



2025-01-14 (DJK) reviewed, still one phase missing in Table 1 (renumbered 4 on as "5", equals only 11 phases. Update as necessary

November 25, 2024

Mr. Scott Farkas
Crestone Peak Resources
1801 California Street, Suite 2500
Denver, CO 80202

Re: CPR - Chico 4-65 26-25 North
Traffic Impact Analysis
Aurora, CO
LSC #240600

Dear Mr. Farkas:

In response to your request, LSC Transportation Consultants, Inc. has prepared this Traffic Impact Analysis for the proposed CPR - Chico 4-65 26-25 North well site in Aurora, Colorado. The site is located west of Watkins Road and south of E. Jewell Avenue as shown in Figure 1.

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, etc.; the existing weekday peak-hour traffic volumes; the existing daily traffic volumes in the area; the typical weekday site-generated traffic volume projections for the site; the assignment of the projected traffic volumes to the area roadways for the highest trip generating month; the projected total traffic volumes on the area roadways; the site's projected traffic impacts; and any recommended roadway improvements to mitigate the traffic impacts from the site. The estimated timing of each phase is the best information available today but is subject to change over time.

LAND USE AND ACCESS

The site is proposed as oil and gas operations with four well heads. Full movement access is proposed to E. Jewell Avenue via an existing private access road as shown in Figure 2. There is adequate sight distance along E. Jewell Avenue.

The site will be developed concurrently in **12 phases** as follows:

- | | |
|--|---------|
| 1. Construction Phase 1 Set up | 1 day |
| 2. Construction Phase 1 (Earthwork of site and access) | 43 days |
| 3. Construction Phase 1 Breakdown | 1 days |
| 4. Secondary Construction (Finishing work and access) | 10 days |
| 5. Drilling Set Up | 2 days |
| 6. Drilling | 26 days |
| 7. Drilling Breakdown | 2 days |
| 8. Completion & Flow Back Set Up | 15 days |

Table 1 still only identifies 11 phases, just renumbered incorrectly

9. Completions	30 days
10. Flowback	15 days
11. Completions & Flowback Breakdown	3 days
12. Production	ongoing

These phases are detailed in Table 1.

ROADWAY AND TRAFFIC CONDITIONS

Area Roadways

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

- **Watkins Road (CR 97)** is a two-lane paved arterial county road that generally runs north/south west 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 south of E. 6th Avenue.
- **E. 6th Avenue** is a two-lane paved roadway north of the site. The intersection with Watkins Road is stop-sign controlled. The posted speed limit is 50 mph.
- **Jewell Avenue** is a two-lane, gravel road that runs east-west south of the site. The intersection with Watkins Road is 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 to 30 feet.

Existing Traffic Conditions

Figure 3 shows the existing weekday traffic volumes, lane geometry, traffic controls, and the posted speed limits in the vicinity of the site. The weekday peak-hour traffic volumes and average daily traffic volumes are from the attached traffic counts conducted by Counter Measures in September, 2024. The intersection counts were conducted on separate days so the highest volume intersection was used to balance the north-south through volumes at the other intersections to maintain a conservative analysis.

2025 Background Traffic

Figure 4 shows the 2025 background traffic volumes which assumes an annual growth rate of three percent to maintain a conservative analysis.

Existing and 2025 Background Levels of Service

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

The intersections in the study area were analyzed to determine the existing and 2025 background levels of service using Synchro Version 11. Table 2 shows the level of service analysis results. The level of service reports are attached.

1. **Watkins Road/I-70 WB On/Off-Ramp:** All movements at this unsignalized intersection currently operate at LOS “B” or better during both morning and afternoon peak-hours and are expected to do so through 2025.
2. **Watkins Road/I-70 EB On/Off-Ramp:** All movements at this unsignalized intersection currently operate at LOS “C” or better during both morning and afternoon peak-hours and are expected to do so through 2025.
3. **Watkins Road/E. 6th Avenue:** All movements at this unsignalized intersection currently operate at LOS “B” or better during both morning and afternoon peak-hours and are expected to do so through 2025.
4. **Watkins Road/Jewell Avenue:** All movements at this unsignalized intersection currently operate at LOS “B” or better during both morning and afternoon peak-hours and are expected to do so through 2025.
5. **Watkins Road/Site Access:** This intersection was analyzed only for the total traffic scenario.

TRIP GENERATION

Table 3 shows the estimated highest daily passenger car equivalent trip generation potential for the site in 2025. This is expected to occur a few days in March and April, 2025.

TRIP DISTRIBUTION

Figure 5 shows the estimated directional distribution of the site-generated traffic volumes on the area roadways. The estimates were based on the location of the site with respect to the regional population, employment, and activity centers; and the site’s proposed land use.

TRIP ASSIGNMENT

Figure 6 shows the estimated peak 2025 assignment of site-generated traffic volumes in passenger car equivalents. March and April, 2025 are expected to have the highest trip generation potential for the site.

2025 TOTAL TRAFFIC

Figure 7 shows the estimated peak 2025 total traffic, traffic control, and lane geometry which is the sum of 2025 background traffic volumes (from Figure 4) and the site-generated traffic volumes (from Figure 6).

PROJECTED LEVELS OF SERVICE

The intersections in the study area were analyzed as appropriate to determine the 2025 total levels of service for the highest trip generating scenario. Table 2 shows the level of service analysis results. The level of service reports are attached.

1. **Watkins Road/I-70 WB On/Off-Ramp:** All movements at this unsignalized intersection are expected to operate at LOS “C” or better during both morning and afternoon peak-hours through 2025.
2. **Watkins Road/I-70 EB On/Off-Ramp:** All movements at this unsignalized intersection are expected to operate at LOS “C” or better during both morning and afternoon peak-hours through 2025.
3. **Watkins Road/E. 6th Avenue:** All movements at this unsignalized intersection are expected to operate at LOS “B” or better during both morning and afternoon peak-hours through 2025.
4. **Watkins Road/Jewell Avenue:** All movements at this unsignalized intersection are expected to operate at LOS “B” or better during both morning and afternoon peak-hours through 2025.
5. **Watkins Road/Site Access:** All movements at this unsignalized intersection are expected to operate at LOS “B” or better during both morning and afternoon peak-hours through 2025.

AUXILIARY TURN LANE EVALUATION

A southbound right-turn lane exists on Watkins Road approaching E. Jewell Avenue and will benefit the site. A detailed traffic control plan is recommended in lieu of constructing any interim turn lanes at the proposed site access on E. Jewell Avenue. A suggested plan is shown in Figure 8.

TRAFFIC CONTROL PLAN

The City of Aurora is restricting all non-essential site trips during the commuter hours of 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m. which will greatly reduce impacts to commuter traffic. A traffic control plan should be developed to warn motorists of heavy truck traffic during construction of the site. Auxiliary turn lanes are not recommended per the above section because the impacts are temporary and the traffic control and construction of a turn lane would likely be more impactful than the temporary impact with implementation of a traffic control plan. It is also worth noting the site access intersection is not intended as a future public street so the turning volumes will be very low once the productions/operations phase begins.

CONCLUSIONS AND RECOMMENDATIONS

Trip Generation

1. The daily impact for the site will be highest at about 422 passenger car equivalent trips per day during the Completion Phase (30 days).
2. The long-term impact will be minimal due to product being removed from the site via pipeline. Only produced water is expected to be trucked from the site.

Projected Levels of Service

3. All movements at the unsignalized intersections analyzed are expected to operate at LOS "C" or better during both morning and afternoon peak-hours through 2025. Operations will likely be much better because the City is restricting all non-essential site trips during the commuter hours of 7:00 - 9:00 a.m. and 4:00 - 6:00 p.m.

Conclusions

4. The impact of the proposed CPR - Chico 4-65 26-25 North well site can be accommodated by the existing roadway network with the following recommendations.

Recommendations

5. The City of Aurora is restricting all non-essential site trips during the commuter hours of 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m. which will greatly reduce impacts to commuter traffic. A traffic control plan should be developed to warn motorists of heavy truck traffic during construction of the site. A suggested plan is provided in Figure 8. Auxiliary turn lanes are not recommended because the impacts are temporary and the traffic control and construction of one or more turn lanes would be more impactful than the temporary impact with implementation of a traffic control plan. It is also worth noting the site access intersection is not intended as a future public street so the turning volumes will be very low once the productions/operations phase begins.

* * * * *

We trust our findings will assist you in gaining approval of the proposed CPR - Chico 4-65 26-25 North well site development. Please contact me if you have any questions or need further assistance.

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

By

Christopher S. McGranahan, PE
Principal/President



CSM/wc

10-14-24

Enclosures: Tables 1 - 3
Figures 1 - 8
Traffic Count Reports
Level of Service Definitions
Level of Service Reports

Table 1
CPR Chico North (4 well heads)
Trip Generation Estimate LSC
#240600; November, 2024

Phase of Development and Estimated Start Date		Gross Vehicle Weight ⁽¹⁾		ESAL Per Vehicle ⁽¹⁾	Number of Vehicles Estimated per Day ⁽¹⁾		Average Daily Trips	Average Daily ESALs
Construction Phase 1 (45 days +/-) - Earthwork of site and access road								
1.)	Setup (1 Day)							
	Passenger Vehicle ⁽²⁾	4,500	to	8,500 lbs	0.003	10 Vehicles	20	0.06
	Multiple Unit Trucks ⁽²⁾	50,000	to	70,000 lbs	1.087	5 Vehicles	10	10.87
						Typical Vehicle Trips per Day =	30	10.93
						Typical Passenger Car Equivalent Trips per Day ⁽³⁾ =	50	
2.)	Construction (43 days)							
	Passenger Vehicle ⁽²⁾	4,500	to	8,500 lbs	0.003	10 Vehicles	20	0.06
						Typical Vehicle Trips per Day =	20	0.06
						Typical Passenger Car Equivalent Trips per Day ⁽³⁾ =	20	
3.)	Breakdown (1 Day)							
	Passenger Vehicle ⁽²⁾	4,500	to	8,500 lbs	0.003	10 Vehicles	20	0.06
	Multiple Unit Trucks ⁽²⁾	50,000	to	70,000 lbs	1.087	5 Vehicles	10	10.87
						Typical Vehicle Trips per Day =	30	10.93
						Typical Passenger Car Equivalent Trips per Day ⁽³⁾ =	50	
IS A STEP MISSING? STILL ONLY 11 PHASES, RENUMBERED AROUND '4'								
Drilling Phase 2 (30 days +/-)								
5.)	Setup (2 Days)							
	Passenger Vehicle ⁽²⁾	4,500	to	8,500 lbs	0.003	20 Vehicles	40	0.12
	Multiple Unit Trucks ⁽²⁾	50,000	to	70,000 lbs	1.087	14 Vehicles	28	30.44
						Typical Vehicle Trips per Day =	68	30.56
						Typical Passenger Car Equivalent Trips per Day ⁽³⁾ =	124	
6.)	Drilling (26 days)							
	Passenger Vehicle ⁽²⁾	4,500	to	8,500 lbs	0.003	23 Vehicles	46	0.14
	Multiple Unit Trucks ⁽²⁾	50,000	to	70,000 lbs	1.087	28 Vehicles	56	60.87
						Typical Vehicle Trips per Day =	102	61.01
						Typical Passenger Car Equivalent Trips per Day ⁽³⁾ =	214	
7.)	Breakdown (2 Days)							
	Passenger Vehicle ⁽²⁾	4,500	to	8,500 lbs	0.003	20 Vehicles	40	0.12
	Multiple Unit Trucks ⁽²⁾	50,000	to	70,000 lbs	1.087	14 Vehicles	28	30.44
						Typical Vehicle Trips per Day =	68	30.56
						Typical Passenger Car Equivalent Trips per Day ⁽³⁾ =	124	
Completion & Flow Back Phase (60 days +/-)								
8.)	Setup (15 Days)							
	Passenger Vehicle ⁽²⁾	4,500	to	8,500 lbs	0.003	20 Vehicles	40	0.12
	Multiple Unit Trucks ⁽²⁾	50,000	to	70,000 lbs	1.087	40 Vehicles	80	86.96
						Typical Vehicle Trips per Day =	120	87.08
						Typical Passenger Car Equivalent Trips per Day ⁽³⁾ =	280	
9.)	Completion (30 days)							
	Passenger Vehicle ⁽²⁾	4,500	to	8,500 lbs	0.003	61 Vehicles	122	0.37
	Multiple Unit Trucks ⁽²⁾	50,000	to	70,000 lbs	1.087	50 Vehicles	100	108.70
						Typical Vehicle Trips per Day =	222	109.07
						Typical Passenger Car Equivalent Trips per Day ⁽³⁾ =	422	
10.)	Flow Back (15 Days)							
	Passenger Vehicle ⁽²⁾	4,500	to	8,500 lbs	0.003	5 Vehicles	10	0.03
	Multiple Unit Trucks ⁽²⁾	50,000	to	70,000 lbs	1.087	28 Vehicles	56	60.87
						Typical Vehicle Trips per Day =	66	60.90
						Typical Passenger Car Equivalent Trips per Day ⁽³⁾ =	178	
11.)	Breakdown (3 days)							
	Passenger Vehicle ⁽²⁾	4,500	to	8,500 lbs	0.003	20 Vehicles	40	0.12
	Multiple Unit Trucks ⁽²⁾	50,000	to	70,000 lbs	1.087	40 Vehicles	80	86.96
						Typical Vehicle Trips per Day =	120	87.08
						Typical Passenger Car Equivalent Trips per Day ⁽³⁾ =	280	
12.) Production/Operation Phase								
	Passenger Vehicle	4,500	to	8,500 lbs	0.003	2 Vehicles	4	0.01
						Typical Vehicle Trips per Day =	4	0.01
						Typical Passenger Car Equivalent Trips per Day =	4	

Notes:

(1) Source: Based on scheduling information provided by Crestone Peak Resources - subject to change

(2) CDOT State Highway Access Code (SHAC) assumes: passenger vehicle < 20', single unit truck from 20' to 40', multiple unit truck > 40'

(3) CDOT SHAC assumes single unit trucks = 2 passenger car equivalents and multiple unit trucks = 3 passenger car equivalents

Source: LSC Transportation Consultants, Inc. based on scheduling input from Crestone Peak Resources

Table 2
Intersection Levels of Service Analysis
CPR Chico North
Aurora, CO
LSC #240600; October, 2024

Intersection No. & Location	Traffic Control	Existing Traffic		2025 Background Traffic		2025 Total Traffic	
		Level of Service AM	Level of Service PM	Level of Service AM	Level of Service PM	Level of Service AM	Level of Service PM
1) <u>Watkins Road/I-70 WB On/Off Ramp</u>	TWSC						
NB Left/Through		A	A	A	A	A	A
WB Approach		B	B	B	B	B	C
Critical Movement Delay (sec/veh)		11.3	13.9	13.2	14.4	14.0	15.2
2) <u>Watkins Road/I-70 EB On/Off Ramp</u>	TWSC						
EB Approach		B	C	B	C	B	C
SB Left/Through		A	A	A	A	A	A
Critical Movement Delay (sec/veh)		11.6	18.3	11.8	19.3	12.0	20.6
3) <u>Watkins Road/E. 6th Avenue</u>	TWSC						
WB Approach		A	B	B	B	B	B
SB Left/Through		A	A	A	A	A	A
Critical Movement Delay (sec/veh)		9.9	10.1	10.0	10.2	10.3	10.4
4) <u>Watkins Road/E. Jewell Avenue</u>	TWSC						
NB Left/Through		A	A	A	A	A	A
EB Approach		B	B	B	B	B	B
Critical Movement Delay (sec/veh)		10.1	10.7	10.1	10.8	11.6	12.5
5) <u>E. Jewell Avenue/Site Access</u>	TWSC						
WB Approach		--	--	--	--	A	A
SB Left/Through		--	--	--	--	A	A
Critical Movement Delay (sec/veh)		--	--	--	--	9.3	9.5

Table 3
ESTIMATED TRAFFIC GENERATION ⁽¹⁾
CPR Chico North
Aurora, CO
LSC #240600; October, 2024

