

O'Reilly Auto Parts, Castle Rock, CO

Traffic Impact Analysis

KE Job #2025-017

Prepared for:

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1.0 Introduction

The purpose of this Traffic Impact Analysis (TIA) is to identify project traffic generation characteristics, to identify potential traffic related impacts on the adjacent street system, and to develop mitigation measures required for identified traffic impacts. This TIA is for the O'Reilly Auto Parts Store project located at the southeast quadrant of N. Ridge Road and the east Private Drive access to the King Soopers shopping center (southeast of 750 N. Ridge Road) in Castle Rock, CO. See Figure 1: Vicinity Map.

Kellar Engineering LLC (KE) has prepared the TIA to document the results of the project's anticipated traffic conditions in accordance with the local jurisdiction's requirements and to identify projected impacts to the local and regional traffic system.

2.0 Existing Conditions and Roadway Network

The proposed O'Reilly Auto Parts Store project is located at the southeast quadrant of N. Ridge Road and the east Private Drive access to the King Soopers shopping center (southeast of 750 N. Ridge Road). N. Ridge Road is classified as a major arterial on the Master Street Plan. N. Ridge Road has: four through lanes, auxiliary turn lanes, bike lanes, detached sidewalks, and a posted speed of 45 mph adjacent to the project site. The existing intersection of N. Ridge Road/Private Drive (750 N. Ridge Rd) is signalized with a 4-section FYA signal head facing the left-turn lane which appropriately allows for protected-permissive left-turns. See Figure 2: Site Plan and Appendix C.

3.0 Recent Traffic Volumes

Recent peak hour traffic volume counts were conducted on Thursday, 1/16/25 by All Traffic Data Services Inc. using data collection cameras. The traffic counts were conducted during the peak hours of adjacent street traffic in 15-minute intervals from 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM. These turning movement counts are shown in Figure 3 with the count sheets provided in Appendix A.

Figure 1: Vicinity Map

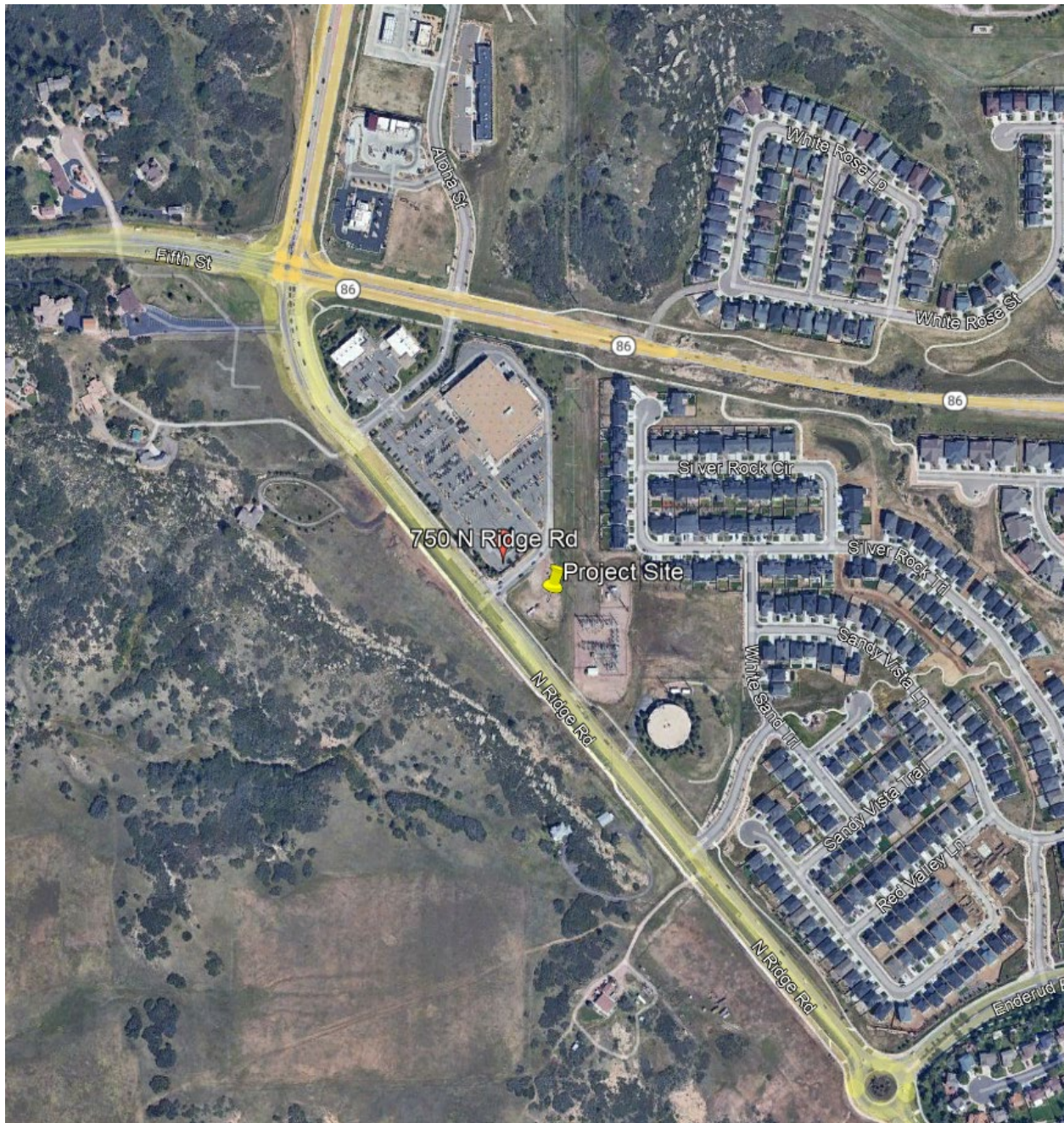
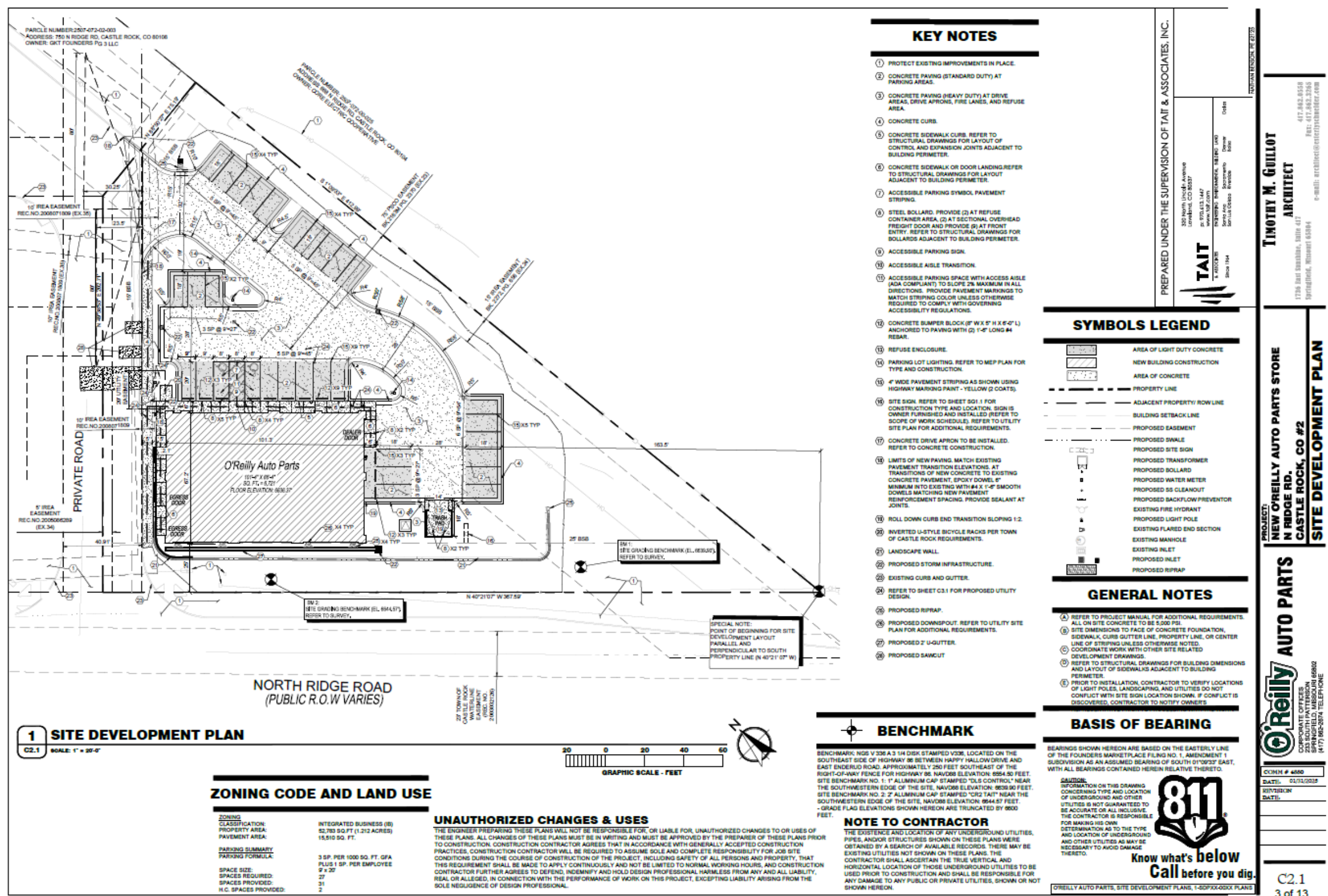


Figure 2: Site Plan (For reference only. Provided by Civil Engineer. See Civil Drawings for more information)



4.0 Proposed Development

The proposed development consists of a ~6,730 SF Auto Parts Store. See Table 1: Trip Generation, Figure 2: Site Plan.

4.1 Trip Generation

Site generated traffic estimates are determined through a process known as trip generation. Rates and equations are applied to the proposed land use to estimate traffic generated by the development during a specific time interval. The acknowledged source for trip generation rates is the *Trip Generation Report* published by the Institute of Transportation Engineers (ITE). ITE has established trip generation rates in nationwide studies of similar land uses. For this study, KE used the ITE 11th Edition Trip Generation Report average trip rates for the traffic associated with this proposed development. Per the ITE, full project build-out of the project is anticipated to generate approximately: 367 daily weekday trips, 17 AM total peak hour trips, and 33 PM total peak hour trips. Table 1 summarizes the ITE Trip Generation for the proposed development.

Table 1: Trip Generation (ITE 11th Edition)

ITE Code	Land Use	Size	Average Daily Trips		AM Peak Hour Trips						PM Peak Hour Trips					
			Rate	Total	Rate	% In	In	% Out	Out	Total	Rate	% In	In	% Out	Out	Total
843	Automobile Parts Sales	6.73 KSF	54.57	367	2.51	55%	9	45%	8	17	4.90	48%	16	52%	17	33
Total				367			9		8	17			16		17	33

