

Appendix

Note: All Appendices prepared in March 2020, prior to development road names being assigned.

- Paragon Way utilized in place of One Carolina Drive
- Hutchison Road utilized in place of Hiram Way
- Panthers Parkway was utilized in place of Blue and Black Boulevard

Appendix A
Developer Provided Trip
Generation/Distribution

Land Use [ITE Code]			Weekday Daily	AM Peak Hour			PM Peak Hour		
				Enter	Exit	Total	Enter	Exit	Total
The Village									
Multi Family Housing (Mid-Rise) [221]	703	DU	3,830	60	171	231	176	112	288
General Office Building [710]	378,574	SF	3,860	472	64	536	87	395	482
Medical Office Building [720]*	100,000	SF	3,480	217	61	278	97	249	346
Research and Development Center [760]*	851,259	SF	9,585	269	89	358	63	354	417
Retail [820]	46,909	SF	3,593	109	67	176	149	161	310
Quality Restaurant [932]	35,181	SF	2,934	125	31	156	177	113	290
High-Turnover Sit Down Restaurant [932]	11,728	SF	1,316	94	71	165	106	98	204
NCHRP Internal Capture Reduction				-197	-198	-395	-251	-253	-504
The Village Subtotal			28,598	1,149	356	1,505	604	1,229	1,833
Training Facility									
NFL Training Facility **	150,000	SF	-	-	-	-	-	-	-
General Office Building [710]	316,000	SF	3,239	402	55	457	74	339	413
Retail [820]	73,500	SF	4,876	117	72	189	208	225	433
Training Facility Subtotal			8,115	519	127	646	282	564	846
The Corporates									
General Office Building [710]	1,239,440	SF	12,195	1,339	183	1,522	257	1172	1,429
The Village + Training Facility + The Corporates Total			48,908	3,007	666	3,673	1,143	2,965	4,108

References:

Trip Generation, 10th Edition, Institute of Transportation Engineers, Washington, DC. 2017.

* LUC 720 and 760 are utilized as Research and Rehab areas.

** Athletic Training Facility.

- ITE does not calculate Trips for this land use.



