MEMORANDUM

To: Town of Castle Rock, Public Works Department

From: Cassie Slade, PE, PTOE

Date: December 6, 2024

Project: Dawson Trails Filing No. 2

Subject: Planning Area D-1 Traffic Conformance Letter - Updated

Executive Summary

The latest site plan shows that the northern portion of Planning Area D will include 268 single-family detached homes, which is 32 fewer units than in the Master Traffic Impact Study (MTS).. The traffic analysis for Planning Area D (D-1) of the Dawson Trails estimated that there will be fewer trips than shown in the MTS. There will be approximately 2,403 daily trips with 188 vehicle trips in the AM peak hour, 252 vehicle trips in the PM peak hour, and 223 vehicle trips in the Saturday peak hour. This is approximately 10% less than the trips for Planning Area D-1 in the MTS.

Per the Dawson Trails Filing No. 2 Infrastructure Plan (CD23-0045), the collector roads will be constructed prior to the completion of Planning Area D-1 and the collectors will connect Dawson Trails Boulevard to local streets into each planning area. A collector roadway, Blanca Peak Parkway, will be extended west from Dawson Trails Boulevard which will lead to the proposed residential community of Planning Area D-1. Blanca Peak Parkway will be a major collector from Dawson Trails Boulevard to Dawson Plaza (~606.8 feet) and then transition to a minor collector west of Dawson Plaza. The site plan for Planning Area D-1 includes three (3) full-movement, side-street stop-controlled accesses on Blanca Peak Parkway plus one collector/collector roundabout in the southwest corner of the property.

There will be little to no impact to the intersection of **Crystal Valley Parkway at Dawson Trails Boulevard (#7)**. The capacity analysis indicated that the access intersections on Blanca Peak Parkway in the Year 2040 with full buildout of Dawson Trails will operate overall at LOS A in both peak hours with all movements operating at LOS D or better. The 95th percentile queues were calculated to be two vehicles or less and the auxiliary lanes were designed to accommodate the queues.

The most current site plan for Planning Area D-1 (north portion) is consistent with the assumptions of the MTS with fewer homes and trips than estimated for this parcel. **It is anticipated that the future planned roadway network and intersections can accommodate the project trips without the need for additional analysis or mitigation measures.**

Introduction

The Fox Tuttle Transportation Group has prepared this traffic conformance letter for the proposed development of single-family detached homes located in the northern portion of Planning Area D (D-1) of the Dawson Trails development in Castle Rock, Colorado. The site is located southwest of the intersection of Crystal Valley Parkway and Dawson Trails Boulevard, as shown on **Figure 1**. This filing of Dawson Trails plans to include 268 dwelling units and construct a collector roadway to provide access to Dawson Trails Boulevard. It should be noted that future phases will complete the homes planned for the entirety of Planning Area D (up to 1,938 units).

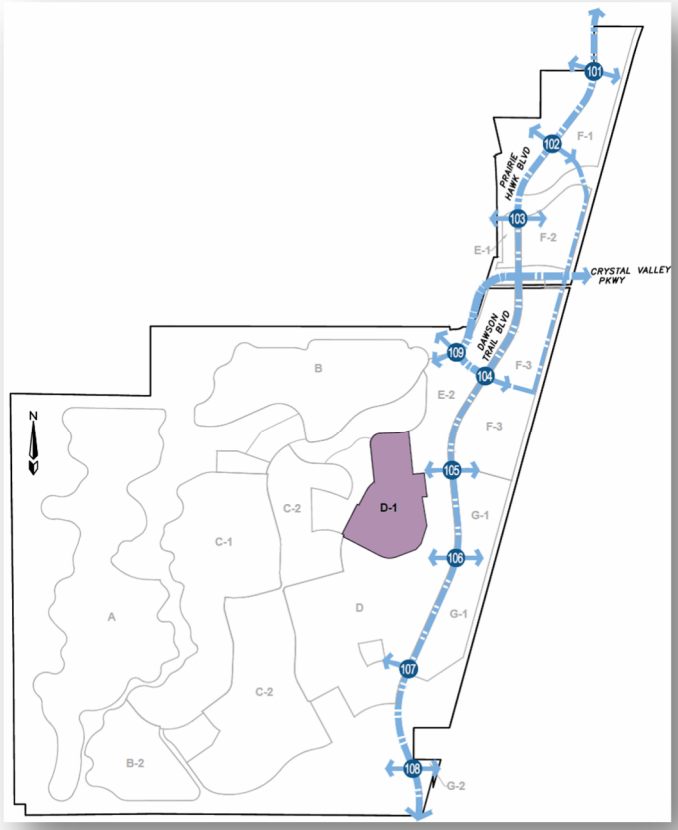

Figure 1. Vicinity Map

The purpose of this "traffic conformance letter" is to determine if the proposed use is significantly different than the trip generation assumptions for this site as analyzed in the "Master" study and to identify if additional traffic analysis is necessary.

Comparison to Master Traffic Study

A "Master" transportation study[1] (MTS) was previously prepared for the entire 2,063± acres of Dawson Trails that will include a mix of residential, commercial, office, light industrial, schools, and recreation. The MTS assumed that the northern portion of Planning Area D would include 300 single-family detached homes. The MTS focused on the full movement intersections along Dawson Trails

[1] *Dawson Trails Master Transportation Study*. Fox Tuttle Transportation Group, LLC. June 2022.