Month/Year	Vehicle-Trips Generated					
	Average	AM Peak-Hour ⁽⁴⁾		PM Peak-Hour ⁽⁴⁾		
	Daily PCE ⁽¹⁾ (2) (3)	In	Out	In	Out	
March and April, 2025						
<u>Highest Impact of Chico North Site</u>						
Chico North	422	21	21	21	21	

Notes:

- (1) Based on data in Table 1 - volumes indicate passenger car equivalent trips
- (2) CDOT *State Highway Access Code* (SHAC) assumes: passenger vehicle < 20', single unit truck from 20' to 40', multiple unit truck > 40'
- (3) CDOT SHAC assumes single unit trucks = 2 passenger car equivalents and multiple unit trucks = 3 passenger car equivalents
- (4) Assumes peak-hour trips are 10% of daily trips



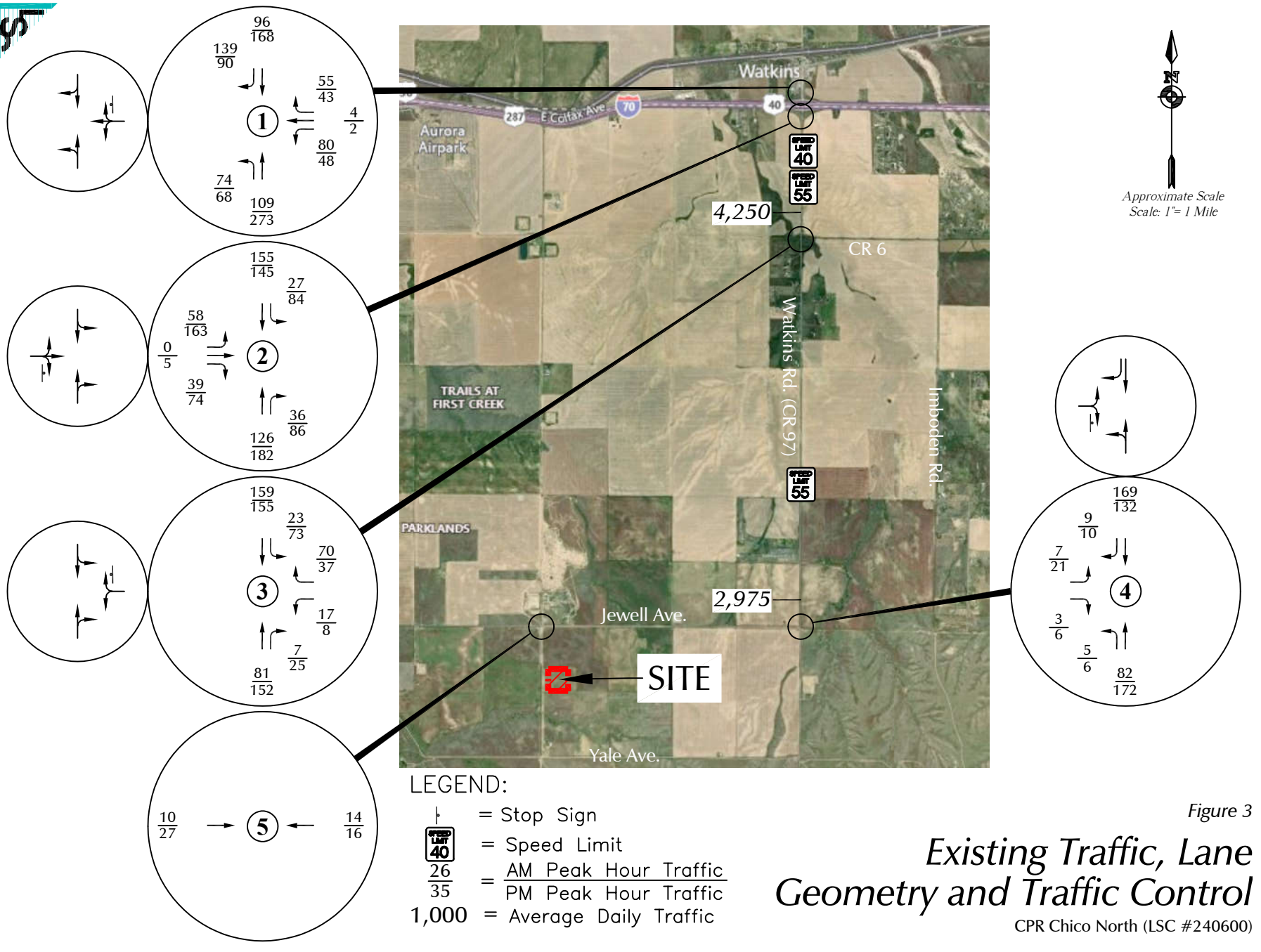
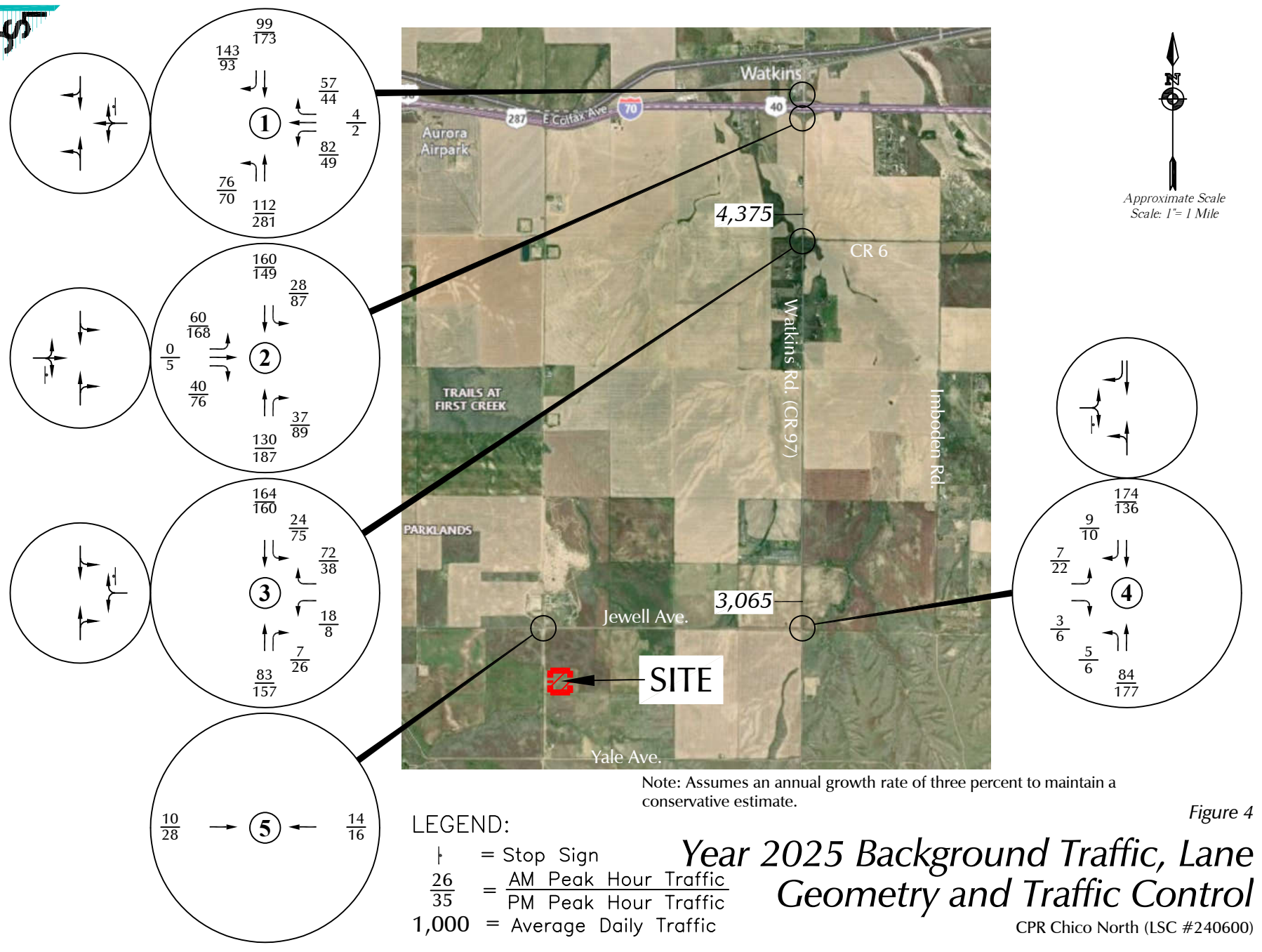
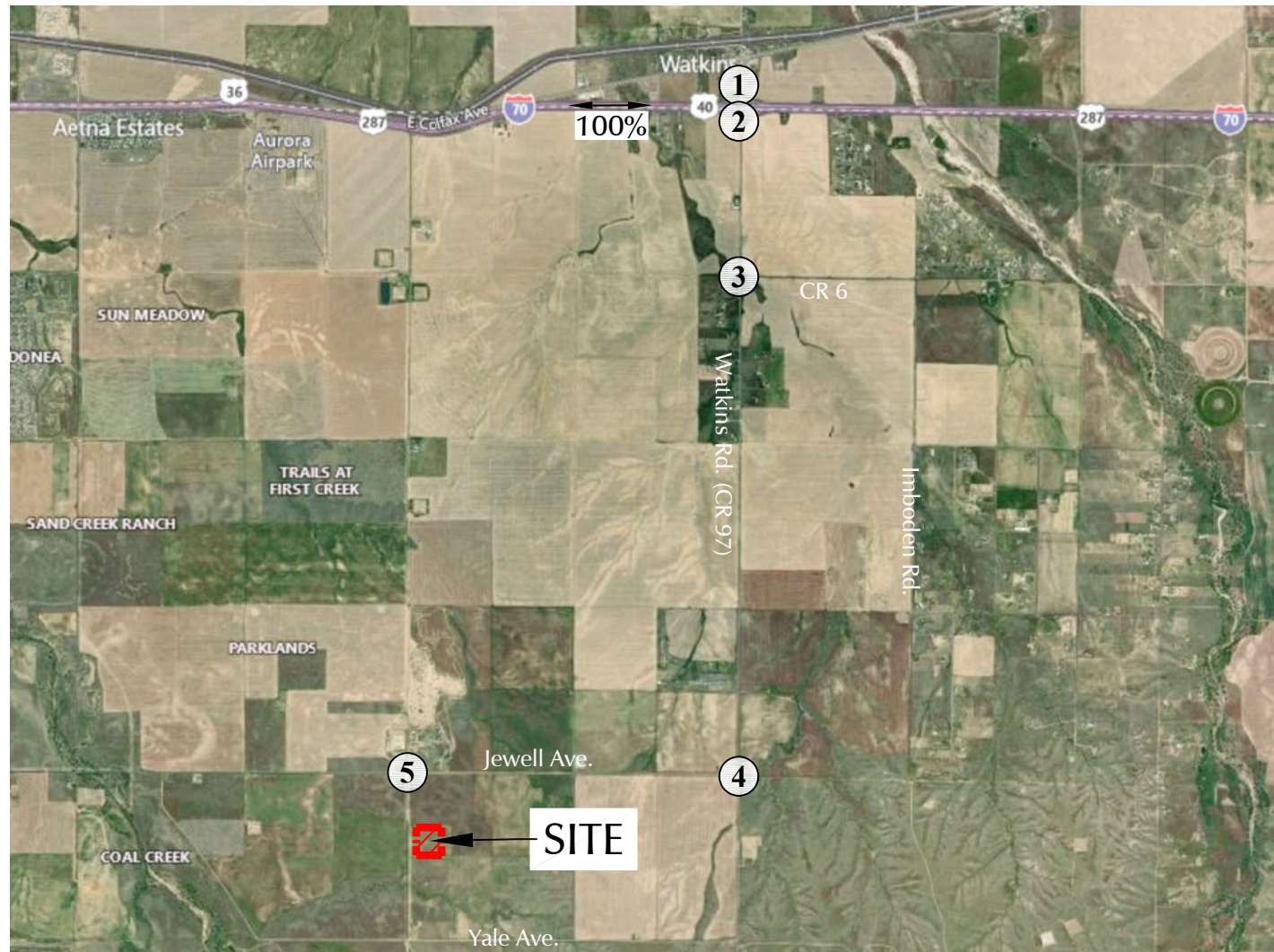


Figure 3
*Existing Traffic, Lane
Geometry and Traffic Control*
CPR Chico North (LSC #240600)





Approximate Scale
Scale: 1" = 1 Mile

LEGEND:

← 65% →

= Percent Directional
Distribution

Figure 5

Directional Distribution of Site-Generated Traffic

CPR Chico North (LSC #240600)