KSF = Thousand Square Feet



Figure 3: Recent Peak Hour Traffic

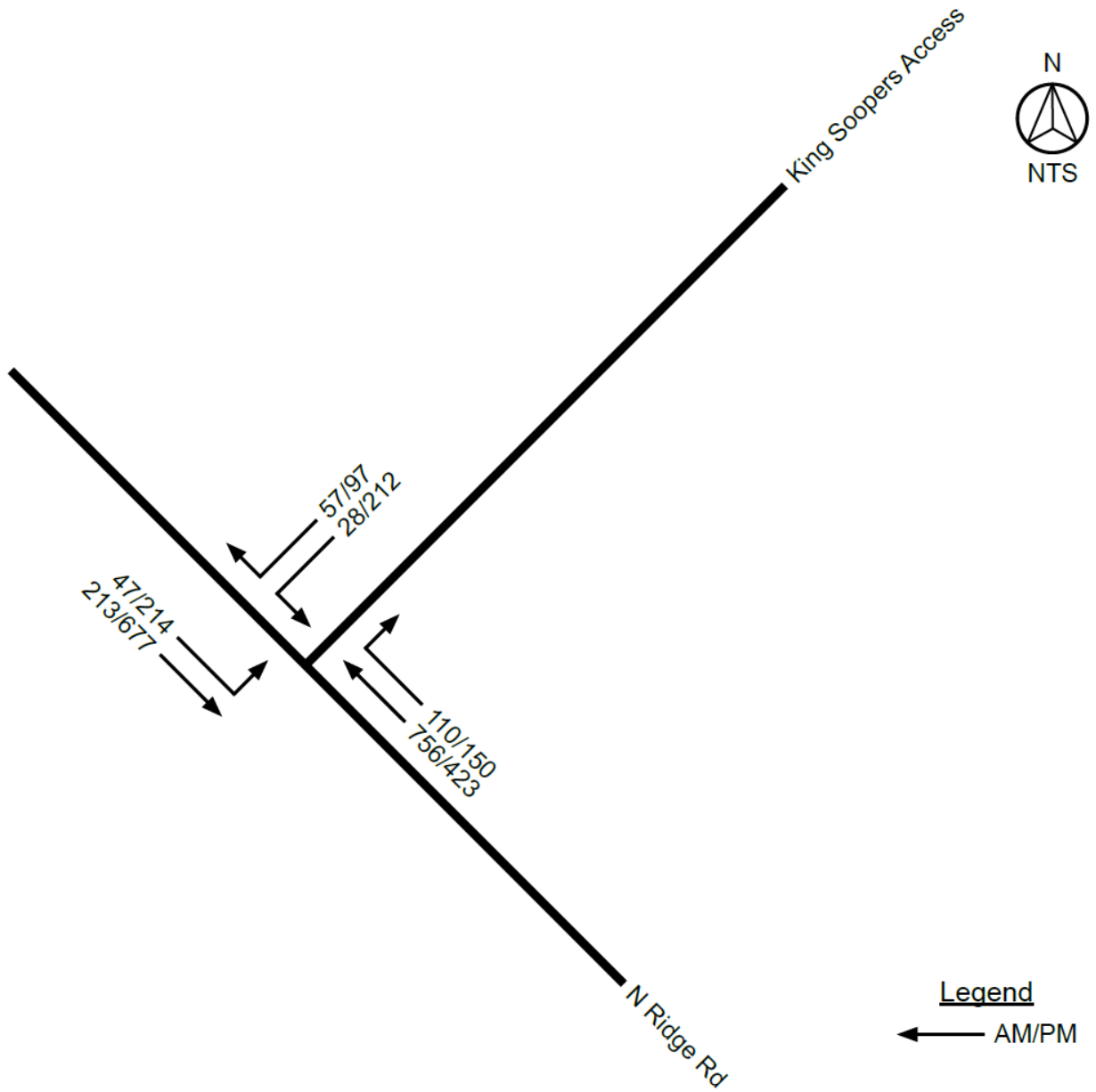


Figure 4: 2026 Background Traffic

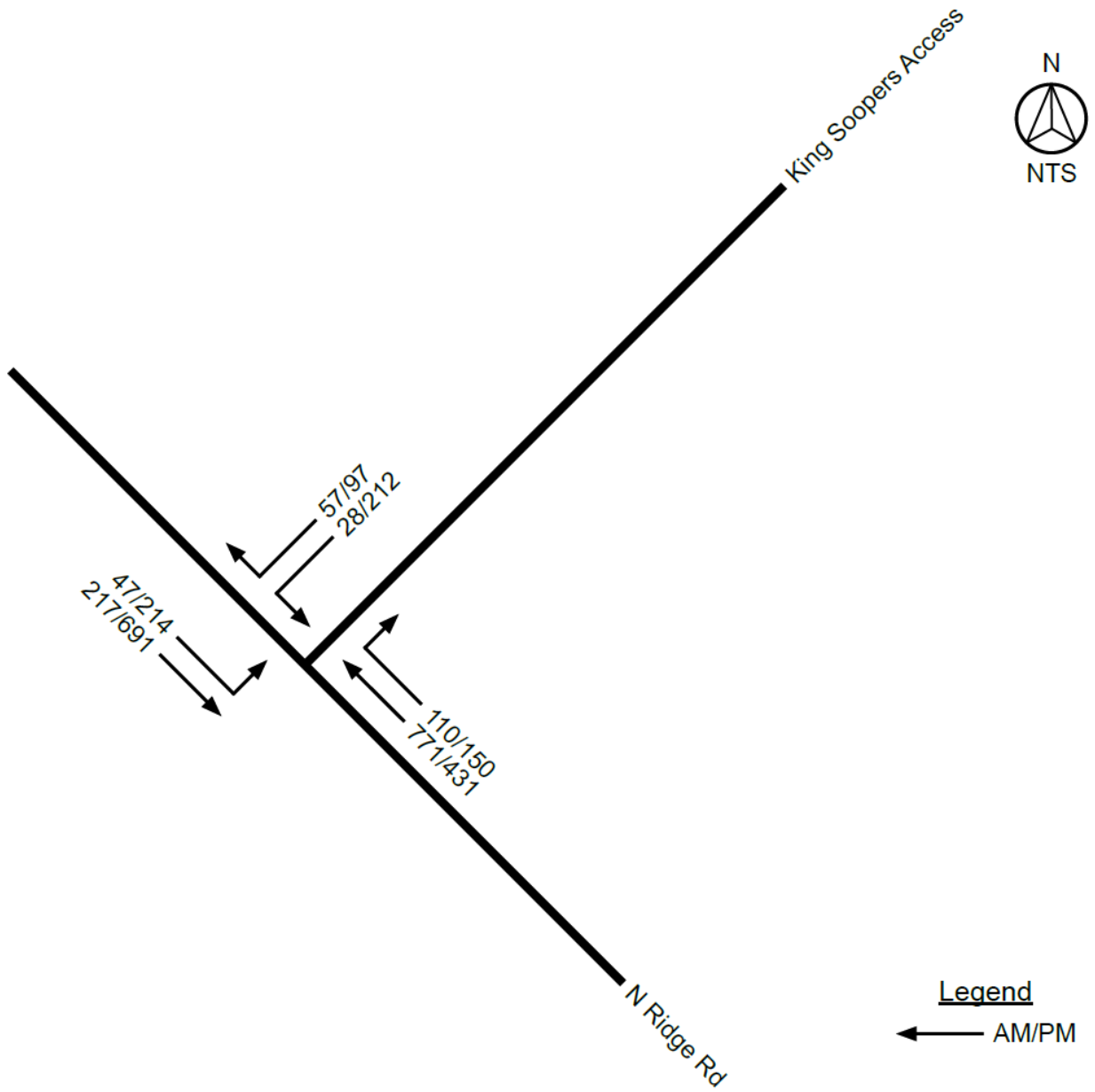


Figure 5: 2046 Background Traffic

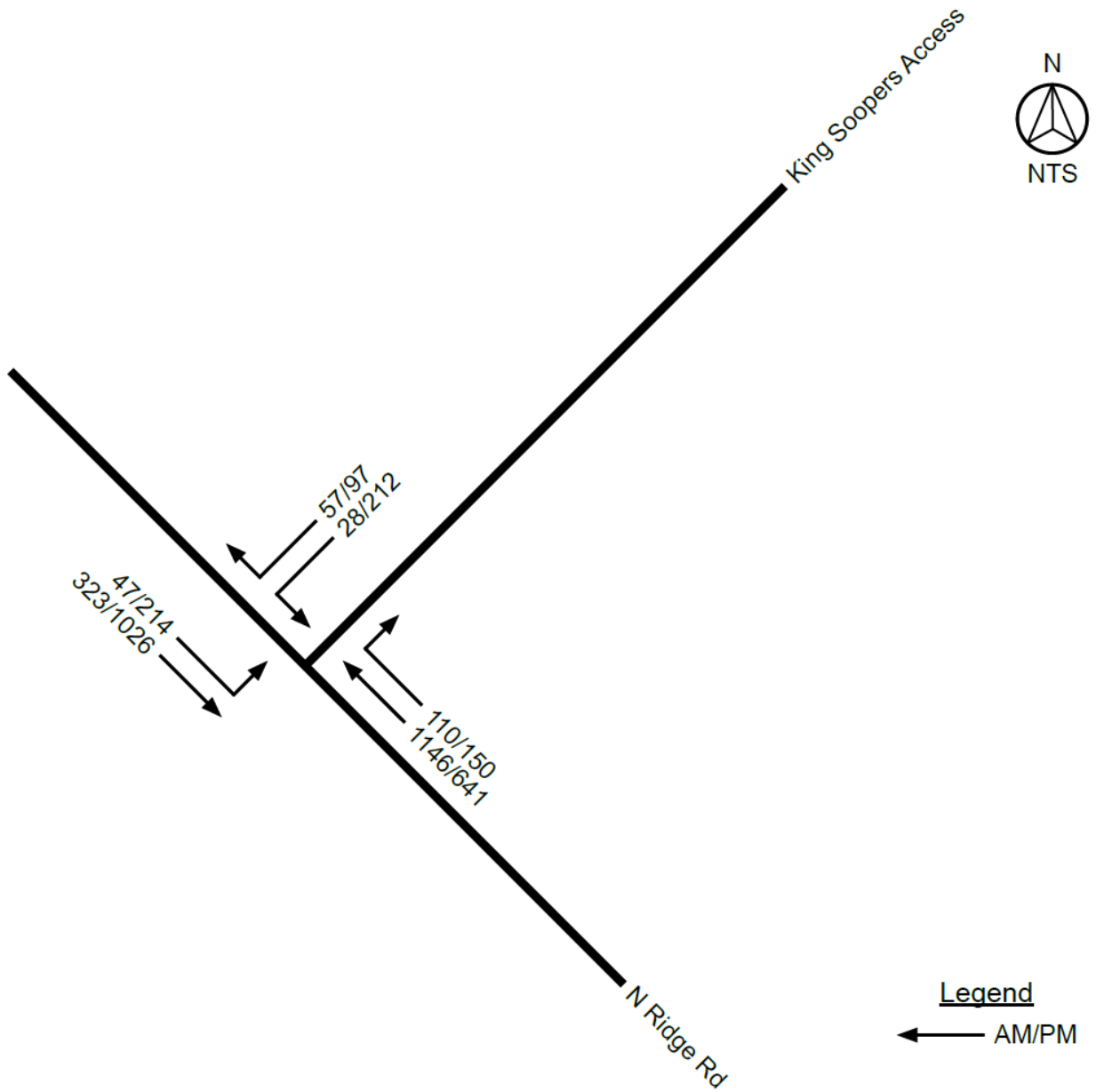


Figure 6: Trip Distribution

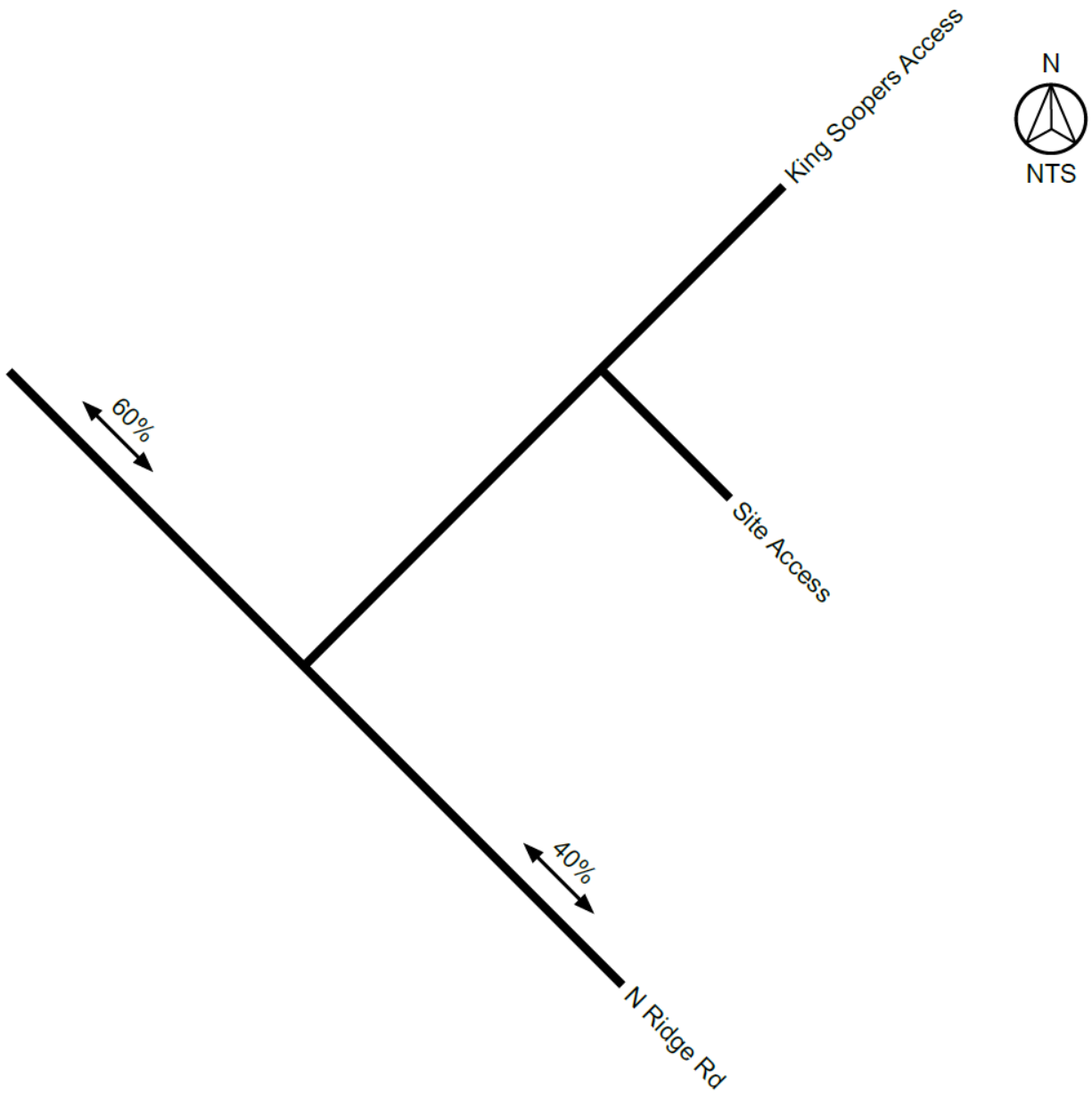


Figure 7: Site Generated Peak Hour Traffic

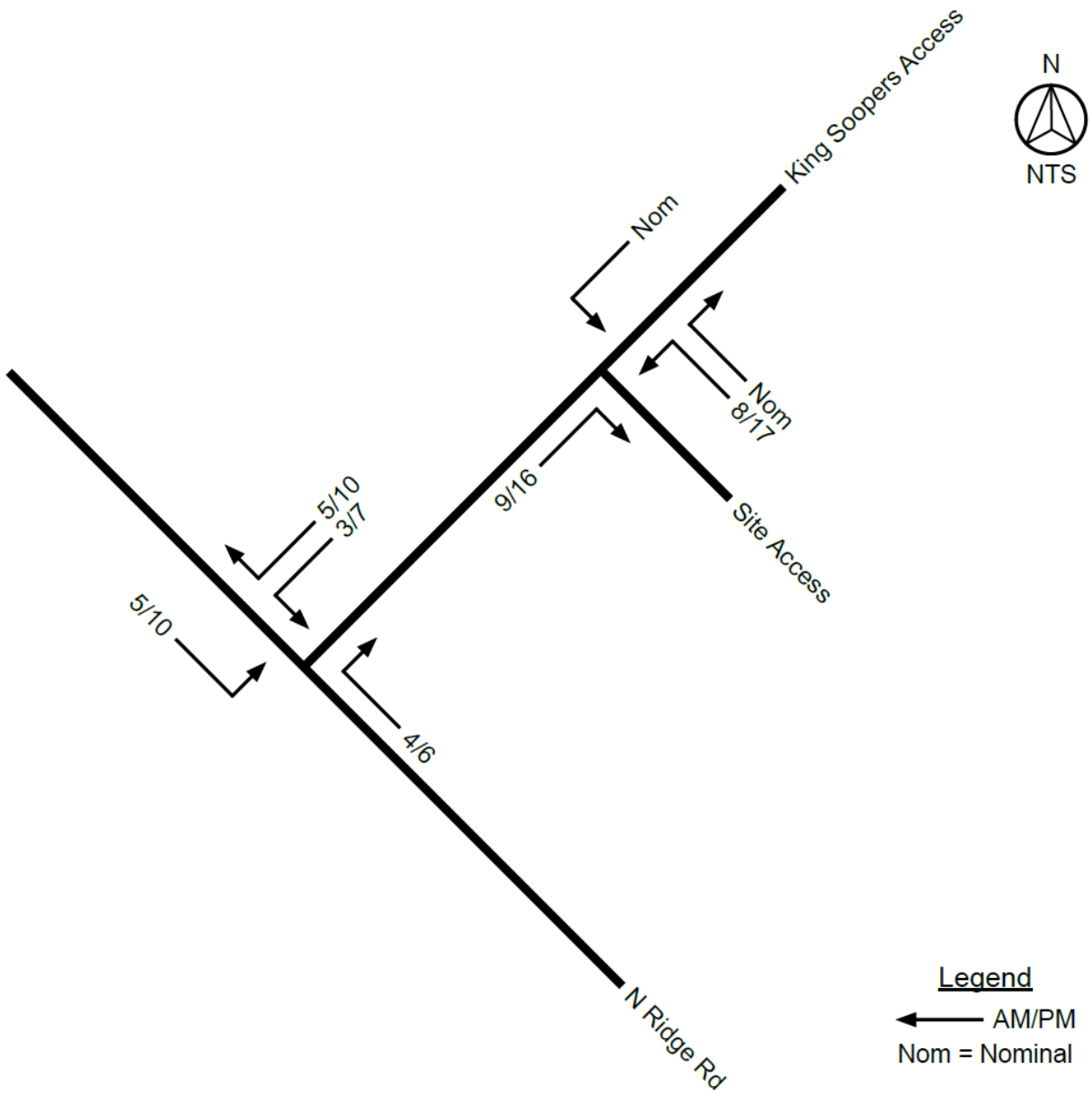


Figure 8: 2026 Short Range Total Traffic

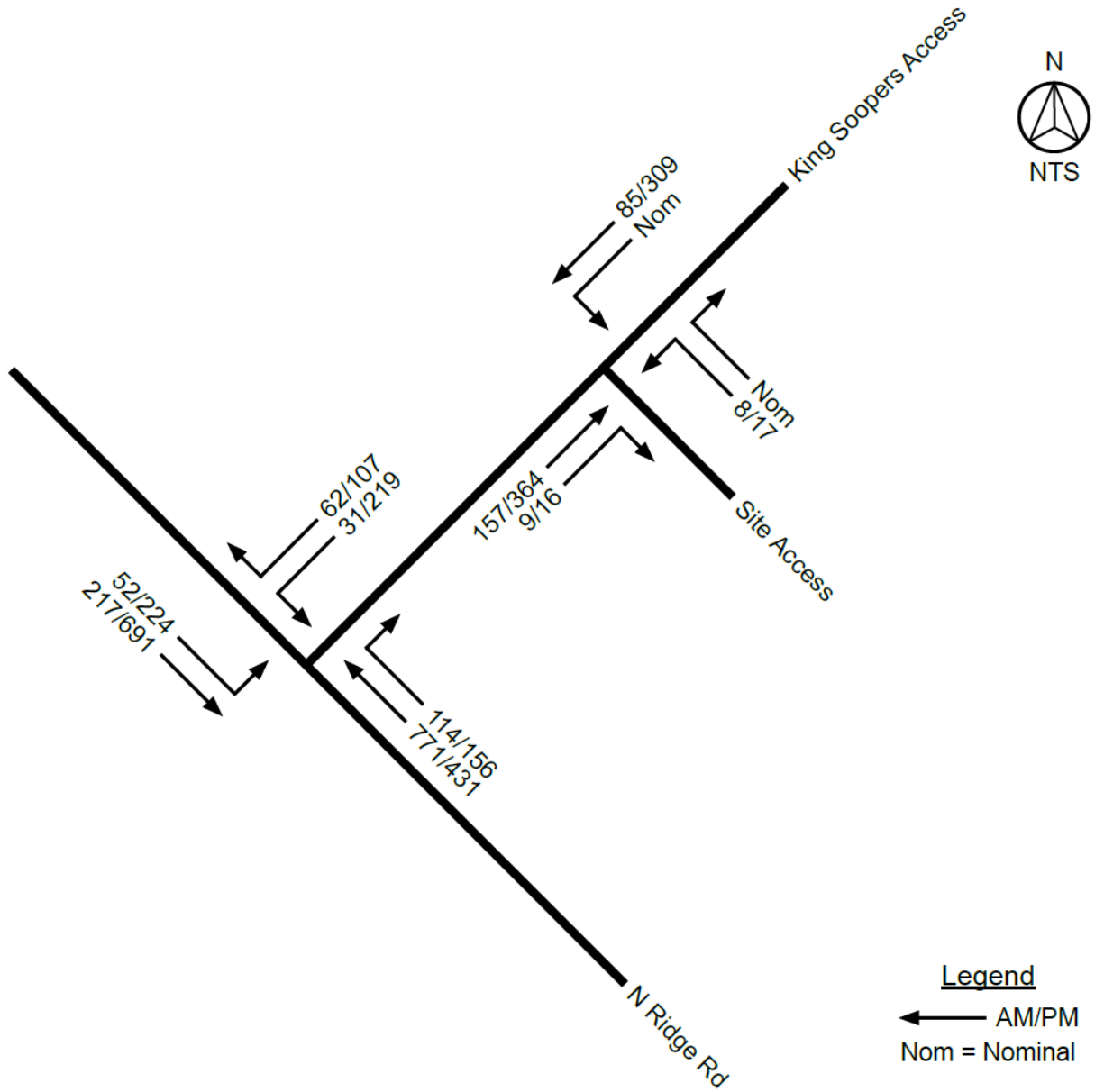
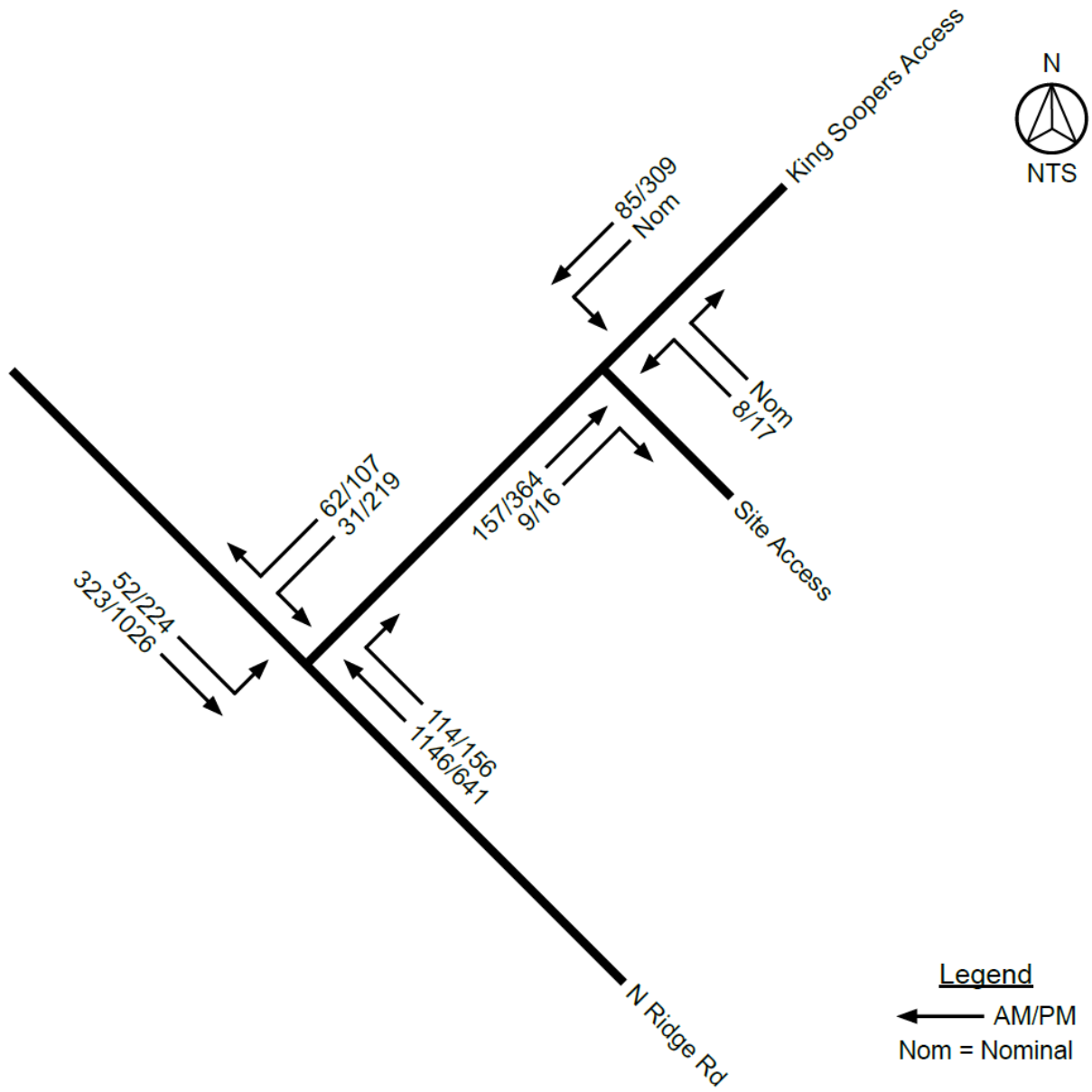


Figure 9: 2046 Long Range Total Traffic



4.2 Trip Distribution

Distribution of site traffic on the street system was based on the area street system characteristics, existing traffic patterns and volumes, anticipated surrounding development areas, and the proposed access system for the project. The directional distribution of traffic is a means to quantify the percentage of site generated traffic that approaches the site from a given direction and departs the site back to the original source. Figure 6 illustrates the trip distribution used for the project's analysis.

4.3 Traffic Assignment

Traffic assignment was obtained by applying the trip distributions to the estimated trip generation of the development. Figure 7 shows the site generated traffic assignment for the project.

4.4 Short Range Total Peak Hour Traffic

Site generated peak hour traffic volumes were added to the background traffic volumes to represent the estimated traffic conditions for the short range 2026 horizon. These background (2026) and short range (2026) total traffic volumes are shown in Figures 4 and 8. The short range analysis year 2026 includes the proposed development for this project plus a 2% increase in background traffic per the CDOT Online Transportation Information System (OTIS).

4.5 Long Range Total Peak Hour Traffic

Site generated peak hour traffic volumes were added to the background traffic volumes to represent the estimated traffic conditions for the long range 2046 horizon. These background (2046) and long range (2046) total traffic volumes are shown in Figures 5 and 9. The long range analysis year 2046 includes the proposed development for this project plus a 2% increase in background traffic per the CDOT Online Transportation Information System (OTIS).

5.0 Traffic Operation Analysis

KE's analysis of traffic operations in the site vicinity was conducted to determine the capacity at the identified intersections. The acknowledged source for determining overall capacity is the latest edition of the Highway Capacity Manual (HCM).

5.1 Analysis Methodology

Capacity analysis results are listed in terms of level of service (LOS). LOS is a qualitative term describing operating conditions a driver will experience while traveling on a particular street or highway during a specific time interval. LOS ranges from an A (very little delay) to an F (long delays). A description of the level of service (LOS) for signalized and unsignalized intersections from the Highway Capacity Manual (HCM) are provided in Appendix B.

