 **Volume 2 – Appendix**

**2999 Turtle Creek Boulevard**  
Dallas, Texas

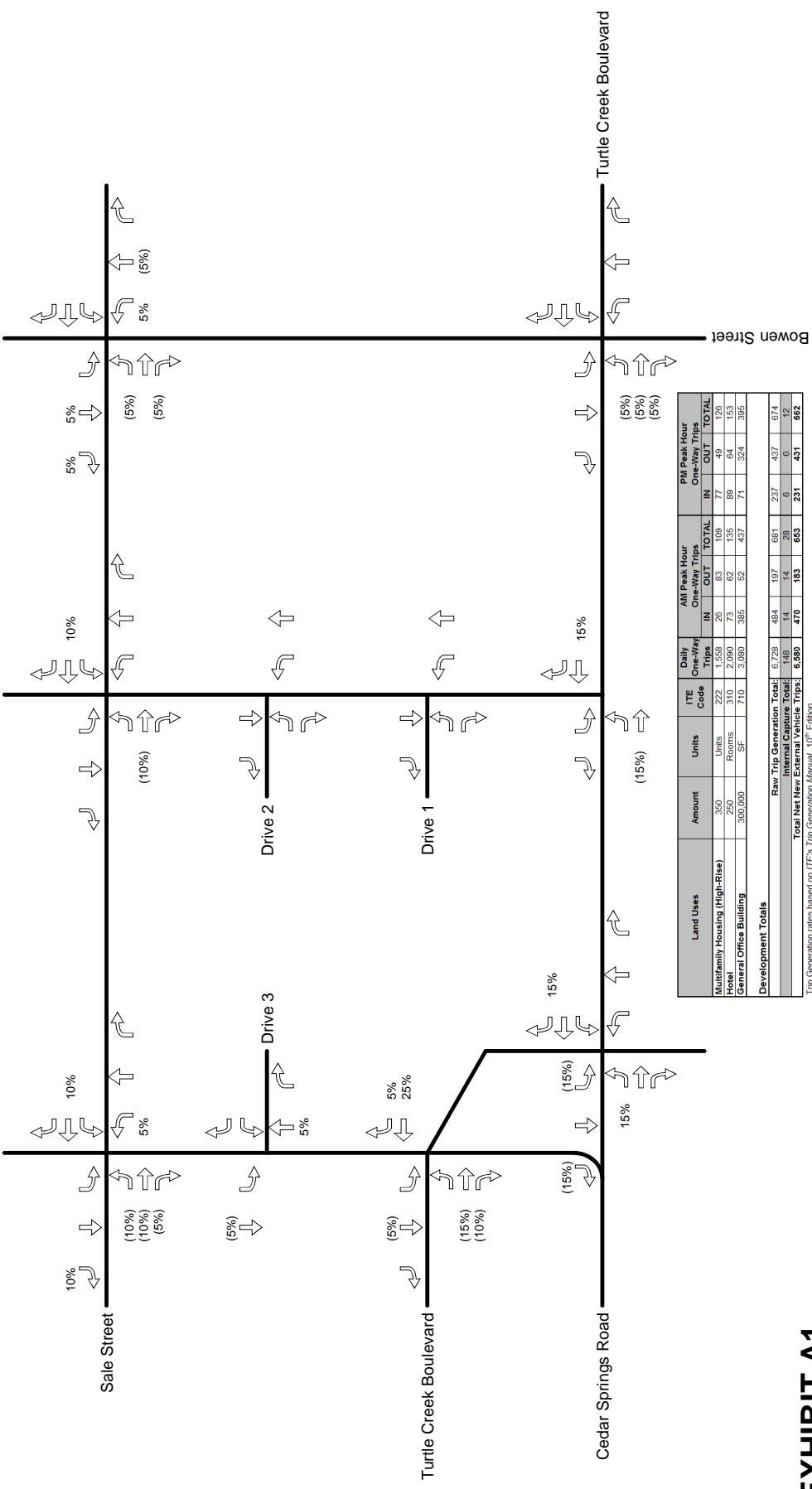
November 20, 2018

Kimley-Horn and Associates, Inc.  
Dallas, Texas

Project #063319089  
Registered Firm F-928

**Kimley»»Horn**

**Note:** The 2727 Turtle Creek analysis was performed by Kimley-Horn and Associates, Inc., on May 15, 2018. The KH analysis included traffic volumes at the intersections of Turtle Creek Boulevard and Cedar Springs Road, of Sale Street with Gillespie Street, and of Turtle Creek Boulevard with Gillespie Street. The traffic volumes were then carried through to the other intersections included in this analysis.



Land Uses	Amount	ITE Code	Units	Daily One-Way Trips	AM Peak Hour One-Way Trips			PM Peak Hour One-Way Trips		
					IN	OUT	TOTAL	IN	OUT	TOTAL
Multi-Family Housing (High-Rise)	350	222	Units	18	18	36	19	19	38	
Hotel	250	312	Rooms	23	23	46	23	23	46	
General Office Building	300,000	710	SF	3,080	385	437	71	324	395	
<b>Development Totals</b>				<b>6,728</b>	<b>484</b>	<b>681</b>	<b>237</b>	<b>437</b>	<b>674</b>	
			<b>Raw Trip Generation Total</b>	<b>186</b>	<b>14</b>	<b>26</b>	<b>5</b>	<b>5</b>	<b>10</b>	
			<b>Internal Capture Total</b>	<b>14</b>	<b>14</b>	<b>26</b>	<b>5</b>	<b>5</b>	<b>10</b>	
			<b>Total Net New External Trips</b>	<b>6,582</b>	<b>470</b>	<b>655</b>	<b>231</b>	<b>431</b>	<b>664</b>	

The Generation rates based on ITE's Trip Generation Manual, 10th Edition (2017). Internal Capture procedure from ITE Trip Generation Handbook, 3rd Edition (2017).

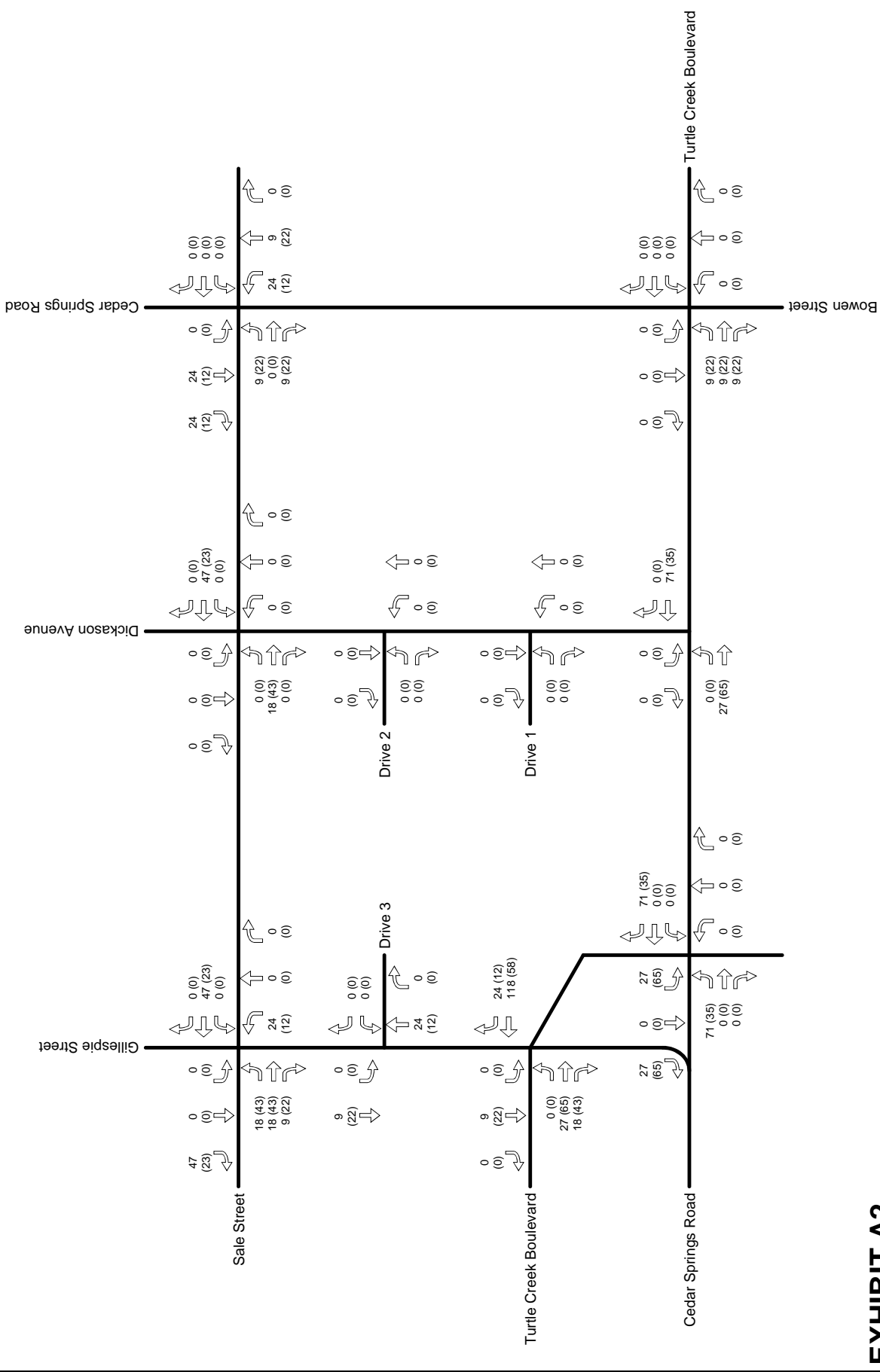
**LEGEND:**  
 X% (Y%) = Percentage of Inbound Site-Generated Traffic  
 Y% = Percentage of Outbound Site-Generated Traffic

North  
 ↗  
 Not To Scale

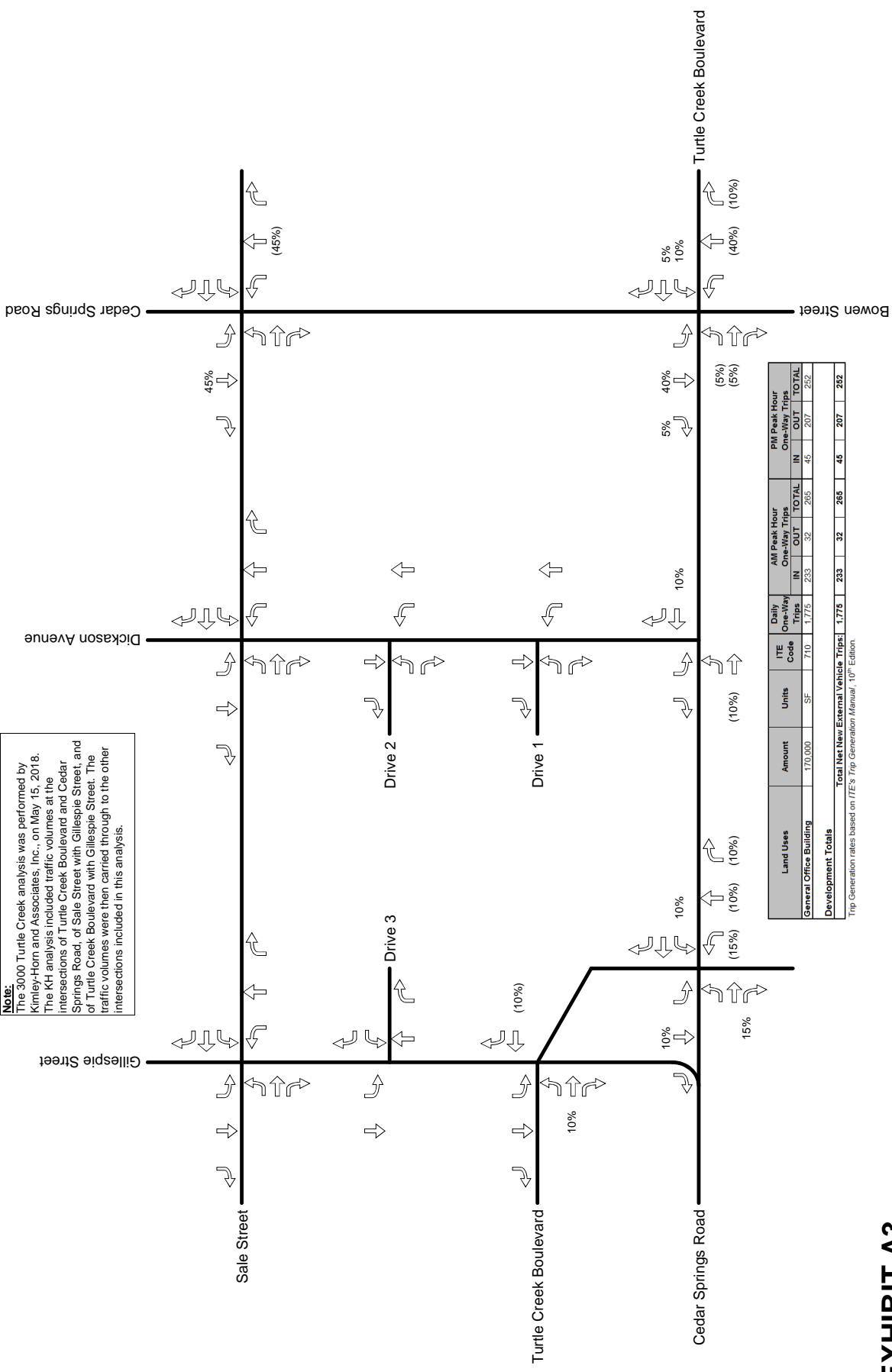
**EXHIBIT A2**  
 Site-Generated Traffic Volumes: 2727 Turtle Creek Boulevard  
 2999 Turtle Creek - Dallas, Texas



**LEGEND:**  
 X (Y)  
 X = Weekday AM Peak Hour Turning Movements  
 Y = Weekday PM Peak Hour Turning Movements  
 Volumes may not sum from point to point due to rounding  
 and presence of smaller driveways not included in analysis.



**Note:** The 3000 Turtle Creek analysis was performed by Kimley-Horn and Associates, Inc., on May 15, 2018. The KH analysis included traffic volumes at the intersections of Turtle Creek Boulevard and Cedar Springs Road, of Sale Street with Gillespie Street, and of Turtle Creek Boulevard with Gillespie Street. The traffic volumes were then carried through to the other intersections included in this analysis.



Land Uses	Amount	Units	ITE Code	Daily One-Way Trips		AM Peak Hour One-Way Trips		PM Peak Hour One-Way Trips	
				IN	OUT	IN	OUT	IN	OUT
General Office Building	170,000	SF	710	1,775	233	32	265	45	207
<b>Development Totals</b>				<b>1,775</b>	<b>233</b>	<b>32</b>	<b>265</b>	<b>45</b>	<b>207</b>
<b>Total Net New External Vehicle Trips:</b>				<b>1,775</b>	<b>233</b>	<b>32</b>	<b>265</b>	<b>45</b>	<b>207</b>

Trip Generation rates based on ITE's Trip Generation Manual, 10<sup>th</sup> Edition.

**LEGEND:**  
 X% (Y%) = Percentage of Inbound Site-Generated Traffic  
 Y% = Percentage of Outbound Site-Generated Traffic

**EXHIBIT A3**  
 Trip Distribution and Traffic Assignment: 3000 Turtle Creek Boulevard  
 2999 Turtle Creek - Dallas, Texas

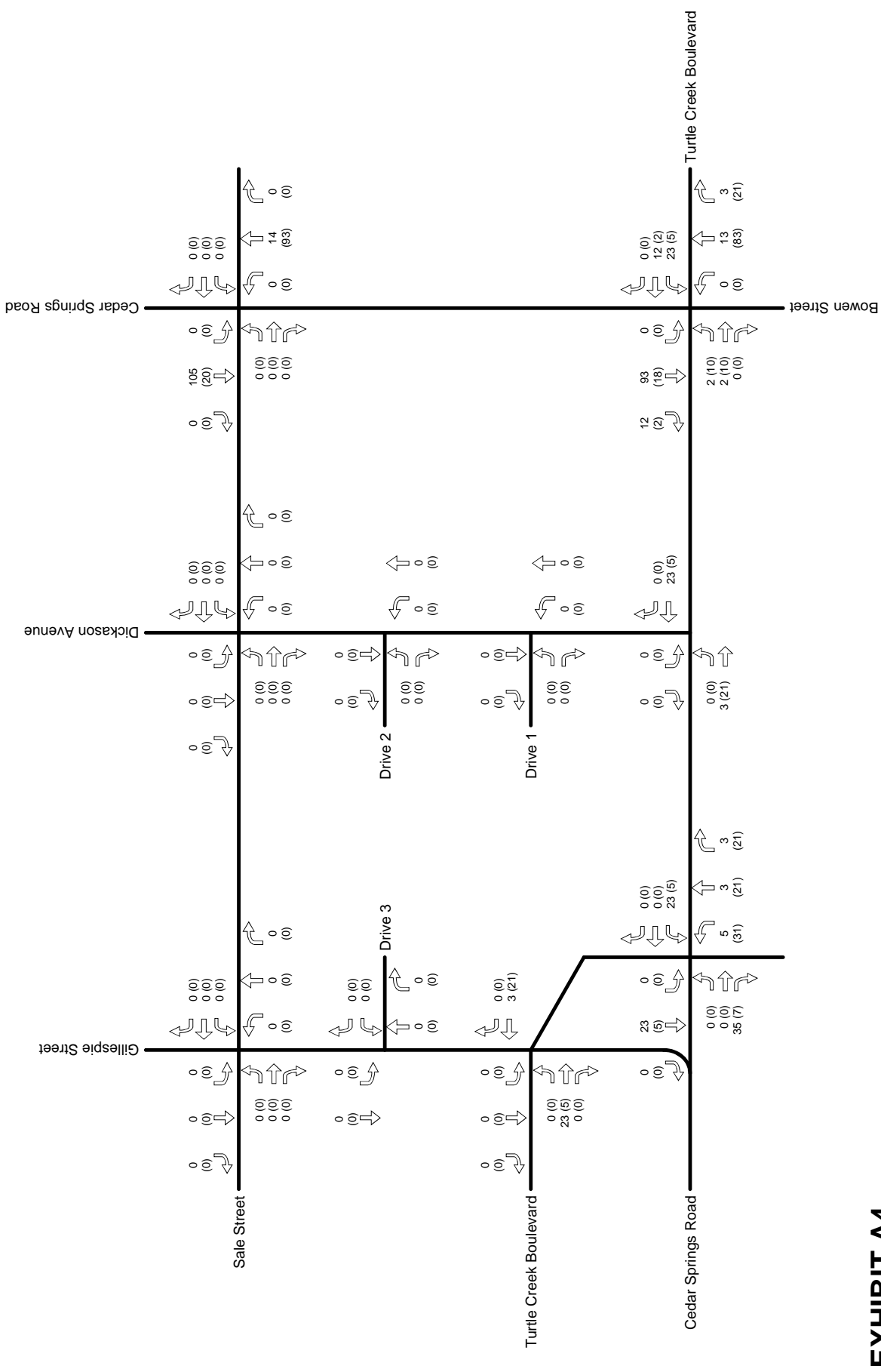


# EXHIBIT A4

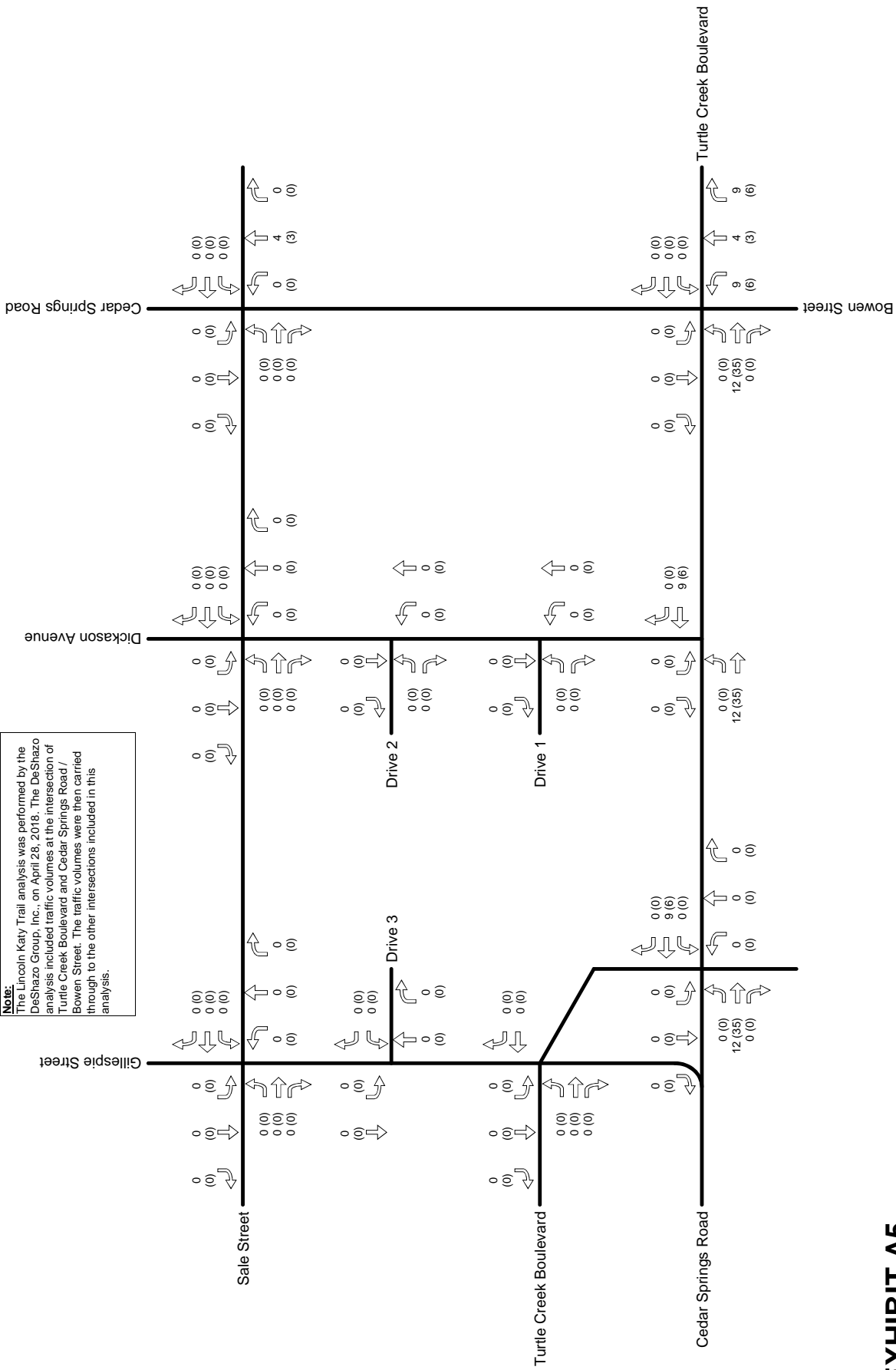
Site-Generated Traffic Volumes: 3000 Turtle Creek Boulevard  
 2999 Turtle Creek - Dallas, Texas



**LEGEND:**  
 X (Y)  
 X = Weekday AM Peak Hour Turning Movements  
 Y = Weekday PM Peak Hour Turning Movements  
 Volumes may not sum from point to point due to rounding  
 and presence of smaller driveways not included in analysis.



**Note:** The Lincoln Katy Trail analysis was performed by the DeShazo Group, Inc., on April 28, 2018. The DeShazo analysis included traffic volumes at the intersection of Turtle Creek Boulevard and Cedar Springs Road / Bowen Street. The traffic volumes were then carried through to the other intersections included in this analysis.



**LEGEND:**  
 X (Y)  
 X = Weekday AM Peak Hour Turning Movements  
 Y = Weekday PM Peak Hour Turning Movements  
 Volumes may not sum from point to point due to rounding and presence of smaller driveways not included in analysis.

North  
 ↗  
 Not To Scale

**EXHIBIT A5**  
 Site-Generated Traffic Volumes: Lincoln Katy Trail  
 2999 Turtle Creek - Dallas, Texas



## TRAFFIC COUNTS AND HISTORICAL DATA

### 2999 Turtle Creek - Dallas, Texas

Historical Link Volumes and Growth Rates

<b>Gillespie Street</b>						
Record	Year	Link Start	Link End	Source	24-Hour Volume	Annual Growth Rate
1	1999	Welborn Street	Oak Lawn Avenue	TxDOT	1,580	-
2	2009	Welborn Street	Oak Lawn Avenue	TxDOT	1,420	-1.1%
3	2018	Sale Street	Turtle Creek Boulevard	KHA	2,120	4.6%
<b>Average Growth 1999 - 2018:</b>						<b>1.5%</b>

<b>Cedar Springs Road (Northwest of Turtle Creek Boulevard)</b>						
Record	Year	Link Start	Link End	Source	24-Hour Volume	Annual Growth Rate
1	2001	Turtle Creek Boulevard	Oak Lawn Avenue	City of Dallas	11,560	-

<b>Cedar Springs Road/Turtle Creek Boulevard</b>						
Record	Year	Link Start	Link End	Source	24-Hour Volume	Annual Growth Rate
1	1999	Bowen Street	Routh Street	TxDOT	18,478	-
2	2004	Bowen Street	Routh Street	TxDOT	15,334	-3.7%
3	2009	Bowen Street	Routh Street	TxDOT	14,154	-1.6%
4	2018	Bowen Street	Routh Street	KHA	17,631	2.5%
<b>Average Growth 1999 - 2018:</b>						<b>-0.1%</b>

<b>Sale Street</b>						
Record	Year	Link Start	Link End	Source	24-Hour Volume	Annual Growth Rate
1	2018	Dickason Avenue	Gillespie Street	KHA	721	-

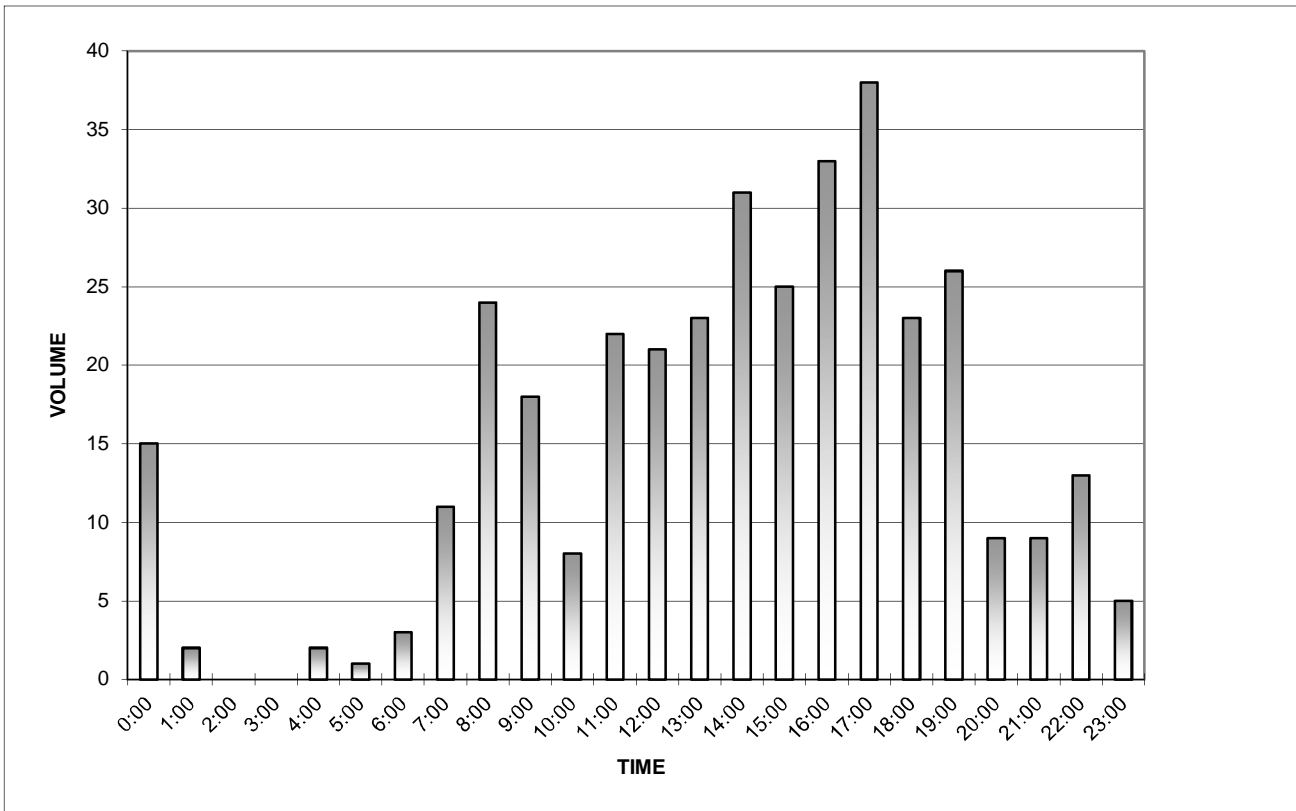
<b>Dickason Avenue</b>						
Record	Year	Link Start	Link End	Source	24-Hour Volume	Annual Growth Rate
1	2018	Turtle Creek Boulevard	Sale Street	KHA	1,193	-

**EB Sale Street between Dickason and Gillespie Street**

Date Began:  
9/13/2018

TIME	0:00	0:15	0:30	0:45	TOTAL
0:00	4	5	3	3	15
1:00	2	0	0	0	2
2:00	0	0	0	0	0
3:00	0	0	0	0	0
4:00	1	1	0	0	2
5:00	0	0	1	0	1
6:00	2	1	0	0	3
7:00	2	4	1	4	11
8:00	4	10	6	4	24
9:00	5	3	5	5	18
10:00	2	1	1	4	8
11:00	8	5	2	7	22
12:00	4	7	6	4	21
13:00	10	4	5	4	23
14:00	10	5	13	3	31
15:00	9	5	5	6	25
16:00	4	4	11	14	33
17:00	11	7	8	12	38
18:00	3	11	6	3	23
19:00	5	5	9	7	26
20:00	3	2	2	2	9
21:00	5	1	2	1	9
22:00	0	6	3	4	13
23:00	1	1	2	1	5
<b>TOTAL:</b>					<b>362</b>

The A.M. peak hour from 8:15 to 9:15 is 25
The P.M. peak hour from 16:30 to 17:30 is 43



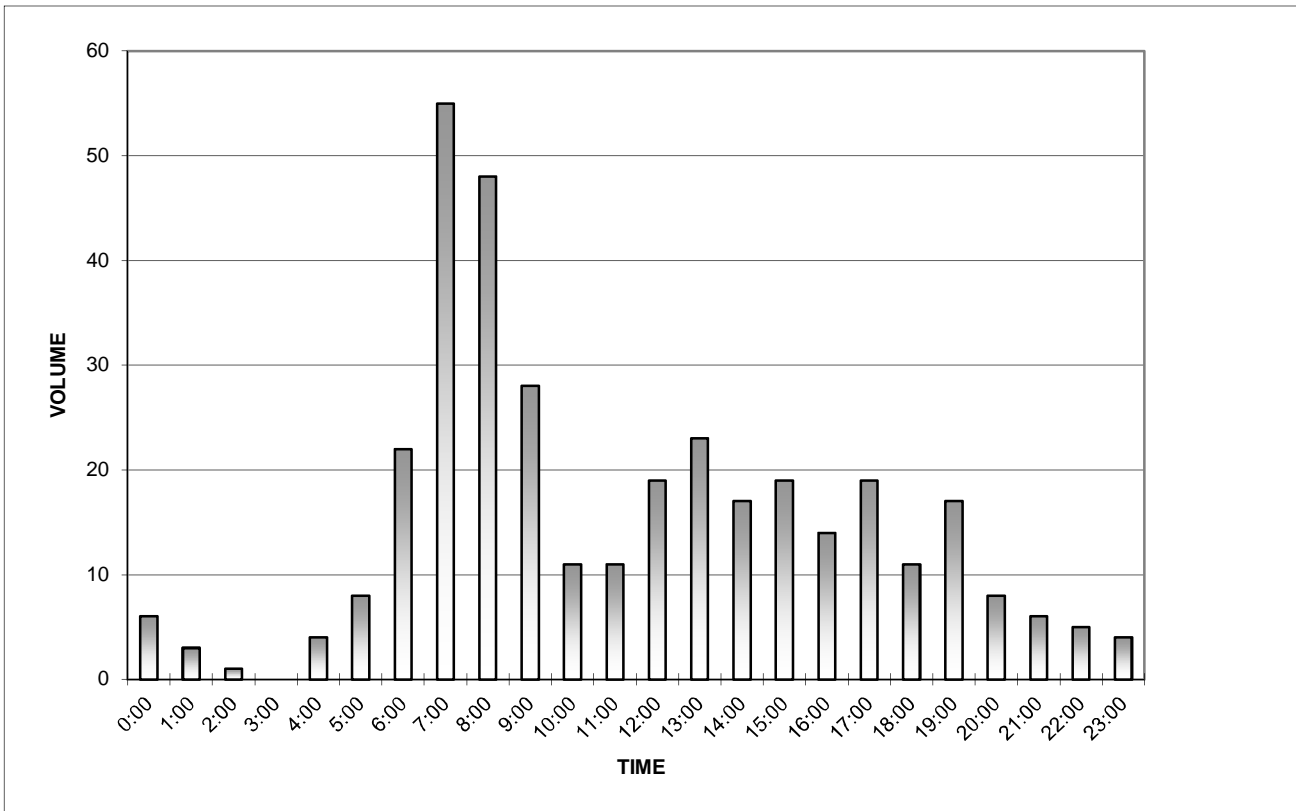


**WB Sale Street between Dickason and Gillespie Street**

Date Began:  
9/13/2018

TIME	0:00	0:15	0:30	0:45	TOTAL
0:00	3	0	2	1	6
1:00	0	1	1	1	3
2:00	1	0	0	0	1
3:00	0	0	0	0	0
4:00	1	1	2	0	4
5:00	0	2	4	2	8
6:00	4	4	6	8	22
7:00	11	10	17	17	55
8:00	11	14	13	10	48
9:00	9	7	6	6	28
10:00	1	5	3	2	11
11:00	5	1	2	3	11
12:00	5	3	4	7	19
13:00	8	5	4	6	23
14:00	2	3	8	4	17
15:00	8	3	3	5	19
16:00	3	3	6	2	14
17:00	7	7	1	4	19
18:00	1	6	3	1	11
19:00	3	1	8	5	17
20:00	0	2	4	2	8
21:00	3	1	2	0	6
22:00	0	2	1	2	5
23:00	0	1	3	0	4
TOTAL:					359

The A.M. peak hour from 7:30 to 8:30 is 59
The P.M. peak hour from 14:30 to 15:30 is 23

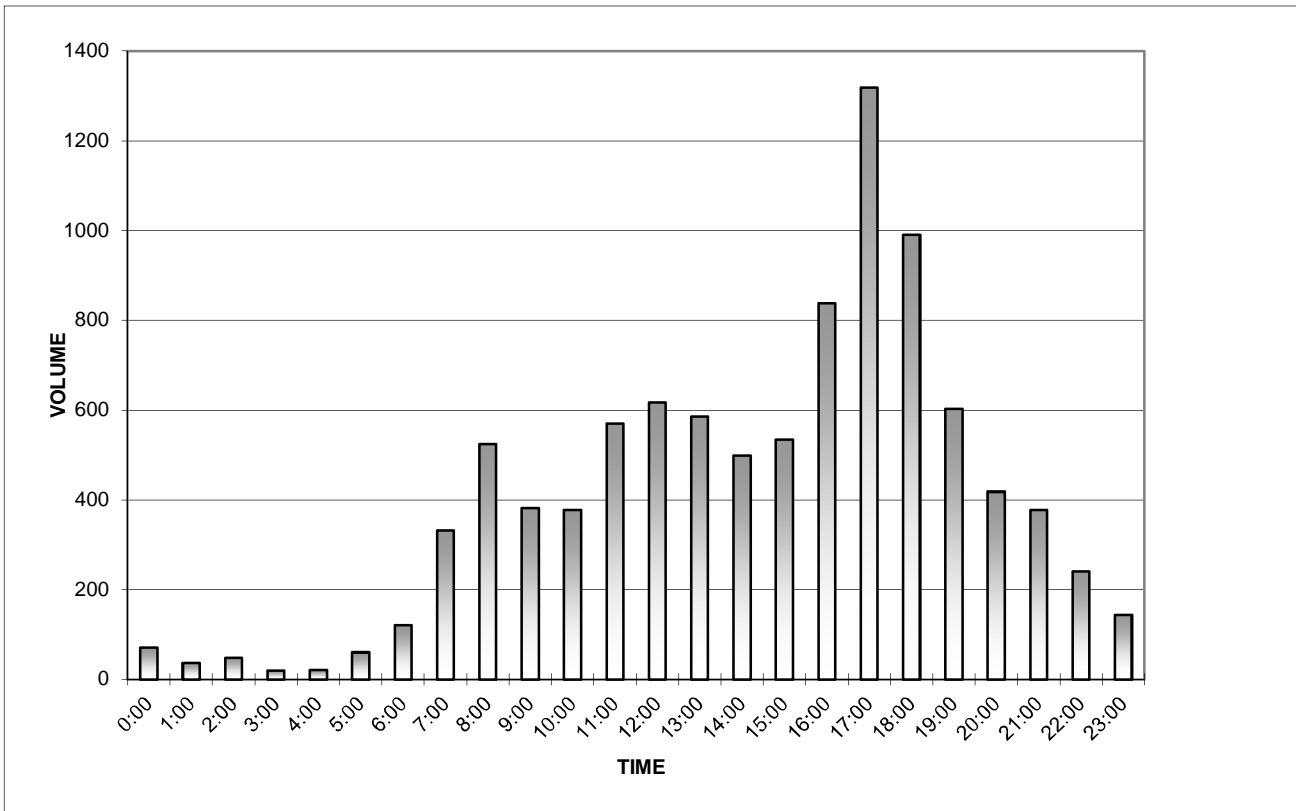


### EB Turtle Creek Boulevard West of Cedar Springs Road

Date Began:  
9/13/2018

TIME	0:00	0:15	0:30	0:45	TOTAL
0:00	24	17	14	16	71
1:00	5	7	13	11	36
2:00	25	18	2	3	48
3:00	6	6	6	2	20
4:00	2	6	3	10	21
5:00	7	12	11	30	60
6:00	15	31	38	37	121
7:00	50	80	96	106	332
8:00	124	130	134	136	524
9:00	108	98	91	84	381
10:00	92	94	108	84	378
11:00	88	134	174	174	570
12:00	152	164	154	147	617
13:00	160	163	132	130	585
14:00	120	112	122	145	499
15:00	138	132	151	113	534
16:00	182	198	230	228	838
17:00	303	341	352	322	1318
18:00	306	258	224	202	990
19:00	184	150	139	130	603
20:00	120	118	78	102	418
21:00	115	102	80	80	377
22:00	70	66	50	54	240
23:00	42	52	25	24	143
	TOTAL:				9724

The A.M. peak hour from 8:00 to 9:00 is 524  
The P.M. peak hour from 17:15 to 18:15 is 1321

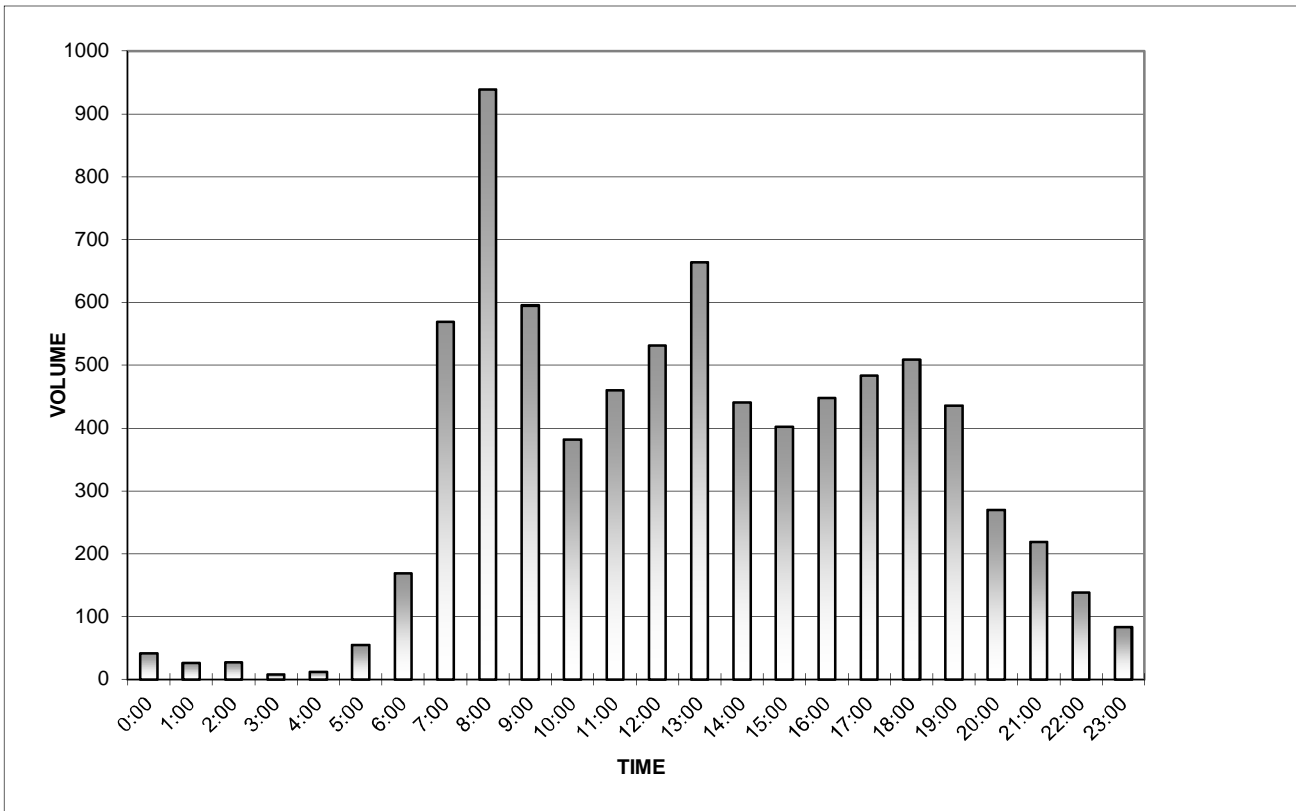


**WB Turtle Creek Boulevard West of Cedar Springs Road**

Date Began:  
9/13/2018

TIME	0:00	0:15	0:30	0:45	TOTAL
0:00	10	10	13	8	41
1:00	13	6	6	1	26
2:00	11	4	7	5	27
3:00	1	1	5	1	8
4:00	1	1	4	6	12
5:00	7	14	14	20	55
6:00	25	39	41	64	169
7:00	107	120	150	192	569
8:00	236	242	256	205	939
9:00	185	170	122	118	595
10:00	96	106	101	79	382
11:00	102	118	126	114	460
12:00	100	116	151	164	531
13:00	156	196	178	134	664
14:00	124	103	116	98	441
15:00	84	112	97	109	402
16:00	112	107	125	104	448
17:00	132	128	111	112	483
18:00	134	129	134	112	509
19:00	114	124	98	100	436
20:00	63	75	68	64	270
21:00	56	45	64	54	219
22:00	45	35	37	21	138
23:00	20	30	13	20	83
<b>TOTAL:</b>					<b>7907</b>

The A.M. peak hour from 8:00 to 9:00 is 939
The P.M. peak hour from 18:00 to 19:00 is 509

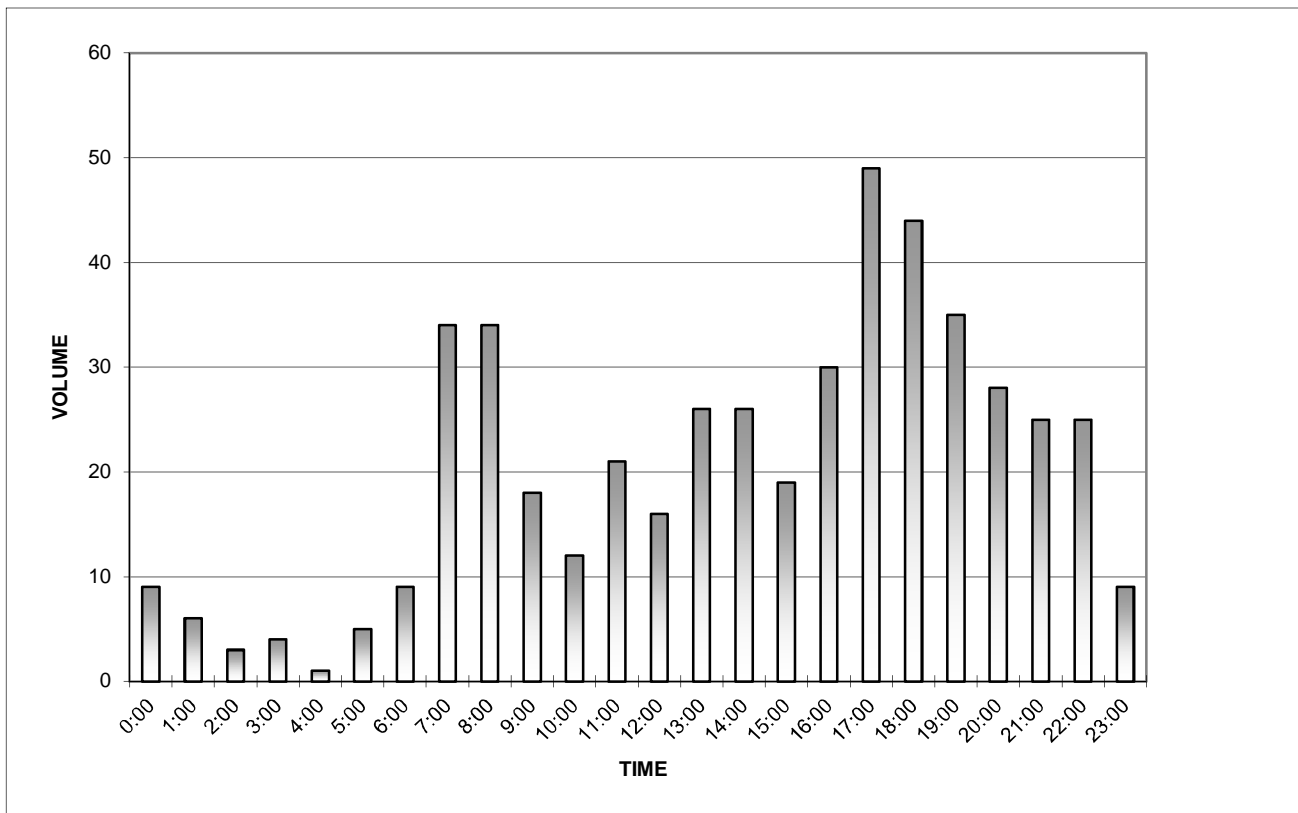


**NB Dickason Avenue North of Turtle Creek Road**

Date Began:  
9/13/2018

TIME	0:00	0:15	0:30	0:45	TOTAL
0:00	5	1	2	1	9
1:00	4	1	1	0	6
2:00	2	0	1	0	3
3:00	3	0	1	0	4
4:00	0	0	1	0	1
5:00	0	1	4	0	5
6:00	0	3	0	6	9
7:00	9	5	7	13	34
8:00	13	7	8	6	34
9:00	5	8	2	3	18
10:00	1	4	5	2	12
11:00	7	3	5	6	21
12:00	3	2	8	3	16
13:00	4	12	3	7	26
14:00	7	12	3	4	26
15:00	5	2	7	5	19
16:00	8	4	8	10	30
17:00	13	15	10	11	49
18:00	12	13	7	12	44
19:00	10	10	6	9	35
20:00	9	10	5	4	28
21:00	9	2	3	11	25
22:00	9	7	5	4	25
23:00	4	2	1	2	9
<b>TOTAL:</b>					<b>488</b>

The A.M. peak hour from 7:45 to 8:45 is 41
The P.M. peak hour from 17:00 to 18:00 is 49