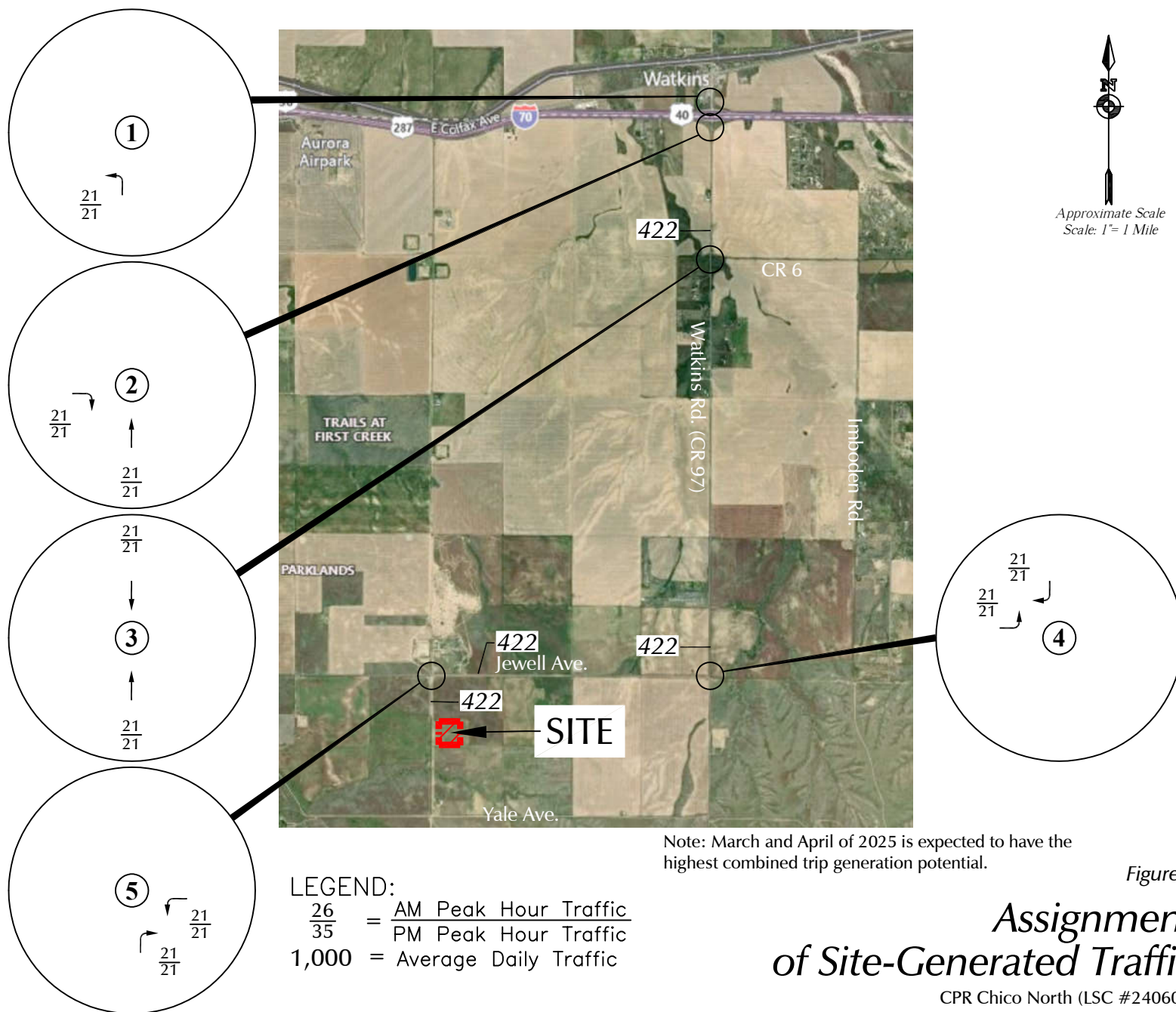
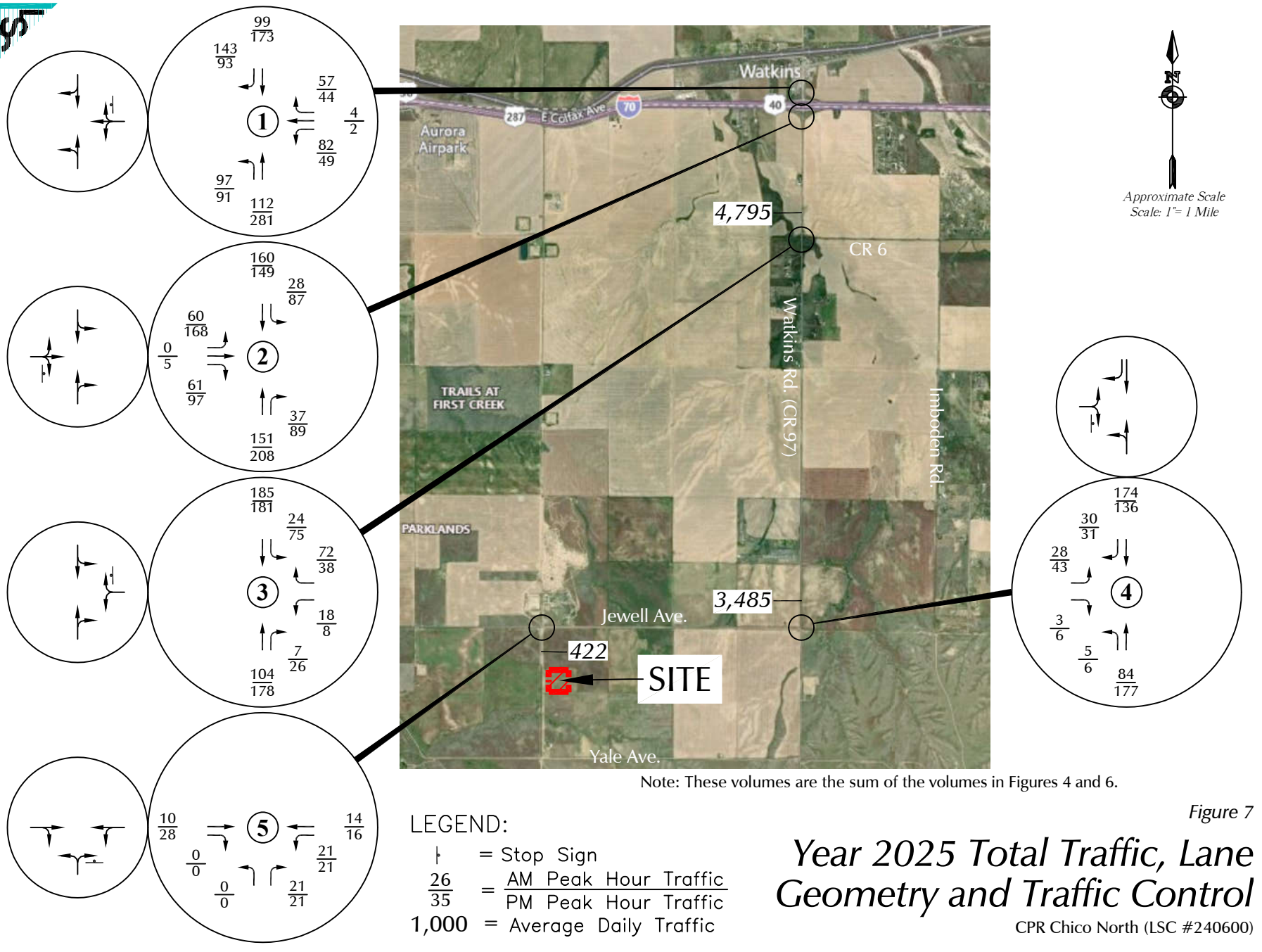
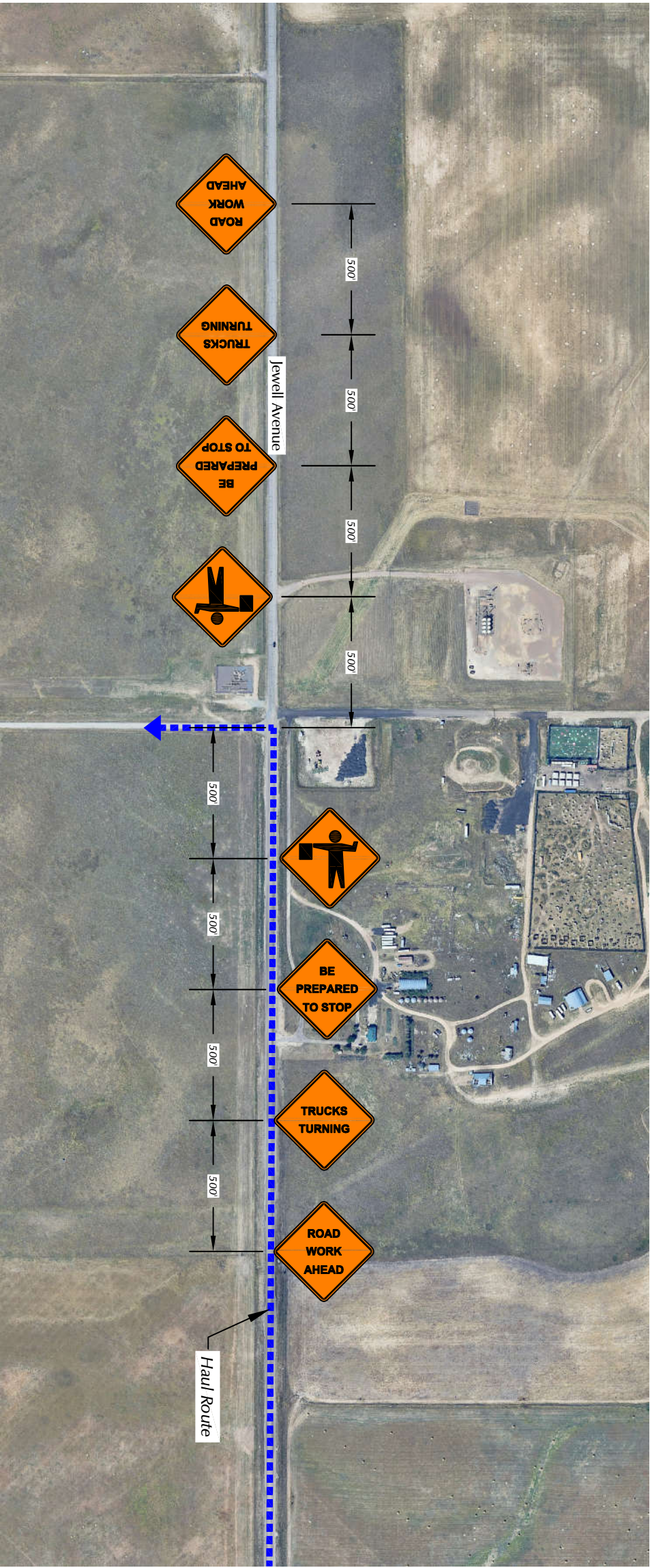
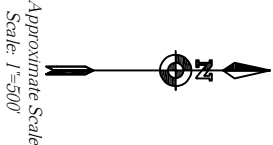


Figure 6





COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: WATKINS RD (CR 97)
E/W STREET: E. JEWELL AVE
CITY: WATKINS
COUNTY: ADAMS

File Name : WATKJEWELL24
Site Code : 00000005
Start Date : 9/5/2024
Page No : 1

Groups Printed- VEHICLES

	WATKINS RD (CR 97) Southbound			NO ACCESS Westbound			WATKINS RD (CR 97) Northbound			E. JEWELL AVE Eastbound			Int. Total
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
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	
06:30 AM	0	41	4	0	0	0	1	19	0	2	0	2	69
06:45 AM	0	40	0	0	0	0	1	17	0	2	0	0	60
Total	0	81	4	0	0	0	2	36	0	4	0	2	129
07:00 AM	1	47	3	0	0	0	2	20	0	3	0	1	77
07:15 AM	0	41	2	0	0	0	1	26	0	0	0	0	70
07:30 AM	0	39	6	0	0	0	3	28	0	2	0	2	80
07:45 AM	0	30	2	0	0	0	0	14	0	3	0	0	49
Total	1	157	13	0	0	0	6	88	0	8	0	3	276
08:00 AM	0	32	2	0	0	0	0	23	0	0	0	0	57
08:15 AM	0	35	6	0	0	0	3	28	0	0	0	0	72
Total	0	67	8	0	0	0	3	51	0	0	0	0	129
04:00 PM	0	30	4	0	0	0	0	52	0	6	0	0	92
04:15 PM	0	29	5	0	0	0	1	39	0	2	0	3	79
04:30 PM	0	30	2	0	0	0	1	43	0	3	0	3	82
04:45 PM	0	28	1	0	0	0	3	38	0	3	0	2	75
Total	0	117	12	0	0	0	5	172	0	14	0	8	328
05:00 PM	0	37	4	0	0	0	1	44	0	10	0	1	97
05:15 PM	0	37	3	0	0	0	1	47	0	5	0	0	93
05:30 PM	0	13	1	0	0	0	0	42	0	3	0	2	61
05:45 PM	0	14	2	0	0	0	1	43	0	1	0	0	61
Total	0	101	10	0	0	0	3	176	0	19	0	3	312
Grand Total	1	523	47	0	0	0	19	523	0	45	0	16	1174
Apprch %	0.2	91.6	8.2	0.0	0.0	0.0	3.5	96.5	0.0	73.8	0.0	26.2	
Total %	0.1	44.5	4.0	0.0	0.0	0.0	1.6	44.5	0.0	3.8	0.0	1.4	

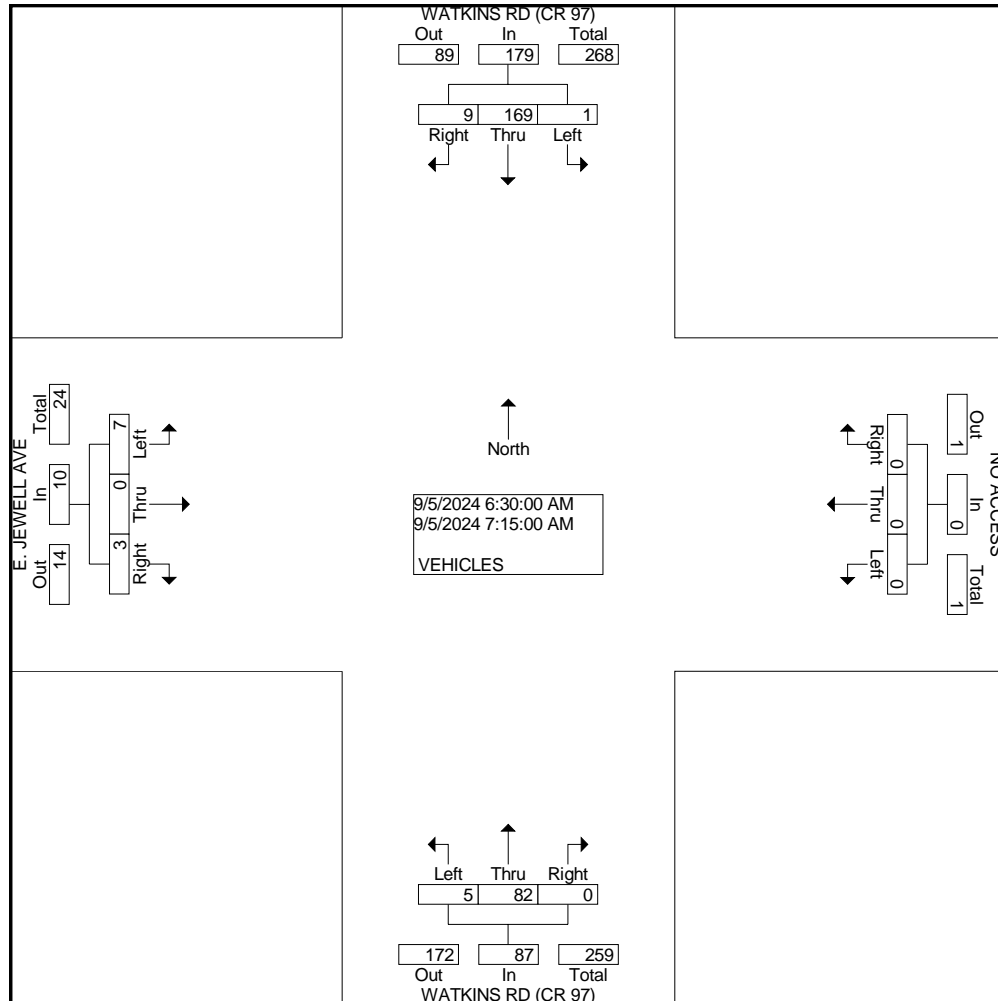
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	WATKINS RD (CR 97) Southbound				NO ACCESS Westbound				WATKINS RD (CR 97) Northbound				E. JEWELL AVE Eastbound				Int. Total
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 06:30 AM to 07:15 AM - Peak 1 of 1																	
Intersection	06:30 AM																
Volume	1	169	9	179	0	0	0	0	5	82	0	87	7	0	3	10	276
Percent	0.6	94.4	5.0		0.0	0.0	0.0		5.7	94.3	0.0		70.0	0.0	30.0		
07:00																	
Volume	1	47	3	51	0	0	0	0	2	20	0	22	3	0	1	4	77
Peak Factor																	0.896
High Int.	07:00 AM				6:15:00 AM				07:15 AM				06:30 AM				
Volume	1	47	3	51	0	0	0	0	1	26	0	27	2	0	2	4	
Peak Factor	0.877								0.806				0.625				



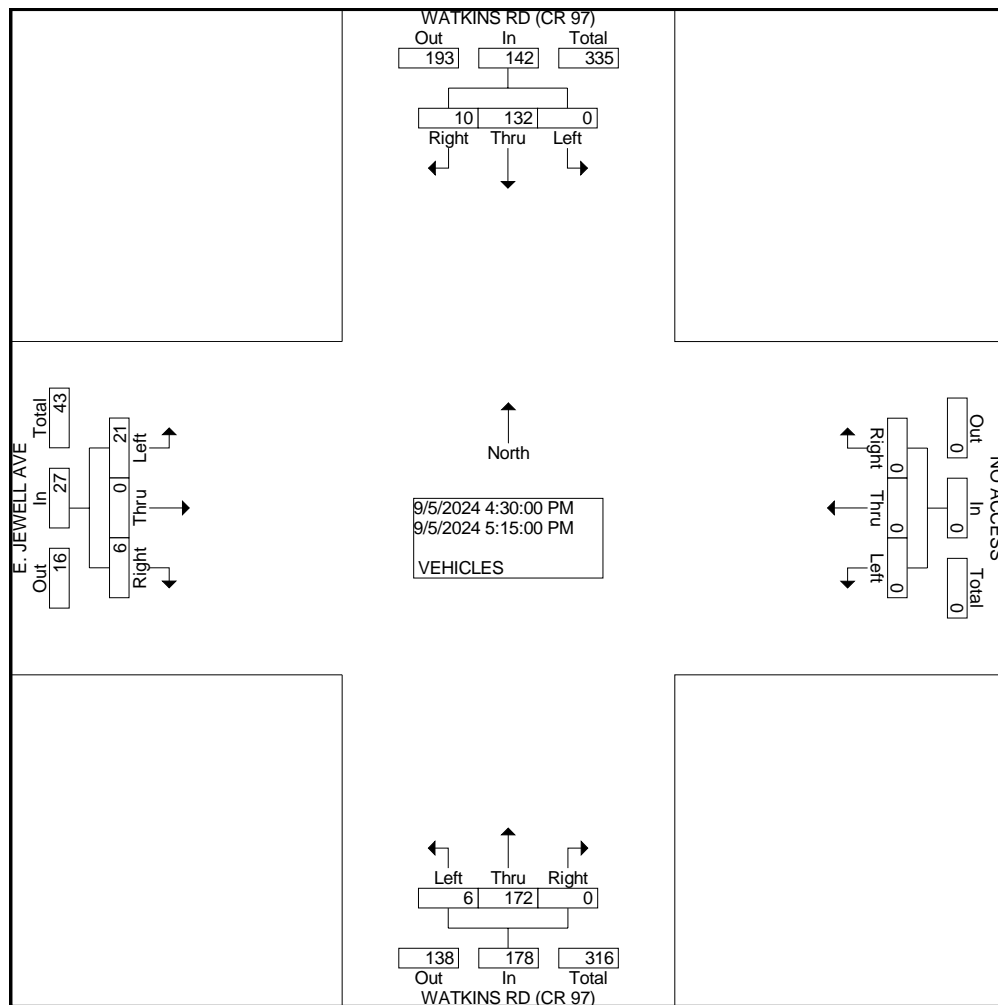
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Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Intersection	04:30 PM																
Volume	0	132	10	142	0	0	0	0	6	172	0	178	21	0	6	27	347
Percent	0.0	93.0	7.0		0.0	0.0	0.0		3.4	96.6	0.0		77.8	0.0	22.2		
05:00																	
Volume	0	37	4	41	0	0	0	0	1	44	0	45	10	0	1	11	97
Peak Factor																	0.894
High Int.	05:00 PM								05:15 PM				05:00 PM				
Volume	0	37	4	41	0	0	0	0	1	47	0	48	10	0	1	11	
Peak Factor																	0.614



COUNTER MEASURES INC.

