



SM ROCHA, LLC

TRAFFIC AND TRANSPORTATION CONSULTANTS

May 20, 2021

Brianna Medema, PE
City of Aurora
Public Works Department
Traffic Engineering Division
15151 E Alameda Parkway, Suite 5200
Aurora, CO 80012

**RE: Cross Creek Development
Lots 1 & 2 Access Spacing Variance Request**

Dear Brianna,

SM ROCHA, LLC is pleased to submit access spacing information for the proposed commercial lots within the overall Cross Creek development located on the northeast corner of the E 6th Parkway and N Gun Club Road intersection in Aurora, Colorado.

This letter also serves as a formal request for variance to access spacing requirements for Pad C (Lots 1 & 2) from the overall Cross Creek development, pursuant to Section 4.07.7.02.5 of the City's specifications¹ and access control characteristics described within the City's NEATS Refresh².

General Site Description

Land for the development is currently vacant and surrounded by a mix of open space, office, residential, and recreational land uses.

The proposed commercial area of development includes a 4,000 square foot 7-Eleven gas station convenience market with 12 fueling positions and an automated car wash within Lot 1. Lot 2 remains conceptual and no specific land uses have been determined. For analysis purposes, the master traffic impact study³ approved for the overall development area assumed an approximate 2,400 square foot coffee/donut shop with drive-through window within Lot 2.

¹ Roadway Design & Construction Specifications, City of Aurora, October 2016.

² Northeast Area Transportation Study, David Evans and Associates, Inc., October 2018.

³ Cross Creek: Master Traffic Impact Study, SM ROCHA, LLC, January 2021.

Primary access to the development is provided by two access drives supporting the overall Cross Creek development: one full-movement access onto E 6th Parkway aligning with E 1st Street, and one full-movement access onto N Gun Club Road (referred to as the east-west roadway).

A conceptual access spacing exhibit, prepared by Norris Design, can be found in Attachment A for reference.

Access Spacing Requirements

This letter is requesting variance to the following requirements from the City's specifications:

1. Section 4.07.7.02.5.01 describes that centerline-to-centerline access locations shall be spaced no closer than 300 feet from arterial intersections.
2. Section 4.07.7.02.5.02 describes that centerline-to-centerline access locations shall be spaced no closer than 150 feet from collector or local intersections.

It is not understood what is meant by arterial, collector or local intersections (i.e. arterial-arterial intersection vs. arterial-collector intersection) and is believed to be open to interpretation.

East-West Roadway Access Drives

It is imperative to 7-Eleven's design that there be two full-movement access drives into Lot 1. This allows for efficient site circulation for motorists, emergency vehicles, and truck traffic which occur during off peak traffic hours. 7-Eleven originally proposed access locations further west, closer to N Gun Club Road than what is being proposed now. In response to City Staff review comments, the site plan was redesigned to locate the proposed accesses as far east into Lot 1 as feasibly possible, providing for approximately 220 feet of spacing from N Gun Club Road to the westernmost access, centerline-to-centerline. In coordination with City Staff, the conceptual site plan for the overall Cross Creek development was also redesigned to remove the second access drive into the northern parcel, Tract B, in order to facilitate 7-Eleven's westernmost access location. All accesses along the east-west roadway shall provide a minimum of 75 feet spacing, centerline-to-centerline, with a minimum of 220 feet from N Gun Club Road.

Previously evaluated analysis results for the proposed access conditions indicate no significant vehicle queuing along the east-west roadway. The greatest on-site queue length anticipated at N Gun Club Road occurs during the afternoon peak hour. The queue length is approximately 112 feet, or about five vehicles, for the westbound movement. Analysis results are included for reference in Attachment B.

Proposed location of the westernmost access is not projected to negatively impact traffic operations or motorist safety for the adjacent roadway network. Proposed access conditions are also consistent with other access drives serving similar land uses within the City of Aurora.

All other remaining access locations conform to the City's access spacing requirements, therefore full-movement conditions for all other access drives, namely the easterly access drive into Lot 1 and the access drive into Lot 2, continue to be proposed.

E 1st Avenue Extension Access Drive

Along the E 1st Avenue extension, a proposed full-movement access is being proposed into Lot 2 approximately 80 feet south of the east-west roadway. Considering the proposed design of the E 1st Avenue extension as shown in the latest preliminary plat⁴, it is anticipated that proposed location of the E 1st Avenue extension access will not negatively impact traffic operations or motorist safety for the adjacent roadway network. The access shall provide a minimum of 75 feet spacing from the east-west roadway and a minimum of 200 feet from E 6th Parkway, centerline-to-centerline.

Variance Requests

This variance request letter is requesting variances to allow for the following design:

1. Full-movement access onto the east-west roadway approximately 220 feet east of N Gun Club Road.
2. Full-movement access onto the E 1st Avenue extension approximately 80 feet south of east-west roadway.