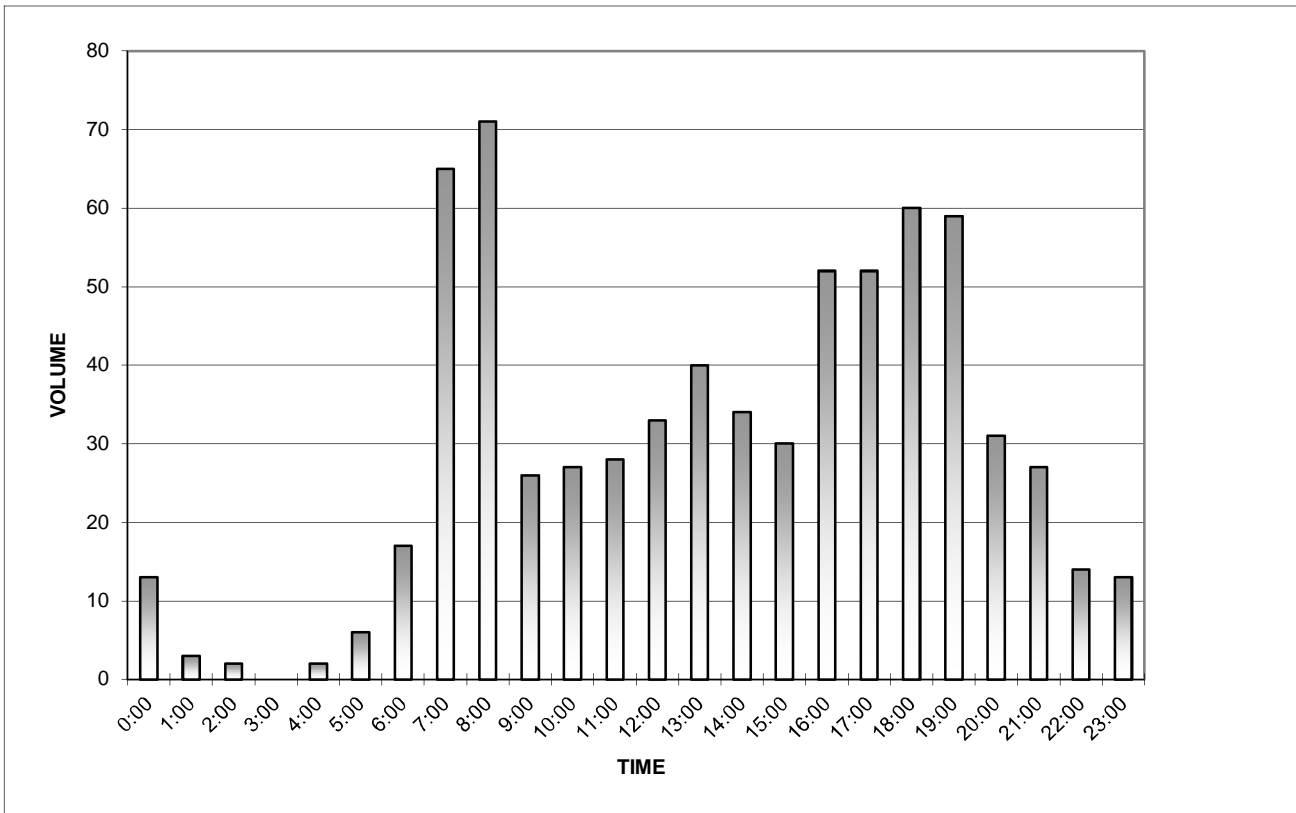


**SB Dickason Avenue North of Turtle Creek Road**

Date Began:  
9/13/2018

TIME	0:00	0:15	0:30	0:45	TOTAL
0:00	2	5	3	3	13
1:00	2	0	0	1	3
2:00	2	0	0	0	2
3:00	0	0	0	0	0
4:00	1	0	0	1	2
5:00	1	0	1	4	6
6:00	1	5	5	6	17
7:00	10	16	23	16	65
8:00	17	19	20	15	71
9:00	11	6	4	5	26
10:00	6	8	6	7	27
11:00	8	5	5	10	28
12:00	2	12	9	10	33
13:00	12	9	9	10	40
14:00	10	7	8	9	34
15:00	8	10	7	5	30
16:00	13	11	9	19	52
17:00	11	8	16	17	52
18:00	26	15	11	8	60
19:00	18	19	8	14	59
20:00	8	7	8	8	31
21:00	7	6	5	9	27
22:00	4	4	3	3	14
23:00	4	4	2	3	13
<b>TOTAL:</b>					<b>705</b>

The A.M. peak hour from 7:30 to 8:30 is 75
The P.M. peak hour from 17:30 to 18:30 is 74



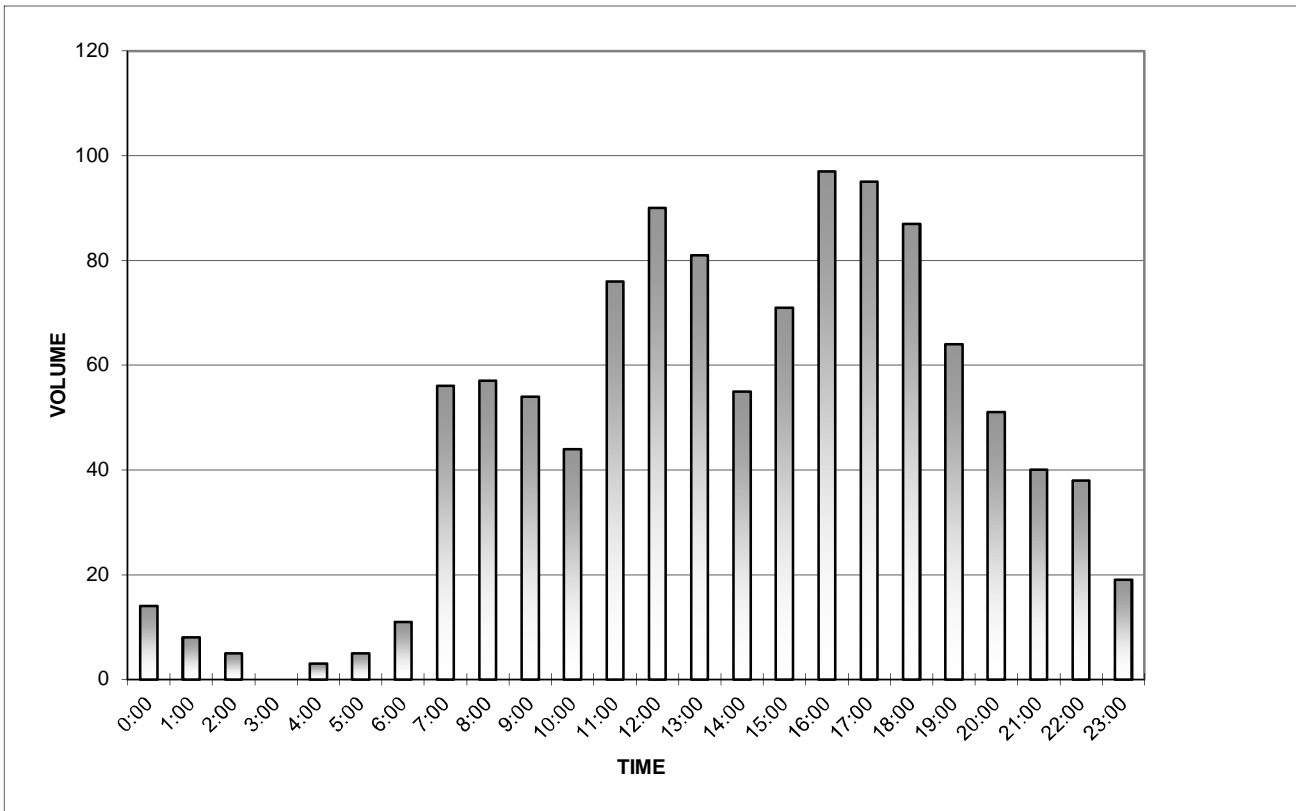
**NB Gillespie Street North of Turtle Creek Road**

Date Began:  
9/13/2018

TIME	0:00	0:15	0:30	0:45	TOTAL
0:00	3	8	1	2	14
1:00	2	3	1	2	8
2:00	2	0	1	2	5
3:00	0	0	0	0	0
4:00	1	1	0	1	3
5:00	3	1	0	1	5
6:00	3	3	1	4	11
7:00	13	11	12	20	56
8:00	11	18	12	16	57
9:00	16	10	11	17	54
10:00	8	13	9	14	44
11:00	11	16	21	28	76
12:00	16	27	22	25	90
13:00	18	17	25	21	81
14:00	16	17	10	12	55
15:00	20	18	18	15	71
16:00	21	28	21	27	97
17:00	19	28	25	23	95
18:00	20	18	27	22	87
19:00	12	13	22	17	64
20:00	10	10	19	12	51
21:00	8	11	10	11	40
22:00	6	14	9	9	38
23:00	7	5	3	4	19

TOTAL: 1121

The A.M. peak hour from 8:15 to 9:15 is 62
The P.M. peak hour from 16:45 to 17:45 is 99

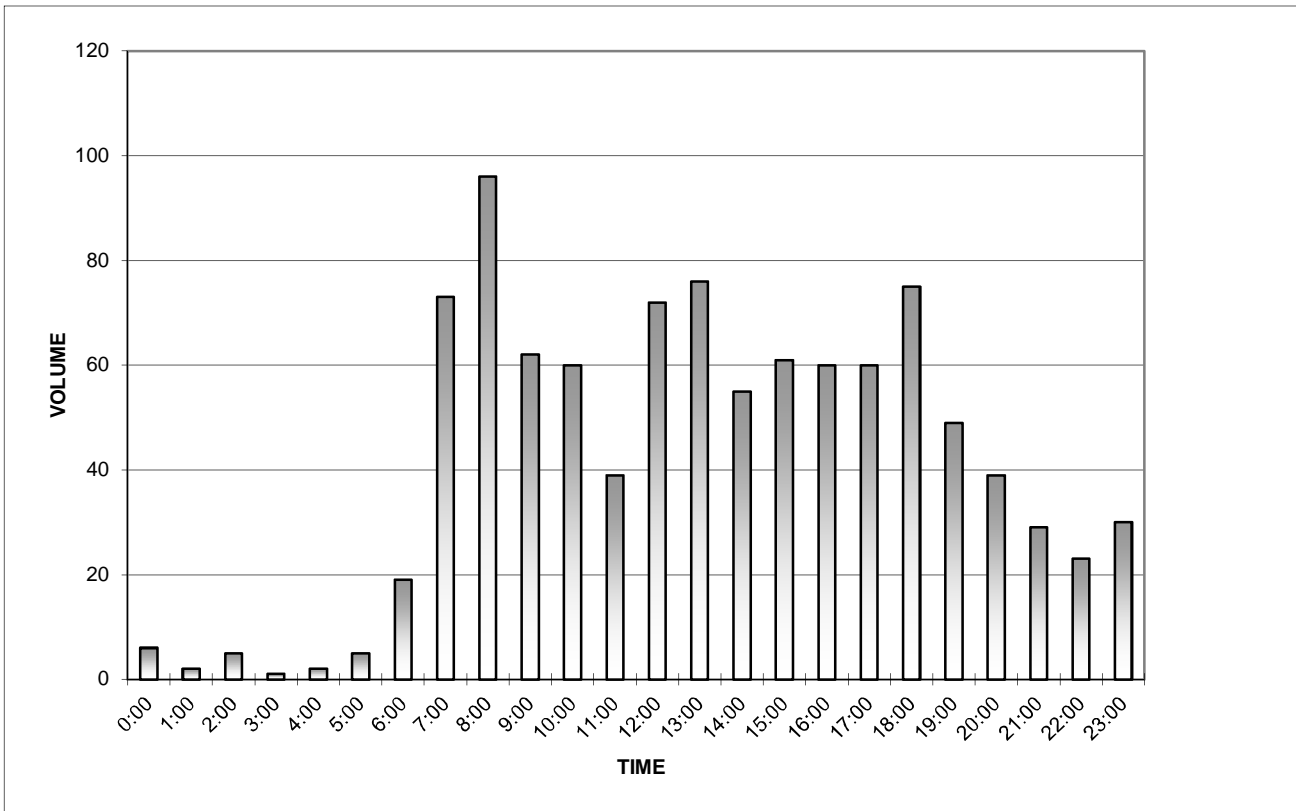


**SB Gillespie Street North of Turtle Creek Road**

Date Began:  
9/13/2018

TIME	0:00	0:15	0:30	0:45	TOTAL
0:00	1	2	1	2	6
1:00	0	0	1	1	2
2:00	3	0	0	2	5
3:00	1	0	0	0	1
4:00	1	1	0	0	2
5:00	1	2	2	0	5
6:00	1	4	6	8	19
7:00	16	22	15	20	73
8:00	22	23	25	26	96
9:00	17	13	15	17	62
10:00	18	14	11	17	60
11:00	9	13	8	9	39
12:00	18	15	20	19	72
13:00	16	18	18	24	76
14:00	12	11	19	13	55
15:00	21	12	16	12	61
16:00	13	16	20	11	60
17:00	13	14	21	12	60
18:00	20	18	21	16	75
19:00	9	5	15	20	49
20:00	9	8	13	9	39
21:00	14	5	5	5	29
22:00	4	6	7	6	23
23:00	10	11	5	4	30
<b>TOTAL:</b>					<b>999</b>

The A.M. peak hour from 8:00 to 9:00 is 96
The P.M. peak hour from 18:00 to 19:00 is 75



**1. Turtle Creek at Cedar Springs/Bowen Street - TMC**

Thu Sep 13, 2018

Full Length (7AM-9AM, 4:30PM-6:30PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 561485, Location: 32.805485, -96.804246, Site Code: 1



Provided by: C. J. Hensch & Associates Inc.  
5215 Sycamore Ave., Pasadena, TX, 77503, US

Leg Direction	Turtle Creek Boulevard/Cedar Springs Road Eastbound							Turtle Creek Boulevard/Cedar Springs Road Westbound							Bowen Street Northbound							Cedar Springs Road Southbound							Int
	L	T	R	U	App	Ped*		L	T	R	U	App	Ped*		L	T	R	U	App	Ped*		L	T	R	U	App	Ped*		
2018-09-13 7:00AM	19	22	5	0	46	1		5	80	24	0	109	0		4	63	0	0	67	0		11	17	21	0	49	0		271
7:15AM	19	61	3	0	83	2		10	94	44	0	148	2		6	99	6	0	111	4		10	32	21	0	63	2		405
7:30AM	22	60	7	0	89	0		4	116	26	0	146	3		7	91	8	0	106	0		15	33	26	0	74	2		415
7:45AM	32	81	5	0	118	0		10	166	25	0	201	1		12	84	8	0	104	0		13	47	28	0	88	2		511
Hourly Total	92	224	20	0	336	3		29	456	119	0	604	6		29	337	22	0	388	4		49	129	96	0	274	6		1602
8:00AM	34	75	4	0	113	0		9	178	38	0	225	0		13	94	10	0	117	3		18	49	41	0	108	1		563
8:15AM	23	117	1	2	143	1		9	199	33	0	241	0		13	66	9	0	88	0		22	54	39	0	115	0		587
8:30AM	34	85	7	0	126	2		7	204	33	0	244	3		10	79	10	0	99	0		17	59	51	0	127	0		596
8:45AM	42	100	5	0	147	2		6	177	35	0	218	0		5	76	12	0	93	2		12	53	36	0	101	0		559
Hourly Total	133	377	17	2	529	5		31	758	139	0	928	3		41	315	41	0	397	5		69	215	167	0	451	1		2305
9:00AM	0	0	0	0	0	0		0	1	0	0	1	0		0	0	0	0	0	0		0	0	0	0	0	0		1
Hourly Total	0	0	0	0	0	0		0	1	0	0	1	0		0	0	0	0	0	0		0	0	0	0	0	0		1
4:30PM	36	190	9	0	235	0		7	88	13	0	108	2		3	54	3	0	60	2		38	100	34	0	172	1		575
4:45PM	43	184	10	0	237	1		6	80	12	0	98	0		0	39	11	0	50	1		48	110	28	0	186	1		571
Hourly Total	79	374	19	0	472	1		13	168	25	0	206	2		3	93	14	0	110	3		86	210	62	0	358	2		1146
5:00PM	40	261	16	1	318	0		5	97	21	0	123	0		8	47	10	0	65	0		58	121	29	0	208	0		714
5:15PM	57	274	20	1	352	1		5	97	24	1	127	1		4	61	13	0	78	1		53	136	24	0	213	0		770
5:30PM	42	304	15	1	362	2		5	77	22	1	105	2		3	54	22	1	80	1		43	111	38	0	192	5		739
5:45PM	42	285	21	0	348	2		13	66	18	0	97	1		5	51	10	0	66	1		55	118	39	0	212	2		723
Hourly Total	181	1124	72	3	1380	5		28	337	85	2	452	4		20	213	55	1	289	3		209	486	130	0	825	7		2946
6:00PM	56	241	19	1	317	1		9	92	21	3	125	1		8	51	11	0	70	3		46	122	35	0	203	3		715
6:15PM	45	207	16	0	268	9		4	81	14	1	100	0		10	43	17	0	70	5		49	128	42	0	219	1		657
6:30PM	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		1	0	0	0	1	0		1
Hourly Total	101	448	35	1	585	10		13	173	35	4	225	1		18	94	28	0	140	8		96	250	77	0	423	4		1373
<b>Total</b>	586	2547	163	6	3302	24		114	1893	403	6	2416	16		111	1052	160	1	1324	23		509	1290	532	0	2331	20		9373
<b>% Approach</b>	17.7%	77.1%	4.9%	0.2%	-	-		4.7%	78.4%	16.7%	0.2%	-	-		8.4%	79.5%	12.1%	0.1%	-	-		21.8%	55.3%	22.8%	0%	-	-		-
<b>% Total</b>	6.3%	27.2%	1.7%	0.1%	35.2%	-		1.2%	20.2%	4.3%	0.1%	25.8%	-		1.2%	11.2%	1.7%	0%	14.1%	-		5.4%	13.8%	5.7%	0%	24.9%	-		-
<b>Lights</b>	579	2535	161	6	3281	-		113	1884	398	6	2401	-		109	1035	159	1	1304	-		507	1277	524	0	2308	-		9294
<b>% Lights</b>	98.8%	99.5%	98.8%	100%	99.4%	-		99.1%	99.5%	98.8%	100%	99.4%	-		98.2%	98.4%	99.4%	100%	98.5%	-		99.6%	99.0%	98.5%	0%	99.0%	-		99.2%
<b>Articulated Trucks</b>	1	1	0	0	2	-		0	0	0	0	0	-		0	2	0	0	2	-		0	0	0	0	0	-		4
<b>% Articulated Trucks</b>	0.2%	0%	0%	0%	0.1%	-		0%	0%	0%	0%	0%	-		0%	0.2%	0%	0%	0.2%	-		0%	0%	0%	0%	0%	-		0%
<b>Buses and Single-Unit Trucks</b>	6	11	2	0	19	-		1	9	5	0	15	-		2	15	1	0	18	-		2	13	8	0	23	-		75
<b>% Buses and Single-Unit Trucks</b>	1.0%	0.4%	1.2%	0%	0.6%	-		0.9%	0.5%	1.2%	0%	0.6%	-		1.8%	1.4%	0.6%	0%	1.4%	-		0.4%	1.0%	1.5%	0%	1.0%	-		0.8%
<b>Pedestrians</b>	-	-	-	-	-	23		-	-	-	-	15		-	-	-	-	-	21		-	-	-	-	-	20		-	
<b>% Pedestrians</b>	-	-	-	-	-	95.8%		-	-	-	-	93.8%		-	-	-	-	-	91.3%		-	-	-	-	-	100%		-	
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	1		-	-	-	-	1		-	-	-	-	-	2		-	-	-	-	-	0		-	
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	4.2%		-	-	-	-	6.3%		-	-	-	-	-	8.7%		-	-	-	-	-	0%		-	

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn



**1. Turtle Creek at Cedar Springs/Bowen Street - TMC**

Thu Sep 13, 2018

AM Peak (8AM - 9AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 561485, Location: 32.805485, -96.804246, Site Code: 1



Provided by: C. J. Hensch & Associates Inc.  
5215 Sycamore Ave., Pasadena, TX, 77503, US

Leg Direction	Turtle Creek Boulevard/Cedar Springs Road Eastbound							Turtle Creek Boulevard/Cedar Springs Road Westbound							Bowen Street Northbound							Cedar Springs Road Southbound							Int
	L	T	R	U	App	Ped*		L	T	R	U	App	Ped*		L	T	R	U	App	Ped*		L	T	R	U	App	Ped*		
2018-09-13 8:00AM	34	75	4	0	113	0		9	178	38	0	225	0		13	94	10	0	117	3		18	49	41	0	108	1		563
8:15AM	23	117	1	2	143	1		9	199	33	0	241	0		13	66	9	0	88	0		22	54	39	0	115	0		587
8:30AM	34	85	7	0	126	2		7	204	33	0	244	3		10	79	10	0	99	0		17	59	51	0	127	0		596
8:45AM	42	100	5	0	147	2		6	177	35	0	218	0		5	76	12	0	93	2		12	53	36	0	101	0		559
<b>Total</b>	133	377	17	2	529	5		31	758	139	0	928	3		41	315	41	0	397	5		69	215	167	0	451	1		2305
<b>% Approach</b>	25.1%	71.3%	3.2%	0.4%	-	-		3.3%	81.7%	15.0%	0%	-	-		10.3%	79.3%	10.3%	0%	-	-		15.3%	47.7%	37.0%	0%	-	-		-
<b>% Total</b>	5.8%	16.4%	0.7%	0.1%	23.0%	-		1.3%	32.9%	6.0%	0%	40.3%	-		1.8%	13.7%	1.8%	0%	17.2%	-		3.0%	9.3%	7.2%	0%	19.6%	-		-
<b>PHF</b>	0.792	0.806	0.607	0.250	0.900	-		0.861	0.929	0.914	-	0.951	-		0.788	0.838	0.854	-	0.848	-		0.784	0.911	0.819	-	0.888	-		0.967
<b>Lights</b>	130	372	17	2	521	-		31	752	138	0	921	-		40	308	40	0	388	-		68	210	163	0	441	-		2271
<b>% Lights</b>	97.7%	98.7%	100%	100%	98.5%	-		100%	99.2%	99.3%	0%	99.2%	-		97.6%	97.8%	97.6%	0%	97.7%	-		98.6%	97.7%	97.6%	0%	97.8%	-		98.5%
<b>Articulated Trucks</b>	0	0	0	0	0	-		0	0	0	0	0	-		0	1	0	0	1	-		0	0	0	0	0	-		1
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-		0%	0%	0%	0%	0%	-		0%	0.3%	0%	0%	0.3%	-		0%	0%	0%	0%	0%	-		0%
<b>Buses and Single-Unit Trucks</b>	3	5	0	0	8	-		0	6	1	0	7	-		1	6	1	0	8	-		1	5	4	0	10	-		33
<b>% Buses and Single-Unit Trucks</b>	2.3%	1.3%	0%	0%	1.5%	-		0%	0.8%	0.7%	0%	0.8%	-		2.4%	1.9%	2.4%	0%	2.0%	-		1.4%	2.3%	2.4%	0%	2.2%	-		1.4%
<b>Pedestrians</b>	-	-	-	-	-	5		-	-	-	-	-	3		-	-	-	-	-	5		-	-	-	-	-	-	1	
<b>% Pedestrians</b>	-	-	-	-	-	100%		-	-	-	-	-	100%		-	-	-	-	-	100%		-	-	-	-	-	-	100%	
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	0		-	-	-	-	-	0		-	-	-	-	-	0		-	-	-	-	-	-	0	
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	0%		-	-	-	-	-	0%		-	-	-	-	-	0%		-	-	-	-	-	-	0%	

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

**1. Turtle Creek at Cedar Springs/Bowen Street - TMC**

Thu Sep 13, 2018

PM Peak (5:15PM - 6:15PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 561485, Location: 32.805485, -96.804246, Site Code: 1



Provided by: C. J. Hensch & Associates Inc.  
5215 Sycamore Ave., Pasadena, TX, 77503, US

Leg Direction	Turtle Creek Boulevard/Cedar Springs Road Eastbound						Turtle Creek Boulevard/Cedar Springs Road Westbound						Bowen Street Northbound						Cedar Springs Road Southbound						Int
	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	
2018-09-13 5:15PM	57	274	20	1	<b>352</b>	1	5	97	24	1	<b>127</b>	1	4	61	13	0	<b>78</b>	1	53	136	24	0	<b>213</b>	0	<b>770</b>
5:30PM	42	304	15	1	<b>362</b>	2	5	77	22	1	<b>105</b>	2	3	54	22	1	<b>80</b>	1	43	111	38	0	<b>192</b>	5	<b>739</b>
5:45PM	42	285	21	0	<b>348</b>	2	13	66	18	0	<b>97</b>	1	5	51	10	0	<b>66</b>	1	55	118	39	0	<b>212</b>	2	<b>723</b>
6:00PM	56	241	19	1	<b>317</b>	1	9	92	21	3	<b>125</b>	1	8	51	11	0	<b>70</b>	3	46	122	35	0	<b>203</b>	3	<b>715</b>
<b>Total</b>	197	1104	75	3	<b>1379</b>	6	32	332	85	5	<b>454</b>	5	20	217	56	1	<b>294</b>	6	197	487	136	0	<b>820</b>	10	<b>2947</b>
<b>% Approach</b>	14.3%	80.1%	5.4%	0.2%	-	-	7.0%	73.1%	18.7%	1.1%	-	-	6.8%	73.8%	19.0%	0.3%	-	-	24.0%	59.4%	16.6%	0%	-	-	-
<b>% Total</b>	6.7%	37.5%	2.5%	0.1%	<b>46.8%</b>	-	1.1%	11.3%	2.9%	0.2%	<b>15.4%</b>	-	0.7%	7.4%	1.9%	0%	<b>10.0%</b>	-	6.7%	16.5%	4.6%	0%	<b>27.8%</b>	-	-
<b>PHF</b>	0.864	0.908	0.893	0.750	<b>0.952</b>	-	0.615	0.856	0.885	0.417	<b>0.894</b>	-	0.625	0.889	0.636	0.250	<b>0.919</b>	-	0.895	0.895	0.872	-	<b>0.962</b>	-	0.957
<b>Lights</b>	197	1101	75	3	<b>1376</b>	-	31	332	85	5	<b>453</b>	-	20	214	56	1	<b>291</b>	-	197	484	136	0	<b>817</b>	-	2937
<b>% Lights</b>	100%	99.7%	100%	100%	<b>99.8%</b>	-	96.9%	100%	100%	100%	<b>99.8%</b>	-	100%	98.6%	100%	100%	<b>99.0%</b>	-	100%	99.4%	100%	0%	<b>99.6%</b>	-	99.7%
<b>Articulated Trucks</b>	0	1	0	0	<b>1</b>	-	0	0	0	0	<b>0</b>	-	0	0	0	0	<b>0</b>	-	0	0	0	0	<b>0</b>	-	1
<b>% Articulated Trucks</b>	0%	0.1%	0%	0%	<b>0.1%</b>	-	0%	0%	0%	0%	<b>0%</b>	-	0%	0%	0%	0%	<b>0%</b>	-	0%	0%	0%	0%	<b>0%</b>	-	0%
<b>Buses and Single-Unit Trucks</b>	0	2	0	0	<b>2</b>	-	1	0	0	0	<b>1</b>	-	0	3	0	0	<b>3</b>	-	0	3	0	0	<b>3</b>	-	9
<b>% Buses and Single-Unit Trucks</b>	0%	0.2%	0%	0%	<b>0.1%</b>	-	3.1%	0%	0%	0%	<b>0.2%</b>	-	0%	1.4%	0%	0%	<b>1.0%</b>	-	0%	0.6%	0%	0%	<b>0.4%</b>	-	0.3%
<b>Pedestrians</b>	-	-	-	-	-	5	-	-	-	-	-	5	-	-	-	-	-	6	-	-	-	-	-	10	-
<b>% Pedestrians</b>	-	-	-	-	-	-83.3%	-	-	-	-	-	-100%	-	-	-	-	-	-100%	-	-	-	-	-	-100%	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	-16.7%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

**2. Cedar Springs Road at Sale Street - TMC**

Thu Sep 13, 2018

Full Length (7AM-9AM, 4:30PM-6:30PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 561486, Location: 32.806713, -96.805802, Site Code: 2



Provided by: C. J. Hensch & Associates Inc.  
5215 Sycamore Ave., Pasadena, TX, 77503, US

Leg Direction	Sale Street Eastbound						Sale Street Westbound						Cedar Springs Road Northbound						Cedar Springs Road Southbound						Int
	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	
2018-09-13 7:00AM	8	0	1	0	9	1	0	0	0	0	0	0	4	114	1	0	119	1	2	44	1	0	47	1	175
7:15AM	13	1	7	0	21	0	0	1	5	0	6	1	1	164	2	0	167	2	3	55	1	0	59	0	253
7:30AM	9	1	4	0	14	3	0	0	0	0	0	1	2	138	0	0	140	2	3	70	4	0	77	0	231
7:45AM	7	1	4	0	12	1	0	0	2	0	2	1	3	145	1	0	149	2	2	91	2	0	95	0	258
Hourly Total	37	3	16	0	56	5	0	1	7	0	8	3	10	561	4	0	575	7	10	260	8	0	278	1	917
8:00AM	10	1	8	0	19	0	0	0	1	0	1	2	3	156	0	0	159	0	1	100	3	0	104	0	283
8:15AM	12	2	14	0	28	1	0	0	2	0	2	0	2	119	1	0	122	0	0	107	1	0	108	0	260
8:30AM	13	0	5	0	18	2	0	1	1	0	2	0	3	139	0	0	142	0	5	119	2	0	126	0	288
8:45AM	3	1	8	0	12	2	0	0	1	0	1	0	4	145	3	0	152	0	3	105	3	0	111	0	276
Hourly Total	38	4	35	0	77	5	0	1	5	0	6	2	12	559	4	0	575	0	9	431	9	0	449	0	1107
9:00AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30PM	1	0	7	0	8	0	0	0	2	0	2	2	4	104	0	0	108	0	8	170	5	0	183	1	301
4:45PM	4	0	7	0	11	0	0	0	0	0	0	2	3	96	2	0	101	3	6	181	4	0	191	0	303
Hourly Total	5	0	14	0	19	0	0	0	2	0	2	4	7	200	2	0	209	3	14	351	9	0	374	1	604
5:00PM	2	1	8	0	11	0	1	0	3	0	4	0	4	106	4	0	114	0	11	191	7	0	209	1	338
5:15PM	0	1	4	0	5	0	0	1	3	0	4	2	5	145	6	0	156	1	7	197	9	0	213	0	378
5:30PM	3	0	3	0	6	2	1	1	3	0	5	5	13	118	3	0	134	4	6	184	8	0	198	0	343
5:45PM	3	1	8	0	12	2	0	2	0	0	2	3	5	109	2	0	116	0	9	190	9	0	208	1	338
Hourly Total	8	3	23	0	34	4	2	4	9	0	15	10	27	478	15	0	520	5	33	762	33	0	828	2	1397
6:00PM	2	1	8	0	11	1	0	1	1	0	2	3	17	124	4	0	145	3	7	193	15	0	215	0	373
6:15PM	2	2	10	0	14	3	0	0	1	0	1	0	5	107	3	0	115	2	8	208	9	0	225	0	355
6:30PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	4	3	18	0	25	4	0	1	2	0	3	3	22	231	7	0	260	5	15	401	24	0	440	0	728
<b>Total</b>	92	13	106	0	211	18	2	7	25	0	34	22	78	2029	32	0	2139	20	81	2205	83	0	2369	4	4753
<b>% Approach</b>	43.6%	6.2%	50.2%	0%	-	-	5.9%	20.6%	73.5%	0%	-	-	3.6%	94.9%	1.5%	0%	-	-	3.4%	93.1%	3.5%	0%	-	-	-
<b>% Total</b>	1.9%	0.3%	2.2%	0%	4.4%	-	0%	0.1%	0.5%	0%	0.7%	-	1.6%	42.7%	0.7%	0%	45.0%	-	1.7%	46.4%	1.7%	0%	49.8%	-	-
<b>Lights</b>	91	13	105	0	209	-	2	7	25	0	34	-	77	2000	31	0	2108	-	79	2184	82	0	2345	-	4696
<b>% Lights</b>	98.9%	100%	99.1%	0%	99.1%	-	100%	100%	100%	0%	100%	-	98.7%	98.6%	96.9%	0%	98.6%	-	97.5%	99.0%	98.8%	0%	99.0%	-	98.8%
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	2	0	0	2	-	0	0	0	0	0	-	2
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0.1%	0%	0%	0.1%	-	0%	0%	0%	0%	0%	-	0%
<b>Buses and Single-Unit Trucks</b>	1	0	1	0	2	-	0	0	0	0	0	-	1	27	1	0	29	-	2	21	1	0	24	-	55
<b>% Buses and Single-Unit Trucks</b>	1.1%	0%	0.9%	0%	0.9%	-	0%	0%	0%	0%	0%	-	1.3%	1.3%	3.1%	0%	1.4%	-	2.5%	1.0%	1.2%	0%	1.0%	-	1.2%
<b>Pedestrians</b>	-	-	-	-	-	18	-	-	-	-	-	22	-	-	-	-	-	19	-	-	-	-	-	4	-
<b>% Pedestrians</b>	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	95.0%	-	-	-	-	-	100%	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	5.0%	-	-	-	-	-	0%	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

**2. Cedar Springs Road at Sale Street - TMC**

Thu Sep 13, 2018

AM Peak (8AM - 9AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 561486, Location: 32.806713, -96.805802, Site Code: 2



Provided by: C. J. Hensch & Associates Inc.  
5215 Sycamore Ave.,  
Pasadena, TX, 77503, US

Leg Direction	Sale Street Eastbound						Sale Street Westbound						Cedar Springs Road Northbound						Cedar Springs Road Southbound						Int
	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	
2018-09-13 8:00AM	10	1	8	0	19	0	0	0	1	0	1	2	3	156	0	0	159	0	1	100	3	0	104	0	283
8:15AM	12	2	14	0	28	1	0	0	2	0	2	0	2	119	1	0	122	0	0	107	1	0	108	0	260
8:30AM	13	0	5	0	18	2	0	1	1	0	2	0	3	139	0	0	142	0	5	119	2	0	126	0	288
8:45AM	3	1	8	0	12	2	0	0	1	0	1	0	4	145	3	0	152	0	3	105	3	0	111	0	276
<b>Total</b>	38	4	35	0	77	5	0	1	5	0	6	2	12	559	4	0	575	0	9	431	9	0	449	0	1107
<b>% Approach</b>	49.4%	5.2%	45.5%	0%	-	-	0%	16.7%	83.3%	0%	-	-	2.1%	97.2%	0.7%	0%	-	-	2.0%	96.0%	2.0%	0%	-	-	-
<b>% Total</b>	3.4%	0.4%	3.2%	0%	7.0%	-	0%	0.1%	0.5%	0%	0.5%	-	1.1%	50.5%	0.4%	0%	51.9%	-	0.8%	38.9%	0.8%	0%	40.6%	-	-
<b>PHF</b>	0.731	0.500	0.625	-	0.688	-	-	0.250	0.625	-	0.750	-	0.750	0.896	0.333	-	0.904	-	0.450	0.905	0.750	-	0.891	-	0.961
<b>Lights</b>	38	4	35	0	77	-	0	1	5	0	6	-	12	549	4	0	565	-	9	421	8	0	438	-	1086
<b>% Lights</b>	100%	100%	100%	0%	100%	-	0%	100%	100%	0%	100%	-	100%	98.2%	100%	0%	98.3%	-	100%	97.7%	88.9%	0%	97.6%	-	98.1%
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	1	-	0	0	0	0	0	-	1
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0.2%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0.1%
<b>Buses and Single-Unit Trucks</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	9	0	0	9	-	0	10	1	0	11	-	20
<b>% Buses and Single-Unit Trucks</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	1.6%	0%	0%	1.6%	-	0%	2.3%	11.1%	0%	2.4%	-	1.8%
<b>Pedestrians</b>	-	-	-	-	-	5	-	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-
<b>% Pedestrians</b>	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-	-	-

\* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

**2. Cedar Springs Road at Sale Street - TMC**

Thu Sep 13, 2018

PM Peak (5:15PM - 6:15PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 561486, Location: 32.806713, -96.805802, Site Code: 2



Provided by: C. J. Hensch & Associates Inc.  
5215 Sycamore Ave., Pasadena, TX, 77503, US

Leg Direction	Sale Street Eastbound						Sale Street Westbound						Cedar Springs Road Northbound						Cedar Springs Road Southbound						Int
	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	
2018-09-13 5:15PM	0	1	4	0	5	0	0	1	3	0	4	2	5	145	6	0	156	1	7	197	9	0	213	0	378
5:30PM	3	0	3	0	6	2	1	1	3	0	5	5	13	118	3	0	134	4	6	184	8	0	198	0	343
5:45PM	3	1	8	0	12	2	0	2	0	0	2	3	5	109	2	0	116	0	9	190	9	0	208	1	338
6:00PM	2	1	8	0	11	1	0	1	1	0	2	3	17	124	4	0	145	3	7	193	15	0	215	0	373
<b>Total</b>	8	3	23	0	34	5	1	5	7	0	13	13	40	496	15	0	551	8	29	764	41	0	834	1	1432
<b>% Approach</b>	23.5%	8.8%	67.6%	0%	-	-	7.7%	38.5%	53.8%	0%	-	-	7.3%	90.0%	2.7%	0%	-	-	3.5%	91.6%	4.9%	0%	-	-	-
<b>% Total</b>	0.6%	0.2%	1.6%	0%	2.4%	-	0.1%	0.3%	0.5%	0%	0.9%	-	2.8%	34.6%	1.0%	0%	38.5%	-	2.0%	53.4%	2.9%	0%	58.2%	-	-
<b>PHF</b>	0.667	0.750	0.719	-	0.708	-	0.250	0.625	0.583	-	0.650	-	0.588	0.855	0.625	-	0.883	-	0.806	0.970	0.683	-	0.970	-	0.947
<b>Lights</b>	8	3	23	0	34	-	1	5	7	0	13	-	39	493	14	0	546	-	29	761	41	0	831	-	1424
<b>% Lights</b>	100%	100%	100%	0%	100%	-	100%	100%	100%	0%	100%	-	97.5%	99.4%	93.3%	0%	99.1%	-	100%	99.6%	100%	0%	99.6%	-	99.4%
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
<b>Buses and Single-Unit Trucks</b>	0	0	0	0	0	-	0	0	0	0	0	-	1	3	1	0	5	-	0	3	0	0	3	-	8
<b>% Buses and Single-Unit Trucks</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	2.5%	0.6%	6.7%	0%	0.9%	-	0%	0.4%	0%	0%	0.4%	-	0.6%
<b>Pedestrians</b>	-	-	-	-	-	5	-	-	-	-	-	13	-	-	-	-	-	8	-	-	-	-	-	1	-
<b>% Pedestrians</b>	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-

\* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

### 3. Turtle Creek & Dickason Avenue - TMC

Thu Sep 13, 2018

Full Length (7AM-9AM, 4:30PM-6:30PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 561487, Location: 32.804575, -96.80498, Site Code: 3



Provided by: C. J. Hensch & Associates Inc.  
5215 Sycamore Ave.,  
Pasadena, TX, 77503, US

Leg Direction	Turtle Creek/ Cedar Springs Road Eastbound					Turtle Creek/ Cedar Springs Road Westbound					Dickason Avenue Southbound					Int
	L	T	U	App	Ped*	T	R	U	App	Ped*	L	R	U	App	Ped*	
2018-09-13 7:00AM	2	46	0	<b>48</b>	0	102	8	0	<b>110</b>	0	4	4	0	<b>8</b>	0	<b>166</b>
7:15AM	0	69	0	<b>69</b>	0	117	6	0	<b>123</b>	0	10	7	0	<b>17</b>	5	<b>209</b>
7:30AM	1	87	0	<b>88</b>	0	147	6	1	<b>154</b>	0	7	15	0	<b>22</b>	2	<b>264</b>
7:45AM	0	99	1	<b>100</b>	0	187	14	0	<b>201</b>	0	4	13	0	<b>17</b>	2	<b>318</b>
Hourly Total	3	301	1	<b>305</b>	0	553	34	1	<b>588</b>	0	25	39	0	<b>64</b>	9	<b>957</b>
8:00AM	3	130	0	<b>133</b>	0	231	10	0	<b>241</b>	1	1	14	0	<b>15</b>	2	<b>389</b>
8:15AM	1	125	0	<b>126</b>	0	243	6	0	<b>249</b>	0	3	17	0	<b>20</b>	0	<b>395</b>
8:30AM	0	129	0	<b>129</b>	0	259	8	0	<b>267</b>	0	4	15	0	<b>19</b>	0	<b>415</b>
8:45AM	1	132	0	<b>133</b>	0	211	5	0	<b>216</b>	0	5	11	0	<b>16</b>	0	<b>365</b>
Hourly Total	5	516	0	<b>521</b>	0	944	29	0	<b>973</b>	1	13	57	0	<b>70</b>	2	<b>1564</b>
9:00AM	0	0	0	<b>0</b>	0	0	0	0	<b>0</b>	0	0	0	0	<b>0</b>	0	<b>0</b>
Hourly Total	0	0	0	<b>0</b>	0	0	0	0	<b>0</b>	0	0	0	0	<b>0</b>	0	<b>0</b>
4:30PM	3	232	1	<b>236</b>	0	120	5	0	<b>125</b>	0	3	6	0	<b>9</b>	1	<b>370</b>
4:45PM	7	221	1	<b>229</b>	0	101	3	0	<b>104</b>	0	10	7	0	<b>17</b>	0	<b>350</b>
Hourly Total	10	453	2	<b>465</b>	0	221	8	0	<b>229</b>	0	13	13	0	<b>26</b>	1	<b>720</b>
5:00PM	8	306	1	<b>315</b>	0	131	5	0	<b>136</b>	0	10	3	0	<b>13</b>	0	<b>464</b>
5:15PM	9	352	0	<b>361</b>	0	122	6	1	<b>129</b>	0	5	3	0	<b>8</b>	2	<b>498</b>
5:30PM	5	349	0	<b>354</b>	0	113	6	0	<b>119</b>	0	10	8	0	<b>18</b>	2	<b>491</b>
5:45PM	6	314	0	<b>320</b>	0	108	4	2	<b>114</b>	0	11	5	0	<b>16</b>	2	<b>450</b>
Hourly Total	28	1321	1	<b>1350</b>	0	474	21	3	<b>498</b>	0	36	19	0	<b>55</b>	6	<b>1903</b>
6:00PM	3	300	0	<b>303</b>	0	129	8	0	<b>137</b>	0	15	11	0	<b>26</b>	4	<b>466</b>
6:15PM	9	253	1	<b>263</b>	1	128	4	1	<b>133</b>	0	10	6	0	<b>16</b>	3	<b>412</b>
6:30PM	0	1	0	<b>1</b>	0	0	0	0	<b>0</b>	0	0	0	0	<b>0</b>	0	<b>1</b>
Hourly Total	12	554	1	<b>567</b>	1	257	12	1	<b>270</b>	0	25	17	0	<b>42</b>	7	<b>879</b>
<b>Total</b>	58	3145	5	<b>3208</b>	1	2449	104	5	<b>2558</b>	1	112	145	0	<b>257</b>	25	<b>6023</b>
<b>% Approach</b>	1.8%	98.0%	0.2%	-	-	95.7%	4.1%	0.2%	-	-	43.6%	56.4%	0%	-	-	-
<b>% Total</b>	1.0%	52.2%	0.1%	<b>53.3%</b>	-	40.7%	1.7%	0.1%	<b>42.5%</b>	-	1.9%	2.4%	0%	<b>4.3%</b>	-	-
<b>Lights</b>	58	3126	5	<b>3189</b>	-	2432	103	5	<b>2540</b>	-	111	144	0	<b>255</b>	-	5984
<b>% Lights</b>	100%	99.4%	100%	<b>99.4%</b>	-	99.3%	99.0%	100%	<b>99.3%</b>	-	99.1%	99.3%	0%	<b>99.2%</b>	-	99.4%
<b>Articulated Trucks</b>	0	2	0	<b>2</b>	-	0	0	0	<b>0</b>	-	0	0	0	<b>0</b>	-	2
<b>% Articulated Trucks</b>	0%	0.1%	0%	<b>0.1%</b>	-	0%	0%	0%	<b>0%</b>	-	0%	0%	0%	<b>0%</b>	-	0%
<b>Buses and Single-Unit Trucks</b>	0	17	0	<b>17</b>	-	17	1	0	<b>18</b>	-	1	1	0	<b>2</b>	-	37
<b>% Buses and Single-Unit Trucks</b>	0%	0.5%	0%	<b>0.5%</b>	-	0.7%	1.0%	0%	<b>0.7%</b>	-	0.9%	0.7%	0%	<b>0.8%</b>	-	0.6%
Pedestrians	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	25
<b>% Pedestrians</b>	-	-	-	-	100%	-	-	-	-	100%	-	-	-	-	-	100%
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	0
<b>% Bicycles on Crosswalk</b>	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	-	0%

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

### 3. Turtle Creek & Dickason Avenue - TMC

Thu Sep 13, 2018

AM Peak (8AM - 9AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 561487, Location: 32.804575, -96.80498, Site Code: 3



Provided by: C. J. Hensch & Associates Inc.  
5215 Sycamore Ave.,  
Pasadena, TX, 77503, US

Leg Direction	Turtle Creek/ Cedar Springs Road Eastbound					Turtle Creek/ Cedar Springs Road Westbound					Dickason Avenue Southbound					Int
	L	T	U	App	Ped*	T	R	U	App	Ped*	L	R	U	App	Ped*	
2018-09-13 8:00AM	3	130	0	133	0	231	10	0	241	1	1	14	0	15	2	389
8:15AM	1	125	0	126	0	243	6	0	249	0	3	17	0	20	0	395
8:30AM	0	129	0	129	0	259	8	0	267	0	4	15	0	19	0	415
8:45AM	1	132	0	133	0	211	5	0	216	0	5	11	0	16	0	365
<b>Total</b>	5	516	0	521	0	944	29	0	973	1	13	57	0	70	2	1564
<b>% Approach</b>	1.0%	99.0%	0%	-	-	97.0%	3.0%	0%	-	-	18.6%	81.4%	0%	-	-	-
<b>% Total</b>	0.3%	33.0%	0%	33.3%	-	60.4%	1.9%	0%	62.2%	-	0.8%	3.6%	0%	4.5%	-	-
<b>PHF</b>	0.417	0.977	-	0.979	-	0.911	0.725	-	0.911	-	0.650	0.838	-	0.875	-	0.942
<b>Lights</b>	5	510	0	515	-	934	28	0	962	-	12	57	0	69	-	1546
<b>% Lights</b>	100%	98.8%	0%	98.8%	-	98.9%	96.6%	0%	98.9%	-	92.3%	100%	0%	98.6%	-	98.8%
<b>Articulated Trucks</b>	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0
<b>% Articulated Trucks</b>	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%
<b>Buses and Single-Unit Trucks</b>	0	6	0	6	-	10	1	0	11	-	1	0	0	1	-	18
<b>% Buses and Single-Unit Trucks</b>	0%	1.2%	0%	1.2%	-	1.1%	3.4%	0%	1.1%	-	7.7%	0%	0%	1.4%	-	1.2%
Pedestrians	-	-	-	-	0	-	-	-	-	1	-	-	-	-	2	-
<b>% Pedestrians</b>	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	0%	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

### 3. Turtle Creek & Dickason Avenue - TMC

Thu Sep 13, 2018

PM Peak (5:15PM - 6:15PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 561487, Location: 32.804575, -96.80498, Site Code: 3



Provided by: C. J. Hensch & Associates Inc.  
5215 Sycamore Ave.,  
Pasadena, TX, 77503, US

Leg Direction	Turtle Creek/ Cedar Springs Road Eastbound					Turtle Creek/ Cedar Springs Road Westbound					Dickason Avenue Southbound					Int
	L	T	U	App	Ped*	T	R	U	App	Ped*	L	R	U	App	Ped*	
2018-09-13 5:15PM	9	352	0	361	0	122	6	1	129	0	5	3	0	8	2	498
5:30PM	5	349	0	354	0	113	6	0	119	0	10	8	0	18	2	491
5:45PM	6	314	0	320	0	108	4	2	114	0	11	5	0	16	2	450
6:00PM	3	300	0	303	0	129	8	0	137	0	15	11	0	26	4	466
<b>Total</b>	23	1315	0	1338	0	472	24	3	499	0	41	27	0	68	10	1905
<b>% Approach</b>	1.7%	98.3%	0%	-	-	94.6%	4.8%	0.6%	-	-	60.3%	39.7%	0%	-	-	-
<b>% Total</b>	1.2%	69.0%	0%	70.2%	-	24.8%	1.3%	0.2%	26.2%	-	2.2%	1.4%	0%	3.6%	-	-
<b>PHF</b>	0.639	0.934	-	0.927	-	0.915	0.750	0.375	0.911	-	0.683	0.614	-	0.654	-	0.956
<b>Lights</b>	23	1312	0	1335	-	472	24	3	499	-	41	27	0	68	-	1902
<b>% Lights</b>	100%	99.8%	0%	99.8%	-	100%	100%	100%	100%	-	100%	100%	0%	100%	-	99.8%
<b>Articulated Trucks</b>	0	1	0	1	-	0	0	0	0	-	0	0	0	0	-	1
<b>% Articulated Trucks</b>	0%	0.1%	0%	0.1%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0.1%
<b>Buses and Single-Unit Trucks</b>	0	2	0	2	-	0	0	0	0	-	0	0	0	0	-	2
<b>% Buses and Single-Unit Trucks</b>	0%	0.2%	0%	0.1%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0.1%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	10	-
<b>% Pedestrians</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0%	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn



**4. Dickason Avenue at Sale Street - TMC**

Thu Sep 13, 2018

Full Length (7AM-9AM, 4:30PM-6:30PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 561488, Location: 32.805956, -96.806622, Site Code: 4



Provided by: C. J. Hensch & Associates Inc.  
5215 Sycamore Ave., Pasadena, TX, 77503, US