Boulevard and did not evaluate access intersections or collector/collector intersections since this detail would be more appropriate in traffic studies for phases or specific projects.

The latest site plan shows that the northern portion of Planning Area D will include 268 single-family detached homes, which is 32 fewer units than in the *MTS*. Note that this is not the entirety of Planning Area D, which will be completed in future phases.

Trip Generation

To establish the volume of trips associated with the proposed project, the data contained in the *Institute of Transportation Engineers (ITE) Trip Generation Manual*[2] for single-family detached housing was applied. The proposed land use is estimated to mostly be new trips, known as 'primary trips', which is discussed below:

> Primary Trips. These trips are made specifically to visit the site and are considered "new" trips. Primary trips would not have been made if the proposed project did not exist. Therefore, this is the only trip type that increases the number of trips made on a regional basis.

Table 1 summarizes and compares the trip generation estimated from the MTS and the latest site plan for the first phase of Planning Area D for weekday daily, weekday AM, weekday PM, and Saturday peak periods.

Table 1. Trip Generation Summary and Comparison

Planning Area	Land Use	Size	Unit	Non-Auto Factor	Internal Capture Adjust	Average Daily Trips				AM Peak Hour Trips				PM Peak Hour Trips				Saturday Peak Hour Trips			
						Rate	Total	In	Out	Rate	Total	In	Out	Rate	Total	In	Out	Rate	Total	In	Out
Master Transportation Study																					
D-1 North	ITE 210 - Single-Family Detached Housing	300	Dwelling Units	0.95	1.00	9.44	2,690	1,345	1,345	0.74	211	53	158	0.99	282	178	104	0.88	249	134	115
Updated Traffic Conformance Letter																					
D-1 North	ITE 210 - Single-Family Detached Housing	268	Dwelling Units	0.95	1.00	9.44	2,403	1,202	1,201	0.74	188	47	141	0.99	252	159	93	0.88	223	120	103
Difference in Trips (MTS vs. Updated)							***-287***	***-143***	***-144***		***-23***	***-6***	***-17***		***-30***	***-19***	***-11***		***-26***	***-14***	***-12***

Source : ITE Trip Generation Manual and Handbook, 11th Edition, 2021.

[2] *Trip Generation Manual*. 11th Edition. Institute of Transportation Engineers. Washington, DC. 2021.

The latest site plan has fewer trips than was estimated in the *MTS* for the northern portion of Planning Area D. The *MTS* included up to 1,938 dwelling units in the entirety of Planning Area D. Planning for the remaining property of Planning Area D has not been developed and will be evaluated with a future submittal. The reduction in trips for the northern portion of Planning Area D may be absorbed with the future phase of this area. There will be approximately 497 dwellings units in Dawson Trails with the completion of Planning Area B-1 East and Planning Area D-1.

There will be little to no impact to the intersection of **Crystal Valley Parkway at Dawson Trails Boulevard (#7)**. In the *Phase 1 – Costco Development Traffic Analysis (February 2023)*, it was estimated that this intersection would continue to operate at LOS D/E/E in the AM/PM/Saturday peak hours with the completion of Costco and approximately 513 dwelling units in this area of Dawson Trails. All of the movements that were previously calculated to operate at LOS E in one or more peak hour were shown to remain at the same level of service with only slight shifts in delay.

A capacity analysis was performed by the Crystal Valley Interchange Environmental Analysis, which showed acceptable LOS D for the Dawson Trails Boulevard and Crystal Valley Parkway intersection.

Proposed Access

With the construction of parcels within Dawson Trails, the projects will construct collector roads that will connect Dawson Trails Boulevard to local streets into each planning area. According to the MTS, Dawson Trails Boulevard is planned to be six-lanes between Crystal Valley Parkway and Blanca Peak Parkway (Intersection #105). Per the Dawson Trails Filing No. 2 Infrastructure Plan (CD23-0045), the collector roads will be constructed prior to the completion of Planning Area D-1 and the collectors will connect Dawson Trails Boulevard to local streets into each planning area.

For the northern portion of Planning Area D, a collector roadway, Blanca Peak Parkway, will be extended west from Dawson Trails Boulevard which will lead to the proposed residential community. Blanca Peak Parkway will be a major collector for the first 606.8 feet west of Dawson Trails Boulevard and then transition to a minor collector west of Dawson Plaza (first intersection west of Dawson Trails Boulevard).

The site plan for Planning Area D-1 indicates there will be three (3) full-movement, side-street stop-controlled accesses on Blanca Peak Parkway plus one collector/collector roundabout in the southwest corner of the property.

A high-level estimate of traffic entering and exiting the accesses was performed. The estimated turning volumes are shown on **Figure 2.** Except for the intersection at Dawson Plaza, the auxiliary lanes are not warranted at the access intersection based on the low turning volumes.