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N/S STREET: WATKINS RD (CR 97)
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CITY: WATKINS
COUNTY: ADAMS

File Name : WATK6TH24
Site Code : 00000008
Start Date : 9/5/2024
Page No : 1

Groups Printed- VEHICLES

	WATKINS RD (CR 97) Southbound			E. 6TH AVE Westbound			WATKINS RD (CR 97) Northbound			NO ACCESS Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	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	
06:30 AM	6	35	0	4	0	14	0	14	2	0	0	0	75
06:45 AM	4	35	0	3	0	14	0	21	2	0	0	0	79
Total	10	70	0	7	0	28	0	35	4	0	0	0	154
07:00 AM	5	42	0	3	0	23	0	19	0	0	0	0	92
07:15 AM	8	47	0	7	0	19	0	27	3	0	0	0	111
07:30 AM	10	40	0	3	0	22	0	26	1	0	0	0	102
07:45 AM	4	20	0	2	0	7	0	22	2	0	0	0	57
Total	27	149	0	15	0	71	0	94	6	0	0	0	362
08:00 AM	12	36	0	6	0	9	0	20	0	0	0	0	83
08:15 AM	11	23	0	4	0	11	0	22	3	0	0	0	74
Total	23	59	0	10	0	20	0	42	3	0	0	0	157
04:00 PM	17	35	0	2	0	12	0	50	2	0	0	0	118
04:15 PM	10	25	0	3	0	16	0	46	3	0	0	0	103
04:30 PM	17	36	0	1	0	7	0	34	5	0	0	0	100
04:45 PM	21	38	0	2	0	10	0	38	6	0	0	0	115
Total	65	134	0	8	0	45	0	168	16	0	0	0	436
05:00 PM	18	41	0	2	0	11	0	36	8	0	0	0	116
05:15 PM	17	40	0	3	0	9	0	44	6	0	0	0	119
05:30 PM	16	16	0	3	0	12	0	34	9	0	0	0	90
05:45 PM	14	14	0	3	0	10	0	42	2	0	0	0	85
Total	65	111	0	11	0	42	0	156	25	0	0	0	410
Grand Total	190	523	0	51	0	206	0	495	54	0	0	0	1519
Apprch %	26.6	73.4	0.0	19.8	0.0	80.2	0.0	90.2	9.8	0.0	0.0	0.0	
Total %	12.5	34.4	0.0	3.4	0.0	13.6	0.0	32.6	3.6	0.0	0.0	0.0	

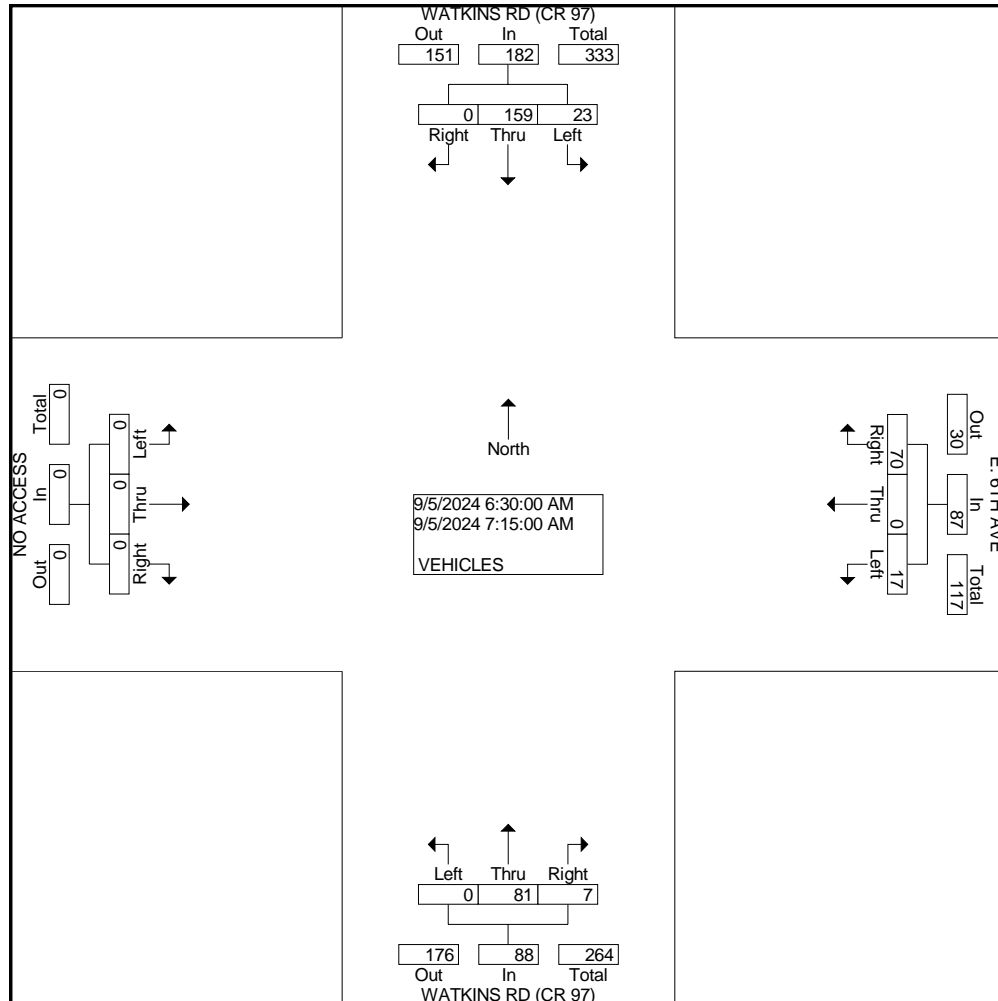
COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: WATKINS RD (CR 97)
E/W STREET: E. 6TH AVE
CITY: WATKINS
COUNTY: ADAMS

File Name : WATK6TH24
Site Code : 00000008
Start Date : 9/5/2024
Page No : 2

	WATKINS RD (CR 97) Southbound				E. 6TH AVE Westbound				WATKINS RD (CR 97) Northbound				NO ACCESS Eastbound				Int. Total
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 06:30 AM to 07:15 AM - Peak 1 of 1																	
Intersection 06:30 AM																	
Volume	23	159	0	182	17	0	70	87	0	81	7	88	0	0	0	0	357
Percent	12.6	87.4	0.0		19.5	0.0	80.5		0.0	92.0	8.0		0.0	0.0	0.0		
07:15																	
Volume	8	47	0	55	7	0	19	26	0	27	3	30	0	0	0	0	111
Peak Factor																	0.804
High Int.	07:15 AM				07:00 AM				07:15 AM				6:15:00 AM				
Volume	8	47	0	55	3	0	23	26	0	27	3	30					
Peak Factor				0.827				0.837				0.733					



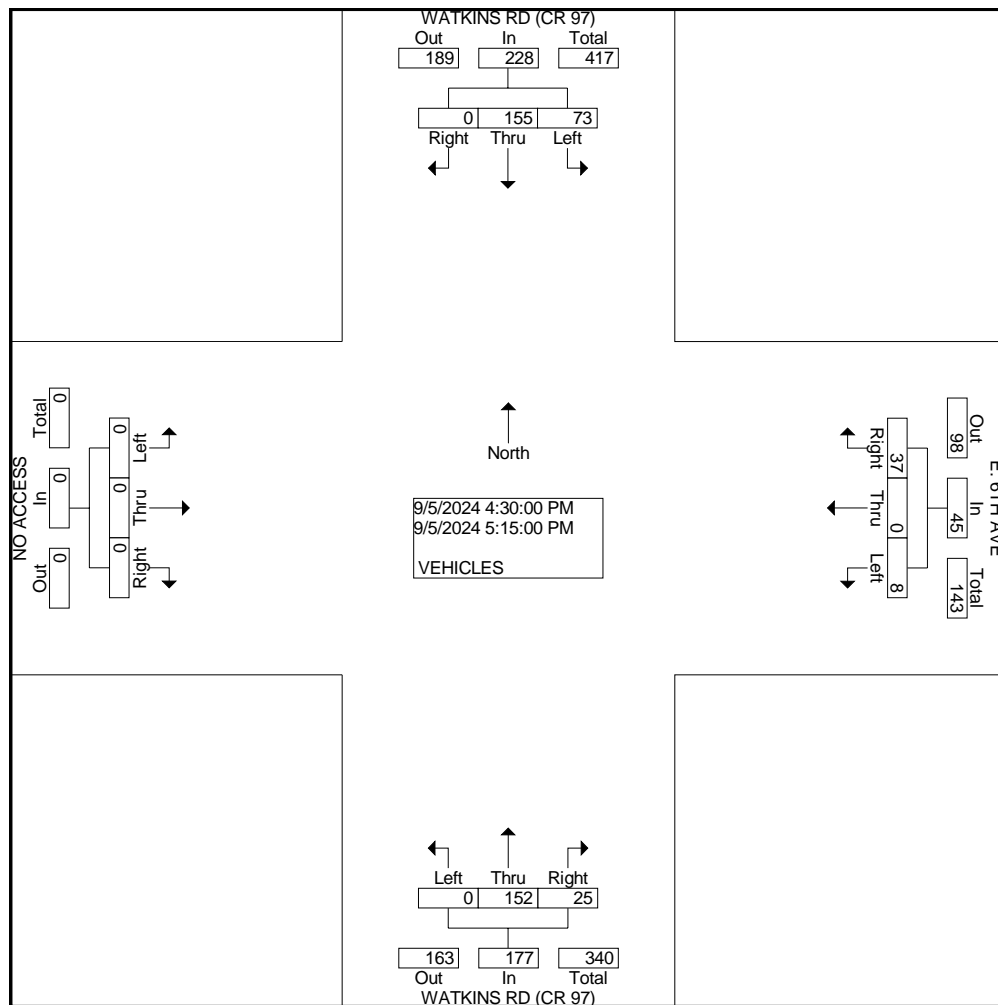
COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: WATKINS RD (CR 97)
E/W STREET: E. 6TH AVE
CITY: WATKINS
COUNTY: ADAMS

File Name : WATK6TH24
Site Code : 00000008
Start Date : 9/5/2024
Page No : 3

	WATKINS RD (CR 97) Southbound				E. 6TH AVE Westbound				WATKINS RD (CR 97) Northbound				NO ACCESS Eastbound				Int. Total
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Intersection	04:30 PM																
Volume	73	155	0	228	8	0	37	45	0	152	25	177	0	0	0	0	450
Percent	32.0	68.0	0.0		17.8	0.0	82.2		0.0	85.9	14.1		0.0	0.0	0.0		
05:15	17	40	0	57	3	0	9	12	0	44	6	50	0	0	0	0	119
Volume																	
Peak Factor																	0.945
High Int.	04:45 PM				05:00 PM				05:15 PM								
Volume	21	38	0	59	2	0	11	13	0	44	6	50					
Peak Factor				0.966				0.865				0.885					



COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: WATKINS RD (CR 97)
E/W STREET: I70 ON/OFF EAST BOUND
CITY: WATKINS
COUNTY: ADAMS

File Name : WATK170EAST
Site Code : 00000015
Start Date : 9/4/2024
Page No : 1

Groups Printed- VEHICLES

	WATKINS RD (CR 97) Southbound			EAST ON RAMP Westbound			WATKINS RD (CR 97) Northbound			EAST OFF RAMP Eastbound			Int. Total
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
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	
06:30 AM	6	28	0	0	0	0	0	26	4	18	0	8	90
06:45 AM	9	45	0	0	0	0	0	37	6	17	0	11	125
Total	15	73	0	0	0	0	0	63	10	35	0	19	215
07:00 AM	5	34	0	0	0	0	0	29	11	12	0	8	99
07:15 AM	7	48	0	0	0	0	0	34	15	11	0	12	127
07:30 AM	6	55	0	0	0	0	0	31	13	12	1	8	126
07:45 AM	7	37	0	0	0	0	0	36	7	13	0	5	105
Total	25	174	0	0	0	0	0	130	46	48	1	33	457
08:00 AM	7	49	0	0	0	0	0	40	5	13	0	6	120
08:15 AM	5	33	0	0	0	0	0	21	12	11	1	11	94
Total	12	82	0	0	0	0	0	61	17	24	1	17	214
04:00 PM	17	36	0	0	0	0	0	35	22	20	0	12	142
04:15 PM	19	30	0	0	0	0	0	28	17	22	2	15	133
04:30 PM	16	38	0	0	0	0	0	57	24	39	2	17	193
04:45 PM	22	34	0	0	0	0	0	39	23	34	1	12	165
Total	74	138	0	0	0	0	0	159	86	115	5	56	633
05:00 PM	25	39	0	0	0	0	0	43	18	43	2	23	193
05:15 PM	21	34	0	0	0	0	0	43	21	47	0	22	188
05:30 PM	15	20	0	0	0	0	0	43	19	24	0	20	141
05:45 PM	9	18	0	0	0	0	0	22	19	27	0	11	106
Total	70	111	0	0	0	0	0	151	77	141	2	76	628
Grand Total	196	578	0	0	0	0	0	564	236	363	9	201	2147
Apprch %	25.3	74.7	0.0	0.0	0.0	0.0	0.0	70.5	29.5	63.4	1.6	35.1	
Total %	9.1	26.9	0.0	0.0	0.0	0.0	0.0	26.3	11.0	16.9	0.4	9.4	