It is not recommended that development access for Lots 1 & 2 be more limited than that proposed. More restrictive access will interfere with the development's ability to equally distribute traffic within the site and out to available roadways. This may impact future traffic patterns in the surrounding area and potentially cause the adjacent roadway network to operate with additional delay that could impact emergency response times.

⁴ Cross Creek 1st Avenue Preliminary Plat, Norris Design, January 2021.

Conclusion

It is our professional conclusion that the proposed access locations for Lots 1 & 2 of the overall Cross Creek development will create no discernable impact to traffic operations of the adjacent roadway network and roadway intersections.

We trust that this variance request will assist in the review and approval of the proposed Lots 1 & 2 access locations. We remain available should additional assistance be needed.

Sincerely,

SM ROCHA, LLC

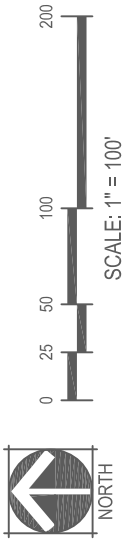
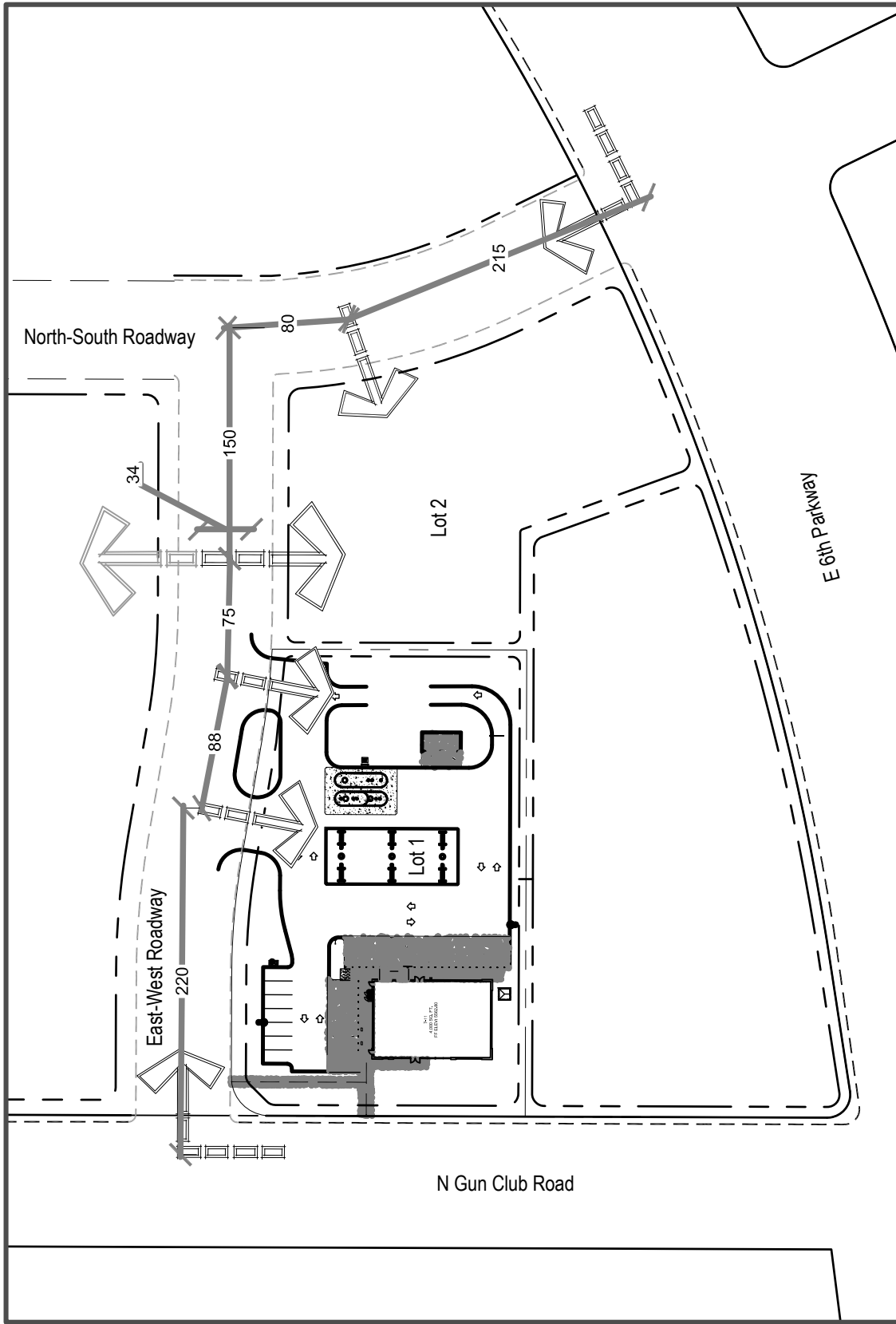
Traffic and Transportation Consultants

A handwritten signature in black ink, appearing to read "Brandon Wilson", written over a horizontal line.