Leg Direction	Sale Street Eastbound						Sale Street Westbound						Dickason Avenue Northbound						Dickason Avenue Southbound						Int
	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	
2018-09-13 7:00AM	2	1	4	0	7	1	0	6	2	0	8	2	4	6	0	0	10	3	1	4	2	0	7	1	32
7:15AM	0	5	3	0	8	2	0	7	1	0	8	4	0	5	0	0	5	4	1	15	0	0	16	3	37
7:30AM	0	2	3	0	5	1	7	8	4	0	19	4	4	3	1	0	8	4	2	12	0	0	14	2	46
7:45AM	2	7	3	0	12	0	4	4	3	0	11	4	8	6	0	0	14	3	0	9	1	0	10	0	47
Hourly Total	4	15	13	0	32	4	11	25	10	0	46	14	16	20	1	0	37	14	4	40	3	0	47	6	162
8:00AM	0	3	2	0	5	1	6	1	3	0	10	0	6	8	0	0	14	1	1	8	1	0	10	1	39
8:15AM	1	9	8	0	18	0	4	4	2	0	10	1	6	3	0	0	9	1	4	8	1	0	13	1	50
8:30AM	3	3	6	0	12	0	4	3	6	0	13	3	5	4	0	0	9	1	0	9	0	0	9	0	43
8:45AM	1	5	6	0	12	0	3	6	4	0	13	3	1	7	0	0	8	1	3	8	1	0	12	0	45
Hourly Total	5	20	22	0	47	1	17	14	15	0	46	7	18	22	0	0	40	4	8	33	3	0	44	2	177
9:00AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30PM	0	7	1	0	8	0	2	3	2	0	7	0	2	4	4	0	10	1	4	6	2	0	12	0	37
4:45PM	1	7	3	0	11	1	2	2	2	0	6	0	1	4	4	0	9	4	5	15	1	0	21	1	47
Hourly Total	1	14	4	0	19	1	4	5	4	0	13	0	3	8	8	0	19	5	9	21	3	0	33	1	84
5:00PM	0	9	1	0	10	0	0	4	3	0	7	0	4	5	7	0	16	2	5	9	2	0	16	0	49
5:15PM	0	6	0	0	6	2	2	6	1	0	9	3	2	9	2	0	13	5	4	6	3	0	13	2	41
5:30PM	0	6	1	0	7	3	2	2	2	0	6	11	1	5	1	0	7	4	2	14	3	0	19	2	39
5:45PM	1	3	5	0	9	2	2	5	2	0	9	1	3	7	4	0	14	1	10	13	0	0	23	1	55
Hourly Total	1	24	7	0	32	7	6	17	8	0	31	15	10	26	14	0	50	12	21	42	8	0	71	5	184
6:00PM	1	1	4	0	6	1	6	6	3	0	15	1	2	5	4	0	11	4	7	16	1	0	24	0	56
6:15PM	2	7	0	0	9	2	4	4	2	1	11	6	4	4	4	0	12	3	8	15	2	0	25	2	57
6:30PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	3	8	4	0	15	3	10	10	5	1	26	7	6	9	8	0	23	7	15	31	3	0	49	2	113
<b>Total</b>	<b>14</b>	<b>81</b>	<b>50</b>	<b>0</b>	<b>145</b>	<b>16</b>	<b>48</b>	<b>71</b>	<b>42</b>	<b>1</b>	<b>162</b>	<b>43</b>	<b>53</b>	<b>85</b>	<b>31</b>	<b>0</b>	<b>169</b>	<b>42</b>	<b>57</b>	<b>167</b>	<b>20</b>	<b>0</b>	<b>244</b>	<b>16</b>	<b>720</b>
% Approach	9.7%	55.9%	34.5%	0%	-	-	29.6%	43.8%	25.9%	0.6%	-	-	31.4%	50.3%	18.3%	0%	-	-	23.4%	68.4%	8.2%	0%	-	-	-
% Total	1.9%	11.3%	6.9%	0%	20.1%	-	6.7%	9.9%	5.8%	0.1%	22.5%	-	7.4%	11.8%	4.3%	0%	23.5%	-	7.9%	23.2%	2.8%	0%	33.9%	-	-
Lights	13	80	50	0	143	-	48	70	42	1	161	-	53	84	31	0	168	-	57	167	20	0	244	-	716
% Lights	92.9%	98.8%	100%	0%	98.6%	-	100%	98.6%	100%	100%	99.4%	-	100%	98.8%	100%	0%	99.4%	-	100%	100%	100%	0%	100%	-	99.4%
Articulated Trucks	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
% Articulated Trucks	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
Buses and Single-Unit Trucks	1	1	0	0	2	-	0	1	0	0	1	-	0	1	0	0	1	-	0	0	0	0	0	-	4
% Buses and Single-Unit Trucks	7.1%	1.2%	0%	0%	1.4%	-	0%	1.4%	0%	0%	0.6%	-	0%	1.2%	0%	0%	0.6%	-	0%	0%	0%	0%	0%	-	0.6%
Pedestrians	-	-	-	-	-	16	-	-	-	-	-	43	-	-	-	-	-	41	-	-	-	-	-	16	-
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	97.6%	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	2.4%	-	-	-	-	-	0%	-

\* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

**4. Dickason Avenue at Sale Street - TMC**

Thu Sep 13, 2018

AM Peak (7:30AM - 8:30AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 561488, Location: 32.805956, -96.806622, Site Code: 4



Provided by: C. J. Hensch & Associates Inc.  
5215 Sycamore Ave., Pasadena, TX, 77503, US

Leg Direction	Sale Street Eastbound							Sale Street Westbound							Dickason Avenue Northbound							Dickason Avenue Southbound							Int
	L	T	R	U	App	Ped*		L	T	R	U	App	Ped*		L	T	R	U	App	Ped*		L	T	R	U	App	Ped*		
2018-09-13 7:30AM	0	2	3	0	5	1		7	8	4	0	19	4		4	3	1	0	8	4		2	12	0	0	14	2		<b>46</b>
7:45AM	2	7	3	0	12	0		4	4	3	0	11	4		8	6	0	0	14	3		0	9	1	0	10	0		<b>47</b>
8:00AM	0	3	2	0	5	1		6	1	3	0	10	0		6	8	0	0	14	1		1	8	1	0	10	1		<b>39</b>
8:15AM	1	9	8	0	18	0		4	4	2	0	10	1		6	3	0	0	9	1		4	8	1	0	13	1		<b>50</b>
<b>Total</b>	3	21	16	0	40	2		21	17	12	0	50	9		24	20	1	0	45	9		7	37	3	0	47	4		<b>182</b>
<b>% Approach</b>	7.5%	52.5%	40.0%	0%	-	-		42.0%	34.0%	24.0%	0%	-	-	53.3%	44.4%	2.2%	0%	-	-	14.9%	78.7%	6.4%	0%	-	-				
<b>% Total</b>	1.6%	11.5%	8.8%	0%	22.0%	-		11.5%	9.3%	6.6%	0%	27.5%	-	13.2%	11.0%	0.5%	0%	24.7%	-	3.8%	20.3%	1.6%	0%	25.8%	-				
<b>PHF</b>	0.375	0.583	0.500	-	0.556	-		0.750	0.531	0.750	-	0.658	-	0.750	0.625	0.250	-	0.804	-	0.438	0.771	0.750	-	0.839	-	0.910			
<b>Lights</b>	2	21	16	0	39	-		21	17	12	0	50	-	24	20	1	0	45	-	7	37	3	0	47	-	181			
<b>% Lights</b>	66.7%	100%	100%	0%	97.5%	-		100%	100%	100%	0%	100%	-	100%	100%	100%	0%	100%	-	100%	100%	100%	0%	100%	-	99.5%			
<b>Articulated Trucks</b>	0	0	0	0	0	-		0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0			
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-		0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%			
<b>Buses and Single-Unit Trucks</b>	1	0	0	0	1	-		0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	1			
<b>% Buses and Single-Unit Trucks</b>	33.3%	0%	0%	0%	2.5%	-		0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.5%			
<b>Pedestrians</b>	-	-	-	-	-	2		-	-	-	-	-	9		-	-	-	-	-	9		-	-	-	-	-	-	4	
<b>% Pedestrians</b>	-	-	-	-	-	100%		-	-	-	-	-	100%		-	-	-	-	-	100%		-	-	-	-	-	-	100%	
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	0		-	-	-	-	-	0		-	-	-	-	-	0		-	-	-	-	-	-	0	
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	0%		-	-	-	-	-	0%		-	-	-	-	-	0%		-	-	-	-	-	-	0%	

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

**4. Dickason Avenue at Sale Street - TMC**

Thu Sep 13, 2018

PM Peak (5:30PM - 6:30PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 561488, Location: 32.805956, -96.806622, Site Code: 4



Provided by: C. J. Hensch & Associates Inc.  
5215 Sycamore Ave., Pasadena, TX, 77503, US

Leg Direction	Sale Street Eastbound						Sale Street Westbound						Dickason Avenue Northbound						Dickason Avenue Southbound						Int
	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	
2018-09-13 5:30PM	0	6	1	0	7	3	2	2	2	0	6	11	1	5	1	0	7	4	2	14	3	0	19	2	39
5:45PM	1	3	5	0	9	2	2	5	2	0	9	1	3	7	4	0	14	1	10	13	0	0	23	1	55
6:00PM	1	1	4	0	6	1	6	6	3	0	15	1	2	5	4	0	11	4	7	16	1	0	24	0	56
6:15PM	2	7	0	0	9	2	4	4	2	1	11	6	4	4	4	0	12	3	8	15	2	0	25	2	57
<b>Total</b>	4	17	10	0	31	8	14	17	9	1	41	19	10	21	13	0	44	12	27	58	6	0	91	5	207
<b>% Approach</b>	12.9%	54.8%	32.3%	0%	-	-	34.1%	41.5%	22.0%	2.4%	-	-	22.7%	47.7%	29.5%	0%	-	-	29.7%	63.7%	6.6%	0%	-	-	-
<b>% Total</b>	1.9%	8.2%	4.8%	0%	15.0%	-	6.8%	8.2%	4.3%	0.5%	19.8%	-	4.8%	10.1%	6.3%	0%	21.3%	-	13.0%	28.0%	2.9%	0%	44.0%	-	-
<b>PHF</b>	0.500	0.607	0.500	-	0.861	-	0.583	0.708	0.750	0.250	0.683	-	0.625	0.750	0.813	-	0.786	-	0.675	0.906	0.500	-	0.910	-	0.908
<b>Lights</b>	4	17	10	0	31	-	14	16	9	1	40	-	10	21	13	0	44	-	27	58	6	0	91	-	206
<b>% Lights</b>	100%	100%	100%	0%	100%	-	100%	94.1%	100%	100%	97.6%	-	100%	100%	100%	0%	100%	-	100%	100%	100%	0%	100%	-	99.5%
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
<b>Buses and Single-Unit Trucks</b>	0	0	0	0	0	-	0	1	0	0	1	-	0	0	0	0	0	-	0	0	0	0	0	-	1
<b>% Buses and Single-Unit Trucks</b>	0%	0%	0%	0%	0%	-	0%	5.9%	0%	0%	2.4%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.5%
<b>Pedestrians</b>	-	-	-	-	-	8	-	-	-	-	-	19	-	-	-	-	-	12	-	-	-	-	-	5	
<b>% Pedestrians</b>	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

**5. Gillespie Street at Sale Street - TMC**

Thu Sep 13, 2018

Full Length (7AM-9AM, 4:30PM-6:30PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 561491, Location: 32.805143, -96.807635, Site Code: 5



Provided by: C. J. Hensch & Associates Inc.  
5215 Sycamore Ave.,  
Pasadena, TX, 77503, US

Leg Direction	Sale Street Eastbound						Sale Street Westbound						Gillespie Street Northbound						Gillespie Street Southbound						Int
	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	
2018-09-13 7:00AM	0	0	0	0	0	4	3	0	8	0	11	0	0	9	1	0	10	1	1	19	0	0	20	4	41
7:15AM	0	0	0	0	0	1	1	0	9	0	10	0	0	6	1	0	7	2	3	11	0	0	14	0	31
7:30AM	0	0	0	0	0	0	5	0	11	0	16	1	0	8	0	0	8	0	1	8	0	0	9	1	33
7:45AM	0	0	0	0	0	2	9	0	8	0	17	1	0	16	2	0	18	1	2	10	0	0	12	3	47
Hourly Total	0	0	0	0	0	7	18	0	36	0	54	2	0	39	4	0	43	4	7	48	0	0	55	8	152
8:00AM	0	0	0	0	0	4	4	0	8	0	12	0	0	9	0	0	9	0	5	20	0	0	25	3	46
8:15AM	0	0	0	0	0	1	5	0	8	0	13	3	0	11	2	0	13	2	7	21	0	0	28	2	54
8:30AM	0	0	0	0	0	2	2	0	10	0	12	1	0	5	2	0	7	0	4	15	0	0	19	2	38
8:45AM	0	0	1	0	1	2	5	0	4	0	9	1	1	10	0	0	11	0	4	17	0	0	21	0	42
Hourly Total	0	0	1	0	1	9	16	0	30	0	46	5	1	35	4	0	40	2	20	73	0	0	93	7	180
9:00AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30PM	0	0	0	0	0	4	2	0	4	0	6	0	0	19	6	0	25	0	5	15	0	0	20	0	51
4:45PM	0	0	0	0	0	2	1	0	1	0	2	0	0	21	8	0	29	0	7	11	0	0	18	1	49
Hourly Total	0	0	0	0	0	6	3	0	5	0	8	0	0	40	14	0	54	0	12	26	0	0	38	1	100
5:00PM	0	0	0	0	0	3	2	0	5	0	7	1	0	17	4	0	21	0	5	9	0	0	14	2	42
5:15PM	0	0	0	0	0	2	1	0	4	0	5	2	0	23	4	0	27	1	4	10	0	0	14	1	46
5:30PM	0	0	0	0	0	5	2	0	0	0	2	1	0	26	0	0	26	3	8	11	0	0	19	0	47
5:45PM	0	0	0	0	0	3	1	0	3	0	4	0	0	23	2	0	25	0	10	11	0	0	21	1	50
Hourly Total	0	0	0	0	0	13	6	0	12	0	18	4	0	89	10	0	99	4	27	41	0	0	68	4	185
6:00PM	0	0	0	0	0	1	1	0	0	0	1	1	0	15	0	0	15	0	3	18	1	0	22	1	38
6:15PM	0	0	0	0	0	3	1	0	4	0	5	1	0	13	6	0	19	0	4	15	0	0	19	0	43
6:30PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	4	2	0	4	0	6	2	0	28	6	0	34	0	7	33	1	0	41	1	81
<b>Total</b>	0	0	1	0	1	39	45	0	87	0	132	13	1	231	38	0	270	10	73	221	1	0	295	21	698
<b>% Approach</b>	0%	0%	100%	0%	-	-	34.1%	0%	65.9%	0%	-	-	0.4%	85.6%	14.1%	0%	-	-	24.7%	74.9%	0.3%	0%	-	-	-
<b>% Total</b>	0%	0%	0.1%	0%	0.1%	-	6.4%	0%	12.5%	0%	18.9%	-	0.1%	33.1%	5.4%	0%	38.7%	-	10.5%	31.7%	0.1%	0%	42.3%	-	-
<b>Lights</b>	0	0	1	0	1	-	44	0	87	0	131	-	1	222	37	0	260	-	72	219	1	0	292	-	684
<b>% Lights</b>	0%	0%	100%	0%	100%	-	97.8%	0%	100%	0%	99.2%	-	100%	96.1%	97.4%	0%	96.3%	-	98.6%	99.1%	100%	0%	99.0%	-	98.0%
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
<b>Buses and Single-Unit Trucks</b>	0	0	0	0	0	-	1	0	0	0	1	-	0	9	1	0	10	-	1	2	0	0	3	-	14
<b>% Buses and Single-Unit Trucks</b>	0%	0%	0%	0%	0%	-	2.2%	0%	0%	0%	0.8%	-	0%	3.9%	2.6%	0%	3.7%	-	1.4%	0.9%	0%	0%	1.0%	-	2.0%
<b>Pedestrians</b>	-	-	-	-	-	39	-	-	-	-	-	13	-	-	-	-	-	10	-	-	-	-	-	21	-
<b>% Pedestrians</b>	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

**5. Gillespie Street at Sale Street - TMC**

Thu Sep 13, 2018

AM Peak (7:45AM - 8:45AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 561491, Location: 32.805143, -96.807635, Site Code: 5



Provided by: C. J. Hensch & Associates Inc.  
5215 Sycamore Ave.,  
Pasadena, TX, 77503, US

Leg Direction	Sale Street Eastbound						Sale Street Westbound						Gillespie Street Northbound						Gillespie Street Southbound						
Time	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	Int
2018-09-13 7:45AM	0	0	0	0	0	2	9	0	8	0	17	1	0	16	2	0	18	1	2	10	0	0	12	3	47
8:00AM	0	0	0	0	0	4	4	0	8	0	12	0	0	9	0	0	9	0	5	20	0	0	25	3	46
8:15AM	0	0	0	0	0	1	5	0	8	0	13	3	0	11	2	0	13	2	7	21	0	0	28	2	54
8:30AM	0	0	0	0	0	2	2	0	10	0	12	1	0	5	2	0	7	0	4	15	0	0	19	2	38
<b>Total</b>	0	0	0	0	0	9	20	0	34	0	54	5	0	41	6	0	47	3	18	66	0	0	84	10	185
<b>% Approach</b>	0%	0%	0%	0%	0%	-	37.0%	0%	63.0%	0%	-	-	0%	87.2%	12.8%	0%	-	-	21.4%	78.6%	0%	0%	-	-	-
<b>% Total</b>	0%	0%	0%	0%	0%	-	10.8%	0%	18.4%	0%	29.2%	-	0%	22.2%	3.2%	0%	25.4%	-	9.7%	35.7%	0%	0%	45.4%	-	-
<b>PHF</b>	-	-	-	-	-	-	0.556	-	0.850	-	0.794	-	-	0.641	0.750	-	0.653	-	0.643	0.786	-	-	0.750	-	0.856
<b>Lights</b>	0	0	0	0	0	0	20	0	34	0	54	-	0	33	6	0	39	-	17	65	0	0	82	-	175
<b>% Lights</b>	0%	0%	0%	0%	0%	-	100%	0%	100%	0%	100%	-	0%	80.5%	100%	0%	83.0%	-	94.4%	98.5%	0%	0%	97.6%	-	94.6%
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
<b>Buses and Single-Unit Trucks</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	8	0	0	8	-	1	1	0	0	2	-	10
<b>% Buses and Single-Unit Trucks</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	19.5%	0%	0%	17.0%	-	5.6%	1.5%	0%	0%	2.4%	-	5.4%
<b>Pedestrians</b>	-	-	-	-	-	9	-	-	-	-	-	5	-	-	-	-	-	3	-	-	-	-	-	10	-
<b>% Pedestrians</b>	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

**5. Gillespie Street at Sale Street - TMC**

Thu Sep 13, 2018

PM Peak (4:30PM - 5:30PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 561491, Location: 32.805143, -96.807635, Site Code: 5



Provided by: C. J. Hensch & Associates Inc.  
5215 Sycamore Ave.,  
Pasadena, TX, 77503, US

Leg Direction	Sale Street Eastbound						Sale Street Westbound						Gillespie Street Northbound						Gillespie Street Southbound						Int
	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	
2018-09-13 4:30PM	0	0	0	0	0	4	2	0	4	0	6	0	0	19	6	0	25	0	5	15	0	0	20	0	51
4:45PM	0	0	0	0	0	2	1	0	1	0	2	0	0	21	8	0	29	0	7	11	0	0	18	1	49
5:00PM	0	0	0	0	0	3	2	0	5	0	7	1	0	17	4	0	21	0	5	9	0	0	14	2	42
5:15PM	0	0	0	0	0	2	1	0	4	0	5	2	0	23	4	0	27	1	4	10	0	0	14	1	46
<b>Total</b>	0	0	0	0	0	11	6	0	14	0	20	3	0	80	22	0	102	1	21	45	0	0	66	4	188
<b>% Approach</b>	0%	0%	0%	0%	0%	-	30.0%	0%	70.0%	0%	0%	-	0%	78.4%	21.6%	0%	-	-	31.8%	68.2%	0%	0%	-	-	-
<b>% Total</b>	0%	0%	0%	0%	0%	-	3.2%	0%	7.4%	0%	10.6%	-	0%	42.6%	11.7%	0%	54.3%	-	11.2%	23.9%	0%	0%	35.1%	-	-
<b>PHF</b>	-	-	-	-	-	-	0.750	-	0.700	-	0.714	-	-	0.870	0.688	-	0.879	-	0.750	0.750	-	-	0.825	-	0.922
<b>Lights</b>	0	0	0	0	0	0	6	0	14	0	20	0	0	79	21	0	100	0	21	45	0	0	66	0	186
<b>% Lights</b>	0%	0%	0%	0%	0%	-	100%	0%	100%	0%	100%	-	0%	98.8%	95.5%	0%	98.0%	-	100%	100%	0%	0%	100%	-	98.9%
<b>Articulated Trucks</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
<b>Buses and Single-Unit Trucks</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	0	2
<b>% Buses and Single-Unit Trucks</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	1.3%	4.5%	0%	2.0%	-	0%	0%	0%	0%	0%	-	1.1%
<b>Pedestrians</b>	-	-	-	-	-	11	-	-	-	-	-	3	-	-	-	-	-	1	-	-	-	-	-	4	
<b>% Pedestrians</b>	-	-	-	-	-	-100%	-	-	-	-	-	-100%	-	-	-	-	-	-100%	-	-	-	-	-	-100%	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

**1. Turtle Creek Blvd at Cedar Springs Road - TMC**

Wed Nov 15, 2017

Full Length (7AM-9AM, 4:30PM-6:30PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians)

All Movements

ID: 467862, Location: 32.803718, -96.805477, Site Code: 1



Provided by: C. J. Hensch & Associates Inc.  
5215 Sycamore Ave., Pasadena, TX, 77503, US

Leg Direction	Turtle Creek Boulevard Southbound						Driveway Westbound						Cedar Springs Road Northbound						Turtle Creek Boulevard Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2017-11-15																									
7:00AM	51	67	0	0	118	0	0	0	0	0	0	0	0	47	22	0	69	0	2	0	10	0	12	1	199
7:15AM	49	87	0	0	136	0	0	0	0	0	0	2	0	49	22	0	71	1	4	1	20	0	25	0	232
7:30AM	52	143	1	1	197	0	0	0	0	0	0	0	0	109	23	0	132	2	7	2	16	0	25	0	354
7:45AM	64	161	3	0	228	0	0	1	1	0	2	1	1	84	35	0	120	0	4	0	32	0	36	1	386
Hourly Total	216	458	4	1	679	0	0	1	1	0	2	3	1	289	102	0	392	3	17	3	78	0	98	2	1171
8:00AM	94	190	0	0	284	0	0	0	0	0	0	1	1	110	37	0	148	0	6	1	23	0	30	4	462
8:15AM	83	202	1	0	286	0	0	0	0	0	0	0	0	113	31	0	144	0	11	2	28	0	41	0	471
8:30AM	85	195	0	0	280	0	1	0	2	0	3	0	3	75	25	0	103	0	7	0	31	0	38	0	424
8:45AM	57	188	1	0	246	1	1	1	0	0	2	2	2	86	24	0	112	0	7	1	32	0	40	2	400
Hourly Total	319	775	2	0	1096	1	2	1	2	0	5	3	6	384	117	0	507	0	31	4	114	0	149	6	1757
4:30PM	46	84	0	6	136	0	2	1	1	0	4	1	0	155	10	0	165	0	15	1	71	0	87	0	392
4:45PM	44	102	3	7	156	0	1	3	1	0	5	0	1	180	9	0	190	0	16	0	94	0	110	1	461
Hourly Total	90	186	3	13	292	0	3	4	2	0	9	1	1	335	19	0	355	0	31	1	165	0	197	1	853
5:00PM	32	100	1	12	145	0	4	4	2	0	10	2	1	209	13	0	223	0	15	1	88	0	104	0	482
5:15PM	42	106	1	9	158	0	2	3	0	0	5	1	0	250	8	1	259	0	16	0	101	0	117	1	539
5:30PM	39	129	0	8	176	1	1	3	2	0	6	1	0	206	12	0	218	0	25	0	85	0	110	1	510
5:45PM	35	122	0	4	161	1	0	0	0	0	0	2	0	205	17	0	222	0	26	0	107	0	133	2	516
Hourly Total	148	457	2	33	640	2	7	10	4	0	21	6	1	870	50	1	922	0	82	1	381	0	464	4	2047
6:00PM	23	123	0	11	157	0	0	0	0	0	0	1	0	215	14	0	229	0	17	0	89	0	106	3	492
6:15PM	43	107	0	5	155	1	1	0	0	0	1	0	0	161	4	0	165	0	12	0	96	0	108	2	429
Hourly Total	66	230	0	16	312	1	1	0	0	0	1	1	0	376	18	0	394	0	29	0	185	0	214	5	921
<b>Total</b>	839	2106	11	63	3019	4	13	16	9	0	38	14	9	2254	306	1	2570	3	190	9	923	0	1122	18	6749
% Approach	27.8%	69.8%	0.4%	2.1%	-	-	34.2%	42.1%	23.7%	0%	-	-	0.4%	87.7%	11.9%	0%	-	-	16.9%	0.8%	82.3%	0%	-	-	-
% Total	12.4%	31.2%	0.2%	0.9%	44.7%	-	0.2%	0.2%	0.1%	0%	0.6%	-	0.1%	33.4%	4.5%	0%	38.1%	-	2.8%	0.1%	13.7%	0%	16.6%	-	-
Lights	828	2098	11	63	3000	-	13	16	9	0	38	-	9	2243	306	1	2559	-	188	9	913	0	1110	-	6707
% Lights	98.7%	99.6%	100%	100%	99.4%	-	100%	100%	100%	0%	100%	-	100%	99.5%	100%	100%	99.6%	-	98.9%	100%	98.9%	0%	98.9%	-	99.4%
Articulated Trucks	0	1	0	0	1	-	0	0	0	0	0	-	0	0	0	0	0	-	1	0	0	0	1	-	2
% Articulated Trucks	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.5%	0%	0%	0%	0.1%	-	0%
Buses and Single-Unit Trucks	11	7	0	0	18	-	0	0	0	0	0	-	0	11	0	0	11	-	1	0	10	0	11	-	40
% Buses and Single-Unit Trucks	1.3%	0.3%	0%	0%	0.6%	-	0%	0%	0%	0%	0%	-	0%	0.5%	0%	0%	0.4%	-	0.5%	0%	1.1%	0%	1.0%	-	0.6%
Pedestrians	-	-	-	-	-	4	-	-	-	-	-	14	-	-	-	-	-	3	-	-	-	-	-	18	-
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

**1. Turtle Creek Blvd at Cedar Springs Road - TMC**

Wed Nov 15, 2017

AM Peak (8AM - 9AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians)

All Movements

ID: 467862, Location: 32.803718, -96.805477, Site Code: 1



Provided by: C. J. Hensch & Associates Inc.  
5215 Sycamore Ave., Pasadena, TX, 77503, US

Leg Direction	Turtle Creek Boulevard Southbound						Drive way Westbound						Cedar Springs Road Northbound						Turtle Creek Boulevard Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2017-11-15																									
8:00AM	94	190	0	0	284	0	0	0	0	0	0	1	1	110	37	0	148	0	6	1	23	0	30	4	462
8:15AM	83	202	1	0	286	0	0	0	0	0	0	0	0	113	31	0	144	0	11	2	28	0	41	0	471
8:30AM	85	195	0	0	280	0	1	0	2	0	3	0	3	75	25	0	103	0	7	0	31	0	38	0	424
8:45AM	57	188	1	0	246	1	1	1	0	0	2	2	2	86	24	0	112	0	7	1	32	0	40	2	400
<b>Total</b>	319	775	2	0	1096	1	2	1	2	0	5	3	6	384	117	0	507	0	31	4	114	0	149	6	1757
<b>% Approach</b>	29.1%	70.7%	0.2%	0%	-	-	40.0%	20.0%	40.0%	0%	-	-	1.2%	75.7%	23.1%	0%	-	-	20.8%	2.7%	76.5%	0%	-	-	-
<b>% Total</b>	18.2%	44.1%	0.1%	0%	62.4%	-	0.1%	0.1%	0.1%	0%	0.3%	-	0.3%	21.9%	6.7%	0%	28.9%	-	1.8%	0.2%	6.5%	0%	8.5%	-	-
<b>PHF</b>	0.848	0.959	0.500	-	0.958	-	0.500	0.250	0.250	-	0.417	-	0.500	0.850	0.791	-	0.856	-	0.705	0.500	0.891	-	0.909	-	0.933
<b>Lights</b>	314	773	2	0	1089	-	2	1	2	0	5	-	6	381	117	0	504	-	31	4	112	0	147	-	1745
<b>% Lights</b>	98.4%	99.7%	100%	0%	99.4%	-	100%	100%	100%	0%	100%	-	100%	99.2%	100%	0%	99.4%	-	100%	100%	98.2%	0%	98.7%	-	99.3%
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
<b>Buses and Single-Unit Trucks</b>	5	2	0	0	7	-	0	0	0	0	0	-	0	3	0	0	3	-	0	0	2	0	2	-	12
<b>% Buses and Single-Unit Trucks</b>	1.6%	0.3%	0%	0%	0.6%	-	0%	0%	0%	0%	0%	-	0%	0.8%	0%	0%	0.6%	-	0%	0%	1.8%	0%	1.3%	-	0.7%
<b>Pe d est r i a n s</b>	-	-	-	-	-	1	-	-	-	-	-	3	-	-	-	-	-	0	-	-	-	-	-	6	-
<b>% Pe d est r i a n s</b>	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	100%	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn



**1. Turtle Creek Blvd at Cedar Springs Road - TMC**

Wed Nov 15, 2017

PM Peak (5:15PM - 6:15PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians)

All Movements

ID: 467862, Location: 32.803718, -96.805477, Site Code: 1



Provided by: C. J. Hensch & Associates Inc.  
5215 Sycamore Ave., Pasadena, TX, 77503, US

Leg Direction	Turtle Creek Boulevard Southbound						Drive way Westbound						Cedar Springs Road Northbound						Turtle Creek Boulevard Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2017-11-15 5:15PM	42	106	1	9	158	0	2	3	0	0	5	1	0	250	8	1	259	0	16	0	101	0	117	1	539
5:30PM	39	129	0	8	176	1	1	3	2	0	6	1	0	206	12	0	218	0	25	0	85	0	110	1	510
5:45PM	35	122	0	4	161	1	0	0	0	0	0	2	0	205	17	0	222	0	26	0	107	0	133	2	516
6:00PM	23	123	0	11	157	0	0	0	0	0	0	1	0	215	14	0	229	0	17	0	89	0	106	3	492
<b>Total</b>	139	480	1	32	652	2	3	6	2	0	11	5	0	876	51	1	928	0	84	0	382	0	466	7	2057
<b>% Approach</b>	21.3%	73.6%	0.2%	4.9%	-	-	27.3%	54.5%	18.2%	0%	-	-	0%	94.4%	5.5%	0.1%	-	-	18.0%	0%	82.0%	0%	-	-	-
<b>% Total</b>	6.8%	23.3%	0%	1.6%	31.7%	-	0.1%	0.3%	0.1%	0%	0.5%	-	0%	42.6%	2.5%	0%	45.1%	-	4.1%	0%	18.6%	0%	22.7%	-	-
<b>PHF</b>	0.827	0.930	0.250	0.727	0.926	-	0.375	0.500	0.250	-	0.458	-	-	0.876	0.750	0.250	0.896	-	0.808	-	0.893	-	0.876	-	0.954
<b>Lights</b>	138	480	1	32	651	-	3	6	2	0	11	-	0	874	51	1	926	-	83	0	381	0	464	-	2052
<b>% Lights</b>	99.3%	100%	100%	100%	99.8%	-	100%	100%	100%	0%	100%	-	0%	99.8%	100%	100%	99.8%	-	98.8%	0%	99.7%	0%	99.6%	-	99.8%
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
<b>Buses and Single-Unit Trucks</b>	1	0	0	0	1	-	0	0	0	0	0	-	0	2	0	0	2	-	1	0	1	0	2	-	5
<b>% Buses and Single-Unit Trucks</b>	0.7%	0%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0%	0.2%	0%	0%	0.2%	-	1.2%	0%	0.3%	0%	0.4%	-	0.2%
<b>Pedestrians</b>	-	-	-	-	-	2	-	-	-	-	-	5	-	-	-	-	-	0	-	-	-	-	-	7	-
<b>% Pedestrians</b>	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	100%	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

**2. Turtle Creek Blvd at Gillespie St - TMC**

Thu Nov 9, 2017

Full Length (7AM-9AM, 4:30PM-6:30PM)

All Classes (Lights, Buses and Single-Unit Trucks, Pedestrians)

All Movements

ID: 467863, Location: 32.803684, -96.805939, Site Code: 2



Provided by: C. J. Hensch & Associates Inc.  
5215 Sycamore Ave., Pasadena, TX, 77503, US

Leg Direction	Gillespie Street Southbound						Turtle Creek Boulevard Westbound						Gillespie Street Northbound						Turtle Creek Boulevard Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2017-11-09																									
7:00AM	1	3	1	0	5	0	8	63	0	0	71	0	0	0	0	0	0	0	3	5	6	0	14	0	90
7:15AM	0	5	4	0	9	0	7	56	0	0	63	0	0	0	0	0	0	0	1	14	5	0	20	0	92
7:30AM	2	11	4	0	17	0	13	69	0	0	82	0	0	0	0	0	0	0	3	13	10	0	26	0	125
7:45AM	3	10	2	0	15	0	14	90	0	0	104	0	0	0	0	0	0	0	4	17	3	0	24	0	143
Hourly Total	6	29	11	0	46	0	42	278	0	0	320	0	0	0	0	0	0	0	11	49	24	0	84	0	450
8:00AM	3	8	2	0	13	0	11	106	0	0	117	0	0	0	0	0	0	0	4	13	5	0	22	1	152
8:15AM	3	10	4	0	17	0	19	100	0	0	119	0	0	0	0	0	0	0	5	33	4	1	43	0	179
8:30AM	2	9	4	0	15	0	15	80	0	0	95	0	0	0	0	0	0	0	2	27	9	0	38	0	148
8:45AM	4	6	5	0	15	0	17	78	0	0	95	0	0	0	0	0	0	0	5	26	10	0	41	0	151
Hourly Total	12	33	15	0	60	0	62	364	0	0	426	0	0	0	0	0	0	0	16	99	28	1	144	1	630
4:30PM	15	3	4	0	22	0	7	40	1	0	48	0	0	0	0	0	0	0	16	80	6	0	102	1	172
4:45PM	12	0	8	0	20	0	8	52	0	0	60	0	0	0	0	0	0	0	12	80	9	0	101	0	181
Hourly Total	27	3	12	0	42	0	15	92	1	0	108	0	0	0	0	0	0	0	28	160	15	0	203	1	353
5:00PM	20	3	12	0	35	0	8	47	0	0	55	0	0	0	0	0	0	0	14	89	4	0	107	0	197
5:15PM	11	4	3	0	18	0	8	60	0	1	69	0	0	0	0	0	0	0	15	97	4	0	116	0	203
5:30PM	11	1	8	0	20	0	10	58	0	0	68	0	0	0	0	0	0	0	21	80	6	0	107	0	195
5:45PM	13	3	8	0	24	0	8	69	0	0	77	0	0	0	0	0	0	0	11	73	3	0	87	0	188
Hourly Total	55	11	31	0	97	0	34	234	0	1	269	0	0	0	0	0	0	0	61	339	17	0	417	0	783
6:00PM	20	3	5	0	28	0	18	65	0	0	83	0	0	0	0	0	0	0	22	92	5	0	119	0	230
6:15PM	7	5	7	0	19	0	11	51	1	0	63	0	0	0	0	0	0	0	15	77	5	0	97	0	179
Hourly Total	27	8	12	0	47	0	29	116	1	0	146	0	0	0	0	0	0	0	37	169	10	0	216	0	409
<b>Total</b>	127	84	81	0	292	0	182	1084	2	1	1269	0	0	0	0	0	0	0	153	816	94	1	1064	2	2625
<b>% Approach</b>	43.5%	28.8%	27.7%	0%	-	-	14.3%	85.4%	0.2%	0.1%	-	-	0%	0%	0%	0%	-	-	14.4%	76.7%	8.8%	0.1%	-	-	-
<b>% Total</b>	4.8%	3.2%	3.1%	0%	11.1%	-	6.9%	41.3%	0.1%	0%	48.3%	-	0%	0%	0%	0%	0%	-	5.8%	31.1%	3.6%	0%	40.5%	-	-
<b>Lights</b>	122	82	80	0	284	-	177	1077	2	1	1257	-	0	0	0	0	0	-	153	811	92	1	1057	-	2598
<b>% Lights</b>	96.1%	97.6%	98.8%	0%	97.3%	-	97.3%	99.4%	100%	100%	99.1%	-	0%	0%	0%	0%	-	-	100%	99.4%	97.9%	100%	99.3%	-	99.0%
<b>Buses and Single-Unit Trucks</b>	5	2	1	0	8	-	5	7	0	0	12	-	0	0	0	0	0	-	0	5	2	0	7	-	27
<b>% Buses and Single-Unit Trucks</b>	3.9%	2.4%	1.2%	0%	2.7%	-	2.7%	0.6%	0%	0%	0.9%	-	0%	0%	0%	0%	-	-	0%	0.6%	2.1%	0%	0.7%	-	1.0%
<b>Pedestrians</b>	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	2
<b>% Pedestrians</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

**2. Turtle Creek Blvd at Gillespie St - TMC**

Thu Nov 9, 2017

AM Peak (8AM - 9AM)

All Classes (Lights, Buses and Single-Unit Trucks, Pedestrians)

All Movements

ID: 467863, Location: 32.803684, -96.805939, Site Code: 2



Provided by: C. J. Hensch & Associates Inc.  
5215 Sycamore Ave., Pasadena, TX, 77503, US

Leg Direction	Gillespie Street Southbound						Turtle Creek Boulevard Westbound						Gillespie Street Northbound						Turtle Creek Boulevard Eastbound							
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int	
2017-11-09																										
8:00AM	3	8	2	0	13	0	11	106	0	0	117	0	0	0	0	0	0	0	4	13	5	0	22	1		152
8:15AM	3	10	4	0	17	0	19	100	0	0	119	0	0	0	0	0	0	0	5	33	4	1	43	0		179
8:30AM	2	9	4	0	15	0	15	80	0	0	95	0	0	0	0	0	0	0	2	27	9	0	38	0		148
8:45AM	4	6	5	0	15	0	17	78	0	0	95	0	0	0	0	0	0	0	5	26	10	0	41	0		151
<b>Total</b>	12	33	15	0	60	0	62	364	0	0	426	0	0	0	0	0	0	0	16	99	28	1	144	1		630
<b>% Approach</b>	20.0%	55.0%	25.0%	0%	-	-	14.6%	85.4%	0%	0%	-	-	0%	0%	0%	0%	-	-	11.1%	68.8%	19.4%	0.7%	-	-		-
<b>% Total</b>	1.9%	5.2%	2.4%	0%	9.5%	-	9.8%	57.8%	0%	0%	67.6%	-	0%	0%	0%	0%	0%	0%	2.5%	15.7%	4.4%	0.2%	22.9%	-		-
<b>PHF</b>	0.750	0.825	0.750	-	0.882	-	0.816	0.858	-	-	0.895	-	-	-	-	-	-	-	0.800	0.750	0.700	0.250	0.837	-		0.880
<b>Lights</b>	11	33	15	0	59	-	61	363	0	0	424	-	0	0	0	0	0	0	16	99	28	1	144	-		627
<b>% Lights</b>	91.7%	100%	100%	0%	98.3%	-	98.4%	99.7%	0%	0%	99.5%	-	0%	0%	0%	0%	-	-	100%	100%	100%	100%	100%	-		99.5%
<b>Buses and Single-Unit Trucks</b>	1	0	0	0	1	-	1	1	0	0	2	-	0	0	0	0	0	0	0	0	0	0	0	-		3
<b>% Buses and Single-Unit Trucks</b>	8.3%	0%	0%	0%	1.7%	-	1.6%	0.3%	0%	0%	0.5%	-	0%	0%	0%	0%	-	-	0%	0%	0%	0%	0%	-		0.5%
<b>Pedestrians</b>	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-		1
<b>% Pedestrians</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-100%

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

**2. Turtle Creek Blvd at Gillespie St - TMC**

Thu Nov 9, 2017

PM Peak (5:15PM - 6:15PM) - Overall Peak Hour

All Classes (Lights, Buses and Single-Unit Trucks, Pedestrians)

All Movements

ID: 467863, Location: 32.803684, -96.805939, Site Code: 2



Provided by: C. J. Hensch & Associates Inc.  
5215 Sycamore Ave., Pasadena, TX, 77503, US

Leg Direction	Gillespie Street Southbound						Turtle Creek Boulevard Westbound						Gillespie Street Northbound						Turtle Creek Boulevard Eastbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2017-11-09 5:15PM	11	4	3	0	18	0	8	60	0	1	69	0	0	0	0	0	0	0	15	97	4	0	116	0	203
5:30PM	11	1	8	0	20	0	10	58	0	0	68	0	0	0	0	0	0	0	21	80	6	0	107	0	195
5:45PM	13	3	8	0	24	0	8	69	0	0	77	0	0	0	0	0	0	0	11	73	3	0	87	0	188
6:00PM	20	3	5	0	28	0	18	65	0	0	83	0	0	0	0	0	0	0	22	92	5	0	119	0	230
<b>Total</b>	55	11	24	0	90	0	44	252	0	1	297	0	0	0	0	0	0	0	69	342	18	0	429	0	816
<b>% Approach</b>	61.1%	12.2%	26.7%	0%	-	-	14.8%	84.8%	0%	0.3%	-	-	0%	0%	0%	0%	-	-	16.1%	79.7%	4.2%	0%	-	-	-
<b>% Total</b>	6.7%	1.3%	2.9%	0%	11.0%	-	5.4%	30.9%	0%	0.1%	36.4%	-	0%	0%	0%	0%	0%	0%	8.5%	41.9%	2.2%	0%	52.6%	-	-
<b>PHF</b>	0.688	0.688	0.750	-	0.804	-	0.611	0.913	-	0.250	0.895	-	-	-	-	-	-	-	0.784	0.881	0.750	-	0.901	-	0.887
<b>Lights</b>	53	11	24	0	88	-	43	251	0	1	295	-	0	0	0	0	0	-	69	342	18	0	429	-	812
<b>% Lights</b>	96.4%	100%	100%	0%	97.8%	-	97.7%	99.6%	0%	100%	99.3%	-	0%	0%	0%	0%	-	-	100%	100%	100%	0%	100%	-	99.5%
<b>Buses and Single-Unit Trucks</b>	2	0	0	0	2	-	1	1	0	0	2	-	0	0	0	0	0	-	0	0	0	0	0	-	4
<b>% Buses and Single-Unit Trucks</b>	3.6%	0%	0%	0%	2.2%	-	2.3%	0.4%	0%	0%	0.7%	-	0%	0%	0%	0%	-	-	0%	0%	0%	0%	0%	-	0.5%
<b>Pedestrians</b>	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	0
<b>% Pedestrians</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn



## Synchro™ Output - 2018 Existing Traffic

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2996: DW opp. Turtle Creek/Turtle Creek & Cedar Springs #2 #19 #22/Cedar Springs

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2996: DW opp. Turtle Creek/Turtle Creek & Cedar Springs #2 #19 #22/Cedar Springs

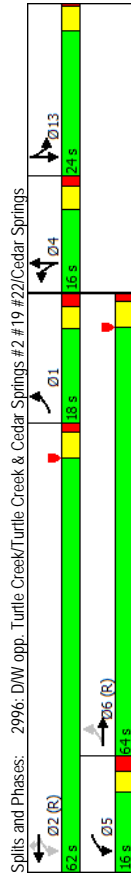
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1	1	1	1	1	1	1	1	1	1	1
Traffic Volume (vph)	117	384	6	2	775	319	2	1	2	114	4	0
Future Volume (vph)	117	384	6	2	775	319	2	1	2	114	4	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0	75	0	1	1	0	0	0	100	100	100
Storage Lanes	1	0	1	0	1	1	0	0	0	1	1	0
Taper Length (ft)	25	55				25				25		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	1.00	1.00	1.00	1.00	0.99	0.97	0.99	0.97	1.00	1.00	1.00	1.00
Flt	0.998				0.850	0.867						
Flt Protected	0.950			0.950		0.950				0.950	0.961	
Satd. Flow (prot)	1770	5073	0	1770	3539	1583	1770	1596	0	1681	1701	0
Flt Permitted	0.294			0.461		0.950				0.950	0.961	
Satd. Flow (perm)	545	5073	0	855	3539	1529	1770	1596	0	1679	1699	0
Right Turn on Red		Yes			Yes		Yes		Yes			Yes
Satd. Flow (RTOR)	2			347		8						30
Link Speed (mph)	30			30		146						160
Link Distance (ft)	458			339		7.7						3.6
Travel Time (s)	10.4			7.7		3.3						3.6
Confl. Peds. (#/hr)	6			3		6			1			1
Peak Hour Factor	0.70	0.89	1.00	1.00	0.89	0.92	1.00	1.00	0.25	0.78	0.25	0.69
Adj. Flow (vph)	167	431	6	2	871	347	2	1	8	146	16	0
Shared Lane Traffic (%)									45%			
Lane Group Flow (vph)	167	437	0	2	871	347	2	9	0	80	82	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	Right
Median Width(ft)	12			12		12				12		12
Link Offset(ft)	0			0		0				0		0
Crosswalk Width(ft)	16			16		16				16		16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9		15			9		15	9
Number of Detectors	1			1		1			1		2	
Detector Template				Left		Thru			Thru		Thru	
Leading Detector (ft)	50			20		50			20		100	
Trailing Detector (ft)	0			0		0			0		0	
Detector 1 Position(ft)	0			0		0			0		0	
Detector 1 Size(ft)	50			20		50			20		6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)											94	
Detector 2 Size(ft)											6	
Detector 2 Type											Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)											0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Split	NA	Split	NA	NA	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	1	6		5		2	4		4		13	13
Permitted Phases	6			2		2						
Detector Phase	1	6		5		2	4		4		13	13
Switch Phase												
Minimum Initial (s)	3.0	12.0		3.0		12.0	6.0		6.0		4.0	4.0
Minimum (s)	8.0	21.8		8.0		29.9	30.6		30.6		8.0	8.0
Total Spill (s)	18.0	64.0		16.0		62.0	16.0		16.0		24.0	24.0
Total Spill (%)	15.0%	53.3%		13.3%		51.7%	13.3%		13.3%		20.0%	20.0%
Maximum Green (s)	13.0	59.2		11.0		57.1	11.4		11.4		20.0	20.0
Yellow Time (s)	3.0	3.6		3.0		3.6	3.2		3.2		3.5	3.5
All-Red Time (s)	2.0	1.2		2.0		1.3	1.4		1.4		0.5	0.5
Lost Time Adjust (s)	-1.0	-0.8		-1.0		-0.9	-0.6		-0.6		-0.8	-0.8
Total Lost Time (s)	4.0	4.0		4.0		4.0	4.0		4.0		3.2	3.2
Lead/Lag	Lag	Lag		Lead		Lead	Lead		Lead		Lag	Lag
Lead-Lag Optimize?		Yes		Yes		Yes	Yes		Yes		Yes	Yes
Vehicle Extension (s)	0.3	3.0		0.3		3.0	2.5		2.5		3.0	3.0
Recall Mode	None	C-Max		None		C-Max	None		None		None	None
Walk Time (s)	4.0			4.0		4.0	4.0		4.0		4.0	4.0
Flash Dont Walk (s)	13.0			21.0		21.0	22.0		22.0			
Pedestrian Calls (#/hr)	0			0		0	0		0		0	0
Act. Eff. Green (s)	94.9			78.5		78.5	6.7		6.7		11.9	11.9
Actuated g/C Ratio	0.79	0.79		0.65		0.65	0.06		0.06		0.10	0.10
v/c Ratio	0.29	0.11		0.00		0.38	0.31		0.02		0.48	0.49
Control Delay	8.2	4.1		6.0		6.5	2.0		3.30		6.00	6.01
Queue Delay	0.0	0.0		0.0		0.0	0.0		0.0		0.0	0.0
Total Delay	8.2	4.1		6.0		6.5	2.0		3.30		6.00	6.01
LOS	A	A		A		A	D		C		E	E
Approach Delay	5.2			5.2		5.2	36.8				60.0	
Approach LOS	A			A		A	D				E	
Queue Length 50th (ft)	17	15		0		35	0		2		63	64
Queue Length 95th (ft)	57	58		m1		193	84		10		96	30
Internal Link Dist (ft)						259			66			80
Turn Bay Length (ft)	160			75							100	
Base Capacity (vph)	574	4012		651		2316	1120		177		291	294
Saturation Cap Reductn	0			0		0	0		0		0	0
Spillback Cap Reductn	0			0		0	0		0		0	0
Storage Cap Reductn	0			0		0	0		0		0	0
Reduced v/c Ratio	0.29	0.11		0.00		0.38	0.31		0.01		0.27	0.28
Intersection Summary												
Arc Type:	Other											
Cycle Length:	120											
Actuated Cycle Length:	120											
Offset:	70 (58%), Referenced to phase 2:WBT1 and 6:EBT1, Start of Yellow											
Natural Cycle:	80											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	0.49											
Intersection Signal Delay:	9.8											
Intersection Capacity Utilization:	47.8%											
ICU Level of Service:	A											

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

Analysis Period (min) 15  
Volume for 95th percentile queue is metered by upstream signal.