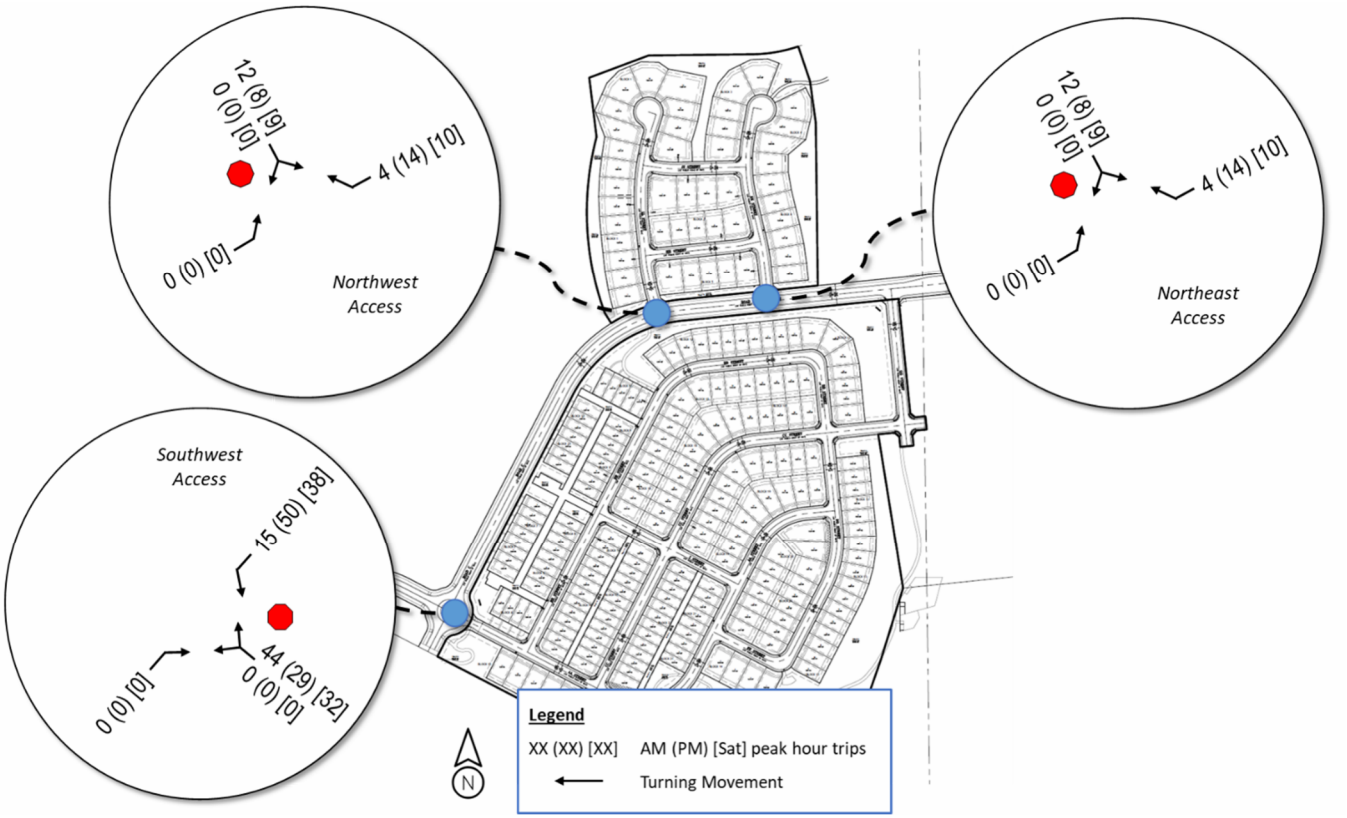

Figure 2. Planning Area D-1 (North) Trip Estimate

Figure 3 provides the estimated volumes at full buildout for the intersection of Blanca Peak Parkway and Dawson Plaza (first intersection west of Dawson Trails Boulevard). The planned lane configuration is shown at this proposed side-street stop-controlled intersection, including left-turn lanes on all four approaches. **Figure 3 also** provides the proposed storage lengths and taper lengths for each of the auxiliary lanes at Blanca Peak Parkway and Dawson Plaza. All storage lengths are anticipated to accommodate the calculated 95th percentile queues.