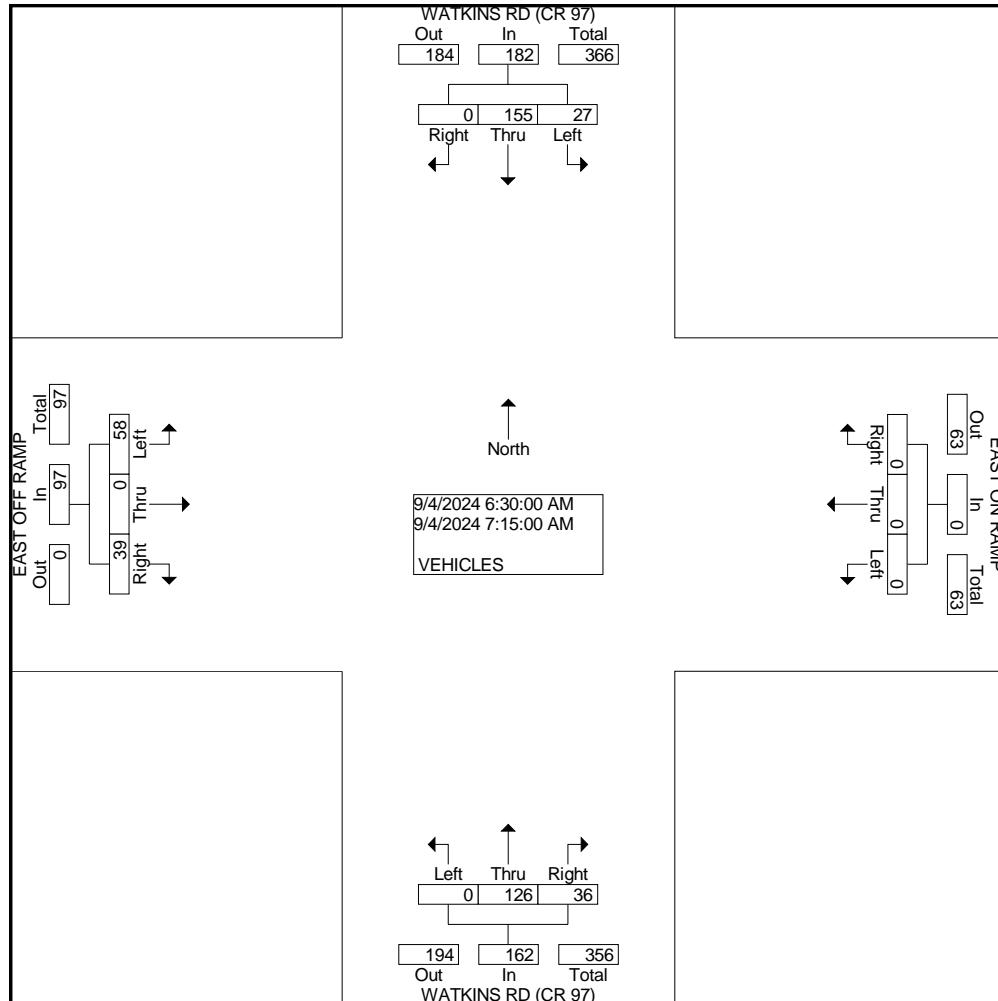
COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: WATKINS RD (CR 97)
E/W STREET: I70 ON/OFF EAST BOUND
CITY: WATKINS
COUNTY: ADAMS

File Name : WATK170EAST
Site Code : 00000015
Start Date : 9/4/2024
Page No : 2

	WATKINS RD (CR 97) Southbound				EAST ON RAMP Westbound				WATKINS RD (CR 97) Northbound				EAST OFF RAMP Eastbound				Int. Total
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 06:30 AM to 07:15 AM - Peak 1 of 1																	
Intersection 06:30 AM																	
Volume	27	155	0	182	0	0	0	0	0	126	36	162	58	0	39	97	441
Percent	14.8	85.2	0.0		0.0	0.0	0.0		0.0	77.8	22.2		59.8	0.0	40.2		
07:15	7	48	0	55	0	0	0	0	0	34	15	49	11	0	12	23	127
Volume																	
Peak Factor																	0.868
High Int. 07:15 AM					6:15:00 AM				07:15 AM				06:45 AM				
Volume	7	48	0	55	0	0	0	0	0	34	15	49	17	0	11	28	
Peak Factor				0.827								0.827				0.866	



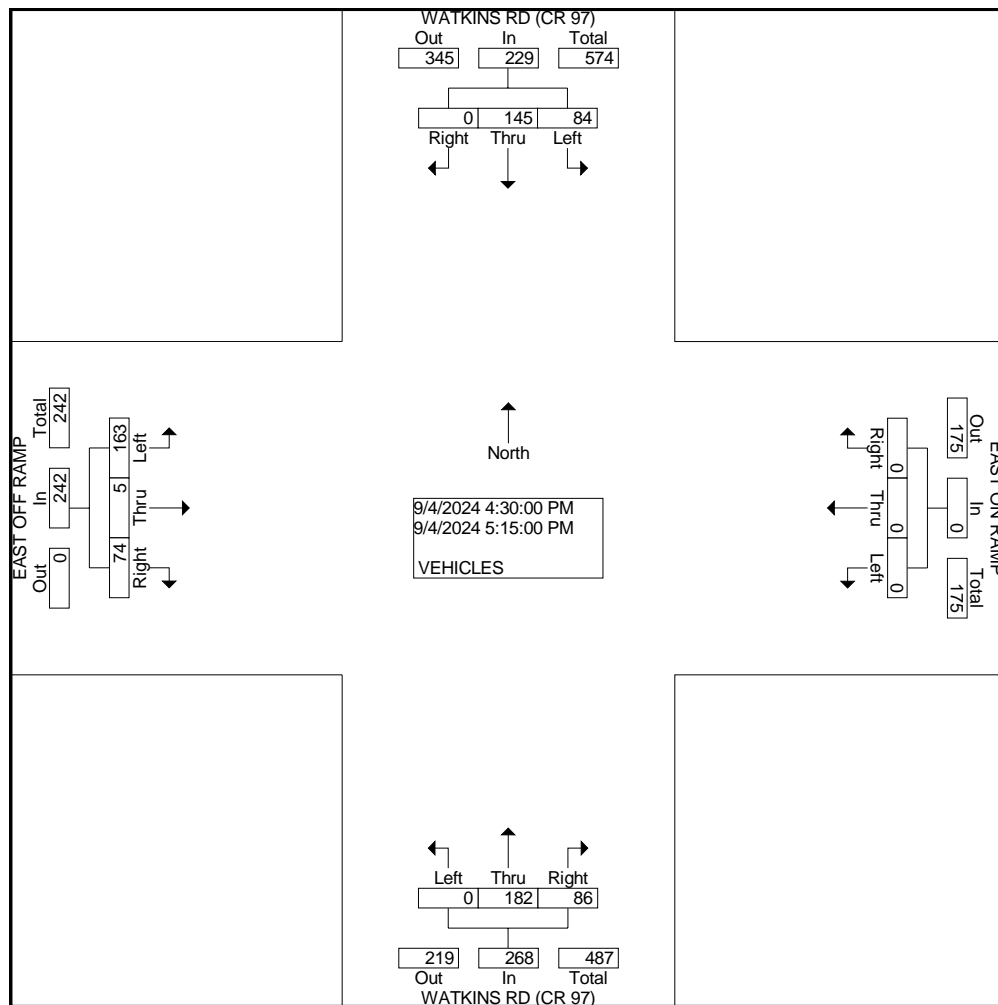
COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: WATKINS RD (CR 97)
E/W STREET: I70 ON/OFF EAST BOUND
CITY: WATKINS
COUNTY: ADAMS

File Name : WATK170EAST
Site Code : 00000015
Start Date : 9/4/2024
Page No : 3

	WATKINS RD (CR 97) Southbound				EAST ON RAMP Westbound				WATKINS RD (CR 97) Northbound				EAST OFF RAMP Eastbound				Int. Total
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Intersection	04:30 PM																
Volume	84	145	0	229	0	0	0	0	0	182	86	268	163	5	74	242	739
Percent	36.7	63.3	0.0		0.0	0.0	0.0		0.0	67.9	32.1		67.4	2.1	30.6		
05:00	25	39	0	64	0	0	0	0	0	43	18	61	43	2	23	68	193
Volume																	
Peak Factor																	0.957
High Int.	05:00 PM								04:30 PM				05:15 PM				
Volume	25	39	0	64	0	0	0	0	0	57	24	81	47	0	22	69	
Peak Factor				0.895								0.827				0.877	



COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: WATKINS RD (CR 97)
E/W STREET: I70 ON/OFF WESTBOUND
CITY: WATKINS
COUNTY: ADAMS

File Name : WATKI70WEST
Site Code : 00000016
Start Date : 9/4/2024
Page No : 1

Groups Printed- VEHICLES

	WATKINS RD (CR 97) Southbound			WEST OFF RAMP Westbound			WATKINS RD (CR 97) Northbound			WEST ON RAMP Eastbound			Int. Total
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
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	
06:30 AM	0	22	33	12	1	17	20	25	0	0	0	0	130
06:45 AM	0	27	24	25	1	9	17	36	0	0	0	0	139
Total	0	49	57	37	2	26	37	61	0	0	0	0	269
07:00 AM	0	15	39	20	2	15	20	21	0	0	0	0	132
07:15 AM	0	32	43	23	0	14	17	27	0	0	0	0	156
07:30 AM	0	29	33	24	0	18	21	24	0	0	0	0	149
07:45 AM	0	23	29	17	0	8	20	35	0	0	0	0	132
Total	0	99	144	84	2	55	78	107	0	0	0	0	569
08:00 AM	0	29	25	20	0	13	24	28	0	0	0	0	139
08:15 AM	0	16	24	20	1	12	10	20	0	0	0	0	103
Total	0	45	49	40	1	25	34	48	0	0	0	0	242
04:00 PM	0	31	11	16	3	8	17	39	0	0	0	0	125
04:15 PM	0	37	23	10	0	9	10	32	0	0	0	0	121
04:30 PM	0	38	17	14	1	14	17	76	0	0	0	0	177
04:45 PM	0	46	26	8	1	8	17	55	0	0	0	0	161
Total	0	152	77	48	5	39	61	202	0	0	0	0	584
05:00 PM	0	44	20	18	0	14	19	68	0	0	0	0	183
05:15 PM	0	40	27	8	0	7	15	74	0	0	0	0	171
05:30 PM	0	23	13	12	0	7	18	50	0	0	0	0	123
05:45 PM	0	25	19	5	0	12	8	40	0	0	0	0	109
Total	0	132	79	43	0	40	60	232	0	0	0	0	586
Grand Total	0	477	406	252	10	185	270	650	0	0	0	0	2250
Apprch %	0.0	54.0	46.0	56.4	2.2	41.4	29.3	70.7	0.0	0.0	0.0	0.0	
Total %	0.0	21.2	18.0	11.2	0.4	8.2	12.0	28.9	0.0	0.0	0.0	0.0	

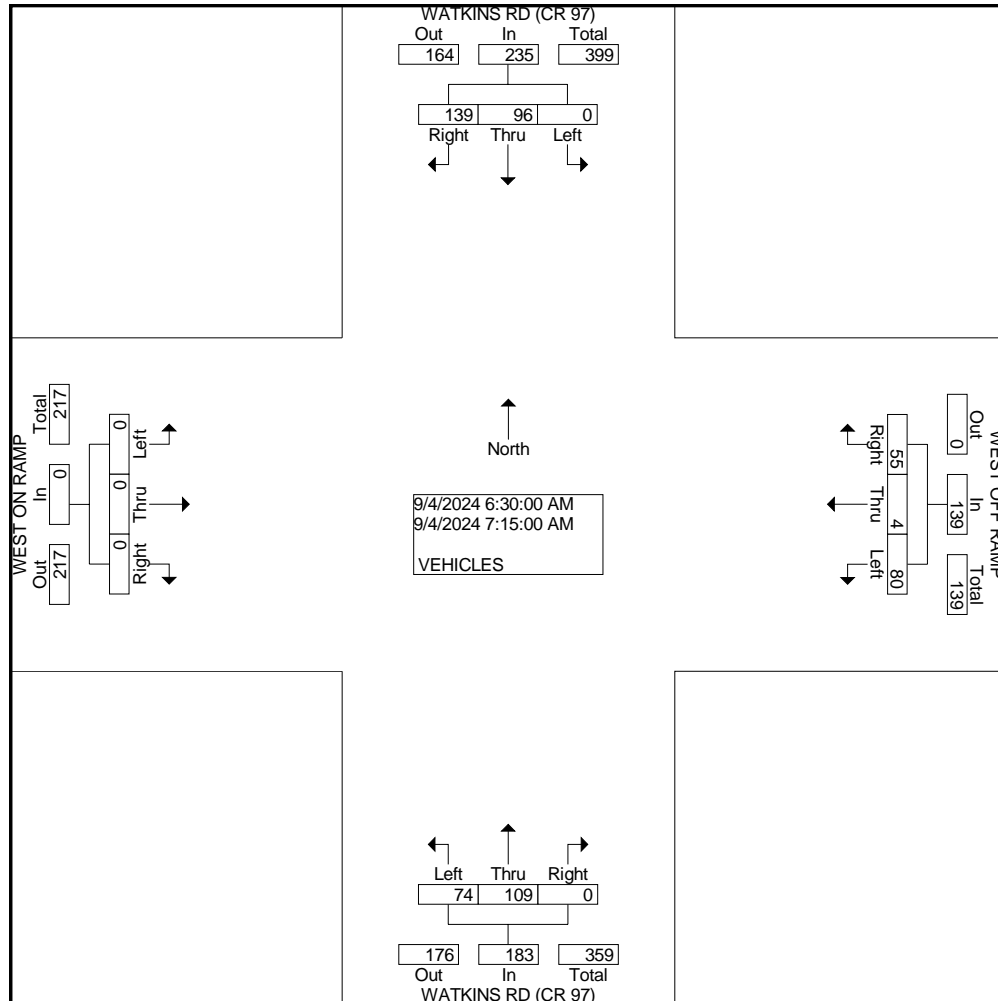
COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: WATKINS RD (CR 97)
E/W STREET: I70 ON/OFF WESTBOUND
CITY: WATKINS
COUNTY: ADAMS

File Name : WATKI70WEST
Site Code : 00000016
Start Date : 9/4/2024
Page No : 2

	WATKINS RD (CR 97) Southbound				WEST OFF RAMP Westbound				WATKINS RD (CR 97) Northbound				WEST ON RAMP Eastbound				Int. Total
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 06:30 AM to 07:15 AM - Peak 1 of 1																	
Intersection	06:30 AM																
Volume	0	96	139	235	80	4	55	139	74	109	0	183	0	0	0	0	557
Percent	0.0	40.9	59.1		57.6	2.9	39.6		40.4	59.6	0.0		0.0	0.0	0.0		
07:15																	
Volume	0	32	43	75	23	0	14	37	17	27	0	44	0	0	0	0	156
Peak Factor																	0.893
High Int.	07:15 AM				07:00 AM				06:45 AM				6:15:00 AM				
Volume	0	32	43	75	20	2	15	37	17	36	0	53					
Peak Factor	0.783				0.939				0.863								



