1	60
Total	0	0	48	0	0	9	0	0	0	0	0	1	53	3	0	1	115
07:00 AM	0	0	31	0	0	6	0	0	0	0	0	0	21	2	0	0	60
07:15 AM	0	0	27	0	0	7	0	0	0	0	0	0	17	2	0	0	53
07:30 AM	0	0	20	0	0	2	0	0	0	0	0	0	16	1	0	0	39
07:45 AM	0	0	19	0	0	3	1	0	0	0	0	0	15	5	0	0	43
Total	0	0	97	0	0	18	1	0	0	0	0	0	69	10	0	0	195
08:00 AM	0	0	18	0	0	3	0	0	0	0	0	0	14	1	0	0	36
08:15 AM	1	0	19	0	0	1	1	0	0	0	0	0	10	2	0	0	34
Total	1	0	37	0	0	4	1	0	0	0	0	0	24	3	0	0	70
04:00 PM	0	0	18	0	0	6	0	0	0	0	0	0	19	2	0	0	45
04:15 PM	2	0	25	0	0	1	0	0	0	0	0	0	22	3	0	0	53
04:30 PM	0	0	27	0	0	2	1	0	0	0	0	0	13	5	0	0	48
04:45 PM	1	0	27	0	0	8	2	0	0	0	0	0	20	7	0	0	65
Total	3	0	97	0	0	17	3	0	0	0	0	0	74	17	0	0	211
05:00 PM	0	0	30	0	0	7	0	0	0	0	0	0	23	2	0	0	62
05:15 PM	0	0	24	0	0	7	1	0	0	0	0	0	26	7	0	0	65
05:30 PM	0	0	26	0	0	5	1	0	0	0	0	0	13	8	0	0	53
05:45 PM	1	0	24	0	0	1	1	0	0	0	0	0	16	3	0	0	46
Total	1	0	104	0	0	20	3	0	0	0	0	0	78	20	0	0	226
Grand Total	5	0	383	0	0	68	8	0	0	0	0	1	298	53	0	1	817
Apprch %	1.3	0.0	98.7	0.0	0.0	89.5	10.5	0.0	0.0	0.0	0.0	100.0	84.7	15.1	0.0	0.3	
Total %	0.6	0.0	46.9	0.0	0.0	8.3	1.0	0.0	0.0	0.0	0.0	0.1	36.5	6.5	0.0	0.1	

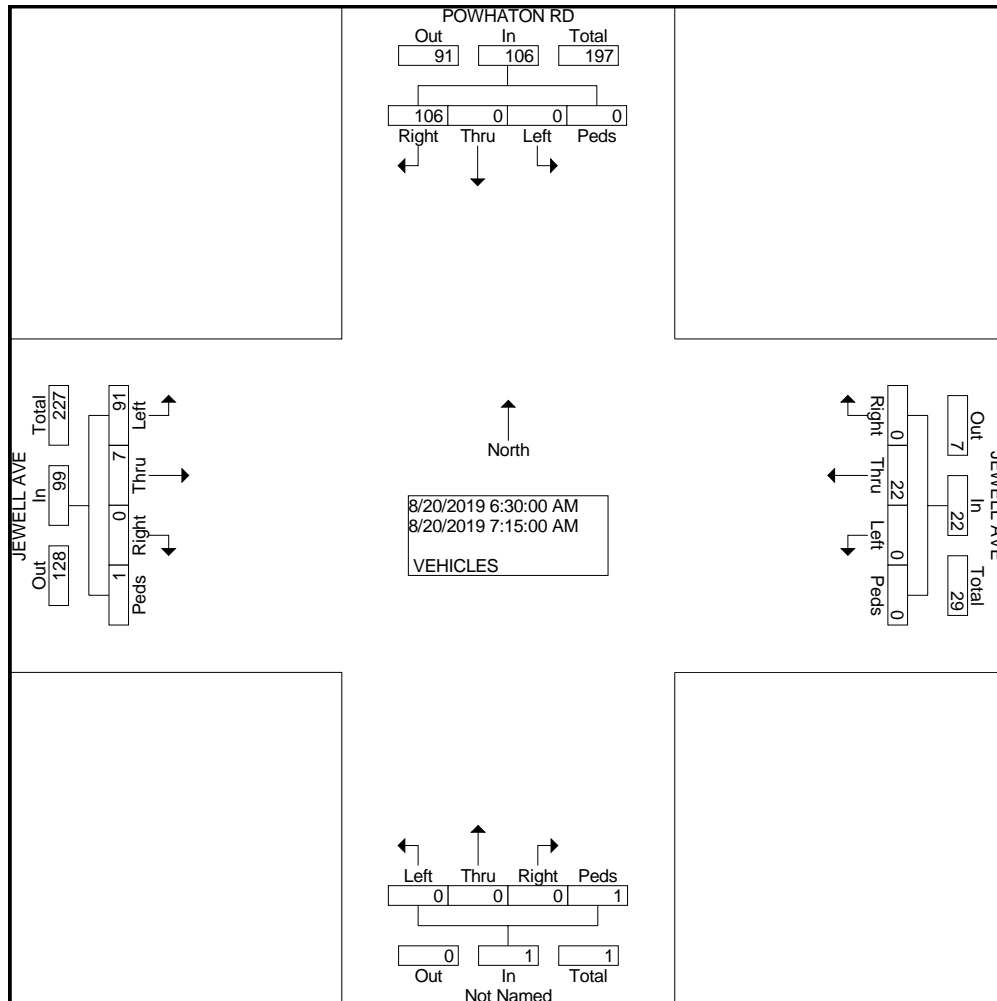
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1889 YORK STREET  
DENVER.COLORADO  
303-333-7409