5.2 Intersection Operational Analysis

Operational analysis was performed for the short range 2026 and long range 2046 horizons. The calculations for this analysis are provided in Appendix E. Using the short range and long range total traffic volumes, the project's study intersections are projected to operate acceptably. See Table 5 for the 2026 Short Range Total Peak Hour Operation.

5.3 Site Access Evaluation

Access to the project site is from a full-movement access to an internal private drive. Site Access points should be taken, when available on the roadway of lower classification as is proposed with the current project. Therefore, the proposed site access is appropriate. Additionally, the existing adjacent public street intersection of N. Ridge Road/Private Drive (750 N. Ridge Rd) is appropriately signalized with auxiliary turn lanes, bike lanes, and detached sidewalks providing adequate access for vehicles, bicycles, and pedestrians. In light of the above information, the project's site access is at an appropriate and safe location from a transportation engineering perspective.

Table 2: Recent Peak Hour Operation

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
N. Ridge Rd/Private Drive (King Soopers Access)	SE Left	A	A
	SE Thru	A	A
	SE Approach	A	A
	NW Thru	A	A
	NW Right	A	A
	SW Left	C	C
	SW Right	C	C
	SW Approach	C	C
	Overall	A	A

Table 3: 2026 Background Peak Hour Operation

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
N. Ridge Rd/Private Drive (King Soopers Access)	SE Left	A	A
	SE Thru	A	A
	SE Approach	A	A
	NW Thru	A	A
	NW Right	A	A
	SW Left	C	C
	SW Right	C	C
	SW Approach	C	C
	Overall	A	A

Table 4: 2046 Background Peak Hour Operation

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
N. Ridge Rd/Private Drive (King Soopers Access)	SE Left	A	A
	SE Thru	A	A
	SE Approach	A	A
	NW Thru	A	A
	NW Right	A	A
	SW Left	C	C
	SW Right	C	C
	SW Approach	C	C
	Overall	A	A

Table 5: 2026 Short Range Total Peak Hour Operation

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
N. Ridge Rd/Private Drive (King Soopers Access)	SE Left	A	A
	SE Thru	A	A
	SE Approach	A	A
	NW Thru	A	A
	NW Right	A	A
	SW Left	C	C
	SW Right	C	C
	SW Approach	C	C
	Overall	A	A

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
Private Drive (King Soopers Access)/Site Access	NW Left/Right	B	B
	NW Approach	B	B
	SW Left/Thru	A	A
	SW Approach	A	A

Table 6: 2046 Long Range Total Peak Hour Operation

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
N. Ridge Rd/Private Drive (King Soopers Access)	SE Left	A	A
	SE Thru	A	A
	SE Approach	A	A
	NW Thru	A	A
	NW Right	A	A
	SW Left	C	C
	SW Right	C	C
	SW Approach	C	C
	Overall	A	A

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
Private Drive (King Soopers Access)/Site Access	NW Left/Right	B	B
	NW Approach	B	B
	SW Left/Thru	A	A
	SW Approach	A	A

6.0 Findings

Based upon the analysis in this study, the proposed project will be able to meet the Town of Castle Rock's requirements for traffic at the time of development.