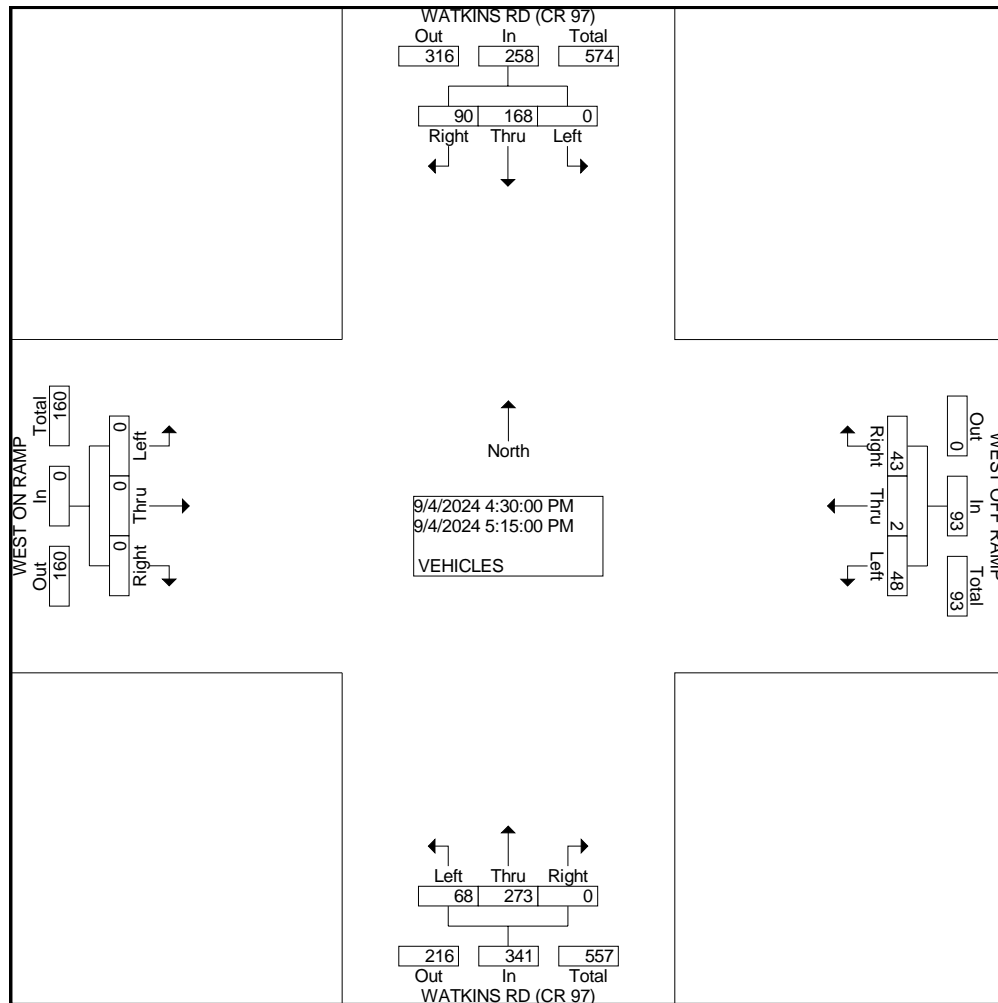
COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: WATKINS RD (CR 97)
E/W STREET: I70 ON/OFF WESTBOUND
CITY: WATKINS
COUNTY: ADAMS

File Name : WATKI70WEST
Site Code : 00000016
Start Date : 9/4/2024
Page No : 3

	WATKINS RD (CR 97) Southbound				WEST OFF RAMP Westbound				WATKINS RD (CR 97) Northbound				WEST ON RAMP Eastbound				Int. Total
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:30 PM																
Volume	0	168	90	258	48	2	43	93	68	273	0	341	0	0	0	0	692
Percent	0.0	65.1	34.9		51.6	2.2	46.2		19.9	80.1	0.0		0.0	0.0	0.0		
05:00																	
Volume	0	44	20	64	18	0	14	32	19	68	0	87	0	0	0	0	183
Peak Factor																	0.945
High Int.	04:45 PM				05:00 PM				04:30 PM								
Volume	0	46	26	72	18	0	14	32	17	76	0	93					
Peak Factor	0.896				0.727				0.917								



CPR CHICO NORTH
Location: WATKINS RD N-O E. JEWELL AVE
City: WATKINS
County: ADAMS
Direction: NORTH/SOUTH



Site Code:2407305
Site Code:2407305
Start Date: 09042024 9/4/2024
End Date: 09052024 9/5/2024
Longitude: 0.000000
Longitude: 0.000000

9/4/2024	NORTH	SOUTH	Total
Time			
12:00 AM	*	*	0
1:00	*	*	0
2:00	*	*	0
3:00	*	*	0
4:00	*	*	0
5:00	*	*	0
6:00	*	*	0
7:00	*	*	0
8:00	*	*	0
9:00	*	*	0
10:00	43	109	152
11:00	47	81	128
12:00 PM	51	67	118
1:00	57	59	116
2:00	61	63	124
3:00	89	76	165
4:00	129	109	238
5:00	193	131	324
6:00	199	119	318
7:00	87	81	168
8:00	47	32	79
9:00	31	24	55
10:00	28	19	47
11:00	19	12	31
Total	1081	982	2063
Percent	52.4%	47.6%	
AM Peak	11:00	10:00	10:00
Volume	47	109	152
PM Peak	6:00	5:00	5:00
Volume	199	131	324

CPR CHICO NORTH
Location: WATKINS RD N-O E. JEWELL AVE
City: WATKINS
County: ADAMS
Direction: NORTH/SOUTH



Site Code:2407305
Site Code:2407305
Start Date: 09042024 9/4/2024
End Date: 09052024 9/5/2024
Longitude: 0.000000
Longitude: 0.000000

9/5/2024	NORTH	SOUTH	Total
Time			
12:00 AM	13	10	23
1:00	7	7	14
2:00	7	11	18
3:00	6	12	18
4:00	8	19	27
5:00	18	32	50
6:00	24	67	91
7:00	61	128	189
8:00	99	176	275
9:00	66	131	197
10:00	46	115	161
11:00	*	*	0
12:00 PM	*	*	0
1:00	*	*	0
2:00	*	*	0
3:00	*	*	0
4:00	*	*	0
5:00	*	*	0
6:00	*	*	0
7:00	*	*	0
8:00	*	*	0
9:00	*	*	0
10:00	*	*	0
11:00	*	*	0
Total	355	708	1063
Percent	33.4%	66.6%	
AM Peak	8:00	8:00	8:00
Volume	99	176	275
PM Peak			
Volume			
Grand Total	1436	1690	3126
Percent	45.9%	54.1%	
ADT		ADT: 2,970	AADT: 2,970

CPR CHICO NORTH
Location: WATKINS RD S-O I70
City: WATKINS
County: ADAMS
Direction: NORTH/SOUTH



Site Code:2407303
Site Code:2407303
Start Date: 09072024 9/4/2024
End Date: 09082024 9/5/2024
Longitude: 0.000000
Longitude: 0.000000

9/4/2024	NORTH	SOUTH	Total
Time			
12:00 AM	*	*	0
1:00	*	*	0
2:00	*	*	0
3:00	*	*	0
4:00	*	*	0
5:00	*	*	0
6:00	*	*	0
7:00	*	*	0
8:00	*	*	0
9:00	*	*	0
10:00	113	109	222
11:00	81	97	178
12:00 PM	80	86	166
1:00	68	79	147
2:00	64	92	156
3:00	99	131	230
4:00	189	169	358
5:00	236	207	443
6:00	210	184	394
7:00	124	121	245
8:00	78	77	155
9:00	50	49	99
10:00	27	36	63
11:00	23	28	51
Total	1442	1465	2907
Percent	49.6%	50.4%	
AM Peak	10:00	10:00	10:00
Volume	113	109	222
PM Peak	5:00	5:00	5:00
Volume	236	207	443

CPR CHICO NORTH
Location: WATKINS RD S-O I70
City: WATKINS
County: ADAMS
Direction: NORTH/SOUTH



Site Code:2407303
Site Code:2407303
Start Date: 09072024 9/4/2024
End Date: 09082024 9/5/2024
Longitude: 0.000000
Longitude: 0.000000

9/5/2024	NORTH	SOUTH	Total
Time			
12:00 AM	14	24	38
1:00	10	13	23
2:00	11	17	28
3:00	13	21	34
4:00	24	22	46
5:00	43	48	91
6:00	91	112	203
7:00	131	143	274
8:00	166	190	356
9:00	120	121	241
10:00	118	116	234
11:00	74	49	123
12:00 PM	0	0	0
1:00	0	0	0
2:00	0	0	0
3:00	0	0	0
4:00	0	0	0
5:00	0	0	0
6:00	0	0	0
7:00	0	0	0
8:00	0	0	0
9:00	0	0	0
10:00	0	0	0
11:00	*	*	0
Total	815	876	1691
Percent	48.2%	51.8%	
AM Peak	8:00	8:00	8:00
Volume	166	190	356
PM Peak			
Volume			
Grand Total	2257	2341	4598
Percent	49.1%	50.9%	
ADT		ADT: 2,992	AADT: 2,992

CPR CHICO NORTH

Location: WATKINS RD N-O E. JEWELL AVE

City: WATKINS

County: ADAMS

Direction: NORTH/SOUTH



**COUNTER
MEASURES, INC.**
TRAFFIC AND TRANSPORTATION FIELD DATA

Site Code:2407305

Site Code:2407305

Start Date: 09042024 9/4/2024

End Date: 09052024 9/5/2024

Longitude: 0.000000

Longitude: 0.000000

9/4/2024	NORTH	SOUTH	Total
Time			
12:00 AM	*	*	0
1:00	*	*	0
2:00	*	*	0
3:00	*	*	0
4:00	*	*	0
5:00	*	*	0
6:00	*	*	0
7:00	*	*	0
8:00	*	*	0
9:00	*	*	0
10:00	54	102	156
11:00	66	88	154
12:00 PM	69	72	141
1:00	54	59	113
2:00	61	57	118
3:00	97	68	165
4:00	131	131	262
5:00	188	144	332
6:00	183	124	307
7:00	89	117	206
8:00	61	11	72
9:00	43	3333	3376
10:00	22	3476	3498
11:00	19	0	19
Total	1137	7782	8919
Percent	12.7%	87.3%	
AM Peak	11:00	10:00	10:00
Volume	66	102	156
PM Peak	5:00	10:00	10:00
Volume	188	3476	3498

CPR CHICO NORTH

Location: WATKINS RD N-O E. JEWELL AVE

City: WATKINS

County: ADAMS

Direction: NORTH/SOUTH



**COUNTER
MEASURES, INC.**
TRAFFIC AND TRANSPORTATION FIELD DATA

Site Code:2407305

Site Code:2407305

Start Date: 09042024 9/4/2024

End Date: 09052024 9/5/2024

Longitude: 0.000000

Longitude: 0.000000

9/5/2024	NORTH	SOUTH	Total
Time			
12:00 AM	11	0	11
1:00	9	0	9
2:00	10	0	10
3:00	12	0	12
4:00	18	0	18
5:00	28	0	28
6:00	36	112	148
7:00	59	133	192
8:00	104	171	275
9:00	78	119	197
10:00	61	92	153
11:00	*	*	0
12:00 PM	*	*	0
1:00	*	*	0
2:00	*	*	0
3:00	*	*	0
4:00	*	*	0
5:00	*	*	0
6:00	*	*	0
7:00	*	*	0
8:00	*	*	0
9:00	*	*	0
10:00	*	*	0
11:00	*	*	0
Total	426	627	1053
Percent	40.5%	59.5%	
AM Peak	8:00	8:00	8:00
Volume	104	171	275
PM Peak			
Volume			
Grand Total	1563	8409	9972
Percent	15.7%	84.3%	
ADT		ADT: 9,818	AADT: 9,818

LEVEL OF SERVICE DEFINITIONS

From *Highway Capacity Manual*, Transportation Research Board




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

HCM 6th TWSC
1: Watkins Road & WB On Ramp/WB Off Ramp

Existing
AM Peak

Intersection												
Int Delay, s/veh	4.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	80	4	55	74	109	0	0	96	139
Future Vol, veh/h	0	0	0	80	4	55	74	109	0	0	96	139
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	10	10	10	10	10	10	10	10	10	10	10	10
Mvmt Flow	0	0	0	90	4	62	83	122	0	0	108	156
Major/Minor				Minor1		Major1		Major2				
Conflicting Flow All				474	552	122	264	0	-	-	-	0
Stage 1				288	288	-	-	-	-	-	-	-
Stage 2				186	264	-	-	-	-	-	-	-
Critical Hdwy				6.5	6.6	6.3	4.2	-	-	-	-	-
Critical Hdwy Stg 1				5.5	5.6	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.5	5.6	-	-	-	-	-	-	-
Follow-up Hdwy				3.59	4.09	3.39	2.29	-	-	-	-	-
Pot Cap-1 Maneuver				535	431	908	1255	-	0	0	-	-
Stage 1				743	659	-	-	-	0	0	-	-
Stage 2				827	676	-	-	-	0	0	-	-
Platoon blocked, %								-			-	-
Mov Cap-1 Maneuver				497	0	908	1255	-	-	-	-	-
Mov Cap-2 Maneuver				497	0	-	-	-	-	-	-	-
Stage 1				690	0	-	-	-	-	-	-	-
Stage 2				827	0	-	-	-	-	-	-	-
Approach				WB		NB		SB				
HCM Control Delay, s				12.9		3.3		0				
HCM LOS				B								
Minor Lane/Major Mvmt	NBL	NBT	WBLn1	SBT	SBR							
Capacity (veh/h)	1255	-	609	-	-							
HCM Lane V/C Ratio	0.066	-	0.256	-	-							
HCM Control Delay (s)	8.1	0	12.9	-	-							
HCM Lane LOS	A	A	B	-	-							
HCM 95th %tile Q(veh)	0.2	-	1	-	-							

HCM 6th TWSC
2: Watkins Road & EB Off Ramp/EB On Ramp

Existing
AM Peak




Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	58	0	39	0	0	0	0	126	36	27	155	0
Future Vol, veh/h	58	0	39	0	0	0	0	126	36	27	155	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	10	10	10	10	10	10	10	10	10	10	10	10
Mvmt Flow	67	0	45	0	0	0	0	145	41	31	178	0
Major/Minor	Minor2						Major1			Major2		
Conflicting Flow All	406	426	178				-	0	0	186	0	0
Stage 1	240	240	-				-	-	-	-	-	-
Stage 2	166	186	-				-	-	-	-	-	-
Critical Hdwy	6.5	6.6	6.3				-	-	-	4.2	-	-
Critical Hdwy Stg 1	5.5	5.6	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.5	5.6	-				-	-	-	-	-	-
Follow-up Hdwy	3.59	4.09	3.39				-	-	-	2.29	-	-
Pot Cap-1 Maneuver	586	508	845				0	-	-	1342	-	0
Stage 1	781	692	-				0	-	-	-	-	0
Stage 2	844	731	-				0	-	-	-	-	0
Platoon blocked, %								-	-	-		
Mov Cap-1 Maneuver	571	0	845				-	-	-	1342	-	-
Mov Cap-2 Maneuver	571	0	-				-	-	-	-	-	-
Stage 1	781	0	-				-	-	-	-	-	-
Stage 2	822	0	-				-	-	-	-	-	-
Approach	EB						NB			SB		
HCM Control Delay, s	11.6						0			1.1		
HCM LOS	B											
Minor Lane/Major Mvmt		NBT	NBR	EBLn1	SBL	SBT						
Capacity (veh/h)		-	-	657	1342	-						
HCM Lane V/C Ratio		-	-	0.17	0.023	-						
HCM Control Delay (s)		-	-	11.6	7.7	0						
HCM Lane LOS		-	-	B	A	A						
HCM 95th %tile Q(veh)		-	-	0.6	0.1	-						

HCM 6th TWSC
3: Watkins Road & E. 6th Avenue

Existing
AM Peak

Intersection

Int Delay, s/veh 2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	17	70	81	7	23	159
Future Vol, veh/h	17	70	81	7	23	159
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	21	88	101	9	29	199





Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	363	106	0
Stage 1	106	-	-
Stage 2	257	-	-
Critical Hdwy	6.5	6.3	-
Critical Hdwy Stg 1	5.5	-	-
Critical Hdwy Stg 2	5.5	-	-
Follow-up Hdwy	3.59	3.39	-
Pot Cap-1 Maneuver	621	927	-
Stage 1	899	-	-
Stage 2	768	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	607	927	-
Mov Cap-2 Maneuver	607	-	-
Stage 1	899	-	-
Stage 2	750	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.9	0	1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	840	1432
HCM Lane V/C Ratio	-	-	0.129	0.02
HCM Control Delay (s)	-	-	9.9	7.6
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0.1




HCM 6th TWSC
4: Watkins Road & E. Jewell Avenue

Existing
AM Peak

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	3	5	82	169	9
Future Vol, veh/h	7	3	5	82	169	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	8	3	6	91	188	10
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	291	188	198	0	-	0
Stage 1	188	-	-	-	-	-
Stage 2	103	-	-	-	-	-
Critical Hdwy	6.5	6.3	4.2	-	-	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.59	3.39	2.29	-	-	-
Pot Cap-1 Maneuver	683	834	1328	-	-	-
Stage 1	825	-	-	-	-	-
Stage 2	902	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	680	834	1328	-	-	-
Mov Cap-2 Maneuver	680	-	-	-	-	-
Stage 1	821	-	-	-	-	-
Stage 2	902	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.1	0.4		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1328	-	720	-	-	
HCM Lane V/C Ratio	0.004	-	0.015	-	-	
HCM Control Delay (s)	7.7	0	10.1	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	0	-	-	