N/S STREET: POWHATON RD  
E/W STREET: JEWELL AVE  
CITY: AURORA  
COUNTY: ARAPAHOE

File Name : POWHJEWE  
Site Code : 00000015  
Start Date : 8/20/2019  
Page No : 2

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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 07:15 AM - Peak 1 of 1	06:30 AM																				
Intersection	06:30 AM																				
Volume	0	0	106	0	106	0	22	0	0	22	0	0	0	1	1	91	7	0	1	99	228
Percent	0.0	0.0	100.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	100.0		91.9	7.1	0.0	1.0		
07:00																					
Volume	0	0	31	0	31	0	6	0	0	6	0	0	0	0	0	21	2	0	0	23	60
Peak Factor																					0.950
High Int.	07:00 AM					07:15 AM					06:45 AM					06:45 AM					
Volume	0	0	31	0	31	0	7	0	0	7	0	0	0	1	1	27	1	0	1	29	
Peak Factor	0.85					0.78					0.25					0.85					3
	5					6					0					3					



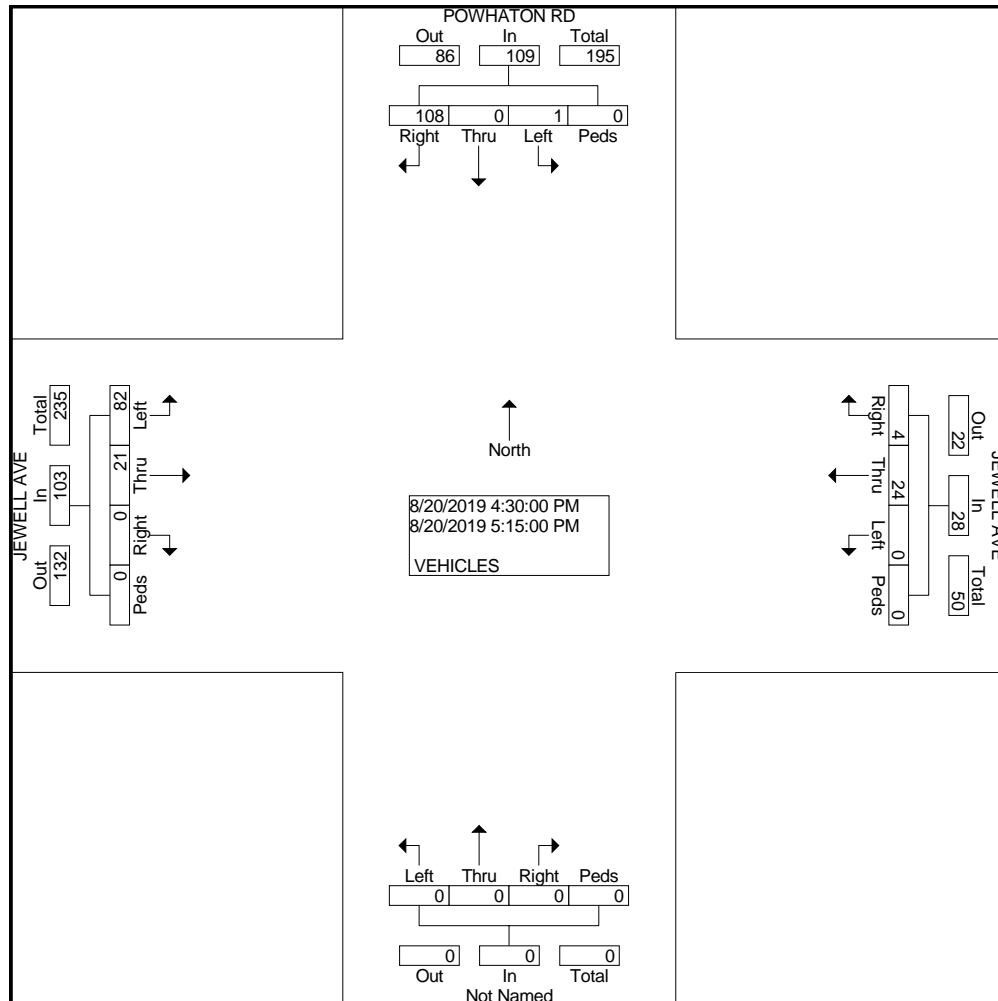
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Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:30 PM to 05:15 PM - Peak 1 of 1	04:30 PM																				
Intersection	04:30 PM																				
Volume	1	0	108	0	109	0	24	4	0	28	0	0	0	0	0	82	21	0	0	103	240
Percent	0.9	0.0	99.1	0.0		0.0	85.7	14.3	0.0		0.0	0.0	0.0	0.0		79.6	20.4	0.0	0.0		
05:15																					
Volume	0	0	24	0	24	0	7	1	0	8	0	0	0	0	0	26	7	0	0	33	65
Peak Factor																					0.923
High Int.	05:00 PM					04:45 PM										05:15 PM					
Volume	0	0	30	0	30	0	8	2	0	10	0	0	0	0	0	26	7	0	0	33	
Peak Factor	0.90					0.70										0.78					
	8					0										0					





# COUNTER MEASURES INC.

1889 YORK STREET  
DENVER.COLORADO  
303-333-7409

N/S STREET: WATKINS RD  
E/W STREET: JEWELL AVE  
CITY: AURORA  
COUNTY: ARAPAHOE

File Name : WATKJEWE  
Site Code : 00000026  
Start Date : 8/20/2019  
Page No : 1