CAROLINA PANTHERS

Traffic Distribution Model – Draft



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20

G-480

200

DG-275

B-882

C-415

D-840

E-910

F-800

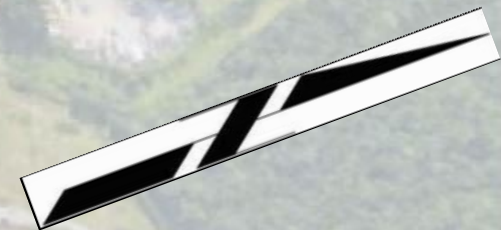
L-820

M-160

K-840

J-900

I-1008



Parking Zone 2
700 = 8.2%

Parking Zone 3
2137 = 25.0%

Parking Zone 1
980 = 11.5%

Parking Zone 4
1985 = 23,2%

Parking Zone 5
2748 = 32.1%

20
G-480
200

DG-275

B-882

C-415

D-840

L-820

M-160

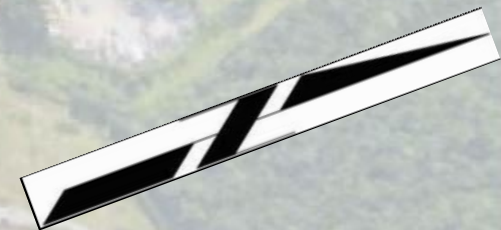
F-800

E-910

K-840

J-900

I-1008



ORIGINS & DESTINATIONS Parking Locations



ROADWAY NETWORK Arrival Distribution



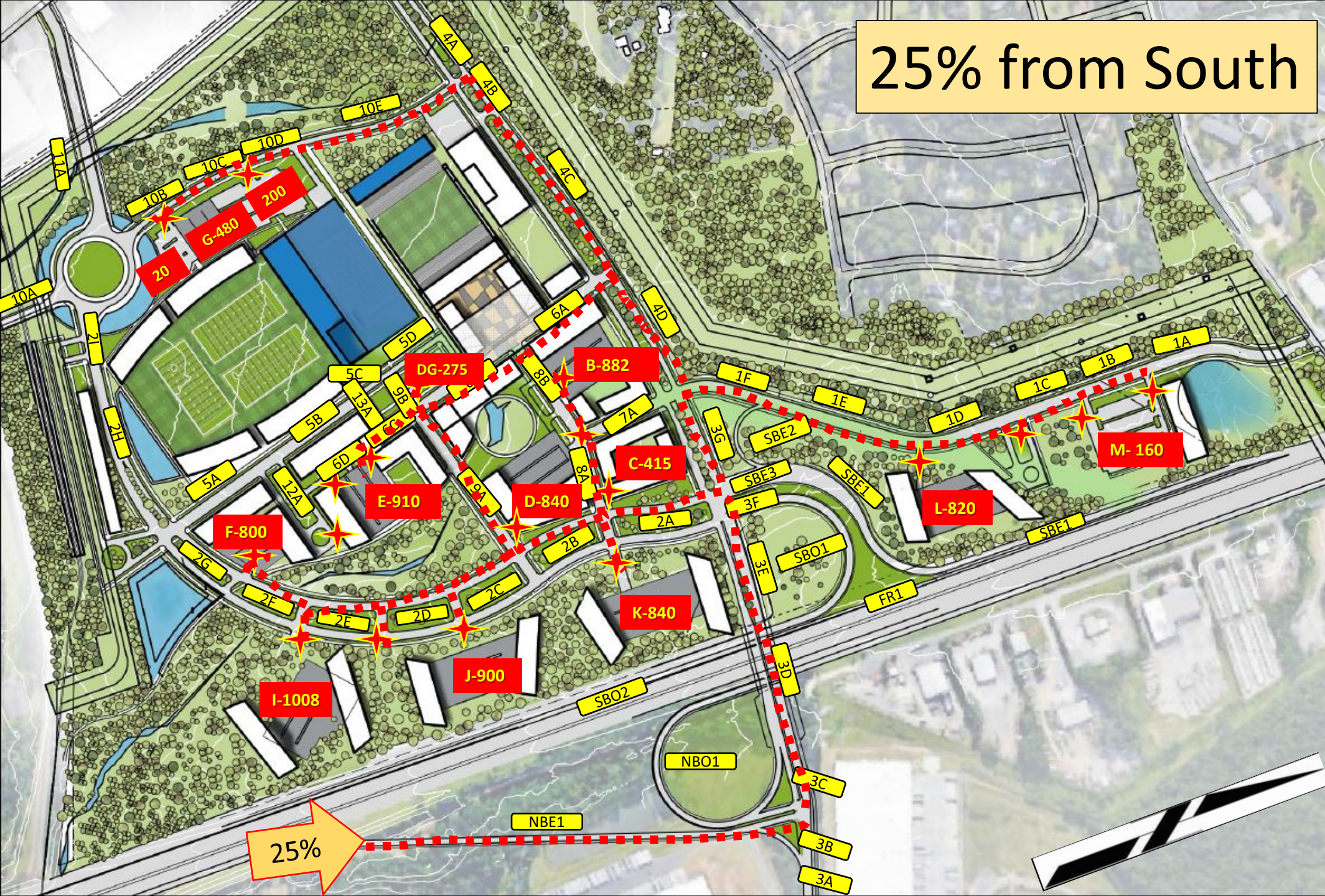


ROADWAY NETWORK

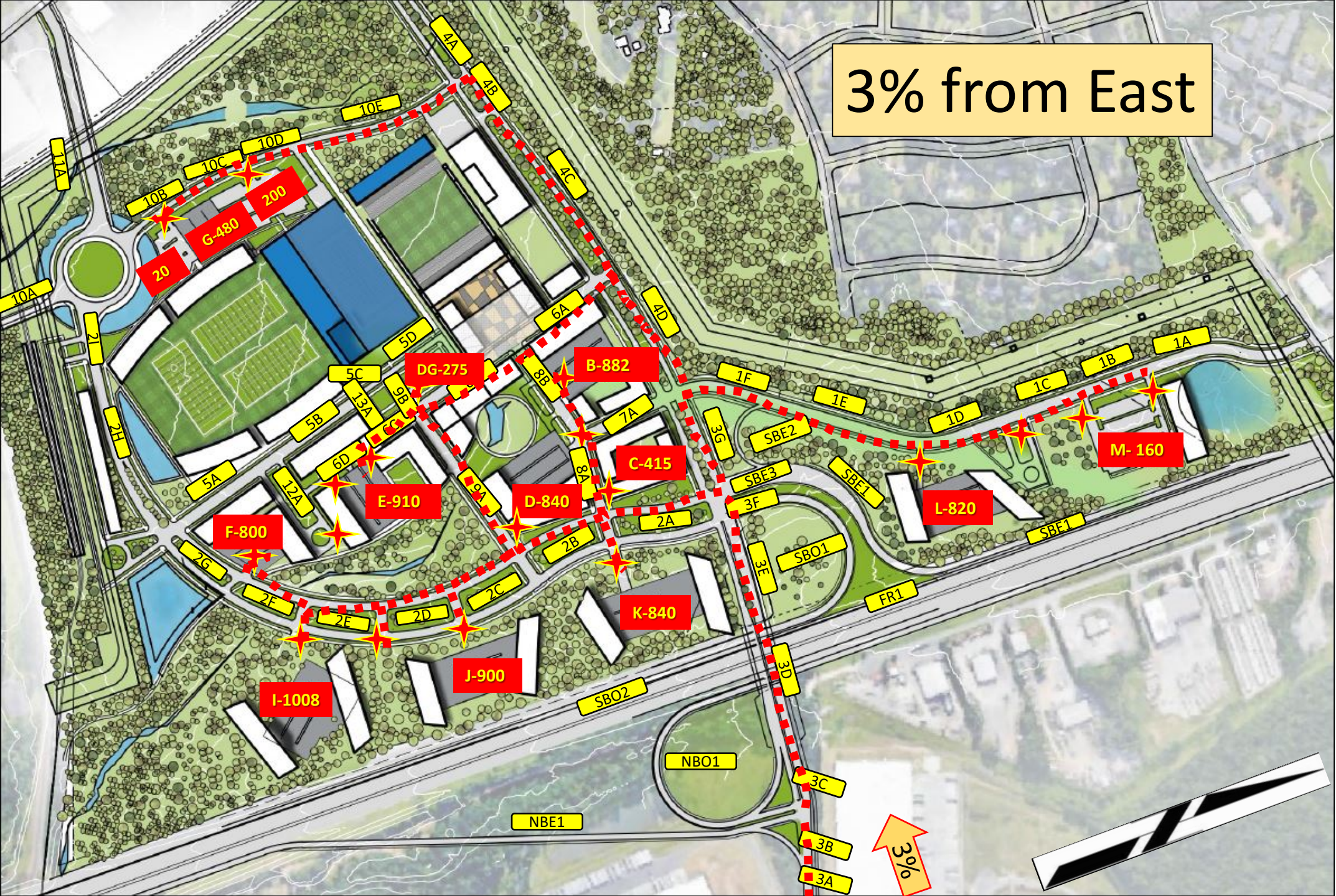
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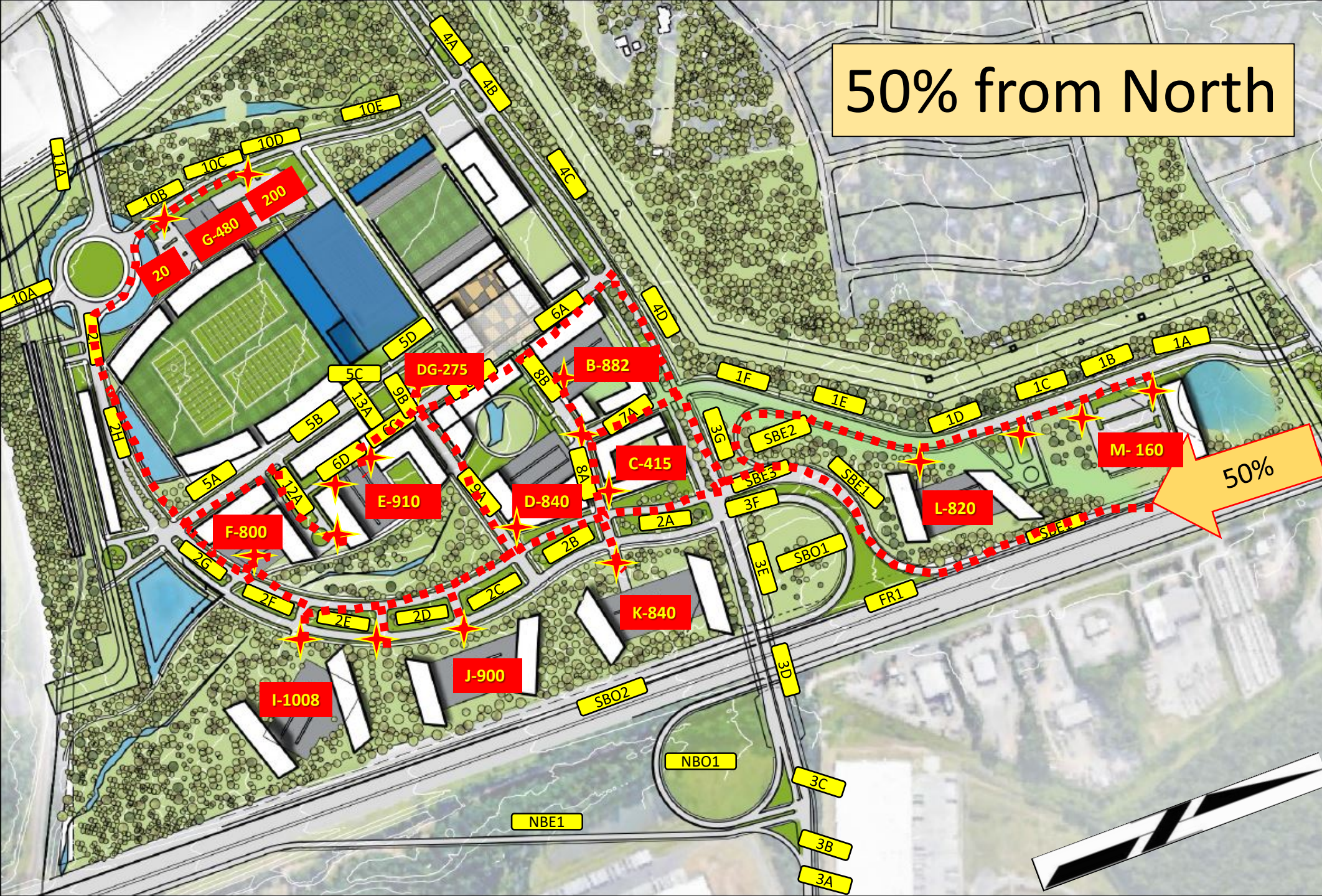
25% from South