Brandon Wilson
Traffic Engineer

ATTACHMENT A

Conceptual Access Spacing Exhibit








ATTACHMENT B

Capacity Worksheets




HCM 6th TWSC
6: Gun Club Road & Access C

Total Traffic Volumes
AM Peak Hour - Year 2040

Intersection						
Int Delay, s/veh	1.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	24	20	1415	107	18	859
Future Vol, veh/h	24	20	1415	107	18	859
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	-	-	115	25	-
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	26	22	1538	116	20	934
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	2045	769	0	0	1654	0
Stage 1	1538	-	-	-	-	-
Stage 2	507	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	*49	*491	-	-	716	-
Stage 1	*463	-	-	-	-	-
Stage 2	*723	-	-	-	-	-
Platoon blocked, %		1	-	-	1	-
Mov Cap-1 Maneuver	*48	*491	-	-	716	-
Mov Cap-2 Maneuver	*48	-	-	-	-	-
Stage 1	*463	-	-	-	-	-
Stage 2	*703	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	99.8	0		0.2		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-	81	716	-	
HCM Lane V/C Ratio	-	-	0.59	0.027	-	
HCM Control Delay (s)	-	-	99.8	10.2	-	
HCM Lane LOS	-	-	F	B	-	
HCM 95th %tile Q(veh)	-	-	2.6	0.1	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

HCM 6th TWSC
10: Pad A West Access & Access C

Total Traffic Volumes
AM Peak Hour - Year 2040

Intersection						
Int Delay, s/veh	3.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	19	106	0	32	12	90
Future Vol, veh/h	19	106	0	32	12	90
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	115	0	35	13	98
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	136	0	114	79
Stage 1	-	-	-	-	79	-
Stage 2	-	-	-	-	35	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1448	-	882	981
Stage 1	-	-	-	-	944	-
Stage 2	-	-	-	-	987	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1448	-	882	981
Mov Cap-2 Maneuver	-	-	-	-	882	-
Stage 1	-	-	-	-	944	-
Stage 2	-	-	-	-	987	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0		9.2		
HCM LOS	A					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	968	-	-	1448	-	
HCM Lane V/C Ratio	0.115	-	-	-	-	
HCM Control Delay (s)	9.2	-	-	0	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile Q(veh)	0.4	-	-	0	-	

HCM 6th TWSC
6: Gun Club Road & Access C

Total Traffic Volumes
PM Peak Hour - Year 2040

Intersection						
Int Delay, s/veh	3.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	YY		↑↑	↑	↑	↑↑
Traffic Vol, veh/h	29	21	1209	115	19	1700
Future Vol, veh/h	29	21	1209	115	19	1700
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	-	-	115	25	-
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	32	23	1314	125	21	1848

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	2280	657	0	0	1439
Stage 1	1314	-	-	-	-
Stage 2	966	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	*34	*593	-	-	783
Stage 1	*560	-	-	-	-
Stage 2	*386	-	-	-	-
Platoon blocked, %		1	-	-	1
Mov Cap-1 Maneuver	*33	*593	-	-	783
Mov Cap-2 Maneuver	*33	-	-	-	-
Stage 1	*560	-	-	-	-
Stage 2	*376	-	-	-	-




Approach	WB	NB	SB
HCM Control Delay, s	238.4	0	0.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	55	783
HCM Lane V/C Ratio	-	-	0.988	0.026
HCM Control Delay (s)	-	-	238.4	9.7
HCM Lane LOS	-	-	F	A
HCM 95th %tile Q(veh)	-	-	4.5	0.1

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

HCM 6th TWSC
10: Pad A West Access & Access C

Total Traffic Volumes
PM Peak Hour - Year 2040

Intersection						
Int Delay, s/veh	3.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	45	89	0	35	15	73
Future Vol, veh/h	45	89	0	35	15	73
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	49	97	0	38	16	79
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	146	0	136	98
Stage 1	-	-	-	-	98	-
Stage 2	-	-	-	-	38	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1436	-	857	958
Stage 1	-	-	-	-	926	-
Stage 2	-	-	-	-	984	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1436	-	857	958
Mov Cap-2 Maneuver	-	-	-	-	857	-
Stage 1	-	-	-	-	926	-
Stage 2	-	-	-	-	984	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		9.3	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	939	-	-	1436	-	
HCM Lane V/C Ratio	0.102	-	-	-	-	
HCM Control Delay (s)	9.3	-	-	0	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile Q(veh)	0.3	-	-	0	-	