## Groups Printed- VEHICLES

	WATKINS RD Southbound				Westbound				WATKINS RD Northbound				JEWELL AVE Eastbound				Int. Total
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	36	7	0	0	0	0	0	2	16	0	0	2	0	0	1	64
06:45 AM	0	41	1	0	0	0	0	0	1	35	0	0	1	0	1	0	80
Total	0	77	8	0	0	0	0	0	3	51	0	0	3	0	1	1	144
07:00 AM	0	23	3	0	0	0	0	0	5	20	0	0	2	0	0	0	53
07:15 AM	0	32	0	0	0	0	0	0	5	13	0	0	1	0	2	0	53
07:30 AM	0	27	4	0	0	0	0	0	3	18	0	0	1	0	0	0	53
07:45 AM	0	22	1	0	0	0	0	0	1	17	0	0	2	0	1	0	44
Total	0	104	8	0	0	0	0	0	14	68	0	0	6	0	3	0	203
08:00 AM	0	19	6	0	0	0	0	0	0	17	0	0	2	0	1	0	45
08:15 AM	0	24	3	0	0	0	0	0	0	11	0	0	0	0	1	0	39
Total	0	43	9	0	0	0	0	0	0	28	0	0	2	0	2	0	84
04:00 PM	0	16	2	0	0	0	0	0	0	26	0	1	5	0	1	0	51