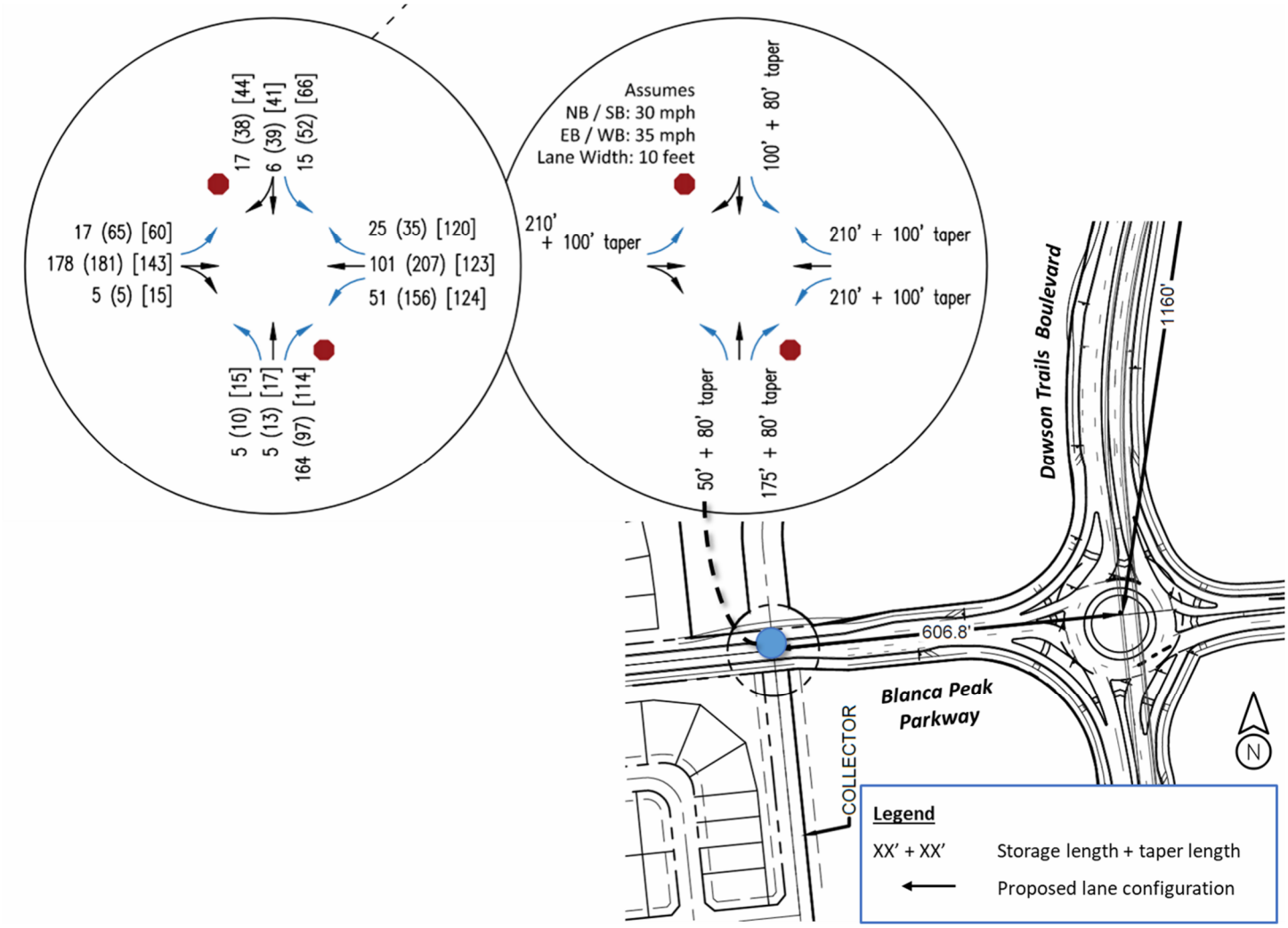

Figure 3. Estimated Full Buildout Volumes at Blanca Peak Parkway

and Dawson Plaza and Auxiliary Lane Lengths

The Year 2040 daily roadway volumes with the completion of the north portion of Planning Area D-1 are shown on **Figure 4**. These volumes assume full buildout of Dawson Trails. The analysis indicates that three (3) of the four (4) entry roadways are anticipated to have less than 1,000 vehicles per day (vpd) adjacent to Blanca Peak Parkway. Dawson Plaza south of Blanca Peak Parkway has been designed as a Residential Collector with volumes estimated to be approximately 2,950 vpd (includes the multi-family parcel to the east). The internal local roadways were estimated to have less than 500 vpd. The roadway designs will accommodate the volumes associated with Planning Area D-1.