HCM 6th TWSC
1: Watkins Road & WB On Ramp/WB Off Ramp

Existing
PM Peak

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	48	2	43	68	273	0	0	168	90
Future Vol, veh/h	0	0	0	48	2	43	68	273	0	0	168	90
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	10	10	10	10	10	10	10	10	10	10	10	10
Mvmt Flow	0	0	0	51	2	45	72	287	0	0	177	95

Major/Minor	Minor1		Major1		Major2		
Conflicting Flow All	656	703	287	272	0	-	0
Stage 1	431	431	-	-	-	-	-
Stage 2	225	272	-	-	-	-	-
Critical Hdwy	6.5	6.6	6.3	4.2	-	-	-
Critical Hdwy Stg 1	5.5	5.6	-	-	-	-	-
Critical Hdwy Stg 2	5.5	5.6	-	-	-	-	-
Follow-up Hdwy	3.59	4.09	3.39	2.29	-	-	-
Pot Cap-1 Maneuver	418	352	733	1246	-	0	-
Stage 1	639	569	-	-	0	0	-
Stage 2	794	670	-	-	0	0	-
Platoon blocked, %					-	-	-
Mov Cap-1 Maneuver	389	0	733	1246	-	-	-
Mov Cap-2 Maneuver	389	0	-	-	-	-	-
Stage 1	595	0	-	-	-	-	-
Stage 2	794	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.9	1.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBTWBLn1	SBT	SBR
Capacity (veh/h)	1246	-	500	-
HCM Lane V/C Ratio	0.057	-	0.196	-
HCM Control Delay (s)	8.1	0	13.9	-
HCM Lane LOS	A	A	B	-
HCM 95th %tile Q(veh)	0.2	-	0.7	-

HCM 6th TWSC
2: Watkins Road & EB Off Ramp/EB On Ramp

Existing
PM Peak

Intersection												
Int Delay, s/veh	6.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	163	5	74	0	0	0	0	182	86	84	145	0
Future Vol, veh/h	163	5	74	0	0	0	0	182	86	84	145	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	10	10	10	10	10	10	10	10	10	10	10	10
Mvmt Flow	170	5	77	0	0	0	0	190	90	88	151	0




Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	562	607	151	-	0	0	280	0	0
Stage 1	327	327	-	-	-	-	-	-	-
Stage 2	235	280	-	-	-	-	-	-	-
Critical Hdwy	6.5	6.6	6.3	-	-	-	4.2	-	-
Critical Hdwy Stg 1	5.5	5.6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.5	5.6	-	-	-	-	-	-	-
Follow-up Hdwy	3.59	4.09	3.39	-	-	-	2.29	-	-
Pot Cap-1 Maneuver	475	400	875	0	-	-	1238	-	0
Stage 1	713	634	-	0	-	-	-	-	0
Stage 2	786	665	-	0	-	-	-	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	438	0	875	-	-	-	1238	-	-
Mov Cap-2 Maneuver	438	0	-	-	-	-	-	-	-
Stage 1	713	0	-	-	-	-	-	-	-
Stage 2	725	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.3	0	3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBL	SBT
Capacity (veh/h)	-	-	519	1238	-
HCM Lane V/C Ratio	-	-	0.486	0.071	-
HCM Control Delay (s)	-	-	18.3	8.1	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	2.6	0.2	-





HCM 6th TWSC
3: Watkins Road & E. 6th Avenue

Existing
PM Peak

Intersection						
Int Delay, s/veh	2.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	37	152	25	73	155
Future Vol, veh/h	8	37	152	25	73	155
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	9	39	162	27	78	165
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	497	176	0	0	189	0
Stage 1	176	-	-	-	-	-
Stage 2	321	-	-	-	-	-
Critical Hdwy	6.5	6.3	-	-	4.2	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.59	3.39	-	-	2.29	-
Pot Cap-1 Maneuver	518	847	-	-	1338	-
Stage 1	836	-	-	-	-	-
Stage 2	718	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	485	847	-	-	1338	-
Mov Cap-2 Maneuver	485	-	-	-	-	-
Stage 1	836	-	-	-	-	-
Stage 2	672	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	10.1	0	2.5			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	748	1338	-	
HCM Lane V/C Ratio	-	-	0.064	0.058	-	
HCM Control Delay (s)	-	-	10.1	7.9	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.2	0.2	-	




HCM 6th TWSC
4: Watkins Road & E. Jewell Avenue

Existing
PM Peak

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	21	6	6	172	132	10
Future Vol, veh/h	21	6	6	172	132	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	-	-	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	24	7	7	193	148	11
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	355	148	159	0	-	0
Stage 1	148	-	-	-	-	-
Stage 2	207	-	-	-	-	-
Critical Hdwy	6.5	6.3	4.2	-	-	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.59	3.39	2.29	-	-	-
Pot Cap-1 Maneuver	627	878	1373	-	-	-
Stage 1	860	-	-	-	-	-
Stage 2	809	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	623	878	1373	-	-	-
Mov Cap-2 Maneuver	623	-	-	-	-	-
Stage 1	855	-	-	-	-	-
Stage 2	809	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.7	0.3		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1373	-	666	-	-	
HCM Lane V/C Ratio	0.005	-	0.046	-	-	
HCM Control Delay (s)	7.6	0	10.7	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.1	-	-	

HCM 6th TWSC
1: Watkins Road & WB On Ramp/WB Off Ramp

2025 Background
AM Peak

Intersection												
Int Delay, s/veh	4.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	82	4	57	76	112	0	0	99	143
Future Vol, veh/h	0	0	0	82	4	57	76	112	0	0	99	143
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	10	10	10	10	10	10	10	10	10	10	10	10
Mvmt Flow	0	0	0	92	4	64	85	126	0	0	111	161
Major/Minor				Minor1		Major1		Major2				
Conflicting Flow All				488	568	126	272	0	-	-	-	0
Stage 1				296	296	-	-	-	-	-	-	-
Stage 2				192	272	-	-	-	-	-	-	-
Critical Hdwy				6.5	6.6	6.3	4.2	-	-	-	-	-
Critical Hdwy Stg 1				5.5	5.6	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.5	5.6	-	-	-	-	-	-	-
Follow-up Hdwy				3.59	4.09	3.39	2.29	-	-	-	-	-
Pot Cap-1 Maneuver				525	422	903	1246	-	0	0	-	-
Stage 1				737	654	-	-	-	0	0	-	-
Stage 2				822	670	-	-	-	0	0	-	-
Platoon blocked, %								-			-	-
Mov Cap-1 Maneuver				487	0	903	1246	-	-	-	-	-
Mov Cap-2 Maneuver				487	0	-	-	-	-	-	-	-
Stage 1				683	0	-	-	-	-	-	-	-
Stage 2				822	0	-	-	-	-	-	-	-
Approach				WB		NB		SB				
HCM Control Delay, s				13.2		3.3		0				
HCM LOS				B								
Minor Lane/Major Mvmt		NBL	NBTWBLn1	SBT	SBR							
Capacity (veh/h)		1246	-	600	-	-						
HCM Lane V/C Ratio		0.069	-	0.268	-	-						
HCM Control Delay (s)		8.1	0	13.2	-	-						
HCM Lane LOS		A	A	B	-	-						
HCM 95th %tile Q(veh)		0.2	-	1.1	-	-						




HCM 6th TWSC
2: Watkins Road & EB Off Ramp/EB On Ramp

2025 Background
AM Peak

Intersection												
Int Delay, s/veh	3.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↔						↔↕			↕↔	
Traffic Vol, veh/h	60	0	40	0	0	0	0	130	37	28	160	0
Future Vol, veh/h	60	0	40	0	0	0	0	130	37	28	160	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	10	10	10	10	10	10	10	10	10	10	10	10
Mvmt Flow	69	0	46	0	0	0	0	149	43	32	184	0
Major/Minor	Minor2						Major1			Major2		
Conflicting Flow All	419	440	184				-	0	0	192	0	0
Stage 1	248	248	-				-	-	-	-	-	-
Stage 2	171	192	-				-	-	-	-	-	-
Critical Hdwy	6.5	6.6	6.3				-	-	-	4.2	-	-
Critical Hdwy Stg 1	5.5	5.6	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.5	5.6	-				-	-	-	-	-	-
Follow-up Hdwy	3.59	4.09	3.39				-	-	-	2.29	-	-
Pot Cap-1 Maneuver	576	499	838				0	-	-	1335	-	0
Stage 1	775	687	-				0	-	-	-	-	0
Stage 2	840	727	-				0	-	-	-	-	0
Platoon blocked, %							-	-				
Mov Cap-1 Maneuver	560	0	838				-	-	-	1335	-	-
Mov Cap-2 Maneuver	560	0	-				-	-	-	-	-	-
Stage 1	775	0	-				-	-	-	-	-	-
Stage 2	817	0	-				-	-	-	-	-	-
Approach	EB						NB			SB		
HCM Control Delay, s	11.8						0			1.2		
HCM LOS	B											
Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBL	SBT							
Capacity (veh/h)	-	-	646	1335	-							
HCM Lane V/C Ratio	-	-	0.178	0.024	-							
HCM Control Delay (s)	-	-	11.8	7.8	0							
HCM Lane LOS	-	-	B	A	A							
HCM 95th %tile Q(veh)	-	-	0.6	0.1	-							





HCM 6th TWSC
3: Watkins Road & E. 6th Avenue

2025 Background
AM Peak

Intersection						
Int Delay, s/veh	3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	18	72	83	7	24	164
Future Vol, veh/h	18	72	83	7	24	164
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	23	90	104	9	30	205
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	374	109	0	0	113	0
Stage 1	109	-	-	-	-	-
Stage 2	265	-	-	-	-	-
Critical Hdwy	6.5	6.3	-	-	4.2	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.59	3.39	-	-	2.29	-
Pot Cap-1 Maneuver	612	923	-	-	1428	-
Stage 1	896	-	-	-	-	-
Stage 2	761	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	597	923	-	-	1428	-
Mov Cap-2 Maneuver	597	-	-	-	-	-
Stage 1	896	-	-	-	-	-
Stage 2	743	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	10	0	1			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	832	1428	-	
HCM Lane V/C Ratio	-	-	0.135	0.021	-	
HCM Control Delay (s)	-	-	10	7.6	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.5	0.1	-	




HCM 6th TWSC
4: Watkins Road & E. Jewell Avenue

2025 Background
AM Peak

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	3	5	84	174	9
Future Vol, veh/h	7	3	5	84	174	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	8	3	6	93	193	10
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	298	193	203	0	-	0
Stage 1	193	-	-	-	-	-
Stage 2	105	-	-	-	-	-
Critical Hdwy	6.5	6.3	4.2	-	-	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.59	3.39	2.29	-	-	-
Pot Cap-1 Maneuver	677	828	1322	-	-	-
Stage 1	821	-	-	-	-	-
Stage 2	900	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	674	828	1322	-	-	-
Mov Cap-2 Maneuver	674	-	-	-	-	-
Stage 1	817	-	-	-	-	-
Stage 2	900	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.1	0.4		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1322	-	714	-	-	
HCM Lane V/C Ratio	0.004	-	0.016	-	-	
HCM Control Delay (s)	7.7	0	10.1	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	0	-	-	

HCM 6th TWSC
1: Watkins Road & WB On Ramp/WB Off Ramp

2025 Background
PM Peak

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	49	2	44	70	281	0	0	173	93
Future Vol, veh/h	0	0	0	49	2	44	70	281	0	0	173	93
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	10	10	10	10	10	10	10	10	10	10	10	10
Mvmt Flow	0	0	0	52	2	47	74	299	0	0	184	99

Major/Minor	Minor1	Major1	Major2									
Conflicting Flow All	681	730	299	283	0	-	-	-	-	0		
Stage 1	447	447	-	-	-	-	-	-	-	-		
Stage 2	234	283	-	-	-	-	-	-	-	-		
Critical Hdwy	6.5	6.6	6.3	4.2	-	-	-	-	-	-		
Critical Hdwy Stg 1	5.5	5.6	-	-	-	-	-	-	-	-		
Critical Hdwy Stg 2	5.5	5.6	-	-	-	-	-	-	-	-		
Follow-up Hdwy	3.59	4.09	3.39	2.29	-	-	-	-	-	-		
Pot Cap-1 Maneuver	404	340	722	1235	-	0	0	-	-	-		
Stage 1	628	560	-	-	-	0	0	-	-	-		
Stage 2	786	663	-	-	-	0	0	-	-	-		
Platoon blocked, %					-			-		-		
Mov Cap-1 Maneuver	375	0	722	1235	-	-	-	-	-	-		
Mov Cap-2 Maneuver	375	0	-	-	-	-	-	-	-	-		
Stage 1	583	0	-	-	-	-	-	-	-	-		
Stage 2	786	0	-	-	-	-	-	-	-	-		

Approach	WB	NB	SB
HCM Control Delay, s	14.4	1.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBTWBLn1	SBT	SBR
Capacity (veh/h)	1235	-	485	-
HCM Lane V/C Ratio	0.06	-	0.208	-
HCM Control Delay (s)	8.1	0	14.4	-
HCM Lane LOS	A	A	B	-
HCM 95th %tile Q(veh)	0.2	-	0.8	-




HCM 6th TWSC
2: Watkins Road & EB Off Ramp/EB On Ramp

2025 Background
PM Peak

Intersection												
Int Delay, s/veh	7.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	168	5	76	0	0	0	0	187	89	87	149	0
Future Vol, veh/h	168	5	76	0	0	0	0	187	89	87	149	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	10	10	10	10	10	10	10	10	10	10	10	10
Mvmt Flow	175	5	79	0	0	0	0	195	93	91	155	0
Major/Minor	Minor2						Major1			Major2		
Conflicting Flow All	579	625	155				-	0	0	288	0	0
Stage 1	337	337	-				-	-	-	-	-	-
Stage 2	242	288	-				-	-	-	-	-	-
Critical Hdwy	6.5	6.6	6.3				-	-	-	4.2	-	-
Critical Hdwy Stg 1	5.5	5.6	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.5	5.6	-				-	-	-	-	-	-
Follow-up Hdwy	3.59	4.09	3.39				-	-	-	2.29	-	-
Pot Cap-1 Maneuver	464	391	870				0	-	-	1229	-	0
Stage 1	706	627	-				0	-	-	-	-	0
Stage 2	780	659	-				0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	426	0	870				-	-	-	1229	-	-
Mov Cap-2 Maneuver	426	0	-				-	-	-	-	-	-
Stage 1	706	0	-				-	-	-	-	-	-
Stage 2	717	0	-				-	-	-	-	-	-
Approach	EB						NB			SB		
HCM Control Delay, s	19.3						0			3		
HCM LOS	C											
Minor Lane/Major Mvmt		NBT	NBR	EBLn1	SBL	SBT						
Capacity (veh/h)		-	-	507	1229	-						
HCM Lane V/C Ratio		-	-	0.512	0.074	-						
HCM Control Delay (s)		-	-	19.3	8.2	0						
HCM Lane LOS		-	-	C	A	A						
HCM 95th %tile Q(veh)		-	-	2.9	0.2	-						





HCM 6th TWSC
3: Watkins Road & E. 6th Avenue

2025 Background
PM Peak

Intersection						
Int Delay, s/veh	2.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	38	157	26	75	160
Future Vol, veh/h	8	38	157	26	75	160
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	9	40	167	28	80	170
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	511	181	0	0	195	0
Stage 1	181	-	-	-	-	-
Stage 2	330	-	-	-	-	-
Critical Hdwy	6.5	6.3	-	-	4.2	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.59	3.39	-	-	2.29	-
Pot Cap-1 Maneuver	509	841	-	-	1331	-
Stage 1	831	-	-	-	-	-
Stage 2	711	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	475	841	-	-	1331	-
Mov Cap-2 Maneuver	475	-	-	-	-	-
Stage 1	831	-	-	-	-	-
Stage 2	664	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	10.2	0		2.5		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	- 742		1331	-	
HCM Lane V/C Ratio	-	- 0.066		0.06	-	
HCM Control Delay (s)	-	- 10.2		7.9	0	
HCM Lane LOS	-	- B		A	A	
HCM 95th %tile Q(veh)	-	- 0.2		0.2	-	