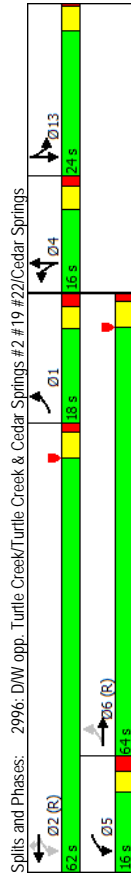


2018 Existing - AM  
3005: Bowen & Cedar Springs & Turtle Creek

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑
Traffic Volume (vph)	135	377	17	31	758	139	41	315	41	69	215	167
Future Volume (vph)	135	377	17	31	758	139	41	315	41	69	215	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	181	0	121	0	0	0	0	0	0	0	0	0
Storage Lanes	1	0	1	0	0	0	0	0	0	0	0	0
Taper Length (ft)	25	0	25	0	0	0	25	0	0	25	0	0
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99
Flt Protected	0.950	0.993	0.950	0.974	0.974	0.983	0.993	0.993	0.993	0.992	0.992	0.992
Satd. Flow (prot)	1770	5044	0	1770	4940	0	0	3448	0	0	3267	0
Flt Permitted	0.185	0.486	0.486	0.486	0.486	0.743	0.743	0.743	0.743	0.709	0.709	0.709
Satd. Flow (perm)	345	5044	0	899	4940	0	0	2578	0	0	2335	0
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Satd. Flow (RTOR)	8	51	51	51	51	11	11	11	11	152	152	152
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	30
Link Distance (ft)	398	398	217	217	217	721	721	721	721	644	644	644
Travel Time (s)	9.0	9.0	4.9	4.9	4.9	16.4	16.4	16.4	16.4	14.6	14.6	14.6
Confl. Peds. (#/hr)	1	5	5	5	5	1	5	3	3	3	3	5
Peak Hour Factor	0.77	0.89	0.85	0.60	0.91	0.78	0.64	0.86	0.73	0.84	0.96	0.79
Adj. Flow (vph)	175	424	20	52	833	178	64	366	56	82	224	211
Shared Lane Traffic (%)												
Lane Group Flow (vph)	175	444	0	52	1011	0	0	486	0	0	517	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	12	12	12	12	12	0	0	0	0	0	0	0
Link Offset(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk Width(ft)	16	16	16	16	16	16	16	16	16	16	16	16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	15	15	9	15	15	9	15	15	9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50	50	50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (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
Detector 1 Queue (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
Detector 1 Delay (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
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	Permi	NA	NA	pm+pt	NA	NA
Protected Phases	1	6	5	2	2	4	4	4	4	3	8	8
Permitted Phases	6	6	2	2	2	4	4	4	4	3	8	8
Detector Phase	1	6	5	2	2	4	4	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	3.0	12.0	3.0	12.0	12.0	10.0	10.0	10.0	10.0	4.0	10.0	10.0

2018 Existing - AM  
2996: DW opp. Turtle Creek/Turtle Creek & Cedar Springs #2 #19 #22/Cedar Springs

Analysis Period (min) 15  
Volume for 95th percentile queue is metered by upstream signal.



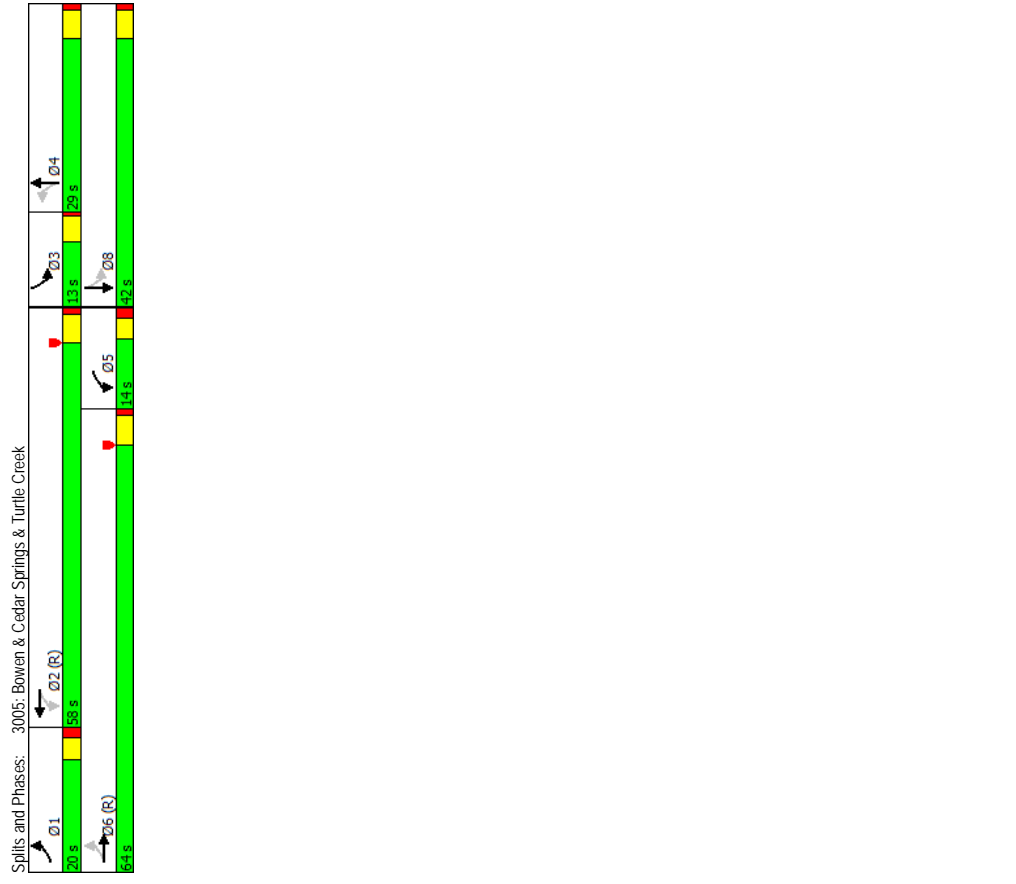
2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2018 Existing - AM  
3005: Bowen & Cedar Springs & Turtle Creek

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	7.5	19.0	7.5	19.0	19.0	23.0	23.0	23.0	8.0	8.0	23.0	23.0
Total Split (s)	20.0	64.0	14.0	58.0	11.7%	48.3%	29.0	29.0	13.0	13.0	42.0	42.0
Total Split (%)	16.7%	53.3%	11.7%	48.3%	24.2%	24.2%	10.8%	10.8%	35.0%	35.0%	35.0%	35.0%
Maximum Green (s)	15.5	59.0	9.5	53.0	24.0	24.0	24.0	24.0	9.0	9.0	37.0	37.0
Yellow Time (s)	3.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	3.5	3.5	4.0	4.0
All-Red Time (s)	1.5	1.0	1.5	1.0	1.0	1.0	1.0	1.0	0.5	0.5	1.0	1.0
Lost Time Adjust (s)	-0.5	-1.0	-0.5	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	3.0	2.0	2.0
Recall Mode	None	C-Max	None	C-Max	Max	Max	Max	Max	None	None	Max	Max
Walk Time (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	4.0	4.0	8.0	8.0
Flash Dont Walk (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	4.0	4.0	6.0	6.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	62.8	62.8	58.5	58.5	58.5	58.5	58.5	58.5	38.0	38.0	38.0	38.0
Actuated g/C Ratio	0.52	0.52	0.49	0.49	0.49	0.49	0.49	0.49	0.32	0.32	0.32	0.32
v/c Ratio	0.55	0.17	0.10	0.42	0.59	0.59	0.59	0.59	0.61	0.61	0.61	0.61
Control Delay	28.0	15.6	8.5	9.2	33.7	33.7	33.7	33.7	29.5	29.5	29.5	29.5
Queue Delay	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 Delay	28.0	15.6	8.5	9.2	33.7	33.7	33.7	33.7	29.5	29.5	29.5	29.5
LOS	C	B	A	A	A	C	C	C	C	C	C	C
Approach Delay	19.1	19.1	9.2	9.2	33.7	33.7	33.7	33.7	29.5	29.5	29.5	29.5
Approach LOS	B	B	A	A	A	C	C	C	C	C	C	C
Queue Length 50th (ft)	58	49	10	116	150	150	150	150	141	141	141	141
Queue Length 95th (ft)	121	93	m11	144	187	187	187	187	197	197	197	197
Internal Link Dist (ft)	318	318	137	137	641	641	641	641	564	564	564	564
Turn Bay Length (ft)	181	181	121	121	641	641	641	641	564	564	564	564
Base Capacity (vph)	370	2643	510	2433	823	823	823	823	843	843	843	843
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.17	0.10	0.42	0.59	0.59	0.59	0.59	0.61	0.61	0.61	0.61

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2018 Existing - AM  
3005: Bowen & Cedar Springs & Turtle Creek





2999 Turtle Creek TIA  
 HCM 2010 TWSC

2018 Existing - AM  
 170: Turtle Creek & Gillespie

Intersection													
Int Delay, s/veh													
1.6													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SBR
Lane Configurations	29	99	16	0	364	62	0	0	0	15	33	12	↕
Traffic Vol, veh/h	29	99	16	0	364	62	0	0	0	15	33	12	
Future Vol, veh/h	0	0	0	0	0	0	1	0	0	0	0	1	
Conflicting Peds, #/hr	Free	Free	Free	Free	Free	Free	None	None	None	None	None	None	
Sign Control	-	-	-	-	-	-	-	-	-	-	-	-	
RT Channelized	-	-	-	-	-	-	-	-	-	-	-	-	
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	-	0	
Grade, %	-	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	32	108	17	0	396	67	0	0	0	16	36	13	

Major/Minor													
Major1													
Minor2													
Major2													
Conflicting Flow All	463	0	0	-	-	0	-	-	0	608	617	430	
Stage 1	-	-	-	-	-	-	-	-	-	429	429	-	
Stage 2	-	-	-	-	-	-	-	-	-	179	188	-	
Critical Hdwy	4.12	-	-	-	-	-	-	-	-	6.42	6.52	6.22	
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	5.42	5.52	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	5.42	5.52	-	
Follow-up Hdwy	2.218	-	-	-	-	-	-	-	-	3.518	4.018	3.318	
Pd Cap-1 Maneuver	1098	-	-	-	0	-	-	-	-	459	405	625	
Stage 1	-	-	-	-	0	-	-	-	-	657	584	-	
Stage 2	-	-	-	-	0	-	-	-	-	852	745	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	1097	-	-	-	-	-	-	-	-	445	0	624	
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	445	0	-	
Stage 1	-	-	-	-	-	-	-	-	-	657	0	-	
Stage 2	-	-	-	-	-	-	-	-	-	826	0	-	

Approach													
EB													
WB													
SB													
HCM Control Delay, s	1.7	-	-	-	0	-	-	-	-	13.1	-	-	B
HCM LOS	-	-	-	-	-	-	-	-	-	-	-	-	-

Minor Lane/Major Mvmt													
EBL													
EBT													
EBR													
WBL													
WBT													
WBR													
NBL													
NBT													
NBR													
SBL													
SBT													
SBR													
Capacity (veh/h)	1097	-	-	-	-	-	-	-	-	510	-	-	-
HCM Lane V/C Ratio	0.029	-	-	-	-	-	-	-	-	0.128	-	-	-
HCM Control Delay (s)	8.4	0	-	-	-	-	-	-	-	13.1	-	-	-
HCM Lane LOS	A	A	-	-	-	-	-	-	-	B	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-	-	-	-	-	-	0.4	-	-	-

Intersection													
Int Delay, s/veh													
3.4													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SBR
Lane Configurations	0	0	0	20	0	34	0	41	6	18	66	0	↕
Traffic Vol, veh/h	0	0	0	20	0	34	0	41	6	18	66	0	
Future Vol, veh/h	0	0	0	20	0	34	0	41	6	18	66	0	
Conflicting Peds, #/hr	10	0	3	3	0	10	9	0	5	5	0	9	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	-	-	-	-	None	None	None	None	None	None	
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	
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	0	0	0	22	0	37	0	45	7	20	72	0	

Major/Minor													
Minor2													
Major1													
Major2													
Conflicting Flow All	196	176	84	167	173	63	81	0	0	56	0	0	
Stage 1	120	120	-	53	53	-	-	-	-	-	-	-	
Stage 2	76	56	-	114	120	-	-	-	-	-	-	-	
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-	
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	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-	
Pd Cap-1 Maneuver	763	717	975	797	720	1002	1517	-	-	1549	-	-	
Stage 1	884	796	-	960	851	-	-	-	-	-	-	-	
Stage 2	933	848	-	891	796	-	-	-	-	-	-	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	715	699	965	783	702	990	1513	-	-	1536	-	-	
Mov Cap-2 Maneuver	715	699	-	783	702	-	-	-	-	-	-	-	
Stage 1	877	779	-	956	847	-	-	-	-	-	-	-	
Stage 2	891	844	-	876	779	-	-	-	-	-	-	-	

Approach													
EB													
WB													
NB													
SB													
HCM Control Delay, s	0	-	-	-	9.3	-	0	-	-	1.6	-	-	-
HCM LOS	A	-	-	-	A	-	-	-	-	-	-	-	-

Minor Lane/Major Mvmt													
NBL													
NBT													
NBR													
EBL													
EBT													
EBR													
WBL													
WBT													
WBR													
SBL													
SBT													
SBR													
Capacity (veh/h)	1513	-	-	-	-	-	902	1536	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	0.065	0.013	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	-	-	9.3	7.4	0	-	-	-	-
HCM Lane LOS	A	-	-	-	-	-	A	A	A	A	-	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	-	0.2	0	-	-	-	-	-

2999 Turtle Creek TIA  
 HCM 2010 TWSC

2018 Existing - AM  
 172: Cedar Springs & Dickason

Intersection										
Int Delay, s/veh	0.5									
Movement	EBL	EBT	WBT	WBR	SBL	SBR				
Lane Configurations	↔	↔	↔	↔	↔	↔				
Traffic Vol, veh/h	5	516	944	29	13	57				
Future Vol, veh/h	5	516	944	29	13	57				
Conflicting Peds, #/hr	2	0	0	2	1	0				
Sign Control	Free	Free	Free	Free	Stop	Stop				
RT Channelized	-	None	-	None	-	None				
Storage Length	100	-	-	-	0	-				
Veh in Median Storage, #	-	0	0	-	1	-				
Grade, %	-	0	0	-	0	-				
Peak Hour Factor	92	92	92	92	92	92				
Heavy Vehicles, %	2	2	2	2	2	2				
Mvmt Flow	5	561	1026	32	14	62				
Major/Minor	Major1	Major2	Minor2							
Conflicting Flow All	1060	0	0	1280	531					
Stage 1	-	-	-	1044	-					
Stage 2	-	-	-	236	-					
Critical Hdwy	5.34	-	-	5.74	7.14					
Critical Hdwy Stg 1	-	-	-	6.64	-					
Critical Hdwy Stg 2	-	-	-	6.04	-					
Follow-up Hdwy	3.12	-	-	3.82	3.92					
Pd Cap-1 Maneuver	*868	-	-	*588	*690					
Stage 1	-	-	-	*708	-					
Stage 2	-	-	-	*821	-					
Platoon blocked, %	1	-	-	1	1					
Mov Cap-1 Maneuver	*868	-	-	*583	*689					
Mov Cap-2 Maneuver	-	-	-	*606	-					
Stage 1	-	-	-	*707	-					
Stage 2	-	-	-	*815	-					
Approach	EB	WB	SB							
HCM Control Delay, s	0.1	0	11							
HCM LOS			B							
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBL	SBR				
Capacity (veh/h)	* 868	-	-	-	-	672				
HCM Lane V/C Ratio	0.006	-	-	-	-	0.113				
HCM Control Delay (s)	9.2	-	-	-	-	11				
HCM Lane LOS	A	-	-	-	-	B				
HCM 95th %tile Q(veh)	0	-	-	-	-	0.4				
Notes	-									
\$: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    *: All major volume in platoon										

2999 Turtle Creek TIA  
 HCM 2010 TWSC

2018 Existing - AM  
 173: Dickason & Sale

Intersection									
Int Delay, s/veh	6.1								
Movement	EBL	EBT	EBR	WBL	WBR	NBL	NBT	SBL	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Vol, veh/h	3	21	16	21	17	12	24	20	1
Future Vol, veh/h	3	21	16	21	17	12	24	20	1
Conflicting Peds, #/hr	4	0	9	9	0	4	2	0	9
Sign Control	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None	-	None	-
Storage Length	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	0	-	0	-	0	-
Grade, %	-	0	-	0	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	23	17	23	18	13	26	22	1
Major/Minor	Minor2	Minor1	Major1	Major2					
Conflicting Flow All	153	143	53	169	144	35	45	0	32
Stage 1	59	59	-	83	83	-	-	-	-
Stage 2	94	84	-	86	61	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	4.12
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	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	2.218
Pd Cap-1 Maneuver	814	748	1014	795	747	1038	1563	-	1580
Stage 1	953	846	-	925	826	-	-	-	-
Stage 2	913	825	-	922	844	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	771	725	1005	739	724	1027	1551	-	1575
Mov Cap-2 Maneuver	771	725	-	739	724	-	-	-	-
Stage 1	935	840	-	902	806	-	-	-	-
Stage 2	863	805	-	870	838	-	-	-	-
Approach	EB	WB	NB	SB					
HCM Control Delay, s	9.6	9.9	3.9	1.1					
HCM LOS	A	A	A	B					
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL	EBT	WBL	WBR	SBL	SBR
Capacity (veh/h)	1551	-	-	820	786	1575	-	-	-
HCM Lane V/C Ratio	0.017	-	-	0.053	0.069	0.005	-	-	-
HCM Control Delay (s)	7.4	0	-	9.6	9.9	7.3	0	-	-
HCM Lane LOS	A	A	-	A	A	A	A	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.2	0	-	-	-
Notes	-								

Intersection													
Int Delay, s/veh													
1.6													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔		↔
Traffic Vol, veh/h	38	4	35	0	1	5	12	559	4	9	431	9	
Future Vol, veh/h	38	4	35	0	1	5	12	559	4	9	431	9	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	5	0	2	2	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	None	-	-	None	-	-	None	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-	0
Grade, %	-	0	-	0	-	0	-	0	-	0	-	0	-
Peak Hour Factor	92	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	2
Mvmt Flow	41	4	38	0	1	5	13	608	4	10	468	10	
Major/Minor	Minor2	Minor1	Major1	Major2									
Conflicting Flow All	828	1138	244	894	1141	308	483	0	0	614	0	0	
Stage 1	498	498	-	638	638	-	-	-	-	-	-	-	
Stage 2	330	640	-	256	503	-	-	-	-	-	-	-	
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-	
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-	
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-	
Pd Cap-1 Maneuver	*267	202	757	239	201	*867	1076	-	-	1277	-	-	
Stage 1	*523	543	-	766	683	-	-	-	-	-	-	-	
Stage 2	*817	681	-	726	540	-	-	-	-	-	-	-	
Platoon blocked, %	1	1	1	1	1	1	1	-	-	1	-	-	
Mov Cap-1 Maneuver	*257	195	754	218	194	*866	1076	-	-	1277	-	-	
Mov Cap-2 Maneuver	*257	195	-	218	194	-	-	-	-	-	-	-	
Stage 1	*511	535	-	751	670	-	-	-	-	-	-	-	
Stage 2	*796	668	-	676	532	-	-	-	-	-	-	-	
Approach	EB	EB	WB	WB	NB	NB	SB	SB					
HCM Control Delay, s	18.1		11.6		0.3		0.2						
HCM LOS	C		B										
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL	EBT	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SBR
Capacity (veh/h)	1076	-	-	358	549	1277	-	-	-	-	-	-	-
HCM Lane V/C Ratio	0.012	-	-	0.234	0.012	0.008	-	-	-	-	-	-	-
HCM Control Delay (s)	8.4	0.1	-	18.1	11.6	7.8	0	-	-	-	-	-	-
HCM Lane LOS	A	A	-	C	B	A	A	-	-	-	-	-	-
HCM 95th %tile Q(veh)	0	-	-	0.9	0	0	-	-	-	-	-	-	-
Notes	-												
\$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon													

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2018 Existing - PM

2018 Existing - PM

2996: DW opp. Turtle Creek/Turtle Creek & Cedar Springs #2 #19 #22/Cedar Springs

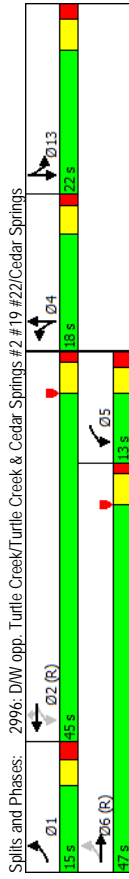
2996: DW opp. Turtle Creek/Turtle Creek & Cedar Springs #2 #19 #22/Cedar Springs

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	52	876	0	33	480	139	2	6	3	382	0	0
Traffic Volume (vph)	52	876	0	33	480	139	2	6	3	382	0	0
Future Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	160	0	75	0	0	0	0	0	0	100	100	100
Storage Length (ft)	25	55	0	0	0	0	0	0	0	0	0	0
Storage Lanes	1	0	1	1	1	1	1	1	1	1	1	1
Taper Length (ft)	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Lane Util. Factor	0.99	1.00	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor				0.850								
Flt Protected	0.950		0.950		0.950					0.950	0.950	
Satd. Flow (prot)	1770	5085	0	1770	3539	1583	1770	1802	0	1681	1681	0
Flt Permitted	0.373		0.272		0.950					0.950	0.950	
Satd. Flow (perm)	691	5085	0	505	3539	1530	1770	1802	0	1677	1677	0
Right Turn on Red		Yes		Yes		Yes		Yes		Yes		Yes
Satd. Flow (RTOR)		30		30		30		6		30		30
Link Speed (mph)		458		356		146		146		173		173
Link Distance (ft)		10.4		8.1		3.3		3.3		3.9		3.9
Travel Time (s)		7		5		5		7		2		2
Confl. Peds. (#/hr)		0.91		0.87		0.89		1.00		0.25		0.50
Peak Hour Factor		57		1007		33		539		153		2
Adj. Flow (vph)		57		1007		33		539		153		2
Shared Lane Traffic (%)										50%		
Lane Group Flow (vph)		57		1007		33		539		153		2
Enter Blocked Intersection		No		No		No		No		No		No
Lane Alignment		Left		Right		Left		Right		Left		Right
Median Width(ft)		12		12		12		12		12		12
Link Offset(ft)		0		0		0		0		0		0
Crosswalk Width(ft)		16		16		16		16		16		16
Two way Left Turn Lane												
Headway Factor		1.00		1.00		1.00		1.00		1.00		1.00
Turning Speed (mph)		15		9		15		9		15		9
Number of Detectors		1		1		1		1		2		2
Detector Template		Left		Left		Thru		Thru		Thru		Thru
Leading Detector (ft)		50		20		50		20		100		50
Trailing Detector (ft)		0		0		0		0		0		0
Detector 1 Position(ft)		0		0		0		0		0		0
Detector 1 Delay (s)		50		20		50		20		6		6
Detector 1 Size(ft)		Ch+Ex		Ch+Ex		Ch+Ex		Ch+Ex		Ch+Ex		Ch+Ex
Detector 1 Type		Ch+Ex		Ch+Ex		Ch+Ex		Ch+Ex		Ch+Ex		Ch+Ex
Detector 1 Channel		0.0		0.0		0.0		0.0		0.0		0.0
Detector 1 Extend (s)		0.0		0.0		0.0		0.0		0.0		0.0
Detector 1 Queue (s)		0.0		0.0		0.0		0.0		0.0		0.0
Detector 1 Delay (s)		0.0		0.0		0.0		0.0		0.0		0.0
Detector 2 Position(ft)										94		94
Detector 2 Size(ft)										6		6
Detector 2 Type										Ch+Ex		Ch+Ex
Detector 2 Channel												
Detector 2 Extend (s)												
Turn Type		pm+pt		NA		pm+pt		NA		Perm		Split

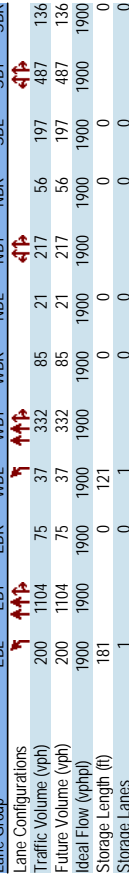
2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

Analysis Period (min) 15  
Volume for 95th percentile queue is metered by upstream signal.



Analysis Period (min) 15  
Volume for 95th percentile queue is metered by upstream signal.



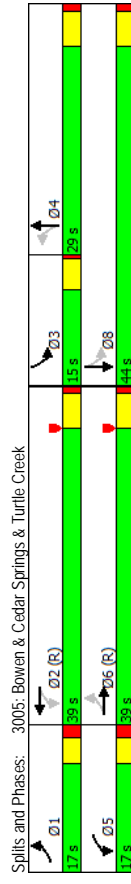
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑↑↑	↑	↑↑↑	↑↑↑	↑↑↑	↑	↑↑↑	↑	↑	↑↑	↑↑
Traffic Volume (vph)	200	1104	75	37	332	85	21	217	56	197	487	136
Future Volume (vph)	200	1104	75	37	332	85	21	217	56	197	487	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	181	0	121	0	0	0	0	0	0	0	0	0
Storage Lanes	1	0	1	0	0	0	0	0	0	0	0	0
Taper Length (ft)	25	0	25	0	0	25	0	0	25	0	0	0
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.99	1.00	1.00	0.99	0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.950	0.950	0.950	0.950	0.950	0.950	0.994	0.994	0.994	0.994	0.988	0.988
Satd. Flow (prot)	1770	5026	0	1770	4888	0	0	3399	0	0	3397	0
Flt Permitted	0.414	0.164	0.164	0.164	0.164	0.164	0.730	0.730	0.730	0.730	0.718	0.718
Satd. Flow (perm)	763	5026	0	305	4888	0	0	2495	0	0	2466	0
Right Turn on Red		Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes
Satd. Flow (RTOR)	12	75	75	12	29	29	30	30	30	30	30	30
Link Speed (mph)	382	217	217	382	721	721	721	721	721	721	647	647
Link Distance (ft)	8.7	4.9	4.9	8.7	16.4	16.4	16.4	16.4	16.4	16.4	14.7	14.7
Travel Time (s)	10	6	6	10	6	6	5	5	5	5	5	5
Confl. Peds. (#/hr)	0.83	0.94	0.89	0.84	0.96	0.90	0.50	0.86	0.77	0.86	0.91	0.90
Peak Hour Factor	241	1174	84	44	346	94	42	252	73	229	535	151
Adj. Flow (vph)	241	1174	84	44	346	94	42	252	73	229	535	151
Shared Lane Traffic (%)												
Lane Group Flow (vph)	241	1258	0	44	440	0	0	367	0	0	915	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	12	12	12	12	12	12	0	0	0	0	0	0
Link Offset(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk Width(ft)	16	16	16	16	16	16	16	16	16	16	16	16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	1	1	1	1	1	1	1	1	1
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50	50	50	50	50	50	50	50
Detector 1 Type	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex
Detector 1 Channel												
Detector 1 Extend (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
Detector 1 Queue (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
Detector 1 Delay (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
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perim	NA	NA	pm+pt	NA	NA
Protected Phases	1	6	5	2	4	4	4	4	4	3	8	8
Permitted Phases	6	2	2	4	4	4	4	4	4	3	8	8
Detector Phase	1	6	5	2	4	4	4	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	3.0	12.0	3.0	12.0	3.0	12.0	10.0	10.0	10.0	4.0	10.0	10.0

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2018 Existing - PM  
3005: Bowen & Cedar Springs & Turtle Creek

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	7.5	19.0	7.5	19.0	19.0	23.0	23.0	23.0	23.0	8.0	23.0	23.0
Total Split (s)	17.0	39.0	17.0	39.0	39.0	29.0	29.0	29.0	29.0	15.0	44.0	44.0
Total Split (%)	17.0%	39.0%	17.0%	39.0%	39.0%	29.0%	29.0%	29.0%	29.0%	15.0%	44.0%	44.0%
Maximum Green (s)	12.5	34.0	12.5	34.0	34.0	24.0	24.0	24.0	24.0	11.0	39.0	39.0
Yellow Time (s)	3.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	3.5	4.0	4.0
All-Red Time (s)	1.5	1.0	1.5	1.0	1.0	1.0	1.0	1.0	1.0	0.5	1.0	1.0
Lost Time Adjust (s)	-0.5	-1.0	-0.5	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	2.0	2.0
Recall Mode	None	C-Max	None	C-Max	None	Min	Min	Min	Min	None	Min	Min
Walk Time (s)	8.0	8.0	8.0	8.0	8.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Flash Dont Walk (s)	6.0	6.0	6.0	6.0	6.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	52.7	46.2	43.5	37.2	37.2	39.3	39.3	39.3	39.3	39.3	39.3	39.3
Actuated g/C Ratio	0.53	0.46	0.44	0.37	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39
v/c Ratio	0.47	0.54	0.20	0.24	0.37	0.37	0.37	0.37	0.37	0.93	0.93	0.93
Control Delay	9.7	9.5	12.6	13.9	20.8	20.8	20.8	20.8	20.8	44.9	44.9	44.9
Queue Delay	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 Delay	9.7	9.5	12.6	13.9	20.8	20.8	20.8	20.8	20.8	44.9	44.9	44.9
LOS	A	A	B	B	B	C	C	C	C	D	D	D
Approach Delay	9.5	9.5	13.8	13.8	20.8	20.8	20.8	20.8	20.8	44.9	44.9	44.9
Approach LOS	A	A	B	B	B	C	C	C	C	D	D	D
Queue Length 50th (ft)	17	121	11	35	77	77	77	77	77	277	277	277
Queue Length 95th (ft)	25	123	m20	48	108	108	108	108	108	#411	#411	#411
Internal Link Dist (ft)	302	302	137	137	641	641	641	641	641	567	567	567
Turn Bay Length (ft)	181	181	121	121	121	121	121	121	121	1002	1002	1002
Base Capacity (vph)	533	2327	343	1866	997	997	997	997	997	1002	1002	1002
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.54	0.13	0.24	0.37	0.37	0.37	0.37	0.37	0.91	0.91	0.91

Intersection Summary	Other
Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	87 (87%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.93
Intersection Signal Delay:	21.3
Intersection Capacity Utilization:	72.8%
Analysis Period (min):	15
#	95th percentile volume exceeds capacity, queue may be longer.
m	Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.



2018 Existing - PM  
3005: Bowen & Cedar Springs & Turtle Creek

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2999 Turtle Creek TIA  
 HCM 2010 TWSC

2018 Existing - PM  
 170: Turtle Creek & Gillespie

Intersection													
Int. Delay, s/veh													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SBR
Lane Configurations	18	342	69	0	252	44	0	0	0	24	11	55	4
Traffic Vol, veh/h	18	342	69	0	252	44	0	0	0	24	11	55	4
Future Vol, veh/h	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflicting Peds, #/hr	Free	Free	Free	Free	Free	Free	None	None	None	None	None	None	None
Sign Control	-	-	-	-	-	-	-	-	-	-	-	-	-
RT Channelized	-	-	-	-	-	-	-	-	-	-	-	-	-
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	-
Yeh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	-	-	-	0	-
Peak Hour Factor	92	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	2
Mvmt Flow	20	372	75	0	274	48	0	0	0	26	12	60	

Major/Minor	Major1	Minor2	Major2	Minor2
Conflicting Flow All	322	0	0	746
Stage 1	-	-	-	298
Stage 2	-	-	-	448
Critical Hdwy	4.12	-	-	6.42
Critical Hdwy Stg 1	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	5.42
Follow-up Hdwy	2.218	-	-	3.518
Pd. Cap-1 Maneuver	1238	-	-	381
Stage 1	-	-	-	753
Stage 2	-	-	-	644
Platoon blocked, %	-	-	-	373
Mov Cap-1 Maneuver	1238	-	-	373
Mov Cap-2 Maneuver	-	-	-	753
Stage 1	-	-	-	630
Stage 2	-	-	-	0

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	12.6
HCM LOS	B	B	B

Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Capacity (veh/h)	1238	-	-	-	-	-	-	-	-	570	-	-
HCM Lane V/C Ratio	0.016	-	-	-	-	-	-	-	-	0.172	-	-
HCM Control Delay (s)	8	0	-	-	-	-	-	-	-	12.6	-	-
HCM Lane LOS	A	A	-	-	-	-	-	-	-	B	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	-	-	-	-	0.6	-	-

2999 Turtle Creek TIA  
 HCM 2010 TWSC

2018 Existing - PM  
 171: Gillespie & Sale

Intersection													
Int. Delay, s/veh													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SBR
Lane Configurations	0	0	0	6	0	14	0	80	22	21	45	0	4
Traffic Vol, veh/h	0	0	0	6	0	14	0	80	22	21	45	0	4
Future Vol, veh/h	0	0	0	6	0	14	0	80	22	21	45	0	4
Conflicting Peds, #/hr	4	0	1	0	4	11	0	3	3	0	11	0	11
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	-	-	-	-	-	-	-	-	-	-	-
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	-
Yeh 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	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	7	0	15	0	87	24	23	49	0	

Major/Minor	Minor2	Major1	Major1	Major2
Conflicting Flow All	217	220	61	198
Stage 1	106	106	-	102
Stage 2	111	114	-	96
Critical Hdwy	7.12	6.52	6.22	7.12
Critical Hdwy Stg 1	6.12	5.52	-	6.12
Critical Hdwy Stg 2	6.12	5.52	-	6.12
Follow-up Hdwy	3.518	4.018	3.518	4.018
Pd. Cap-1 Maneuver	739	678	1004	761
Stage 1	900	807	-	904
Stage 2	894	801	-	911
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	709	659	994	749
Mov Cap-2 Maneuver	709	659	-	749
Stage 1	892	787	-	902
Stage 2	877	799	-	896

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	9.2	0	2.4
HCM LOS	A	A	A	A

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL	EBT	EBR	NBL	NBT	NBR	SBL	SBT	SBR
Capacity (veh/h)	1543	-	-	-	-	-	874	1470	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	0.025	0.016	-	-	-	-
HCM Control Delay (s)	0	-	-	0	9.2	7.5	0	0	-	-	-	-
HCM Lane LOS	A	-	-	A	A	A	A	A	-	-	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	-	-	-	-	-	-

2999 Turtle Creek TIA  
 HCM 2010 TWSC

2018 Existing - PM  
 172: Cedar Springs & Dickason

Intersection									
Int Delay, s/veh									
Movement	EBL	EBT	WBT	WBR	SBL	SBR			
Lane Configurations	↔	↔	↔	↔	↔	↔			
Traffic Vol, veh/h	23	1315	472	24	41	27			
Future Vol, veh/h	23	1315	472	24	41	27			
Conflicting Peds, #/hr	10	0	0	10	0	0			
Sign Control	Free	Free	Free	Free	Stop	Stop			
RT Channelized	-	None	-	None	-	None			
Storage Length	100	-	-	-	0	-			
Yeh in Median Storage, #	-	0	0	-	1	-			
Grade, %	-	0	0	-	0	-			
Peak Hour Factor	92	92	92	92	92	92			
Heavy Vehicles, %	2	2	2	2	2	2			
Mvmt Flow	25	1429	513	26	45	29			

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	549	0	0	1158	280
Stage 1	-	-	-	536	-
Stage 2	-	-	-	622	-
Critical Hdwy	5.34	-	-	5.74	7.14
Critical Hdwy Stg 1	-	-	-	6.04	-
Critical Hdwy Stg 2	-	-	-	6.64	-
Follow-up Hdwy	3.12	-	-	3.82	3.92
Pd Cap-1 Maneuver	906	-	-	*633	*830
Stage 1	-	-	-	*728	-
Stage 2	-	-	-	*634	-
Platoon blocked, %	1	-	-	1	1
Mov Cap-1 Maneuver	906	-	-	*605	*823
Mov Cap-2 Maneuver	-	-	-	*558	-
Stage 1	-	-	-	*722	-
Stage 2	-	-	-	*612	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	11.4
HCM LOS	B	B	B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBL	SBR
Capacity (veh/h)	906	-	-	-	640	-
HCM Lane V/C Ratio	0.028	-	-	-	0.115	-
HCM Control Delay (s)	9.1	-	-	-	11.4	-
HCM Lane LOS	A	-	-	-	B	-
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4	-

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

2999 Turtle Creek TIA  
 HCM 2010 TWSC

2018 Existing - PM  
 173: Dickason & Sale

Intersection										
Int Delay, s/veh										
Movement	EBL	EBT	WBT	WBR	SBL	SBR				
Lane Configurations	↔	↔	↔	↔	↔	↔				
Traffic Vol, veh/h	4	17	10	15	17	9	10	21	13	27
Future Vol, veh/h	4	17	10	15	17	9	10	21	13	27
Conflicting Peds, #/hr	5	0	12	12	0	5	8	0	19	19
Sign Control	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-
Yeh in Median Storage, #	-	0	-	0	-	0	-	0	-	0
Grade, %	-	0	-	0	-	0	-	0	-	0
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	18	11	16	18	10	11	23	14	29

Major/Minor	Minor2	Minor1	Major1	Major2		
Conflicting Flow All	204	211	86	223	207	54
Stage 1	133	133	-	71	71	-
Stage 2	71	78	-	152	136	-
Critical Hdwy	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	3.518	4.018	3.318	3.518	4.018	3.318
Pd Cap-1 Maneuver	754	686	973	733	690	1013
Stage 1	870	786	-	939	836	-
Stage 2	939	830	-	850	784	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	708	653	957	677	656	993
Mov Cap-2 Maneuver	708	653	-	677	656	-
Stage 1	858	765	-	918	817	-
Stage 2	899	811	-	796	763	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.1	10.3	1.7	2.2
HCM LOS	B	B	B	B

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL	WBL	N1	SBL	SBT	SBR
Capacity (veh/h)	1505	-	-	736	718	1543	-	-	-
HCM Lane V/C Ratio	0.007	-	-	0.046	0.062	0.019	-	-	-
HCM Control Delay (s)	7.4	0	-	10.1	10.3	7.4	0	-	-
HCM Lane LOS	A	A	-	B	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0.1	-	-	-

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



Intersection													
Int Delay, s/veh													
1.5													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SBR
Lane Configurations	↔			↔			↔			↔			↔
Traffic Vol, veh/h	8	3	23	1	5	7	40	496	15	29	764	41	41
Future Vol, veh/h	8	3	23	1	5	7	40	496	15	29	764	41	41
Conflicting Peds, #/hr	1	0	8	8	0	1	5	0	13	13	0	5	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	None	-	-	None	-	-	None	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	-
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	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	3	25	1	5	8	43	539	16	32	830	45	45
Major/Minor	Minor2	Minor1	Minor1	Minor1	Minor1	Minor1	Minor1	Minor1	Minor1	Minor1	Minor1	Minor1	Minor1
Conflicting Flow All	1281	1576	451	1135	1590	292	880	0	0	568	0	0	0
Stage 1	921	921	-	647	647	-	-	-	-	-	-	-	-
Stage 2	360	655	-	488	943	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-	-
Pd Cap-1 Maneuver	*123	109	556	157	107	*886	764	-	-	1296	-	-	-
Stage 1	*291	347	-	709	647	-	-	-	-	-	-	-	-
Stage 2	*836	642	-	530	339	-	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	*105	94	550	129	92	*876	759	-	-	1295	-	-	-
Mov Cap-2 Maneuver	*105	94	-	129	92	-	-	-	-	-	-	-	-
Stage 1	*266	329	-	644	588	-	-	-	-	-	-	-	-
Stage 2	*753	583	-	473	321	-	-	-	-	-	-	-	-
Approach	EB	EB	WB	WB	NB	NB	SB	SB	SB	SB	SB	SB	SB
HCM Control Delay, s	23.9	23.9	26.1	26.1	1.1	1.1	0.5	0.5	0.5	0.5	0.5	0.5	0.5
HCM LOS	C	C	D	D	D	D	D	D	D	D	D	D	D
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL	EBT	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SBR
Capacity (veh/h)	759	-	-	227	185	1295	-	-	-	-	-	-	-
HCM Lane V/C Ratio	0.057	-	-	0.163	0.076	0.024	-	-	-	-	-	-	-
HCM Control Delay (s)	10	0.4	-	23.9	26.1	7.8	0.2	0.2	0.2	0.2	0.2	0.2	0.2
HCM Lane LOS	B	A	-	C	D	A	A	A	A	A	A	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.6	0.2	0.1	-	-	-	-	-	-	-
Notes	-												
\$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon													



## Synchro™ Output - 2021 Background Traffic

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2996: DW opp. Turtle Creek/Turtle Creek & Cedar Springs #2 #19 #22/Cedar Springs

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2996: DW opp. Turtle Creek/Turtle Creek & Cedar Springs #2 #19 #22/Cedar Springs

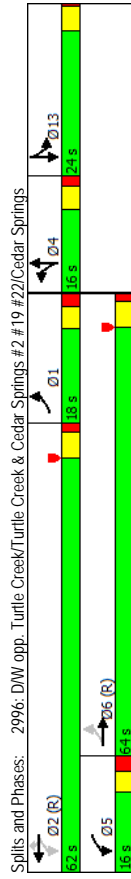
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1	1	1	1	1	1	1	1	1	1	1
Traffic Volume (vph)	192	408	41	25	807	400	7	4	5	144	27	0
Future Volume (vph)	192	408	41	25	807	400	7	4	5	144	27	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0	75	0	1	1	1	1	0	100	100	100
Storage Lanes	1	0	1	1	1	1	1	1	0	1	1	0
Taper Length (ft)	25	55	0	0	0	0	0	0	0	0	0	0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	1.00	1.00	1.00	1.00	0.97	0.97	0.99	0.875	1.00	1.00	1.00	1.00
Flt Protected	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.986	0.986
Satd. Flow (prot)	1770	5012	0	1770	3539	1583	1770	1612	0	1681	1745	0
Flt Permitted	0.279	0.427	0.427	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.986	0.986
Satd. Flow (perm)	518	5012	0	792	3539	1529	1770	1612	0	1679	1744	0
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Satd. Flow (RTOR)	17	30	30	30	30	30	30	30	30	30	30	30
Link Speed (mph)	458	458	458	458	458	458	458	458	458	458	458	458
Link Distance (ft)	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4
Travel Time (s)	6	3	3	3	3	3	3	3	3	3	3	3
Confl. Peds. (#/hr)	0.70	0.89	1.00	1.00	0.89	0.92	1.00	1.00	0.25	0.78	0.25	0.69
Peak Hour Factor	274	458	41	25	907	435	7	4	20	185	108	0
Adj. Flow (vph)	274	458	41	25	907	435	7	4	20	185	108	0
Shared Lane Traffic (%)	274	499	0	25	907	435	7	24	0	144	149	0
Lane Group Flow (vph)	Left	No	No	No	No	No	No	No	No	No	No	No
Enter Blocked Intersection	Left	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	Right
Median Width(ft)	12	12	12	12	12	12	12	12	12	12	12	12
Link Offset(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk Width(ft)	16	16	16	16	16	16	16	16	16	16	16	16
Two way Left Turn Lane	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Headway Factor	15	1	9	15	1	1	1	1	2	1	1	2
Turning Speed (mph)	1	1	1	1	1	1	1	1	2	1	1	2
Number of Detectors	50	50	50	50	50	50	50	50	50	50	50	50
Detector Template	0	0	0	0	0	0	0	0	0	0	0	0
Leading Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	50	50	50	50	50	50	50	50	50	50	50	50
Detector 1 Size(ft)	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex
Detector 2 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 2 Size(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Channel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Extend (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
Detector 1 Queue (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
Detector 1 Delay (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
Detector 2 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 2 Size(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 2 Channel	0	0	0	0	0	0	0	0	0	0	0	0
Detector 2 Extend (s)	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	Split	NA	NA

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	1	6	5	2	4	4	4	4	4	13	13	13
Permitted Phases	6	6	5	2	2	2	2	2	2	13	13	13
Detector Phase	1	6	5	2	2	2	2	2	2	13	13	13
Switch Phase	3.0	12.0	3.0	12.0	6.0	6.0	6.0	6.0	6.0	4.0	4.0	4.0
Minimum Initial (s)	8.0	21.8	8.0	29.9	29.9	30.6	30.6	30.6	30.6	8.0	8.0	8.0
Minimum Split (s)	18.0	64.0	16.0	62.0	16.0	16.0	16.0	16.0	16.0	24.0	24.0	24.0
Total Spill (%)	15.0%	53.3%	13.3%	51.7%	13.3%	13.3%	13.3%	13.3%	13.3%	20.0%	20.0%	20.0%
Maximum Green (s)	13.0	59.2	11.0	57.1	11.4	11.4	11.4	11.4	11.4	20.0	20.0	20.0
Yellow Time (s)	3.0	3.6	3.0	3.6	3.2	3.2	3.2	3.2	3.2	3.5	3.5	3.5
All-Red Time (s)	2.0	1.2	2.0	1.3	1.3	1.4	1.4	1.4	1.4	0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	-0.8	-1.0	-0.9	-0.9	-0.6	-0.6	-0.6	-0.6	-0.8	-0.8	-0.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.2	3.2	3.2
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lead	None	None	None
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	0.3	3.0	0.3	3.0	2.5	2.5	2.5	2.5	2.5	3.0	3.0	3.0
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None	None	None
Walk Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Flash Dont Walk (s)	13.0	13.0	21.0	21.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	84.3	84.3	71.7	71.7	70.0	70.0	70.0	70.0	70.0	16.3	16.3	16.3
Actuated g/C Ratio	0.70	0.70	0.60	0.60	0.06	0.06	0.06	0.06	0.06	0.14	0.14	0.14
v/c Ratio	0.54	0.14	0.05	0.43	0.40	0.07	0.21	0.21	0.21	0.63	0.63	0.63
Control Delay	22.3	7.6	9.6	11.4	3.5	54.4	28.9	28.9	28.9	60.8	60.3	60.3
Queue Delay	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 Delay	22.3	7.6	9.6	11.4	3.5	54.4	28.9	28.9	28.9	60.8	60.3	60.3
LOS	C	A	A	B	A	D	C	C	C	E	E	E
Approach Delay	12.8	12.8	8.9	8.9	34.7	34.7	34.7	34.7	34.7	60.5	60.5	60.5
Approach LOS	B	B	A	A	C	C	C	C	C	E	E	E
Queue Length 50th (ft)	82	49	8	163	65	5	3	3	3	112	115	115
Queue Length 95th (ft)	112	79	m19	322	m97	21	31	31	31	149	149	149
Internal Link Dist (ft)	378	378	259	259	66	66	66	66	66	80	80	80
Turn Bay Length (ft)	160	160	75	75	100	100	100	100	100	100	100	100
Base Capacity (vph)	509	3524	571	2115	1088	177	179	179	179	295	306	306
Stantion Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spilback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.14	0.04	0.43	0.40	0.04	0.13	0.13	0.13	0.49	0.49	0.49
<b>Intersection Summary</b>												
Arc Type:	Other											
Cycle Length:	120											
Actuated Cycle Length:	120											
Offset:	70 (58%), Referenced to phase 2:WBTl and 6:EBTL, Start of Yellow											
Natural Cycle:	90											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	0.63											
Intersection Signal Delay:	16.6											
Intersection Capacity Utilization:	54.3%											
ICU Level of Service:	A											

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

Analysis Period (min) 15  
Volume for 95th percentile queue is metered by upstream signal.



