

MEMORANDUM

To: Mark Beal, Director of Construction
Ryan Companies US, Inc

From: Emily Kotz, PE
Bill Fox, PE

Date: January 29, 2020

Project: Project 321 – Office Campus

Subject: Conformance Letter with the Redtail Traffic and Mobility Study

Pursuant to your request, the Fox Tuttle Transportation Group, LLC has prepared a traffic conformance letter for Project 321 – Office Campus located within the Redtail Ridge project area. This letter is consistent with the assumptions and methodology used to prepare the Redtail Ridge Traffic and Mobility Study, dated January 28, 2020 (hereon referred to as the *Redtail Study*).

As shown in **Figure 1**, Project 321 is the central area in the Redtail Ridge project, located south of Campus Drive and north of Tape Drive, between the new Street A and Street B roadways (referred to as Parcel B in the Redtail Ridge GDP). Project 321 is planned to be developed as a 500,000 square foot corporate office headquarters. Access to the office campus is proposed via three full movement accesses along Street B in addition to a service entrance on Campus Drive (see **Figure 2**). This is the first development planned to be constructed in the Redtail Ridge project. As part of the initial phasing, the following roadways are planned to be constructed with the planned opening of Project 321:

- Extension of Campus Drive from where it dead ends to S. 96th Street
- Street B between Campus Drive and Tape Drive
- Tape Drive between Street B and Northwest Parkway

Note that Tape Drive between S. 88th Street and Street B is not planned to be constructed as part of this initial phase nor is Street A between Campus Drive and the future Tape Drive. The purpose of this conformance letter is to evaluate the planned roadway network (bulleted above) with traffic generated by Project 321.

In addition, based on the findings in the *Redtail Study*, the following off-site improvements were recommended to be constructed with the first development constructed and once Campus Drive is extended to S. 96th Street:

- S. 96th Street/Dillon Road: Construct dual eastbound and westbound left-turn lanes on Dillon Road
- Expand S. 96th Street to a four-lane section between Dillon Road to Northwest Parkway
- S. 88th Street/Campus Drive: Extend the northbound right-turn lane to provide a minimum of 500 feet of storage
- S. 96th Street/Campus Drive: Construct three northbound through lanes on S. 96th Street that extend from the Northwest Parkway/S. 96th Street/Via Varra intersection and merge to two through lanes north of Campus Drive.
- Northwest Parkway/S. 96th Street: Construct triple northeast bound left-turn lanes on Northwest Parkway and modify the southwest bound right-turn lane movement to be controlled on Northwest Parkway

Traffic Volume Assumptions

Trip generation estimates for the proposed 500,000 square foot office campus were prepared for the *Redtail Study*. Those trip generation estimates are shown in **Table 1**. Note that since Project 321 is the first vertical development for the Redtail Ridge project, the internal capture rate percentage was assumed to be zero (0) percent in Year 2022, whereas by Year 2025 once the first phase of development for Redtail Ridge is constructed, which includes continuing care retirement community units, multifamily residential units, retail space, hotels, and additional office development in the surrounding parcels, the internal capture rate was assumed to be 10 percent.

Table 1 – Trip Generation Summary: Project 321 – Office Campus (Redtail Ridge Parcel B)

Land Use	Size	Unit	Non-SOV	Internal Capture	Average Weekday Trips	Weekday AM Peak Hour Trips			Weekday PM Peak Hour Trips		
					Total	Total	In	Out	Total	In	Out
#710 General Office Building - Medtronic	500.0	KSF	5%	0%	4,802	472	406	66	499	80	419

As shown in **Table 1**, the office campus is expected to generate approximately 4,802 daily, 472 AM peak hour, and 499 PM peak hour trips. Project 321 is approximately 40 percent of the total development generated traffic that was assumed to be completed prior to Year 2025 in Phase 1 based on the findings/ assumptions in the *Redtail Study*.

The trips generated by Project 321 were distributed to the roadway network based on the trip distribution assumptions developed for the *Redtail Study*. Trips that were routed to use the future S. 88th Street/Tape Drive intersection were rerouted to use the S. 88th Street/Campus Drive intersection since under this initial phase Tape Drive between S. 88th Street and Street B will not be constructed.

Consistent with the *Redtail Study*, an annual growth rate of one-half percent was applied to the existing traffic volumes and planned development traffic generated by Parkway Circle in Broomfield, St. Louis Parish in Louisville, and Morgan Ranch DTC in Superior were used to generate Year 2022 background traffic volumes. In addition, existing traffic volumes were rerouted through the study network to account for travel pattern changes once Campus Drive is extended to S. 96th Street, as Campus Drive will provide an alternative route for existing traffic to route through the roadway network. The resultant Year 2022 + Project 321 condition traffic volumes on Street B are illustrated in **Figure 3**.

Year 2022 + Parcel B Intersection Capacity Analysis

An intersection capacity analysis was performed for the Year 2022 + Project 321 conditions. The results of the LOS calculations for the intersections are summarized in **Table 2**. Intersection LOS worksheets are included as an attachment. **Results of the peak hour intersection capacity analysis indicate that with the planned improvements identified in the *Redtail Study*, all study intersections are expected to operate at an overall LOS D or better.**

Table 2. Year 2022 + Project 321 Level of Service Summary

Intersection	Overall Intersection LOS (Delay)	
	AM Peak Hour	PM Peak Hour
Dillon Road/McCaslin Boulevard	C (25 sec)	C (33 sec)
Dillon Road/S. 88th Street	C (20 sec)	C (18 sec)
Dillon Road/S. 96th Street	C (35 sec.)	D (41 sec)
S. 88th Street/Campus Drive	D (36 sec.)	C (33 sec.)
S. 88th Street/Tape Drive ⁽¹⁾	--	--
S. 96th Street/Campus Drive	C (22 sec.)	B (16 sec.)
Northwest Parkway/S. 96th Street/Via Varra	D (37 sec.)	C (29 sec.)
Northwest Parkway/Tape Drive/Via Varra	C (29 sec)	A (9 sec)
Northwest Parkway/US 36 North Ramps (WB)	A (12 sec)	B (16 sec)
Northwest Parkway/US 36 South Ramps (EB)	B (19 sec)	C (33 sec)
S. 88th Street/Rock Creek Parkway ⁽²⁾	A (10 sec)	A (7 sec)

⁽¹⁾ Unsignalized with side-street stop control. The overall intersection LOS is following by the worst-movement LOS and delay.

⁽²⁾ Roundabout controlled intersection

The findings from the Year 2022 + Project 321 conditions are consistent with the *Redtail Study* and no additional off-site improvements are anticipated to be needed to accommodate Project 321 during the year of opening.

Access Operations and Queuing Analysis

Fox Tuttle Transportation Group has worked with the Project 321 and Redtail Ridge project teams to design an internal roadway network that can accommodate the initial phase and full buildout of the project trips safely and efficiently. This includes where turn lanes are needed at the internal intersections and the recommended storage to accommodate the anticipated queues as well as traffic control needs.

An intersection capacity and queuing analysis was performed for the three proposed full movement accesses along Street B as well as at Campus Drive (proposed multi-lane roundabout) and Tape Drive. Consistent with the *Redtail Study*, Street B was assumed to be a four-lane divided arterial roadway with northbound/southbound left-turn lanes on Street B at the three full-movement accesses. At the three driveways exiting Project 321 onto Street B, an eastbound left-turn lane (approximately 150 feet of storage), a through lane, and a short 50-foot right-turn lane was recommended to the project team.

Note that future development to the parcel east of Street B between Campus Drive and Tape Drive is anticipated to have full-movement accesses that directly align with the Project 321 accesses. Based on a review of traffic volumes and operations in the *Redtail Study*, prior to Year 2030, all three accesses are anticipated to operate at acceptable levels of service as unsignalized intersections. However, after Year 2030, as development traffic to Redtail Ridge increases, traffic volumes at the central access and the Tape Drive/Street B intersections are expected to warrant installation of a traffic signal and therefore under Year 2040 traffic signals were assumed to be installed at both intersections.

An intersection capacity analysis was performed for the proposed intersections along Street B under Year 2022 + Project 321 conditions and under Year 2040 conditions with full build out of the Redtail Ridge development. The results of the LOS calculations for the intersections are summarized in **Table 3** and **Table 4**. Intersection LOS worksheets are included as an attachment. **Results of the intersection capacity analysis indicate that the proposed accesses are expected to operate at an overall LOS B or better.**

Table 3. Year 2022 + Project 321 Proposed Access Level of Service Summary

Street B Intersections	Overall Intersection LOS (Delay)	
	AM Peak Hour	PM Peak Hour
at Campus Drive ⁽¹⁾	A (4 sec.)	A (5 sec.)
at North Access ⁽²⁾	A / A (5 sec.)	A / A (6 sec.)
at Central Access ⁽²⁾	A / A (6 sec.)	A / A (6 sec.)
at South Access ⁽²⁾	A / A (5 sec.)	A / A (5 sec.)
at Tape Drive ⁽²⁾	A / A (4 sec.)	A / A (5 sec.)

⁽¹⁾ Roundabout controlled intersection

⁽²⁾ Unsignalized with side-street stop control. The overall intersection LOS is following by the worst-movement LOS and delay.