The findings of the TIA are summarized below:

- The proposed project is anticipated to generate approximately 367 daily trips, 17 AM total peak hour trips, and 33 PM total peak hour trips.
- The study intersections are projected to operate acceptably and comply with the Town's intersection level of service (LOS) requirements with full development of the proposed project and background traffic. See Table 5.
- Site access points should be taken, when available, on the roadway of lower classification as proposed with the current project.
- The project's site access is at an appropriate and safe location from a traffic engineering perspective. See Section 5.3.
- The existing left-turn and right-turn deceleration lanes at the intersection of N. Ridge Road/Private Drive (750 N. Ridge Rd) are sufficient to accommodate the project's traffic.
- The existing bicycle and pedestrian facilities are adequate to provide access to the project site.
- The existing roadway improvements are sufficient to accommodate the project's traffic.

APPENDICES:

Appendix A: Traffic Counts

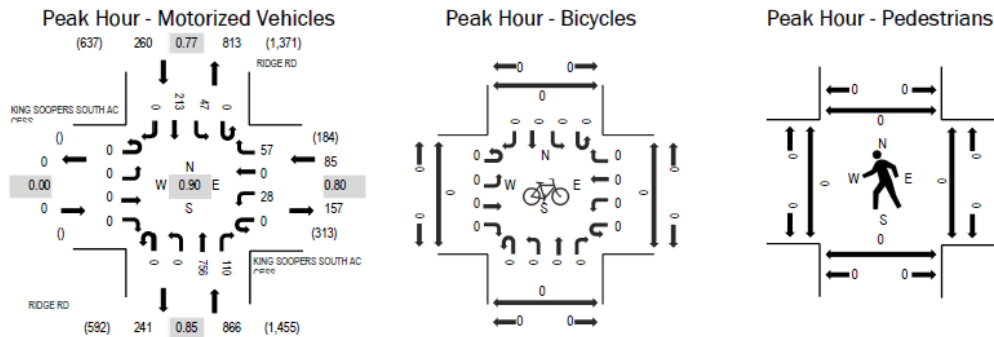


Location: 1 RIDGE RD & KING SOOPERS SOUTH ACCESS AM

Date: Thursday, January 16, 2025

Peak Hour: 07:00 AM - 08:00 AM

Peak 15-Minutes: 07:15 AM - 07:30 AM

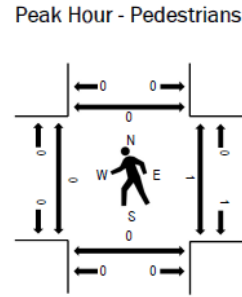
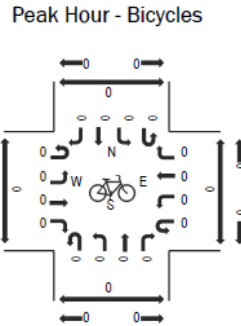
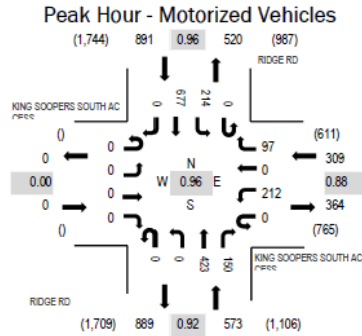


Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	KING SOOPERS SOUTH Access				KING SOOPERS SOUTH Access				RIDGE RD Northbound				RIDGE RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	0	0	0	0	3	0	12	0	0	213	21	0	12	45	0	306	1,211	0	0	0	0
7:15 AM	0	0	0	0	0	8	0	18	0	0	223	32	0	15	40	0	336	1,162	0	0	0	0
7:30 AM	0	0	0	0	0	8	0	15	0	0	170	29	0	10	56	0	288	1,082	0	0	0	0
7:45 AM	0	0	0	0	0	9	0	12	0	0	150	28	0	10	72	0	281	1,093	0	0	0	0
8:00 AM	0	0	0	0	0	12	0	10	0	0	140	13	0	18	64	0	257	1,065	0	0	0	0
8:15 AM	0	0	0	0	0	11	0	12	0	0	128	24	0	14	67	0	256		0	0	0	0
8:30 AM	0	0	0	0	0	17	0	14	0	0	128	18	0	29	93	0	299		0	0	0	0
8:45 AM	0	0	0	0	0	15	0	8	0	0	118	20	0	20	72	0	253		0	0	0	0
Count Total	0	0	0	0	0	83	0	101	0	0	1,270	185	0	128	509	0	2,276		0	0	0	0
Peak Hour	0	0	0	0	0	28	0	57	0	0	756	110	0	47	213	0	1,211		0	0	0	0

Location: 1 RIDGE RD & KING SOOPERS SOUTH ACCESS PM
Date: Thursday, January 16, 2025
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 05:15 PM - 05:30 PM



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

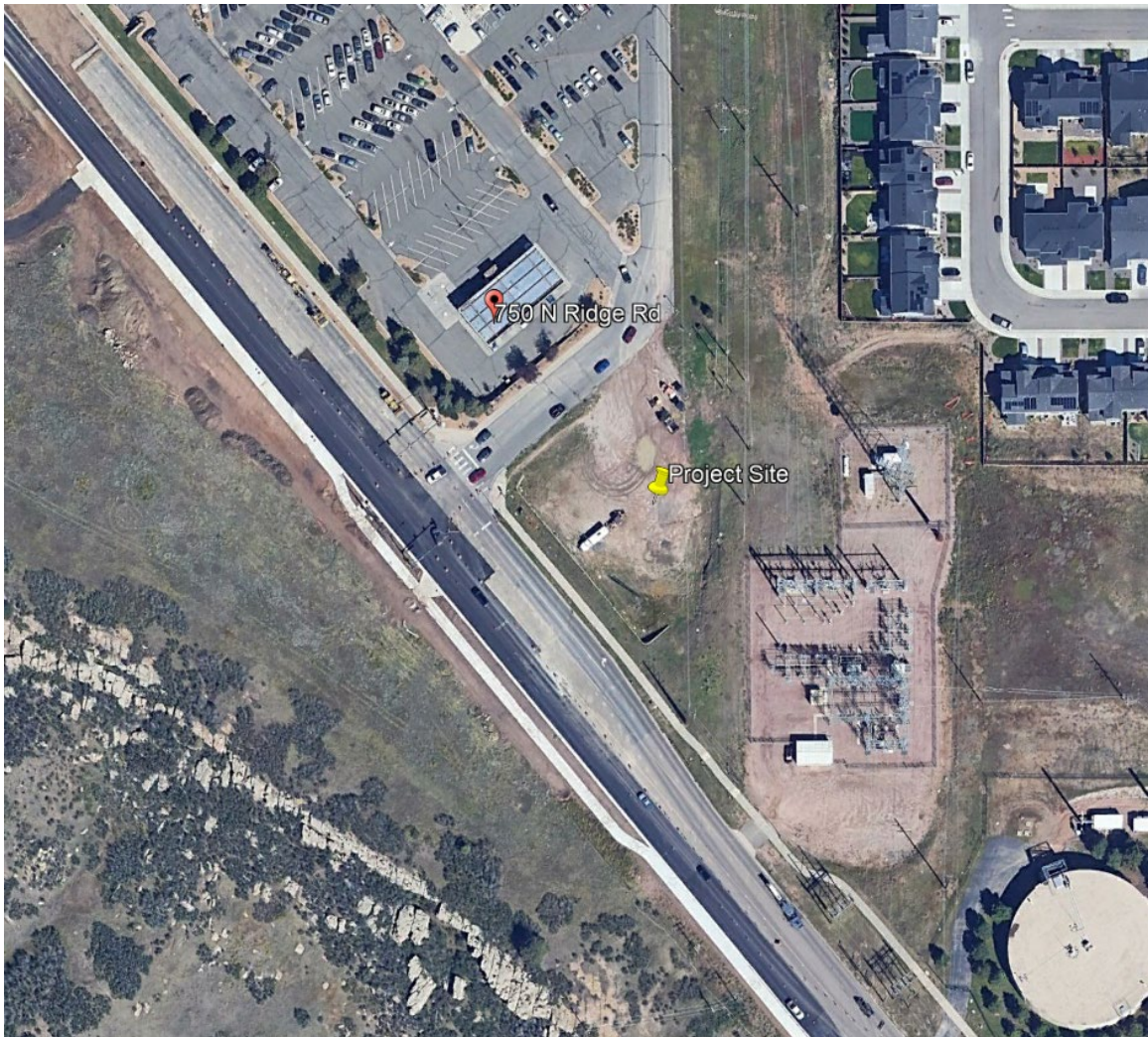
Interval Start Time	KING SOOPERS SOUTH Access				KING SOOPERS SOUTH Westbound			RIDGE RD Northbound				RIDGE RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	0	0	0	0	52	0 33	0	0	93	42	0	73	142	0	435	1,721	0	0	0	0
4:15 PM	0	0	0	0	0	52	0 23	0	0	79	42	0	61	170	0	427	1,704	0	0	0	0
4:30 PM	0	0	0	0	0	50	0 24	0	0	110	51	1	47	140	0	423	1,737	0	0	0	0
4:45 PM	0	0	0	0	0	46	0 26	0	0	116	36	0	58	154	0	436	1,773	0	1	0	0
5:00 PM	0	0	0	0	0	44	0 26	0	0	95	38	0	51	164	0	418	1,740	0	0	0	0
5:15 PM	0	0	0	0	0	54	0 25	0	0	113	34	0	50	184	0	460		0	0	0	0
5:30 PM	0	0	0	0	0	68	0 20	0	0	99	42	0	55	175	0	459		0	0	0	0
5:45 PM	0	0	0	0	0	45	0 23	0	0	81	35	0	50	169	0	403		0	0	0	0
Count Total	0	0	0	0	0	411	0 200	0	0	786	320	1	445	1,298	0	3,461		0	1	0	0
Peak Hour	0	0	0	0	0	212	0 97	0	0	423	150	0	214	677	0	1,773		0	1	0	0

Appendix B: Level of Service (LOS) Table

Level of Service Definitions

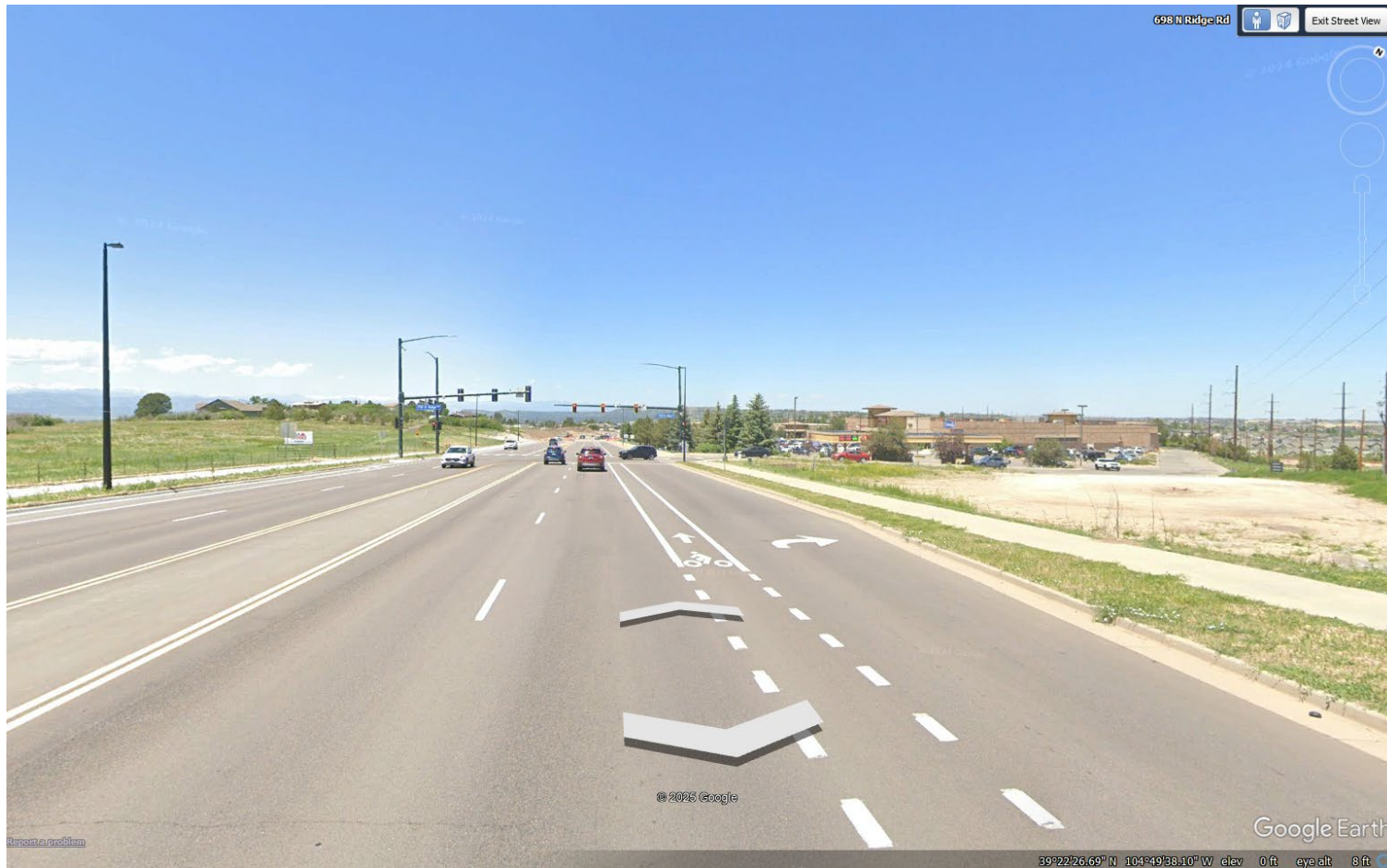
Level of Service (LOS)	Signalized Intersection Average Total Delay (sec/veh)	Unsignalized Intersection Average Total Delay (sec/veh)
A	≤ 10	≤ 10
B	> 10 and ≤ 20	> 10 and ≤ 15
C	> 20 and ≤ 35	> 15 and ≤ 25
D	> 35 and ≤ 55	> 25 and ≤ 35
E	> 55 and ≤ 80	> 35 and ≤ 50
F	> 80	> 50