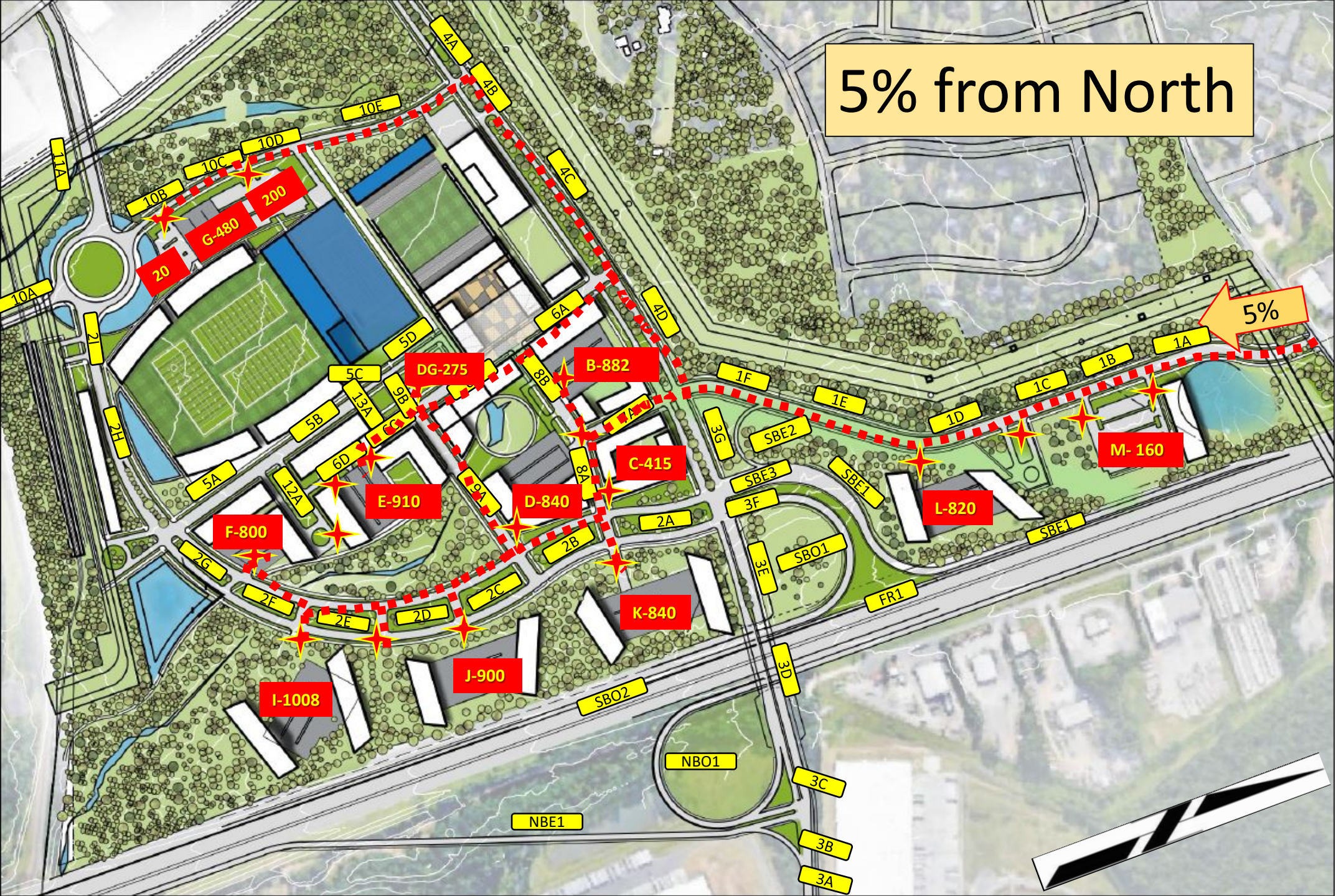
3% from East



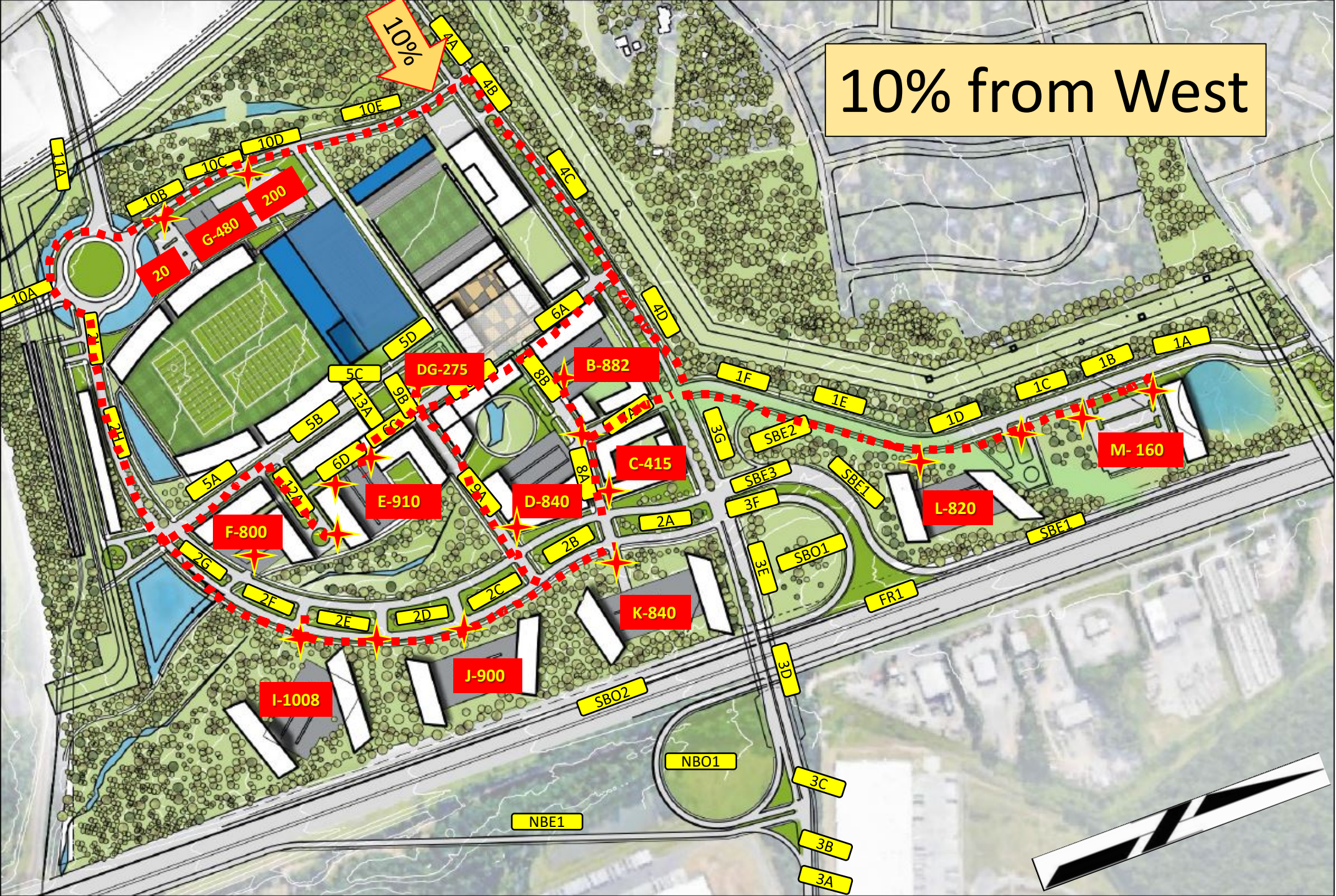
50% from North



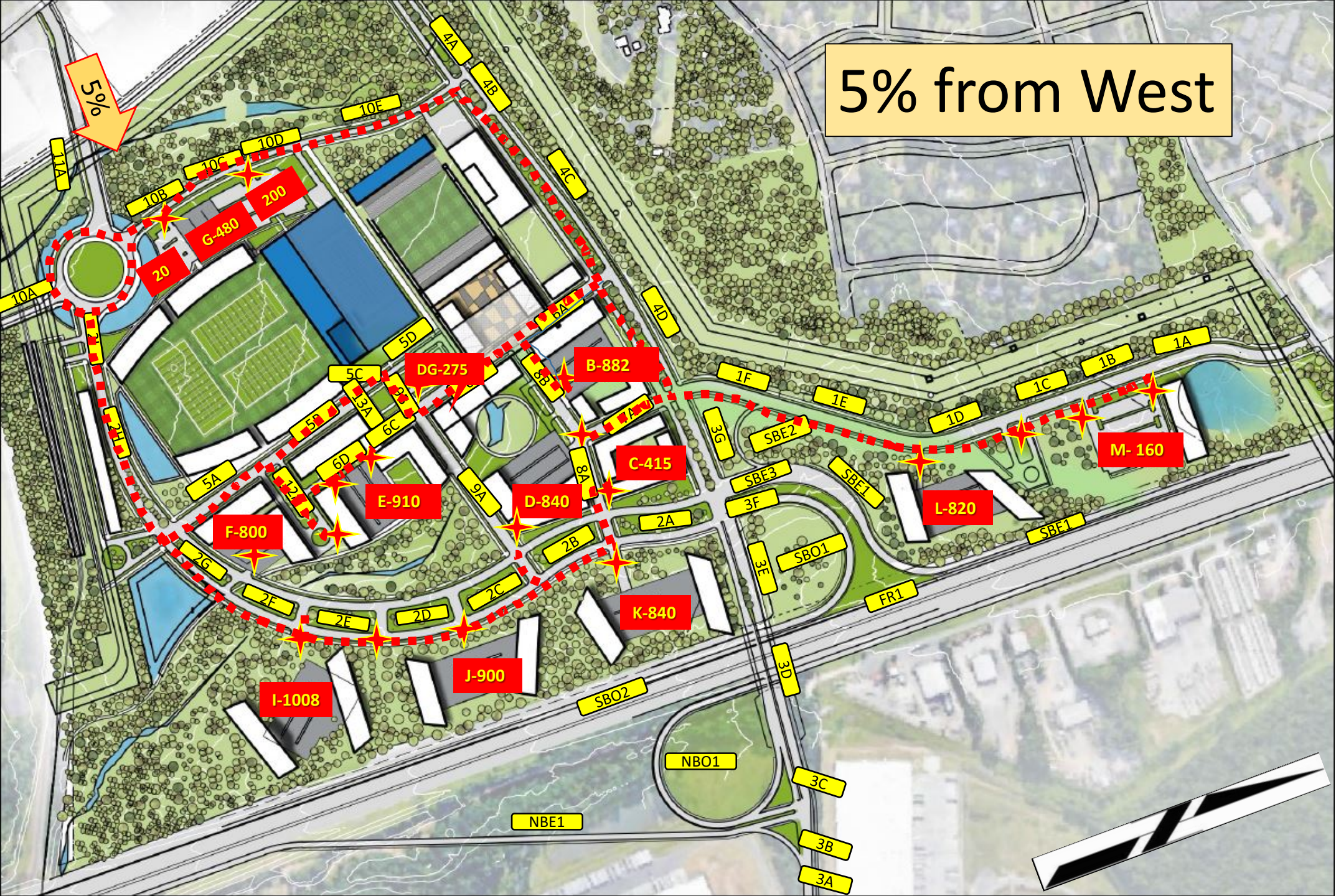
5% from North



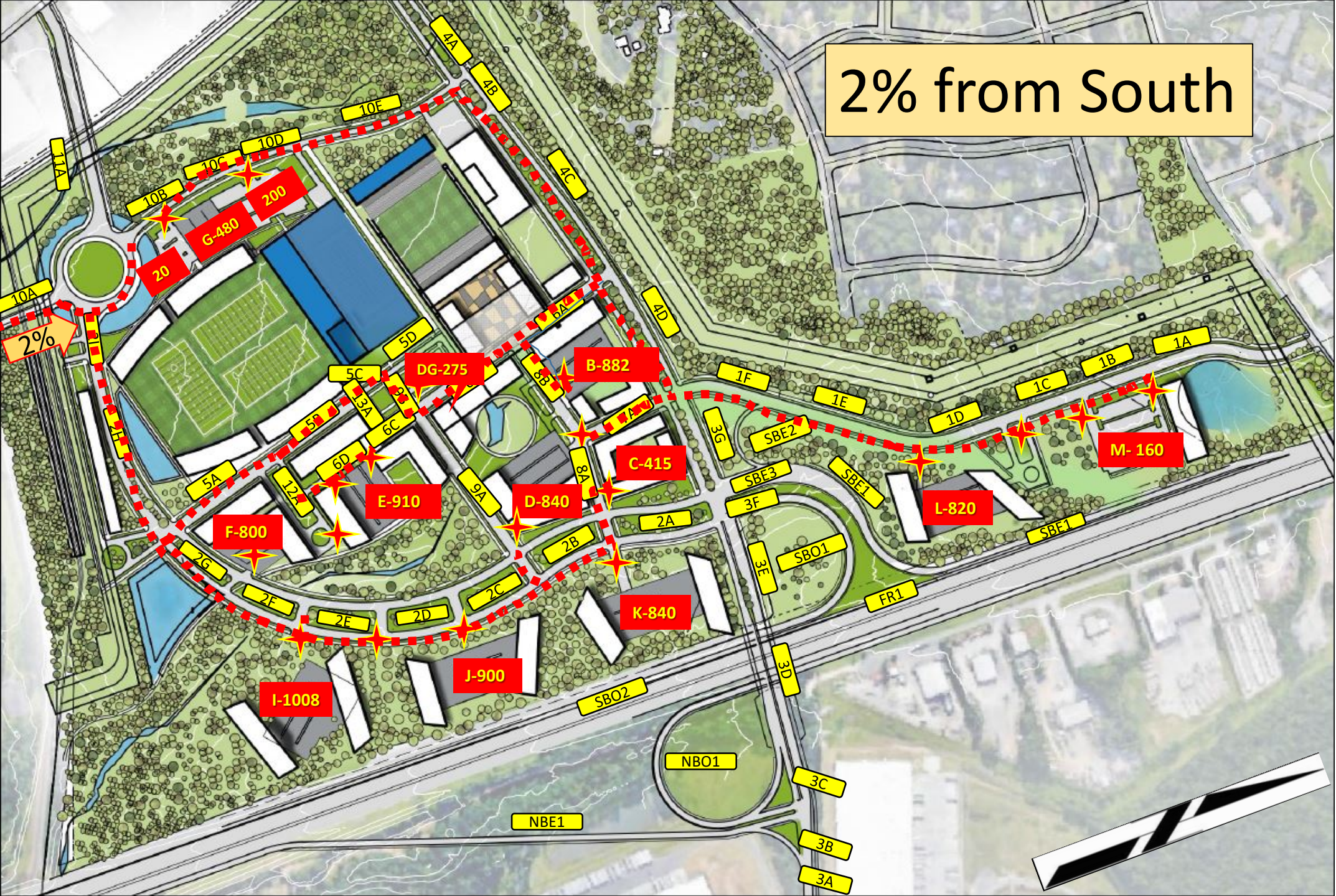
10% from West



5% from West



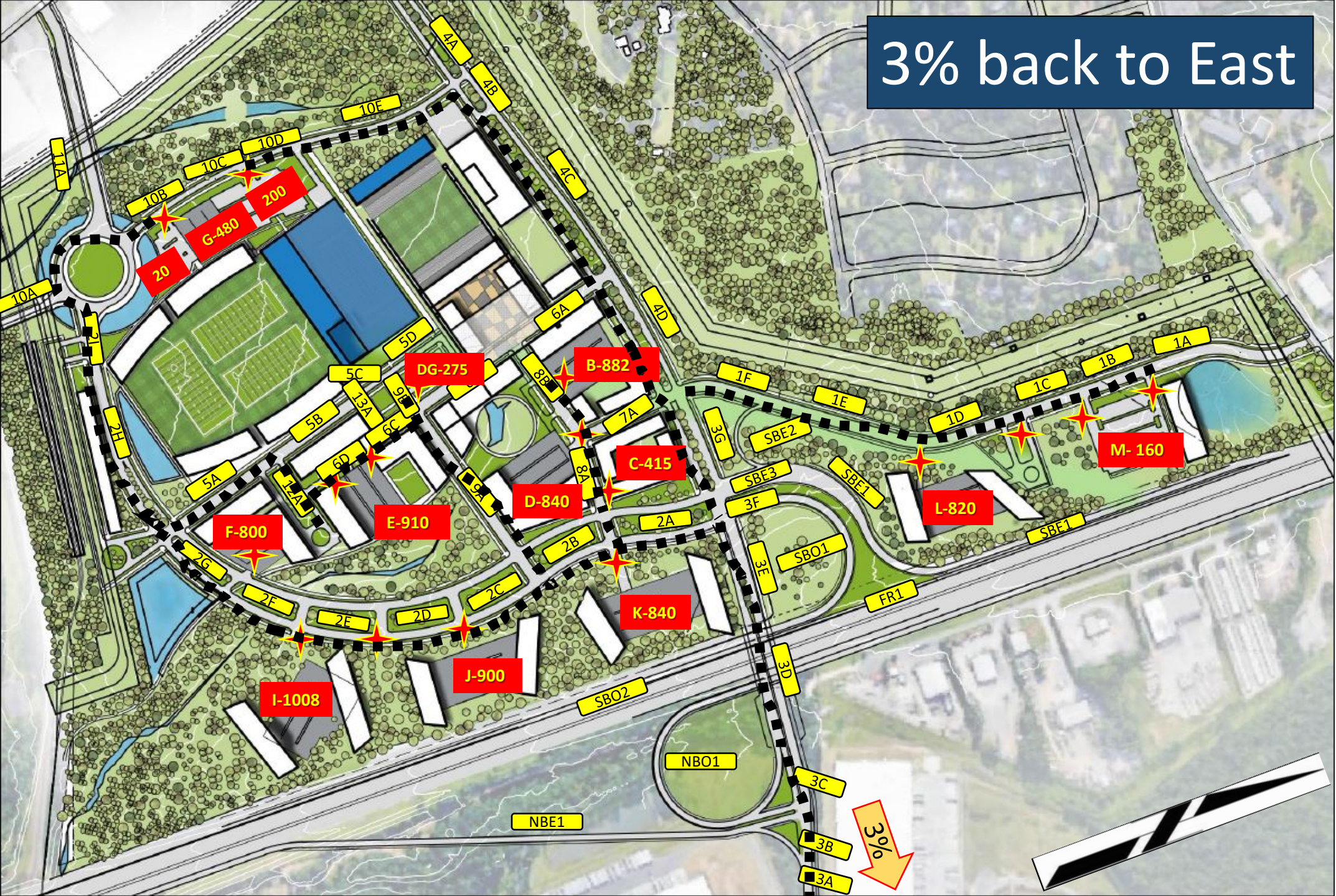
2% from South



ROADWAY NETWORK
Departure Distribution –
to be Adjusted per
Parking Locations



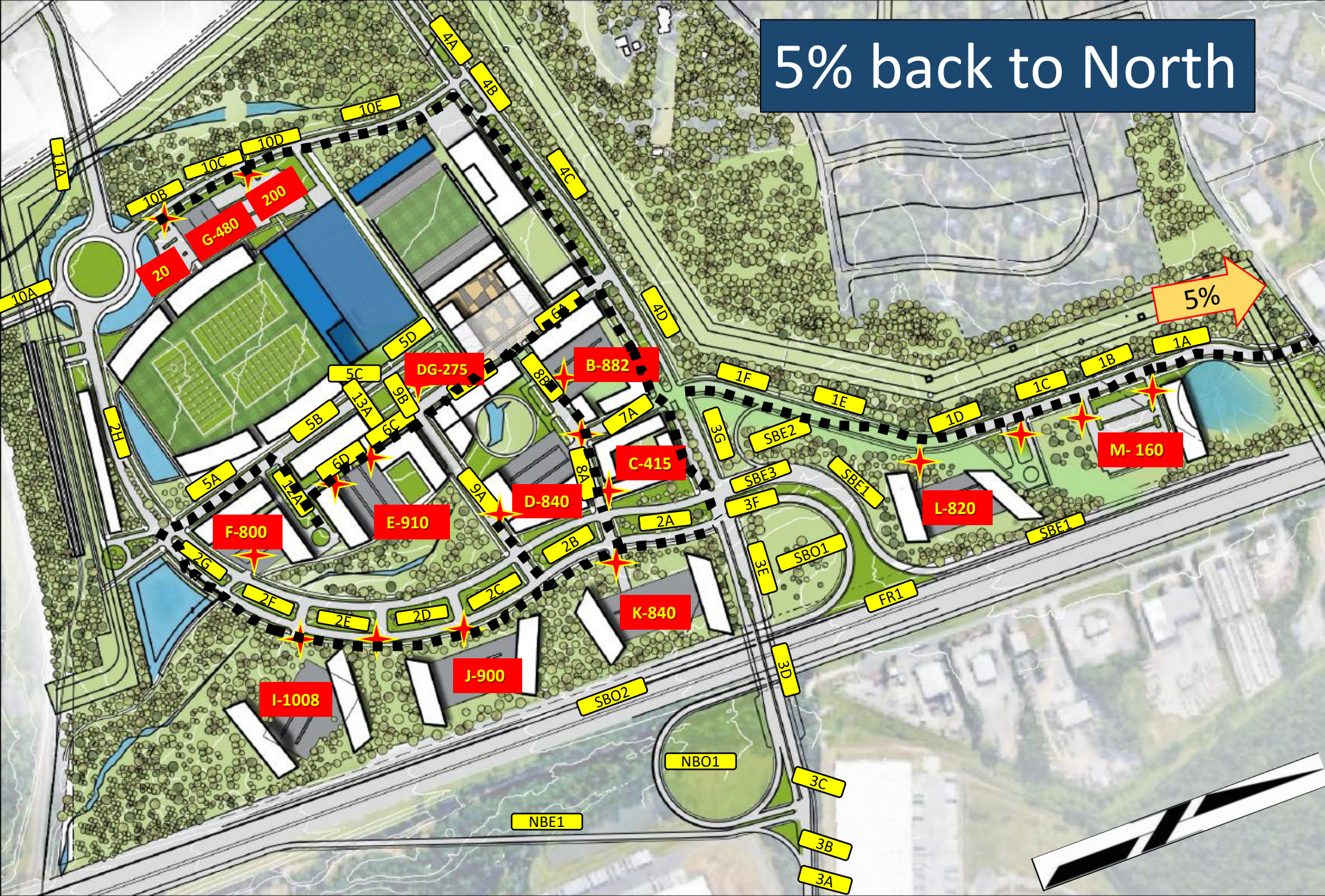
3% back to East



50% back to North



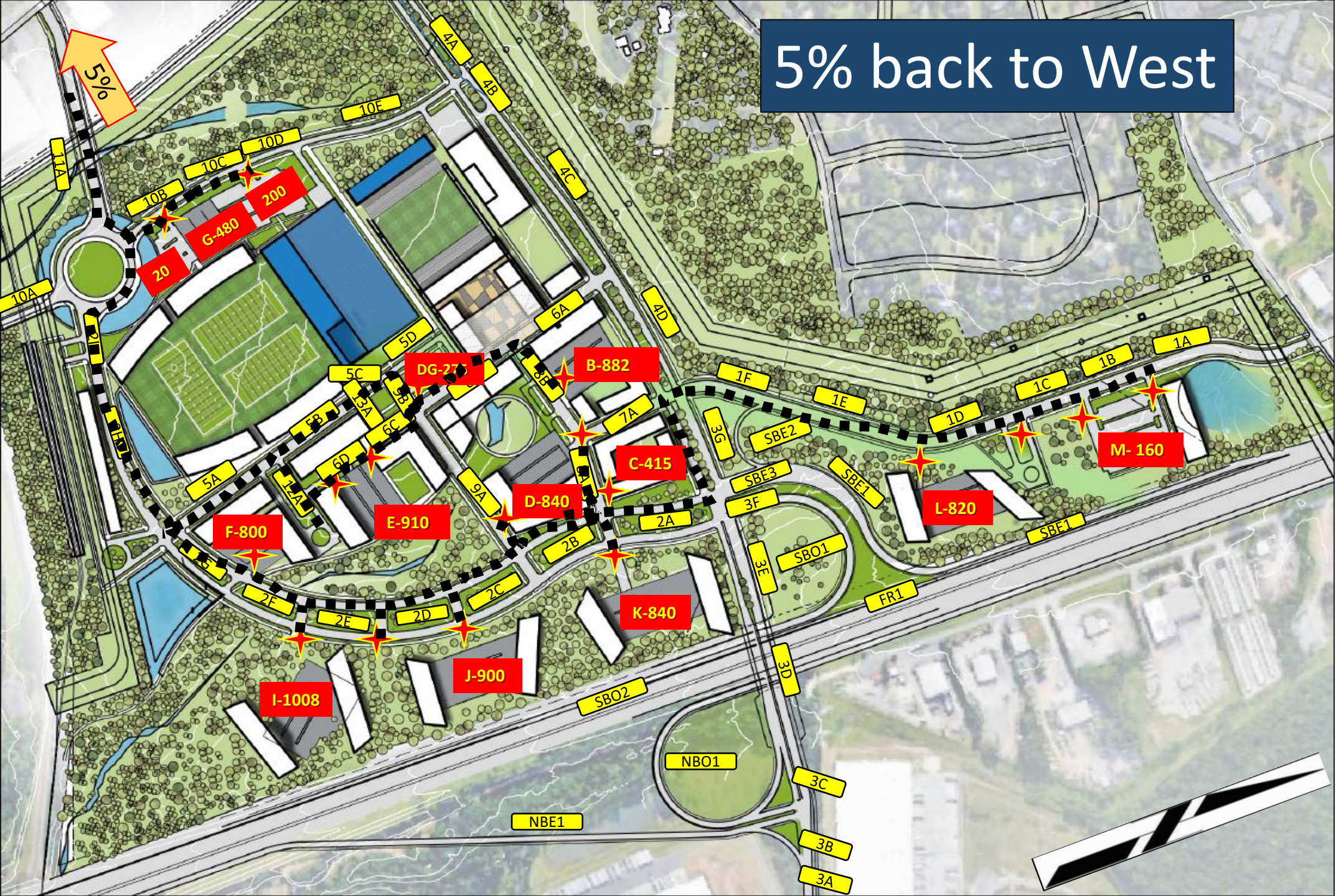
5% back to North



10% back to West



5% back to West

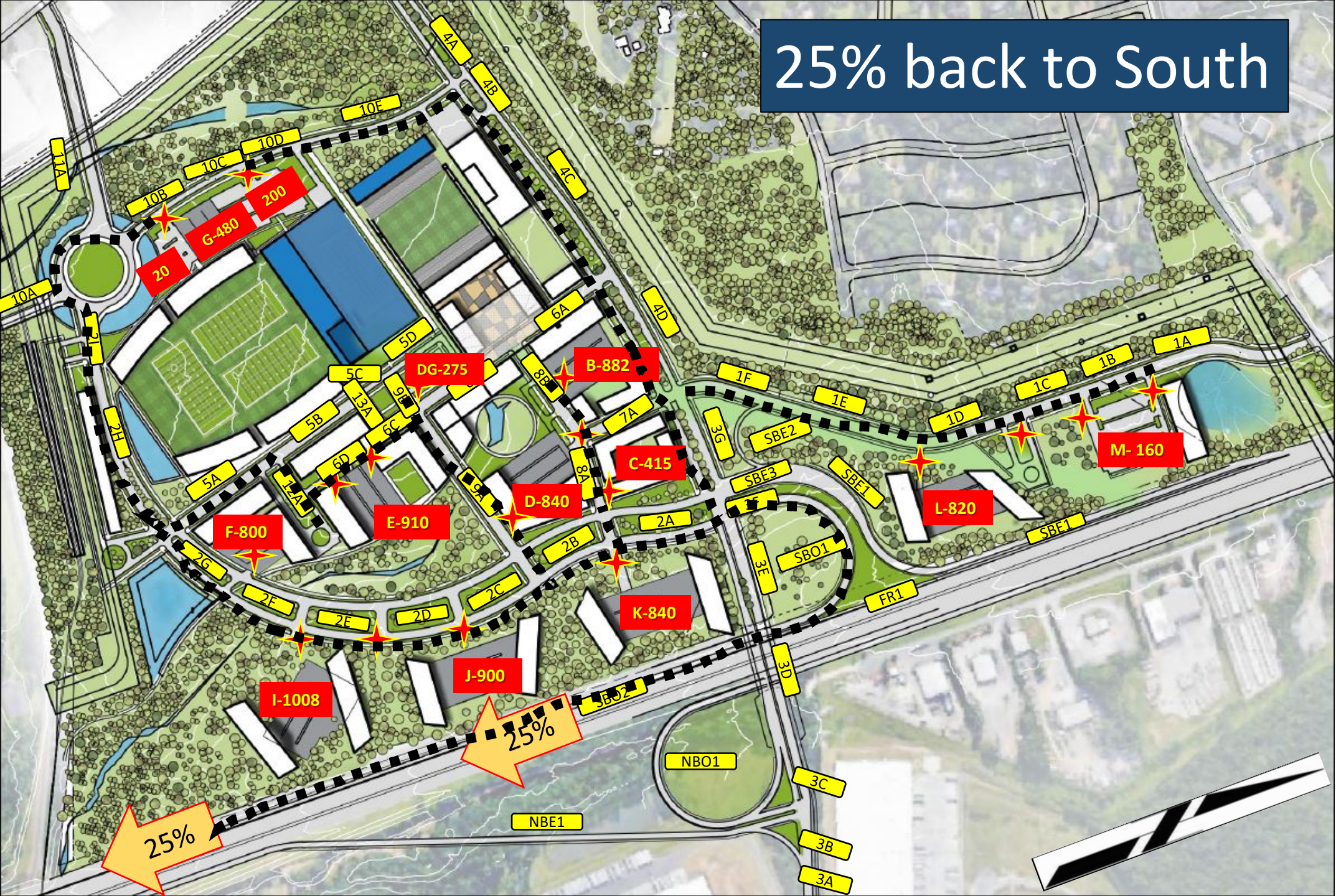


2% back to South

2%

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25% back to South





CAROLINA PANTHERS

Traffic Distribution Model – Draft



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Panther's Master Plan- Preliminary Trip Generation

Land Use [ITE Code]			Weekday Daily	AM Peak Hour			PM Peak Hour		
				Enter	Exit	Total	Enter	Exit	Total
Phase 1									
Multi Family Housing (Mid-Rise) [221]	304	DU	1,655	27	75	102	79	50	129