Table 4. Year 2040 Full Build Out Proposed Access Level of Service Summary

Street B Intersections	Overall Intersection LOS (Delay)	
	AM Peak Hour	PM Peak Hour
at Campus Drive ⁽¹⁾	A (8 sec.)	A (6 sec.)
at North Access ⁽²⁾	A / C (14 sec.)	A / C (19 sec.)
at Central Access ⁽³⁾	B (11 sec.)	B (12 sec.)
at South Access ⁽²⁾	A / C (16 sec.)	A / C (17 sec.)
at Tape Drive ⁽³⁾	B (17 sec.)	B (18 sec.)

⁽¹⁾ Roundabout controlled intersection

⁽²⁾ Unsignalized with side-street stop control. The overall intersection LOS is following by the worst-movement LOS and delay.

⁽³⁾ Signalized intersection assumed to be warranted after Year 2030.

No queueing issues are anticipated under Year 2022 and Year 2040 conditions at the intersections along Street B. The recommended turn lanes and storage distances are anticipated to be able to accommodate the expected queues during the AM and PM peak hours.

Hopefully the contents of this letter are helpful. Please contact us with any additional questions.

Emily Kotz, PE

Senior Transportation Engineer

Attachments:

Figure 1 – Vicinity Map

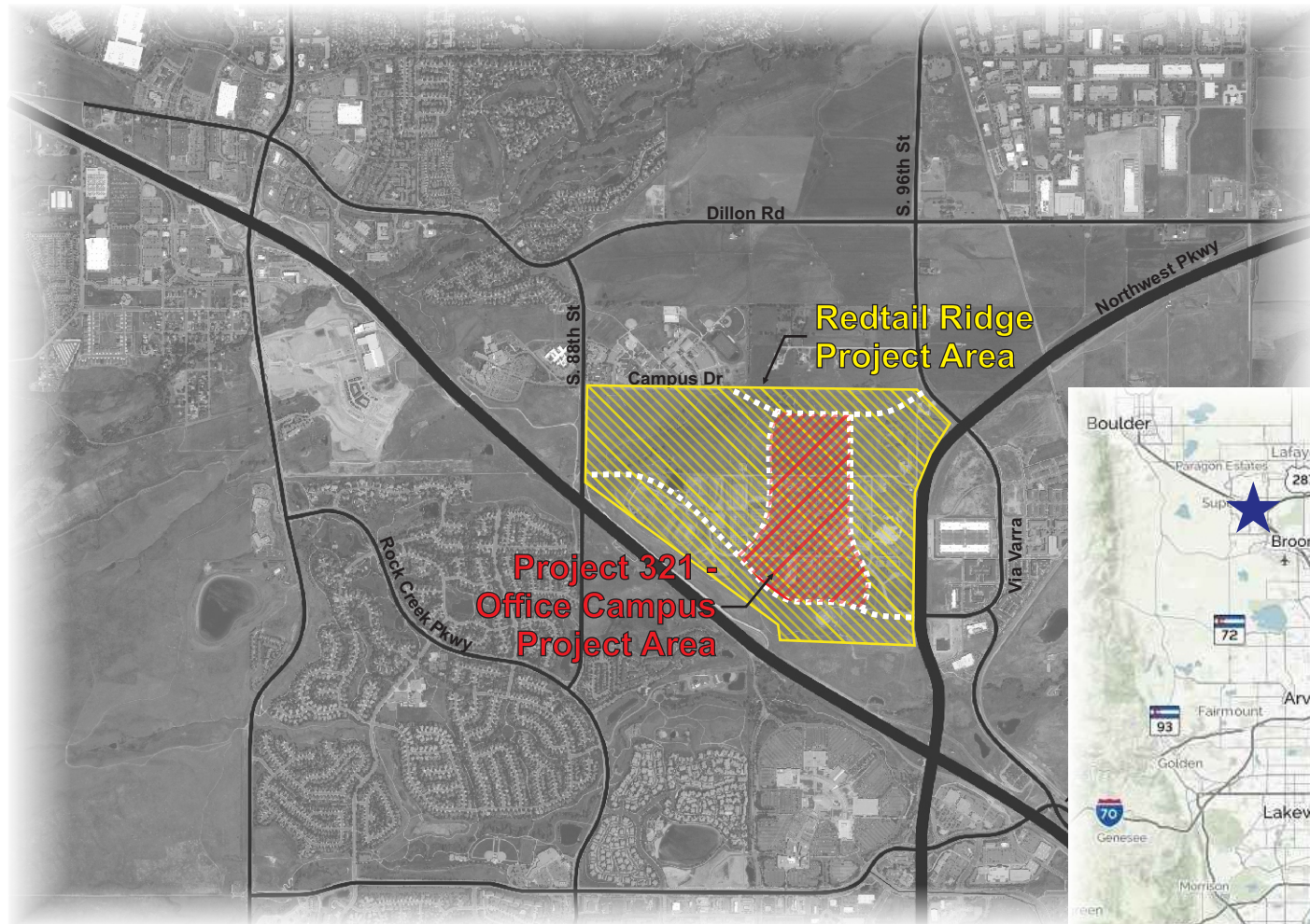
Figure 2 – Proposed Site Plan and Access

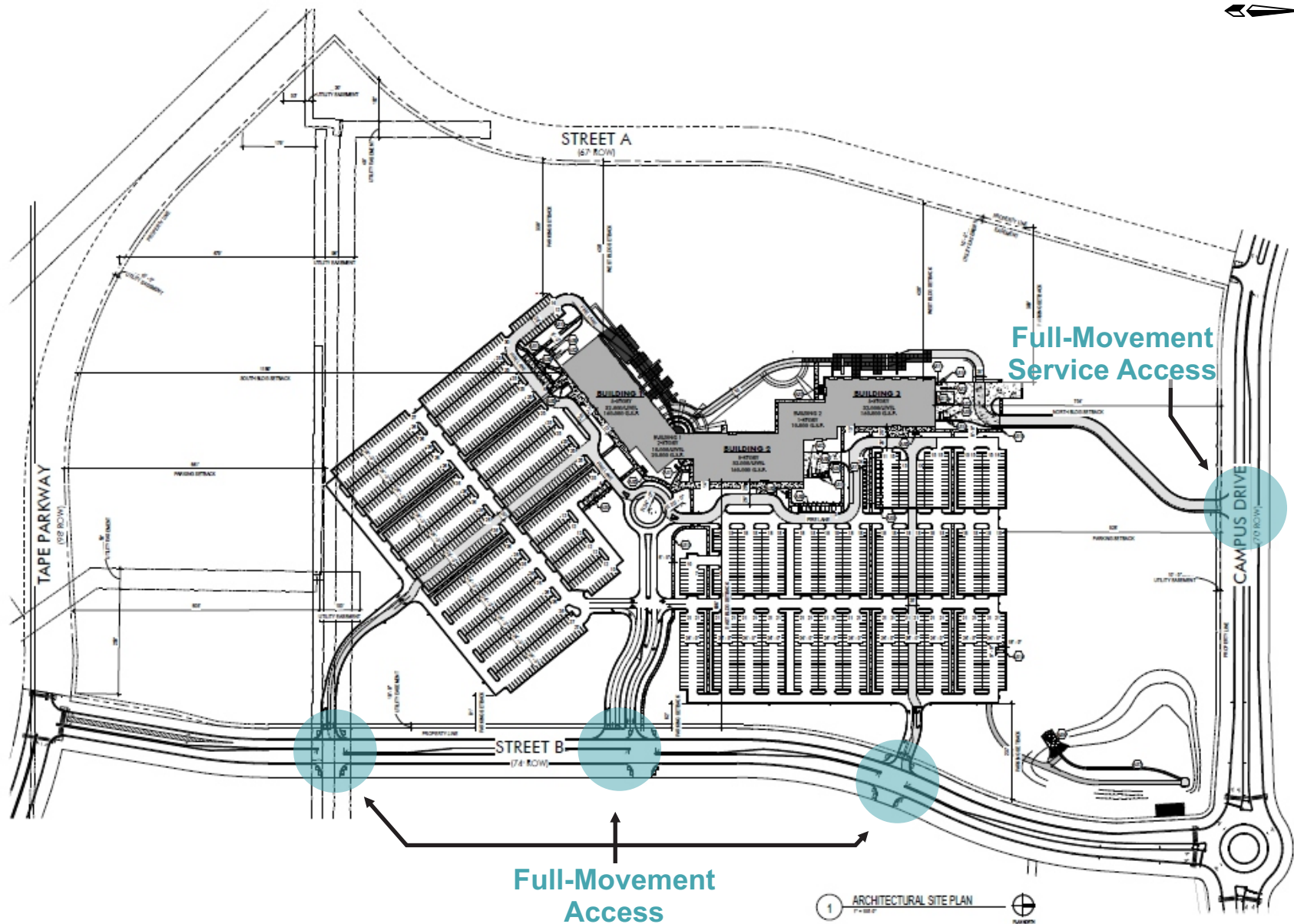
Figure 3 – Year 2022+Project 321 Street B Traffic Volumes