04:15 PM	0	23	1	0	0	0	0	0	0	29	0	0	3	0	1	0	57
04:30 PM	0	21	3	0	0	0	0	0	2	25	0	0	4	0	2	0	57
04:45 PM	0	21	7	0	0	0	0	0	3	32	0	0	3	0	3	0	69
Total	0	81	13	0	0	0	0	0	5	112	0	1	15	0	7	0	234
05:00 PM	0	17	4	0	0	0	0	0	0	32	0	0	8	0	1	0	62
05:15 PM	0	27	7	0	0	0	0	0	1	40	0	0	3	0	4	0	82
05:30 PM	0	10	2	0	0	0	0	0	2	30	0	0	6	0	2	0	52
05:45 PM	0	19	1	0	0	0	0	0	0	26	0	0	3	0	0	0	49
Total	0	73	14	0	0	0	0	0	3	128	0	0	20	0	7	0	245
Grand Total	0	378	52	0	0	0	0	0	25	387	0	1	46	0	20	1	910
Apprch %	0.0	87.9	12.1	0.0	0.0	0.0	0.0	0.0	6.1	93.7	0.0	0.2	68.7	0.0	29.9	1.5	
Total %	0.0	41.5	5.7	0.0	0.0	0.0	0.0	0.0	2.7	42.5	0.0	0.1	5.1	0.0	2.2	0.1	

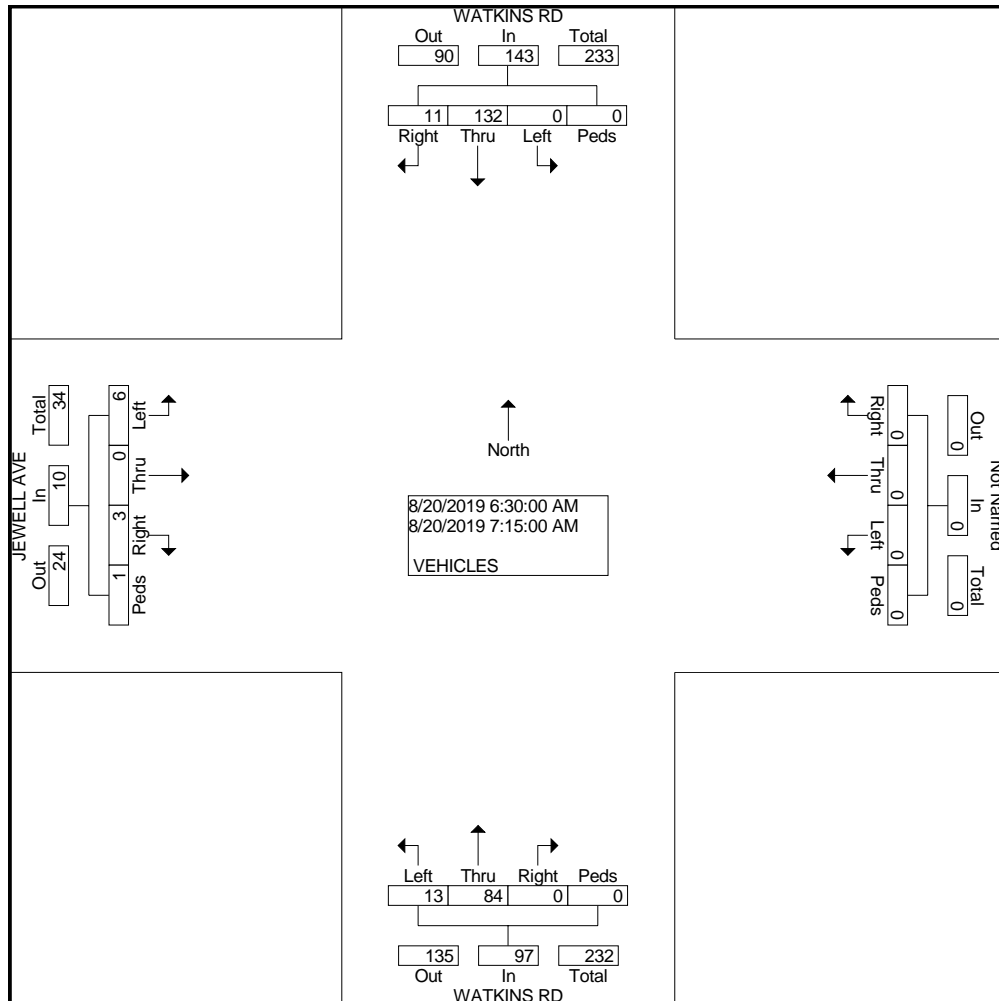
# COUNTER MEASURES INC.