Appendix C: Aerial Photo



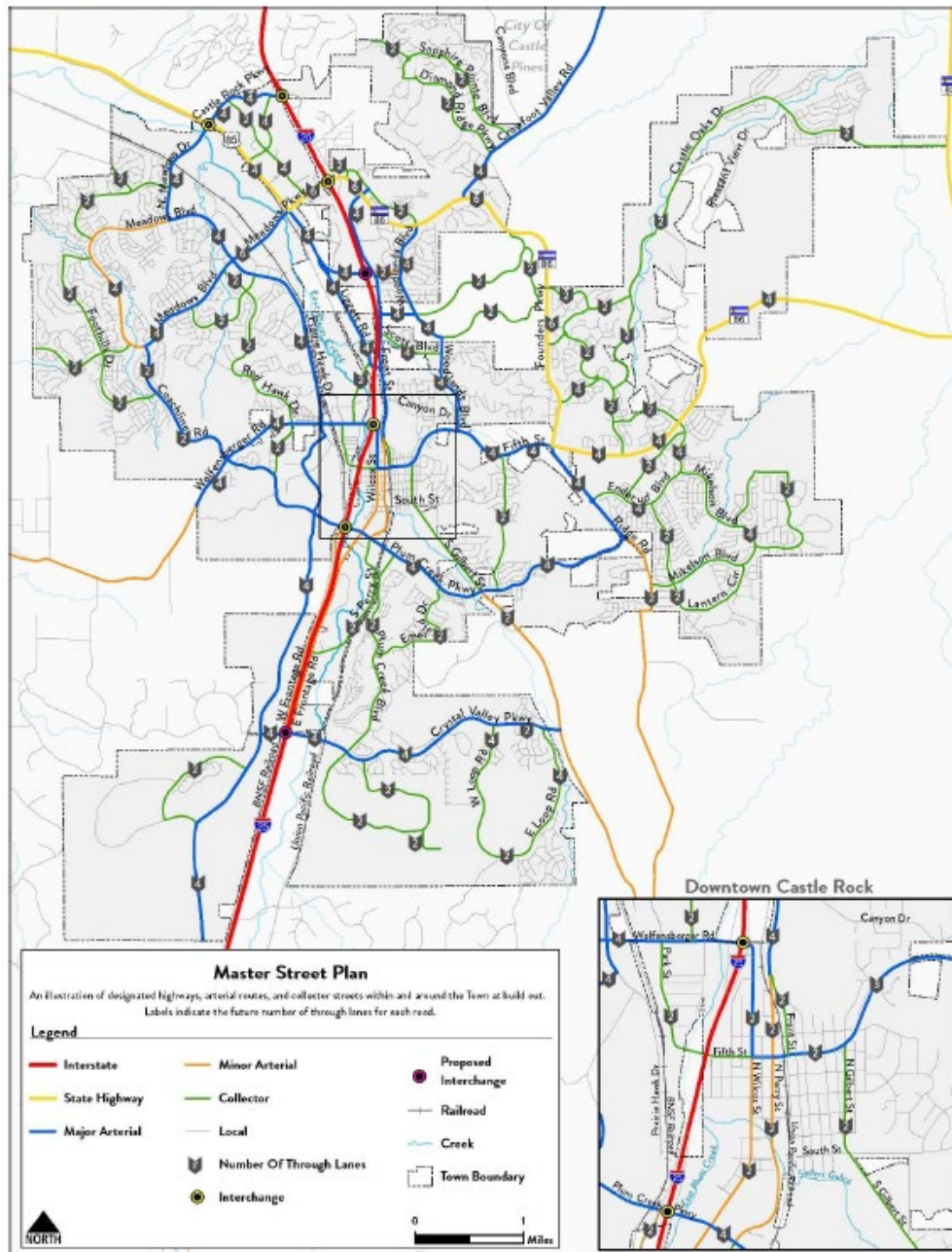
Street View:





Appendix D: Excerpt from Master Street Plan

Figure iii – Master Street Plan



Appendix E: HCM Calculations (Synchro)

Recent AM Peak Hour
3: N Ridge Rd & King Soopers Access

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02/06/2025



Movement	SEL	SET	NWT	NWR	SWL	SWR			
Lane Configurations									
Traffic Volume (veh/h)	47	213	756	110	28	57			
Future Volume (veh/h)	47	213	756	110	28	57			
Number	1	6	2	12	3	18			
Initial Q, veh	0	0	0	0	0	0			
Ped-Bike Adj (A_pbT)	1.00			1.00	1.00	1.00			
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No	No		No				
Lanes Open During Work Zone									
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	51	232	822	120	30	62			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	2	2	2	2			
Opposing Right Turn Influence	Yes				Yes				
Cap, veh/h	532	2728	2263	1009	122	109			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00			
Prop Arrive On Green	0.05	0.77	0.64	0.64	0.07	0.07			
Unsig. Movement Delay									
Ln Grp Delay, s/veh	2.9	1.6	5.2	4.2	25.3	29.5			
Ln Grp LOS	A	A	A	A	C	C			
Approach Vol, veh/h		283	942		92				
Approach Delay, s/veh		1.9	5.0		28.1				
Approach LOS		A	A		C				
Timer:		1	2	3	4	5	6	7	8
Assigned Phs		1	2	8			6		
Case No		1.2	7.0	9.0			4.0		
Phs Duration (G+Y+Rc), s		7.2	39.5	8.3			46.7		
Change Period (Y+Rc), s		4.5	4.5	4.5			4.5		
Max Green (Gmax), s		5.0	18.5	18.0			28.0		
Max Allow Headway (MAH), s		3.7	4.8	4.0			4.9		
Max Q Clear (g_c+I1), s		2.5	8.0	4.1			2.9		
Green Ext Time (g_e), s		0.0	4.1	0.2			1.3		
Prob of Phs Call (p_c)		0.54	1.00	0.75			1.00		
Prob of Max Out (p_x)		1.00	0.00	0.00			0.00		
Left-Turn Movement Data									
Assigned Mvmt		1	5	3					
Mvmt Sat Flow, veh/h		1781	0	1781					
Through Movement Data									
Assigned Mvmt			2	8			6		
Mvmt Sat Flow, veh/h			3647	0			3647		
Right-Turn Movement Data									
Assigned Mvmt			12	18			16		
Mvmt Sat Flow, veh/h			1585	1585			0		
Left Lane Group Data									
Assigned Mvmt		1	5	3	0	0	0	0	0
Lane Assignment		L (Pr/Pm)		L					

Recent AM Peak Hour
3: N Ridge Rd & King Soopers Access

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02/06/2025

Lanes in Grp	1	0	1	0	0	0	0	0
Grp Vol (v), veh/h	51	0	30	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	1781	0	1781	0	0	0	0	0
Q Serve Time (g_s), s	0.5	0.0	0.9	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.5	0.0	0.9	0.0	0.0	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	595	0	1781	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	37.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	29.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	35.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	532	0	122	0	0	0	0	0
V/C Ratio (X)	0.10	0.00	0.25	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	607	0	583	0	0	0	0	0
Upstream Filter (I)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	2.8	0.0	24.3	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	2.9	0.0	25.3	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.01	0.00	0.08	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	8	0	0	6	0	0
Lane Assignment	T			T				
Lanes in Grp	0	2	0	0	0	2	0	0
Grp Vol (v), veh/h	0	822	0	0	0	232	0	0
Grp Sat Flow (s), veh/h/ln	0	1777	0	0	0	1777	0	0
Q Serve Time (g_s), s	0.0	6.0	0.0	0.0	0.0	0.9	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	6.0	0.0	0.0	0.0	0.9	0.0	0.0
Lane Grp Cap (c), veh/h	0	2263	0	0	0	2728	0	0
V/C Ratio (X)	0.00	0.36	0.00	0.00	0.00	0.09	0.00	0.00
Avail Cap (c_a), veh/h	0	2263	0	0	0	2728	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	4.7	0.0	0.0	0.0	1.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.5	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	5.2	0.0	0.0	0.0	1.6	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0

Recent AM Peak Hour
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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	18	0	0	16	0	0
Lane Assignment		R	R					
Lanes in Grp	0	1	1	0	0	0	0	0
Grp Vol (v), veh/h	0	120	62	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1585	1585	0	0	0	0	0
Q Serve Time (g_s), s	0.0	1.6	2.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	1.6	2.1	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	1009	109	0	0	0	0	0
V/C Ratio (X)	0.00	0.12	0.57	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	1009	519	0	0	0	0	0
Upstream Filter (I)	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	3.9	24.8	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	4.6	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	4.2	29.5	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.3	0.7	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.3	0.9	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.05	0.11	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	6.0
HCM 6th LOS	A

Recent PM Peak Hour
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Movement	SEL	SET	NWT	NWR	SWL	SWR			
Lane Configurations									
Traffic Volume (veh/h)	214	677	423	150	212	97			
Future Volume (veh/h)	214	677	423	150	212	97			
Number	1	6	2	12	3	18			
Initial Q, veh	0	0	0	0	0	0			
Ped-Bike Adj (A_pbT)	1.00			1.00	1.00	1.00			
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No	No		No				
Lanes Open During Work Zone									
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	223	705	441	156	221	101			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	2	2	2	2			
Opposing Right Turn Influence	Yes				Yes				
Cap, veh/h	640	2382	1779	794	296	263			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00			
Prop Arrive On Green	0.09	0.67	0.50	0.50	0.17	0.17			
Unsig. Movement Delay									
Ln Grp Delay, s/veh	5.2	4.0	8.2	8.2	25.6	21.4			
Ln Grp LOS	A	A	A	A	C	C			
Approach Vol, veh/h		928	597		322				
Approach Delay, s/veh		4.3	8.2		24.3				
Approach LOS		A	A		C				
Timer:		1	2	3	4	5	6	7	8
Assigned Phs		1	2	8			6		
Case No		1.2	7.0	9.0			4.0		
Phs Duration (G+Y+Rc), s		9.3	32.0	13.6			41.4		
Change Period (Y+Rc), s		4.5	4.5	4.5			4.5		
Max Green (Gmax), s		5.5	18.0	18.0			28.0		
Max Allow Headway (MAH), s		3.7	4.7	3.9			4.9		
Max Q Clear (g_c+I1), s		5.0	5.9	8.5			6.5		
Green Ext Time (g_e), s		0.0	2.5	0.7			4.4		
Prob of Phs Call (p_c)		0.97	1.00	0.99			1.00		
Prob of Max Out (p_x)		1.00	0.00	0.04			0.00		
Left-Turn Movement Data									
Assigned Mvmt		1	5	3					
Mvmt Sat Flow, veh/h		1781	0	1781					
Through Movement Data									
Assigned Mvmt			2	8			6		
Mvmt Sat Flow, veh/h			3647	0			3647		
Right-Turn Movement Data									
Assigned Mvmt			12	18			16		
Mvmt Sat Flow, veh/h			1585	1585			0		
Left Lane Group Data									
Assigned Mvmt		1	5	3	0	0	0	0	0
Lane Assignment		L (Pr/Pm)		L					

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Lanes in Grp	1	0	1	0	0	0	0	0
Grp Vol (v), veh/h	223	0	221	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	1781	0	1781	0	0	0	0	0
Q Serve Time (g_s), s	3.0	0.0	6.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	3.0	0.0	6.5	0.0	0.0	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	821	0	1781	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	29.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	23.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	27.5	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	640	0	296	0	0	0	0	0
V/C Ratio (X)	0.35	0.00	0.75	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	662	0	583	0	0	0	0	0
Upstream Filter (I)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	4.9	0.0	21.8	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	3.8	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	5.2	0.0	25.6	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.5	0.0	2.5	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.1	0.0	0.3	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.6	0.0	2.8	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.09	0.00	0.57	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	8	0	0	6	0	0
Lane Assignment	T			T				
Lanes in Grp	0	2	0	0	0	2	0	0
Grp Vol (v), veh/h	0	441	0	0	0	705	0	0
Grp Sat Flow (s), veh/h/ln	0	1777	0	0	0	1777	0	0
Q Serve Time (g_s), s	0.0	3.9	0.0	0.0	0.0	4.5	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	3.9	0.0	0.0	0.0	4.5	0.0	0.0
Lane Grp Cap (c), veh/h	0	1779	0	0	0	2382	0	0
V/C Ratio (X)	0.00	0.25	0.00	0.00	0.00	0.30	0.00	0.00
Avail Cap (c_a), veh/h	0	1779	0	0	0	2382	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	7.8	0.0	0.0	0.0	3.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.0	0.0	0.3	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	8.2	0.0	0.0	0.0	4.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	1.0	0.0	0.0	0.0	0.7	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	1.1	0.0	0.0	0.0	0.8	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.07	0.00	0.00	0.00	0.05	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	18	0	0	16	0	0
Lane Assignment		R	R					
Lanes in Grp	0	1	1	0	0	0	0	0
Grp Vol (v), veh/h	0	156	101	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1585	1585	0	0	0	0	0
Q Serve Time (g_s), s	0.0	3.0	3.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	3.0	3.1	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	794	263	0	0	0	0	0
V/C Ratio (X)	0.00	0.20	0.38	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	794	519	0	0	0	0	0
Upstream Filter (I)	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	7.6	20.4	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.6	0.9	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	8.2	21.4	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.7	1.1	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.8	1.1	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.12	0.15	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	9.0
HCM 6th LOS	A

2026 Background AM Peak Hour
3: N Ridge Rd & King Soopers Access

Kellar Engineering
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Movement	SEL	SET	NWT	NWR	SWL	SWR			
Lane Configurations									
Traffic Volume (veh/h)	47	217	771	110	28	57			
Future Volume (veh/h)	47	217	771	110	28	57			
Number	1	6	2	12	3	18			
Initial Q, veh	0	0	0	0	0	0			
Ped-Bike Adj (A_pbT)	1.00			1.00	1.00	1.00			
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No	No		No				
Lanes Open During Work Zone									
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	51	236	838	120	30	62			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	2	2	2	2			
Opposing Right Turn Influence	Yes				Yes				
Cap, veh/h	526	2728	2263	1009	122	109			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00			
Prop Arrive On Green	0.05	0.77	0.64	0.64	0.07	0.07			
Unsig. Movement Delay									
Ln Grp Delay, s/veh	2.9	1.7	5.2	4.2	25.3	29.5			
Ln Grp LOS	A	A	A	A	C	C			
Approach Vol, veh/h		287	958		92				
Approach Delay, s/veh		1.9	5.1		28.1				
Approach LOS		A	A		C				
Timer:		1	2	3	4	5	6	7	8
Assigned Phs		1	2	8			6		
Case No		1.2	7.0	9.0			4.0		
Phs Duration (G+Y+Rc), s		7.2	39.5	8.3			46.7		
Change Period (Y+Rc), s		4.5	4.5	4.5			4.5		
Max Green (Gmax), s		5.0	18.5	18.0			28.0		
Max Allow Headway (MAH), s		3.7	4.8	4.0			4.9		
Max Q Clear (g_c+I1), s		2.5	8.2	4.1			2.9		
Green Ext Time (g_e), s		0.0	4.1	0.2			1.3		
Prob of Phs Call (p_c)		0.54	1.00	0.75			1.00		
Prob of Max Out (p_x)		1.00	0.00	0.00			0.00		
Left-Turn Movement Data									
Assigned Mvmt		1	5	3					
Mvmt Sat Flow, veh/h		1781	0	1781					
Through Movement Data									
Assigned Mvmt			2	8			6		
Mvmt Sat Flow, veh/h			3647	0			3647		
Right-Turn Movement Data									
Assigned Mvmt			12	18			16		
Mvmt Sat Flow, veh/h			1585	1585			0		
Left Lane Group Data									
Assigned Mvmt		1	5	3	0	0	0	0	0
Lane Assignment		L (Pr/Pm)		L					