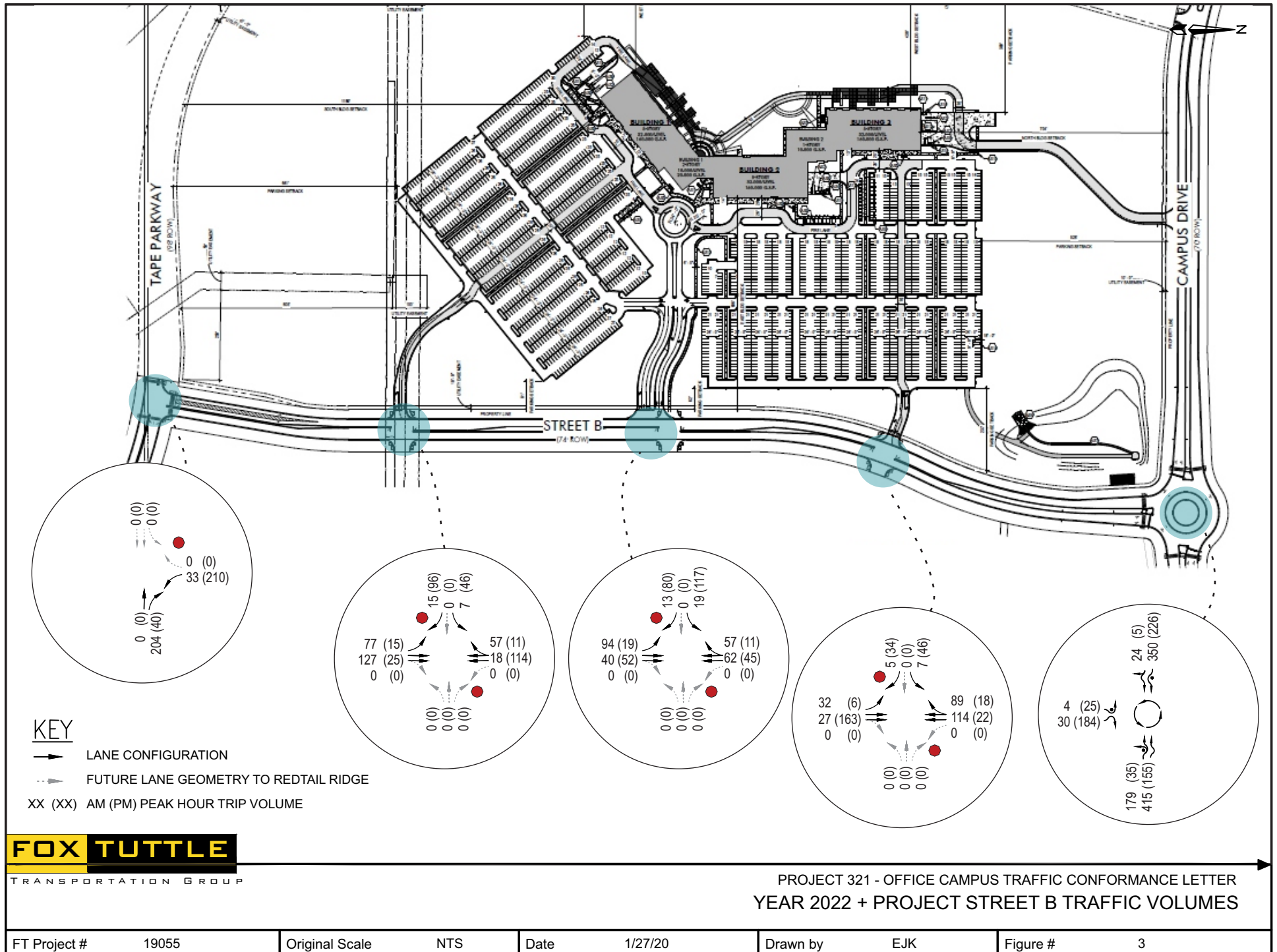
Intersection Capacity Reports

Year 2022 + Project 321 (Study intersections and proposed accesses)

Year 2040 (proposed accesses)







Intersection						
Intersection Delay, s/veh	9.6					
Intersection LOS	A					
Approach	EB		WB		SB	
Entry Lanes	2		2		2	
Conflicting Circle Lanes	2		2		2	
Adj Approach Flow, veh/h	628		997		486	
Demand Flow Rate, veh/h	641		1016		495	
Vehicles Circulating, veh/h	328		407		329	
Vehicles Exiting, veh/h	496		562		1094	
Ped Vol Crossing Leg, #/h	5		12		0	
Ped Cap Adj	0.996		0.991		1.000	
Approach Delay, s/veh	7.3		12.7		6.3	
Approach LOS	A		B		A	
Lane	Left	Right	Left	Right	Left	Right
Designated Moves	LT	TR	LT	TR	L	TR
Assumed Moves	L	TR	LT	R	L	TR
RT Channelized						
Lane Util	0.635	0.365	0.324	0.676	0.663	0.337
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	407	234	329	687	328	167
Cap Entry Lane, veh/h	998	1075	928	1005	997	1074
Entry HV Adj Factor	0.980	0.980	0.980	0.981	0.982	0.982
Flow Entry, veh/h	399	229	323	674	322	164
Cap Entry, veh/h	975	1049	902	977	979	1054
V/C Ratio	0.409	0.219	0.358	0.690	0.329	0.156
Control Delay, s/veh	8.3	5.5	8.0	14.9	7.1	4.8
LOS	A	A	A	B	A	A
95th %tile Queue, veh	2	1	2	6	1	1

Intersection						
Intersection Delay, s/veh	4.7					
Intersection LOS	A					
Approach	EB		WB		NB	
Entry Lanes	2		2		2	
Conflicting Circle Lanes	2		2		2	
Adj Approach Flow, veh/h	406		646		36	
Demand Flow Rate, veh/h	415		659		37	
Vehicles Circulating, veh/h	199		4		388	
Vehicles Exiting, veh/h	464		421		226	
Ped Vol Crossing Leg, #/h	0		0		0	
Ped Cap Adj	1.000		1.000		1.000	
Approach Delay, s/veh	4.7		4.7		3.9	
Approach LOS	A		A		A	
Lane	Left	Right	Left	Right	Left	Right
Designated Moves	LT	TR	LT	TR	LTR	R
Assumed Moves	LT	TR	LT	TR	LTR	R
RT Channelized						
Lane Util	0.470	0.530	0.470	0.530	0.459	0.541
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	195	220	310	349	17	20
Cap Entry Lane, veh/h	1124	1199	1345	1415	945	1021
Entry HV Adj Factor	0.980	0.979	0.979	0.981	0.995	0.954
Flow Entry, veh/h	191	215	304	342	17	19
Cap Entry, veh/h	1101	1174	1317	1388	940	974
V/C Ratio	0.173	0.183	0.231	0.247	0.018	0.020
Control Delay, s/veh	4.8	4.7	4.7	4.7	4.0	3.9
LOS	A	A	A	A	A	A
95th %tile Queue, veh	1	1	1	1	0	0

5: McCaslin Blvd & Dillon Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.2	4.0	0.5	0.7	2.8	2.1	0.2	0.4	2.3	0.2	2.2
Total Del/Veh (s)	47.9	47.5	1.8	39.4	34.6	3.2	47.4	29.9	4.3	52.4	21.7	3.1

5: McCaslin Blvd & Dillon Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.8
Total Del/Veh (s)	25.4

10: 88th Street & Dillon Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBT	NBR	All
Denied Del/Veh (s)	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	35.8	3.5	29.8	15.8	35.8	1.3	1.6	20.1

15: 96th St & Dillon Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.3	0.0	0.0	0.0
Total Del/Veh (s)	69.6	56.1	20.7	69.3	50.1	11.1	43.9	31.5	7.4	32.0	35.0	5.8

15: 96th St & Dillon Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	35.4

20: 88th Street & Campus Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	4.0	0.3	0.2	0.0	0.0	0.0	0.1	0.6	0.3	0.7	0.1	0.5
Total Del/Veh (s)	43.2	69.6	41.2	55.8	40.6	31.8	30.4	47.7	33.9	38.8	16.0	5.8

20: 88th Street & Campus Dr Performance by movement

Movement	All
Denied Del/Veh (s)	0.4
Total Del/Veh (s)	36.2

22: 88th Street & Tape Dr Performance by movement

Movement	NBT	SBT	All
Denied Del/Veh (s)	0.1	0.0	0.1
Total Del/Veh (s)	2.0	2.6	2.2

23: 96th St & Campus Dr Performance by movement

Movement	EBL	EBT	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
Total Del/Veh (s)	51.3	0.1	16.6	67.8	12.8	21.5	7.7	21.7

25: Northwest Pkwy & 96th St/Via Varra Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.0	0.1	3.4	0.2	3.5	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	69.4	82.7	8.2	52.3	59.6	1.4	57.0	10.4	1.0	65.3	47.5	11.6

25: Northwest Pkwy & 96th St/Via Varra Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	37.1

30: Northwest Pkwy & Tape Drive/Via Varra Performance by movement

Movement	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	1.0	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	48.7	0.1	121.2	7.1	43.1	8.6	3.1	67.8	27.9	9.5	28.6

35: Northwest Pkwy & US 36 WB (North Ramps) Performance by movement

Movement	WBL	WBT	WBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.4	0.5	0.3	0.1	0.0	0.0	0.0	0.1
Total Del/Veh (s)	57.4	61.2	2.6	39.4	5.6	10.3	7.9	12.1

40: Northwest Pkwy & US 36 EB (South Ramps) Performance by movement

Movement	EBL	EBT	EBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	1.7	1.1	3.3	0.3	2.3	0.0	0.0	0.6
Total Del/Veh (s)	57.4	58.0	1.7	24.6	4.2	46.4	6.9	19.7