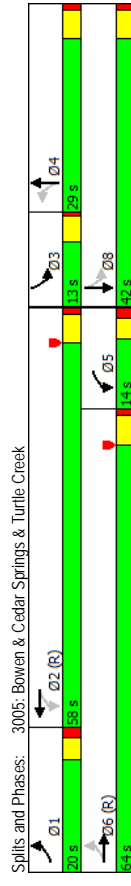
2021 Background - AM

2021 Background - AM

3005: Bowen & Cedar Springs & Turtle Creek

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Traffic Volume (vph)	150	411	27	55	793	143	51	342	54	71	315	184
Future Volume (vph)	150	411	27	55	793	143	51	342	54	71	315	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	181	0	121	0	0	0	0	0	0	0	0	0
Storage Lanes	1	0	1	0	0	0	0	0	0	0	0	0
Taper Length (ft)	25	0	1	25	0	0	25	0	0	25	0	0
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99
Flt	0.990			0.974			0.980		0.980		0.946	
Flt Protected	0.950			0.950			0.993		0.993		0.993	
Satd. Flow (prot)	1770	5026	0	1770	4941	0	0	3436	0	0	3299	0
Flt Permitted	0.766			0.462			0.643		0.687		0.687	
Satd. Flow (perm)	309	5026	0	855	4941	0	0	2224	0	0	2282	0
Right Turn on Red		Yes			Yes			Yes		Yes		Yes
Satd. Flow (RTOR)	13		49		13			13			96	
Link Speed (mph)	30		30		30			30			644	
Link Distance (ft)	398		398		217			721			644	
Travel Time (s)	9.0		4.9		16.4			16.4			14.6	
Confl. Peds. (#/hr)	1		5		5			3			3	
Peak Hour Factor	0.77	0.89	0.85	0.60	0.91	0.78	0.64	0.86	0.73	0.84	0.96	0.79
Adj. Flow (vph)	195	462	32	92	871	183	80	398	74	85	328	233
Shared Lane Traffic (%)												
Lane Group Flow (vph)	195	494	0	92	1054	0	0	552	0	0	646	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	12		12		12			0			0	
Link Offset(ft)	0		0		0			0			0	
Crosswalk Width(ft)	16		16		16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	1	1	9	15	1	9	15	1	9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50	50	50	50	50	50	50	50
Detector 1 Type	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex
Detector 1 Channel												
Detector 1 Extend (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
Detector 1 Queue (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
Detector 1 Delay (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
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perim	NA	NA	pm+pt	NA	NA
Protected Phases	1	6	5	2	2	4	4	4	3	8	8	8
Permitted Phases	6	6	2	2	4	4	4	4	3	8	8	8
Detector Phase	1	6	5	2	2	4	4	4	3	8	8	8
Switch Phase												
Minimum Initial (s)	3.0	12.0	3.0	3.0	12.0	3.0	10.0	10.0	4.0	10.0	4.0	10.0

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	7.5	19.0	7.5	19.0	19.0	23.0	23.0	23.0	8.0	8.0	23.0	23.0
Total Split (s)	20.0	64.0	14.0	58.0	11.7%	48.3%	29.0	29.0	13.0	13.0	42.0	42.0
Total Split (%)	16.7%	53.3%	11.7%	48.3%	24.2%	24.2%	10.8%	10.8%	35.0%	35.0%	35.0%	35.0%
Maximum Green (s)	15.5	59.0	9.5	53.0	24.0	24.0	24.0	24.0	9.0	9.0	37.0	37.0
Yellow Time (s)	3.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	3.5	3.5	4.0	4.0
All-Red Time (s)	1.5	1.0	1.5	1.0	1.0	1.0	1.0	1.0	0.5	0.5	1.0	1.0
Lost Time Adjust (s)	-0.5	-1.0	-0.5	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	3.0	2.0	2.0
Recall Mode	None	C-Max	None	C-Max	Max	Max	Max	Max	None	None	Max	Max
Walk Time (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	4.0	4.0	8.0	8.0
Flash Dont Walk (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	14.0	14.0	6.0	6.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	60.0	60.0	57.7	57.7	57.7	57.7	57.7	57.7	38.0	38.0	38.0	38.0
Actuated g/C Ratio	0.50	0.50	0.48	0.48	0.48	0.48	0.48	0.48	0.32	0.32	0.32	0.32
v/c Ratio	0.64	0.20	0.19	0.44	0.77	0.77	0.77	0.77	0.82	0.82	0.82	0.82
Control Delay	34.1	16.7	9.8	9.7	41.4	41.4	41.4	41.4	43.2	43.2	43.2	43.2
Queue Delay	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 Delay	34.1	16.7	9.8	9.7	41.4	41.4	41.4	41.4	43.2	43.2	43.2	43.2
LOS	C	B	A	A	A	A	D	D	D	D	D	D
Approach Delay		21.6		9.7		41.4		41.4			43.2	
Approach LOS		C		A		D		D			D	
Queue Length 50th (ft)	101	75	21	123	180	180	180	180	217	217	217	217
Queue Length 95th (ft)	142	111	19	151	222	222	222	222	#284	#284	#284	#284
Internal Link Dist (ft)	318	318	137	137	641	641	641	641	564	564	564	564
Turn Bay Length (ft)	181		121									
Base Capacity (vph)	349	2519	487	2400	713	713	713	713	788	788	788	788
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.20	0.19	0.44	0.77	0.77	0.77	0.77	0.82	0.82	0.82	0.82



2999 Turtle Creek TIA  
 HCM 2010 TWSC

2021 Background - AM  
 170: Turtle Creek & Gillespie

Intersection													
Int Delay, s/veh	1.6												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SBR
Lane Configurations	30	152	34	0	496	88	0	0	0	15	43	12	43
Traffic Vol, veh/h	30	152	34	0	496	88	0	0	0	15	43	12	43
Future Vol, veh/h	0	0	0	0	0	0	1	0	0	0	0	1	0
Conflicting Peds, #/hr	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
Sign Control	-	-	-	-	-	-	-	-	-	-	-	-	-
RT Channelized	-	-	-	-	-	-	-	-	-	-	-	-	-
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	-	-	-	0	-
Peak Hour Factor	92	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	2
Mvmt Flow	33	165	37	0	539	96	0	0	0	16	47	13	47

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	635	0	0	836
Stage 1	-	-	-	587
Stage 2	-	-	-	249
Critical Hdwy	4.12	-	-	6.42
Critical Hdwy Stg 1	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	5.52
Follow-up Hdwy	2.218	-	-	3.518
Pd Cap-1 Maneuver	948	-	-	337
Stage 1	-	-	-	556
Stage 2	-	-	-	792
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	947	-	-	324
Mov Cap-2 Maneuver	-	-	-	324
Stage 1	-	-	-	556
Stage 2	-	-	-	761

Approach	EB	WB	SB
HCM Control Delay, s	1.2	0	16.6
HCM LOS	-	-	C

Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Capacity (veh/h)	947	-	-	-	-	-	-	-	-	386	-	-
HCM Lane V/C Ratio	0.034	-	-	-	-	-	-	-	-	0.197	-	-
HCM Control Delay (s)	8.9	0	-	-	-	-	-	-	-	16.6	-	-
HCM Lane LOS	A	A	-	-	-	-	-	-	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-	-	-	-	-	-	0.7	-	-

Intersection													
Int Delay, s/veh	5.5												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SBR
Lane Configurations	18	18	9	21	47	35	24	42	6	19	68	47	47
Traffic Vol, veh/h	18	18	9	21	47	35	24	42	6	19	68	47	47
Future Vol, veh/h	10	0	3	3	0	10	9	0	5	5	0	9	0
Conflicting Peds, #/hr	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
Sign Control	-	-	-	-	-	-	-	-	-	-	-	-	-
RT Channelized	-	-	-	-	-	-	-	-	-	-	-	-	-
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	-	-	-	0	-
Peak Hour Factor	92	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	2
Mvmt Flow	20	20	10	23	51	38	26	46	7	21	74	51	51

Major/Minor	Minor1	Minor2	Major1	Major2
Conflicting Flow All	306	259	111	264
Stage 1	150	150	-	106
Stage 2	156	109	-	158
Critical Hdwy	7.12	6.52	6.22	7.12
Critical Hdwy Stg 1	6.12	5.52	-	6.12
Critical Hdwy Stg 2	6.12	5.52	-	5.52
Follow-up Hdwy	3.518	4.018	3.518	4.018
Pd Cap-1 Maneuver	646	645	942	689
Stage 1	853	773	-	900
Stage 2	846	805	-	844
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	557	616	933	644
Mov Cap-2 Maneuver	557	616	644	599
Stage 1	831	756	-	879
Stage 2	740	786	-	799

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.2	11.1	2.5	1
HCM LOS	B	B	-	-

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Capacity (veh/h)	1447	-	-	632	703	1534	-	-	-	-	-	-	-	-	-
HCM Lane V/C Ratio	0.018	-	-	0.077	0.159	0.013	-	-	-	-	-	-	-	-	-
HCM Control Delay (s)	7.5	0	-	11.2	11.1	7.4	0	-	-	-	-	-	-	-	-
HCM Lane LOS	A	A	-	B	B	A	A	-	-	-	-	-	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.6	0	-	-	-	-	-	-	-	-	-

2999 Turtle Creek TIA  
 HCM 2010 TWSC

2021 Background - AM  
 172: Cedar Springs & Dickason

Intersection										
Int Delay, s/veh	0.5									
Movement	EBL	EBT	WBT	WBR	SBL	SBR				
Lane Configurations	T	T	T	T	T	T				
Traffic Vol, veh/h	5	574	1076	30	13	59				
Future Vol, veh/h	5	574	1076	30	13	59				
Conflicting Peds, #/hr	2	0	0	2	1	0				
Sign Control	Free	Free	Free	Free	Stop	Stop				
RT Channelized	-	None	-	None	-	None				
Storage Length	100	-	-	-	0	-				
Yeh in Median Storage, #	-	0	0	-	1	-				
Grade, %	-	0	0	-	0	-				
Peak Hour Factor	92	92	92	92	92	92				
Heavy Vehicles, %	2	2	2	2	2	2				
Mvmt Flow	5	624	1170	33	14	64				
Major/Minor	Major1	Major2	Minor1	Minor2						
Conflicting Flow All	1204	0	0	1449	603					
Stage 1	-	-	-	1188	-					
Stage 2	-	-	-	261	-					
Critical Hdwy	5.34	-	-	5.74	7.14					
Critical Hdwy Stg 1	-	-	-	6.64	-					
Critical Hdwy Stg 2	-	-	-	6.04	-					
Follow-up Hdwy	3.12	-	-	3.82	3.92					
Pd Cap-1 Maneuver	*840	-	-	*566	*668					
Stage 1	-	-	-	*685	-					
Stage 2	-	-	-	*821	-					
Platoon blocked, %	1	-	-	1	1					
Mov Cap-1 Maneuver	*840	-	-	*561	*667					
Mov Cap-2 Maneuver	-	-	-	*588	-					
Stage 1	-	-	-	*684	-					
Stage 2	-	-	-	*815	-					
Approach	EB	WB	SB							
HCM Control Delay, s	0.1	0	11.3							
HCM LOS	B	B	B							
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBL	SBR				
Capacity (veh/h)	* 840	-	-	-	-	651				
HCM Lane V/C Ratio	0.006	-	-	-	-	0.12				
HCM Control Delay (s)	9.3	-	-	-	-	11.3				
HCM Lane LOS	A	-	-	-	-	B				
HCM 95th %tile Q(veh)	0	-	-	-	-	0.4				

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

2999 Turtle Creek TIA  
 HCM 2010 TWSC

2021 Background - AM  
 173: Dickason & Sale

Intersection												
Int Delay, s/veh	7.5											
Movement	EBL	EBT	WBT	WBR	SBL	SBR						
Lane Configurations	T	T	T	T	T	T						
Traffic Vol, veh/h	3	40	16	22	65	12	25	21	1	7	38	3
Future Vol, veh/h	3	40	16	22	65	12	25	21	1	7	38	3
Conflicting Peds, #/hr	4	0	9	9	0	4	2	0	9	9	0	2
Sign Control	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Yeh in Median Storage, #	-	0	-	0	-	0	-	0	-	0	-	0
Grade, %	-	0	-	0	-	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	3	43	17	24	71	13	27	23	1	8	41	3
Major/Minor	Minor1	Minor2	Major1	Major2								
Conflicting Flow All	184	147	54	185	149	36	47	0	0	33	0	0
Stage 1	60	60	-	87	87	-	-	-	-	-	-	-
Stage 2	124	87	-	98	62	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
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	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pd Cap-1 Maneuver	777	744	1013	776	743	1037	1560	-	-	1579	-	-
Stage 1	951	845	-	921	823	-	-	-	-	-	-	-
Stage 2	880	823	-	908	843	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	694	720	1004	704	719	1026	1548	-	-	1574	-	-
Mov Cap-2 Maneuver	694	720	1004	704	719	1026	1548	-	-	1574	-	-
Stage 1	932	839	-	898	802	-	-	-	-	-	-	-
Stage 2	775	802	-	835	837	-	-	-	-	-	-	-
Approach	EB	WB	SB									
HCM Control Delay, s	10	10.7	3.9									
HCM LOS	B	B	B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL	EBT	WBL	WBT	SBL	SBR			
Capacity (veh/h)	1548	-	-	778	742	1574	-	-	-			
HCM Lane V/C Ratio	0.018	-	-	0.082	0.145	0.005	-	-	-			
HCM Control Delay (s)	7.4	0	10	10.7	7.3	0	-	-	-			
HCM Lane LOS	A	A	B	B	A	A	-	-	-			
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.5	0	-	-	-			

Intersection													
Int Delay, s/veh													
2.6													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔		↔
Traffic Vol, veh/h	48	4	45	0	1	5	36	603	4	9	573	33	33
Future Vol, veh/h	48	4	45	0	1	5	36	603	4	9	573	33	33
Conflicting Peds, #/hr	0	0	0	0	0	0	5	0	2	2	0	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	None	-	-	None	-	-	-	None	-
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	-	0	-
Peak Hour Factor	92	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	2
Mvmt Flow	52	4	49	0	1	5	39	655	4	10	623	36	36
Major/Minor	Minor2	Minor1	Minor1	Major1	Major1	Major2	Major2	Major2	Major2	Major2	Major2	Major2	Major2
Conflicting Flow All	1072	1405	334	1071	1421	332	664	0	0	662	0	0	0
Stage 1	665	665	-	738	738	-	-	-	-	-	-	-	-
Stage 2	407	740	-	333	683	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-	-
Pd Cap-1 Maneuver	177	139	662	177	136	841	921	-	-	1258	-	-	-
Stage 1	416	456	-	707	638	-	-	-	-	-	-	-	-
Stage 2	793	637	-	654	447	-	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1	1	1	-	-	1	-	-	-
Mov Cap-1 Maneuver	164	128	659	150	125	840	921	-	-	1258	-	-	-
Mov Cap-2 Maneuver	164	128	-	150	125	-	-	-	-	-	-	-	-
Stage 1	387	448	-	659	595	-	-	-	-	-	-	-	-
Stage 2	734	593	-	592	439	-	-	-	-	-	-	-	-
Approach	EB	EB	WB	WB	NB	NB	SB	SB	SB	SB	SB	SB	SB
HCM Control Delay, s	30	30	13.5	13.5	0.8	0.8	0.1	0.1	0.1	0.1	0.1	0.1	0.1
HCM LOS	D	D	B	B	B	B	B	B	B	B	B	B	B
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL	EBT	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SBR
Capacity (veh/h)	921	-	-	247	430	1258	-	-	-	-	-	-	-
HCM Lane V/C Ratio	0.042	-	-	0.427	0.015	0.008	-	-	-	-	-	-	-
HCM Control Delay (s)	9.1	0.3	-	30	13.5	7.9	0	0	0	0	0	0	0
HCM Lane LOS	A	A	-	D	B	A	A	A	A	A	A	A	A
HCM 95th %tile Q(veh)	0.1	-	-	2	0	0	-	-	-	-	-	-	-
Notes	-												
\$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon													



2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2021 Background - PM  
2999a. DW opp. Turtle Creek/Turtle Creek & Cedar Springs #2 #19 #22/Cedar Springs

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	89	938	7	39	501	178	33	27	24	459	5	0
Future Volume (vph)	89	938	7	39	501	178	33	27	24	459	5	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0	75	0	1	1	1	1	0	100	100	100
Storage Lanes	1	0	1	1	1	1	1	1	0	1	1	0
Taper Length (ft)	25	55					25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	1.00	1.00	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Permitted	0.996				0.850		0.954					
Flt Protected	0.950			0.950		0.950		0.950		0.950	0.953	
Satd. Flow (prot)	1770	5061	0	1770	3539	1583	1770	1769	0	1681	1686	0
Flt Permitted	0.328			0.235		0.950		0.950		0.950	0.953	
Satd. Flow (perm)	608	5061	0	436	3539	1530	1770	1769	0	1678	1683	0
Right Turn on Red		Yes		Yes		Yes		Yes		Yes		Yes
Satd. Flow (RTOR)	5			196		19		19				
Link Speed (mph)	30			30		30		30				30
Link Distance (ft)	458			356		146		146				173
Travel Time (s)	10.4			8.1		3.3		3.3				3.9
Confl. Peds. (#/hr)	7			5		7		7		2		2
Peak Hour Factor	0.91	0.87	0.25	1.00	0.89	0.91	1.00	0.25	0.50	0.89	1.00	0.74
Adj. Flow (vph)	98	1078	28	39	563	196	33	108	48	516	5	0
Shared Lane Traffic (%)									50%			
Lane Group Flow (vph)	98	1106	0	39	563	196	33	156	0	258	263	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	Right
Median Width(ft)	12			12		12		12		12		12
Link Offset(ft)	0			0		0		0		0		0
Crosswalk Width(ft)	16			16		16		16		16		16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9		15		9		15		9
Number of Detectors	1			1		1		1		2		2
Detector Template				Left		Left		Thru		Thru		Thru
Leading Detector (ft)	50			20		50		20		100		100
Trailing Detector (ft)	0			0		0		0		0		0
Detector 1 Position(ft)	0			0		0		0		0		0
Detector 1 Size(ft)	50			20		50		20		50		6
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0		0.0		0.0		0.0		0.0
Detector 1 Queue (s)	0.0	0.0		0.0		0.0		0.0		0.0		0.0
Detector 1 Delay (s)	0.0	0.0		0.0		0.0		0.0		0.0		0.0
Detector 2 Position(ft)										94		94
Detector 2 Size(ft)										6		6
Detector 2 Type										Cl+Ex		Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)												
Turn Type	pm+pt	NA		pm+pt		NA		Perm		Split		NA

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

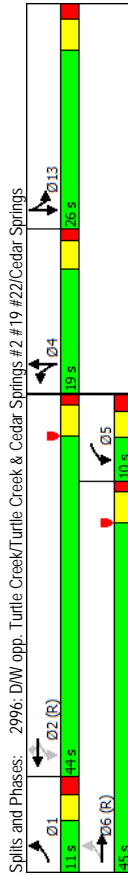
2021 Background - PM  
2999a. DW opp. Turtle Creek/Turtle Creek & Cedar Springs #2 #19 #22/Cedar Springs

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	1	6		5		2	4		4		13	13
Permitted Phases	6			2		2						
Detector Phase	1	6		5		2	4		4		13	13
Switch Phase												
Minimum Initial (s)	3.0	12.0		3.0		12.0	6.0		6.0		4.0	4.0
Minimum Split (s)	8.0	21.8		8.0		29.9	30.6		30.6		9.5	9.5
Total Split (s)	11.0	45.0		10.0		44.0	19.0		19.0		26.0	26.0
Total Spill (%)	11.0%	45.0%		10.0%		44.0%	19.0%		19.0%		26.0%	26.0%
Maximum Green (s)	6.0	40.2		5.0		39.1	14.4		14.4		20.5	20.5
Yellow Time (s)	3.0	3.6		3.0		3.6	3.2		3.2		3.6	3.6
All-Red Time (s)	2.0	1.2		2.0		1.3	1.4		1.4		1.9	1.9
Lost Time Adjust (s)	-1.0	-0.8		-1.0		-0.9	-0.6		-0.6		-0.8	-0.8
Total Lost Time (s)	4.0	4.0		4.0		4.0	4.0		4.0		4.7	4.7
Lead/Lag	Lead	Lead		Lag		Lag	Lag		Lag		Lag	Lag
Lead-Lag Optimize?		Yes		Yes		Yes			Yes		Yes	
Vehicle Extension (s)	0.3	3.0		0.3		3.0	2.5		2.5		3.0	3.0
Recall Mode	None	C-Max		None		C-Max	None		None		None	None
Walk Time (s)	4.0			4.0		4.0	4.0		4.0		4.0	4.0
Flash Dont Walk (s)	13.0			21.0		21.0	22.0		22.0		22.0	22.0
Pedestrian Calls (#/hr)	0			0		0	0		0		0	0
Act Effct Green (s)	49.1	49.1		46.6		46.6	12.4		12.4		19.8	19.8
Actuated g/C Ratio	0.49	0.49		0.47		0.47	0.12		0.12		0.20	0.20
v/c Ratio	0.26	0.44		0.14		0.34	0.15		0.66		0.78	0.79
Control Delay	14.0	16.5		18.3		16.3	2.5		39.3		54.6	55.7
Queue Delay	0.0	0.0		0.0		0.0	0.0		0.0		0.0	0.0
Total Delay	14.0	16.5		18.3		16.3	2.5		39.3		54.6	55.7
LOS	B	B		B		B	A		D		D	E
Approach Delay	16.3			13.0		13.0	48.1		48.1		55.2	55.2
Approach LOS	B			B		B	D		D		E	E
Queue Length 50th (ft)	43	211		13		104	2		19		83	158
Queue Length 95th (ft)	m58	248		m27		m126	m20		47		29	#269
Internal Link Dist (ft)	378			276		276	66		66		93	93
Turn Bay Length (ft)	160			75		75	100		100		100	100
Base Capacity (vph)	380	2489		283		1649	817		265		362	363
Starvation Cap Reductn	0	0		0		0	0		0		0	0
Spillback Cap Reductn	0	0		0		0	0		0		0	0
Storage Cap Reductn	0	0		0		0	0		0		0	0
Reduced v/c Ratio	0.26	0.44		0.14		0.34	0.24		0.12		0.56	0.71
<b>Intersection Summary</b>												
Arc Type:	Other											
Cycle Length:	100											
Actual Cycle Length:	100											
Offset:	88 (88%), Referenced to phase 2:WBTl and 6:EBTL, Start of Yellow											
Natural Cycle:	90											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	0.79											
Intersection Signal Delay:	25.0											
Intersection Capacity Utilization:	55.9%											
	ICU Level of Service B											

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2021 Background - PM  
3005: Bowen & Cedar Springs & Turtle Creek

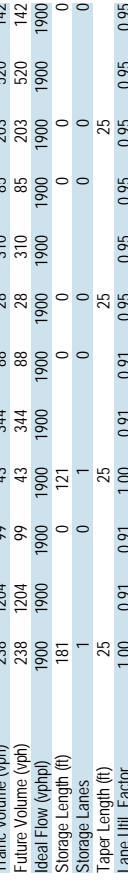
Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 m Queue shown is maximum after two cycles.  
 Volume for 95th percentile queue is metered by upstream signal.



2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2021 Background - PM  
3005: Bowen & Cedar Springs & Turtle Creek

Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 m Queue shown is maximum after two cycles.  
 Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑↑↑	↑↑↑	↑	↑↑↑	↑↑↑	←	←	←	←	←	←
Traffic Volume (vph)	238	1204	99	43	344	88	28	310	85	203	520	142
Future Volume (vph)	238	1204	99	43	344	88	28	310	85	203	520	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	181	0	121	0	0	0	0	0	0	0	0	0
Storage Lanes	1	0	1	0	0	0	0	0	0	0	0	0
Taper Length (ft)	25	0	25	0	0	25	0	0	0	25	0	0
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.99	1.00	1.00	0.99	0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00
Flt	0.950	0.988	0.988	0.950	0.968	0.968	0.969	0.969	0.969	0.975	0.975	0.975
Flt Protected	0.950	0.988	0.988	0.950	0.968	0.968	0.969	0.969	0.969	0.988	0.988	0.988
Satd. Flow (prot)	1770	5014	0	1770	4888	0	0	3398	0	0	3397	0
Flt Permitted	0.388	0.124	0.124	0.388	0.124	0.124	0.700	0.700	0.700	0.656	0.656	0.656
Satd. Flow (perm)	715	5014	0	231	4888	0	0	2390	0	0	2254	0
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Satd. Flow (RTOR)	15	73	73	32	32	32	32	32	32	29	29	29
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	30
Link Distance (ft)	382	217	217	721	721	721	721	721	721	647	647	647
Travel Time (s)	8.7	4.9	4.9	16.4	16.4	16.4	16.4	16.4	16.4	14.7	14.7	14.7
Confl. Peds. (#/hr)	10	6	6	10	6	6	10	6	6	5	5	6
Peak Hour Factor	0.83	0.94	0.89	0.84	0.96	0.90	0.50	0.86	0.77	0.86	0.91	0.90
Adj. Flow (vph)	287	1281	111	51	358	98	56	360	110	236	571	158
Shared Lane Traffic (%)	287	1392	0	51	456	0	0	526	0	0	965	0
Lane Group Flow (vph)	No	No	No	No	No	No	No	No	No	No	No	No
Enter Blocked Intersection	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	12	12	12	12	12	12	12	12	12	12	12	12
Link Offset(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk Width(ft)	16	16	16	16	16	16	16	16	16	16	16	16
Two way Left Turn Lane	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Headway Factor	15	15	9	15	15	9	15	15	9	15	15	9
Turning Speed (mph)	1	1	1	1	1	1	1	1	1	1	1	1
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50	50	50	50	50	50	50	50
Detector 1 Type	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex
Detector 1 Channel	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex
Detector 1 Extend (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
Detector 1 Queue (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
Detector 1 Delay (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
Turn Type	pm+pt	NA	pm+pt	NA	NA	Perim	NA	NA	NA	pm+pt	NA	NA
Protected Phases	1	6	5	2	2	4	4	4	4	3	8	8
Permitted Phases	6	6	2	2	4	4	4	4	4	3	8	8
Detector Phase	1	6	5	2	2	4	4	4	4	3	8	8
Switch Phase	1	6	5	2	2	4	4	4	4	3	8	8
Minimum Initial (s)	3.0	12.0	3.0	3.0	12.0	3.0	10.0	10.0	10.0	4.0	10.0	10.0

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2021 Background - PM  
3005: Bowen & Cedar Springs & Turtle Creek

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	7.5	19.0	7.5	19.0	19.0	23.0	23.0	23.0	23.0	8.0	23.0	23.0
Total Split (s)	17.0	36.0	17.0	36.0	17.0%	36.0%	29.0%	29.0%	29.0%	18.0%	47.0%	47.0%
Total Split (%)	17.0%	36.0%	17.0%	36.0%	17.0%	36.0%	29.0%	29.0%	29.0%	18.0%	47.0%	47.0%
Maximum Green (s)	12.5	31.0	12.5	31.0	24.0	24.0	24.0	24.0	24.0	14.0	42.0	42.0
Yellow Time (s)	3.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	3.5	4.0	4.0
All-Red Time (s)	1.5	1.0	1.5	1.0	1.0	1.0	1.0	1.0	1.0	0.5	1.0	1.0
Lost Time Adjust (s)	-0.5	-1.0	-0.5	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	2.0	2.0
Recall Mode	None	C-Max	None	C-Max	Min	Min	Min	Min	Min	None	Min	Min
Walk Time (s)	8.0	8.0	8.0	8.0	8.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Flash Dont Walk (s)	6.0	6.0	6.0	6.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	49.0	40.3	39.2	32.7	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0
Actuated g/C Ratio	0.49	0.40	0.39	0.33	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43
v/c Ratio	0.60	0.69	0.27	0.28	0.50	0.50	0.50	0.50	0.50	0.98	0.98	0.98
Control Delay	14.9	11.9	16.8	16.5	21.4	21.4	21.4	21.4	21.4	52.6	52.6	52.6
Queue Delay	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 Delay	14.9	11.9	16.8	16.5	21.4	21.4	21.4	21.4	21.4	52.6	52.6	52.6
LOS	B	B	B	B	B	C	C	C	C	D	D	D
Approach Delay	12.4	12.4	16.6	16.6	21.4	21.4	21.4	21.4	21.4	52.6	52.6	52.6
Approach LOS	B	B	B	B	C	C	C	C	C	D	D	D
Queue Length 50th (ft)	25	147	13	70	117	117	117	117	117	304	304	304
Queue Length 95th (ft)	64	166	m24	51	156	156	156	156	156	#454	#454	#454
Internal Link Dist (ft)	302	302	137	137	641	641	641	641	641	567	567	567
Turn Bay Length (ft)	181	181	121	121	1045	1045	1045	1045	1045	985	985	985
Base Capacity (vph)	487	2029	305	1647	1045	1045	1045	1045	1045	985	985	985
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.69	0.17	0.28	0.50	0.50	0.50	0.50	0.50	0.98	0.98	0.98



2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2021 Background - PM  
3005: Bowen & Cedar Springs & Turtle Creek

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	7.5	19.0	7.5	19.0	19.0	23.0	23.0	23.0	23.0	8.0	23.0	23.0
Total Split (s)	17.0	36.0	17.0	36.0	17.0%	36.0%	29.0%	29.0%	29.0%	18.0%	47.0%	47.0%
Total Split (%)	17.0%	36.0%	17.0%	36.0%	17.0%	36.0%	29.0%	29.0%	29.0%	18.0%	47.0%	47.0%
Maximum Green (s)	12.5	31.0	12.5	31.0	24.0	24.0	24.0	24.0	24.0	14.0	42.0	42.0
Yellow Time (s)	3.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	3.5	4.0	4.0
All-Red Time (s)	1.5	1.0	1.5	1.0	1.0	1.0	1.0	1.0	1.0	0.5	1.0	1.0
Lost Time Adjust (s)	-0.5	-1.0	-0.5	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	2.0	2.0
Recall Mode	None	C-Max	None	C-Max	Min	Min	Min	Min	Min	None	Min	Min
Walk Time (s)	8.0	8.0	8.0	8.0	8.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Flash Dont Walk (s)	6.0	6.0	6.0	6.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	49.0	40.3	39.2	32.7	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0
Actuated g/C Ratio	0.49	0.40	0.39	0.33	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43
v/c Ratio	0.60	0.69	0.27	0.28	0.50	0.50	0.50	0.50	0.50	0.98	0.98	0.98
Control Delay	14.9	11.9	16.8	16.5	21.4	21.4	21.4	21.4	21.4	52.6	52.6	52.6
Queue Delay	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 Delay	14.9	11.9	16.8	16.5	21.4	21.4	21.4	21.4	21.4	52.6	52.6	52.6
LOS	B	B	B	B	B	C	C	C	C	D	D	D
Approach Delay	12.4	12.4	16.6	16.6	21.4	21.4	21.4	21.4	21.4	52.6	52.6	52.6
Approach LOS	B	B	B	B	C	C	C	C	C	D	D	D
Queue Length 50th (ft)	25	147	13	70	117	117	117	117	117	304	304	304
Queue Length 95th (ft)	64	166	m24	51	156	156	156	156	156	#454	#454	#454
Internal Link Dist (ft)	302	302	137	137	641	641	641	641	641	567	567	567
Turn Bay Length (ft)	181	181	121	121	1045	1045	1045	1045	1045	985	985	985
Base Capacity (vph)	487	2029	305	1647	1045	1045	1045	1045	1045	985	985	985
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.69	0.17	0.28	0.50	0.50	0.50	0.50	0.50	0.98	0.98	0.98



2999 Turtle Creek TIA  
 HCM 2010 TWSC

2021 Background - PM  
 170: Turtle Creek & Gillespie

2999 Turtle Creek TIA  
 HCM 2010 TWSC

2021 Background - PM  
 171: Gillespie & Sale

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4	4	4	4	4	4	0	0	0	25	33	57
Traffic Vol, veh/h	19	422	114	0	339	57	0	0	0	25	33	57
Future Vol, veh/h	19	422	114	0	339	57	0	0	0	25	33	57
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Yeh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	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	21	459	124	0	368	62	0	0	0	27	36	62

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	430	0	0
Stage 1	399	399	961
Stage 2	562	624	1023
Critical Hdwy	4.12	-	6.42
Critical Hdwy Stg 1	-	-	6.52
Critical Hdwy Stg 2	-	-	6.22
Follow-up Hdwy	2.218	-	5.42
Pd Cap-1 Maneuver	1129	-	5.52
Stage 1	284	236	3,518
Stage 2	678	602	4,018
Platoon blocked, %	-	-	284
Mov Cap-1 Maneuver	1129	-	651
Mov Cap-2 Maneuver	-	-	571
Stage 1	276	0	478
Stage 2	678	0	651
Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	15.7
HCM LOS	C	C	C

Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Capacity (veh/h)	1129	-	-	-	-	-	-	-	-	460	-	-
HCM Lane V/C Ratio	0.018	-	-	-	-	-	-	-	-	0.272	-	-
HCM Control Delay (s)	8.2	0	-	-	-	-	-	-	-	15.7	-	-
HCM Lane LOS	A	A	-	-	-	-	-	-	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-	-	-	-	-	-	1.1	-	-

Intersection												
Int Delay, s/veh	5.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4	4	4	4	4	4	0	0	0	22	46	23
Traffic Vol, veh/h	43	43	22	6	23	14	12	82	23	22	46	23
Future Vol, veh/h	43	43	22	6	23	14	12	82	23	22	46	23
Conflicting Peds, #/hr	4	0	1	1	0	4	11	0	3	3	0	11
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Yeh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	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	47	47	24	7	25	15	13	89	25	24	50	25

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	273	264	75	278
Stage 1	121	121	131	131
Stage 2	152	143	147	134
Critical Hdwy	7.12	6.52	6.22	7.12
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	3.518	4.018	3.518	4.018
Pd Cap-1 Maneuver	679	641	986	674
Stage 1	883	796	873	788
Stage 2	850	779	856	785
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	627	617	976	605
Mov Cap-2 Maneuver	627	617	605	616
Stage 1	867	775	863	779
Stage 2	799	770	771	765
Approach	EB	WB	NB	SB
HCM Control Delay, s	11.5	10.6	0.8	1.8
HCM LOS	B	B	B	B

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Capacity (veh/h)	1509	-	-	672	692	1466	-	-	-	-	-	-
HCM Lane V/C Ratio	0.009	-	-	0.175	0.068	0.016	-	-	-	-	-	-
HCM Control Delay (s)	7.4	0	-	11.5	10.6	7.5	0	-	-	-	-	-
HCM Lane LOS	A	A	-	B	B	A	A	-	-	-	-	-
HCM 95th %tile Q(veh)	0	-	-	0.6	0.2	0.1	-	-	-	-	-	-

Intersection										
Int Delay, s/veh	0.5									
Movement	EBL	EBT	WBT	WBR	SBL	SBR				
Lane Configurations	T	T	T	T	T	T				
Traffic Vol, veh/h	24	1476	532	25	42	28				
Future Vol, veh/h	24	1476	532	25	42	28				
Conflicting Peds, #/hr	10	0	0	10	0	0				
Sign Control	Free	Free	Free	Free	Stop	Stop				
RT Channelized	-	None	-	None	-	None				
Storage Length	100	-	-	-	0	-				
Yeh in Median Storage, #	-	0	0	-	1	-				
Grade, %	-	0	0	-	0	-				
Peak Hour Factor	92	92	92	92	92	92				
Heavy Vehicles, %	2	2	2	2	2	2				
Mvmt Flow	26	1604	578	27	46	30				
Major/Minor	Major1	Minor2	Major2	Minor1	Major1	Minor2				
Conflicting Flow All	615	0	-	0	1296	313				
Stage 1	-	-	-	-	602	-				
Stage 2	-	-	-	-	694	-				
Critical Hdwy	5.34	-	-	-	5.74	7.14				
Critical Hdwy Stg 1	-	-	-	-	6.64	-				
Critical Hdwy Stg 2	-	-	-	-	6.04	-				
Follow-up Hdwy	3.12	-	-	-	3.82	3.92				
Pd Cap-1 Maneuver	943	-	-	-	*579	*803				
Stage 1	-	-	-	-	*772	-				
Stage 2	-	-	-	-	*580	-				
Platoon blocked, %	1	-	-	-	1	1				
Mov Cap-1 Maneuver	943	-	-	-	*553	*797				
Mov Cap-2 Maneuver	-	-	-	-	*510	-				
Stage 1	-	-	-	-	*765	-				
Stage 2	-	-	-	-	*559	-				
Approach	EB	WB	WB	SB	SB					
HCM Control Delay, s	0.1	0	0	11.9	11.9					
HCM LOS	B	B	B	B	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBL	SBR				
Capacity (veh/h)	943	-	-	-	-	596				
HCM Lane V/C Ratio	0.028	-	-	-	-	0.128				
HCM Control Delay (\$)	8.9	-	-	-	-	11.9				
HCM Lane LOS	A	-	-	-	-	B				
HCM 95th %tile Q(veh)	0.1	-	-	-	-	0.4				

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

Intersection											
Int Delay, s/veh	6.5										
Movement	EBL	EBT	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBR	
Lane Configurations	4	61	10	15	41	9	10	22	13	28	
Traffic Vol, veh/h	4	61	10	15	41	9	10	22	13	28	
Future Vol, veh/h	5	0	12	12	0	5	8	0	19	19	
Conflicting Peds, #/hr	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	
Sign Control	-	None	-	None	-	None	-	None	-	None	
RT Channelized	-	-	-	-	-	-	-	-	-	-	
Storage Length	-	-	-	-	-	-	-	-	-	-	
Yeh in Median Storage, #	-	0	-	0	-	0	-	0	-	0	
Grade, %	-	0	-	0	-	0	-	0	-	0	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	
Mvmt Flow	4	66	11	16	45	10	11	24	14	30	
65	7										
Major/Minor	Minor2	Minor1	Major1	Major2							
Conflicting Flow All	222	216	88	252	213	55	80	0	57	0	
Stage 1	137	137	-	72	72	-	-	-	-	-	
Stage 2	85	79	-	180	141	-	-	-	-	-	
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	4.12	-	
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	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	2.218	-	
Pd Cap-1 Maneuver	734	682	970	701	684	1012	1518	-	1547	-	
Stage 1	866	783	-	938	835	-	-	-	-	-	
Stage 2	923	829	-	822	780	-	-	-	-	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	667	649	954	610	651	992	1503	-	1541	-	
Mov Cap-2 Maneuver	667	649	-	610	651	-	-	-	-	-	
Stage 1	854	762	-	917	816	-	-	-	-	-	
Stage 2	854	810	-	720	759	-	-	-	-	-	
Approach	EB	WB	WB	NB	NB	SB	SB				
HCM Control Delay, s	11	11	11	1.6	1.6	2.2	2.2				
HCM LOS	B	B	B	B	B	B	B				
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL	EBT	WBL	WBR	SBL	SBR		
Capacity (veh/h)	1503	-	-	679	673	1541	-	-	-		
HCM Lane V/C Ratio	0.007	-	-	0.12	0.105	0.02	-	-	-		
HCM Control Delay (\$)	7.4	0	-	11	11	7.4	0	-	-		
HCM Lane LOS	A	A	-	B	B	A	A	-	-		
HCM 95th %tile Q(veh)	0	-	-	0.4	0.4	0.1	-	-	-		

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

Intersection													
Int Delay, s/veh													3.9
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SBR
Lane Configurations	↔			↔			↔			↔			↔
Traffic Vol, veh/h	30	3	46	1	5	7	53	629	15	30	819	54	54
Future Vol, veh/h	30	3	46	1	5	7	53	629	15	30	819	54	54
Conflicting Peds, #/hr	1	0	8	8	0	1	5	0	13	13	0	5	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	None	-	-	None	-	-	None	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	-
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	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	33	3	50	1	5	8	58	684	16	33	890	59	59
Major/Minor	Minor2	Minor1	Major1	Major2									
Conflicting Flow All	1451	1818	487	1340	1839	364	954	0	0	713	0	0	0
Stage 1	990	990	-	820	820	-	-	-	-	-	-	-	-
Stage 2	461	828	-	520	1019	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-	-
Pd Cap-1 Maneuver	*92	77	526	111	75	*824	716	-	-	*1232	-	-	-
Stage 1	*264	323	-	650	596	-	-	-	-	-	-	-	-
Stage 2	*777	590	-	507	313	-	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	*73	62	520	81	60	*814	711	-	-	*1231	-	-	-
Mov Cap-2 Maneuver	*73	62	-	81	60	-	-	-	-	-	-	-	-
Stage 1	*228	303	-	557	511	-	-	-	-	-	-	-	-
Stage 2	*659	506	-	425	294	-	-	-	-	-	-	-	-
Approach	EB	EB	WB	WB	NB	NB	SB	SB					
HCM Control Delay, s	61.5	61.5	37.4	37.4	1.3	1.3	0.4	0.4					
HCM LOS	F	F	E	E									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL	EBT	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SBR
Capacity (veh/h)	711	-	-	144	125	*1231	-	-	-	-	-	-	-
HCM Lane V/C Ratio	0.081	-	-	0.596	0.113	0.026	-	-	-	-	-	-	-
HCM Control Delay (s)	10.5	0.6	-	61.5	37.4	8	0.2	-	-	-	-	-	-
HCM Lane LOS	B	A	-	F	E	A	A	-	-	-	-	-	-
HCM 95th %tile Q(veh)	0.3	-	-	3.1	0.4	0.1	-	-	-	-	-	-	-
Notes	-												
\$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon													



## Synchro™ Output - 2021 Background Plus Site Traffic

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2996: DW opp. Turtle Creek/Turtle Creek & Cedar Springs #2 #19 #22/Cedar Springs

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2996: DW opp. Turtle Creek/Turtle Creek & Cedar Springs #2 #19 #22/Cedar Springs

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1	1	1	1	1	1	1	1	1	1	1
Traffic Volume (vph)	195	423	41	25	823	400	7	4	5	144	27	0
Future Volume (vph)	195	423	41	25	823	400	7	4	5	144	27	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0	75	0	0	0	0	0	0	100	100	100
Storage Lanes	1	0	1	1	1	1	1	1	1	1	1	1
Taper Length (ft)	25	55	0	0	0	0	0	0	0	0	0	0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	1.00	1.00	1.00	1.00	0.97	0.97	0.99	0.99	1.00	1.00	1.00	1.00
Flt	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988
Flt Protected	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Satd. Flow (prot)	1770	5012	0	1770	3539	1583	1770	1612	0	1681	1745	0
Flt Permitted	0.271	0.419	0.419	0.419	0.419	0.419	0.419	0.419	0.419	0.419	0.419	0.419
Satd. Flow (perm)	503	5012	0	777	3539	1529	1770	1612	0	1679	1744	0
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Satd. Flow (RTOR)	17	30	30	30	30	30	30	30	30	30	30	30
Link Speed (mph)	458	458	458	458	458	458	458	458	458	458	458	458
Link Distance (ft)	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4
Travel Time (s)	6	3	3	3	3	3	3	3	3	3	3	3
Conf. Peds. (#/hr)	0.70	0.89	1.00	1.00	0.89	0.92	1.00	1.00	0.25	0.78	0.25	0.69
Peak Hour Factor	279	475	41	25	925	435	7	4	20	185	108	0
Adj. Flow (vph)	279	475	41	25	925	435	7	4	20	185	108	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	279	516	0	25	925	435	7	24	0	144	149	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	Right
Median Width(ft)	12	12	12	12	12	12	12	12	12	12	12	12
Link Offset(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk Width(ft)	16	16	16	16	16	16	16	16	16	16	16	16
Two way Left Turn Lane	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Headway Factor	15	15	9	15	15	15	15	15	9	15	15	9
Turning Speed (mph)	1	1	1	1	1	1	1	1	1	1	1	1
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template	Left	Left	Left	Left	Left	Left	Left	Left	Left	Left	Left	Left
Leading Detector (ft)	50	50	20	50	50	20	100	100	50	100	100	100
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	50	50	20	50	50	20	6	6	50	6	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (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
Detector 1 Queue (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
Detector 1 Delay (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
Detector 2 Position(ft)												
Detector 2 Size(ft)												
Detector 2 Type												
Detector 2 Channel												
Detector 2 Extend (s)												
Turn Type	p+m+pt	NA	p+m+pt	NA	Perm	Split	NA	Split	NA	Split	NA	NA

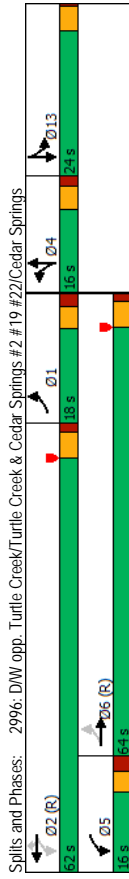
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	1	6	5	2	4	4	4	4	4	13	13	13
Permitted Phases	6	6	5	2	2	2	2	2	2	13	13	13
Detector Phase	1	6	5	2	2	2	2	2	2	13	13	13
Switch Phase												
Minimum Initial (s)	3.0	12.0	3.0	12.0	12.0	12.0	6.0	6.0	6.0	4.0	4.0	4.0
Minimum (s)	8.0	21.8	8.0	29.9	29.9	30.6	30.6	30.6	30.6	8.0	8.0	8.0
Total Spill (s)	18.0	64.0	16.0	62.0	62.0	16.0	16.0	16.0	16.0	24.0	24.0	24.0
Total Spill (%)	15.0%	53.3%	13.3%	51.7%	51.7%	13.3%	13.3%	13.3%	13.3%	20.0%	20.0%	20.0%
Maximum Green (s)	13.0	59.2	11.0	57.1	57.1	11.4	11.4	11.4	11.4	20.0	20.0	20.0
Yellow Time (s)	3.0	3.6	3.0	3.6	3.6	3.2	3.2	3.2	3.2	3.5	3.5	3.5
All-Red Time (s)	2.0	1.2	2.0	1.3	1.3	1.4	1.4	1.4	1.4	0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	-0.8	-1.0	-0.9	-0.9	-0.6	-0.6	-0.6	-0.6	-0.8	-0.8	-0.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.2	3.2	3.2
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	0.3	3.0	0.3	3.0	3.0	2.5	2.5	2.5	2.5	3.0	3.0	3.0
Recall Mode	None	C-Max	None	C-Max	C-Max	None	None	None	None	None	None	None
Walk Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Flash Don't Walk (s)	13.0	13.0	21.0	21.0	21.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	84.3	84.3	71.7	71.7	71.7	7.0	7.0	7.0	7.0	16.3	16.3	16.3
Actuated g/C Ratio	0.70	0.70	0.60	0.60	0.60	0.06	0.06	0.06	0.06	0.14	0.14	0.14
v/c Ratio	0.56	0.15	0.05	0.44	0.40	0.07	0.21	0.21	0.21	0.63	0.63	0.63
Control Delay	23.5	7.6	9.5	11.5	11.5	54.4	28.9	28.9	28.9	60.8	60.3	60.3
Queue Delay	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 Delay	23.5	7.6	9.5	11.5	11.5	54.4	28.9	28.9	28.9	60.8	60.3	60.3
LOS	C	A	A	B	A	D	C	C	C	E	E	E
Approach Delay	13.2	13.2	8.9	8.9	8.9	34.7	34.7	34.7	34.7	60.5	60.5	60.5
Approach LOS	B	B	A	A	A	C	C	C	C	E	E	E
Queue Length 50th (ft)	84	51	8	168	64	5	3	3	3	112	115	115
Queue Length 95th (ft)	114	82	m18	332	m95	21	31	31	31	149	149	149
Internal Link Dist (ft)	378	378	259	259	259	66	66	66	66	80	80	80
Turn Bay Length (ft)	160	160	75	75	75	100	100	100	100	100	100	100
Base Capacity (vph)	500	3524	563	2115	1088	177	179	179	179	295	306	306
Stallion Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.15	0.04	0.44	0.40	0.13	0.13	0.13	0.13	0.49	0.49	0.49
Intersection Summary												
Arc Type:	Other											
Cycle Length:	120											
Actuated Cycle Length:	120											
Offset:	70 (58%), Referenced to phase 2:WBTl and 6:EBTL, Start of Yellow											
Natural Cycle:	90											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	0.63											
Intersection Signal Delay:	16.6											
Intersection Capacity Utilization:	54.9%											
ICU Level of Service:	A											



2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2021 Background plus Site - AM  
3005: Bowen & Cedar Springs & Turtle Creek

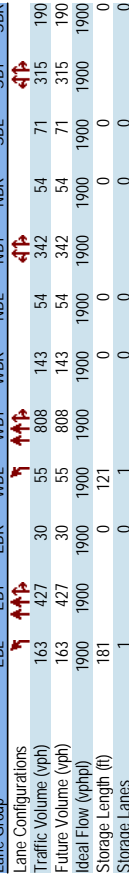
Analysis Period (min) 15  
Volume for 95th percentile queue is metered by upstream signal.



2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2021 Background plus Site - AM  
3005: Bowen & Cedar Springs & Turtle Creek

Analysis Period (min) 15  
Volume for 95th percentile queue is metered by upstream signal.

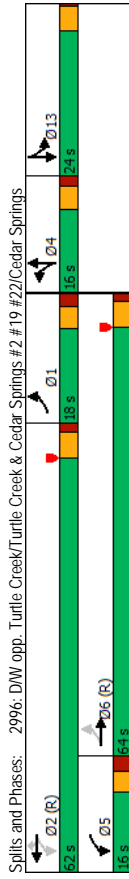


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑
Traffic Volume (vph)	163	427	30	55	808	143	54	342	54	71	315	190
Future Volume (vph)	163	427	30	55	808	143	54	342	54	71	315	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	181	0	121	0	0	0	0	0	0	0	0	0
Storage Lanes	1	0	1	0	0	0	0	0	0	0	0	0
Taper Length (ft)	25	0	25	0	0	25	0	0	0	25	0	0
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99
Flt Protected	0.950	0.950	0.950	0.974	0.974	0.980	0.980	0.980	0.980	0.945	0.994	0.994
Satd. Flow (prot)	1770	5026	0	1770	4941	0	0	3436	0	0	3298	0
Flt Permitted	0.159	0.452	0.452	0.630	0.630	0.630	0.630	0.630	0.630	0.687	0.687	0.687
Satd. Flow (perm)	296	5026	0	837	4941	0	0	2179	0	0	2279	0
Right Turn on Red		Yes		Yes		Yes		Yes		Yes		Yes
Satd. Flow (RTOR)	14	48	48	13	13	13	13	13	13	103	103	103
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	30
Link Distance (ft)	398	217	217	721	721	721	721	721	721	644	644	644
Travel Time (s)	9.0	4.9	4.9	16.4	16.4	16.4	16.4	16.4	16.4	14.6	14.6	14.6
Confl. Peds. (#/hr)	1	5	5	1	1	1	5	3	3	3	3	5
Peak Hour Factor	0.77	0.89	0.85	0.60	0.91	0.78	0.64	0.86	0.73	0.84	0.96	0.79
Adj. Flow (vph)	212	480	35	92	888	183	84	398	74	85	328	241
Shared Lane Traffic (%)												
Lane Group Flow (vph)	212	515	0	92	1071	0	0	556	0	0	654	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	12	12	12	12	12	12	12	12	12	12	12	12
Link Offset(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk Width(ft)	16	16	16	16	16	16	16	16	16	16	16	16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	1	1	1	1	1	1	1	1	1
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50	50	50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (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
Detector 1 Queue (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
Detector 1 Delay (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
Turn Type	pm+pt	NA	pm+pt	NA	Perim	NA	Perim	NA	NA	pm+pt	NA	NA
Protected Phases	1	6	5	2	4	4	4	4	4	3	8	8
Permitted Phases	6	2	2	2	4	4	4	4	4	3	8	8
Detector Phase	1	6	5	2	4	4	4	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	3.0	12.0	3.0	12.0	10.0	10.0	10.0	10.0	10.0	4.0	10.0	10.0

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2021 Background plus Site - AM  
3006: DW opp. Turtle Creek/Turtle Creek & Cedar Springs #2 #19 #22/Cedar Springs

Analysis Period (min) 15  
Volume for 95th percentile queue is metered by upstream signal.