1889 YORK STREET  
DENVER.COLORADO  
303-333-7409

N/S STREET: WATKINS RD  
E/W STREET: JEWELL AVE  
CITY: AURORA  
COUNTY: ARAPAHOE

File Name : WATKJEWE  
Site Code : 00000026  
Start Date : 8/20/2019  
Page No : 2

	WATKINS RD Southbound					Westbound					WATKINS RD Northbound					JEWELL AVE 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	06:30 AM																				
Volume	0	132	11	0	143	0	0	0	0	0	13	84	0	0	97	6	0	3	1	10	250
Percent	0.0	92.3	7.7	0.0		0.0	0.0	0.0	0.0		13.4	86.6	0.0	0.0		60.0	0.0	30.0	10.0		
06:45																					
Volume	0	41	1	0	42	0	0	0	0	0	1	35	0	0	36	1	0	1	0	2	80
Peak Factor																					0.781
High Int.	06:30 AM					6:15:00 AM					06:45 AM					06:30 AM					
Volume	0	36	7	0	43	0	0	0	0	0	1	35	0	0	36	2	0	0	1	3	
Peak Factor	0.83										0.67					0.83					
	1										4					3					



# COUNTER MEASURES INC.

1889 YORK STREET  
DENVER.COLORADO  
303-333-7409

N/S STREET: WATKINS RD  
E/W STREET: JEWELL AVE  
CITY: AURORA  
COUNTY: ARAPAHOE

File Name : WATKJEWE  
Site Code : 00000026  
Start Date : 8/20/2019  
Page No : 2

	WATKINS RD Southbound					Westbound					WATKINS RD Northbound					JEWELL AVE Eastbound					
Start Time	Left	Thr u	Rig ht	Ped s	App. Total	Left	Thr u	Rig ht	Ped s	App. Total	Left	Thr u	Rig ht	Ped s	App. Total	Left	Thr u	Rig ht	Ped s	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	04:30 PM																				
Volume	0	86	21	0	107	0	0	0	0	0	6	129	0	0	135	18	0	10	0	28	270
Percent	0.0	80.4	19.6	0.0		0.0	0.0	0.0	0.0		4.4	95.6	0.0	0.0		64.3	0.0	35.7	0.0		
05:15 Volume	0	27	7	0	34	0	0	0	0	0	1	40	0	0	41	3	0	4	0	7	82
Peak Factor																					0.823
High Int.	05:15 PM										05:15 PM					05:00 PM					
Volume	0	27	7	0	34	0	0	0	0	0	1	40	0	0	41	8	0	1	0	9	
Peak Factor																					0.778



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

Location: JEWELL AVE E/O POWHATON RD  
City: AURORA  
County: ARAPAHOE  
Direction: EASTBOUND-WESTBOUND