44: 88th Street Performance by movement

Movement	EBR	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.2	0.2	0.0	0.0	0.0	0.7	0.1	0.0	0.1
Total Del/Veh (s)	6.2	5.3	7.2	2.9	2.9	3.9	0.9	0.7	2.3

45: Rock Creek Pkwy & 88th Street Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.3	0.1	0.2	0.3	0.1	0.4	0.2
Total Del/Veh (s)	7.2	5.6	7.7	7.2	7.1	6.0	7.0

104: Street A & Campus Dr Performance by movement

Movement	EBT	WBT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	0.8	0.5	0.7

105: Street B & Campus Dr Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.7	2.5	3.8	4.5	3.0	3.1	4.4

110: Street B & Tape Dr Performance by movement

Movement	WBR	SBL	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	2.4	3.9	2.7

111: Tape Dr & Parcel C RI Performance by movement

Movement	EBT	WBT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	0.6	3.3	2.9

113: Street B & North RIRO Performance by movement

Movement	NBT	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	0.1	0.5	0.4

114: Street B & North Full Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	4.5	4.2	0.0	0.0	0.0	0.0	0.2
Total Del/Veh (s)	5.4	2.4	2.6	0.2	0.6	0.1	0.8

115: Street B & Central Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	4.0	4.1	0.0	0.0	0.0	0.0	0.5
Total Del/Veh (s)	6.2	2.8	2.5	0.2	0.4	0.5	1.6

116: Street B & South Full Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	4.1	4.2	0.0	0.0	0.0	0.0	0.3
Total Del/Veh (s)	5.4	2.5	2.3	0.2	0.1	0.3	1.0

117: Street B & South RIRO Performance by movement

Movement	NBT	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	0.4	0.1	0.4

Total Network Performance

Denied Del/Veh (s)	0.9
Total Del/Veh (s)	72.7

Queuing and Blocking Report

01/26/2020

2022 + Project 321 - AM

Intersection: 5: McCaslin Blvd & Dillon Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	SB
Directions Served	L	L	T	L	L	T	L	L	T	T	R	L
Maximum Queue (ft)	30	88	95	266	299	172	102	150	417	400	196	193
Average Queue (ft)	3	33	24	144	190	79	21	82	249	223	37	62
95th Queue (ft)	16	71	68	244	275	149	69	134	388	369	127	160
Link Distance (ft)		750	750		1028	1028			893	893	893	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	135			285			510	510				190
Storage Blk Time (%)		0	0	0	1				0			0
Queuing Penalty (veh)		0	0	0	2				0			1

Intersection: 5: McCaslin Blvd & Dillon Rd

Movement	SB	SB	SB	SB	SB
Directions Served	L	T	T	T	R
Maximum Queue (ft)	217	265	265	213	71
Average Queue (ft)	103	160	140	89	1
95th Queue (ft)	184	233	224	177	26
Link Distance (ft)		1296	1296	1296	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	190			100	
Storage Blk Time (%)	1	3		4	
Queuing Penalty (veh)	3	6		4	

Intersection: 10: 88th Street & Dillon Rd

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	R	L	T	T	L	L
Maximum Queue (ft)	464	96	269	212	235	179	194
Average Queue (ft)	217	25	88	110	125	81	103
95th Queue (ft)	406	68	212	200	218	141	160
Link Distance (ft)	1552	1552		490	490		337
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			400			200	
Storage Blk Time (%)						0	0
Queuing Penalty (veh)						0	1

Queuing and Blocking Report

01/26/2020

2022 + Project 321 - AM

Intersection: 15: 96th St & Dillon Rd

Movement	EB	EB	EB	EB	EB	B9	WB	WB	WB	WB	WB	NB
Directions Served	L	L	T	T	R	T	L	L	T	T	R	L
Maximum Queue (ft)	236	217	206	165	106	194	311	345	267	237	103	242
Average Queue (ft)	127	106	114	82	35	3	174	214	142	114	39	111
95th Queue (ft)	201	184	185	153	81	68	276	312	220	193	80	199
Link Distance (ft)			600	600		490			650	650		
Upstream Blk Time (%)						0						
Queuing Penalty (veh)						0						
Storage Bay Dist (ft)	415	415			415		420	420			420	330
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 15: 96th St & Dillon Rd

Movement	NB	NB	B42	B42	SB	SB	SB	SB
Directions Served	T	T	T	T	L	T	T	R
Maximum Queue (ft)	419	382	204	215	157	405	459	248
Average Queue (ft)	253	202	10	11	61	222	286	46
95th Queue (ft)	396	352	126	137	120	349	411	142
Link Distance (ft)	2004	2004	509	509		661	661	
Upstream Blk Time (%)			0	0				
Queuing Penalty (veh)			0	0				
Storage Bay Dist (ft)					335		335	
Storage Blk Time (%)	3	0				1	5	
Queuing Penalty (veh)	7	3				1	15	

Intersection: 20: 88th Street & Campus Dr

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	R	L	L	T	R
Maximum Queue (ft)	97	174	378	282	117	634	526	335	348	159	89
Average Queue (ft)	23	53	182	121	48	194	225	112	128	65	36
95th Queue (ft)	57	129	329	243	93	602	496	244	266	126	69
Link Distance (ft)		565	1963	1963		1348				869	
Upstream Blk Time (%)						0					
Queuing Penalty (veh)						0					
Storage Bay Dist (ft)	125				170		500	400	400		200
Storage Blk Time (%)		3				6	7	0	0		
Queuing Penalty (veh)		1				42	18	0	0		

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Intersection: 22: 88th Street & Tape Dr

Movement	NB
Directions Served	T
Maximum Queue (ft)	49
Average Queue (ft)	2
95th Queue (ft)	37
Link Distance (ft)	978
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 23: 96th St & Campus Dr

Movement	EB	EB	EB	NB	NB	NB	NB	NB	SB	SB	SB	B42
Directions Served	L	L	R	L	L	T	T	T	T	T	R	T
Maximum Queue (ft)	194	198	70	184	197	310	413	344	242	565	509	343
Average Queue (ft)	99	118	20	80	86	97	117	45	72	322	116	12
95th Queue (ft)	166	179	54	151	160	217	261	191	167	523	325	251
Link Distance (ft)		1045	1045			714	714	714	509	509		2004
Upstream Blk Time (%)								0		1	0	
Queuing Penalty (veh)								0		6	0	
Storage Bay Dist (ft)	300			250	250						450	
Storage Blk Time (%)				0	0	0				2		
Queuing Penalty (veh)				1	2	0				10		

Intersection: 23: 96th St & Campus Dr

Movement	B42
Directions Served	T
Maximum Queue (ft)	364
Average Queue (ft)	20
95th Queue (ft)	276
Link Distance (ft)	2004
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 25: Northwest Pkwy & 96th St/Via Varra

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	L	T	T	L	L	L
Maximum Queue (ft)	77	90	163	153	27	34	72	230	200	458	494	482
Average Queue (ft)	19	37	70	65	2	4	24	115	89	243	277	222
95th Queue (ft)	53	71	135	128	19	21	59	188	165	401	436	387
Link Distance (ft)			714	714				1056	1056			
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	280	280			250	180	180			700	700	700
Storage Blk Time (%)								2	1			
Queuing Penalty (veh)								1	1			

Intersection: 25: Northwest Pkwy & 96th St/Via Varra

Movement	NB	NB	SB	SB	SB	SB	SB
Directions Served	T	T	L	L	T	T	R
Maximum Queue (ft)	148	150	56	95	569	565	317
Average Queue (ft)	58	74	12	43	310	311	87
95th Queue (ft)	121	134	40	79	506	511	207
Link Distance (ft)	941	941			864	864	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			600	600			600
Storage Blk Time (%)					1	1	
Queuing Penalty (veh)					0	2	

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Intersection: 30: Northwest Pkwy & Tape Drive/Via Varra

Movement	EB	WB	WB	WB	NB	NB	NB	NB	NB	B29	B29	B29
Directions Served	L	L	L	R	L	L	T	T	R	T	T	
Maximum Queue (ft)	28	299	350	55	111	150	295	255	69	196	206	74
Average Queue (ft)	3	180	215	27	36	78	161	121	23	7	14	3
95th Queue (ft)	18	313	349	49	85	130	259	218	55	83	125	54
Link Distance (ft)			680				652	652		370	370	370
Upstream Blk Time (%)										0	0	0
Queuing Penalty (veh)										0	0	0
Storage Bay Dist (ft)	125	250		500	455	455			250			
Storage Blk Time (%)		4	15					0				
Queuing Penalty (veh)		6	21					0				

Intersection: 30: Northwest Pkwy & Tape Drive/Via Varra

Movement	SB	SB	SB	SB	B39	B39	B39
Directions Served	L	L	T	T	T	T	
Maximum Queue (ft)	56	73	488	510	965	965	777
Average Queue (ft)	13	44	316	337	286	325	76
95th Queue (ft)	43	78	444	466	984	1048	504
Link Distance (ft)			2052	2052	941	941	941
Upstream Blk Time (%)					0	1	0
Queuing Penalty (veh)					2	3	2
Storage Bay Dist (ft)	550	550					
Storage Blk Time (%)			0	0			
Queuing Penalty (veh)			0	0			