Hotel [310]	200	Keys	1,831	56	39	95	63	61	124
General Office Building [710]	493,620	SF	4,993	596	81	677	110	499	609
Medical Office Building [720]*	100,000	SF	3,480	217	61	278	97	249	346
Research and Development Center [760]*	122,460	SF	1,457	103	21	124	22	118	140
Retail [820]	72,476	SF	4,830	117	71	188	208	223	429
NFL Training Facility **	150,000	SF	-	-	-	-	-	-	-
High-Turnover Sit Down Restaurant [832]	5,864	SF	658	47	35	82	53	49	102
NCHRP Internal Capture Reduction				-143	-142	-285	-149	-150	-299
Phase 1 Subtotal			18,904	1,020	241	1,261	481	1,099	1,580
Phase 2									
Multi Family Housing (Mid-Rise) [221]	507	DU	2,761	44	124	168	128	82	210
General Office Building [710]	941,370	SF	9,339	1,051	143	1,194	198	903	1,101
Research and Development Center [760]*	32,350	SF	364	32	7	39	6	30	36
Retail [820]	52,773	SF	3,893	111	68	179	163	176	339
Quality Restaurant [931]	35,181	SF	2,934	125	31	156	177	113	290
High-Turnover Sit Down Restaurant [832]	5,864	SF	658	47	35	82	53	49	102