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Lanes in Grp	1	0	1	0	0	0	0	0
Grp Vol (v), veh/h	51	0	30	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	1781	0	1781	0	0	0	0	0
Q Serve Time (g_s), s	0.5	0.0	0.9	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.5	0.0	0.9	0.0	0.0	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	586	0	1781	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	37.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	28.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	35.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	526	0	122	0	0	0	0	0
V/C Ratio (X)	0.10	0.00	0.25	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	600	0	583	0	0	0	0	0
Upstream Filter (I)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	2.8	0.0	24.3	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	2.9	0.0	25.3	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.01	0.00	0.08	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	8	0	0	6	0	0
Lane Assignment	T			T				
Lanes in Grp	0	2	0	0	0	2	0	0
Grp Vol (v), veh/h	0	838	0	0	0	236	0	0
Grp Sat Flow (s), veh/h/ln	0	1777	0	0	0	1777	0	0
Q Serve Time (g_s), s	0.0	6.2	0.0	0.0	0.0	0.9	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	6.2	0.0	0.0	0.0	0.9	0.0	0.0
Lane Grp Cap (c), veh/h	0	2263	0	0	0	2728	0	0
V/C Ratio (X)	0.00	0.37	0.00	0.00	0.00	0.09	0.00	0.00
Avail Cap (c_a), veh/h	0	2263	0	0	0	2728	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	4.7	0.0	0.0	0.0	1.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.5	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	5.2	0.0	0.0	0.0	1.7	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	18	0	0	16	0	0
Lane Assignment		R	R					
Lanes in Grp	0	1	1	0	0	0	0	0
Grp Vol (v), veh/h	0	120	62	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1585	1585	0	0	0	0	0
Q Serve Time (g_s), s	0.0	1.6	2.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	1.6	2.1	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	1009	109	0	0	0	0	0
V/C Ratio (X)	0.00	0.12	0.57	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	1009	519	0	0	0	0	0
Upstream Filter (I)	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	3.9	24.8	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	4.6	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	4.2	29.5	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.3	0.7	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.3	0.9	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.05	0.11	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	6.0
HCM 6th LOS	A

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Movement	SEL	SET	NWT	NWR	SWL	SWR			
Lane Configurations									
Traffic Volume (veh/h)	214	691	431	150	212	97			
Future Volume (veh/h)	214	691	431	150	212	97			
Number	1	6	2	12	3	18			
Initial Q, veh	0	0	0	0	0	0			
Ped-Bike Adj (A_pbT)	1.00			1.00	1.00	1.00			
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No	No		No				
Lanes Open During Work Zone									
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	223	720	449	156	221	101			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	2	2	2	2			
Opposing Right Turn Influence	Yes				Yes				
Cap, veh/h	637	2382	1779	794	296	263			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00			
Prop Arrive On Green	0.09	0.67	0.50	0.50	0.17	0.17			
Unsig. Movement Delay									
Ln Grp Delay, s/veh	5.2	4.1	8.2	8.2	25.6	21.4			
Ln Grp LOS	A	A	A	A	C	C			
Approach Vol, veh/h		943	605		322				
Approach Delay, s/veh		4.3	8.2		24.3				
Approach LOS		A	A		C				
Timer:		1	2	3	4	5	6	7	8
Assigned Phs		1	2	8			6		
Case No		1.2	7.0	9.0			4.0		
Phs Duration (G+Y+Rc), s		9.3	32.0	13.6			41.4		
Change Period (Y+Rc), s		4.5	4.5	4.5			4.5		
Max Green (Gmax), s		5.5	18.0	18.0			28.0		
Max Allow Headway (MAH), s		3.7	4.7	3.9			4.9		
Max Q Clear (g_c+l1), s		5.0	6.0	8.5			6.6		
Green Ext Time (g_e), s		0.0	2.5	0.7			4.5		
Prob of Phs Call (p_c)		0.97	1.00	0.99			1.00		
Prob of Max Out (p_x)		1.00	0.00	0.04			0.00		
Left-Turn Movement Data									
Assigned Mvmt		1	5	3					
Mvmt Sat Flow, veh/h		1781	0	1781					
Through Movement Data									
Assigned Mvmt			2	8			6		
Mvmt Sat Flow, veh/h			3647	0			3647		
Right-Turn Movement Data									
Assigned Mvmt			12	18			16		
Mvmt Sat Flow, veh/h			1585	1585			0		
Left Lane Group Data									
Assigned Mvmt		1	5	3	0	0	0	0	0
Lane Assignment		L (Pr/Pm)		L					

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Lanes in Grp	1	0	1	0	0	0	0	0
Grp Vol (v), veh/h	223	0	221	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	1781	0	1781	0	0	0	0	0
Q Serve Time (g_s), s	3.0	0.0	6.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	3.0	0.0	6.5	0.0	0.0	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	815	0	1781	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	29.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	23.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	27.5	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	637	0	296	0	0	0	0	0
V/C Ratio (X)	0.35	0.00	0.75	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	658	0	583	0	0	0	0	0
Upstream Filter (I)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	4.9	0.0	21.8	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	3.8	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	5.2	0.0	25.6	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.5	0.0	2.5	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.1	0.0	0.3	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.6	0.0	2.8	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.09	0.00	0.57	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	8	0	0	6	0	0
Lane Assignment	T			T				
Lanes in Grp	0	2	0	0	0	2	0	0
Grp Vol (v), veh/h	0	449	0	0	0	720	0	0
Grp Sat Flow (s), veh/h/ln	0	1777	0	0	0	1777	0	0
Q Serve Time (g_s), s	0.0	4.0	0.0	0.0	0.0	4.6	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	4.0	0.0	0.0	0.0	4.6	0.0	0.0
Lane Grp Cap (c), veh/h	0	1779	0	0	0	2382	0	0
V/C Ratio (X)	0.00	0.25	0.00	0.00	0.00	0.30	0.00	0.00
Avail Cap (c_a), veh/h	0	1779	0	0	0	2382	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	7.8	0.0	0.0	0.0	3.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.0	0.0	0.3	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	8.2	0.0	0.0	0.0	4.1	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	1.0	0.0	0.0	0.0	0.7	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	1.1	0.0	0.0	0.0	0.8	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.07	0.00	0.00	0.00	0.05	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	18	0	0	16	0	0
Lane Assignment		R	R					
Lanes in Grp	0	1	1	0	0	0	0	0
Grp Vol (v), veh/h	0	156	101	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1585	1585	0	0	0	0	0
Q Serve Time (g_s), s	0.0	3.0	3.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	3.0	3.1	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	794	263	0	0	0	0	0
V/C Ratio (X)	0.00	0.20	0.38	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	794	519	0	0	0	0	0
Upstream Filter (I)	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	7.6	20.4	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.6	0.9	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	8.2	21.4	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.7	1.1	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.8	1.1	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.12	0.15	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	9.0
HCM 6th LOS	A

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Movement	SEL	SET	NWT	NWR	SWL	SWR			
Lane Configurations									
Traffic Volume (veh/h)	47	323	1146	110	28	57			
Future Volume (veh/h)	47	323	1146	110	28	57			
Number	1	6	2	12	3	18			
Initial Q, veh	0	0	0	0	0	0			
Ped-Bike Adj (A_pbT)	1.00			1.00	1.00	1.00			
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No	No		No				
Lanes Open During Work Zone									
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	51	351	1246	120	30	62			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	2	2	2	2			
Opposing Right Turn Influence	Yes				Yes				
Cap, veh/h	396	2788	2352	1049	116	104			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00			
Prop Arrive On Green	0.05	0.78	0.66	0.66	0.07	0.07			
Unsig. Movement Delay									
Ln Grp Delay, s/veh	3.8	1.6	6.1	3.9	27.8	32.7			
Ln Grp LOS	A	A	A	A	C	C			
Approach Vol, veh/h		402	1366		92				
Approach Delay, s/veh		1.9	5.9		31.1				
Approach LOS		A	A		C				
Timer:		1	2	3	4	5	6	7	8
Assigned Phs		1	2	8			6		
Case No		1.2	7.0	9.0			4.0		
Phs Duration (G+Y+Rc), s		7.4	44.2	8.4			51.6		
Change Period (Y+Rc), s		4.5	4.5	4.5			4.5		
Max Green (Gmax), s		5.0	23.5	18.0			33.0		
Max Allow Headway (MAH), s		3.7	4.8	4.0			4.9		
Max Q Clear (g_c+I1), s		2.5	13.0	4.3			3.4		
Green Ext Time (g_e), s		0.0	6.0	0.2			2.1		
Prob of Phs Call (p_c)		0.57	1.00	0.78			1.00		
Prob of Max Out (p_x)		1.00	0.00	0.00			0.00		
Left-Turn Movement Data									
Assigned Mvmt		1	5	3					
Mvmt Sat Flow, veh/h		1781	0	1781					
Through Movement Data									
Assigned Mvmt			2	8			6		
Mvmt Sat Flow, veh/h			3647	0			3647		
Right-Turn Movement Data									
Assigned Mvmt			12	18			16		
Mvmt Sat Flow, veh/h			1585	1585			0		
Left Lane Group Data									
Assigned Mvmt		1	5	3	0	0	0	0	0
Lane Assignment		L (Pr/Pm)		L					

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Lanes in Grp	1	0	1	0	0	0	0	0
Grp Vol (v), veh/h	51	0	30	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	1781	0	1781	0	0	0	0	0
Q Serve Time (g_s), s	0.5	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.5	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	398	0	1781	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	41.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	28.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	39.7	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	396	0	116	0	0	0	0	0
V/C Ratio (X)	0.13	0.00	0.26	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	459	0	534	0	0	0	0	0
Upstream Filter (I)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	3.6	0.0	26.7	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	1.2	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	3.8	0.0	27.8	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.1	0.0	0.4	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.01	0.00	0.09	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	8	0	0	6	0	0
Lane Assignment	T			T				
Lanes in Grp	0	2	0	0	0	2	0	0
Grp Vol (v), veh/h	0	1246	0	0	0	351	0	0
Grp Sat Flow (s), veh/h/ln	0	1777	0	0	0	1777	0	0
Q Serve Time (g_s), s	0.0	11.0	0.0	0.0	0.0	1.4	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	11.0	0.0	0.0	0.0	1.4	0.0	0.0
Lane Grp Cap (c), veh/h	0	2352	0	0	0	2788	0	0
V/C Ratio (X)	0.00	0.53	0.00	0.00	0.00	0.13	0.00	0.00
Avail Cap (c_a), veh/h	0	2352	0	0	0	2788	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	5.3	0.0	0.0	0.0	1.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.9	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	6.1	0.0	0.0	0.0	1.6	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	18	0	0	16	0	0
Lane Assignment		R	R					
Lanes in Grp	0	1	1	0	0	0	0	0
Grp Vol (v), veh/h	0	120	62	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1585	1585	0	0	0	0	0
Q Serve Time (g_s), s	0.0	1.7	2.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	1.7	2.3	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	1049	104	0	0	0	0	0
V/C Ratio (X)	0.00	0.11	0.60	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	1049	476	0	0	0	0	0
Upstream Filter (I)	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	3.7	27.3	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	5.4	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	3.9	32.7	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.3	0.8	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.3	1.0	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.05	0.13	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	6.3
HCM 6th LOS	A

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Movement	SEL	SET	NWT	NWR	SWL	SWR				
Lane Configurations										
Traffic Volume (veh/h)	214	1026	641	150	212	97				
Future Volume (veh/h)	214	1026	641	150	212	97				
Number	1	6	2	12	3	18				
Initial Q, veh	0	0	0	0	0	0				
Ped-Bike Adj (A_pbT)	1.00			1.00	1.00	1.00				
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00				
Work Zone On Approach		No	No		No					
Lanes Open During Work Zone										
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870				
Adj Flow Rate, veh/h	223	1069	668	156	221	101				
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				
Percent Heavy Veh, %	2	2	2	2	2	2				
Opposing Right Turn Influence	Yes				Yes					
Cap, veh/h	543	2382	1779	794	296	263				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				
Prop Arrive On Green	0.09	0.67	0.50	0.50	0.17	0.17				
Unsig. Movement Delay										
Ln Grp Delay, s/veh	5.9	4.9	9.0	8.2	25.6	21.4				
Ln Grp LOS	A	A	A	A	C	C				
Approach Vol, veh/h		1292	824		322					
Approach Delay, s/veh		5.1	8.9		24.3					
Approach LOS		A	A		C					
Timer:		1	2	3	4	5	6	7	8	
Assigned Phs		1	2	8			6			
Case No		1.2	7.0	9.0			4.0			
Phs Duration (G+Y+Rc), s		9.3	32.0	13.6			41.4			
Change Period (Y+Rc), s		4.5	4.5	4.5			4.5			
Max Green (Gmax), s		5.5	18.0	18.0			28.0			
Max Allow Headway (MAH), s		3.7	4.7	3.9			4.9			
Max Q Clear (g_c+I1), s		5.0	8.4	8.5			9.8			
Green Ext Time (g_e), s		0.0	3.3	0.7			6.8			
Prob of Phs Call (p_c)		0.97	1.00	0.99			1.00			
Prob of Max Out (p_x)		1.00	0.00	0.04			0.00			
Left-Turn Movement Data										
Assigned Mvmt		1	5	3						
Mvmt Sat Flow, veh/h		1781	0	1781						
Through Movement Data										
Assigned Mvmt			2	8			6			
Mvmt Sat Flow, veh/h			3647	0			3647			
Right-Turn Movement Data										
Assigned Mvmt			12	18			16			
Mvmt Sat Flow, veh/h			1585	1585			0			
Left Lane Group Data										
Assigned Mvmt		1	5	3	0	0	0	0	0	
Lane Assignment		L (Pr/Pm)		L						