Intersection: 35: Northwest Pkwy & US 36 WB (North Ramps)

Movement	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	LT	L	T	T	T	T	T	R
Maximum Queue (ft)	206	228	252	91	89	275	289	312	266
Average Queue (ft)	102	135	117	34	27	120	143	149	92
95th Queue (ft)	185	206	218	74	72	247	262	269	219
Link Distance (ft)		1442		556	556		370	370	
Upstream Blk Time (%)							0	0	
Queuing Penalty (veh)							0	0	
Storage Bay Dist (ft)	330		190			300			300
Storage Blk Time (%)			3			0	0	0	0
Queuing Penalty (veh)			12			1	1	0	2

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Intersection: 37: Bend

Movement	EB	EB
Directions Served	T	
Maximum Queue (ft)	518	304
Average Queue (ft)	27	14
95th Queue (ft)	212	155
Link Distance (ft)	650	650
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 38: Bend

Movement	NB	NB
Directions Served	T	
Maximum Queue (ft)	614	534
Average Queue (ft)	130	52
95th Queue (ft)	515	301
Link Distance (ft)	661	661
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 40: Northwest Pkwy & US 36 EB (South Ramps)

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	LT	R	T	T	R	L	L	T	T
Maximum Queue (ft)	224	240	58	315	269	16	259	282	249	266
Average Queue (ft)	117	127	0	200	159	1	150	175	98	106
95th Queue (ft)	179	191	0	291	248	12	235	256	224	235
Link Distance (ft)		1037		1760	1760			556	556	556
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	330		150			300	180			
Storage Blk Time (%)		6			0		3	10		
Queuing Penalty (veh)		30			0		8	22		

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Intersection: 44: 88th Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	78	89	31	34
Average Queue (ft)	31	42	3	6
95th Queue (ft)	62	70	16	26
Link Distance (ft)	627	437		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			75	75
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 45: Rock Creek Pkwy & 88th Street

Movement	EB	EB	WB	WB	SB	SB
Directions Served	LT	T	T	TR	L	R
Maximum Queue (ft)	160	59	153	253	172	75
Average Queue (ft)	56	2	43	53	49	25
95th Queue (ft)	123	28	109	161	123	77
Link Distance (ft)	807	807	1051	1051	764	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						50
Storage Blk Time (%)					4	0
Queuing Penalty (veh)					6	1

Intersection: 104: Street A & Campus Dr

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

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Intersection: 105: Street B & Campus Dr

Movement	EB	WB	NB	NB
Directions Served	T	LT	LR	R
Maximum Queue (ft)	84	68	42	16
Average Queue (ft)	28	10	6	1
95th Queue (ft)	65	41	27	9
Link Distance (ft)	1300	1045	354	354
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 106: Parcel E West & Tape Dr

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 107: Tape Dr & Parcel A

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 108: Parcel E/Street A & Tape Dr

Movement

Directions Served

Maximum Queue (ft)

Average Queue (ft)

95th Queue (ft)

Link Distance (ft)

Upstream Blk Time (%)

Queuing Penalty (veh)

Storage Bay Dist (ft)

Storage Blk Time (%)

Queuing Penalty (veh)

Intersection: 109: Parcel D West & Tape Dr

Movement

Directions Served

Maximum Queue (ft)

Average Queue (ft)

95th Queue (ft)

Link Distance (ft)

Upstream Blk Time (%)

Queuing Penalty (veh)

Storage Bay Dist (ft)

Storage Blk Time (%)

Queuing Penalty (veh)

Intersection: 110: Street B & Tape Dr

Movement

SB

Directions Served

L

Maximum Queue (ft)

42

Average Queue (ft)

17

95th Queue (ft)

39

Link Distance (ft)

311

Upstream Blk Time (%)

Queuing Penalty (veh)

Storage Bay Dist (ft)

Storage Blk Time (%)

Queuing Penalty (veh)

Intersection: 111: Tape Dr & Parcel C RI

Movement

Directions Served

Maximum Queue (ft)

Average Queue (ft)

95th Queue (ft)

Link Distance (ft)

Upstream Blk Time (%)

Queuing Penalty (veh)

Storage Bay Dist (ft)

Storage Blk Time (%)

Queuing Penalty (veh)

Intersection: 112: Street A & Parcel A

Movement

Directions Served

Maximum Queue (ft)

Average Queue (ft)

95th Queue (ft)

Link Distance (ft)

Upstream Blk Time (%)

Queuing Penalty (veh)

Storage Bay Dist (ft)

Storage Blk Time (%)

Queuing Penalty (veh)

Intersection: 113: Street B & North RIRO

Movement

Directions Served

Maximum Queue (ft)

Average Queue (ft)

95th Queue (ft)

Link Distance (ft)

Upstream Blk Time (%)

Queuing Penalty (veh)

Storage Bay Dist (ft)

Storage Blk Time (%)

Queuing Penalty (veh)

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Intersection: 114: Street B & North Full

Movement	EB	EB	NB
Directions Served	L	R	L
Maximum Queue (ft)	25	30	29
Average Queue (ft)	4	7	4
95th Queue (ft)	20	27	20
Link Distance (ft)			
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	200	50	300
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Intersection: 115: Street B & Central

Movement	EB	EB	NB	SB
Directions Served	L	R	L	TR
Maximum Queue (ft)	39	31	39	3
Average Queue (ft)	14	11	4	0
95th Queue (ft)	39	35	23	2
Link Distance (ft)				551
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	200	50	300	
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		

Intersection: 116: Street B & South Full

Movement	EB	EB	NB	SB
Directions Served	L	R	L	TR
Maximum Queue (ft)	29	31	47	4
Average Queue (ft)	6	13	6	0
95th Queue (ft)	26	37	29	2
Link Distance (ft)				631
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	200	50	300	
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		

Intersection: 117: Street B & South RIRO

Movement

Directions Served

Maximum Queue (ft)

Average Queue (ft)

95th Queue (ft)

Link Distance (ft)

Upstream Blk Time (%)

Queuing Penalty (veh)

Storage Bay Dist (ft)

Storage Blk Time (%)

Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 245

Intersection						
Intersection Delay, s/veh	6.8					
Intersection LOS	A					
Approach	EB		WB		SB	
Entry Lanes	2		2		2	
Conflicting Circle Lanes	2		2		2	
Adj Approach Flow, veh/h	593		537		720	
Demand Flow Rate, veh/h	605		547		734	
Vehicles Circulating, veh/h	484		182		222	
Vehicles Exiting, veh/h	472		907		507	
Ped Vol Crossing Leg, #/h	2		2		0	
Ped Cap Adj	0.999		0.998		1.000	
Approach Delay, s/veh	7.8		5.3		7.1	
Approach LOS	A		A		A	
Lane	Left	Right	Left	Right	Left	Right
Designated Moves	LT	TR	LT	TR	L	TR
Assumed Moves	LT	TR	LT	R	L	TR
RT Channelized						
Lane Util	0.469	0.531	0.406	0.594	0.659	0.341
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	284	321	222	325	484	250
Cap Entry Lane, veh/h	865	941	1142	1217	1101	1176
Entry HV Adj Factor	0.981	0.979	0.980	0.982	0.981	0.980
Flow Entry, veh/h	279	314	218	319	475	245
Cap Entry, veh/h	847	920	1117	1192	1080	1152
V/C Ratio	0.329	0.342	0.195	0.268	0.440	0.213
Control Delay, s/veh	8.0	7.6	5.0	5.5	8.1	5.0
LOS	A	A	A	A	A	A
95th %tile Queue, veh	1	2	1	1	2	1

Intersection						
Intersection Delay, s/veh	3.7					
Intersection LOS	A					
Approach	EB		WB		NB	
Entry Lanes	2		2		2	
Conflicting Circle Lanes	2		2		2	
Adj Approach Flow, veh/h	251		206		227	
Demand Flow Rate, veh/h	256		210		232	
Vehicles Circulating, veh/h	39		28		251	
Vehicles Exiting, veh/h	199		455		44	
Ped Vol Crossing Leg, #/h	0		0		0	
Ped Cap Adj	1.000		1.000		1.000	
Approach Delay, s/veh	3.5		3.3		4.2	
Approach LOS	A		A		A	
Lane	Left	Right	Left	Right	Left	Right
Designated Moves	LT	TR	LT	TR	LTR	R
Assumed Moves	LT	TR	LT	TR	LTR	R
RT Channelized						
Lane Util	0.469	0.531	0.471	0.529	0.470	0.530
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	120	136	99	111	109	123
Cap Entry Lane, veh/h	1302	1374	1316	1387	1072	1147
Entry HV Adj Factor	0.983	0.978	0.976	0.982	0.979	0.978
Flow Entry, veh/h	118	133	97	109	107	120
Cap Entry, veh/h	1281	1344	1284	1362	1049	1122
V/C Ratio	0.092	0.099	0.075	0.080	0.102	0.107
Control Delay, s/veh	3.6	3.5	3.4	3.3	4.3	4.1
LOS	A	A	A	A	A	A
95th %tile Queue, veh	0	0	0	0	0	0

5: McCaslin Blvd & Dillon Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.3	0.8	3.3	0.6	0.5	2.7	2.1	0.3	0.4	2.1	0.2	1.9
Total Del/Veh (s)	55.1	55.4	3.8	48.5	35.4	2.9	67.1	39.8	4.5	58.5	29.1	4.1