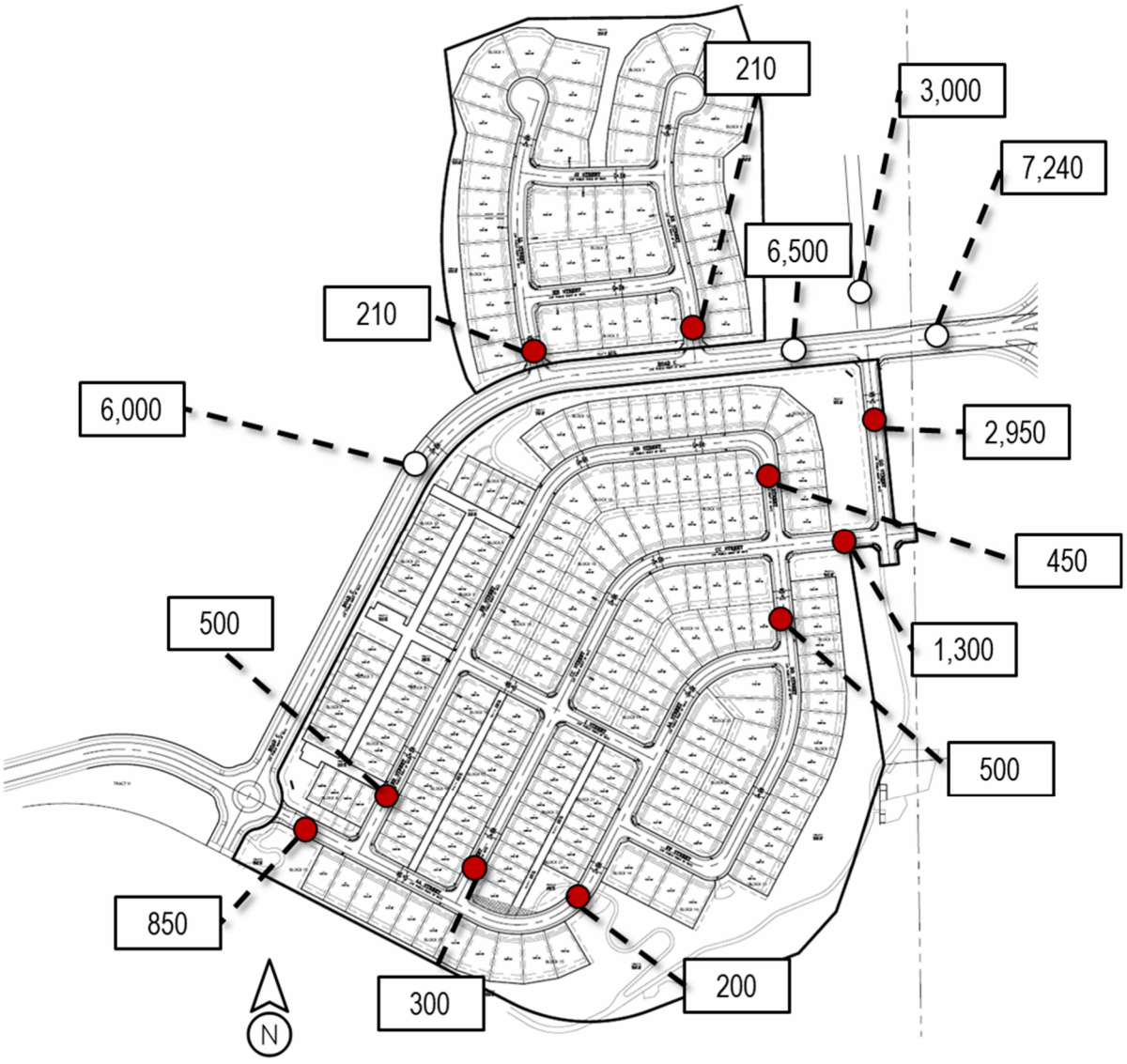

Figure 4. Estimated Year 2040 Daily Roadway Volumes within Planning Area D-1 (North)

Capacity Analysis

A capacity analysis was conducted for the AM and PM peak hour for the intersections on Blanca Peak Parkway with volumes including the full buildout of the Dawson Trails community with maximum density and inclusion of background growth. Refer to **Table 2** for the estimated delays, level-of-services, and 95th percentile queues. This table shows that the access intersection on Blanca Peak Parkway in the Year 2040 with full buildout will operate overall at LOS A in both peak hours with all movements operating at LOS D or better. The 95th percentile queues were calculated to be two vehicles or less and the auxiliary lanes were designed to accommodate the queues.

Table 2. Estimated Peak Hour LOS and Queues

Intersection and Lanes Groups	2040 Bkgrd + Full Build Out											
	AM Peak				PM Peak				Sat Peak			
	Delay	LOS	95th % Queue	v/c ratio	Delay	LOS	95th % Queue	v/c ratio	Delay	LOS	95th % Queue	v/c ratio
STOP SIGN CONTROL												
Blanca Peak Parkway at Dawson Plaza	**5**	**A**			**7**	**A**			**7**	**A**		
Eastbound Left	*8*	*A*	*0'*	*0.01*	*8*	*A*	*5'*	*0.05*	*8*	*A*	*5'*	*0.05*
Eastbound Through+Right	*0*	*A*	*0'*	*0.00*	*0*	*A*	*0'*	*0.00*	*0*	*A*	*0'*	*0.00*
Westbound Left	*8*	*A*	*3'*	*0.04*	*8*	*A*	*10'*	*0.12*	*8*	*A*	*8'*	*0.10*
Westbound Through	*0*	*A*	*0'*	*0.00*	*0*	*A*	*0'*	*0.00*	*0*	*A*	*0'*	*0.00*
Westbound Right	*0*	*A*	*0'*	*0.00*	*0*	*A*	*0'*	*0.00*	*0*	*A*	*0'*	*0.00*
Northbound Left	*13*	*B*	*0'*	*0.01*	*28*	*D*	*5'*	*0.07*	*21*	*C*	*5'*	*0.07*
Northbound Through	*13*	*B*	*0'*	*0.01*	*23*	*C*	*5'*	*0.07*	*20*	*C*	*5'*	*0.07*
Northbound Right	*10*	*B*	*20'*	*0.21*	*10*	*A*	*10'*	*0.13*	*10*	*A*	*13'*	*0.14*
Southbound Left	*15*	*B*	*3'*	*0.04*	*35*	*D*	*33'*	*0.32*	*26*	*D*	*30'*	*0.29*
Southbound Through+Right	*10*	*A*	*3'*	*0.03*	*18*	*C*	*23'*	*0.24*	*15*	*B*	*18'*	*0.20*
Blanca Peak Parkway at Allegheny Street	**0**	**A**			**0**	**A**			**0**	**A**		
Eastbound Left	*8*	*A*	*0'*	*0.00*	*8*	*A*	*0'*	*0.00*	*8*	*A*	*0'*	*0.00*
Eastbound Through	*0*	*A*	*0'*	*0.00*	*0*	*A*	*0'*	*0.00*	*0*	*A*	*0'*	*0.00*
Westbound Through+Right	*0*	*A*	*0'*	*0.00*	*0*	*A*	*0'*	*0.00*	*0*	*A*	*0'*	*0.00*
Southbound Left+Right	*9*	*A*	*0'*	*0.01*	*12*	*B*	*3'*	*0.02*	*11*	*B*	*3'*	*0.02*
Blanca Peak Parkway at Duquesne Street	**0**	**A**			**0**	**A**			**0**	**A**		
Eastbound Left+Through	*8*	*A*	*0'*	*0.00*	*8*	*A*	*0'*	*0.00*	*8*	*A*	*0'*	*0.00*
Westbound Through+Right	*0*	*A*	*0'*	*0.00*	*0*	*A*	*0'*	*0.00*	*0*	*A*	*0'*	*0.00*
Southbound Left+Right	*11*	*B*	*3'*	*0.02*	*12*	*B*	*3'*	*0.02*	*11*	*B*	*3'*	*0.02*