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Lanes in Grp	1	0	1	0	0	0	0	0
Grp Vol (v), veh/h	223	0	221	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	1781	0	1781	0	0	0	0	0
Q Serve Time (g_s), s	3.0	0.0	6.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	3.0	0.0	6.5	0.0	0.0	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	665	0	1781	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	29.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	21.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	27.5	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	543	0	296	0	0	0	0	0
V/C Ratio (X)	0.41	0.00	0.75	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	565	0	583	0	0	0	0	0
Upstream Filter (I)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	5.4	0.0	21.8	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	3.8	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	5.9	0.0	25.6	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.5	0.0	2.5	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.1	0.0	0.3	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.6	0.0	2.8	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.09	0.00	0.57	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	8	0	0	6	0	0
Lane Assignment	T			T				
Lanes in Grp	0	2	0	0	0	2	0	0
Grp Vol (v), veh/h	0	668	0	0	0	1069	0	0
Grp Sat Flow (s), veh/h/ln	0	1777	0	0	0	1777	0	0
Q Serve Time (g_s), s	0.0	6.4	0.0	0.0	0.0	7.8	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	6.4	0.0	0.0	0.0	7.8	0.0	0.0
Lane Grp Cap (c), veh/h	0	1779	0	0	0	2382	0	0
V/C Ratio (X)	0.00	0.38	0.00	0.00	0.00	0.45	0.00	0.00
Avail Cap (c_a), veh/h	0	1779	0	0	0	2382	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	8.4	0.0	0.0	0.0	4.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.6	0.0	0.0	0.0	0.6	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	9.0	0.0	0.0	0.0	4.9	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	1.7	0.0	0.0	0.0	1.1	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0

2046 Background PM Peak Hour
3: N Ridge Rd & King Soopers Access

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	1.8	0.0	0.0	0.0	1.3	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.11	0.00	0.00	0.00	0.09	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	18	0	0	16	0	0
Lane Assignment		R	R					
Lanes in Grp	0	1	1	0	0	0	0	0
Grp Vol (v), veh/h	0	156	101	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1585	1585	0	0	0	0	0
Q Serve Time (g_s), s	0.0	3.0	3.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	3.0	3.1	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	794	263	0	0	0	0	0
V/C Ratio (X)	0.00	0.20	0.38	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	794	519	0	0	0	0	0
Upstream Filter (I)	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	7.6	20.4	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.6	0.9	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	8.2	21.4	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.7	1.1	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.8	1.1	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.12	0.15	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	8.9
HCM 6th LOS	A

2026 Short Range Total AM Peak Hour
3: N Ridge Rd & King Sloopers Access

Kellar Engineering
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Movement	SEL	SET	NWT	NWR	SWL	SWR			
Lane Configurations									
Traffic Volume (veh/h)	52	217	771	114	31	62			
Future Volume (veh/h)	52	217	771	114	31	62			
Number	1	6	2	12	3	18			
Initial Q, veh	0	0	0	0	0	0			
Ped-Bike Adj (A_pbT)	1.00			1.00	1.00	1.00			
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No	No		No				
Lanes Open During Work Zone									
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	57	236	838	124	34	67			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	2	2	2	2			
Opposing Right Turn Influence	Yes				Yes				
Cap, veh/h	526	2718	2240	999	127	113			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00			
Prop Arrive On Green	0.05	0.76	0.63	0.63	0.07	0.07			
Unsig. Movement Delay									
Ln Grp Delay, s/veh	3.0	1.7	5.4	4.3	25.3	29.6			
Ln Grp LOS	A	A	A	A	C	C			
Approach Vol, veh/h		293	962		101				
Approach Delay, s/veh		1.9	5.3		28.1				
Approach LOS		A	A		C				
Timer:		1	2	3	4	5	6	7	8
Assigned Phs		1	2	8			6		
Case No		1.2	7.0	9.0			4.0		
Phs Duration (G+Y+Rc), s		7.4	39.2	8.4			46.6		
Change Period (Y+Rc), s		4.5	4.5	4.5			4.5		
Max Green (Gmax), s		5.0	18.5	18.0			28.0		
Max Allow Headway (MAH), s		3.7	4.8	4.0			4.9		
Max Q Clear (g_c+I1), s		2.5	8.3	4.3			2.9		
Green Ext Time (g_e), s		0.0	4.1	0.2			1.3		
Prob of Phs Call (p_c)		0.58	1.00	0.79			1.00		
Prob of Max Out (p_x)		1.00	0.00	0.00			0.00		
Left-Turn Movement Data									
Assigned Mvmt		1	5	3					
Mvmt Sat Flow, veh/h		1781	0	1781					
Through Movement Data									
Assigned Mvmt			2	8			6		
Mvmt Sat Flow, veh/h			3647	0			3647		
Right-Turn Movement Data									
Assigned Mvmt			12	18			16		
Mvmt Sat Flow, veh/h			1585	1585			0		
Left Lane Group Data									
Assigned Mvmt		1	5	3	0	0	0	0	0
Lane Assignment		L (Pr/Pm)		L					

2026 Short Range Total AM Peak Hour
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Lanes in Grp	1	0	1	0	0	0	0	0
Grp Vol (v), veh/h	57	0	34	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	1781	0	1781	0	0	0	0	0
Q Serve Time (g_s), s	0.5	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.5	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	584	0	1781	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	36.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	28.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	34.7	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	526	0	127	0	0	0	0	0
V/C Ratio (X)	0.11	0.00	0.27	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	594	0	583	0	0	0	0	0
Upstream Filter (I)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	2.9	0.0	24.2	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	1.1	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	3.0	0.0	25.3	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.1	0.0	0.4	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.01	0.00	0.09	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	8	0	0	6	0	0
Lane Assignment	T			T				
Lanes in Grp	0	2	0	0	0	2	0	0
Grp Vol (v), veh/h	0	838	0	0	0	236	0	0
Grp Sat Flow (s), veh/h/ln	0	1777	0	0	0	1777	0	0
Q Serve Time (g_s), s	0.0	6.3	0.0	0.0	0.0	0.9	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	6.3	0.0	0.0	0.0	0.9	0.0	0.0
Lane Grp Cap (c), veh/h	0	2240	0	0	0	2718	0	0
V/C Ratio (X)	0.00	0.37	0.00	0.00	0.00	0.09	0.00	0.00
Avail Cap (c_a), veh/h	0	2240	0	0	0	2718	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	4.9	0.0	0.0	0.0	1.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.5	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	5.4	0.0	0.0	0.0	1.7	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0

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3: N Ridge Rd & King Soopers Access

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	18	0	0	16	0	0
Lane Assignment		R	R					
Lanes in Grp	0	1	1	0	0	0	0	0
Grp Vol (v), veh/h	0	124	67	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1585	1585	0	0	0	0	0
Q Serve Time (g_s), s	0.0	1.7	2.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	1.7	2.3	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	999	113	0	0	0	0	0
V/C Ratio (X)	0.00	0.12	0.59	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	999	519	0	0	0	0	0
Upstream Filter (I)	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	4.1	24.8	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.3	4.8	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	4.3	29.6	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.3	0.8	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.3	0.9	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.05	0.14	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	6.3
HCM 6th LOS	A

2026 Short Range Total AM Peak Hour
5: King Soopers Access & Site Access

Kellar Engineering
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Intersection						
Int Delay, s/veh	0.3					
Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	8	0	157	9	0	85
Future Vol, veh/h	8	0	157	9	0	85
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	0	171	10	0	92
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	268	176	0	0	181	0
Stage 1	176	-	-	-	-	-
Stage 2	92	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	721	867	-	-	1394	-
Stage 1	855	-	-	-	-	-
Stage 2	932	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	721	867	-	-	1394	-
Mov Cap-2 Maneuver	721	-	-	-	-	-
Stage 1	855	-	-	-	-	-
Stage 2	932	-	-	-	-	-
Approach	NW	NE	SW			
HCM Control Delay, s	10.1	0	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NET	NERNWLn1	SWL	SWT		
Capacity (veh/h)	-	-	721	1394	-	
HCM Lane V/C Ratio	-	-	0.012	-	-	
HCM Control Delay (s)	-	-	10.1	0	-	
HCM Lane LOS	-	-	B	A	-	
HCM 95th %tile Q(veh)	-	-	0	0	-	

2026 Short Range Total PM Peak Hour
3: N Ridge Rd & King Soppers Access

Kellar Engineering
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Movement	SEL	SET	NWT	NWR	SWL	SWR			
Lane Configurations									
Traffic Volume (veh/h)	224	691	431	156	219	107			
Future Volume (veh/h)	224	691	431	156	219	107			
Number	1	6	2	12	3	18			
Initial Q, veh	0	0	0	0	0	0			
Ped-Bike Adj (A_pbT)	1.00			1.00	1.00	1.00			
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No	No		No				
Lanes Open During Work Zone									
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	233	720	449	162	228	111			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	2	2	2	2			
Opposing Right Turn Influence	Yes				Yes				
Cap, veh/h	633	2366	1751	781	304	270			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00			
Prop Arrive On Green	0.09	0.67	0.49	0.49	0.17	0.17			
Unsig. Movement Delay									
Ln Grp Delay, s/veh	5.4	4.2	8.5	8.5	25.4	21.3			
Ln Grp LOS	A	A	A	A	C	C			
Approach Vol, veh/h		953	611		339				
Approach Delay, s/veh		4.5	8.5		24.1				
Approach LOS		A	A		C				
Timer:		1	2	3	4	5	6	7	8
Assigned Phs		1	2	8			6		
Case No		1.2	7.0	9.0			4.0		
Phs Duration (G+Y+Rc), s		9.5	31.6	13.9			41.1		
Change Period (Y+Rc), s		4.5	4.5	4.5			4.5		
Max Green (Gmax), s		5.5	18.0	18.0			28.0		
Max Allow Headway (MAH), s		3.7	4.6	3.9			4.9		
Max Q Clear (g_c+I1), s		5.1	6.0	8.7			6.7		
Green Ext Time (g_e), s		0.0	2.5	0.7			4.5		
Prob of Phs Call (p_c)		0.97	1.00	0.99			1.00		
Prob of Max Out (p_x)		1.00	0.00	0.05			0.00		
Left-Turn Movement Data									
Assigned Mvmt		1	5	3					
Mvmt Sat Flow, veh/h		1781	0	1781					
Through Movement Data									
Assigned Mvmt			2	8			6		
Mvmt Sat Flow, veh/h			3647	0			3647		
Right-Turn Movement Data									
Assigned Mvmt			12	18			16		
Mvmt Sat Flow, veh/h			1585	1585			0		
Left Lane Group Data									
Assigned Mvmt		1	5	3	0	0	0	0	0
Lane Assignment		L (Pr/Pm)		L					

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Lanes in Grp	1	0	1	0	0	0	0	0
Grp Vol (v), veh/h	233	0	228	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	1781	0	1781	0	0	0	0	0
Q Serve Time (g_s), s	3.1	0.0	6.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	3.1	0.0	6.7	0.0	0.0	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	810	0	1781	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	29.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	23.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	27.1	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	633	0	304	0	0	0	0	0
V/C Ratio (X)	0.37	0.00	0.75	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	649	0	583	0	0	0	0	0
Upstream Filter (I)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	5.0	0.0	21.7	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.0	3.7	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	5.4	0.0	25.4	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.6	0.0	2.6	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.1	0.0	0.3	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.6	0.0	2.9	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.10	0.00	0.58	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	8	0	0	6	0	0
Lane Assignment	T			T				
Lanes in Grp	0	2	0	0	0	2	0	0
Grp Vol (v), veh/h	0	449	0	0	0	720	0	0
Grp Sat Flow (s), veh/h/ln	0	1777	0	0	0	1777	0	0
Q Serve Time (g_s), s	0.0	4.0	0.0	0.0	0.0	4.7	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	4.0	0.0	0.0	0.0	4.7	0.0	0.0
Lane Grp Cap (c), veh/h	0	1751	0	0	0	2366	0	0
V/C Ratio (X)	0.00	0.26	0.00	0.00	0.00	0.30	0.00	0.00
Avail Cap (c_a), veh/h	0	1751	0	0	0	2366	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	8.1	0.0	0.0	0.0	3.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.0	0.0	0.3	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	8.5	0.0	0.0	0.0	4.2	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	1.1	0.0	0.0	0.0	0.7	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	1.2	0.0	0.0	0.0	0.8	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.07	0.00	0.00	0.00	0.06	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	18	0	0	16	0	0
Lane Assignment		R	R					
Lanes in Grp	0	1	1	0	0	0	0	0
Grp Vol (v), veh/h	0	162	111	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1585	1585	0	0	0	0	0
Q Serve Time (g_s), s	0.0	3.2	3.4	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	3.2	3.4	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	781	270	0	0	0	0	0
V/C Ratio (X)	0.00	0.21	0.41	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	781	519	0	0	0	0	0
Upstream Filter (I)	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	7.9	20.3	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.6	1.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	8.5	21.3	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.8	1.2	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.9	1.2	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.12	0.18	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	9.2
HCM 6th LOS	A

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Intersection						
Int Delay, s/veh	0.4					
Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	17	0	364	16	0	309
Future Vol, veh/h	17	0	364	16	0	309
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	0	396	17	0	336
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	741	405	0	0	413	0
Stage 1	405	-	-	-	-	-
Stage 2	336	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	384	646	-	-	1146	-
Stage 1	673	-	-	-	-	-
Stage 2	724	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	384	646	-	-	1146	-
Mov Cap-2 Maneuver	384	-	-	-	-	-
Stage 1	673	-	-	-	-	-
Stage 2	724	-	-	-	-	-
Approach	NW	NE		SW		
HCM Control Delay, s	14.8	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NET	NERNWLn1	SWL	SWT		
Capacity (veh/h)	-	-	384	1146	-	
HCM Lane V/C Ratio	-	-	0.048	-	-	
HCM Control Delay (s)	-	-	14.8	0	-	
HCM Lane LOS	-	-	B	A	-	
HCM 95th %tile Q(veh)	-	-	0.2	0	-	