5: McCaslin Blvd & Dillon Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.8
Total Del/Veh (s)	33.3

10: 88th Street & Dillon Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBT	NBR	All
Denied Del/Veh (s)	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.2
Total Del/Veh (s)	28.6	2.0	30.1	7.3	36.9	1.2	1.8	18.3

15: 96th St & Dillon Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	56.8	60.8	20.1	60.2	40.6	16.0	32.3	54.5	9.6	36.0	28.4	7.5

15: 96th St & Dillon Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	40.8

20: 88th Street & Campus Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	3.7	0.6	0.6	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	43.1	57.0	33.6	50.0	63.7	21.1	28.7	37.0	6.1	28.0	32.6	5.8

20: 88th Street & Campus Dr Performance by movement

Movement	All
Denied Del/Veh (s)	0.4
Total Del/Veh (s)	32.9

22: 88th Street Performance by movement

Movement	NBT	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	2.2	3.2	2.8

23: 96th St Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	56.7	21.8	96.8	8.9	10.7	3.5	15.5

25: Northwest Pkwy & 96th St/Via Varra Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	3.7	0.2	3.6	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	59.4	64.3	6.7	63.4	61.6	1.4	52.5	7.1	0.9	62.6	29.8	7.6

25: Northwest Pkwy & 96th St/Via Varra Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	28.9

30: Northwest Pkwy & Tape Drive/Via Varra Performance by movement

Movement	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	1.2	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	67.6	0.4	73.5	8.3	59.6	6.4	3.1	75.9	4.5	4.6	9.4

35: Northwest Pkwy & US 36 WB (North Ramps) Performance by movement

Movement	WBL	WBT	WBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.3	0.2	0.3	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	64.4	63.6	1.7	44.2	8.3	14.1	9.6	15.5

40: Northwest Pkwy & US 36 EB (South Ramps) Performance by movement

Movement	EBL	EBT	EBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	1.9	2.2	3.3	0.8	2.2	0.0	0.0	0.9
Total Del/Veh (s)	77.2	71.4	5.4	39.8	10.2	47.5	9.1	32.7

45: Rock Creek Pkwy & 88th Street Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.3	0.1	0.1	0.2	0.1	0.4	0.2
Total Del/Veh (s)	7.3	6.2	3.9	3.0	9.0	7.8	6.4

101: Northwest Pkwy Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	3.0	0.1	0.1	2.8	0.0	0.0	0.0	0.1
Total Del/Veh (s)	63.7	48.5	49.7	3.9	4.8	2.0	3.2	16.4

104: Street A & Campus Dr Performance by movement

Movement	EBT	WBT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	0.5	0.3	0.5

105: Street B & Campus Dr Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	3.9	2.7	2.7	3.7	3.6	0.2	3.1	3.5

110: Street B & Tape Dr Performance by movement

Movement	WBR	SBL	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	0.4	4.8	4.2

111: Tape Dr & Parcel C RI Performance by movement

Movement	EBT	WBT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	0.7	1.5	0.8

113: Street B & North RIRO Performance by movement

Movement	NBT	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	0.2	0.1	0.2

114: Street B & North Full Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	4.0	4.0	0.0	0.0	0.0	0.0	1.1
Total Del/Veh (s)	5.5	2.4	2.5	0.5	0.2	0.0	1.5

115: Street B & Central Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	3.8	3.8	0.0	0.0	0.0	0.0	2.3
Total Del/Veh (s)	5.5	2.9	2.5	0.5	0.3	0.2	3.0

116: Street B & South Full Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	3.9	4.0	0.0	0.0	0.0	0.0	1.8
Total Del/Veh (s)	5.3	2.9	1.9	0.0	0.3	0.2	1.9

117: Street B & South RIRO Performance by movement

Movement	NBT	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	0.1	0.3	0.3

Total Network Performance

Denied Del/Veh (s)	1.0
Total Del/Veh (s)	70.2

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Intersection: 5: McCaslin Blvd & Dillon Rd

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB
Directions Served	L	L	T	R	L	L	T	L	L	T	T	R
Maximum Queue (ft)	166	203	242	143	340	386	154	172	197	471	439	184
Average Queue (ft)	36	108	105	13	217	260	78	58	118	304	277	47
95th Queue (ft)	120	179	190	95	309	352	134	152	186	428	404	131
Link Distance (ft)		750	750			1028	1028			893	893	893
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	135			120	285			510	510			
Storage Blk Time (%)	0	5	10		0	5				0		
Queuing Penalty (veh)	0	4	26		1	15				1		

Intersection: 5: McCaslin Blvd & Dillon Rd

Movement	SB	SB	SB	SB	SB	SB
Directions Served	L	L	T	T	T	R
Maximum Queue (ft)	197	284	318	306	277	158
Average Queue (ft)	110	145	216	200	164	16
95th Queue (ft)	188	218	286	277	248	99
Link Distance (ft)			1296	1296	1296	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	190	190				100
Storage Blk Time (%)	0	1	13		18	
Queuing Penalty (veh)	1	3	35		22	

Intersection: 10: 88th Street & Dillon Rd

Movement	EB	EB	WB	WB	WB	B19	NB	NB
Directions Served	T	R	L	T	T	T	L	L
Maximum Queue (ft)	672	82	229	174	186	295	128	160
Average Queue (ft)	296	8	100	58	64	13	66	84
95th Queue (ft)	551	51	194	136	147	133	117	136
Link Distance (ft)	1552	1552		490	490	600		324
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			400				200	
Storage Blk Time (%)								
Queuing Penalty (veh)								

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Intersection: 15: 96th St & Dillon Rd

Movement	EB	EB	EB	EB	EB	B9	B9	WB	WB	WB	WB	WB
Directions Served	L	L	T	T	R	T		L	L	T	T	R
Maximum Queue (ft)	227	200	345	303	166	413	75	331	357	250	234	127
Average Queue (ft)	129	114	217	181	71	29	3	191	214	152	124	56
95th Queue (ft)	205	187	310	285	136	218	60	293	312	226	203	101
Link Distance (ft)			600	600		490	490			649	649	
Upstream Blk Time (%)						0						
Queuing Penalty (veh)						1						
Storage Bay Dist (ft)	415	415			415			420	420			420
Storage Blk Time (%)									0			
Queuing Penalty (veh)									0			

Intersection: 15: 96th St & Dillon Rd

Movement	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	T	T	R	L	T	T	R
Maximum Queue (ft)	236	571	547	325	145	259	307	132
Average Queue (ft)	59	350	308	32	71	151	189	46
95th Queue (ft)	166	539	515	231	125	237	290	93
Link Distance (ft)		2019	2019			652	652	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	330			330	335			335
Storage Blk Time (%)		17	8			0	0	
Queuing Penalty (veh)		15	31			0	0	

Intersection: 20: 88th Street & Campus Dr

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	R	L	L	T	R
Maximum Queue (ft)	174	275	264	177	38	236	85	87	96	320	102
Average Queue (ft)	91	105	130	65	9	118	41	26	49	164	21
95th Queue (ft)	165	211	229	145	30	211	76	64	84	274	69
Link Distance (ft)		565	1963	1963		1346				1558	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	125				170		500	400	400		200
Storage Blk Time (%)	4	8				4				6	
Queuing Penalty (veh)	5	11				6				10	

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Intersection: 22: 88th Street

Movement

Directions Served

Maximum Queue (ft)

Average Queue (ft)

95th Queue (ft)

Link Distance (ft)

Upstream Blk Time (%)

Queuing Penalty (veh)

Storage Bay Dist (ft)

Storage Blk Time (%)

Queuing Penalty (veh)

Intersection: 23: 96th St

Movement	EB	EB	EB	NB	NB	NB	NB	NB	SB	SB	SB	B46
Directions Served	L	L	R	L	L	T	T	T	T	T	R	T
Maximum Queue (ft)	190	209	133	56	73	448	423	47	260	493	342	13
Average Queue (ft)	97	118	54	16	24	32	33	3	87	214	43	0
95th Queue (ft)	158	181	113	44	59	192	182	23	189	396	185	10
Link Distance (ft)		1057	1057			716	716	716	497	497		2019
Upstream Blk Time (%)						0				0		
Queuing Penalty (veh)						0				1		
Storage Bay Dist (ft)	300			250	250						300	
Storage Blk Time (%)										3		
Queuing Penalty (veh)										4		

Intersection: 23: 96th St

Movement	B46
Directions Served	T
Maximum Queue (ft)	11
Average Queue (ft)	0
95th Queue (ft)	4
Link Distance (ft)	2019
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 25: Northwest Pkwy & 96th St/Via Varra

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	L	T	T	L	L	T	T	L	L	L	T
Maximum Queue (ft)	173	183	178	204	44	84	161	143	318	356	302	194
Average Queue (ft)	95	103	100	105	7	29	86	58	207	238	198	75
95th Queue (ft)	155	162	160	176	29	67	142	116	291	320	280	156
Link Distance (ft)			716	716			1056	1056				941
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	280	280			180	180			700	700	700	
Storage Blk Time (%)				0			0					
Queuing Penalty (veh)				0			0					

Intersection: 25: Northwest Pkwy & 96th St/Via Varra

Movement	NB	SB	SB	SB	SB	SB
Directions Served	T	L	L	T	T	R
Maximum Queue (ft)	197	47	72	276	274	77
Average Queue (ft)	94	5	24	152	152	29
95th Queue (ft)	170	23	56	238	237	63
Link Distance (ft)	941			864	864	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		600	600		600	
Storage Blk Time (%)						
Queuing Penalty (veh)						