Note: Delay represented in average seconds per vehicle.

Multi-Modal

Dawson Trails will provide an extensive trail and multi-modal network to encourage the community to reduce vehicular travel and to provide amenities for recreation. **Figure 5** provides a conceptual plan for the trail network in and around Planning Area D-1 and the connectivity to Planning Area B and Dawson Trails Boulevard. Refer to the plan set for more details on the pedestrian and bicycle network.

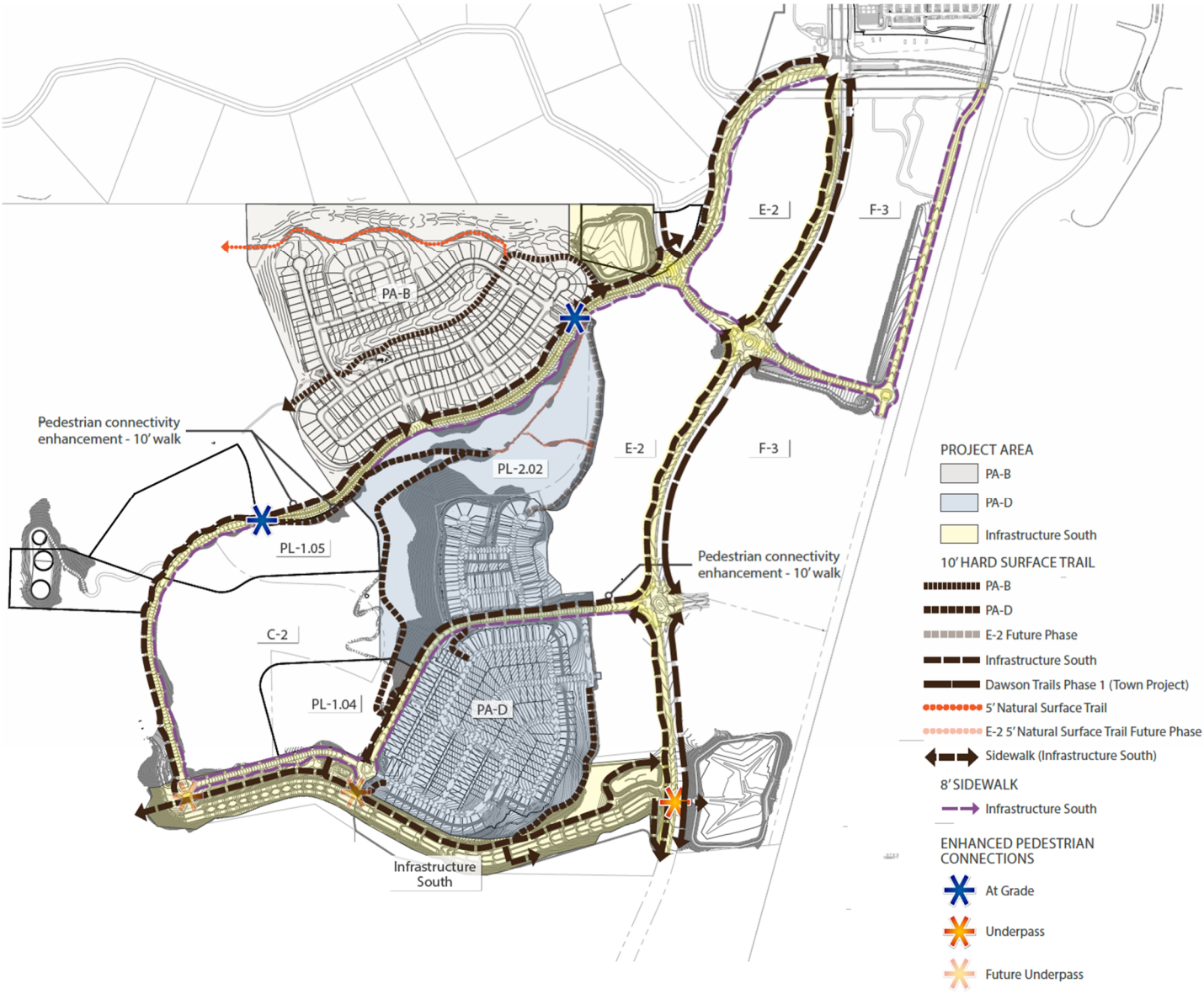

Figure 5. Proposed Multi-Modal Network

Conclusions

The most current site plan for Planning Area D-1 (north portion) is consistent with the assumptions of the MTS with fewer homes and trips than estimated for this parcel. **It is anticipated that the future planned roadway network and intersections can accommodate the project trips without the need for additional analysis or mitigation measures.**

Hopefully the contents of this memorandum are helpful. If you have any questions, please give me a call.

Sincerely,

FOX TUTTLE TRANSPORTATION GROUP, LLC

Cassie Slade, P.E., PTOE
Principal

Attachments:
Intersection Capacity Analysis Worksheets

Intersection	
Int Delay, s/veh	4.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	17	178	5	51	101	25	5	5	164	15	6	17
Future Vol, veh/h	17	178	5	51	101	25	5	5	164	15	6	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	0	150	-	175	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	193	5	55	110	27	5	5	178	16	7	18

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	137	0	0	199	0	0	457	481	196	454	457	110
Stage 1	-	-	-	-	-	-	233	233	-	221	221	-
Stage 2	-	-	-	-	-	-	224	248	-	233	236	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1447	-	-	1373	-	-	514	485	845	516	500	944
Stage 1	-	-	-	-	-	-	770	712	-	782	721	-
Stage 2	-	-	-	-	-	-	779	701	-	770	710	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1447	-	-	1373	-	-	471	459	845	382	474	944
Mov Cap-2 Maneuver	-	-	-	-	-	-	471	459	-	382	474	-
Stage 1	-	-	-	-	-	-	760	703	-	750	692	-
Stage 2	-	-	-	-	-	-	726	673	-	595	701	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.64	2.23	10.54	11.9
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	471	459	845	1447	-	-	1373	-	-	382	750
HCM Lane V/C Ratio	0.012	0.012	0.211	0.013	-	-	0.04	-	-	0.043	0.033
HCM Control Delay (s/veh)	12.7	12.9	10.4	7.5	-	-	7.7	-	-	14.9	10
HCM Lane LOS	B	B	B	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0	0	0.8	0	-	-	0.1	-	-	0.1	0.1

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	206	119	4	0	12