Site Code: 191917  
Station ID: 191917

Start Time	19-Aug-19		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
12:00 AM	*	*	4	3	*	*	*	*	*	*	*	*	*	*	4	3
01:00	*	*	1	2	*	*	*	*	*	*	*	*	*	*	1	2
02:00	*	*	0	0	*	*	*	*	*	*	*	*	*	*	0	0
03:00	*	*	2	2	*	*	*	*	*	*	*	*	*	*	2	2
04:00	*	*	0	1	*	*	*	*	*	*	*	*	*	*	0	1
05:00	*	*	6	3	*	*	*	*	*	*	*	*	*	*	6	3
06:00	*	*	10	17	*	*	*	*	*	*	*	*	*	*	10	17
07:00	*	*	7	18	*	*	*	*	*	*	*	*	*	*	7	18
08:00	*	*	11	12	*	*	*	*	*	*	*	*	*	*	11	12
09:00	*	*	10	12	*	*	*	*	*	*	*	*	*	*	10	12
10:00	*	*	15	16	*	*	*	*	*	*	*	*	*	*	15	16
11:00	*	*	9	16	*	*	*	*	*	*	*	*	*	*	9	16
12:00 PM	*	*	13	11	*	*	*	*	*	*	*	*	*	*	13	11
01:00	*	*	12	7	*	*	*	*	*	*	*	*	*	*	12	7
02:00	*	*	15	10	*	*	*	*	*	*	*	*	*	*	15	10
03:00	*	*	24	11	*	*	*	*	*	*	*	*	*	*	24	11
04:00	*	*	19	9	*	*	*	*	*	*	*	*	*	*	19	9
05:00	*	*	23	29	*	*	*	*	*	*	*	*	*	*	23	29
06:00	*	*	25	8	*	*	*	*	*	*	*	*	*	*	25	8
07:00	*	*	15	6	*	*	*	*	*	*	*	*	*	*	15	6
08:00	*	*	6	8	*	*	*	*	*	*	*	*	*	*	6	8
09:00	*	*	10	4	*	*	*	*	*	*	*	*	*	*	10	4
10:00	*	*	4	2	*	*	*	*	*	*	*	*	*	*	4	2
11:00	*	*	1	0	*	*	*	*	*	*	*	*	*	*	1	0
Lane	0	0	242	207	0	0	0	0	0	0	0	0	0	0	242	207
Day	0		449		0		0		0		0		0		449	
AM Peak	-	-	10:00	07:00	-	-	-	-	-	-	-	-	-	-	10:00	07:00
Vol.	-	-	15	18	-	-	-	-	-	-	-	-	-	-	15	18
PM Peak	-	-	18:00	17:00	-	-	-	-	-	-	-	-	-	-	18:00	17:00
Vol.	-	-	25	29	-	-	-	-	-	-	-	-	-	-	25	29

Comb. Total	0	449	0	0	0	0	449
ADT	ADT 449	AADT 449					

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

Location: JEWELL AVE W/O POWHATON RD  
City: AURORA  
County: ARAPAHOE  
Direction: EASTBOUND-WESTBOUND