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Intersection: 30: Northwest Pkwy & Tape Drive/Via Varra

Movement	EB	WB	WB	WB	NB	NB	NB	NB	NB	B29	B29	SB
Directions Served	L	L	L	R	L	L	T	T	R	T	T	L
Maximum Queue (ft)	86	141	172	43	12	55	272	253	56	175	284	45
Average Queue (ft)	22	64	94	20	1	17	139	124	25	6	12	7
95th Queue (ft)	61	129	156	42	7	44	242	217	55	79	112	29
Link Distance (ft)			680				722	722		370	370	
Upstream Blk Time (%)										0	0	
Queuing Penalty (veh)										0	0	
Storage Bay Dist (ft)	125	250		500	455	455			250			550
Storage Blk Time (%)	0							0				
Queuing Penalty (veh)	0							0				

Intersection: 30: Northwest Pkwy & Tape Drive/Via Varra

Movement	SB	SB	SB	B39	B39	B39
Directions Served	L	T	T	T	T	
Maximum Queue (ft)	76	106	110	468	792	143
Average Queue (ft)	35	22	31	28	50	5
95th Queue (ft)	72	67	83	291	396	114
Link Distance (ft)		2052	2052	941	941	941
Upstream Blk Time (%)				0	0	
Queuing Penalty (veh)				0	0	
Storage Bay Dist (ft)	550					
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 35: Northwest Pkwy & US 36 WB (North Ramps)

Movement	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	LT	L	T	T	T	T	T	R
Maximum Queue (ft)	174	206	344	402	378	277	260	249	242
Average Queue (ft)	83	124	214	53	35	149	126	134	86
95th Queue (ft)	159	183	337	235	178	266	230	235	189
Link Distance (ft)		1442		556	556		370	370	
Upstream Blk Time (%)				0	0				
Queuing Penalty (veh)				0	1				
Storage Bay Dist (ft)	330		190			300			300
Storage Blk Time (%)			21	0		0			0
Queuing Penalty (veh)			181	0		1			0

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Intersection: 37: Bend

Movement	EB	EB	EB
Directions Served	T		
Maximum Queue (ft)	621	626	108
Average Queue (ft)	109	34	4
95th Queue (ft)	466	253	86
Link Distance (ft)	649	649	649
Upstream Blk Time (%)	0	0	0
Queuing Penalty (veh)	0	0	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 40: Northwest Pkwy & US 36 EB (South Ramps)

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	LT	R	T	T	R	L	L	T	T
Maximum Queue (ft)	404	527	300	849	738	390	305	351	271	293
Average Queue (ft)	235	273	89	490	421	68	174	190	96	117
95th Queue (ft)	361	450	313	737	661	306	275	293	216	239
Link Distance (ft)		1036		1843	1843			556	556	556
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	330		150			300	180			
Storage Blk Time (%)	1	45			12		8	13		
Queuing Penalty (veh)	7	310			18		21	34		

Intersection: 44: Bend

Movement	NB	NB
Directions Served	T	
Maximum Queue (ft)	679	663
Average Queue (ft)	371	220
95th Queue (ft)	823	663
Link Distance (ft)	652	652
Upstream Blk Time (%)	1	0
Queuing Penalty (veh)	4	1
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Intersection: 45: Rock Creek Pkwy & 88th Street

Movement	EB	EB	WB	WB	SB	SB
Directions Served	LT	T	T	TR	L	R
Maximum Queue (ft)	132	28	64	45	237	75
Average Queue (ft)	58	1	15	7	75	42
95th Queue (ft)	108	19	46	29	161	100
Link Distance (ft)	807	807	1051	1051	764	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						50
Storage Blk Time (%)					10	0
Queuing Penalty (veh)					18	1

Intersection: 101: Northwest Pkwy

Movement	EB	EB	EB	EB	WB	WB	WB	SB	SB
Directions Served	L	L	T	T	T	T	R	L	R
Maximum Queue (ft)	53	85	200	188	212	194	35	18	16
Average Queue (ft)	16	29	123	101	126	95	9	1	1
95th Queue (ft)	43	67	182	173	195	180	28	9	8
Link Distance (ft)			1264	1264	1297	1297			
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	500	500					500	500	500
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 104: Street A & Campus Dr

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

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Intersection: 105: Street B & Campus Dr

Movement	EB	WB	NB	NB
Directions Served	T	LT	LR	R
Maximum Queue (ft)	43	21	66	46
Average Queue (ft)	5	1	22	7
95th Queue (ft)	27	12	52	30
Link Distance (ft)	1300	1057	354	354
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 106: Parcel E West & Tape Dr

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 107: Tape Dr & Parcel A

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 108: Parcel E/Street A & Tape Dr

Movement

Directions Served

Maximum Queue (ft)

Average Queue (ft)

95th Queue (ft)

Link Distance (ft)

Upstream Blk Time (%)

Queuing Penalty (veh)

Storage Bay Dist (ft)

Storage Blk Time (%)

Queuing Penalty (veh)

Intersection: 109: Parcel D West & Tape Dr

Movement

Directions Served

Maximum Queue (ft)

Average Queue (ft)

95th Queue (ft)

Link Distance (ft)

Upstream Blk Time (%)

Queuing Penalty (veh)

Storage Bay Dist (ft)

Storage Blk Time (%)

Queuing Penalty (veh)

Intersection: 110: Street B & Tape Dr

Movement

SB

Directions Served

L

Maximum Queue (ft)

72

Average Queue (ft)

36

95th Queue (ft)

59

Link Distance (ft)

311

Upstream Blk Time (%)

Queuing Penalty (veh)

Storage Bay Dist (ft)

Storage Blk Time (%)

Queuing Penalty (veh)

Intersection: 111: Tape Dr & Parcel C RI

Movement

Directions Served

Maximum Queue (ft)

Average Queue (ft)

95th Queue (ft)

Link Distance (ft)

Upstream Blk Time (%)

Queuing Penalty (veh)

Storage Bay Dist (ft)

Storage Blk Time (%)

Queuing Penalty (veh)

Intersection: 112: Street A & Parcel A

Movement

Directions Served

Maximum Queue (ft)

Average Queue (ft)

95th Queue (ft)

Link Distance (ft)

Upstream Blk Time (%)

Queuing Penalty (veh)

Storage Bay Dist (ft)

Storage Blk Time (%)

Queuing Penalty (veh)

Intersection: 113: Street B & North RIRO

Movement

Directions Served

Maximum Queue (ft)

Average Queue (ft)

95th Queue (ft)

Link Distance (ft)

Upstream Blk Time (%)

Queuing Penalty (veh)

Storage Bay Dist (ft)

Storage Blk Time (%)

Queuing Penalty (veh)

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Intersection: 114: Street B & North Full

Movement	EB	EB	EB	NB
Directions Served	L	T	R	L
Maximum Queue (ft)	39	9	56	4
Average Queue (ft)	20	0	23	0
95th Queue (ft)	39	7	49	3
Link Distance (ft)	619			
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	200		50	300
Storage Blk Time (%)	0			
Queuing Penalty (veh)	0			

Intersection: 115: Street B & Central

Movement	EB	EB	EB	NB
Directions Served	L	T	R	L
Maximum Queue (ft)	74	9	61	17
Average Queue (ft)	34	0	32	1
95th Queue (ft)	53	7	53	11
Link Distance (ft)	567			
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	200		50	300
Storage Blk Time (%)	0			
Queuing Penalty (veh)	0			

Intersection: 116: Street B & South Full

Movement	EB	EB	EB	NB
Directions Served	L	T	R	L
Maximum Queue (ft)	48	9	66	15
Average Queue (ft)	23	0	33	1
95th Queue (ft)	45	7	51	7
Link Distance (ft)	528			
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	200		50	300
Storage Blk Time (%)	0			
Queuing Penalty (veh)	0			

Intersection: 117: Street B & South RIRO

Movement

Directions Served

Maximum Queue (ft)

Average Queue (ft)

95th Queue (ft)

Link Distance (ft)

Upstream Blk Time (%)

Queuing Penalty (veh)

Storage Bay Dist (ft)

Storage Blk Time (%)

Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 793

Intersection						
Intersection Delay, s/veh	8.0					
Intersection LOS	A					
Approach	EB		WB		NB	
Entry Lanes	2		2		2	
Conflicting Circle Lanes	2		2		2	
Adj Approach Flow, veh/h	593		1362		214	
Demand Flow Rate, veh/h	605		1389		218	
Vehicles Circulating, veh/h	611		9		578	
Vehicles Exiting, veh/h	787		787		638	
Ped Vol Crossing Leg, #/h	0		0		0	
Ped Cap Adj	1.000		1.000		1.000	
Approach Delay, s/veh	9.1		7.9		5.7	
Approach LOS	A		A		A	
Lane	Left	Right	Left	Right	Left	Right
Designated Moves	LT	TR	LT	TR	LTR	R
Assumed Moves	LT	TR	LT	TR	LTR	R
RT Channelized						
Lane Util	0.469	0.531	0.470	0.530	0.468	0.532
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	284	321	653	736	102	116
Cap Entry Lane, veh/h	769	845	1339	1409	793	869
Entry HV Adj Factor	0.981	0.979	0.980	0.981	0.986	0.978
Flow Entry, veh/h	279	314	640	722	101	113
Cap Entry, veh/h	755	827	1312	1382	782	849
V/C Ratio	0.369	0.380	0.488	0.522	0.129	0.134
Control Delay, s/veh	9.4	8.9	7.8	8.0	5.9	5.6
LOS	A	A	A	A	A	A
95th %tile Queue, veh	2	2	3	3	0	0