Future Vol, veh/h	1	206	119	4	0	12
Conflicting Peds, #/hr	0	0	0	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	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	1	224	129	4	0	13

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	134	0	-	0	359	132
Stage 1	-	-	-	-	132	-
Stage 2	-	-	-	-	227	-
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	1451	-	-	-	640	918
Stage 1	-	-	-	-	895	-
Stage 2	-	-	-	-	811	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1451	-	-	-	639	918
Mov Cap-2 Maneuver	-	-	-	-	639	-
Stage 1	-	-	-	-	894	-
Stage 2	-	-	-	-	811	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0.04	0	8.98
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1451	-	-	-	918
HCM Lane V/C Ratio	0.001	-	-	-	0.014
HCM Control Delay (s/veh)	7.5	-	-	-	9
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	194	115	4	12	1
Future Vol, veh/h	1	194	115	4	12	1
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	1	211	125	4	13	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	129	0	-	0	340	127
Stage 1	-	-	-	-	127	-
Stage 2	-	-	-	-	213	-
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	1456	-	-	-	656	923
Stage 1	-	-	-	-	899	-
Stage 2	-	-	-	-	822	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1456	-	-	-	655	923
Mov Cap-2 Maneuver	-	-	-	-	655	-
Stage 1	-	-	-	-	898	-
Stage 2	-	-	-	-	822	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0.04	0	10.49
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	9	-	-	-	670
HCM Lane V/C Ratio	0.001	-	-	-	0.021
HCM Control Delay (s/veh)	7.5	0	-	-	10.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	7.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	65	181	5	156	207	35	10	13	97	52	39	38
Future Vol, veh/h	65	181	5	156	207	35	10	13	97	52	39	38
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	0	150	-	175	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	71	197	5	170	225	38	11	14	105	57	42	41

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	263	0	0	202	0	0	926	943	199	909	908	225
Stage 1	-	-	-	-	-	-	341	341	-	564	564	-
Stage 2	-	-	-	-	-	-	585	602	-	345	343	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1301	-	-	1370	-	-	249	263	842	256	275	814
Stage 1	-	-	-	-	-	-	674	639	-	510	508	-
Stage 2	-	-	-	-	-	-	497	489	-	670	637	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1301	-	-	1370	-	-	165	218	842	175	228	814
Mov Cap-2 Maneuver	-	-	-	-	-	-	165	218	-	175	228	-
Stage 1	-	-	-	-	-	-	638	604	-	447	445	-
Stage 2	-	-	-	-	-	-	374	428	-	542	602	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	2.05	3.14	12.82	25.04
HCM LOS			B	D