Site Code: 192107  
Station ID: 192107

Start Time	19-Aug-19		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
12:00 AM	*	*	*	*	*	*	9	25	*	*	*	*	*	*	9	25
01:00	*	*	*	*	*	*	7	14	*	*	*	*	*	*	7	14
02:00	*	*	*	*	*	*	5	4	*	*	*	*	*	*	5	4
03:00	*	*	*	*	*	*	12	6	*	*	*	*	*	*	12	6
04:00	*	*	*	*	*	*	22	6	*	*	*	*	*	*	22	6
05:00	*	*	*	*	*	*	66	20	*	*	*	*	*	*	66	20
06:00	*	*	*	*	*	*	85	74	*	*	*	*	*	*	85	74
07:00	*	*	*	*	*	*	92	118	*	*	*	*	*	*	92	118
08:00	*	*	*	*	*	*	58	83	*	*	*	*	*	*	58	83
09:00	*	*	*	*	*	*	58	69	*	*	*	*	*	*	58	69
10:00	*	*	*	*	*	*	59	59	*	*	*	*	*	*	59	59
11:00	*	*	*	*	*	*	78	67	*	*	*	*	*	*	78	67
12:00 PM	*	*	*	*	*	*	78	94	*	*	*	*	*	*	78	94
01:00	*	*	*	*	*	*	103	73	*	*	*	*	*	*	103	73
02:00	*	*	*	*	*	*	73	82	*	*	*	*	*	*	73	82
03:00	*	*	*	*	*	*	85	139	*	*	*	*	*	*	85	139
04:00	*	*	*	*	*	*	92	112	*	*	*	*	*	*	92	112
05:00	*	*	*	*	*	*	107	110	*	*	*	*	*	*	107	110
06:00	*	*	*	*	*	*	92	64	*	*	*	*	*	*	92	64
07:00	*	*	*	*	*	*	56	48	*	*	*	*	*	*	56	48
08:00	*	*	*	*	*	*	38	28	*	*	*	*	*	*	38	28
09:00	*	*	*	*	*	*	29	35	*	*	*	*	*	*	29	35
10:00	*	*	*	*	*	*	18	26	*	*	*	*	*	*	18	26
11:00	*	*	*	*	*	*	11	31	*	*	*	*	*	*	11	31
Lane	0	0	0	0	0	0	1333	1387	0	0	0	0	0	0	1333	1387
Day	0		0		0		2720		0		0		0		2720	
AM Peak	-	-	-	-	-	-	07:00	07:00	-	-	-	-	-	-	07:00	07:00
Vol.	-	-	-	-	-	-	92	118	-	-	-	-	-	-	92	118
PM Peak	-	-	-	-	-	-	17:00	15:00	-	-	-	-	-	-	17:00	15:00
Vol.	-	-	-	-	-	-	107	139	-	-	-	-	-	-	107	139

Comb. Total	0	0	0	2720	0	0	0	2720
ADT	ADT 2,720	AADT 2,720						

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

Location: POWHATON RD N/O JEWELL AVE  
City: AURORA  
County: ARAPAHOE  
Direction: NORTHBOUND-SOUTHBOUND

Site Code: 191910  
Station ID: 191910

Start Time	19-Aug-19		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	*	*	1	7	*	*	*	*	*	*	*	*	*	*	1	7
01:00	*	*	2	6	*	*	*	*	*	*	*	*	*	*	2	6
02:00	*	*	3	3	*	*	*	*	*	*	*	*	*	*	3	3
03:00	*	*	7	7	*	*	*	*	*	*	*	*	*	*	7	7
04:00	*	*	26	3	*	*	*	*	*	*	*	*	*	*	26	3
05:00	*	*	75	19	*	*	*	*	*	*	*	*	*	*	75	19
06:00	*	*	80	62	*	*	*	*	*	*	*	*	*	*	80	62
07:00	*	*	67	96	*	*	*	*	*	*	*	*	*	*	67	96
08:00	*	*	63	65	*	*	*	*	*	*	*	*	*	*	63	65
09:00	*	*	39	46	*	*	*	*	*	*	*	*	*	*	39	46
10:00	*	*	57	35	*	*	*	*	*	*	*	*	*	*	57	35
11:00	*	*	50	46	*	*	*	*	*	*	*	*	*	*	50	46
12:00 PM	*	*	48	54	*	*	*	*	*	*	*	*	*	*	48	54
01:00	*	*	59	41	*	*	*	*	*	*	*	*	*	*	59	41
02:00	*	*	46	72	*	*	*	*	*	*	*	*	*	*	46	72
03:00	*	*	75	142	*	*	*	*	*	*	*	*	*	*	75	142
04:00	*	*	74	102	*	*	*	*	*	*	*	*	*	*	74	102
05:00	*	*	89	95	*	*	*	*	*	*	*	*	*	*	89	95
06:00	*	*	72	57	*	*	*	*	*	*	*	*	*	*	72	57
07:00	*	*	48	47	*	*	*	*	*	*	*	*	*	*	48	47
08:00	*	*	36	35	*	*	*	*	*	*	*	*	*	*	36	35
09:00	*	*	26	23	*	*	*	*	*	*	*	*	*	*	26	23
10:00	*	*	9	18	*	*	*	*	*	*	*	*	*	*	9	18
11:00	*	*	8	25	*	*	*	*	*	*	*	*	*	*	8	25
Lane	0	0	1060	1106	0	0	0	0	0	0	0	0	0	0	1060	1106
Day	0		2166		0		0		0		0		0		2166	
AM Peak	-	-	06:00	07:00	-	-	-	-	-	-	-	-	-	-	06:00	07:00
Vol.	-	-	80	96	-	-	-	-	-	-	-	-	-	-	80	96
PM Peak	-	-	17:00	15:00	-	-	-	-	-	-	-	-	-	-	17:00	15:00
Vol.	-	-	89	142	-	-	-	-	-	-	-	-	-	-	89	142