HCM 6th TWSC
4: Watkins Road & E. Jewell Avenue

2025 Background
PM Peak

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	22	6	6	177	136	10
Future Vol, veh/h	22	6	6	177	136	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	-	-	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	25	7	7	199	153	11
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	366	153	164	0	-	0
Stage 1	153	-	-	-	-	-
Stage 2	213	-	-	-	-	-
Critical Hdwy	6.5	6.3	4.2	-	-	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.59	3.39	2.29	-	-	-
Pot Cap-1 Maneuver	618	872	1367	-	-	-
Stage 1	856	-	-	-	-	-
Stage 2	804	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	614	872	1367	-	-	-
Mov Cap-2 Maneuver	614	-	-	-	-	-
Stage 1	851	-	-	-	-	-
Stage 2	804	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.8	0.3		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1367	-	656	-	-	
HCM Lane V/C Ratio	0.005	-	0.048	-	-	
HCM Control Delay (s)	7.6	0	10.8	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.2	-	-	

HCM 6th TWSC
1: Watkins Road & WB On Ramp/WB Off Ramp

2025 Total
AM Peak

Intersection												
Int Delay, s/veh	4.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Vol, veh/h	0	0	0	82	4	57	97	112	0	0	99	143
Future Vol, veh/h	0	0	0	82	4	57	97	112	0	0	99	143
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	10	10	10	10	10	10	20	10	10	10	10	10
Mvmt Flow	0	0	0	92	4	64	109	126	0	0	111	161
Major/Minor				Minor1		Major1		Major2				
Conflicting Flow All				536	616	126	272	0	-	-	-	0
Stage 1				344	344	-	-	-	-	-	-	-
Stage 2				192	272	-	-	-	-	-	-	-
Critical Hdwy				6.5	6.6	6.3	4.3	-	-	-	-	-
Critical Hdwy Stg 1				5.5	5.6	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.5	5.6	-	-	-	-	-	-	-
Follow-up Hdwy				3.59	4.09	3.39	2.38	-	-	-	-	-
Pot Cap-1 Maneuver				492	396	903	1194	-	0	0	-	-
Stage 1				700	623	-	-	-	0	0	-	-
Stage 2				822	670	-	-	-	0	0	-	-
Platoon blocked, %								-			-	-
Mov Cap-1 Maneuver				444	0	903	1194	-	-	-	-	-
Mov Cap-2 Maneuver				444	0	-	-	-	-	-	-	-
Stage 1				631	0	-	-	-	-	-	-	-
Stage 2				822	0	-	-	-	-	-	-	-
Approach				WB		NB		SB				
HCM Control Delay, s				14		3.9		0				
HCM LOS				B								
Minor Lane/Major Mvmt		NBL	NBTWBLn1	SBT	SBR							
Capacity (veh/h)		1194	-	561	-	-						
HCM Lane V/C Ratio		0.091	-	0.286	-	-						
HCM Control Delay (s)		8.3	0	14	-	-						
HCM Lane LOS		A	A	B	-	-						
HCM 95th %tile Q(veh)		0.3	-	1.2	-	-						




HCM 6th TWSC
2: Watkins Road & EB Off Ramp/EB On Ramp

2025 Total
AM Peak

Intersection												
Int Delay, s/veh	3.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↔						↔↕			↕↔	
Traffic Vol, veh/h	60	0	61	0	0	0	0	151	37	28	160	0
Future Vol, veh/h	60	0	61	0	0	0	0	151	37	28	160	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	10	10	20	10	10	10	10	20	10	10	10	10
Mvmt Flow	69	0	70	0	0	0	0	174	43	32	184	0
Major/Minor	Minor2						Major1			Major2		
Conflicting Flow All	444	465	184				-	0	0	217	0	0
Stage 1	248	248	-				-	-	-	-	-	-
Stage 2	196	217	-				-	-	-	-	-	-
Critical Hdwy	6.5	6.6	6.4				-	-	-	4.2	-	-
Critical Hdwy Stg 1	5.5	5.6	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.5	5.6	-				-	-	-	-	-	-
Follow-up Hdwy	3.59	4.09	3.48				-	-	-	2.29	-	-
Pot Cap-1 Maneuver	557	483	814				0	-	-	1307	-	0
Stage 1	775	687	-				0	-	-	-	-	0
Stage 2	818	709	-				0	-	-	-	-	0
Platoon blocked, %								-	-	-		
Mov Cap-1 Maneuver	542	0	814				-	-	-	1307	-	-
Mov Cap-2 Maneuver	542	0	-				-	-	-	-	-	-
Stage 1	775	0	-				-	-	-	-	-	-
Stage 2	796	0	-				-	-	-	-	-	-
Approach	EB						NB			SB		
HCM Control Delay, s	12						0			1.2		
HCM LOS	B											
Minor Lane/Major Mvmt		NBT	NBR	EBLn1	SBL	SBT						
Capacity (veh/h)		-	-	652	1307	-						
HCM Lane V/C Ratio		-	-	0.213	0.025	-						
HCM Control Delay (s)		-	-	12	7.8	0						
HCM Lane LOS		-	-	B	A	A						
HCM 95th %tile Q(veh)		-	-	0.8	0.1	-						





HCM 6th TWSC
3: Watkins Road & E. 6th Avenue

2025 Total
AM Peak

Intersection						
Int Delay, s/veh	2.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	18	72	104	7	24	185
Future Vol, veh/h	18	72	104	7	24	185
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	10	10	20	10	10	15
Mvmt Flow	23	90	130	9	30	231
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	426	135	0	0	139	0
Stage 1	135	-	-	-	-	-
Stage 2	291	-	-	-	-	-
Critical Hdwy	6.5	6.3	-	-	4.2	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.59	3.39	-	-	2.29	-
Pot Cap-1 Maneuver	570	893	-	-	1397	-
Stage 1	872	-	-	-	-	-
Stage 2	741	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	556	893	-	-	1397	-
Mov Cap-2 Maneuver	556	-	-	-	-	-
Stage 1	872	-	-	-	-	-
Stage 2	722	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	10.3	0		0.9		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-	796	1397	-	
HCM Lane V/C Ratio	-	-	0.141	0.021	-	
HCM Control Delay (s)	-	-	10.3	7.6	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.5	0.1	-	




HCM 6th TWSC
4: Watkins Road & E. Jewell Avenue

2025 Total
AM Peak

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	28	3	5	84	174	30
Future Vol, veh/h	28	3	5	84	174	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	75	10	10	10	10	75
Mvmt Flow	31	3	6	93	193	33
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	298	193	226	0	-	0
Stage 1	193	-	-	-	-	-
Stage 2	105	-	-	-	-	-
Critical Hdwy	7.15	6.3	4.2	-	-	-
Critical Hdwy Stg 1	6.15	-	-	-	-	-
Critical Hdwy Stg 2	6.15	-	-	-	-	-
Follow-up Hdwy	4.175	3.39	2.29	-	-	-
Pot Cap-1 Maneuver	564	828	1297	-	-	-
Stage 1	692	-	-	-	-	-
Stage 2	765	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	561	828	1297	-	-	-
Mov Cap-2 Maneuver	561	-	-	-	-	-
Stage 1	689	-	-	-	-	-
Stage 2	765	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	11.6	0.4		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1297	-	579	-	-	
HCM Lane V/C Ratio	0.004	-	0.059	-	-	
HCM Control Delay (s)	7.8	0	11.6	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.2	-	-	

HCM 6th TWSC
5: Site Access & E. Jewell Avenue

2025 Total
AM Peak

Intersection						
Int Delay, s/veh	5.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	10	0	21	14	0	21
Future Vol, veh/h	10	0	21	14	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	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	10	0	90	10	90	90
Mvmt Flow	13	0	26	18	0	26
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	13	0	83	13
Stage 1	-	-	-	-	13	-
Stage 2	-	-	-	-	70	-
Critical Hdwy	-	-	5	-	7.3	7.1
Critical Hdwy Stg 1	-	-	-	-	6.3	-
Critical Hdwy Stg 2	-	-	-	-	6.3	-
Follow-up Hdwy	-	-	3.01	-	4.31	4.11
Pot Cap-1 Maneuver	-	-	1181	-	742	860
Stage 1	-	-	-	-	823	-
Stage 2	-	-	-	-	770	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1181	-	726	860
Mov Cap-2 Maneuver	-	-	-	-	726	-
Stage 1	-	-	-	-	823	-
Stage 2	-	-	-	-	753	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		4.9		9.3	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	860	-	-	1181	-	
HCM Lane V/C Ratio	0.031	-	-	0.022	-	
HCM Control Delay (s)	9.3	-	-	8.1	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-	

HCM 6th TWSC
1: Watkins Road & WB On Ramp/WB Off Ramp

2025 Total
PM Peak

Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↔			↔			↔	
Traffic Vol, veh/h	0	0	0	49	2	44	91	281	0	0	173	93
Future Vol, veh/h	0	0	0	49	2	44	91	281	0	0	173	93
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	10	10	10	10	10	10	25	10	10	10	10	10
Mvmt Flow	0	0	0	52	2	47	97	299	0	0	184	99
Major/Minor												
Minor1				Major1				Major2				
Conflicting Flow All	727	776	299	283	0	-	-	-	-	-	0	-
Stage 1	493	493	-	-	-	-	-	-	-	-	-	-
Stage 2	234	283	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	6.5	6.6	6.3	4.35	-	-	-	-	-	-	-	-
Critical Hdwy Stg 1	5.5	5.6	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.5	5.6	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.59	4.09	3.39	2.425	-	-	-	-	-	-	-	-
Pot Cap-1 Maneuver	379	319	722	1158	-	0	0	-	-	-	-	-
Stage 1	598	534	-	-	-	0	0	-	-	-	-	-
Stage 2	786	663	-	-	-	0	0	-	-	-	-	-
Platoon blocked, %					-							
Mov Cap-1 Maneuver	341	0	722	1158	-	-	-	-	-	-	-	-
Mov Cap-2 Maneuver	341	0	-	-	-	-	-	-	-	-	-	-
Stage 1	538	0	-	-	-	-	-	-	-	-	-	-
Stage 2	786	0	-	-	-	-	-	-	-	-	-	-
Approach												
WB				NB				SB				
HCM Control Delay, s	15.2			2.1				0				
HCM LOS	C											
Minor Lane/Major Mvmt												
NBL				NBTWBLn1				SBT SBR				
Capacity (veh/h)	1158	-	454	-	-	-	-	-	-	-	-	-
HCM Lane V/C Ratio	0.084	-	0.223	-	-	-	-	-	-	-	-	-
HCM Control Delay (s)	8.4	0	15.2	-	-	-	-	-	-	-	-	-
HCM Lane LOS	A	A	C	-	-	-	-	-	-	-	-	-
HCM 95th %tile Q(veh)	0.3	-	0.8	-	-	-	-	-	-	-	-	-

HCM 6th TWSC
2: Watkins Road & EB Off Ramp/EB On Ramp

2025 Total
PM Peak

Intersection												
Int Delay, s/veh	7.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	168	5	97	0	0	0	0	208	89	87	149	0
Future Vol, veh/h	168	5	97	0	0	0	0	208	89	87	149	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	10	10	25	10	10	10	10	15	10	10	10	10
Mvmt Flow	175	5	101	0	0	0	0	217	93	91	155	0




Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	601	647	155	-	0	0	310	0	0
Stage 1	337	337	-	-	-	-	-	-	-
Stage 2	264	310	-	-	-	-	-	-	-
Critical Hdwy	6.5	6.6	6.45	-	-	-	4.2	-	-
Critical Hdwy Stg 1	5.5	5.6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.5	5.6	-	-	-	-	-	-	-
Follow-up Hdwy	3.59	4.09	3.525	-	-	-	2.29	-	-
Pot Cap-1 Maneuver	450	380	834	0	-	-	1206	-	0
Stage 1	706	627	-	0	-	-	-	-	0
Stage 2	762	645	-	0	-	-	-	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	413	0	834	-	-	-	1206	-	-
Mov Cap-2 Maneuver	413	0	-	-	-	-	-	-	-
Stage 1	706	0	-	-	-	-	-	-	-
Stage 2	699	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.6	0	3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBL	SBT
Capacity (veh/h)	-	-	507	1206	-
HCM Lane V/C Ratio	-	-	0.555	0.075	-
HCM Control Delay (s)	-	-	20.6	8.2	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	3.3	0.2	-





HCM 6th TWSC
3: Watkins Road & E. 6th Avenue

2025 Total
PM Peak

Intersection						
Int Delay, s/veh	2.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	38	178	26	75	181
Future Vol, veh/h	8	38	178	26	75	181
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	10	10	20	10	10	20
Mvmt Flow	9	40	189	28	80	193
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	556	203	0	0	217	0
Stage 1	203	-	-	-	-	-
Stage 2	353	-	-	-	-	-
Critical Hdwy	6.5	6.3	-	-	4.2	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.59	3.39	-	-	2.29	-
Pot Cap-1 Maneuver	479	818	-	-	1307	-
Stage 1	812	-	-	-	-	-
Stage 2	694	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	446	818	-	-	1307	-
Mov Cap-2 Maneuver	446	-	-	-	-	-
Stage 1	812	-	-	-	-	-
Stage 2	646	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	10.4	0		2.3		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-	714	1307	-	
HCM Lane V/C Ratio	-	-	0.069	0.061	-	
HCM Control Delay (s)	-	-	10.4	7.9	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.2	0.2	-	




HCM 6th TWSC
4: Watkins Road & E. Jewell Avenue

2025 Total
PM Peak

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	43	6	6	177	136	31
Future Vol, veh/h	43	6	6	177	136	31
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	75	10	10	10	10	75
Mvmt Flow	48	7	7	199	153	35
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	366	153	188	0	-	0
Stage 1	153	-	-	-	-	-
Stage 2	213	-	-	-	-	-
Critical Hdwy	7.15	6.3	4.2	-	-	-
Critical Hdwy Stg 1	6.15	-	-	-	-	-
Critical Hdwy Stg 2	6.15	-	-	-	-	-
Follow-up Hdwy	4.175	3.39	2.29	-	-	-
Pot Cap-1 Maneuver	512	872	1339	-	-	-
Stage 1	725	-	-	-	-	-
Stage 2	676	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	509	872	1339	-	-	-
Mov Cap-2 Maneuver	509	-	-	-	-	-
Stage 1	721	-	-	-	-	-
Stage 2	676	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	12.5	0.3		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1339	-	536	-	-	
HCM Lane V/C Ratio	0.005	-	0.103	-	-	
HCM Control Delay (s)	7.7	0	12.5	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.3	-	-	

HCM 6th TWSC
5: Site Access & E. Jewell Avenue

2025 Total
PM Peak

Intersection						
Int Delay, s/veh	4.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	28	0	21	16	0	21
Future Vol, veh/h	28	0	21	16	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	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	10	10	90	10	10	90
Mvmt Flow	35	0	26	20	0	26
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	35	0	107	35
Stage 1	-	-	-	-	35	-
Stage 2	-	-	-	-	72	-
Critical Hdwy	-	-	5	-	6.5	7.1
Critical Hdwy Stg 1	-	-	-	-	5.5	-
Critical Hdwy Stg 2	-	-	-	-	5.5	-
Follow-up Hdwy	-	-	3.01	-	3.59	4.11
Pot Cap-1 Maneuver	-	-	1156	-	872	834
Stage 1	-	-	-	-	967	-
Stage 2	-	-	-	-	931	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1156	-	852	834
Mov Cap-2 Maneuver	-	-	-	-	852	-
Stage 1	-	-	-	-	967	-
Stage 2	-	-	-	-	910	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		4.6		9.5	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	834	-	-	1156	-	
HCM Lane V/C Ratio	0.031	-	-	0.023	-	
HCM Control Delay (s)	9.5	-	-	8.2	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-	