NCHRP Internal Capture Reduction				-166	-165	-331	-237	-237	-474
Phase 2 Subtotal			19,949	1,244	243	1,487	486	1,116	1,604
Phase 3									
Multi Family Housing (Mid-Rise) [221]	168	DU	914	15	42	57	45	28	73
General Office Building [710]	523,395	SF	5,285	627	85	712	115	526	641
Research and Development Center [760]*	215,270	SF	2,407	169	35	204	38	199	237
Retail [820]	25,640	SF	2,383	102	63	165	95	103	198
NCHRP Internal Capture Reduction				-52	-52	-104	-37	-36	-75
Phase 3 Subtotal			10,989	861	173	1,034	256	816	1,074
Full Build-Out Total			49,842	3,126	667	3,782	1,226	3,033	4,268

References:

Trip Generation, 10th Edition, Institute of Transportation Engineers, Washington, DC, 2017.

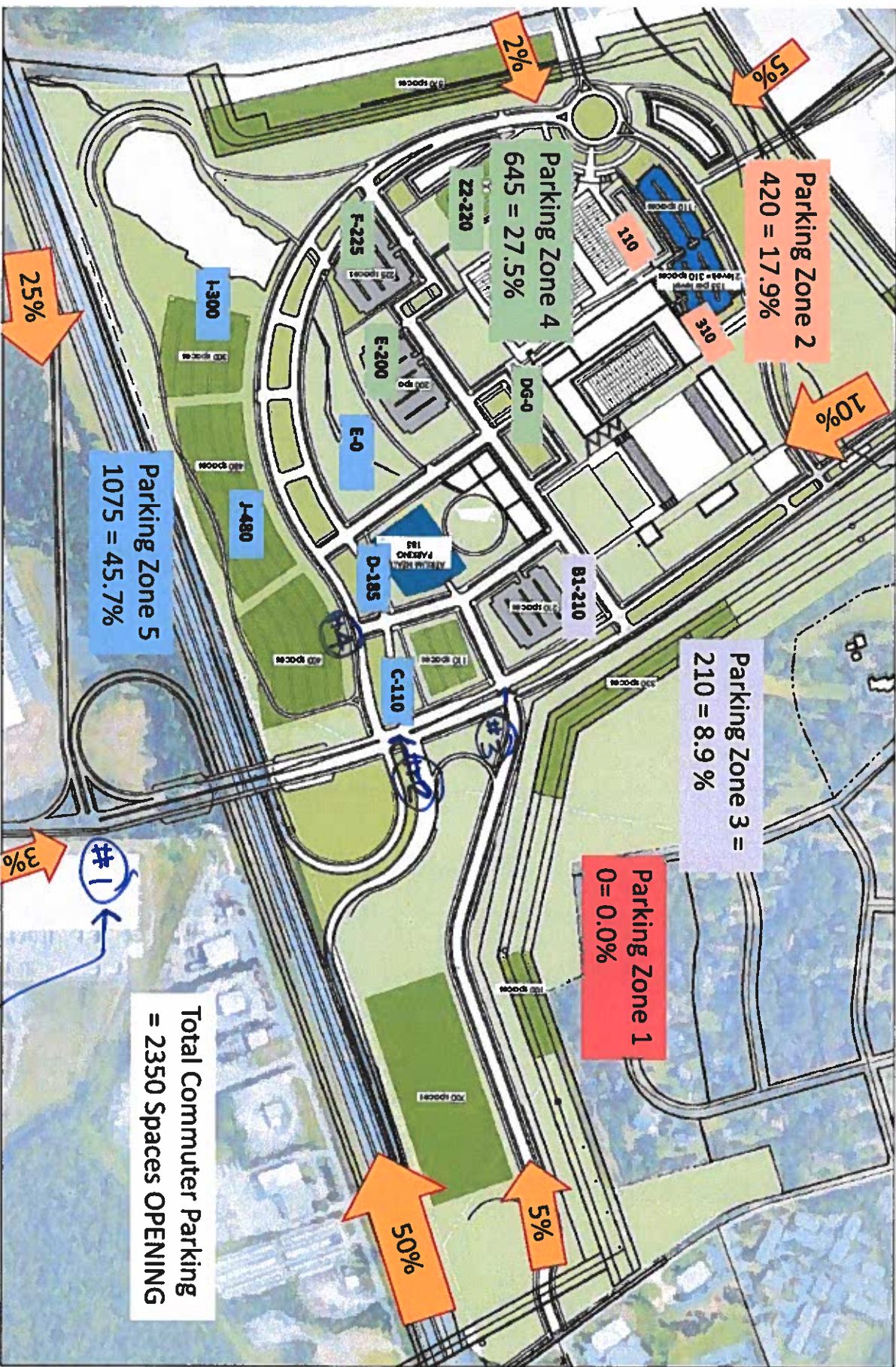
Notes:

* LUC 720 and 760 are utilized as Research and Rehab areas.

**NFL Training Facility - Large practice facility where players arrive/ depart off-peak. Coaches, trainers, doctors and all other support staff are already included in the General Office. Therefore, no data has been provided.