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	165	218	842	1301	-	-	1370	-	-	175	354
HCM Lane V/C Ratio	0.066	0.065	0.125	0.054	-	-	0.124	-	-	0.322	0.236
HCM Control Delay (s/veh)	28.4	22.7	9.9	7.9	-	-	8	-	-	35	18.3
HCM Lane LOS	D	C	A	A	-	-	A	-	-	D	C
HCM 95th %tile Q(veh)	0.2	0.2	0.4	0.2	-	-	0.4	-	-	1.3	0.9

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	243	241	14	8	1
Future Vol, veh/h	1	243	241	14	8	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	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	1	264	262	15	9	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	277	0	-	0	536	270
Stage 1	-	-	-	-	270	-
Stage 2	-	-	-	-	266	-
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	1286	-	-	-	506	769
Stage 1	-	-	-	-	776	-
Stage 2	-	-	-	-	778	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1286	-	-	-	505	769
Mov Cap-2 Maneuver	-	-	-	-	505	-
Stage 1	-	-	-	-	775	-
Stage 2	-	-	-	-	778	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0.03	0	11.99
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1286	-	-	-	525
HCM Lane V/C Ratio	0.001	-	-	-	0.019
HCM Control Delay (s/veh)	7.8	-	-	-	12
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	235	227	14	8	1
Future Vol, veh/h	1	235	227	14	8	1
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	1	255	247	15	9	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	262	0	-	0	512	254
Stage 1	-	-	-	-	254	-
Stage 2	-	-	-	-	258	-
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	1302	-	-	-	522	784
Stage 1	-	-	-	-	788	-
Stage 2	-	-	-	-	785	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1302	-	-	-	521	784
Mov Cap-2 Maneuver	-	-	-	-	521	-
Stage 1	-	-	-	-	787	-
Stage 2	-	-	-	-	785	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0.03	0	11.77
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	8	-	-	-	542
HCM Lane V/C Ratio	0.001	-	-	-	0.018
HCM Control Delay (s/veh)	7.8	0	-	-	11.8
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	6.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	60	143	15	124	123	120	15	17	114	66	41	44
Future Vol, veh/h	60	143	15	124	123	120	15	17	114	66	41	44
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	0	150	-	0	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	65	155	16	135	134	130	16	18	124	72	45	48

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	264	0	0	172	0	0	720	828	164	698	705	134
Stage 1	-	-	-	-	-	-	294	294	-	403	403	-
Stage 2	-	-	-	-	-	-	426	534	-	295	302	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1300	-	-	1405	-	-	343	307	881	355	361	915
Stage 1	-	-	-	-	-	-	714	670	-	624	600	-
Stage 2	-	-	-	-	-	-	607	525	-	713	664	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1300	-	-	1405	-	-	244	263	881	246	310	915
Mov Cap-2 Maneuver	-	-	-	-	-	-	244	263	-	246	310	-
Stage 1	-	-	-	-	-	-	678	636	-	564	542	-
Stage 2	-	-	-	-	-	-	477	474	-	565	631	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	2.18	2.65	12.05	19.33
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	244	263	881	1300	-	-	1405	-	-	246	471
HCM Lane V/C Ratio	0.067	0.07	0.141	0.05	-	-	0.096	-	-	0.292	0.196
HCM Control Delay (s/veh)	20.8	19.7	9.8	7.9	-	-	7.8	-	-	25.6	14.5
HCM Lane LOS	C	C	A	A	-	-	A	-	-	D	B
HCM 95th %tile Q(veh)	0.2	0.2	0.5	0.2	-	-	0.3	-	-	1.2	0.7

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	209	172	10	9	1
Future Vol, veh/h	1	209	172	10	9	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	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	1	227	187	11	10	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	198	0	-	0	422	192
Stage 1	-	-	-	-	192	-
Stage 2	-	-	-	-	229	-
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	1375	-	-	-	589	849
Stage 1	-	-	-	-	840	-
Stage 2	-	-	-	-	809	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1375	-	-	-	588	849
Mov Cap-2 Maneuver	-	-	-	-	588	-
Stage 1	-	-	-	-	840	-
Stage 2	-	-	-	-	809	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0.04	0	11.04
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1375	-	-	-	607
HCM Lane V/C Ratio	0.001	-	-	-	0.018
HCM Control Delay (s/veh)	7.6	-	-	-	11
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	200	162	10	9	1
Future Vol, veh/h	1	200	162	10	9	1
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	1	217	176	11	10	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	187	0	-	0	401	182
Stage 1	-	-	-	-	182	-
Stage 2	-	-	-	-	220	-
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	1387	-	-	-	605	861
Stage 1	-	-	-	-	850	-
Stage 2	-	-	-	-	817	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1387	-	-	-	604	861
Mov Cap-2 Maneuver	-	-	-	-	604	-
Stage 1	-	-	-	-	849	-
Stage 2	-	-	-	-	817	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0.04	0	10.88
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	9	-	-	-	623
HCM Lane V/C Ratio	0.001	-	-	-	0.017
HCM Control Delay (s/veh)	7.6	0	-	-	10.9
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1