105: Street B & Campus Dr Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.6	2.9	10.2	5.6	5.4	0.2	4.2	7.3

110: Street B & Tape Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	4.2	0.3	4.0	0.0	0.0	0.0
Total Del/Veh (s)	33.6	14.9	6.9	21.4	17.0	13.4	17.8	13.6	3.8	20.0	18.3	4.9

110: Street B & Tape Dr Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	16.8

114: Street B & North Full Performance by movement

Movement	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	4.4	4.2	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Total Del/Veh (s)	13.4	3.2	14.4	2.8	6.1	1.7	1.7	3.7	0.3	0.1	1.8

115: Street B & Central Performance by movement

Movement	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	4.2	4.3	3.8	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.8
Total Del/Veh (s)	14.1	3.8	14.6	3.2	13.5	8.9	5.6	18.8	7.3	3.2	10.8

116: Street B & South Full Performance by movement

Movement	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	3.9	4.2	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Total Del/Veh (s)	10.0	3.4	16.3	3.8	3.0	0.6	0.4	6.0	1.3	1.1	2.2

Total Zone Performance

Movement	All
Denied Del/Veh (s)	3.7
Total Del/Veh (s)	836.1

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Intersection: 105: Street B & Campus Dr

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	TR	LT	T	LR	R
Maximum Queue (ft)	117	55	196	110	75	55
Average Queue (ft)	58	3	95	8	29	10
95th Queue (ft)	101	30	181	57	66	38
Link Distance (ft)	1300	1300	1054	1054	354	354
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 110: Street B & Tape Dr

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	R	L	L	TR
Maximum Queue (ft)	95	85	220	286	319	23	21	44	101	134	68
Average Queue (ft)	36	31	91	99	157	1	1	13	32	66	23
95th Queue (ft)	77	69	176	205	275	10	10	38	80	113	55
Link Distance (ft)		521		407	407		422		312	312	312
Upstream Blk Time (%)					0						
Queuing Penalty (veh)					0						
Storage Bay Dist (ft)	300		250			100		100			
Storage Blk Time (%)			0	1							
Queuing Penalty (veh)			0	1							

Intersection: 114: Street B & North Full

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	R	L	R	L	TR	L
Maximum Queue (ft)	29	25	61	56	42	10	45
Average Queue (ft)	3	3	17	19	12	0	12
95th Queue (ft)	16	18	39	44	35	4	33
Link Distance (ft)						551	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	200	50	200	50	300		300
Storage Blk Time (%)				0			
Queuing Penalty (veh)				0			

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Intersection: 115: Street B & Central

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	44	39	101	9	57	88	103	135	165	66	77
Average Queue (ft)	10	8	48	0	24	35	31	49	78	25	36
95th Queue (ft)	34	31	85	7	50	67	75	100	142	55	69
Link Distance (ft)				575			631	631		551	551
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	200	50	200		50	300			300		
Storage Blk Time (%)		0			0						
Queuing Penalty (veh)		0			0						

Intersection: 116: Street B & South Full

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	R	L	T	R	L	TR	L	TR
Maximum Queue (ft)	29	35	64	13	63	43	11	66	6
Average Queue (ft)	6	14	23	0	25	11	0	22	0
95th Queue (ft)	25	39	54	10	53	34	7	53	3
Link Distance (ft)				540			275		631
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	200	50	200		50	300		300	
Storage Blk Time (%)		0			0				
Queuing Penalty (veh)		0			0				

Zone Summary

Zone wide Queuing Penalty: 2

Intersection						
Intersection Delay, s/veh	5.8					
Intersection LOS	A					
Approach	EB		WB		NB	
Entry Lanes	2		2		2	
Conflicting Circle Lanes	2		2		2	
Adj Approach Flow, veh/h	370		467		696	
Demand Flow Rate, veh/h	377		476		710	
Vehicles Circulating, veh/h	264		30		365	
Vehicles Exiting, veh/h	242		1045		276	
Ped Vol Crossing Leg, #/h	0		0		0	
Ped Cap Adj	1.000		1.000		1.000	
Approach Delay, s/veh	4.9		4.2		7.4	
Approach LOS	A		A		A	
Lane	Left	Right	Left	Right	Left	Right
Designated Moves	LT	TR	LT	TR	LTR	R
Assumed Moves	LT	TR	L	TR	LTR	R
RT Channelized						
Lane Util	0.469	0.531	0.555	0.445	0.470	0.530
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	177	200	264	212	334	376
Cap Entry Lane, veh/h	1059	1135	1313	1384	965	1041
Entry HV Adj Factor	0.982	0.980	0.981	0.980	0.979	0.981
Flow Entry, veh/h	174	196	259	208	327	369
Cap Entry, veh/h	1040	1112	1288	1357	945	1022
V/C Ratio	0.167	0.176	0.201	0.153	0.346	0.361
Control Delay, s/veh	5.0	4.8	4.5	3.9	7.5	7.3
LOS	A	A	A	A	A	A
95th %tile Queue, veh	1	1	1	1	2	2

105: Street B & Campus Dr Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.8	2.6	4.7	4.1	8.5	5.3	4.9

110: Street B & Tape Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	3.9	0.3	3.9	0.0	0.0	0.0
Total Del/Veh (s)	24.9	20.5	5.0	26.1	15.2	6.6	24.8	21.7	12.7	21.2	12.2	2.7

110: Street B & Tape Dr Performance by movement

Movement	All
Denied Del/Veh (s)	0.3
Total Del/Veh (s)	17.6

114: Street B & North Full Performance by movement

Movement	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	4.1	4.1	3.8	3.8	0.0	0.0	0.0	0.0	0.0	0.0	1.0
Total Del/Veh (s)	13.9	4.0	19.3	4.3	4.3	1.5	1.3	5.0	0.2	0.0	3.8

115: Street B & Central Performance by movement

Movement	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	3.9	3.9	3.5	3.5	0.0	0.0	0.0	0.0	0.0	0.0	1.8
Total Del/Veh (s)	13.5	3.6	16.0	4.3	18.8	10.7	5.8	22.1	9.5	5.8	11.8

116: Street B & South Full Performance by movement

Movement	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	3.9	3.9	3.9	3.9	0.0	0.0	0.0	0.0	0.0	0.0	1.1
Total Del/Veh (s)	12.6	7.8	16.5	4.1	4.3	0.6	0.4	4.1	1.2	1.1	3.5

Total Zone Performance

Movement	All
Denied Del/Veh (s)	3.7
Total Del/Veh (s)	1046.4

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Intersection: 105: Street B & Campus Dr

Movement	EB	EB	WB	NB	NB
Directions Served	T	TR	LT	LR	R
Maximum Queue (ft)	76	8	95	128	80
Average Queue (ft)	32	0	20	62	30
95th Queue (ft)	66	7	65	106	68
Link Distance (ft)	1300	1300	1054	354	354
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 110: Street B & Tape Dr

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	R	L	L	TR
Maximum Queue (ft)	66	201	71	116	161	45	71	98	207	254	54
Average Queue (ft)	22	105	24	32	56	7	14	43	101	158	18
95th Queue (ft)	56	174	60	86	125	28	46	82	167	229	42
Link Distance (ft)		521		407	407		422		312	312	312
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	300		250			100		100			
Storage Blk Time (%)						0	0	0			
Queuing Penalty (veh)						0	0	0			

Intersection: 114: Street B & North Full

Movement	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	R	L	T	R	L	TR	L
Maximum Queue (ft)	62	54	88	24	66	21	4	38
Average Queue (ft)	21	21	39	1	33	1	0	11
95th Queue (ft)	49	48	75	16	55	10	2	28
Link Distance (ft)				577			551	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	200	50	200		50	300		300
Storage Blk Time (%)		0		0	1			
Queuing Penalty (veh)		0		0	1			

Queuing and Blocking Report

01/26/2020

2040 + Project - PM

Intersection: 115: Street B & Central

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	103	19	62	195	54	67	47	98	101	138	78	91
Average Queue (ft)	44	1	30	106	4	39	13	40	48	57	24	39
95th Queue (ft)	81	13	56	168	29	64	35	79	92	104	59	77
Link Distance (ft)	567			575			631			631		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200	50		200	50		300	300				
Storage Blk Time (%)			1	0	0	2						
Queuing Penalty (veh)			1	0	0	8						

Intersection: 116: Street B & South Full

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	TR	L	TR
Maximum Queue (ft)	54	46	66	107	37	68	25	4	33	6
Average Queue (ft)	25	2	37	44	2	35	4	0	9	0
95th Queue (ft)	50	21	64	81	19	54	19	2	30	4
Link Distance (ft)	528			540			275			631
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	200		50	200		50	300		300	
Storage Blk Time (%)	0		3	0		1				
Queuing Penalty (veh)	0		1	0		1				

Zone Summary

Zone wide Queuing Penalty: 12