Comb. Total	0	2166	0	0	0	0	2166
ADT	ADT 2,166	AADT 2,166					

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

Location: WATKINS RD N/O JEWELL AVE  
City: AURORA  
County: ARAPAHOE  
Direction: NORTHBOUND-SOUTHBOUND

Site Code: 191920  
Station ID: 191920

Start Time	19-Aug-19		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	Direction 1	Direction	Direction	Direction	Direction	Direction	Direction	Direction	Direction	Direction	Direction	Direction	Direction	Direction	Direction	Direction
12:00 AM	*	*	6	2	*	*	*	*	*	*	*	*	*	*	6	2
01:00	*	*	4	6	*	*	*	*	*	*	*	*	*	*	4	6
02:00	*	*	6	6	*	*	*	*	*	*	*	*	*	*	6	6
03:00	*	*	5	6	*	*	*	*	*	*	*	*	*	*	5	6
04:00	*	*	9	16	*	*	*	*	*	*	*	*	*	*	9	16
05:00	*	*	23	30	*	*	*	*	*	*	*	*	*	*	23	30
06:00	*	*	79	112	*	*	*	*	*	*	*	*	*	*	79	112
07:00	*	*	93	137	*	*	*	*	*	*	*	*	*	*	93	137
08:00	*	*	68	90	*	*	*	*	*	*	*	*	*	*	68	90
09:00	*	*	65	92	*	*	*	*	*	*	*	*	*	*	65	92
10:00	*	*	61	79	*	*	*	*	*	*	*	*	*	*	61	79
11:00	*	*	59	64	*	*	*	*	*	*	*	*	*	*	59	64
12:00 PM	*	*	79	71	*	*	*	*	*	*	*	*	*	*	79	71
01:00	*	*	68	78	*	*	*	*	*	*	*	*	*	*	68	78
02:00	*	*	72	53	*	*	*	*	*	*	*	*	*	*	72	53
03:00	*	*	93	72	*	*	*	*	*	*	*	*	*	*	93	72
04:00	*	*	126	89	*	*	*	*	*	*	*	*	*	*	126	89
05:00	*	*	155	98	*	*	*	*	*	*	*	*	*	*	155	98
06:00	*	*	107	70	*	*	*	*	*	*	*	*	*	*	107	70
07:00	*	*	71	44	*	*	*	*	*	*	*	*	*	*	71	44
08:00	*	*	45	22	*	*	*	*	*	*	*	*	*	*	45	22
09:00	*	*	27	11	*	*	*	*	*	*	*	*	*	*	27	11
10:00	*	*	12	13	*	*	*	*	*	*	*	*	*	*	12	13
11:00	*	*	19	5	*	*	*	*	*	*	*	*	*	*	19	5
Lane	0	0	1352	1266	0	0	0	0	0	0	0	0	0	0	1352	1266
Day	0	0	2618		0	0	0	0	0	0	0	0	0	0	2618	
AM Peak	-	-	07:00	07:00	-	-	-	-	-	-	-	-	-	-	07:00	07:00
Vol.	-	-	93	137	-	-	-	-	-	-	-	-	-	-	93	137
PM Peak	-	-	17:00	17:00	-	-	-	-	-	-	-	-	-	-	17:00	17:00
Vol.	-	-	155	98	-	-	-	-	-	-	-	-	-	-	155	98

Comb. Total	0	2618	0	0	0	0	2618
ADT	ADT 2,618	AADT 2,618					