2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2021 Background plus Site - AM  
3005: Bowen & Cedar Springs & Turtle Creek

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	7.5	19.0	7.5	19.0	19.0	19.0	23.0	23.0	23.0	8.0	23.0	23.0
Total Split (s)	20.0	64.0	14.0	58.0	11.7%	48.3%	29.0	29.0	24.2%	13.0	42.0	42.0
Total Split (%)	16.7%	53.3%	11.7%	48.3%	24.2%	24.2%	10.8%	10.8%	35.0%	10.8%	35.0%	35.0%
Maximum Green (s)	15.5	59.0	9.5	53.0	24.0	24.0	24.0	24.0	24.0	9.0	37.0	37.0
Yellow Time (s)	3.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	3.5	4.0	4.0
All-Red Time (s)	1.5	1.0	1.5	1.0	1.0	1.0	1.0	1.0	1.0	0.5	1.0	1.0
Lost Time Adjust (s)	-0.5	-1.0	-0.5	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	2.0	2.0
Recall Mode	None	C-Max	None	C-Max	Max	Max	Max	Max	Max	None	Max	Max
Walk Time (s)	8.0	8.0	8.0	8.0	8.0	8.0	4.0	4.0	4.0	4.0	4.0	4.0
Flash Dont Walk (s)	6.0	6.0	6.0	6.0	6.0	6.0	14.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	60.0	60.0	57.1	57.1	57.1	57.1	38.0	38.0	38.0	38.0	38.0	38.0
Actuated g/C Ratio	0.50	0.50	0.48	0.48	0.48	0.48	0.32	0.32	0.32	0.32	0.32	0.32
v/c Ratio	0.70	0.20	0.19	0.45	0.80	0.80	0.80	0.80	0.80	0.83	0.83	0.83
Control Delay	37.1	16.8	10.1	10.0	42.9	42.9	42.9	42.9	42.9	43.2	43.2	43.2
Queue Delay	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 Delay	37.1	16.8	10.1	10.0	42.9	42.9	42.9	42.9	42.9	43.2	43.2	43.2
LOS	D	B	B	B	B	B	D	D	D	D	D	D
Approach Delay	22.7	10.0	10.0	10.0	10.0	10.0	42.9	42.9	42.9	43.2	43.2	43.2
Approach LOS	C	B	B	B	B	B	D	D	D	D	D	D
Queue Length 50th (ft)	113	80	23	126	182	182	182	182	182	218	218	218
Queue Length 95th (ft)	153	115	19	154	224	224	224	224	224	#286	#286	#286
Internal Link Dist (ft)	318	318	137	137	137	137	641	641	641	564	564	564
Turn Bay Length (ft)	181	121	121	121	121	121	698	698	698	792	792	792
Base Capacity (vph)	344	2520	476	2377	2377	2377	698	698	698	792	792	792
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.20	0.19	0.45	0.80	0.80	0.80	0.80	0.80	0.83	0.83	0.83

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2021 Background plus Site - AM  
3005: Bowen & Cedar Springs & Turtle Creek



2999 Turtle Creek TIA  
HCM 2010 TWSC

2021 Background plus Site - AM  
11: Dickason & Drive 1

Intersection									
Int Delay, s/veh	2.9								
Movement	EBL	EBR	NBL	NBT	SBT	SBR			
Lane Configurations	3	38	30	44	81	9	4		
Traffic Vol, veh/h	3	38	30	44	81	9	4		
Future Vol, veh/h	3	38	30	44	81	9	4		
Conflicting Peds, #/hr	0	0	0	0	0	0	0		
Sign Control	Stop	Stop	Free	Free	Free	Free	None		
RT Channelized	-	None	-	None	-	None	-		
Storage Length	0	-	-	-	-	-	-		
Yeh in Median Storage, #	0	-	-	0	0	-	-		
Grade, %	0	-	-	0	0	-	-		
Peak Hour Factor	92	92	92	92	92	92	92		
Heavy Vehicles, %	2	2	2	2	2	2	2		
Mvmt Flow	3	41	33	48	88	10	-		

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	207	93	98
Stage 1	93	-	-
Stage 2	114	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pd Cap-1 Maneuver	781	964	1495
Stage 1	931	-	-
Stage 2	911	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	763	964	1495
Mov Cap-2 Maneuver	763	-	-
Stage 1	910	-	-
Stage 2	911	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9	3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBL1	SBT	SBR
Capacity (veh/h)	1495	-	946	-	-
HCM Lane V/C Ratio	0.022	-	0.047	-	-
HCM Control Delay (s)	7.5	0	9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

2999 Turtle Creek TIA  
HCM 2010 TWSC

2021 Background plus Site - AM  
12: Dickason & Drive 2

Intersection									
Int Delay, s/veh	1.1								
Movement	EBL	EBR	NBL	NBT	SBT	SBR			
Lane Configurations	3	9	9	49	85	3	4		
Traffic Vol, veh/h	3	9	9	49	85	3	4		
Future Vol, veh/h	3	9	9	49	85	3	4		
Conflicting Peds, #/hr	0	0	0	0	0	0	0		
Sign Control	Stop	Stop	Free	Free	Free	Free	None		
RT Channelized	-	None	-	None	-	None	-		
Storage Length	0	-	-	-	-	-	-		
Yeh in Median Storage, #	0	-	-	0	0	-	-		
Grade, %	0	-	-	0	0	-	-		
Peak Hour Factor	92	92	92	92	92	92	92		
Heavy Vehicles, %	2	2	2	2	2	2	2		
Mvmt Flow	3	10	10	53	92	3	-		

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	167	94	95
Stage 1	94	-	-
Stage 2	73	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pd Cap-1 Maneuver	823	963	1499
Stage 1	930	-	-
Stage 2	950	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	817	963	1499
Mov Cap-2 Maneuver	817	-	-
Stage 1	923	-	-
Stage 2	950	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9	1.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBL1	SBT	SBR
Capacity (veh/h)	1499	-	922	-	-
HCM Lane V/C Ratio	0.007	-	0.014	-	-
HCM Control Delay (s)	7.4	0	9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

2999 Turtle Creek TIA  
HCM 2010 TWSC

2021 Background plus Site - AM  
170: Turtle Creek & Gillespie

Intersection												
Int Delay, s/veh	0.6											
Movement	WBL	WBR	NBT	NBR	SBL	SBT						
Lane Configurations	↔	↔	↔	↔	↔	↔						
Traffic Vol, veh/h	6	3	72	6	3	98						
Future Vol, veh/h	6	3	72	6	3	98						
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	-	-	-	-	-						
Yeh 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	7	3	78	7	3	107						

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Vol, veh/h	33	152	34	0	496	91	0	0	0	15	46	15
Future Vol, veh/h	33	152	34	0	496	91	0	0	0	15	46	15
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	None	-	None	-	None	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Yeh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	-	0
Grade, %	-	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	36	165	37	0	539	99	0	0	0	16	50	16

Major/Minor	Minor1	Major1	Minor2	Major2
Conflicting Flow All	195	82	0	85
Stage 1	82	-	-	-
Stage 2	113	-	-	-
Critical Hdwy	6.42	6.22	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-
Follow-up Hdwy	3,518	3,318	-	2,218
Pd Cap-1 Maneuver	794	978	-	1,512
Stage 1	941	-	-	-
Stage 2	912	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	792	978	-	1,512
Mov Cap-2 Maneuver	792	-	-	-
Stage 1	939	-	-	-
Stage 2	912	-	-	-

Major/Minor	Major1	Minor1	Major2	Minor2
Conflicting Flow All	638	0	0	845
Stage 1	-	-	-	589
Stage 2	-	-	-	256
Critical Hdwy	4.12	-	-	6.42
Critical Hdwy Stg 1	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	5.52
Follow-up Hdwy	2,218	-	-	3,518
Pd Cap-1 Maneuver	946	-	0	333
Stage 1	-	-	0	292
Stage 2	-	-	0	508
Platoon blocked, %	-	-	0	787
Mov Cap-1 Maneuver	946	-	-	319
Mov Cap-2 Maneuver	-	-	-	0
Stage 1	-	-	-	530
Stage 2	-	-	-	787

Approach	WB	NB	SB
Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	16.6
HCM LOS	A		C

Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minor Lane/Major Mvmt	946	-	-	-	-	-	-	-	-	-	-	-
Capacity (veh/h)	0.038	-	-	-	-	-	-	-	-	-	-	-
HCM Lane V/C Ratio	9	0	-	-	-	-	-	-	-	-	-	-
HCM Control Delay (s)	A	A	A	A	A	A	A	A	A	A	A	A
HCM Lane LOS	0.1	-	-	-	-	-	-	-	-	-	-	-
HCM 95th %tile Q(veh)	0.8	-	-	-	-	-	-	-	-	-	-	-

2999 Turtle Creek TIA  
HCM 2010 TWSC

2021 Background plus Site - AM  
171: Gillespie & Sale

2999 Turtle Creek TIA  
HCM 2010 TWSC

2021 Background plus Site - AM  
172: Cedar Springs & Dickason

Intersection														
Int Delay, s/veh	5.5													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations	←		←		←		←		←		←			
Traffic Vol, veh/h	18	18	9	21	47	35	24	45	6	19	71	47		
Future Vol, veh/h	18	18	9	21	47	35	24	45	6	19	71	47		
Conflicting Peds, #/hr	10	3	3	0	10	9	0	5	5	0	9	0		
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free		
RT Channelized	-	-	-	-	-	-	-	-	-	-	-	-		
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-		
Yeh 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	20	20	10	23	51	38	26	49	7	21	71	51		
Major/Minor	Minor2	Minor1	Major1		Major2									
Conflicting Flow All	313	267	115	273	289	68	137	0	0	61	0	0		
Stage 1	154	154	-	110	110	-	-	-	-	-	-	-		
Stage 2	159	113	-	163	179	-	-	-	-	-	-	-		
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-		
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	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-		
Pd Cap-1 Maneuver	640	639	937	679	621	995	1447	-	-	1542	-	-		
Stage 1	848	710	-	895	804	-	-	-	-	-	-	-		
Stage 2	843	802	-	839	751	-	-	-	-	-	-	-		
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-		
Mov Cap-1 Maneuver	551	611	928	634	594	983	1436	-	-	1536	-	-		
Mov Cap-2 Maneuver	551	611	-	634	594	-	-	-	-	-	-	-		
Stage 1	826	753	-	874	786	-	-	-	-	-	-	-		
Stage 2	737	784	-	794	734	-	-	-	-	-	-	-		
Approach	EB	EB	WB	WB	NB	NB	SB	SB						
HCM Control Delay, s	11.2	11.2	11.2	11.2	2.4	2.4	1	1						
HCM LOS	B	B	B	B	B	B	B	B						
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR		
Capacity (veh/h)	1436	-	-	627	697	1536	-	-	-	-	-	-		
HCM Lane V/C Ratio	0.018	-	-	0.078	0.161	0.013	-	-	-	-	-	-		
HCM Control Delay (s)	7.6	0	-	11.2	11.2	7.4	0	-	-	-	-	-		
HCM Lane LOS	A	A	-	B	B	A	A	A	-	-	-	-		
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.6	0	-	-	-	-	-	-		

2999 Turtle Creek TIA  
HCM 2010 TWSC

2021 Background plus Site - AM  
173: Dickason & Sale

Intersection													
Int Delay, s/veh													
7.4													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Vol, veh/h	3	40	16	31	65	12	25	24	4	7	41	3	↔
Future Vol, veh/h	3	40	16	31	65	12	25	24	4	7	41	3	↔
Conflicting Peds, #/hr	4	0	9	9	0	4	2	0	9	9	0	2	↔
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	-	-	-	-	-	-	-	-	-	-	-
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	-
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	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	43	17	34	71	13	27	26	4	8	45	3	↔

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	193	158	58	193
Stage 1	65	65	91	91
Stage 2	128	93	102	66
Critical Hdwy	7.12	6.52	6.22	7.12
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	3.518	4.018	3.318	3.518
Pd Cap-1 Maneuver	767	734	1008	767
Stage 1	946	841	916	820
Stage 2	876	818	904	840
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	684	711	999	696
Mov Cap-2 Maneuver	684	711	696	711
Stage 1	927	835	893	800
Stage 2	772	798	832	834
Approach	EB	WB	NB	SB
HCM Control Delay, s	10.1	10.9	3.5	1
HCM LOS	B	B	B	B

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Capacity (veh/h)	1554	-	-	770	731	1559	-	-	-	-	-	-	-	-	-
HCM Lane V/C Ratio	0.017	-	-	0.083	0.161	0.005	-	-	-	-	-	-	-	-	-
HCM Control Delay (\$)	7.4	0	0	10.1	10.9	7.3	0	0	0	0	0	0	0	0	0
HCM Lane LOS	A	A	A	B	B	A	A	A	A	A	A	A	A	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.6	0	-	-	-	-	-	-	-	-	-

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

2999 Turtle Creek TIA  
HCM 2010 TWSC

2021 Background plus Site - AM  
174: Cedar Springs & Sale

Intersection													
Int Delay, s/veh													
2.8													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Vol, veh/h	51	4	45	0	1	5	36	616	4	9	579	42	↔
Future Vol, veh/h	51	4	45	0	1	5	36	616	4	9	579	42	↔
Conflicting Peds, #/hr	0	0	0	0	0	0	5	0	2	2	0	5	↔
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	-	-	-	-	-	-	-	-	-	-	-
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	-
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	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	55	4	49	0	1	5	39	670	4	10	629	46	↔

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	1091	1431	343	1089
Stage 1	677	677	752	752
Stage 2	414	754	337	700
Critical Hdwy	7.54	6.54	6.94	7.54
Critical Hdwy Stg 1	6.54	5.54	6.54	5.54
Critical Hdwy Stg 2	6.54	5.54	6.54	5.54
Follow-up Hdwy	3.52	4.02	3.32	3.52
Pd Cap-1 Maneuver	171	134	653	171
Stage 1	409	450	690	627
Stage 2	793	625	651	440
Platoon blocked, %	1	1	1	1
Mov Cap-1 Maneuver	158	123	650	144
Mov Cap-2 Maneuver	158	123	144	119
Stage 1	379	442	641	582
Stage 2	732	581	588	433
Approach	EB	WB	NB	SB
HCM Control Delay, s	32.6	13.7	0.8	0.1
HCM LOS	D	B	B	B

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Capacity (veh/h)	904	-	-	236	418	1250	-	-	-	-	-	-	-	-	-
HCM Lane V/C Ratio	0.043	-	-	0.461	0.016	0.008	-	-	-	-	-	-	-	-	-
HCM Control Delay (\$)	9.2	0.3	32.6	13.7	7.9	0	0	0	0	0	0	0	0	0	0
HCM Lane LOS	A	A	A	D	B	A	A	A	A	A	A	A	A	A	A
HCM 95th %tile Q(veh)	0.1	-	-	2.2	0	0	-	-	-	-	-	-	-	-	-

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

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2996: DW opp. Turtle Creek/Turtle Creek & Cedar Springs #2 #19 #22/Cedar Springs

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2996: DW opp. Turtle Creek/Turtle Creek & Cedar Springs #2 #19 #22/Cedar Springs

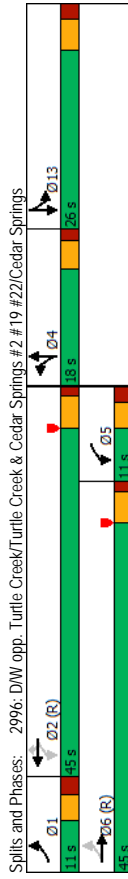
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑	↑	↑	↑↑	↑	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	93	958	7	39	518	178	33	27	24	459	5	0
Future Volume (vph)	93	958	7	39	518	178	33	27	24	459	5	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0	75	0	0	0	0	0	0	100	100	100
Storage Lanes	1	0	1	1	1	1	1	1	1	1	1	0
Taper Length (ft)	25	55	0	0	0	0	25	0	0	25	0	0
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	1.00	1.00	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt	0.996	0.996	0.996	0.950	0.850	0.950	0.954	0.954	0.954	0.950	0.953	0.953
Flt Protected	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.953	0.953
Satd. Flow (prot)	1770	5061	0	1770	3539	1583	1770	1769	0	1681	1686	0
Flt Permitted	0.318	0.226	0.226	0.226	0.226	0.226	0.226	0.226	0.226	0.226	0.226	0.226
Satd. Flow (perm)	590	5061	0	420	3539	1530	1770	1769	0	1678	1683	0
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Satd. Flow (RTOR)	4	4	0	4	4	4	4	4	4	4	4	4
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	30
Link Distance (ft)	458	458	458	458	458	458	458	458	458	458	458	458
Travel Time (s)	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4
Confl. Peds. (#/hr)	7	5	5	5	5	5	7	7	2	2	2	2
Peak Hour Factor	0.91	0.87	0.25	1.00	0.89	0.91	1.00	0.25	0.50	0.89	1.00	0.74
Adj. Flow (vph)	102	1101	28	39	582	196	33	108	48	516	5	0
Shared Lane Traffic (%)										50%		
Lane Group Flow (vph)	102	1129	0	39	582	196	33	156	0	258	263	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	Right
Median Width(ft)	12	12	12	12	12	12	12	12	12	12	12	12
Link Offset(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk Width(ft)	16	16	16	16	16	16	16	16	16	16	16	16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	15	9	15	15	9	15	15	9	15	15	9
Number of Detectors	1	1	1	1	1	1	1	1	2	1	2	2
Detector Template	Left	Left	Left	Left	Left	Left	Left	Left	Thru	Thru	Thru	Thru
Leading Detector (ft)	50	50	20	50	50	20	100	100	50	100	100	100
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	50	50	20	50	50	20	6	6	50	6	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (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
Detector 1 Queue (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
Detector 1 Delay (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
Detector 2 Position(ft)							94	94	94	94	94	94
Detector 2 Size(ft)							6	6	6	6	6	6
Detector 2 Type							Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)							0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	Split	Split	NA	Split	NA	NA

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	1	6	5	2	4	4	4	4	4	13	13	13
Permitted Phases	6	6	2	2	2	2	2	2	2	13	13	13
Detector Phase	1	6	5	2	4	4	4	4	4	13	13	13
Switch Phase												
Minimum Initial (s)	3.0	12.0	3.0	12.0	6.0	6.0	6.0	6.0	6.0	4.0	4.0	4.0
Minimum (s)	8.0	21.8	8.0	29.9	29.9	30.6	30.6	30.6	30.6	9.5	9.5	9.5
Minimum Split (s)	11.0	45.0	11.0	45.0	18.0	18.0	18.0	18.0	18.0	26.0	26.0	26.0
Total Spill (%)	11.0%	45.0%	11.0%	45.0%	18.0%	18.0%	18.0%	18.0%	18.0%	26.0%	26.0%	26.0%
Total Spill (%)	11.0%	45.0%	11.0%	45.0%	18.0%	18.0%	18.0%	18.0%	18.0%	26.0%	26.0%	26.0%
Maximum Green (s)	6.0	40.2	6.0	40.1	13.4	13.4	13.4	13.4	13.4	20.5	20.5	20.5
Yellow Time (s)	3.0	3.6	3.0	3.6	3.2	3.2	3.2	3.2	3.2	3.6	3.6	3.6
All-Red Time (s)	2.0	1.2	2.0	1.3	1.3	1.4	1.4	1.4	1.4	1.9	1.9	1.9
Lost Time Adjust (s)	-1.0	-0.8	-1.0	-0.9	-0.9	-0.6	-0.6	-0.6	-0.6	-0.8	-0.8	-0.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.7	4.7	4.7
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	0.3	3.0	0.3	3.0	2.5	2.5	2.5	2.5	2.5	3.0	3.0	3.0
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None	None	None
Walk Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Flash Dont Walk (s)	13.0	13.0	21.0	21.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	49.0	49.0	47.1	47.1	12.0	12.0	12.0	12.0	12.0	19.7	19.7	19.7
Actuated g/C Ratio	0.49	0.49	0.47	0.47	0.12	0.12	0.12	0.12	0.12	0.20	0.20	0.20
v/c Ratio	0.28	0.45	0.14	0.35	0.24	0.16	0.68	0.78	0.79	0.78	0.79	0.79
Control Delay	14.5	17.0	17.8	16.0	2.5	40.1	52.0	52.0	52.0	55.1	56.2	56.2
Queue Delay	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 Delay	14.5	17.0	17.8	16.0	2.5	40.1	52.0	52.0	52.0	55.1	56.2	56.2
LOS	B	B	B	B	A	D	D	D	D	E	E	E
Approach Delay	16.8	16.8	12.8	12.8	49.9	49.9	49.9	49.9	49.9	55.6	55.6	55.6
Approach LOS	B	B	B	B	D	D	D	D	D	E	E	E
Queue Length 50th (ft)	46	218	13	106	2	19	83	83	83	160	164	164
Queue Length 95th (ft)	m61	254	m26	m128	m20	47	29	29	29	#269	#283	#283
Internal Link Dist (ft)	378	378	276	276	66	66	66	66	66	93	93	93
Turn Bay Length (ft)	160	160	75	75	100	100	100	100	100	100	100	100
Base Capacity (vph)	371	2483	292	1668	824	247	264	264	264	361	362	362
Stantion Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.45	0.13	0.35	0.24	0.13	0.59	0.59	0.59	0.71	0.73	0.73
Intersection Summary												
Arc Type:	Other											
Cycle Length:	100											
Actual Cycle Length:	100											
Offset:	88 (88%), Referenced to phase 2:WBTl and 6:EBTL, Start of Yellow											
Natural Cycle:	90											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	0.79											
Intersection Signal Delay:	25.2											
Intersection Capacity Utilization:	56.1%											
ICU Level of Service:	B											

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2021 Background plus Site - PM  
3005: Bowen & Cedar Springs & Turtle Creek

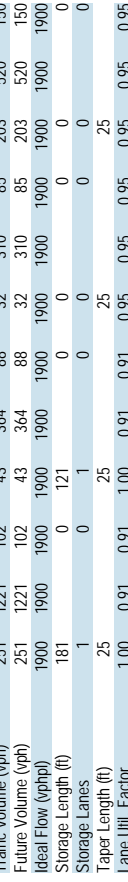
Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 m Queue shown is maximum after two cycles.  
 Volume for 95th percentile queue is metered by upstream signal.



2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2021 Background plus Site - PM  
3005: Bowen & Cedar Springs & Turtle Creek

Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 m Queue shown is maximum after two cycles.  
 Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	251	1221	102	43	364	88	32	310	85	203	520	150
Future Volume (vph)	251	1221	102	43	364	88	32	310	85	203	520	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	181	0	121	0	0	0	0	0	0	0	0	0
Storage Lanes	1	0	1	0	0	0	0	0	0	0	0	0
Taper Length (ft)	25	0	25	0	0	25	0	0	0	25	0	0
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.99	1.00	0.99	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt	0.988	0.988	0.988	0.969	0.969	0.969	0.969	0.969	0.969	0.969	0.969	0.969
Flt Protected	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Satd. Flow (prot)	1770	5014	0	1770	4894	0	0	3395	0	0	3393	0
Flt Permitted	0.372	0.128	0.128	0.128	0.128	0.128	0.128	0.128	0.128	0.128	0.128	0.128
Satd. Flow (perm)	686	5014	0	238	4894	0	0	2298	0	0	2248	0
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Satd. Flow (RTOR)	15	31	66	66	31	31	31	31	31	31	31	31
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	30
Link Distance (ft)	382	8.7	217	4.9	16.4	16.4	16.4	16.4	16.4	16.4	16.4	16.4
Travel Time (s)	10	6	6	6	6	6	6	6	6	6	6	6
Confl. Peds. (#/hr)	0.83	0.94	0.89	0.84	0.96	0.90	0.50	0.86	0.77	0.86	0.91	0.90
Peak Hour Factor	302	1299	115	51	379	98	64	360	110	236	571	167
Adj. Flow (vph)	302	1299	115	51	379	98	64	360	110	236	571	167
Shared Lane Traffic (%)												
Lane Group Flow (vph)	302	1414	0	51	477	0	0	534	0	0	974	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	12	12	12	12	12	12	12	12	12	12	12	12
Link Offset(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk Width(ft)	16	16	16	16	16	16	16	16	16	16	16	16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	9	15	15	9	15	15	9	15	15	9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50	50	50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (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
Detector 1 Queue (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
Detector 1 Delay (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
Turn Type	pm+pt	NA	pm+pt	NA	NA	NA	NA	NA	NA	pm+pt	NA	NA
Protected Phases	1	6	5	2	4	4	4	4	4	3	8	8
Permitted Phases	6	6	2	2	4	4	4	4	4	3	8	8
Detector Phase	1	6	5	2	4	4	4	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	3.0	12.0	3.0	12.0	3.0	12.0	10.0	10.0	10.0	4.0	10.0	10.0

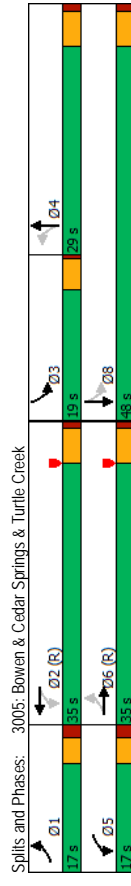


2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2021 Background plus Site - PM  
3005: Bowen & Cedar Springs & Turtle Creek

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Spill (s)	7.5	19.0	7.5	19.0	19.0	23.0	23.0	23.0	23.0	8.0	23.0	23.0
Total Spill (s)	17.0	35.0	17.0	35.0	17.0%	35.0%	29.0%	29.0%	29.0%	19.0%	48.0%	48.0%
Maximum Green (s)	12.5	30.0	12.5	30.0	17.0%	35.0%	29.0%	29.0%	29.0%	19.0%	48.0%	48.0%
Yellow Time (s)	3.0	4.0	3.0	4.0	3.0	4.0	4.0	4.0	4.0	3.5	4.0	4.0
All-Red Time (s)	1.5	1.0	1.5	1.0	1.5	1.0	1.0	1.0	1.0	0.5	1.0	1.0
Lost Time Adjust (s)	-0.5	-1.0	-0.5	-1.0	-0.5	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	2.0	2.0
Recall Mode	None	C-Max	None	C-Max	None	Min	Min	Min	Min	None	Min	Min
Walk Time (s)	8.0	8.0	8.0	8.0	8.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Flash Dont Walk (s)	6.0	6.0	6.0	6.0	6.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effic Green (s)	48.2	39.4	38.3	31.7	38.3	31.7	43.8	43.8	43.8	43.8	43.8	43.8
Actuated g/C Ratio	0.48	0.39	0.38	0.32	0.38	0.32	0.44	0.44	0.44	0.44	0.44	0.44
v/c Ratio	0.65	0.71	0.27	0.30	0.27	0.30	0.52	0.52	0.52	0.97	0.97	0.97
Control Delay	18.4	13.0	17.2	17.9	17.2	17.9	21.3	21.3	21.3	50.1	50.1	50.1
Queue Delay	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 Delay	18.4	13.0	17.2	17.9	17.2	17.9	21.3	21.3	21.3	50.1	50.1	50.1
LOS	B	B	B	B	B	B	C	C	C	D	D	D
Approach Delay	14.0	14.0	17.9	17.9	17.9	21.3	21.3	21.3	21.3	50.1	50.1	50.1
Approach LOS	B	B	B	B	B	B	C	C	C	D	D	D
Queue Length 50th (ft)	34	162	13	77	13	77	118	118	118	303	303	303
Queue Length 95th (ft)	89	183	m24	56	m24	56	158	158	158	#452	#452	#452
Internal Link Dist (ft)	302	302	137	137	137	641	641	641	641	567	567	567
Turn Bay Length (ft)	181	181	121	121	121	1024	1024	1024	1024	1006	1006	1006
Base Capacity (vph)	471	1985	305	1597	305	1597	1024	1024	1024	1006	1006	1006
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.71	0.17	0.30	0.17	0.30	0.52	0.52	0.52	0.97	0.97	0.97

Intersection Summary	
Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	87 (87%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle:	65
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.97
Intersection Signal Delay:	25.0
Intersection Capacity Utilization:	80.5%
Analysis Period (min):	15
#	95th percentile volume exceeds capacity, queue may be longer.
m	Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.



2999 Turtle Creek TIA  
HCM 2010 TWSC

2021 Background plus Site - PM  
11: Dickason & Drive 1

Intersection									
Int Delay, s/veh	2.9								
Movement	EBL	EBR	NBL	NBT	SBT	SBR			
Lane Configurations	3	40	39	60	80	12			
Traffic Vol, veh/h	3	40	39	60	80	12			
Future Vol, veh/h	3	40	39	60	80	12			
Conflicting Peds, #/hr	0	0	0	0	0	0			
Sign Control	Stop	Stop	Free	Free	Free	Free			
RT Channelized	-	None	-	None	-	None			
Storage Length	0	-	-	-	-	-			
Veh in Median Storage, #	0	-	-	0	0	-			
Grade, %	0	-	-	0	0	-			
Peak Hour Factor	92	92	92	92	92	92			
Heavy Vehicles, %	2	2	2	2	2	2			
Mvmt Flow	3	43	42	65	87	13			

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	243	94	100	0	-	0
Stage 1	94	-	-	-	-	-
Stage 2	149	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pd Cap-1 Maneuver	745	963	1493	-	-	-
Stage 1	930	-	-	-	-	-
Stage 2	879	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	723	963	1493	-	-	-
Mov Cap-2 Maneuver	723	-	-	-	-	-
Stage 1	903	-	-	-	-	-
Stage 2	879	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9	2.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLN1	SBT	SBR
Capacity (veh/h)	1493	-	941	-	-
HCM Lane V/C Ratio	0.028	-	0.05	-	-
HCM Control Delay (s)	7.5	0	9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

2999 Turtle Creek TIA  
HCM 2010 TWSC

2021 Background plus Site - PM  
12: Dickason & Drive 2

Intersection									
Int Delay, s/veh	1.2								
Movement	EBL	EBR	NBL	NBT	SBT	SBR			
Lane Configurations	3	10	12	48	98	4			
Traffic Vol, veh/h	3	10	12	48	98	4			
Future Vol, veh/h	3	10	12	48	98	4			
Conflicting Peds, #/hr	0	0	0	0	0	0			
Sign Control	Stop	Stop	Free	Free	Free	Free			
RT Channelized	-	None	-	None	-	None			
Storage Length	0	-	-	-	-	-			
Veh in Median Storage, #	0	-	-	0	0	-			
Grade, %	0	-	-	0	0	-			
Peak Hour Factor	92	92	92	92	92	92			
Heavy Vehicles, %	2	2	2	2	2	2			
Mvmt Flow	3	11	13	52	107	4			

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	187	109	111	0	-	0
Stage 1	109	-	-	-	-	-
Stage 2	78	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pd Cap-1 Maneuver	802	945	1479	-	-	-
Stage 1	916	-	-	-	-	-
Stage 2	945	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	795	945	1479	-	-	-
Mov Cap-2 Maneuver	795	-	-	-	-	-
Stage 1	908	-	-	-	-	-
Stage 2	945	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9	1.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLN1	SBT	SBR
Capacity (veh/h)	1479	-	906	-	-
HCM Lane V/C Ratio	0.009	-	0.016	-	-
HCM Control Delay (s)	7.5	0	9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

2999 Turtle Creek TIA  
 HCM 2010 TWSC

2021 Background plus Site - PM  
 13: Gillespie & Drive 3

Intersection												
Int Delay, s/veh	0.6											
Movement	WBL	WBR	NBT	NBR	SBL	SBT						
Lane Configurations	7	3	117	8	4	75	4					
Traffic Vol, veh/h	7	3	117	8	4	75						
Future Vol, veh/h	7	3	117	8	4	75						
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	-	-	-	-	-						
Yeh 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	8	3	127	9	4	82						

Major/Minor	Minor1	Major1	Minor2								
Conflicting Flow All	222	132	0	0	136	0					
Stage 1	132	-	-	-	-	-					
Stage 2	90	-	-	-	-	-					
Critical Hdwy	6.42	6.22	-	-	4.12	-					
Critical Hdwy Stg 1	5.42	-	-	-	-	-					
Critical Hdwy Stg 2	5.42	-	-	-	-	-					
Follow-up Hdwy	3,518	3,318	-	-	2,218	-					
Pd Cap-1 Maneuver	766	917	-	-	1,448	-					
Stage 1	894	-	-	-	-	-					
Stage 2	934	-	-	-	-	-					
Platoon blocked, %	-	-	-	-	-	-					
Mov Cap-1 Maneuver	764	917	-	-	1,448	-					
Mov Cap-2 Maneuver	764	-	-	-	-	-					
Stage 1	891	-	-	-	-	-					
Stage 2	934	-	-	-	-	-					

Approach	WB	NB	SB		
HCM Control Delay, s	9.5	0	0.4		
HCM LOS	A				

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT		
Capacity (veh/h)	-	-	804	1448	-		
HCM Lane V/C Ratio	-	-	0.014	0.003	-		
HCM Control Delay (s)	-	-	9.5	7.5	0		
HCM Lane LOS	-	-	A	A	A		
HCM 95th %tile Q(veh)	-	-	0	0	0		

2999 Turtle Creek TIA  
 HCM 2010 TWSC

2021 Background plus Site - PM  
 170: Turtle Creek & Gillespie

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBR	NBL	NBT	SBL	SBT	SBR		
Lane Configurations	23	422	114	0	339	61	0	0	25	36	60	
Traffic Vol, veh/h	23	422	114	0	339	61	0	0	25	36	60	
Future Vol, veh/h	23	422	114	0	339	61	0	0	25	36	60	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	
RT Channelized	-	None	-	None	-	None	-	None	-	None	-	
Storage Length	-	-	-	-	-	-	-	-	-	-	-	
Yeh 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	
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	
Mvmt Flow	25	459	124	0	368	66	0	0	27	39	65	

Major/Minor	Major1	Major2	Minor2									
Conflicting Flow All	434	0	0	-	-	0	972	1034	401			
Stage 1	-	-	-	-	-	-	401	401	-			
Stage 2	-	-	-	-	-	-	571	633	-			
Critical Hdwy	4.12	-	-	-	-	-	6.42	6.52	6.22			
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-			
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-			
Follow-up Hdwy	2,218	-	-	-	-	-	3,518	4,018	3,318			
Pd Cap-1 Maneuver	1126	-	-	-	-	-	280	232	649			
Stage 1	-	-	-	-	-	-	676	601	-			
Stage 2	-	-	-	-	-	-	565	473	-			
Platoon blocked, %	-	-	-	-	-	-	-	-	-			
Mov Cap-1 Maneuver	1126	-	-	-	-	-	270	0	649			
Mov Cap-2 Maneuver	-	-	-	-	-	-	270	0	-			
Stage 1	-	-	-	-	-	-	663	0	-			
Stage 2	-	-	-	-	-	-	565	0	-			

Approach	EB	WB	SB		
HCM Control Delay, s	0.3	0	16		
HCM LOS			C		

Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBR	SBLn1		
Capacity (veh/h)	1126	-	-	-	-	459		
HCM Lane V/C Ratio	0.022	-	-	-	-	0.287		
HCM Control Delay (s)	8.3	0	-	-	-	16		
HCM Lane LOS	A	A	-	-	-	C		
HCM 95th %tile Q(veh)	0.1	-	-	-	-	1.2		

2999 Turtle Creek TIA  
HCM 2010 TWSC

2021 Background plus Site - PM  
171: Gillespie & Sale

Intersection													
Int Delay, s/veh													
5.3													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	43	43	22	6	23	14	12	85	23	22	50	23	↕
Traffic Vol, veh/h	43	43	22	6	23	14	12	85	23	22	50	23	
Future Vol, veh/h	43	43	22	6	23	14	12	85	23	22	50	23	
Conflicting Peds, #/hr	4	0	1	0	1	0	4	11	0	3	3	0	11
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	-	-	-	-	-	-	-	-	-	-	-
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	-
Yeh 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	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	47	47	24	7	25	15	13	92	25	24	54	25	
Major/Minor	Minor2	Minor1	Minor1	Minor1	Minor1	Minor1	Major1	Major1	Major2	Major2	Major2	Major2	
Conflicting Flow All	281	272	79	285	272	112	90	0	120	0	0	0	
Stage 1	126	126	-	134	134	-	-	-	-	-	-	-	
Stage 2	155	146	-	151	138	-	-	-	-	-	-	-	
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	4.12	-	-	-	
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	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	2.218	-	-	-	
Pd Cap-1 Maneuver	671	635	981	667	635	941	1505	-	1468	-	-	-	
Stage 1	878	792	-	869	785	-	-	-	-	-	-	-	
Stage 2	847	776	-	851	782	-	-	-	-	-	-	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	619	612	971	599	612	936	1491	-	1464	-	-	-	
Mov Cap-2 Maneuver	619	612	-	599	612	-	-	-	-	-	-	-	
Stage 1	862	771	-	859	776	-	-	-	-	-	-	-	
Stage 2	796	767	-	766	762	-	-	-	-	-	-	-	
Approach	EB	WB	WB	NB	NB	SB	SB	SB	SB	SB	SB	SB	
HCM Control Delay, s	11.6	10.6	10.6	0.7	0.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	
HCM LOS	B	B	B	B	B	B	B	B	B	B	B	B	
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR	
Capacity (veh/h)	1491	-	-	665	687	1464	-	-	-	-	-	-	
HCM Lane V/C Ratio	0.009	-	-	0.177	0.068	0.016	-	-	-	-	-	-	
HCM Control Delay (s)	7.4	0	-	11.6	10.6	7.5	0	-	-	-	-	-	
HCM Lane LOS	A	A	-	B	B	A	A	A	A	A	A	A	
HCM 95th %tile Q(veh)	0	-	-	0.6	0.2	0.1	-	-	-	-	-	-	

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

2999 Turtle Creek TIA  
HCM 2010 TWSC

2021 Background plus Site - PM  
172: Cedar Springs & Dickason

Intersection													
Int Delay, s/veh													
0.9													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↕	↕	↕	↕	↕	↕	↕	↕	↕	↕	↕	↕	↕
Traffic Vol, veh/h	44	1476	532	56	76	45	44	1476	532	56	76	45	
Future Vol, veh/h	44	1476	532	56	76	45	44	1476	532	56	76	45	
Conflicting Peds, #/hr	10	0	0	10	0	0	10	0	0	10	0	0	
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	-	-	-	-	-	-	-	-	-	-	
Storage Length	100	-	-	-	-	-	-	-	-	-	-	-	
Yeh in Median Storage, #	-	0	0	-	0	-	-	0	-	-	0	-	
Grade, %	-	0	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	48	1604	578	61	83	49	48	1604	578	61	83	49	
Major/Minor	Major1	Major1	Major2	Major2	Major2	Major2	Minor1	Minor1	Minor2	Minor2	Minor2	Minor2	
Conflicting Flow All	649	0	-	0	1357	330	-	-	-	-	-	-	
Stage 1	-	-	-	-	-	619	-	-	-	-	-	-	
Stage 2	-	-	-	-	-	738	-	-	-	-	-	-	
Critical Hdwy	5.34	-	-	-	-	5.74	-	-	-	-	-	-	
Critical Hdwy Stg 1	-	-	-	-	-	6.64	-	-	-	-	-	-	
Critical Hdwy Stg 2	-	-	-	-	-	6.04	-	-	-	-	-	-	
Follow-up Hdwy	3.12	-	-	-	-	3.82	-	-	-	-	-	-	
Pd Cap-1 Maneuver	905	-	-	-	-	579	803	-	-	-	-	-	
Stage 1	-	-	-	-	-	753	-	-	-	-	-	-	
Stage 2	-	-	-	-	-	580	-	-	-	-	-	-	
Platoon blocked, %	1	-	-	-	-	1	-	-	-	-	-	-	
Mov Cap-1 Maneuver	898	-	-	-	-	539	797	-	-	-	-	-	
Mov Cap-2 Maneuver	-	-	-	-	-	480	-	-	-	-	-	-	
Stage 1	-	-	-	-	-	707	-	-	-	-	-	-	
Stage 2	-	-	-	-	-	575	-	-	-	-	-	-	
Approach	EB	WB	WB	SB	SB	SB	SB	SB	SB	SB	SB	SB	
HCM Control Delay, s	0.3	0	0	13.3	13.3	13.3	0	0	13.3	13.3	13.3	13.3	
HCM LOS	B	B	B	B	B	B	B	B	B	B	B	B	
Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR	SBL	SBT	SBR	
Capacity (veh/h)	898	-	-	-	-	-	-	-	-	-	-	-	
HCM Lane V/C Ratio	0.053	-	-	-	-	-	-	-	-	-	-	-	
HCM Control Delay (s)	9.2	-	-	-	-	-	-	-	-	-	-	-	
HCM Lane LOS	A	-	-	-	-	-	-	-	-	-	-	-	
HCM 95th %tile Q(veh)	0.2	-	-	-	-	-	-	-	-	-	-	-	

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

2999 Turtle Creek TIA  
HCM 2010 TWSC

2021 Background plus Site - PM  
173: Dickason & Sale

2999 Turtle Creek TIA  
HCM 2010 TWSC

2021 Background plus Site - PM  
174: Cedar Springs & Sale

Intersection													
Int Delay, s/veh													
6.6													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	SBL	SBR
Lane Configurations	4	61	10	27	41	9	10	25	16	28	64	6	6
Traffic Vol, veh/h	4	61	10	27	41	9	10	25	16	28	64	6	6
Future Vol, veh/h	5	0	12	12	0	5	8	0	19	19	0	8	8
Conflicting Peds, #/hr	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
Sign Control	-	-	-	-	-	-	-	-	-	-	-	-	-
RT Channelized	-	-	-	-	-	-	-	-	-	-	-	-	-
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	-
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	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	66	11	29	45	10	11	27	17	30	70	7	7

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	232	227	94	261
Stage 1	142	142	-	71
Stage 2	90	85	-	184
Critical Hdwy	7.12	6.52	6.22	7.12
Critical Hdwy Stg 1	6.12	5.52	-	6.12
Critical Hdwy Stg 2	6.12	5.52	-	6.12
Follow-up Hdwy	3.518	4.018	3.318	3.518
Pd Cap-1 Maneuver	723	672	963	692
Stage 1	861	779	-	932
Stage 2	917	824	-	818
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	656	638	947	600
Mov Cap-2 Maneuver	656	638	600	642
Stage 1	848	757	-	910
Stage 2	848	804	-	715

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.1	11.3	1.5	2.1
HCM LOS	B	B	B	B

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Capacity (veh/h)	1502	-	-	668	653	1516	-	-	-	-	-	-	-	-	-
HCM Lane V/C Ratio	0.007	-	-	0.122	0.128	0.02	-	-	-	-	-	-	-	-	-
HCM Control Delay (\$)	7.4	0	-	11.1	11.3	7.4	0	-	-	-	-	-	-	-	-
HCM Lane LOS	A	A	-	B	B	A	A	-	-	-	-	-	-	-	-
HCM 95th %tile Q(veh)	0	-	-	0.4	0.4	0.1	-	-	-	-	-	-	-	-	-

Intersection													
Int Delay, s/veh													
4.6													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	SBL	SBR
Lane Configurations	33	3	46	1	5	7	53	642	15	30	827	66	66
Traffic Vol, veh/h	33	3	46	1	5	7	53	642	15	30	827	66	66
Future Vol, veh/h	1	0	8	8	0	1	5	0	13	13	0	5	5
Conflicting Peds, #/hr	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
Sign Control	-	-	-	-	-	-	-	-	-	-	-	-	-
RT Channelized	-	-	-	-	-	-	-	-	-	-	-	-	-
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	-
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	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	36	3	50	1	5	8	58	698	16	33	899	72	72

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	1475	1849	499	1360
Stage 1	1006	1006	-	835
Stage 2	469	843	-	525
Critical Hdwy	7.54	6.54	6.94	7.54
Critical Hdwy Stg 1	6.54	5.54	-	6.54
Critical Hdwy Stg 2	6.54	5.54	-	6.54
Follow-up Hdwy	3.52	4.02	3.32	3.52
Pd Cap-1 Maneuver	*88	74	517	107
Stage 1	*258	317	-	634
Stage 2	*777	579	-	504
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	*69	59	511	78
Mov Cap-2 Maneuver	*69	59	78	57
Stage 1	*221	297	-	541
Stage 2	*655	494	-	420

Approach	EB	WB	NB	SB
HCM Control Delay, s	75.9	39.3	1.3	0.4
HCM LOS	F	E	E	E

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Capacity (veh/h)	700	-	-	132	119	1208	-	-	-	-	-	-	-	-	-
HCM Lane V/C Ratio	0.082	-	-	0.675	0.119	0.027	-	-	-	-	-	-	-	-	-
HCM Control Delay (\$)	10.6	0.6	-	75.9	39.3	8.1	0.2	-	-	-	-	-	-	-	-
HCM Lane LOS	B	A	-	F	E	A	A	-	-	-	-	-	-	-	-
HCM 95th %tile Q(veh)	0.3	-	-	3.7	0.4	0.1	-	-	-	-	-	-	-	-	-

**Synchro™ Output - 2026 Background Traffic**

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2996: DW opp. Turtle Creek/Turtle Creek & Cedar Springs #2 #19 #22/Cedar Springs

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2996: DW opp. Turtle Creek/Turtle Creek & Cedar Springs #2 #19 #22/Cedar Springs

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	198	427	41	25	847	416	7	4	5	150	27	0
Traffic Volume (vph)	198	427	41	25	847	416	7	4	5	150	27	0
Future Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	160	0	75	0	0	0	0	0	0	100	100	100
Storage Length (ft)	1	0	1	1	1	1	1	1	1	1	1	1
Storage Lanes	25	55	0	0	0	0	0	0	0	0	0	0
Taper Length (ft)	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Lane Util. Factor	1.00	1.00	1.00	1.00	0.97	0.99	0.99	0.99	1.00	1.00	1.00	1.00
Ped Bike Factor	0.988				0.850	0.875						
Flt Protected	0.950			0.950		0.950			0.950	0.986		
Satd. Flow (prot)	1770	5012	0	1770	3539	1583	1770	1612	0	1681	1745	0
Flt Permitted	0.259			0.416		0.950			0.950	0.986		
Satd. Flow (perm)	481	5012	0	772	3539	1529	1770	1612	0	1679	1744	0
Right Turn on Red		Yes		Yes		Yes		Yes		Yes		Yes
Satd. Flow (RTOR)	16			452		20		20				
Link Speed (mph)	30			30		30		30		30		30
Link Distance (ft)	458			339		146		146		160		160
Travel Time (s)	10.4			7.7		3.3		3.3		3.6		3.6
Confl. Peds. (#/hr)	6			3		6		6		1		1
Peak Hour Factor	0.70	0.89	1.00	1.00	0.89	0.92	1.00	1.00	0.25	0.78	0.25	0.69
Adj. Flow (vph)	283	480	41	25	952	452	7	4	20	192	108	0
Shared Lane Traffic (%)										23%		
Lane Group Flow (vph)	283	521	0	25	952	452	7	24	0	148	152	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	Right
Median Width(ft)	12	12	12	12	12	12	12	12	12	12	12	12
Link Offset(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk Width(ft)	16			16		16		16		16		16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	15	9	15	15	15	9	15	15	9
Number of Detectors	1	1	1	1	1	1	1	2	1	1	2	2
Detector Template		Left		Left		Thru		Thru		Thru		Thru
Leading Detector (ft)	50	50	20	50	20	100	20	100	50	100	50	100
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	50	50	20	50	20	6	50	6	50	6	50	6
Detector 1 Type	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex
Detector 1 Channel												
Detector 1 Extend (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
Detector 1 Queue (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
Detector 1 Delay (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
Detector 2 Position(ft)												
Detector 2 Size(ft)												
Detector 2 Type												
Detector 2 Channel												
Detector 2 Extend (s)												
Turn Type	pm+pt	NA	pm+pt	NA	Perm	Split	NA	Split	NA	Split	NA	NA

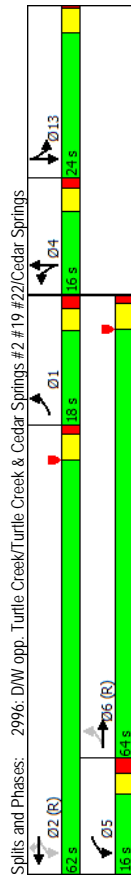
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	1	6		5	2		4	4	4	13	13	13
Permitted Phases	6			2		2						
Detector Phase	1	6		5	2	2	4	4	4	13	13	13
Switch Phase												
Minimum Initial (s)	3.0	12.0		3.0	12.0	12.0	6.0	6.0	6.0	4.0	4.0	4.0
Minimum (s)	8.0	21.8		8.0	29.9	29.9	30.6	30.6	30.6	8.0	8.0	8.0
Total Spill (s)	18.0	64.0		16.0	62.0	62.0	16.0	16.0	16.0	24.0	24.0	24.0
Total Spill (%)	15.0%	53.3%		13.3%	51.7%	51.7%	13.3%	13.3%	13.3%	20.0%	20.0%	20.0%
Maximum Green (s)	13.0	59.2		11.0	57.1	57.1	11.4	11.4	11.4	20.0	20.0	20.0
Yellow Time (s)	3.0	3.6		3.0	3.6	3.6	3.2	3.2	3.2	3.5	3.5	3.5
All-Red Time (s)	2.0	1.2		2.0	1.3	1.3	1.4	1.4	1.4	0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	-0.8		-1.0	-0.9	-0.9	-0.6	-0.6	-0.6	-0.8	-0.8	-0.8
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	3.2	3.2	3.2
Lead/Lag	Lag	Lag		Lead	Lead	Lead						
Lead-Lag Optimize?		Yes		Yes		Lead						
Vehicle Extension (s)	0.3	3.0		0.3	3.0	3.0	2.5	2.5	2.5	3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)	4.0			4.0		4.0	4.0	4.0	4.0			
Flash Don't Walk (s)	13.0			21.0		21.0	22.0	22.0	22.0			
Pedestrian Calls (#/hr)	0			0		0	0	0	0			
Act Effct Green (s)	83.8	83.8		71.3	71.3	71.3	7.0	7.0	7.0	16.8	16.8	16.8
Actuated g/C Ratio	0.70	0.70		0.59	0.59	0.59	0.06	0.06	0.06	0.14	0.14	0.14
v/c Ratio	0.58	0.15		0.05	0.45	0.41	0.07	0.21	0.21	0.63	0.63	0.63
Control Delay	25.4	7.9		10.0	12.3	3.7	54.4	28.9	28.9	60.1	59.3	59.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.4	7.9		10.0	12.3	3.7	54.4	28.9	28.9	60.1	59.3	59.3
LOS	C	A		A	B	A	D	C	C	E	E	E
Approach Delay	14.1			9.5		34.7				59.7		
Approach LOS	B			A		C				E		
Queue Length 50th (ft)	86	52		8	177	67	5	3	3	115	118	118
Queue Length 95th (ft)	120	86		m19	m368	m98	21	31	31	151	151	151
Internal Link Dist (ft)	378			259		66				80		
Turn Bay Length (ft)	160			75		100				298		
Base Capacity (vph)	486	3503		558	2101	1091	177	179	179	309		
Stallion Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.15		0.04	0.45	0.41	0.04	0.13	0.13	0.50	0.49	0.49

Intersection Summary												
Cycle Type: Actuated-Coordinated												
Maximum v/c Ratio: 0.63												
Intersection Signal Delay: 17.1												
Intersection Capacity Utilization 55.9%												
ICU Level of Service B												
Other												
Cycle Length: 120												
Actuated Cycle Length: 120												
Offset: 70 (58%), Referenced to phase 2:WBTl and 6:EBTL, Start of Yellow												
Natural Cycle: 90												
Control Type: Actuated-Coordinated												
Intersection LOS: B												

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

Analysis Period (min) 15  
Volume for 95th percentile queue is metered by upstream signal.