YELLOW HIGHLIGHT NUMBERS REPRESENT PROJECTED
YEAR 1 (2022) TRIP COUNTS

DAY 1/ YEAR 1 ~~2023~~ COMPUTER PARKING



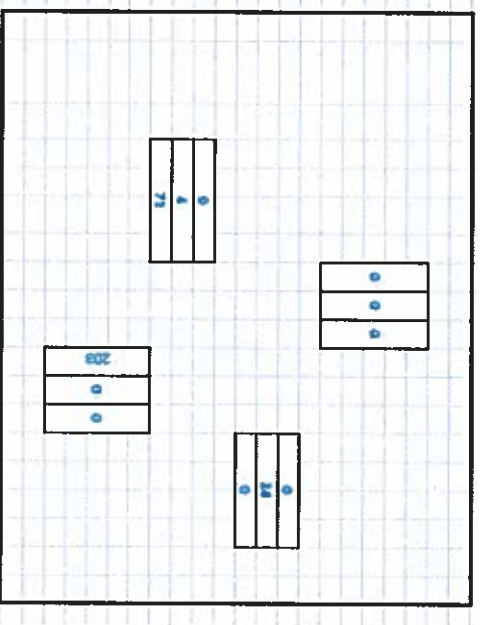
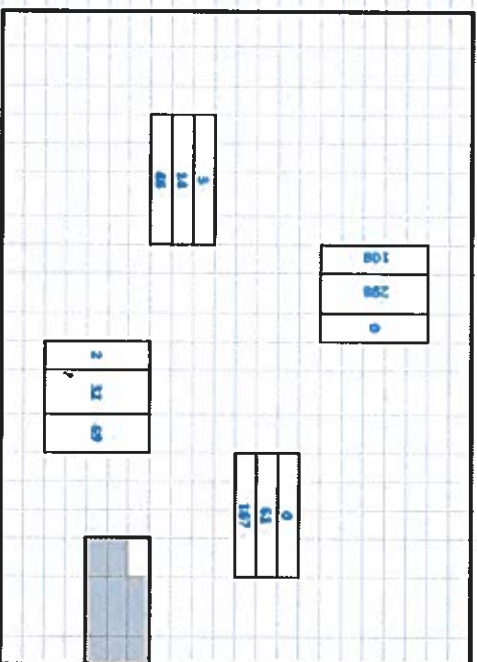
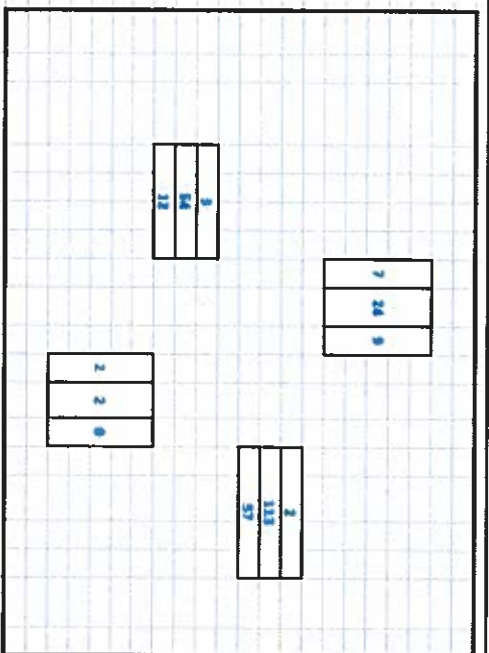
Intersection Number

OPENING DAY - DEVELOPMENT PROGRAM PARKING SUPPLY FOR COMMUTERS

1	2	3	4	5	BLOCK	BUILDING TYPE	TOTAL AVAILABLE PRKG	BLOCK TOTAL PRKG
					A			
		210			B1/B2	SURFACE	210	210
				110	C	SURFACE	110	110
							0	
				185	D	SURFACE	185	185
							0	
						GROVE	0	0
			200		E	SURFACE	200	200
							0	
			225		F	SURFACE	225	225
					Z1	SURFACE	0	0
			220		Z2	SURFACE	220	220
					G		0	0
							0	
					H			
	110				PANTHERS	SURFACE	110	420
	310					GARAGE	310	
				300	I	SURFACE	300	300
				480	J	SURFACE	480	480
				0	K	SURFACE	0	0
							0	
					L	GARAGE		
					M	SURFACE	0	0
						SURFACE	0	0
					TOTAL	off-street	2350	2350
						on-street	0	0
0	420	210	645	1075	TOTAL		2350	2350
0.00%	17.87%	8.94%	27.45%	45.74%				

2350
TOTAL

DAY 1/YEAR 1/OPENING DAY

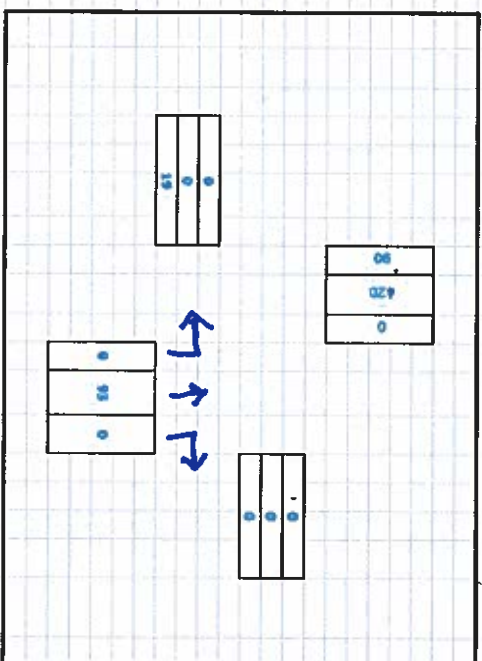


#2

#1

INTERSECTION #3

AM PEAK HOUR PHASE 1 Opening Day
SITE GENERATED TRAFFIC

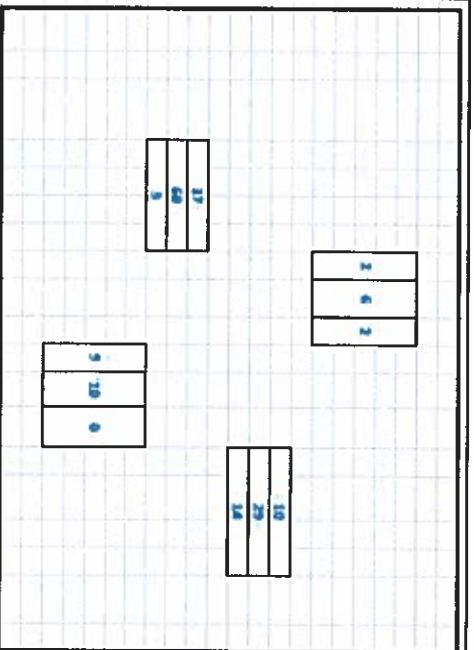


#4

left turn volume
right turn volume
two volume

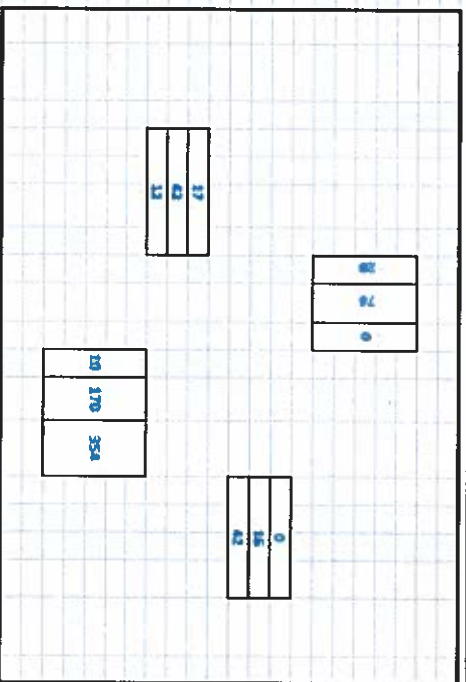
NORTH

DAY 1 / YEAR 1 / OPENING DAY

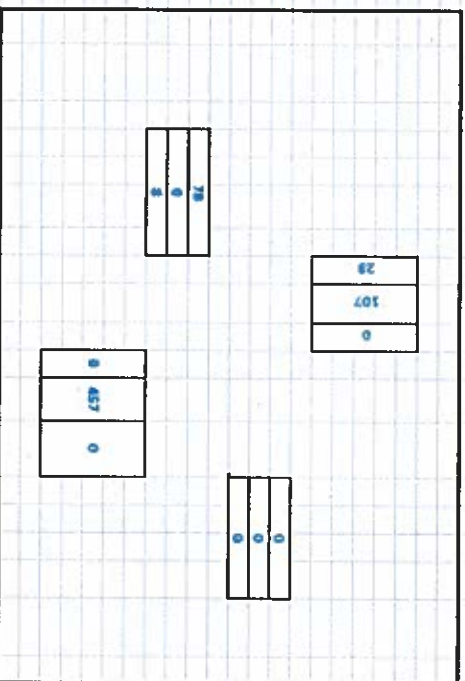


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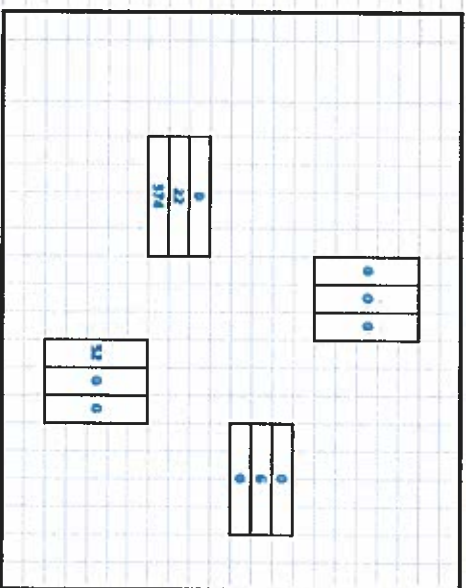
PM PEAK HOUR, phase 1, opening day
SITE GENERATED TRAFFIC