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Movement	SEL	SET	NWT	NWR	SWL	SWR			
Lane Configurations									
Traffic Volume (veh/h)	52	323	1146	114	31	62			
Future Volume (veh/h)	52	323	1146	114	31	62			
Number	1	6	2	12	3	18			
Initial Q, veh	0	0	0	0	0	0			
Ped-Bike Adj (A_pbT)	1.00			1.00	1.00	1.00			
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No	No		No				
Lanes Open During Work Zone									
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	57	351	1246	124	34	67			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	2	2	2	2			
Opposing Right Turn Influence	Yes				Yes				
Cap, veh/h	397	2780	2331	1040	121	108			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00			
Prop Arrive On Green	0.05	0.78	0.66	0.66	0.07	0.07			
Unsig. Movement Delay									
Ln Grp Delay, s/veh	3.9	1.7	6.3	4.1	27.8	33.0			
Ln Grp LOS	A	A	A	A	C	C			
Approach Vol, veh/h		408	1370		101				
Approach Delay, s/veh		2.0	6.1		31.3				
Approach LOS		A	A		C				
Timer:		1	2	3	4	5	6	7	8
Assigned Phs		1	2	8			6		
Case No		1.2	7.0	9.0			4.0		
Phs Duration (G+Y+Rc), s		7.6	43.9	8.6			51.4		
Change Period (Y+Rc), s		4.5	4.5	4.5			4.5		
Max Green (Gmax), s		5.0	23.5	18.0			33.0		
Max Allow Headway (MAH), s		3.7	4.8	4.0			4.9		
Max Q Clear (g_c+I1), s		2.5	13.1	4.5			3.4		
Green Ext Time (g_e), s		0.0	6.0	0.2			2.1		
Prob of Phs Call (p_c)		0.61	1.00	0.81			1.00		
Prob of Max Out (p_x)		1.00	0.00	0.00			0.00		
Left-Turn Movement Data									
Assigned Mvmt		1	5	3					
Mvmt Sat Flow, veh/h		1781	0	1781					
Through Movement Data									
Assigned Mvmt			2	8			6		
Mvmt Sat Flow, veh/h			3647	0			3647		
Right-Turn Movement Data									
Assigned Mvmt			12	18			16		
Mvmt Sat Flow, veh/h			1585	1585			0		
Left Lane Group Data									
Assigned Mvmt		1	5	3	0	0	0	0	0
Lane Assignment		L (Pr/Pm)		L					

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Lanes in Grp	1	0	1	0	0	0	0	0
Grp Vol (v), veh/h	57	0	34	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	1781	0	1781	0	0	0	0	0
Q Serve Time (g_s), s	0.5	0.0	1.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.5	0.0	1.1	0.0	0.0	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	396	0	1781	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	41.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	28.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	39.4	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	397	0	121	0	0	0	0	0
V/C Ratio (X)	0.14	0.00	0.28	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	455	0	534	0	0	0	0	0
Upstream Filter (I)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	3.8	0.0	26.6	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	1.3	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	3.9	0.0	27.8	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.1	0.0	0.5	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.01	0.00	0.10	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	8	0	0	6	0	0
Lane Assignment	T			T				
Lanes in Grp	0	2	0	0	0	2	0	0
Grp Vol (v), veh/h	0	1246	0	0	0	351	0	0
Grp Sat Flow (s), veh/h/ln	0	1777	0	0	0	1777	0	0
Q Serve Time (g_s), s	0.0	11.1	0.0	0.0	0.0	1.4	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	11.1	0.0	0.0	0.0	1.4	0.0	0.0
Lane Grp Cap (c), veh/h	0	2331	0	0	0	2780	0	0
V/C Ratio (X)	0.00	0.53	0.00	0.00	0.00	0.13	0.00	0.00
Avail Cap (c_a), veh/h	0	2331	0	0	0	2780	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	5.5	0.0	0.0	0.0	1.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.9	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	6.3	0.0	0.0	0.0	1.7	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	18	0	0	16	0	0
Lane Assignment		R	R					
Lanes in Grp	0	1	1	0	0	0	0	0
Grp Vol (v), veh/h	0	124	67	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1585	1585	0	0	0	0	0
Q Serve Time (g_s), s	0.0	1.8	2.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	1.8	2.5	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	1040	108	0	0	0	0	0
V/C Ratio (X)	0.00	0.12	0.62	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	1040	476	0	0	0	0	0
Upstream Filter (I)	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	3.9	27.2	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	5.8	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	4.1	33.0	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.3	0.9	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.4	1.1	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.05	0.16	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	6.6
HCM 6th LOS	A

2046 Long Range Total AM Peak Hour
5: King Soopers Access & Site Access

Kellar Engineering
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Intersection						
Int Delay, s/veh	0.3					
Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	8	0	157	9	0	85
Future Vol, veh/h	8	0	157	9	0	85
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	0	171	10	0	92
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	268	176	0	0	181	0
Stage 1	176	-	-	-	-	-
Stage 2	92	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	721	867	-	-	1394	-
Stage 1	855	-	-	-	-	-
Stage 2	932	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	721	867	-	-	1394	-
Mov Cap-2 Maneuver	721	-	-	-	-	-
Stage 1	855	-	-	-	-	-
Stage 2	932	-	-	-	-	-
Approach	NW	NE	SW			
HCM Control Delay, s	10.1	0	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NET	NERNWLn1	SWL	SWT		
Capacity (veh/h)	-	-	721	1394	-	
HCM Lane V/C Ratio	-	-	0.012	-	-	
HCM Control Delay (s)	-	-	10.1	0	-	
HCM Lane LOS	-	-	B	A	-	
HCM 95th %tile Q(veh)	-	-	0	0	-	

2046 Long Range Total PM Peak Hour
3: N Ridge Rd & King Soppers Access

Kellar Engineering
02/06/2025

									
Movement	SEL	SET	NWT	NWR	SWL	SWR			
Lane Configurations									
Traffic Volume (veh/h)	224	1026	641	156	219	107			
Future Volume (veh/h)	224	1026	641	156	219	107			
Number	1	6	2	12	3	18			
Initial Q, veh	0	0	0	0	0	0			
Ped-Bike Adj (A_pbT)	1.00			1.00	1.00	1.00			
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No	No		No				
Lanes Open During Work Zone									
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	233	1069	668	162	228	111			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	2	2	2	2			
Opposing Right Turn Influence	Yes				Yes				
Cap, veh/h	549	2428	1843	822	297	264			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00			
Prop Arrive On Green	0.09	0.68	0.52	0.52	0.17	0.17			
Unsig. Movement Delay									
Ln Grp Delay, s/veh	5.9	4.9	9.1	8.3	28.0	23.5			
Ln Grp LOS	A	A	A	A	C	C			
Approach Vol, veh/h		1302	830		339				
Approach Delay, s/veh		5.1	9.0		26.5				
Approach LOS		A	A		C				
Timer:		1	2	3	4	5	6	7	8
Assigned Phs		1	2	8			6		
Case No		1.2	7.0	9.0			4.0		
Phs Duration (G+Y+Rc), s		9.9	35.6	14.5			45.5		
Change Period (Y+Rc), s		4.5	4.5	4.5			4.5		
Max Green (Gmax), s		9.5	19.0	18.0			33.0		
Max Allow Headway (MAH), s		3.7	4.7	3.9			4.9		
Max Q Clear (g_c+I1), s		5.2	8.7	9.3			10.2		
Green Ext Time (g_e), s		0.2	3.4	0.7			7.5		
Prob of Phs Call (p_c)		0.98	1.00	1.00			1.00		
Prob of Max Out (p_x)		0.66	0.00	0.07			0.00		
Left-Turn Movement Data									
Assigned Mvmt		1	5	3					
Mvmt Sat Flow, veh/h		1781	0	1781					
Through Movement Data									
Assigned Mvmt			2	8			6		
Mvmt Sat Flow, veh/h			3647	0			3647		
Right-Turn Movement Data									
Assigned Mvmt			12	18			16		
Mvmt Sat Flow, veh/h			1585	1585			0		
Left Lane Group Data									
Assigned Mvmt		1	5	3	0	0	0	0	0
Lane Assignment		L (Pr/Pm)		L					

2046 Long Range Total PM Peak Hour
3: N Ridge Rd & King Soopers Access

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Lanes in Grp	1	0	1	0	0	0	0	0
Grp Vol (v), veh/h	233	0	228	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	1781	0	1781	0	0	0	0	0
Q Serve Time (g_s), s	3.2	0.0	7.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	3.2	0.0	7.3	0.0	0.0	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	661	0	1781	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	33.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	24.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	4.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	31.1	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	549	0	297	0	0	0	0	0
V/C Ratio (X)	0.42	0.00	0.77	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	671	0	534	0	0	0	0	0
Upstream Filter (I)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	5.4	0.0	23.9	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	4.1	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	5.9	0.0	28.0	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.6	0.0	2.9	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.1	0.0	0.3	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.7	0.0	3.2	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.11	0.00	0.65	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	8	0	0	6	0	0
Lane Assignment	T			T				
Lanes in Grp	0	2	0	0	0	2	0	0
Grp Vol (v), veh/h	0	668	0	0	0	1069	0	0
Grp Sat Flow (s), veh/h/ln	0	1777	0	0	0	1777	0	0
Q Serve Time (g_s), s	0.0	6.7	0.0	0.0	0.0	8.2	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	6.7	0.0	0.0	0.0	8.2	0.0	0.0
Lane Grp Cap (c), veh/h	0	1843	0	0	0	2428	0	0
V/C Ratio (X)	0.00	0.36	0.00	0.00	0.00	0.44	0.00	0.00
Avail Cap (c_a), veh/h	0	1843	0	0	0	2428	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	8.6	0.0	0.0	0.0	4.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.6	0.0	0.0	0.0	0.6	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	9.1	0.0	0.0	0.0	4.9	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	1.8	0.0	0.0	0.0	1.3	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	2.0	0.0	0.0	0.0	1.5	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.12	0.00	0.00	0.00	0.11	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	18	0	0	16	0	0
Lane Assignment		R	R					
Lanes in Grp	0	1	1	0	0	0	0	0
Grp Vol (v), veh/h	0	162	111	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1585	1585	0	0	0	0	0
Q Serve Time (g_s), s	0.0	3.3	3.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	3.3	3.8	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	822	264	0	0	0	0	0
V/C Ratio (X)	0.00	0.20	0.42	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	822	476	0	0	0	0	0
Upstream Filter (I)	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	7.7	22.4	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.5	1.1	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	8.3	23.5	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.8	1.3	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.9	1.4	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.13	0.20	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	9.3
HCM 6th LOS	A

2046 Long Range Total PM Peak Hour
5: King Soopers Access & Site Access

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Intersection						
Int Delay, s/veh	0.4					
Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	17	0	364	16	0	309
Future Vol, veh/h	17	0	364	16	0	309
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	0	396	17	0	336
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	741	405	0	0	413	0
Stage 1	405	-	-	-	-	-
Stage 2	336	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	384	646	-	-	1146	-
Stage 1	673	-	-	-	-	-
Stage 2	724	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	384	646	-	-	1146	-
Mov Cap-2 Maneuver	384	-	-	-	-	-
Stage 1	673	-	-	-	-	-
Stage 2	724	-	-	-	-	-
Approach	NW	NE	SW			
HCM Control Delay, s	14.8	0	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NET	NERNWLn1	SWL	SWT		
Capacity (veh/h)	-	-	384	1146	-	
HCM Lane V/C Ratio	-	-	0.048	-	-	
HCM Control Delay (s)	-	-	14.8	0	-	
HCM Lane LOS	-	-	B	A	-	
HCM 95th %tile Q(veh)	-	-	0.2	0	-	



Sean Kellar, PE, PTOE

Principal Engineer

Education

B.S., Civil Engineering, Arizona State University – Tempe, AZ

Registration

Colorado, Professional Engineer (PE)
Wyoming, Professional Engineer (PE)
Idaho, Professional Engineer (PE)
Arizona, Professional Engineer (PE)
Kansas, Professional Engineer (PE)
Missouri, Professional Engineer (PE)
Professional Traffic Operations Engineer (PTOE)

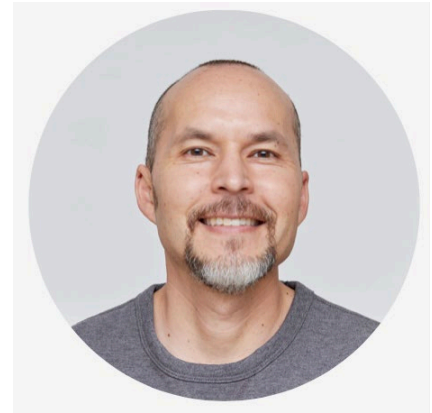
Professional Memberships

Institute of Transportation Engineers (ITE)

Industry Tenure

25 Years

Sean's wide range of expertise includes: transportation planning, traffic modeling roadway design, bike and pedestrian facilities, traffic impact studies, traffic signal warrant analysis, parking studies, corridor planning and access management. Sean's experience in both the private and public sectors; passion for safety and excellence; and strong communication and collaboration skills can bring great value to any project. Prior to starting Kellar Engineering, Sean was employed at the Missouri Department of Transportation (MoDOT) as the District Traffic Engineer for the Kansas City District. Sean also worked for the City of Loveland, CO for over 10 years as a Senior Civil Engineer supervising a division of transportation/traffic engineers. While at the City of Loveland, Sean managed several capital improvement projects, presented several projects to the City Council and Planning Commission in public hearings, and managed the revisions to the City's Street Standards. Sean is also proficient in Highway Capacity Software, Synchro, PT Vissim, Rodel, GIS, and AutoCAD.



WORK EXPERIENCE:

Kellar Engineering, Principal Engineer/President – January 2016 – Present

Missouri Department of Transportation, District Traffic Engineer, Kansas City District – June 2015 – January 2016

City of Loveland, Colorado, Senior Civil Engineer, Public Works Department – February 2005 – June 2015

Kirkham Michael Consulting Engineers, Project Manager - February 2004 – February 2005

Dibble and Associates Consulting Engineers, Project Engineer – August 1999 – February 2004