2026 Background - AM  
3005: Bowen & Cedar Springs & Turtle Creek

2026 Background - AM  
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑↑↑	↑	↑↑↑	↑↑↑	↑↑↑	↑	↑↑	↑↑	↑	↑↑	↑↑
Traffic Volume (vph)	157	431	27	57	832	150	53	358	56	75	325	193
Future Volume (vph)	157	431	27	57	832	150	53	358	56	75	325	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	181	0	121	0	0	0	0	0	0	0	0	0
Storage Lanes	1	0	1	0	0	0	0	0	0	0	0	0
Taper Length (ft)	25	0	25	0	0	25	0	0	0	25	0	0
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99
Flt Protected	0.950	0.950	0.950	0.974	0.974	0.980	0.980	0.946	0.993	0.993	0.993	0.993
Satd. Flow (prot)	1770	5032	0	1770	4941	0	0	3436	0	0	3298	0
Flt Permitted	0.150	0.451	0.451	0.627	0.627	0.627	0.627	0.669	0.669	0.669	0.669	0.669
Satd. Flow (perm)	279	5032	0	835	4941	0	0	2168	0	0	2222	0
Right Turn on Red		Yes		Yes		Yes		Yes		Yes		Yes
Satd. Flow (RTOR)	12	49	13	49	13	13	13	97				
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	30
Link Distance (ft)	398	398	217	217	217	721	721	644				
Travel Time (s)	9.0	9.0	4.9	4.9	4.9	16.4	16.4	14.6				
Confl. Peds. (#/hr)	1	5	5	5	5	1	5	3	3	3	5	5
Peak Hour Factor	0.77	0.89	0.85	0.60	0.91	0.78	0.64	0.86	0.73	0.84	0.96	0.79
Adj. Flow (vph)	204	484	32	95	914	192	83	416	77	89	339	244
Shared Lane Traffic (%)												
Lane Group Flow (vph)	204	516	0	95	1106	0	0	576	0	0	672	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	12	12	0	12	12	0	0	0	0	0	0	0
Link Offset(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk Width(ft)	16	16	16	16	16	16	16	16	16	16	16	16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	15	15	9	15	15	9	15	15	9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50	50	50	50	50	50	50	50
Detector 1 Type	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex
Detector 1 Channel												
Detector 1 Extend (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
Detector 1 Queue (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
Detector 1 Delay (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
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perim	NA	NA	pm+pt	NA	NA
Protected Phases	1	6	5	2	2	4	4	3	8	3	8	8
Permitted Phases	6	6	2	2	4	4	4	4	4	3	8	8
Detector Phase	1	6	5	2	2	4	4	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	3.0	12.0	3.0	3.0	12.0	3.0	10.0	10.0	10.0	4.0	10.0	10.0



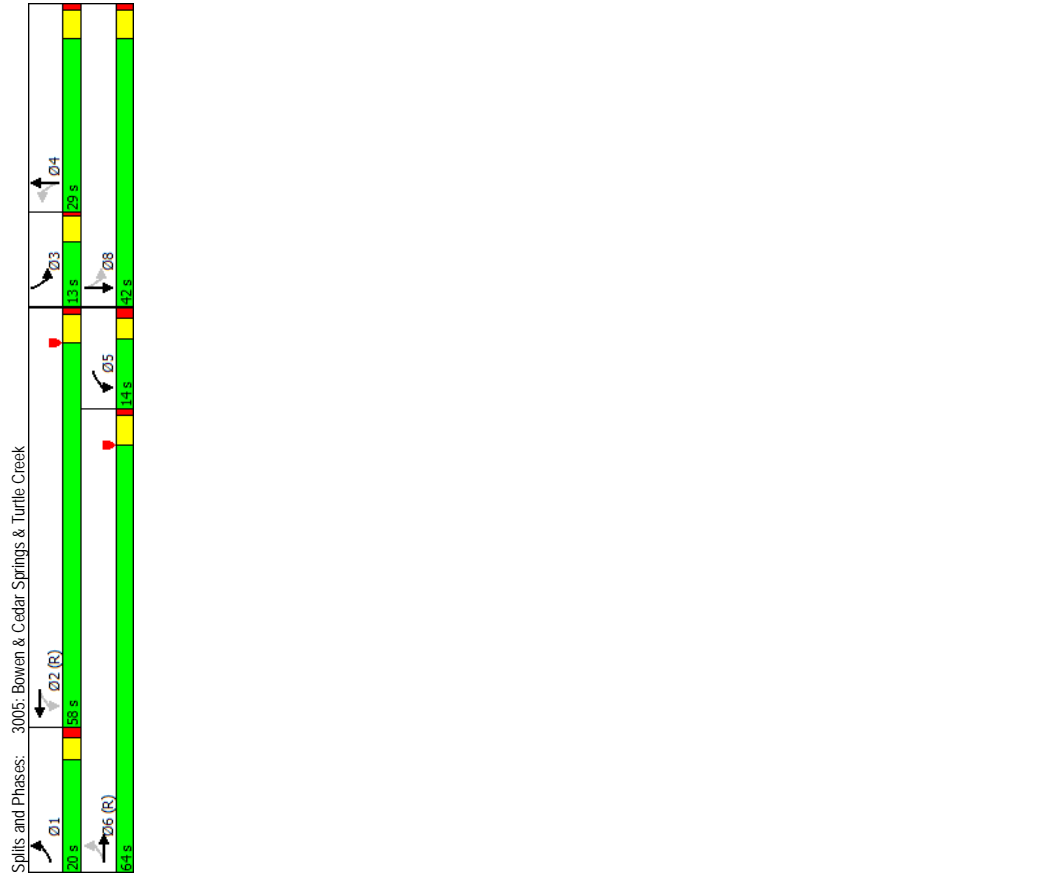
2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2026 Background - AM  
3005: Bowen & Cedar Springs & Turtle Creek

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	7.5	19.0	7.5	19.0	19.0	23.0	23.0	23.0	8.0	8.0	23.0	23.0
Total Split (s)	20.0	64.0	14.0	58.0	11.7%	48.3%	29.0	29.0	13.0	13.0	42.0	42.0
Total Split (%)	16.7%	53.3%	11.7%	48.3%	24.2%	24.2%	10.8%	10.8%	35.0%	35.0%	35.0%	35.0%
Maximum Green (s)	15.5	59.0	9.5	53.0	24.0	24.0	24.0	24.0	9.0	9.0	37.0	37.0
Yellow Time (s)	3.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	3.5	3.5	4.0	4.0
All-Red Time (s)	1.5	1.0	1.5	1.0	1.0	1.0	1.0	1.0	0.5	0.5	1.0	1.0
Lost Time Adjust (s)	-0.5	-1.0	-0.5	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	3.0	2.0	2.0
Recall Mode	None	C-Max	None	C-Max	Max	Max	Max	Max	None	None	Max	Max
Walk Time (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	4.0	4.0	8.0	8.0
Flash Dont Walk (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	14.0	14.0	6.0	6.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	60.0	60.0	57.4	57.4	38.0	38.0	38.0	38.0	38.0	38.0	38.0	38.0
Actuated g/C Ratio	0.50	0.50	0.48	0.48	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
v/c Ratio	0.69	0.20	0.20	0.46	0.83	0.83	0.83	0.83	0.87	0.87	0.87	0.87
Control Delay	37.9	16.8	10.1	10.0	45.4	45.4	45.4	45.4	47.9	47.9	47.9	47.9
Queue Delay	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 Delay	37.9	16.8	10.1	10.0	45.4	45.4	45.4	45.4	47.9	47.9	47.9	47.9
LOS	D	B	B	B	B	D	D	D	D	D	D	D
Approach Delay	22.8	10.0	10.0	10.0	45.4	45.4	45.4	45.4	47.9	47.9	47.9	47.9
Approach LOS	C	B	B	B	D	D	D	D	D	D	D	D
Queue Length 50th (ft)	111	80	23	130	191	191	191	191	228	228	228	228
Queue Length 95th (ft)	152	117	20	67	234	234	234	234	#336	#336	#336	#336
Internal Link Dist (ft)	318	318	137	137	641	641	641	641	564	564	564	564
Turn Bay Length (ft)	181	121	121	121	695	695	695	695	769	769	769	769
Base Capacity (vph)	338	2522	477	2388	695	695	695	695	769	769	769	769
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.20	0.20	0.46	0.83	0.83	0.83	0.83	0.87	0.87	0.87	0.87

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2026 Background - AM  
3005: Bowen & Cedar Springs & Turtle Creek



2999 Turtle Creek TIA  
 HCM 2010 TWSC

2026 Background - AM  
 170: Turtle Creek & Gillespie

2999 Turtle Creek TIA  
 HCM 2010 TWSC

2026 Background - AM  
 171: Gillespie & Sale

Intersection													
Int Delay, s/veh													
1.7													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SBR
Lane Configurations													
Traffic Vol, veh/h	31	157	35	0	515	91	0	0	0	16	45	13	
Future Vol, veh/h	31	157	35	0	515	91	0	0	0	16	45	13	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	1	0	0	0	1	
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	-	0	
Grade, %	-	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	34	171	38	0	560	99	0	0	0	17	49	14	

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	659	0	0	866
Stage 1	-	-	-	609
Stage 2	-	-	-	257
Critical Hdwy	4.12	-	-	6.42
Critical Hdwy Stg 1	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	5.52
Follow-up Hdwy	2.218	-	-	3.518
Pd Cap-1 Maneuver	929	-	-	324
Stage 1	-	-	-	543
Stage 2	-	-	-	786
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	928	-	-	310
Mov Cap-2 Maneuver	-	-	-	310
Stage 1	-	-	-	543
Stage 2	-	-	-	753

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	17.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Capacity (veh/h)	928	-	-	-	-	-	-	-	-	372	-	-
HCM Lane V/C Ratio	0.036	-	-	-	-	-	-	-	-	0.216	-	-
HCM Control Delay (s)	9	0	-	-	-	-	-	-	-	17.3	-	-
HCM Lane LOS	A	A	-	-	-	-	-	-	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-	-	-	-	-	-	0.8	-	-

Intersection													
Int Delay, s/veh													
5.5													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SBR
Lane Configurations													
Traffic Vol, veh/h	18	18	9	22	47	37	24	44	6	19	71	47	
Future Vol, veh/h	18	18	9	22	47	37	24	44	6	19	71	47	
Conflicting Peds, #/hr	10	0	3	3	0	10	9	0	5	5	0	9	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	-	0	
Grade, %	-	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	20	20	10	24	51	40	26	48	7	21	71	51	

Major/Minor	Minor1	Minor2	Major1	Major2
Conflicting Flow All	312	265	115	270
Stage 1	153	153	-	108
Stage 2	159	112	-	162
Critical Hdwy	7.12	6.52	6.22	7.12
Critical Hdwy Stg 1	6.12	5.52	-	6.12
Critical Hdwy Stg 2	6.12	5.52	-	5.52
Follow-up Hdwy	3.518	4.018	3.518	4.018
Pd Cap-1 Maneuver	641	640	937	683
Stage 1	849	771	-	897
Stage 2	843	803	-	840
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	551	611	928	638
Mov Cap-2 Maneuver	551	611	638	595
Stage 1	827	754	-	876
Stage 2	736	784	-	795

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.2	11.1	2.4	1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Capacity (veh/h)	1443	-	-	627	702	1532	-	-	-	-	-	-	-	-	-
HCM Lane V/C Ratio	0.018	-	-	0.078	0.164	0.013	-	-	-	-	-	-	-	-	-
HCM Control Delay (s)	7.5	0	-	11.2	11.1	7.4	0	-	-	-	-	-	-	-	-
HCM Lane LOS	A	A	-	B	B	A	A	-	-	-	-	-	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.6	0	-	-	-	-	-	-	-	-	-

2999 Turtle Creek TIA  
 HCM 2010 TWSC

2026 Background - AM  
 172: Cedar Springs & Dickason

2999 Turtle Creek TIA  
 HCM 2010 TWSC

2026 Background - AM  
 173: Dickason & Sale

Intersection										
Int Delay, s/veh	0.5									
Movement	EBL	EBT	WBT	WBR	SBL	SBR				
Lane Configurations	↔	↔	↔	↔	↔	↔				
Traffic Vol, veh/h	5	600	1124	31	14	62				
Future Vol, veh/h	5	600	1124	31	14	62				
Conflicting Peds, #/hr	2	0	0	2	1	0				
Sign Control	Free	Free	Free	Free	Stop	Stop				
RT Channelized	-	None	-	None	-	None				
Storage Length	100	-	-	-	0	-				
Yeh in Median Storage, #	-	0	0	-	1	-				
Grade, %	-	0	0	-	0	-				
Peak Hour Factor	92	92	92	92	92	92				
Heavy Vehicles, %	2	2	2	2	2	2				
Mvmt Flow	5	652	1222	34	15	67				
Major/Minor	Major1	Major2	Minor1	Minor2						
Conflicting Flow All	1257	0	0	1514	630					
Stage 1	-	-	-	1241	-					
Stage 2	-	-	-	273	-					
Critical Hdwy	5.34	-	-	5.74	7.14					
Critical Hdwy Stg 1	-	-	-	6.04	-					
Critical Hdwy Stg 2	-	-	-	6.64	-					
Follow-up Hdwy	3.12	-	-	3.82	3.92					
Pd Cap-1 Maneuver	*812	-	-	*520	*646					
Stage 1	-	-	-	*663	-					
Stage 2	-	-	-	*799	-					
Platoon blocked, %	1	-	-	1	1					
Mov Cap-1 Maneuver	*812	-	-	*516	*645					
Mov Cap-2 Maneuver	-	-	-	*558	-					
Stage 1	-	-	-	*662	-					
Stage 2	-	-	-	*792	-					
Approach	EB	WB	SB							
HCM Control Delay, s	0.1	0	11.6							
HCM LOS	B	B	B							
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBL	SBR				
Capacity (veh/h)	* 812	-	-	-	-	627				
HCM Lane V/C Ratio	0.007	-	-	-	-	0.132				
HCM Control Delay (s)	9.5	-	-	-	-	11.6				
HCM Lane LOS	A	-	-	-	-	B				
HCM 95th %tile Q(veh)	0	-	-	-	-	0.5				
Notes	-: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon									

Intersection												
Int Delay, s/veh	7.4											
Movement	EBL	EBT	WBT	WBR	SBL	SBR						
Lane Configurations	↔	↔	↔	↔	↔	↔						
Traffic Vol, veh/h	3	41	17	23	65	13	26	22	1	8	40	3
Future Vol, veh/h	3	41	17	23	65	13	26	22	1	8	40	3
Conflicting Peds, #/hr	4	0	9	9	0	4	2	0	9	9	0	2
Sign Control	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Yeh in Median Storage, #	-	0	-	0	-	0	-	0	-	0	-	0
Grade, %	-	0	-	0	-	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	3	45	18	25	71	14	28	24	1	9	43	3
Major/Minor	Minor2	Minor1	Major1	Major2								
Conflicting Flow All	192	156	56	193	156	37	49	0	0	34	0	0
Stage 1	65	65	-	90	90	-	-	-	-	-	-	-
Stage 2	127	91	-	103	66	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
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	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pd Cap-1 Maneuver	768	736	1011	767	736	1035	1558	-	-	1578	-	-
Stage 1	946	841	-	917	820	-	-	-	-	-	-	-
Stage 2	877	820	-	903	840	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	684	712	1002	693	712	1024	1546	-	-	1573	-	-
Mov Cap-2 Maneuver	684	712	-	693	712	-	-	-	-	-	-	-
Stage 1	927	835	-	894	799	-	-	-	-	-	-	-
Stage 2	772	799	-	828	834	-	-	-	-	-	-	-
Approach	EB	WB	NB	SB								
HCM Control Delay, s	10.1	10.7	3.9	1.1								
HCM LOS	B	B	B	B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL	EBT	WBL	WBT	SBL	SBT	SBR		
Capacity (veh/h)	1546	-	-	773	736	1573	-	-	-	-		
HCM Lane V/C Ratio	0.018	-	-	0.086	0.149	0.006	-	-	-	-		
HCM Control Delay (s)	7.4	0	-	10.1	10.7	7.3	0	-	-	-		
HCM Lane LOS	A	A	-	B	B	A	A	-	-	-		
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.5	0	-	-	-	-		

Intersection												
Int. Delay, s/veh											3	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Vol, veh/h	50	4	47	0	1	5	37	631	4	10	595	
Future Vol, veh/h	50	4	47	0	1	5	37	631	4	10	595	
Conflicting Peds, #/hr	0	0	0	0	0	0	5	0	2	2	0	
Sign Control	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	None	-	None	-	-	None	-	-	None	
Storage Length	-	-	-	-	-	-	-	-	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	
Mvmt Flow	54	4	51	0	1	5	40	686	4	11	647	

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	1116	1465	347	1117
Stage 1	692	692	770	770
Stage 2	424	773	347	710
Critical Hdwy	7.54	6.94	6.94	7.54
Critical Hdwy Stg 1	6.54	5.54	6.54	5.54
Critical Hdwy Stg 2	6.54	5.54	6.54	5.54
Follow-up Hdwy	3.52	4.02	3.32	4.02
Pd. Cap-1 Maneuver	164	127	649	163
Stage 1	*400	443	733	650
Stage 2	*768	648	642	435
Platoon blocked, %	1	1	1	1
Mov Cap-1 Maneuver	*151	116	646	136
Mov Cap-2 Maneuver	*151	116	136	114
Stage 1	*370	435	679	602
Stage 2	*707	600	577	427

Approach	EB	WB	NB	SB
HCM Control Delay, s	34.2	14.1	0.8	0.2
HCM LOS	D	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL	EBT	EBR	NBL	NBT	NBR	SBL	SBT	SBR
Capacity (veh/h)	901	-	230	402	*1219	-	-	-	-	-	-	-
HCM Lane V/C Ratio	0.045	-	0.477	0.016	0.009	-	-	-	-	-	-	-
HCM Control Delay (s)	9.2	0.3	34.2	14.1	8	0.1	-	-	-	-	-	-
HCM Lane LOS	A	A	D	B	A	A	-	-	-	-	-	-
HCM 95th %tile Q(veh)	0.1	-	2.4	0	0	-	-	-	-	-	-	-

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

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2996: DW opp. Turtle Creek/Turtle Creek & Cedar Springs #2 #19 #22/Cedar Springs

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Lanes, Volumes, Timings

2996: DW opp. Turtle Creek/Turtle Creek & Cedar Springs #2 #19 #22/Cedar Springs

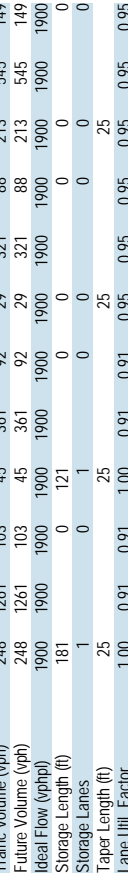
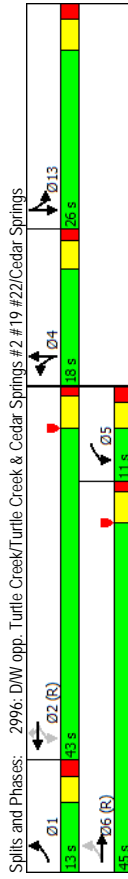
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	91	982	7	41	525	185	33	27	24	478	5	0
Future Volume (vph)	91	982	7	41	525	185	33	27	24	478	5	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0	75	0	0	0	0	0	0	100	100	100
Storage Lanes	1	0	1	1	1	1	1	1	1	1	1	0
Taper Length (ft)	25	55	0	0	0	0	0	0	0	0	0	0
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	1.00	1.00	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Permitted	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996
Satd. Flow (prot)	1770	5061	0	1770	3539	1583	1770	1769	0	1681	1686	0
Flt Permitted	0.308	0.221	0.221	0.221	0.221	0.221	0.221	0.221	0.221	0.221	0.221	0.221
Satd. Flow (perm)	571	5061	0	410	3539	1530	1770	1769	0	1678	1683	0
Right Turn on Red		Yes		Yes		Yes		Yes		Yes		Yes
Satd. Flow (RTOR)	4	30	30	203	30	30	19	30	30	173	3.9	
Link Speed (mph)	458	356	8.1	7	7	7	7	7	7	7	7	7
Travel Time (s)	7	5	5	5	5	5	5	5	5	5	5	5
Confl. Peds. (#/hr)	0.91	0.87	0.25	1.00	0.89	0.91	1.00	0.25	0.50	0.89	1.00	0.74
Peak Hour Factor	100	1129	28	41	590	203	33	108	48	537	5	0
Adj. Flow (vph)	100	1157	0	41	590	203	33	156	0	268	274	0
Lane Group Flow (vph)	Left	No	No	No	No	No	No	No	No	No	No	No
Enter Blocked Intersection	Left	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	Right
Median Width(ft)	12	12	12	12	12	12	12	12	12	12	12	12
Link Offset(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk Width(ft)	16	16	16	16	16	16	16	16	16	16	16	16
Two way Left Turn Lane	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Headway Factor	15	1	9	15	9	15	9	15	9	15	9	15
Turning Speed (mph)	1	1	1	1	1	1	1	1	1	1	1	1
Number of Detectors	50	50	20	50	20	100	50	100	50	100	100	100
Detector Template	0	0	0	0	0	0	0	0	0	0	0	0
Leading Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	50	50	20	50	20	100	50	100	50	100	100	100
Detector 1 Size(ft)	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex
Detector 2 Type	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Extend (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
Detector 1 Queue (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
Detector 1 Delay (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
Detector 2 Position(ft)	94	94	94	94	94	94	94	94	94	94	94	94
Detector 2 Size(ft)	6	6	6	6	6	6	6	6	6	6	6	6
Detector 2 Type	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex
Detector 2 Channel	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Detector 2 Extend (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
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 m Queue shown is maximum after two cycles.  
 Volume for 95th percentile queue is metered by upstream signal.

3005: Bowen & Cedar Springs & Turtle Creek  
 2026 Background - PM



Splits and Phases: 2996: DNW opp. Turtle Creek/Turtle Creek & Cedar Springs #2 #19 #22/Cedar Springs

Phase	Duration (s)	Direction
Ø1	13 s	←
Ø2 (R)	43 s	←
Ø4	13 s	←
Ø5	11 s	←
Ø13	26 s	←

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑	↑	↑	↑↑	↑	↑	↑↑	↑	↑	↑	↑
Traffic Volume (vph)	248	1261	103	45	361	92	29	321	88	213	545	149
Future Volume (vph)	248	1261	103	45	361	92	29	321	88	213	545	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	181	0	121	0	0	0	0	0	0	0	0	0
Storage Lanes	1	0	1	0	0	0	0	0	0	0	0	0
Taper Length (ft)	25	0	0	25	0	0	25	0	0	25	0	0
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.99	1.00	0.99	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fit	0.988	0.988	0.988	0.968	0.968	0.969	0.969	0.975	0.975	0.975	0.975	0.975
Fit Protected	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Satd. Flow (prot)	1770	5014	0	1770	4888	0	0	3398	0	0	3397	0
Fit Permitted	0.366	0.133	0.133	0.133	0.133	0.133	0.133	0.133	0.133	0.133	0.133	0.133
Satd. Flow (perm)	675	5014	0	248	4888	0	0	2363	0	0	2240	0
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Satd. Flow (RTOR)	14	70	32	30	30	30	30	30	30	30	30	30
Link Speed (mph)	382	217	721	16.4	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
Travel Time (s)	8.7	4.9	10	6	5	5	5	5	5	5	5	5
Confl. Peds. (#/hr)	10	6	6	6	6	6	6	6	6	6	6	6
Peak Hour Factor	0.83	0.94	0.89	0.84	0.96	0.90	0.50	0.86	0.77	0.86	0.91	0.90
Adj. Flow (vph)	299	1341	116	54	376	102	58	373	114	248	599	166

Shared Lane Traffic (%)

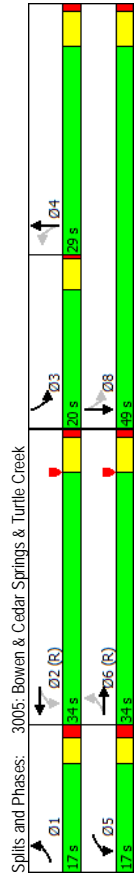
Lane Group	Flow (vph)	Left	Right	Left	Right	Left	Right	Left	Right	Left	Right	Left	Right
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Right	Left	Right	Left	Right	Left	Right	Left	Right
Median Width(ft)	12	12	12	12	12	12	12	12	12	12	12	12	12
Link Offset(ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk Width(ft)	16	16	16	16	16	16	16	16	16	16	16	16	16
Two way Left Turn Lane	1	1	1	1	1	1	1	1	1	1	1	1	1
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	1	1	1	1	1	1	1	1	1	1
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50	50	50	50	50	50	50	50	50
Detector 1 Type	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex
Detector 1 Channel	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex
Detector 1 Extend (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	0.0
Detector 1 Queue (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	0.0
Detector 1 Delay (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	0.0
Turn Type	pm+pt	NA	pm+pt	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Protected Phases	1	6	5	2	4	4	4	4	4	4	4	4	4
Permitted Phases	6	6	2	2	4	4	4	4	4	4	4	4	4
Detector Phase	1	6	5	2	4	4	4	4	4	4	4	4	4
Switch Phase	3.0	12.0	3.0	12.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Initial (s)	3.0	12.0	3.0	12.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2026 Background - PM  
3005: Bowen & Cedar Springs & Turtle Creek

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	7.5	19.0	7.5	19.0	19.0	23.0	23.0	23.0	23.0	8.0	23.0	23.0
Total Split (s)	17.0	34.0	17.0	34.0	17.0%	34.0%	29.0%	29.0%	29.0%	20.0%	49.0%	49.0%
Total Split (%)	17.0%	34.0%	17.0%	34.0%	17.0%	34.0%	29.0%	29.0%	29.0%	20.0%	49.0%	49.0%
Maximum Green (s)	12.5	29.0	12.5	29.0	29.0	24.0	24.0	24.0	24.0	16.0	44.0	44.0
Yellow Time (s)	3.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	3.5	4.0	4.0
All-Red Time (s)	1.5	1.0	1.5	1.0	1.0	1.0	1.0	1.0	1.0	0.5	1.0	1.0
Lost Time Adjust (s)	-0.5	-1.0	-0.5	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	2.0	2.0
Recall Mode	None	C-Max	None	C-Max	None	Min	Min	Min	Min	None	Min	Min
Walk Time (s)	8.0	8.0	8.0	8.0	8.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Flash Dont Walk (s)	6.0	6.0	6.0	6.0	6.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	47.0	38.1	47.0	38.1	37.2	30.5	45.0	45.0	45.0	45.0	45.0	45.0
Actuated g/C Ratio	0.47	0.38	0.47	0.38	0.37	0.30	0.45	0.45	0.45	0.45	0.45	0.45
v/c Ratio	0.66	0.76	0.66	0.76	0.28	0.31	0.50	0.50	0.50	0.99	0.99	0.99
Control Delay	19.2	14.5	19.2	14.5	18.1	18.5	20.3	20.3	20.3	53.2	53.2	53.2
Queue Delay	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 Delay	19.2	14.5	19.2	14.5	18.1	18.5	20.3	20.3	20.3	53.2	53.2	53.2
LOS	B	B	B	B	B	B	C	C	C	D	D	D
Approach Delay	15.3	15.3	15.3	15.3	18.5	18.5	20.3	20.3	20.3	53.2	53.2	53.2
Approach LOS	B	B	B	B	B	B	C	C	C	D	D	D
Queue Length 50th (ft)	33	157	33	157	14	77	118	118	118	320	320	320
Queue Length 95th (ft)	92	191	92	191	m26	54	157	157	157	#475	#475	#475
Internal Link Dist (ft)	302	302	302	302	137	641	641	641	641	567	567	567
Turn Bay Length (ft)	181	181	181	181	121	121	1024	1024	1024	1024	1024	1024
Base Capacity (vph)	459	1920	459	1920	305	1540	1080	1080	1080	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.65	0.76	0.65	0.76	0.18	0.31	0.50	0.50	0.50	0.99	0.99	0.99

Intersection Summary	Other
Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	87 (87%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle:	70
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.99
Intersection Signal Delay:	26.5
Intersection Capacity Utilization:	82.5%
Analysis Period (min):	15
#	95th percentile volume exceeds capacity, queue may be longer.
m	Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.



2999 Turtle Creek TIA  
 HCM 2010 TWSC

2026 Background - PM  
 170: Turtle Creek & Gillespie

Intersection													
Int Delay, s/veh	1.9												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR		
Lane Configurations	19	440	118	0	351	60	0	0	0	26	34	59	↔
Traffic Vol, veh/h	19	440	118	0	351	60	0	0	0	26	34	59	
Future Vol, veh/h	0	0	0	0	0	0	0	0	0	0	0	0	
Conflicting Peds, #/hr	Free	Free	Free	Free	Free	Free	None	None	None	None	None	None	
Sign Control	-	-	-	-	-	-	-	-	-	-	-	-	
RT Channelized	-	-	-	-	-	-	-	-	-	-	-	-	
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-	
Grade, %	-	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	21	478	128	0	382	65	0	0	0	28	37	64	

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	447	0	0	998	1062
Stage 1	-	-	-	414	414
Stage 2	-	-	-	584	648
Critical Hdwy	4.12	-	-	6.42	6.52
Critical Hdwy Stg 1	-	-	-	5.42	5.52
Critical Hdwy Stg 2	-	-	-	5.42	5.52
Follow-up Hdwy	2.218	-	-	3.518	4.018
Pd Cap-1 Maneuver	1113	-	-	270	223
Stage 1	-	-	0	667	593
Stage 2	-	-	0	557	466
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1113	-	-	262	0
Mov Cap-2 Maneuver	-	-	-	262	0
Stage 1	-	-	-	667	0
Stage 2	-	-	-	541	0

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	16.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Capacity (veh/h)	1113	-	-	-	-	-	-	-	443	-	-
HCM Lane V/C Ratio	0.019	-	-	-	-	-	-	-	0.292	-	-
HCM Control Delay (s)	8.3	0	-	-	-	-	-	-	16.4	-	-
HCM Lane LOS	A	A	-	-	-	-	-	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-	-	-	-	-	1.2	-	-

Intersection													
Int Delay, s/veh	5.3												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR		
Lane Configurations	43	43	22	6	23	15	12	87	24	23	49	23	↔
Traffic Vol, veh/h	43	43	22	6	23	15	12	87	24	23	49	23	
Future Vol, veh/h	4	0	1	1	0	4	11	0	3	3	0	11	
Conflicting Peds, #/hr	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
Sign Control	-	-	-	-	-	-	-	-	-	-	-	-	
RT Channelized	-	-	-	-	-	-	-	-	-	-	-	-	
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-	
Grade, %	-	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	47	47	24	7	25	16	13	95	26	25	53	25	

Major/Minor	Minor2	Minor1	Major1	Major2		
Conflicting Flow All	285	277	78	289	276	115
Stage 1	127	127	-	137	137	-
Stage 2	158	150	-	152	139	-
Critical Hdwy	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	3.518	4.018	3.318	3.518	4.018	3.318
Pd Cap-1 Maneuver	667	631	983	663	632	937
Stage 1	877	791	-	866	783	-
Stage 2	844	773	-	850	782	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	614	607	973	594	608	932
Mov Cap-2 Maneuver	614	607	-	594	608	-
Stage 1	861	770	-	856	774	-
Stage 2	793	764	-	764	761	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.6	10.6	0.7	1.8
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Capacity (veh/h)	1505	-	-	661	687	1458	-	-	-	-	-	-	-	-
HCM Lane V/C Ratio	0.009	-	-	0.178	0.07	0.017	-	-	-	-	-	-	-	-
HCM Control Delay (s)	7.4	0	-	11.6	10.6	7.5	0	-	-	-	-	-	-	-
HCM Lane LOS	A	A	-	B	B	A	A	-	-	-	-	-	-	-
HCM 95th %tile Q(veh)	0	-	-	0.6	0.2	0.1	-	-	-	-	-	-	-	-



2999 Turtle Creek TIA  
 HCM 2010 TWSC

2026 Background - PM  
 172: Cedar Springs & Dickason

Intersection										
Int Delay, s/veh	0.5									
Movement	EBL	EBT	WBT	WBR	SBL	SBR				
Lane Configurations	T	T	T	T	T	T				
Traffic Vol, veh/h	25	1543	556	26	44	29				
Future Vol, veh/h	25	1543	556	26	44	29				
Conflicting Peds, #/hr	10	0	0	10	0	0				
Sign Control	Free	Free	Free	Free	Stop	Stop				
RT Channelized	-	None	-	None	-	None				
Storage Length	100	-	-	-	0	-				
Yeh in Median Storage, #	-	0	0	-	1	-				
Grade, %	-	0	0	-	0	-				
Peak Hour Factor	92	92	92	92	92	92				
Heavy Vehicles, %	2	2	2	2	2	2				
Mvmt Flow	27	1677	604	28	48	32				

Major/Minor	Major1	Major2	Minor2	Major2	
Conflicting Flow All	643	0	0	1353	326
Stage 1	-	-	-	628	-
Stage 2	-	-	-	725	-
Critical Hdwy	5.34	-	-	5.74	7.14
Critical Hdwy Stg 1	-	-	-	6.64	-
Critical Hdwy Stg 2	-	-	-	6.04	-
Follow-up Hdwy	3.12	-	-	3.82	3.92
Pd Cap-1 Maneuver	912	-	-	*579	*803
Stage 1	-	-	-	*742	-
Stage 2	-	-	-	*580	-
Platoon blocked, %	1	-	-	1	1
Mov Cap-1 Maneuver	912	-	-	*552	*797
Mov Cap-2 Maneuver	-	-	-	*509	-
Stage 1	-	-	-	*736	-
Stage 2	-	-	-	*538	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	12
HCM LOS	B	B	B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBL	SBR
Capacity (veh/h)	912	-	-	-	594	-
HCM Lane V/C Ratio	0.03	-	-	-	0.134	-
HCM Control Delay (s)	9.1	-	-	-	12	-
HCM Lane LOS	A	-	-	-	B	-
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5	-

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

2999 Turtle Creek TIA  
 HCM 2010 TWSC

2026 Background - PM  
 173: Dickason & Sale

Intersection										
Int Delay, s/veh	6.5									
Movement	EBL	EBT	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	4	61	11	16	41	10	11	23	14	29
Traffic Vol, veh/h	4	61	11	16	41	10	11	23	14	29
Future Vol, veh/h	4	61	11	16	41	10	11	23	14	29
Conflicting Peds, #/hr	5	0	12	12	0	5	8	0	19	19
Sign Control	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-
Yeh in Median Storage, #	-	0	-	0	-	0	-	0	-	0
Grade, %	-	0	-	0	-	0	-	0	-	0
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	66	12	17	45	11	12	25	15	32

Major/Minor	Minor2	Minor1	Major1	Major2	
Conflicting Flow All	232	226	92	262	222
Stage 1	143	143	-	76	76
Stage 2	89	83	-	186	146
Critical Hdwy	7.12	6.52	6.22	7.12	6.52
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	3.518	4.018	3.318	3.518	4.018
Pd Cap-1 Maneuver	723	673	965	691	677
Stage 1	860	779	-	933	832
Stage 2	918	826	-	816	776
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	655	638	949	598	642
Mov Cap-2 Maneuver	655	638	-	598	642
Stage 1	847	757	-	911	812
Stage 2	848	806	-	712	754

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.1	11.1	1.7	2.2
HCM LOS	B	B	B	B

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL	EBT	WBL	WBR	SBL	SBR
Capacity (veh/h)	1499	-	-	671	665	1539	-	-	-
HCM Lane V/C Ratio	0.008	-	-	0.123	0.11	0.02	-	-	-
HCM Control Delay (s)	7.4	0	-	11.1	11.1	7.4	0	-	-
HCM Lane LOS	A	A	-	B	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.4	0.4	0.1	-	-	-

Intersection													
Int. Delay, s/veh													4.9
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SBR
Lane Configurations	↔			↔			↔			↔			↔
Traffic Vol, veh/h	31	3	47	1	5	8	55	654	16	31	858	56	
Future Vol, veh/h	31	3	47	1	5	8	55	654	16	31	858	56	
Conflicting Peds, #/hr	1	0	8	8	0	1	5	0	13	13	0	5	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	None	-	-	None	-	-	None	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	-
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	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	34	3	51	1	5	9	60	711	17	34	933	61	
Major/Minor	Minor2	Minor1	Major1	Major2									
Conflicting Flow All	1514	1896	510	1395	1918	378	998	0	0	741	0	0	
Stage 1	1035	1035	-	852	862	-	-	-	-	-	-	-	
Stage 2	479	861	-	543	1066	-	-	-	-	-	-	-	
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-	
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-	
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-	
Pd. Cap-1 Maneuver	*82	69	509	101	67	*824	689	-	-	1203	-	-	
Stage 1	*248	307	-	615	572	-	-	-	-	-	-	-	
Stage 2	*777	565	-	492	297	-	-	-	-	-	-	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	*63	54	503	72	53	*814	684	-	-	1202	-	-	
Mov Cap-2 Maneuver	*63	54	-	72	53	-	-	-	-	-	-	-	
Stage 1	*210	286	-	518	482	-	-	-	-	-	-	-	
Stage 2	*647	476	-	406	277	-	-	-	-	-	-	-	
Approach	EB	EB	WB	WB	NB	NB	SB	SB					
HCM Control Delay, s	82.3		39.6		1.4		0.4						
HCM LOS	F		E										
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL	EBT	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SBR
Capacity (veh/h)	684	-	-	126	119	1202	-	-	-	-	-	-	-
HCM Lane V/C Ratio	0.087	-	-	0.699	0.128	0.028	-	-	-	-	-	-	-
HCM Control Delay (s)	10.8	0.7	-	82.3	39.6	8.1	0.2	-	-	-	-	-	-
HCM Lane LOS	B	A	-	F	E	A	A	-	-	-	-	-	-
HCM 95th %tile Q(veh)	0.3	-	-	3.8	0.4	0.1	-	-	-	-	-	-	-
Notes	-												
\$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon													



## Synchro™ Output - 2026 Background Plus Site Traffic

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2996: DW opp. Turtle Creek/Turtle Creek & Cedar Springs #2 #19 #22/Cedar Springs

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2996: DW opp. Turtle Creek/Turtle Creek & Cedar Springs #2 #19 #22/Cedar Springs

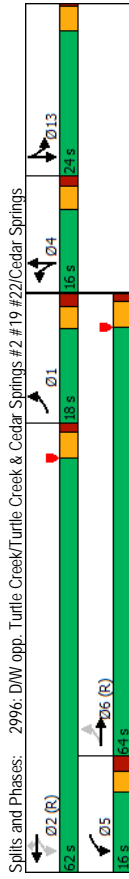
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1	1	1	1	1	1	1	1	1	1	1
Traffic Volume (vph)	201	442	41	25	863	416	7	4	5	150	27	0
Future Volume (vph)	201	442	41	25	863	416	7	4	5	150	27	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0	0	75	0	0	0	0	0	100	100	100
Storage Lanes	1	0	0	1	1	1	1	1	1	1	1	1
Taper Length (ft)	25	0	0	55	0	0	25	0	0	25	0	0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	1.00	1.00	1.00	1.00	0.97	0.97	0.99	0.99	1.00	1.00	1.00	1.00
Flt Protected	0.950	0.950	0.950	0.950	0.850	0.850	0.875	0.875	0.875	0.875	0.875	0.875
Satd. Flow (prot)	1770	5018	0	1770	3539	1583	1770	1612	0	1681	1745	0
Flt Permitted	0.252	0.407	0.407	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.986	0.986
Satd. Flow (perm)	468	5018	0	755	3539	1529	1770	1612	0	1679	1744	0
Right Turn on Red		Yes		Yes		Yes		Yes		Yes		Yes
Satd. Flow (RTOR)	16	0	0	452	0	0	20	0	0	30	0	30
Link Speed (mph)	30	30	30	339	339	339	146	146	146	160	160	160
Link Distance (ft)	458	458	458	7.7	7.7	7.7	3.3	3.3	3.3	3.6	3.6	3.6
Travel Time (s)	6	3	3	6	6	6	1	1	1	1	1	1
Confl. Peds. (#/hr)	0.70	0.89	1.00	1.00	0.89	0.92	1.00	1.00	0.25	0.78	0.25	0.69
Peak Hour Factor	287	497	41	25	970	452	7	4	20	192	108	0
Adj. Flow (vph)	287	497	41	25	970	452	7	4	20	192	108	0
Shared Lane Traffic (%)										23%		
Lane Group Flow (vph)	287	538	0	25	970	452	7	24	0	148	152	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	Right
Median Width(ft)	12	12	12	12	12	12	12	12	12	12	12	12
Link Offset(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk Width(ft)	16	16	16	16	16	16	16	16	16	16	16	16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	1	9	15	1	1	1	1	9	15	1	9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template	Left	Left	Left	Left	Thru	Thru	Thru	Thru	Thru	Thru	Thru	Thru
Leading Detector (ft)	50	50	20	50	20	20	100	100	50	100	100	100
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	50	50	20	50	20	20	6	6	50	6	6	6
Detector 1 Type	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex
Detector 1 Channel												
Detector 1 Extend (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
Detector 1 Queue (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
Detector 1 Delay (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
Detector 2 Position(ft)							94	94	94	94	94	94
Detector 2 Size(ft)							6	6	6	6	6	6
Detector 2 Type							Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex
Detector 2 Channel												
Detector 2 Extend (s)							0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	p+m+pt	NA	p+m+pt	NA	Perm	Split	NA	Split	NA	Split	NA	NA

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	1	6	5	2	4	4	4	4	4	13	13	13
Permitted Phases	6	6	2	2	2	2	2	2	2	13	13	13
Detector Phase	1	6	5	2	4	4	4	4	4	13	13	13
Switch Phase												
Minimum Initial (s)	3.0	12.0	3.0	12.0	12.0	12.0	6.0	6.0	6.0	4.0	4.0	4.0
Minimum (s)	8.0	21.8	8.0	29.9	29.9	30.6	30.6	30.6	30.6	8.0	8.0	8.0
Minimum Split (s)	18.0	64.0	16.0	62.0	62.0	16.0	16.0	16.0	16.0	24.0	24.0	24.0
Total Spill (%)	15.0%	53.3%	13.3%	51.7%	51.7%	13.3%	13.3%	13.3%	13.3%	20.0%	20.0%	20.0%
Maximum Green (s)	13.0	59.2	11.0	57.1	57.1	11.4	11.4	11.4	11.4	20.0	20.0	20.0
Yellow Time (s)	3.0	3.6	3.0	3.6	3.6	3.2	3.2	3.2	3.2	3.5	3.5	3.5
All-Red Time (s)	2.0	1.2	2.0	1.3	1.3	1.4	1.4	1.4	1.4	0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	-0.8	-1.0	-0.9	-0.9	-0.6	-0.6	-0.6	-0.6	-0.8	-0.8	-0.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.2	3.2	3.2
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lead						
Lead-Lag Optimize?		Yes		Yes		Yes						
Vehicle Extension (s)	0.3	3.0	0.3	3.0	3.0	2.5	2.5	2.5	2.5	3.0	3.0	3.0
Recall Mode	None	C-Max	None	C-Max	C-Max	None	None	None	None	None	None	None
Walk Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Flash Don't Walk (s)	13.0	13.0	21.0	21.0	21.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	83.8	83.8	71.3	71.3	71.3	7.0	7.0	7.0	7.0	16.8	16.8	16.8
Actuated g/C Ratio	0.70	0.70	0.59	0.59	0.59	0.06	0.06	0.06	0.06	0.14	0.14	0.14
v/c Ratio	0.60	0.15	0.05	0.46	0.41	0.07	0.21	0.21	0.21	0.63	0.63	0.63
Control Delay	26.6	7.9	10.0	12.4	3.5	54.4	28.9	28.9	28.9	60.1	59.3	59.3
Queue Delay	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 Delay	26.6	7.9	10.0	12.4	3.5	54.4	28.9	28.9	28.9	60.1	59.3	59.3
LOS	C	A	A	B	A	D	C	C	C	E	E	E
Approach Delay	14.4	14.4	9.6	9.6	9.6	34.7	34.7	34.7	34.7	59.7	59.7	59.7
Approach LOS	B	B	A	A	A	C	C	C	C	E	E	E
Queue Length 50th (ft)	88	54	8	182	66	5	3	3	3	115	118	118
Queue Length 95th (ft)	121	88	m18	m378	m96	21	31	31	31	151	151	151
Internal Link Dist (ft)	378	378	259	259	259	66	66	66	66	80	80	80
Turn Bay Length (ft)	160	160	75	75	75	100	100	100	100	100	100	100
Base Capacity (vph)	478	3508	549	2101	1091	177	179	179	179	298	309	309
Stallion Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.15	0.05	0.46	0.41	0.04	0.13	0.13	0.13	0.50	0.49	0.49
<b>Intersection Summary</b>												
Arc Type:	Other											
Cycle Length:	120											
Actuated Cycle Length:	120											
Offset:	70 (58%), Referenced to phase 2:WBTl and 6:EBTL, Start of Yellow											
Natural Cycle:	90											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	0.63											
Intersection Signal Delay:	17.2											
Intersection Capacity Utilization:	56.5%											
ICU Level of Service:	B											

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2026 Background plus Site - AM  
3005: Bowen & Cedar Springs & Turtle Creek

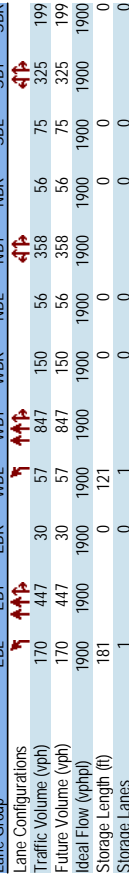
Analysis Period (min) 15  
Volume for 95th percentile queue is metered by upstream signal.