#2



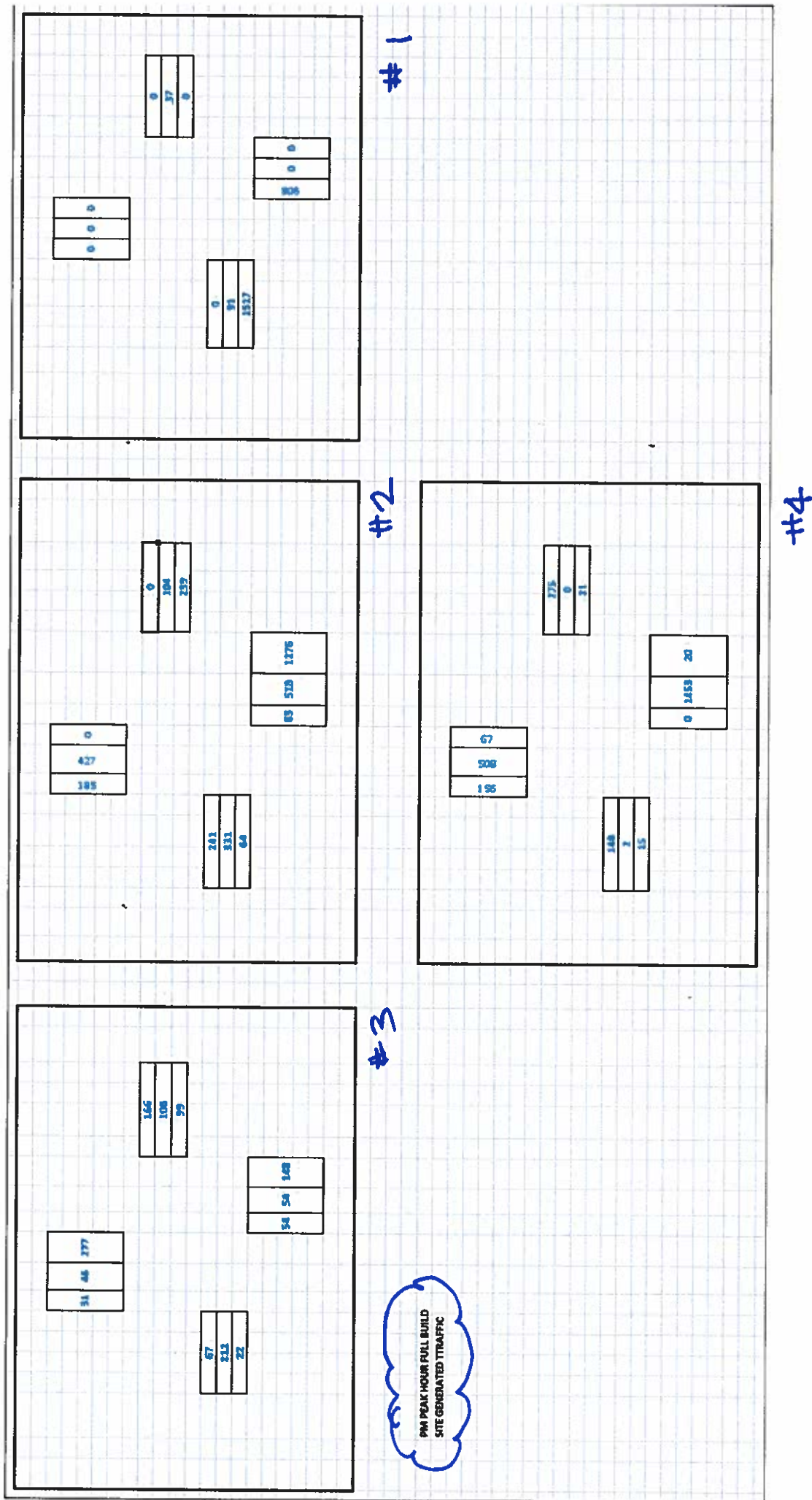
#4



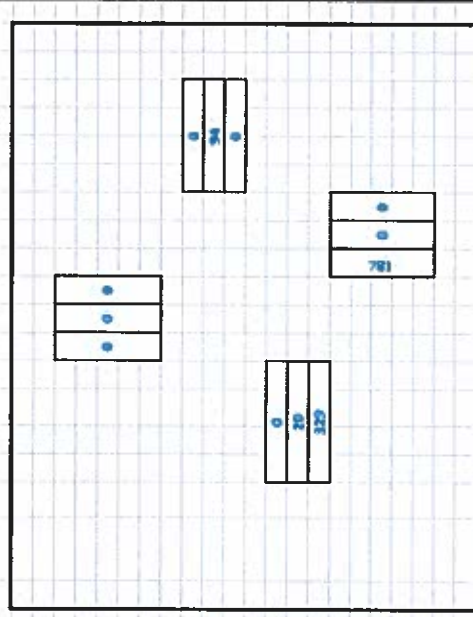
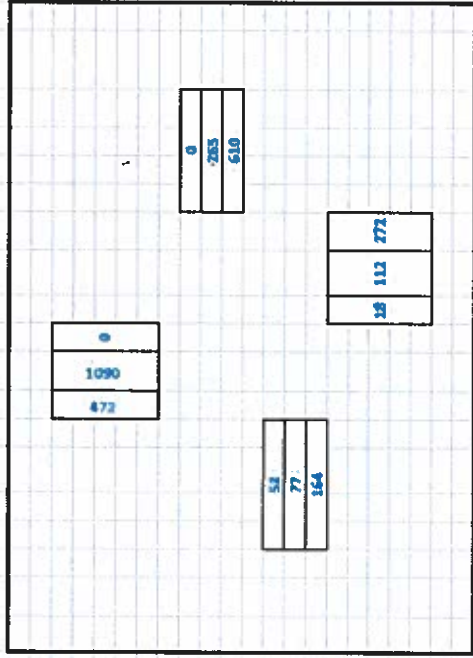
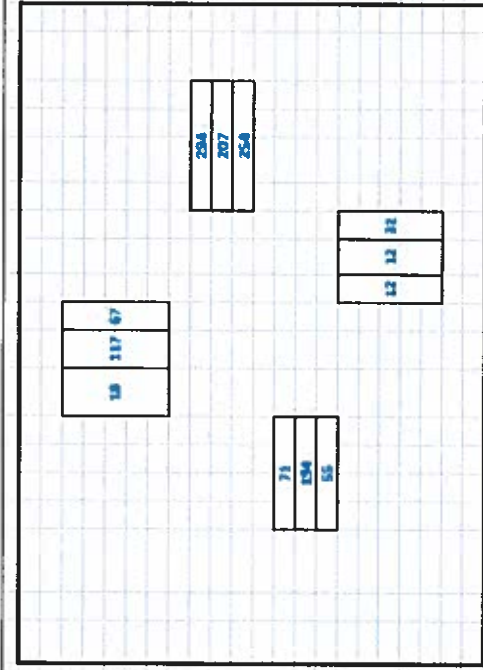
#1

NORTH

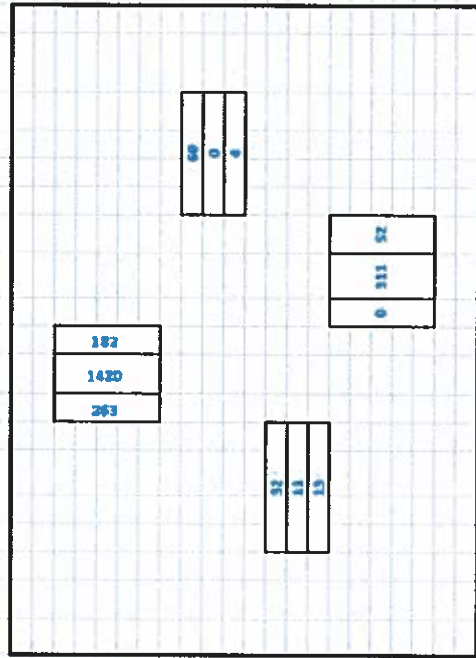
FULL BUILD COMPUTER VOLUMES



FULL BUILD COMPUTER VOLUMES



AM PEAK HOUR FULL BUILD
SITE GENERATED TRAFFIC



Appendix B
Turning Movement Count and Tube Count
Data



(303) 216-2439
www.alltrafficdata.net

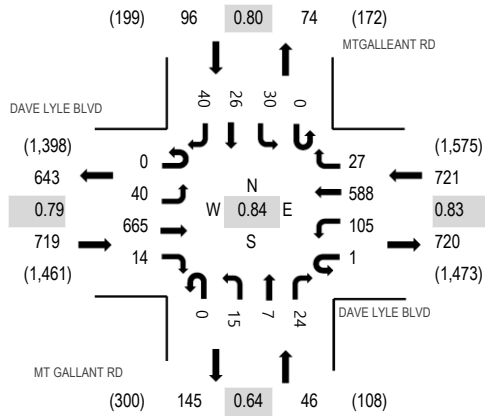
Location: 2 MT GALLANT RD & DAVE LYLE BLVD AM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 07:15 AM - 08:15 AM

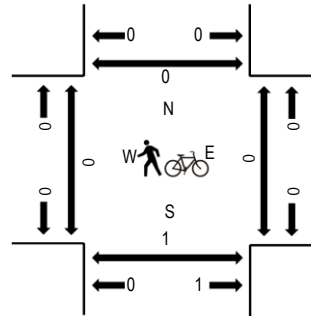
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	DAVE LYLE BLVD Eastbound				DAVE LYLE BLVD Westbound				MT GALLANT RD Northbound				MTGALLEANT RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:30 AM	0	5	112	1	1	0	98	5	0	0	0	0	0	9	1	4	236	1,091	0	0	0	0
6:45 AM	0	7	106	0	0	5	108	7	0	2	4	1	0	12	1	6	259	1,255	0	0	0	0
7:00 AM	0	11	110	0	0	5	109	4	0	1	0	0	0	8	1	4	253	1,468	0	1	0	0
7:15 AM	0	5	150	1	0	12	132	5	0	4	3	1	0	14	6	10	343	1,582	0	0	0	0
7:30 AM	0	6	175	4	0	23	154	7	0	1	2	4	0	6	3	15	400	1,574	0	0	0	0
7:45 AM	0	24	199	4	1	39	169	13	0	2	2	2	0	5	7	5	472	1,467	0	0	1	0
8:00 AM	0	5	141	5	0	31	133	2	0	8	0	17	0	5	10	10	367	1,380	0	0	0	0
8:15 AM	1	10	119	10	0	30	130	6	0	3	2	6	0	7	9	2	335		0	0	0	0
8:30 AM	0	5	114	6	0	30	109	4	0	2	4	6	0	7	2	4	293		0	0	0	0
8:45 AM	0	5	113	7	0	34	161	8	0	7	11	13	0	9	13	4	385		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	5	0	0	0	3	1	0	0	0	0	0	7	0	0	16
Lights	0	40	640	14	1	105	579	23	0	14	7	24	0	21	26	39	1,533
Mediums	0	0	20	0	0	0	6	3	0	1	0	0	0	2	0	1	33
Total	0	40	665	14	1	105	588	27	0	15	7	24	0	30	26	40	1,582



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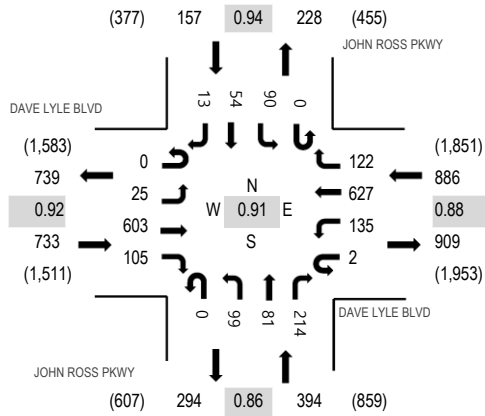
Location: 3 JOHN ROSS PKWY & DAVE LYLE BLVD AM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 07:15 AM - 08:15 AM