2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2026 Background plus Site - AM  
3005: Bowen & Cedar Springs & Turtle Creek

Analysis Period (min) 15  
Volume for 95th percentile queue is metered by upstream signal.

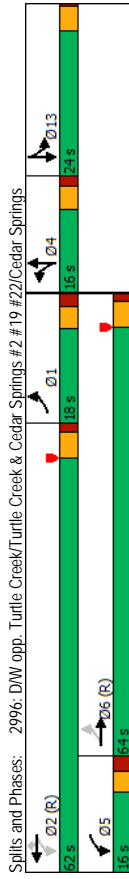


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1	1	1	1	1	1	1	1	1	1	1
Traffic Volume (vph)	170	447	30	57	847	150	56	358	56	75	325	199
Future Volume (vph)	170	447	30	57	847	150	56	358	56	75	325	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	181	0	121	0	0	0	0	0	0	0	0	0
Storage Lanes	1	0	1	0	0	0	0	0	0	0	0	0
Taper Length (ft)	25	0	25	0	0	0	25	0	0	25	0	0
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99
Flt	0.990	0.990	0.974	0.974	0.974	0.974	0.980	0.980	0.980	0.944	0.944	0.993
Flt Protected	0.950	0.950	0.950	0.950	0.950	0.950	0.992	0.992	0.992	0.993	0.993	0.993
Satd. Flow (prot)	1770	5026	0	1770	4941	0	0	3433	0	0	3291	0
Flt Permitted	0.143	0.442	0.442	0.442	0.442	0.442	0.612	0.612	0.612	0.668	0.668	0.668
Satd. Flow (perm)	266	5026	0	818	4941	0	0	2117	0	0	2214	0
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Satd. Flow (RTOR)	13	48	48	13	13	13	13	13	13	104	104	104
Link Speed (mph)	30	30	30	30	30	30	30	30	30	644	644	644
Link Distance (ft)	398	398	217	217	217	217	721	721	721	14.6	14.6	14.6
Travel Time (s)	9.0	9.0	4.9	4.9	4.9	4.9	16.4	16.4	16.4	3	3	3
Confl. Peds. (#/hr)	1	5	5	5	5	5	1	1	1	3	3	5
Peak Hour Factor	0.77	0.89	0.85	0.60	0.91	0.78	0.64	0.86	0.73	0.84	0.96	0.79
Adj. Flow (vph)	221	502	35	95	931	192	88	416	416	77	89	339
Shared Lane Traffic (%)												
Lane Group Flow (vph)	221	537	0	95	1123	0	0	581	0	0	680	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	12	12	12	12	12	12	0	0	0	0	0	0
Link Offset(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk Width(ft)	16	16	16	16	16	16	16	16	16	16	16	16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	15	15	9	15	15	15	15	15	9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50	50	50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (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
Detector 1 Queue (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
Detector 1 Delay (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
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perim	NA	NA	pm+pt	NA	NA
Protected Phases	1	6	5	2	2	4	4	4	4	3	8	8
Permitted Phases	6	6	2	2	4	4	4	4	4	3	8	8
Detector Phase	1	6	5	2	2	4	4	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	3.0	12.0	3.0	12.0	3.0	12.0	10.0	10.0	10.0	4.0	10.0	10.0

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2026 Background plus Site - AM  
3006: D/W opp. Turtle Creek/Turtle Creek & Cedar Springs #2 #19 #22/Cedar Springs

Analysis Period (min) 15  
Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1	1	1	1	1	1	1	1	1	1	1
Traffic Volume (vph)	170	447	30	57	847	150	56	358	56	75	325	199
Future Volume (vph)	170	447	30	57	847	150	56	358	56	75	325	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	181	0	121	0	0	0	0	0	0	0	0	0
Storage Lanes	1	0	1	0	0	0	0	0	0	0	0	0
Taper Length (ft)	25	0	25	0	0	0	25	0	0	25	0	0
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99
Flt	0.990	0.990	0.974	0.974	0.974	0.974	0.980	0.980	0.980	0.944	0.944	0.993
Flt Protected	0.950	0.950	0.950	0.950	0.950	0.950	0.992	0.992	0.992	0.993	0.993	0.993
Satd. Flow (prot)	1770	5026	0	1770	4941	0	0	3433	0	0	3291	0
Flt Permitted	0.143	0.442	0.442	0.442	0.442	0.442	0.612	0.612	0.612	0.668	0.668	0.668
Satd. Flow (perm)	266	5026	0	818	4941	0	0	2117	0	0	2214	0
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Satd. Flow (RTOR)	13	48	48	13	13	13	13	13	13	104	104	104
Link Speed (mph)	30	30	30	30	30	30	30	30	30	644	644	644
Link Distance (ft)	398	398	217	217	217	217	721	721	721	14.6	14.6	14.6
Travel Time (s)	9.0	9.0	4.9	4.9	4.9	4.9	16.4	16.4	16.4	3	3	3
Confl. Peds. (#/hr)	1	5	5	5	5	5	1	1	1	3	3	5
Peak Hour Factor	0.77	0.89	0.85	0.60	0.91	0.78	0.64	0.86	0.73	0.84	0.96	0.79
Adj. Flow (vph)	221	502	35	95	931	192	88	416	416	77	89	339
Shared Lane Traffic (%)												
Lane Group Flow (vph)	221	537	0	95	1123	0	0	581	0	0	680	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	12	12	12	12	12	12	0	0	0	0	0	0
Link Offset(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk Width(ft)	16	16	16	16	16	16	16	16	16	16	16	16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	15	15	9	15	15	15	15	15	9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50	50	50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (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
Detector 1 Queue (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
Detector 1 Delay (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
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perim	NA	NA	pm+pt	NA	NA
Protected Phases	1	6	5	2	2	4	4	4	4	3	8	8
Permitted Phases	6	6	2	2	4	4	4	4	4	3	8	8
Detector Phase	1	6	5	2	2	4	4	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	3.0	12.0	3.0	12.0								

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2026 Background plus Site - AM  
3005: Bowen & Cedar Springs & Turtle Creek

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	7.5	19.0	7.5	19.0	19.0	19.0	23.0	23.0	23.0	8.0	23.0	23.0
Total Split (s)	20.0	64.0	14.0	58.0	11.7%	48.3%	29.0	29.0	24.2%	13.0	42.0	42.0
Total Split (%)	16.7%	53.3%	11.7%	48.3%	24.2%	48.3%	24.2%	24.2%	10.8%	35.0%	35.0%	35.0%
Maximum Green (s)	15.5	59.0	9.5	53.0	24.0	24.0	24.0	24.0	24.0	9.0	37.0	37.0
Yellow Time (s)	3.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	3.5	4.0	4.0
All-Red Time (s)	1.5	1.0	1.5	1.0	1.0	1.0	1.0	1.0	1.0	0.5	1.0	1.0
Lost Time Adjust (s)	-0.5	-1.0	-0.5	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	2.0	2.0
Recall Mode	None	C-Max	None	C-Max	None	C-Max	Max	Max	Max	None	Max	Max
Walk Time (s)	8.0	8.0	8.0	8.0	8.0	8.0	4.0	4.0	4.0	4.0	4.0	4.0
Flash Dont Walk (s)	6.0	6.0	6.0	6.0	6.0	6.0	14.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	60.0	60.0	56.7	56.7	0.47	0.47	38.0	38.0	0.32	38.0	38.0	38.0
Actuated g/C Ratio	0.50	0.50	0.47	0.47	0.32	0.32	0.32	0.32	0.86	0.32	0.32	0.32
v/c Ratio	0.74	0.21	0.20	0.48	10.4	10.4	48.0	48.0	0.86	48.2	48.2	48.2
Control Delay	41.7	16.9	10.4	10.4	48.0	48.0	48.0	48.0	48.0	48.2	48.2	48.2
Queue Delay	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 Delay	41.7	16.9	10.4	10.4	48.0	48.0	48.0	48.0	48.0	48.2	48.2	48.2
LOS	D	B	B	B	B	B	D	D	D	D	D	D
Approach Delay	24.1	10.4	10.4	10.4	48.0	48.0	48.0	48.0	48.2	48.2	48.2	48.2
Approach LOS	C	B	B	B	B	B	D	D	D	D	D	D
Queue Length 50th (ft)	123	84	26	133	194	194	194	194	194	230	230	230
Queue Length 95th (ft)	163	121	20	68	#241	#241	#241	#241	#241	#342	#342	#342
Internal Link Dist (ft)	318	318	137	137	641	641	641	641	641	564	564	564
Turn Bay Length (ft)	181	121	121	121	679	679	679	679	679	772	772	772
Base Capacity (vph)	333	2519	465	2360	0	0	0	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.21	0.20	0.48	0.86	0.86	0.86	0.86	0.86	0.88	0.88	0.88

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2026 Background plus Site - AM  
3005: Bowen & Cedar Springs & Turtle Creek



2999 Turtle Creek TIA  
HCM 2010 TWSC

2026 Background plus Site - AM  
11: Dickason & Drive 1

Intersection									
Int Delay, s/veh	2.8								
Movement	EBL	EBR	NBL	NBT	SBT	SBR			
Lane Configurations	3	38	30	46	85	9			
Traffic Vol, veh/h	3	38	30	46	85	9			
Future Vol, veh/h	3	38	30	46	85	9			
Conflicting Peds, #/hr	0	0	0	0	0	0			
Sign Control	Stop	Stop	Free	Free	Free	Free			
RT Channelized	-	None	-	None	-	None			
Storage Length	0	-	-	-	-	-			
Yeh 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	3	41	33	50	92	10			

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	213	97	102
Stage 1	97	-	-
Stage 2	116	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pd Cap-1 Maneuver	775	959	1490
Stage 1	927	-	-
Stage 2	909	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	757	959	1490
Mov Cap-2 Maneuver	757	-	-
Stage 1	906	-	-
Stage 2	909	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9	2.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1490	-	941	-	-
HCM Lane V/C Ratio	0.022	-	0.047	-	-
HCM Control Delay (s)	7.5	0	9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

2999 Turtle Creek TIA  
HCM 2010 TWSC

2026 Background plus Site - AM  
12: Dickason & Drive 2

Intersection									
Int Delay, s/veh	1.1								
Movement	EBL	EBR	NBL	NBT	SBT	SBR			
Lane Configurations	3	9	9	52	89	3			
Traffic Vol, veh/h	3	9	9	52	89	3			
Future Vol, veh/h	3	9	9	52	89	3			
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	-	-	-	-	-			
Yeh 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	3	10	10	57	97	3			

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	176	99	100
Stage 1	99	-	-
Stage 2	77	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pd Cap-1 Maneuver	814	957	1493
Stage 1	925	-	-
Stage 2	946	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	808	957	1493
Mov Cap-2 Maneuver	808	-	-
Stage 1	919	-	-
Stage 2	946	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9	1.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1493	-	915	-	-
HCM Lane V/C Ratio	0.007	-	0.014	-	-
HCM Control Delay (s)	7.4	0	9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection												
Int Delay, s/veh	0.5											
Movement	WBL	WBR	NBT	NBR	SBL	SBT						
Lane Configurations	↔	↔	↔	↔	↔	↔						
Traffic Vol, veh/h	6	3	75	6	3	102						
Future Vol, veh/h	6	3	75	6	3	102						
Conflicting Peds, #/hr	0	0	0	0	0	0						
Sign Control	Stop	Stop	Free	Free	Free	Free						
RT Channelized	-	-	None	-	None	-						
Storage Length	0	-	-	-	-	-						
Yeh 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	7	3	82	7	3	111						

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	203	86	0	0	89
Stage 1	86	-	-	-	-
Stage 2	117	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3,518	3,318	-	-	2,218
Pd Cap-1 Maneuver	786	973	-	-	1,506
Stage 1	937	-	-	-	-
Stage 2	908	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	784	973	-	-	1,506
Mov Cap-2 Maneuver	784	-	-	-	-
Stage 1	935	-	-	-	-
Stage 2	908	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.3	0	0.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	838	1506	-
HCM Lane V/C Ratio	-	-	0.012	0.002	-
HCM Control Delay (s)	-	-	9.3	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Vol, veh/h	34	157	35	0	515	94	0	0	0	16	48	16
Future Vol, veh/h	34	157	35	0	515	94	0	0	0	16	48	16
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	None	-	-	None	-	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Yeh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	-	0
Grade, %	-	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	37	171	38	0	560	102	0	0	0	17	52	17

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	662	0	0	-	0
Stage 1	-	-	-	-	875
Stage 2	-	-	-	-	611
Critical Hdwy	4.12	-	-	-	264
Critical Hdwy Stg 1	-	-	-	-	283
Critical Hdwy Stg 2	-	-	-	-	6.42
Follow-up Hdwy	2,218	-	-	-	5.42
Pd Cap-1 Maneuver	927	-	-	-	5.52
Stage 1	-	-	0	-	3,518
Stage 2	-	-	0	-	4,018
Platoon blocked, %	-	-	0	-	320
Mov Cap-1 Maneuver	927	-	0	-	280
Mov Cap-2 Maneuver	-	-	0	-	493
Stage 1	-	-	0	-	542
Stage 2	-	-	0	-	484
Platoon blocked, %	-	-	0	-	780
Mov Cap-1 Maneuver	927	-	0	-	677
Mov Cap-2 Maneuver	-	-	0	-	306
Stage 1	-	-	0	-	0
Stage 2	-	-	0	-	493

Approach	EB	WB	SB
HCM Control Delay, s	1.4	0	17.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBR	SBLn1
Capacity (veh/h)	927	-	-	-	-	378
HCM Lane V/C Ratio	0.04	-	-	-	-	0.23
HCM Control Delay (s)	9	0	-	-	-	17.3
HCM Lane LOS	A	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	-	0.9



2999 Turtle Creek TIA  
 HCM 2010 TWSC

2026 Background plus Site - AM  
 171: Gillespie & Sale

Intersection													
Int Delay, s/veh	5.5												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	18	18	9	22	47	37	24	47	6	19	74	47	↔
Traffic Vol, veh/h	20	600	1124	20	600	1124	55	46	78	55	46	78	↔
Future Vol, veh/h	20	600	1124	20	600	1124	55	46	78	55	46	78	↔
Conflicting Peds, #/hr	2	0	0	2	0	0	2	0	0	2	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	-	-	-	-	-	-	-	-	-	-	-
Storage Length	100	-	-	-	-	-	-	-	-	-	-	-	-
Yeh in Median Storage, #	-	0	0	-	0	0	-	0	-	0	0	-	-
Grade, %	-	0	0	-	0	0	-	0	-	0	0	-	-
Peak Hour Factor	92	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	2
Mvmt Flow	20	20	10	24	51	40	26	51	7	21	80	51	

Major/Minor	Minor2	Minor1	Major1	Major2								
Conflicting Flow All	319	272	118	278	294	70	140	0	0	63	0	0
Stage 1	157	157	-	112	112	-	-	-	-	-	-	-
Stage 2	162	115	-	166	182	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
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	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pd Cap-1 Maneuver	634	635	934	674	617	993	1443	-	-	1540	-	-
Stage 1	845	768	-	893	803	-	-	-	-	-	-	-
Stage 2	840	800	-	836	749	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	545	607	925	630	590	981	1432	-	-	1534	-	-
Mov Cap-2 Maneuver	545	607	-	630	590	-	-	-	-	-	-	-
Stage 1	823	751	-	872	785	-	-	-	-	-	-	-
Stage 2	733	782	-	792	733	-	-	-	-	-	-	-
Approach	EB	WB	WB	NB	NB	SB	SB					
HCM Control Delay, s	11.3	11.2	11.2	2.4	2.4	1	1					
HCM LOS	B	B	B	B	B	B	B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Capacity (veh/h)	1432	-	-	621	696	1534	-	-	-	-	-	-	-	-	-
HCM Lane V/C Ratio	0.018	-	-	0.079	0.166	0.013	-	-	-	-	-	-	-	-	-
HCM Control Delay (s)	7.6	0	-	11.3	11.2	7.4	0	-	-	-	-	-	-	-	-
HCM Lane LOS	A	A	-	B	B	A	A	-	-	-	-	-	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.6	0	-	-	-	-	-	-	-	-	-

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

2999 Turtle Creek TIA  
 HCM 2010 TWSC

2026 Background plus Site - AM  
 172: Cedar Springs & Dickason

Intersection													
Int Delay, s/veh	0.9												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR				
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Vol, veh/h	20	600	1124	20	600	1124	55	46	78	55	46	78	↔
Future Vol, veh/h	20	600	1124	20	600	1124	55	46	78	55	46	78	↔
Conflicting Peds, #/hr	2	0	0	2	0	0	2	0	0	2	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	-	-	-	-	-	-	-	-	-	-	-
Storage Length	100	-	-	-	-	-	-	-	-	-	-	-	-
Yeh in Median Storage, #	-	0	0	-	0	0	-	0	-	0	0	-	-
Grade, %	-	0	0	-	0	0	-	0	-	0	0	-	-
Peak Hour Factor	92	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	2
Mvmt Flow	22	652	1222	60	50	85							

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	1284	0	0	1560	643
Stage 1	-	-	-	1254	-
Stage 2	-	-	-	306	-
Critical Hdwy	5.34	-	-	5.74	7.14
Critical Hdwy Stg 1	-	-	-	6.64	-
Critical Hdwy Stg 2	-	-	-	6.04	-
Follow-up Hdwy	3.12	-	-	3.82	3.92
Pd Cap-1 Maneuver	*812	-	-	*520	*646
Stage 1	-	-	-	*663	-
Stage 2	-	-	-	*799	-
Platoon blocked, %	1	-	-	1	1
Mov Cap-1 Maneuver	*811	-	-	*504	*645
Mov Cap-2 Maneuver	-	-	-	*544	-
Stage 1	-	-	-	*644	-
Stage 2	-	-	-	*797	-
Approach	EB	WB	WB	SB	SB
HCM Control Delay, s	0.3	0	0	12.7	B
HCM LOS					B

Minor Lane/Major Mvmt	EBL	EBT	WBL	WBT	WBR	SBL	SBT
Capacity (veh/h)	* 811	-	-	-	-	-	603
HCM Lane V/C Ratio	0.027	-	-	-	-	-	0.224
HCM Control Delay (s)	9.6	-	-	-	-	-	12.7
HCM Lane LOS	A	-	-	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	-	-	0.9

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

2999 Turtle Creek TIA  
HCM 2010 TWSC

2026 Background plus Site - AM  
173: Dickason & Sale

Intersection													
Int Delay, s/veh													
7.4													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	SBR	SBR
Lane Configurations	3	41	17	32	65	13	26	25	4	8	43	3	4
Traffic Vol, veh/h	3	41	17	32	65	13	26	25	4	8	43	3	4
Future Vol, veh/h	3	41	17	32	65	13	26	25	4	8	43	3	4
Conflicting Peds, #/hr	4	0	9	9	0	4	2	0	9	9	0	2	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	-	-	-	-	-	-	-	-	-	-	-
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	-
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	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	45	18	35	71	14	28	27	4	9	47	3	3

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	201	165	60	201
Stage 1	69	69	94	94
Stage 2	132	96	107	70
Critical Hdwy	7.12	6.52	7.12	6.52
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	3.518	4.018	3.318	4.018
Pd Cap-1 Maneuver	757	728	1005	757
Stage 1	941	837	913	817
Stage 2	871	815	898	837
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	674	704	996	684
Mov Cap-2 Maneuver	674	704	684	705
Stage 1	922	830	890	797
Stage 2	766	795	823	830

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.2	10.9	3.5	1.1
HCM LOS	B	B	B	B

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Capacity (veh/h)	1551	-	-	765	725	1558	-	-	-	-	-	-	-	-	-
HCM Lane V/C Ratio	0.018	-	-	0.087	0.165	0.006	-	-	-	-	-	-	-	-	-
HCM Control Delay (\$)	7.4	0	0	10.2	10.9	7.3	0	0	0	0	0	0	0	0	0
HCM Lane LOS	A	A	A	B	B	A	A	A	A	A	A	A	A	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.6	0	-	-	-	-	-	-	-	-	-

2999 Turtle Creek TIA  
HCM 2010 TWSC

2026 Background plus Site - AM  
174: Cedar Springs & Sale

Intersection													
Int Delay, s/veh													
3.2													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	SBR	SBR
Lane Configurations	53	4	47	0	1	5	37	644	4	10	601	43	4
Traffic Vol, veh/h	53	4	47	0	1	5	37	644	4	10	601	43	4
Future Vol, veh/h	53	4	47	0	1	5	37	644	4	10	601	43	4
Conflicting Peds, #/hr	0	0	0	0	0	0	5	0	2	2	0	5	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	-	-	-	-	-	-	-	-	-	-	-
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	-
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	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	58	4	51	0	1	5	40	700	4	11	653	47	4

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	1135	1490	355	1135
Stage 1	704	704	784	784
Stage 2	431	786	351	727
Critical Hdwy	7.54	6.54	6.94	7.54
Critical Hdwy Stg 1	6.54	5.54	6.54	5.54
Critical Hdwy Stg 2	6.54	5.54	6.54	5.54
Follow-up Hdwy	3.52	4.02	3.32	4.02
Pd Cap-1 Maneuver	159	123	641	159
Stage 1	394	438	715	638
Stage 2	768	637	639	427
Platoon blocked, %	1	1	1	1
Mov Cap-1 Maneuver	146	112	638	132
Mov Cap-2 Maneuver	146	112	132	108
Stage 1	363	430	661	590
Stage 2	705	588	573	419

Approach	EB	WB	NB	SB
HCM Control Delay, s	37.5	14.4	0.8	0.2
HCM LOS	E	B	B	B

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Capacity (veh/h)	885	-	-	220	390	1217	-	-	-	-	-	-	-	-	-
HCM Lane V/C Ratio	0.045	-	-	0.514	0.017	0.009	-	-	-	-	-	-	-	-	-
HCM Control Delay (\$)	9.3	0.3	0.3	37.5	14.4	8	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
HCM Lane LOS	A	A	A	E	B	A	A	A	A	A	A	A	A	A	A
HCM 95th %tile Q(veh)	0.1	-	-	2.6	0.1	0	-	-	-	-	-	-	-	-	-

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2996: DW opp. Turtle Creek/Turtle Creek & Cedar Springs #2 #19 #22/Cedar Springs

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2996: DW opp. Turtle Creek/Turtle Creek & Cedar Springs #2 #19 #22/Cedar Springs

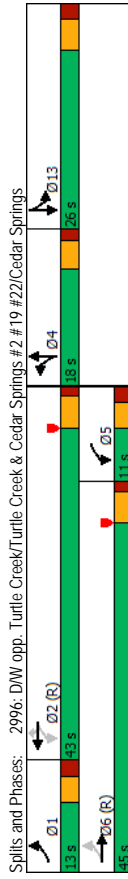
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	95	1002	7	41	542	185	33	27	24	478	5	0
Future Volume (vph)	95	1002	7	41	542	185	33	27	24	478	5	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0	75	0	0	0	0	0	0	100	100	100
Storage Lanes	1	0	1	1	1	1	1	1	1	1	1	0
Taper Length (ft)	25	55	0	0	0	0	0	0	0	0	0	0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	1.00	1.00	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Permitted	0.996	0.996	0.996	0.996	0.850	0.954	0.954	0.954	0.954	0.954	0.954	0.954
Fill Protected	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.953	0.953
Satd. Flow (prot)	1770	5061	0	1770	3539	1583	1770	1769	0	1681	1686	0
Flt Permitted	0.294	0.217	0.217	0.217	0.217	0.217	0.217	0.217	0.217	0.217	0.217	0.217
Satd. Flow (perm)	545	5061	0	403	3539	1530	1770	1769	0	1678	1683	0
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Satd. Flow (RTOR)	4	203	0	203	203	203	203	203	203	203	203	203
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	30
Link Distance (ft)	458	458	458	458	458	458	458	458	458	458	458	458
Travel Time (s)	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4
Confl. Peds. (#/hr)	7	5	5	5	5	5	5	5	5	5	5	5
Peak Hour Factor	0.91	0.87	0.25	1.00	0.89	0.91	1.00	0.25	0.50	0.89	1.00	0.74
Adj. Flow (vph)	104	1152	28	41	609	203	33	108	48	537	5	0
Shared Lane Traffic (%)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	104	1180	0	41	609	203	33	156	0	268	274	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	Right
Median Width(ft)	12	12	12	12	12	12	12	12	12	12	12	12
Link Offset(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk Width(ft)	16	16	16	16	16	16	16	16	16	16	16	16
Two way Left Turn Lane	0	0	0	0	0	0	0	0	0	0	0	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	15	9	15	15	15	9	15	15	9
Number of Detectors	1	1	1	1	1	1	1	1	2	1	2	2
Detector Template	Left	Left	Left	Left	Left	Left	Left	Left	Thru	Thru	Thru	Thru
Leading Detector (ft)	50	50	20	50	50	20	100	100	50	100	100	100
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	50	50	20	50	50	20	6	6	50	6	6	6
Detector 1 Type	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex
Detector 1 Channel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Extend (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
Detector 1 Queue (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
Detector 1 Delay (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
Detector 2 Position(ft)	94	94	94	94	94	94	94	94	94	94	94	94
Detector 2 Size(ft)	6	6	6	6	6	6	6	6	6	6	6	6
Detector 2 Type	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex
Detector 2 Channel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Extend (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
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	Split	Split	NA

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	1	6	5	2	4	4	4	4	4	13	13	13
Permitted Phases	6	6	2	2	2	2	2	2	2	13	13	13
Detector Phase	1	6	5	2	4	4	4	4	4	13	13	13
Switch Phase	3.0	12.0	3.0	12.0	6.0	6.0	6.0	6.0	6.0	4.0	4.0	4.0
Minimum Initial (s)	8.0	21.8	8.0	29.9	29.9	30.6	30.6	30.6	30.6	9.5	9.5	9.5
Minimum Spill (s)	13.0	45.0	11.0	43.0	18.0	18.0	18.0	18.0	18.0	26.0	26.0	26.0
Total Spill (%)	13.0%	45.0%	11.0%	43.0%	18.0%	18.0%	18.0%	18.0%	18.0%	26.0%	26.0%	26.0%
Maximum Green (s)	8.0	40.2	6.0	38.1	38.1	33.2	33.2	33.2	33.2	20.5	20.5	20.5
Yellow Time (s)	3.0	3.6	3.0	3.6	3.6	3.2	3.2	3.2	3.2	3.6	3.6	3.6
All-Red Time (s)	2.0	1.2	2.0	1.3	1.3	1.4	1.4	1.4	1.4	1.9	1.9	1.9
Lost Time Adjust (s)	-1.0	-0.8	-1.0	-0.9	-0.9	-0.6	-0.6	-0.6	-0.6	-0.8	-0.8	-0.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.7	4.7	4.7
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	0.3	3.0	0.3	3.0	2.5	2.5	2.5	2.5	2.5	3.0	3.0	3.0
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None	None	None
Walk Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Flash Dont Walk (s)	13.0	13.0	21.0	21.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	48.7	48.7	44.3	44.3	12.0	12.0	12.0	12.0	12.0	20.0	20.0	20.0
Actuated g/C Ratio	0.49	0.49	0.44	0.44	0.12	0.12	0.12	0.12	0.12	0.20	0.20	0.20
v/c Ratio	0.30	0.48	0.16	0.39	0.26	0.16	0.68	0.68	0.68	0.80	0.82	0.82
Control Delay	14.9	17.6	18.6	17.0	2.4	40.1	52.0	52.0	52.0	56.4	57.9	57.9
Queue Delay	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 Delay	14.9	17.6	18.6	17.0	2.4	40.1	52.0	52.0	52.0	56.4	57.9	57.9
LOS	B	B	B	B	A	D	D	D	D	E	E	E
Approach Delay	17.4	17.4	13.6	13.6	49.9	49.9	49.9	49.9	49.9	57.2	57.2	57.2
Approach LOS	B	B	B	B	D	D	D	D	D	E	E	E
Queue Length 50th (ft)	46	230	13	111	1	19	83	83	83	167	171	171
Queue Length 95th (ft)	m63	267	m27	m135	m18	47	29	29	29	#286	#300	#300
Internal Link Dist (ft)	378	378	276	276	66	66	66	66	66	93	93	93
Turn Bay Length (ft)	160	160	75	75	100	100	100	100	100	100	100	100
Base Capacity (vph)	375	2468	274	1569	791	247	264	264	264	361	362	362
Stallion Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.48	0.15	0.39	0.26	0.13	0.59	0.59	0.59	0.74	0.76	0.76
<b>Intersection Summary</b>												
Arc Type:	Other											
Cycle Length:	100											
Actuated Cycle Length:	100											
Offset:	88 (88%), Referenced to phase 2:WBTl and 6:EBTL, Start of Yellow											
Natural Cycle:	90											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	0.82											
Intersection Signal Delay:	25.9											
Intersection Capacity Utilization:	56.7%											
ICU Level of Service:	B											

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2026 Background plus Site - PM  
3005: Bowen & Cedar Springs & Turtle Creek

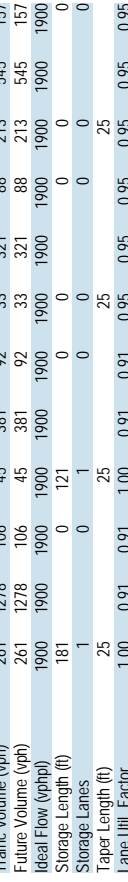
Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 m Queue shown is maximum after two cycles.  
 Volume for 95th percentile queue is metered by upstream signal.



2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2026 Background plus Site - PM  
3005: Bowen & Cedar Springs & Turtle Creek

Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 m Queue shown is maximum after two cycles.  
 Volume for 95th percentile queue is metered by upstream signal.



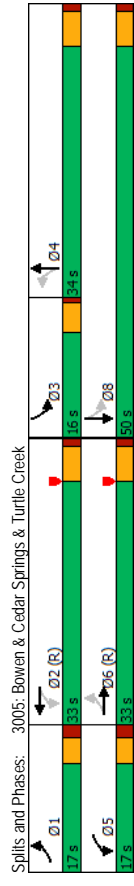
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑↑↑	↑↑↑	↑	↑↑↑	↑↑↑	←	←	←	←	←	←
Traffic Volume (vph)	261	1278	106	45	381	92	33	321	88	213	545	157
Future Volume (vph)	261	1278	106	45	381	92	33	321	88	213	545	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	181	0	121	0	0	0	0	0	0	0	0	0
Storage Lanes	1	0	1	0	0	0	0	0	0	0	0	0
Taper Length (ft)	25	0	0	25	0	0	25	0	0	25	0	0
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.99	1.00	0.99	0.99	0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00
Flt	0.988	0.988	0.988	0.969	0.969	0.969	0.974	0.974	0.974	0.974	0.974	0.974
Flt Protected	0.950	0.950	0.950	0.994	0.994	0.994	0.988	0.988	0.988	0.988	0.988	0.988
Satd. Flow (prot)	1770	5014	0	1770	4894	0	0	3395	0	0	3393	0
Flt Permitted	0.349	0.137	0.137	0.666	0.666	0.666	0.651	0.651	0.651	0.651	0.651	0.651
Satd. Flow (perm)	644	5014	0	255	4894	0	0	2274	0	0	2234	0
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Satd. Flow (RTOR)	14	33	64	33	33	33	33	33	33	33	33	33
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	30
Link Distance (ft)	382	217	217	721	721	721	647	647	647	647	647	647
Travel Time (s)	8.7	4.9	4.9	16.4	16.4	16.4	14.7	14.7	14.7	14.7	14.7	14.7
Confl. Peds. (#/hr)	10	6	6	10	6	6	5	5	5	5	5	5
Peak Hour Factor	0.83	0.94	0.89	0.84	0.96	0.90	0.50	0.86	0.77	0.86	0.91	0.90
Adj. Flow (vph)	314	1360	119	54	397	102	66	373	114	248	599	174
Shared Lane Traffic (%)												
Lane Group Flow (vph)	314	1479	0	54	499	0	0	553	0	0	1021	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	12	12	12	12	12	12	0	0	0	0	0	0
Link Offset(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk Width(ft)	16	16	16	16	16	16	16	16	16	16	16	16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	15	15	9	15	15	9	15	15	9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50	50	50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (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
Detector 1 Queue (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
Detector 1 Delay (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
Turn Type	pm+pt	NA	pm+pt	NA	NA	NA	NA	NA	NA	pm+pt	NA	NA
Protected Phases	1	6	5	2	4	4	3	8	3	8	8	8
Permitted Phases	6	6	2	2	4	4	4	4	4	3	8	8
Detector Phase	1	6	5	2	4	4	4	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	3.0	12.0	3.0	3.0	12.0	3.0	10.0	10.0	10.0	4.0	10.0	10.0

2999 Turtle Creek TIA  
Lanes, Volumes, Timings

2026 Background plus Site - PM  
3005: Bowen & Cedar Springs & Turtle Creek

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Spill (s)	7.5	19.0	7.5	19.0	19.0	19.0	23.0	23.0	23.0	8.0	23.0	23.0
Total Spill (s)	17.0	33.0	17.0	33.0	34.0	34.0	34.0	34.0	34.0	16.0	50.0	50.0
Total Spill (%)	17.0%	33.0%	17.0%	33.0%	34.0%	34.0%	34.0%	34.0%	34.0%	16.0%	50.0%	50.0%
Maximum Green (s)	12.5	28.0	12.5	28.0	29.0	29.0	29.0	29.0	29.0	12.0	45.0	45.0
Yellow Time (s)	3.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	3.5	4.0	4.0
All-Red Time (s)	1.5	1.0	1.5	1.0	1.0	1.0	1.0	1.0	1.0	0.5	1.0	1.0
Lost Time Adjust (s)	-0.5	-1.0	-0.5	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	2.0	2.0
Recall Mode	None	C-Max	None	C-Max	Min	Min	Min	Min	Min	None	Min	Min
Walk Time (s)	8.0	8.0	8.0	8.0	8.0	8.0	4.0	4.0	4.0	4.0	4.0	4.0
Flash Dont Walk (s)	6.0	6.0	6.0	6.0	6.0	6.0	14.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	46.2	37.3	36.2	29.5	36.2	29.5	45.8	45.8	45.8	45.8	45.8	45.8
Actuated g/C Ratio	0.46	0.37	0.36	0.30	0.36	0.30	0.46	0.46	0.46	0.46	0.46	0.46
v/c Ratio	0.72	0.79	0.28	0.33	0.28	0.33	0.52	0.52	0.52	0.98	0.98	0.98
Control Delay	24.0	16.6	18.4	20.1	20.1	20.1	20.1	20.1	20.1	50.6	50.6	50.6
Queue Delay	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 Delay	24.0	16.6	18.4	20.1	20.1	20.1	20.1	20.1	20.1	50.6	50.6	50.6
LOS	C	B	B	C	C	C	C	C	C	D	D	D
Approach Delay	17.9	17.9	19.9	19.9	20.1	20.1	20.1	20.1	20.1	50.6	50.6	50.6
Approach LOS	B	B	B	B	B	B	C	C	C	D	D	D
Queue Length 50th (ft)	58	163	14	83	119	119	119	119	119	318	318	318
Queue Length 95th (ft)	120	200	m27	60	158	158	158	158	158	#473	#473	#473
Internal Link Dist (ft)	302	302	137	137	641	641	641	641	641	567	567	567
Turn Bay Length (ft)	181	181	121	121	1044	1044	1044	1044	1044	1044	1044	1044
Base Capacity (vph)	443	1877	305	1490	1059	1059	1059	1059	1059	1044	1044	1044
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.79	0.18	0.33	0.33	0.33	0.52	0.52	0.52	0.98	0.98	0.98

Intersection Summary	Other
Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	87 (87%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle:	70
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.98
Intersection Signal Delay:	27.0
Intersection Capacity Utilization:	83.2%
Analysis Period (min):	15
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	
m Volume for 95th percentile queue is metered by upstream signal.	



2999 Turtle Creek TIA  
HCM 2010 TWSC

2026 Background plus Site - PM  
11: Dickason & Drive 1

Intersection									
Int Delay, s/veh	2.8								
Movement	EBL	EBR	NBL	NBT	SBT	SBR			
Lane Configurations	3	40	39	63	84	12	4		
Traffic Vol, veh/h	3	40	39	63	84	12	4		
Future Vol, veh/h	3	40	39	63	84	12	4		
Conflicting Peds, #/hr	0	0	0	0	0	0	0		
Sign Control	Stop	Stop	Free	Free	Free	Free	Free		
RT Channelized	-	None	-	None	-	None	None		
Storage Length	0	-	-	-	-	-	-		
Yeh in Median Storage, #	0	-	-	0	0	-	-		
Grade, %	0	-	-	0	0	-	-		
Peak Hour Factor	92	92	92	92	92	92	92		
Heavy Vehicles, %	2	2	2	2	2	2	2		
Mvmt Flow	3	43	42	68	91	13	4		

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	250	98	104	0	-	0
Stage 1	98	-	-	-	-	-
Stage 2	152	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pd Cap-1 Maneuver	739	958	1488	-	-	-
Stage 1	926	-	-	-	-	-
Stage 2	876	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	718	958	1488	-	-	-
Mov Cap-2 Maneuver	718	-	-	-	-	-
Stage 1	899	-	-	-	-	-
Stage 2	876	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9	2.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBL1	SBT	SBR
Capacity (veh/h)	1488	-	936	-	-
HCM Lane V/C Ratio	0.028	-	0.05	-	-
HCM Control Delay (s)	7.5	0	9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

2999 Turtle Creek TIA  
HCM 2010 TWSC

2026 Background plus Site - PM  
12: Dickason & Drive 2

Intersection									
Int Delay, s/veh	1.1								
Movement	EBL	EBR	NBL	NBT	SBT	SBR			
Lane Configurations	3	10	12	51	102	4	4		
Traffic Vol, veh/h	3	10	12	51	102	4	4		
Future Vol, veh/h	3	10	12	51	102	4	4		
Conflicting Peds, #/hr	0	0	0	0	0	0	0		
Sign Control	Stop	Stop	Free	Free	Free	Free	Free		
RT Channelized	-	None	-	None	-	None	None		
Storage Length	0	-	-	-	-	-	-		
Yeh in Median Storage, #	0	-	-	0	0	-	-		
Grade, %	0	-	-	0	0	-	-		
Peak Hour Factor	92	92	92	92	92	92	92		
Heavy Vehicles, %	2	2	2	2	2	2	2		
Mvmt Flow	3	11	13	55	111	4	4		

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	194	113	115	0	-	0
Stage 1	113	-	-	-	-	-
Stage 2	81	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pd Cap-1 Maneuver	795	940	1474	-	-	-
Stage 1	912	-	-	-	-	-
Stage 2	942	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	788	940	1474	-	-	-
Mov Cap-2 Maneuver	788	-	-	-	-	-
Stage 1	904	-	-	-	-	-
Stage 2	942	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.1	1.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBL1	SBT	SBR
Capacity (veh/h)	1474	-	900	-	-
HCM Lane V/C Ratio	0.009	-	0.016	-	-
HCM Control Delay (s)	7.5	0	9.1	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

2999 Turtle Creek TIA  
 HCM 2010 TWSC

2026 Background plus Site - PM  
 13: Gillespie & Drive 3

Intersection												
Int Delay, s/veh	0.6											
Movement	WBL	WBR	NBT	NBR	SBL	SBT						
Lane Configurations	7	3	122	8	4	77						
Traffic Vol, veh/h	7	3	122	8	4	77						
Future Vol, veh/h	7	3	122	8	4	77						
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	-	-	-	-	-						
Yeh 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	8	3	133	9	4	84						

Major/Minor	Minor1	Major1	Minor2									
Conflicting Flow All	230	138	0	0	142	0						
Stage 1	138	-	-	-	-	-						
Stage 2	92	-	-	-	-	-						
Critical Hdwy	6.42	6.22	-	-	4.12	-						
Critical Hdwy Stg 1	5.42	-	-	-	-	-						
Critical Hdwy Stg 2	5.42	-	-	-	-	-						
Follow-up Hdwy	3,518	3,318	-	-	2,218	-						
Pd Cap-1 Maneuver	758	910	-	-	1,441	-						
Stage 1	889	-	-	-	-	-						
Stage 2	932	-	-	-	-	-						
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	756	910	-	-	1,441	-						
Mov Cap-2 Maneuver	756	-	-	-	-	-						
Stage 1	886	-	-	-	-	-						
Stage 2	932	-	-	-	-	-						

Approach	WB	NB	SB						
HCM Control Delay, s	9.6	0	0.4						
HCM LOS	A								

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT						
Capacity (veh/h)	-	-	796	1441	-						
HCM Lane V/C Ratio	-	-	0.014	0.003	-						
HCM Control Delay (s)	-	-	9.6	7.5	0						
HCM Lane LOS	-	-	A	A	A						
HCM 95th %tile Q(veh)	-	-	0	0	0						

2999 Turtle Creek TIA  
 HCM 2010 TWSC

2026 Background plus Site - PM  
 171: Gillespie & Sale

2999 Turtle Creek TIA  
 HCM 2010 TWSC

2026 Background plus Site - PM  
 172: Cedar Springs & Dickason

Intersection													
Int Delay, s/veh													
5.3													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	43	43	22	6	23	15	12	90	24	23	53	23	↕
Traffic Vol, veh/h	43	43	22	6	23	15	12	90	24	23	53	23	
Future Vol, veh/h	43	43	22	6	23	15	12	90	24	23	53	23	
Conflicting Peds, #/hr	4	0	1	0	1	0	4	11	0	3	3	0	11
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	None	-	-	None	-	None	-	None	-
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	-
Yeh 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	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	47	47	24	7	25	16	13	98	26	25	58	25	
Major/Minor	Minor2	Minor1	Minor1	Minor1	Minor1	Minor1	Minor1	Minor1	Minor1	Minor1	Minor1	Minor1	Minor1
Conflicting Flow All	294	285	83	297	284	118	94	0	0	127	0	0	
Stage 1	132	132	-	140	140	-	-	-	-	-	-	-	
Stage 2	162	153	-	157	144	-	-	-	-	-	-	-	
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-	
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	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-	
Pd Cap-1 Maneuver	658	624	976	655	625	934	1500	-	-	1459	-	-	
Stage 1	871	787	-	863	781	-	-	-	-	-	-	-	
Stage 2	840	771	-	845	778	-	-	-	-	-	-	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	605	600	966	587	601	929	1486	-	-	1455	-	-	
Mov Cap-2 Maneuver	605	600	587	601	601	-	-	-	-	-	-	-	
Stage 1	855	766	-	854	772	-	-	-	-	-	-	-	
Stage 2	789	763	-	759	757	-	-	-	-	-	-	-	
Approach	EB	WB	WB	NB	NB	SB	SB						
HCM Control Delay, s	11.7	10.7	10.7	0.7	0.7	1.7	1.7						
HCM LOS	B	B	B	B	B	B	B						
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR	
Capacity (veh/h)	1486	-	-	653	681	1455	-	-	-	-	-	-	
HCM Lane V/C Ratio	0.009	-	-	0.18	0.07	0.017	-	-	-	-	-	-	
HCM Control Delay (s)	7.4	0	-	11.7	10.7	7.5	0	-	-	-	-	-	
HCM Lane LOS	A	A	-	B	B	A	A	-	-	-	-	-	
HCM 95th %tile Q(veh)	0	-	-	0.7	0.2	0.1	-	-	-	-	-	-	

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

Intersection													
Int Delay, s/veh													
0.9													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↕	↕	↕	↕	↕	↕	↕	↕	↕	↕	↕	↕	↕
Traffic Vol, veh/h	45	1543	556	57	78	46							
Future Vol, veh/h	45	1543	556	57	78	46							
Conflicting Peds, #/hr	10	0	0	10	0	0							
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	None	-	None	-	None	-	None	-	None	-	None	-
Storage Length	100	-	-	-	-	0	-	-	-	-	-	-	-
Yeh in Median Storage, #	-	0	0	-	0	-	-	1	-	-	-	-	-
Grade, %	-	0	0	-	0	-	-	0	-	-	-	0	-
Peak Hour Factor	92	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	2
Mvmt Flow	49	1677	604	62	85	50							
Major/Minor	Major1	Major2	Major2	Major2	Major2	Major2	Minor2	Minor2	Minor2	Minor2	Minor2	Minor2	Minor2
Conflicting Flow All	676	0	-	0	1414	343							
Stage 1	-	-	-	-	645	-							
Stage 2	-	-	-	-	769	-							
Critical Hdwy	5.34	-	-	-	5.74	7.14							
Critical Hdwy Stg 1	-	-	-	-	6.64	-							
Critical Hdwy Stg 2	-	-	-	-	6.04	-							
Follow-up Hdwy	3.12	-	-	-	3.82	3.92							
Pd Cap-1 Maneuver	876	-	-	-	579	803							
Stage 1	-	-	-	-	724	-							
Stage 2	-	-	-	-	580	-							
Platoon blocked, %	1	-	-	-	1	1							
Mov Cap-1 Maneuver	869	-	-	-	538	797							
Mov Cap-2 Maneuver	-	-	-	-	479	-							
Stage 1	-	-	-	-	677	-							
Stage 2	-	-	-	-	575	-							
Approach	EB	WB	WB	SB	SB								
HCM Control Delay, s	0.3	0	0	13.4	13.4								
HCM LOS	B	B	B	B	B								
Minor Lane/Major Mvmt	EBL	EBT	WBL	WBT	WBR	SBL	SBT	WBR	SBL	WBR	SBL	WBR	SBL
Capacity (veh/h)	869	-	-	-	-	-	-	562	-	-	-	-	-
HCM Lane V/C Ratio	0.056	-	-	-	-	-	-	0.24	-	-	-	-	-
HCM Control Delay (s)	9.4	-	-	-	-	-	-	13.4	-	-	-	-	-
HCM Lane LOS	A	-	-	-	-	-	-	B	-	-	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-	-	-	-	0.9	-	-	-	-	-

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



2999 Turtle Creek TIA  
HCM 2010 TWSC

2026 Background plus Site - PM  
173: Dickason & Sale

Intersection													
Int Delay, s/veh													
6.6													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SBR
Lane Configurations	4	61	11	28	41	10	11	26	17	29	67	6	4
Traffic Vol, veh/h	4	61	11	28	41	10	11	26	17	29	67	6	4
Future Vol, veh/h	4	61	11	28	41	10	11	26	17	29	67	6	4
Conflicting Peds, #/hr	5	0	12	12	0	5	8	0	19	19	0	8	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	-
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	-
Yeh 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	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	66	12	30	45	11	12	28	18	32	73	7	0

2999 Turtle Creek TIA  
HCM 2010 TWSC

2026 Background plus Site - PM  
174: Cedar Springs & Sale

Intersection													
Int Delay, s/veh													
5.9													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SBR
Lane Configurations	34	3	47	1	5	8	55	667	16	31	866	68	4
Traffic Vol, veh/h	34	3	47	1	5	8	55	667	16	31	866	68	4
Future Vol, veh/h	34	3	47	1	5	8	55	667	16	31	866	68	4
Conflicting Peds, #/hr	1	0	8	0	1	5	0	13	13	0	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	-
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	-
Yeh 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	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	37	3	51	1	5	9	60	725	17	34	941	74	0

2999 Turtle Creek TIA  
HCM 2010 TWSC

2026 Background plus Site - PM  
173: Dickason & Sale

Major/Minor													
	Minor2	Minor1	Major1	Major2									
Conflicting Flow All	1537	1926	521	1415									
Stage 1	1051	1051	867	867									
Stage 2	486	875	548	1088									
Critical Hdwy	7.54	6.54	6.94	7.54									
Critical Hdwy Stg 1	6.54	5.54	6.54	5.54									
Critical Hdwy Stg 2	6.54	5.54	6.54	5.54									
Follow-up Hdwy	3.52	4.02	3.32	4.02									
Pd Cap-1 Maneuver	*79	66	500	97									
Stage 1	*243	302	599	561									
Stage 2	*777	555	488	290									
Platoon blocked, %	-	-	-	-									
Mov Cap-1 Maneuver	*60	51	495	68									
Mov Cap-2 Maneuver	*60	51	68	49									
Stage 1	*205	280	502	470									
Stage 2	*644	466	400	269									

2999 Turtle Creek TIA  
HCM 2010 TWSC

2026 Background plus Site - PM  
173: Dickason & Sale

Approach													
	EB	WB	NB	SB									
HCM Control Delay, s	101.5	42.5	1.4	0.5									
HCM LOS	F	E											

2999 Turtle Creek TIA  
HCM 2010 TWSC

2026 Background plus Site - PM  
173: Dickason & Sale

Minor Lane/Major Mvmt														
	NBL	NBT	NBR	EBL	EBL	EBL	WBL	WBL	WBL	NBL	NBL	NBL	SBL	SBR
Capacity (veh/h)	673	-	-	117	111	1171	-	-	-	-	-	-	-	-
HCM Lane V/C Ratio	0.089	-	-	0.78	0.137	0.029	-	-	-	-	-	-	-	-
HCM Control Delay (s)	10.9	0.7	-	101.5	42.5	8.2	0.3	-	-	-	-	-	-	-
HCM Lane LOS	B	A	-	F	E	A	A	-	-	-	-	-	-	-
HCM 95th %tile Q(veh)	0.3	-	-	4.5	0.5	0.1	-	-	-	-	-	-	-	-

2999 Turtle Creek TIA  
HCM 2010 TWSC

2026 Background plus Site - PM  
173: Dickason & Sale

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