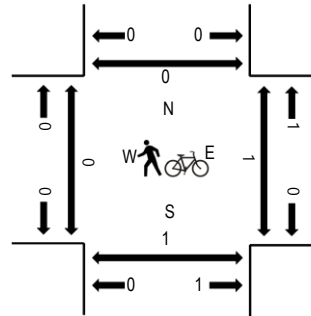
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	DAVE LYLE BLVD Eastbound				DAVE LYLE BLVD Westbound				JOHN ROSS PKWY Northbound				JOHN ROSS PKWY Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:30 AM	0	3	106	9	0	9	84	18	0	13	7	47	0	22	5	0	323	1,557	0	0	0	0
6:45 AM	0	1	106	11	0	16	96	25	0	17	9	57	0	21	7	0	366	1,811	0	0	0	0
7:00 AM	0	0	107	16	0	26	99	19	0	19	15	42	0	27	7	4	381	2,039	0	0	0	0
7:15 AM	0	1	137	19	1	37	129	29	0	24	23	47	0	26	13	1	487	2,170	0	0	0	0
7:30 AM	0	10	155	27	0	34	176	30	0	34	21	59	0	17	8	6	577	2,116	0	0	0	0
7:45 AM	0	9	166	25	1	37	180	34	0	24	22	56	0	23	15	2	594	1,984	0	1	0	0
8:00 AM	0	5	145	34	0	27	142	29	0	17	15	52	0	24	18	4	512	1,870	0	0	1	0
8:15 AM	0	4	109	23	0	28	128	22	0	26	18	38	0	23	11	3	433		0	0	0	0
8:30 AM	0	10	108	23	0	27	130	22	0	20	18	42	0	26	15	4	445		0	0	0	0
8:45 AM	0	3	110	29	1	29	169	17	0	28	16	33	0	19	22	4	480		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	9	0	0	0	4	0	0	0	0	1	0	0	0	0	14
Lights	0	24	580	100	2	134	615	120	0	98	81	207	0	90	53	13	2,117
Mediums	0	1	14	5	0	1	8	2	0	1	0	6	0	0	1	0	39
Total	0	25	603	105	2	135	627	122	0	99	81	214	0	90	54	13	2,170



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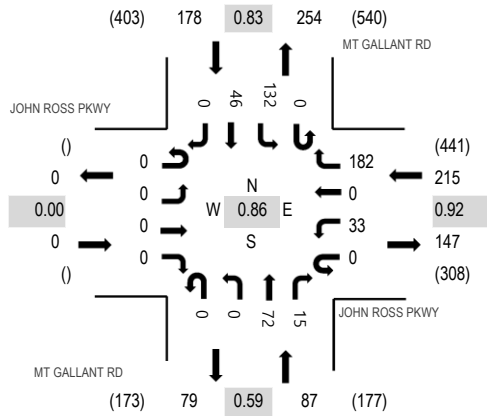
Location: 4 MT GALLANT RD & JOHN ROSS PKWY AM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 07:30 AM - 08:30 AM

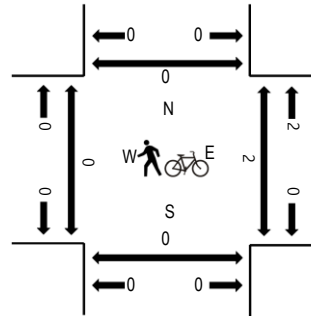
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	JOHN ROSS PKWY				JOHN ROSS PKWY				MT GALLANT RD				MT GALLANT RD				Total	Rolling Hour	Pedestrian Crossings				
	Eastbound				Westbound				Northbound				Southbound						West	East	South	North	
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right							
6:30 AM	0	0	0	0	0	2	0	23	0	0	12	1	0	17	4	0	59	333	0	0	0	0	
6:45 AM	0	0	0	0	0	7	0	33	0	0	15	4	0	26	12	0	97	384	0	0	0	0	
7:00 AM	0	0	0	0	0	1	0	35	0	0	12	0	0	20	4	0	72	426	0	1	0	0	
7:15 AM	0	0	0	0	0	8	0	45	0	0	9	0	0	28	15	0	105	470	0	0	0	0	
7:30 AM	0	0	0	0	0	15	0	48	0	0	16	2	0	23	6	0	110	480	0	1	0	0	
7:45 AM	0	0	0	0	0	5	0	54	0	0	32	5	0	31	12	0	139	464	0	0	0	0	
8:00 AM	0	0	0	0	0	11	0	47	0	0	10	4	0	28	16	0	116	439	0	1	0	0	
8:15 AM	0	0	0	0	0	2	0	33	0	0	14	4	0	50	12	0	115		0	0	0	0	
8:30 AM	0	0	0	0	0	0	0	41	0	0	12	2	0	25	14	0	94		0	0	0	0	
8:45 AM	0	0	0	0	0	3	0	28	0	0	21	2	0	36	24	0	114		0	0	0	0	

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	4
Lights	0	0	0	0	0	31	0	180	0	0	68	15	0	130	42	0	466
Mediums	0	0	0	0	0	2	0	2	0	0	2	0	0	2	2	0	10
Total	0	0	0	0	0	33	0	182	0	0	72	15	0	132	46	0	480



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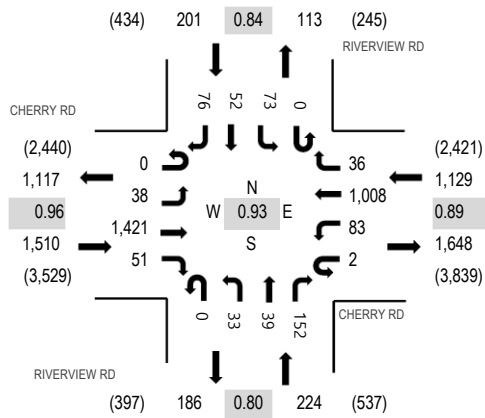
Location: 5 RIVERVIEW RD & CHERRY RD AM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 07:15 AM - 08:15 AM

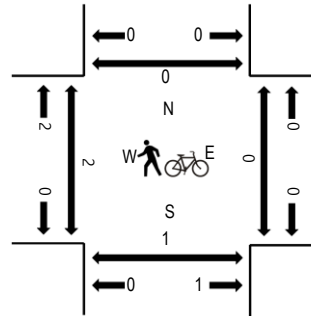
Peak 15-Minutes: 07:30 AM - 07:45 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	CHERRY RD Eastbound				CHERRY RD Westbound				RIVERVIEW RD Northbound				RIVERVIEW RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:30 AM	0	2	379	2	1	12	132	2	0	7	4	51	0	13	4	14	623	2,670	2	0	0	0
6:45 AM	0	8	356	11	0	14	179	4	0	6	4	37	0	14	9	9	651	2,873	0	0	0	1
7:00 AM	0	8	364	9	0	18	150	5	0	14	6	34	0	16	7	17	648	3,029	0	0	0	0
7:15 AM	0	10	378	12	2	17	225	8	0	10	9	32	0	15	10	20	748	3,064	1	0	0	0
7:30 AM	0	11	354	11	0	20	287	13	0	11	10	49	0	21	17	22	826	3,001	1	0	0	0
7:45 AM	0	9	389	9	0	27	266	8	0	3	14	32	0	17	14	19	807	2,777	0	0	1	0
8:00 AM	0	8	300	19	0	19	230	7	0	9	6	39	0	20	11	15	683	2,618	0	0	0	0
8:15 AM	3	13	307	11	0	15	245	6	0	5	5	32	0	9	8	26	685		0	1	0	0
8:30 AM	0	12	242	12	1	16	206	7	0	17	9	33	0	16	11	20	602		0	0	0	1
8:45 AM	0	24	243	13	0	29	244	6	0	7	7	35	0	8	10	22	648		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	11	0	0	1	8	0	0	0	0	1	0	1	0	0	22
Lights	0	36	1,382	50	2	76	972	35	0	32	38	148	0	72	50	68	2,961
Mediums	0	2	28	1	0	6	28	1	0	1	1	3	0	0	2	8	81
Total	0	38	1,421	51	2	83	1,008	36	0	33	39	152	0	73	52	76	3,064



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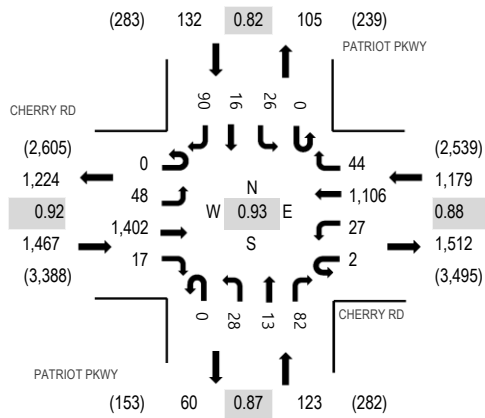
Location: 6 PATRIOT PKWY & CHERRY RD AM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 07:15 AM - 08:15 AM

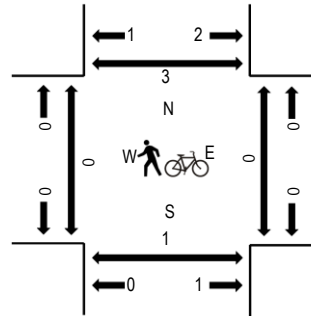
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	CHERRY RD Eastbound				CHERRY RD Westbound				PATRIOT PKWY Northbound				PATRIOT PKWY Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:30 AM	0	2	358	1	1	5	152	8	0	5	3	24	0	1	3	5	568	2,460	0	0	0	0
6:45 AM	0	14	321	3	0	2	171	9	0	5	5	29	0	3	4	15	581	2,655	0	0	0	0
7:00 AM	0	9	368	3	0	5	174	10	0	2	2	23	0	7	4	21	628	2,853	0	2	0	0
7:15 AM	0	16	348	3	1	11	236	9	0	6	4	23	0	6	1	19	683	2,901	0	0	0	2
7:30 AM	0	11	346	2	0	2	327	7	0	5	5	27	0	3	3	25	763	2,855	0	0	0	1
7:45 AM	0	12	395	3	1	7	275	17	0	11	2	14	0	10	9	23	779	2,681	0	0	0	0
8:00 AM	0	9	313	9	0	7	268	11	0	6	2	18	0	7	3	23	676	2,490	0	0	1	0
8:15 AM	0	11	302	12	0	10	238	13	0	5	0	14	0	5	6	21	637		0	0	0	0
8:30 AM	1	13	248	4	0	14	257	7	0	2	3	14	0	6	4	16	589		0	0	0	0
8:45 AM	2	9	236	4	0	8	261	15	0	6	1	16	0	7	1	22	588		0	1	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	13	0	0	0	8	1	0	0	0	0	0	0	0	2	24
Lights	0	47	1,364	15	2	25	1,072	41	0	28	13	81	0	25	14	86	2,813
Mediums	0	1	25	2	0	2	26	2	0	0	0	1	0	1	2	2	64
Total	0	48	1,402	17	2	27	1,106	44	0	28	13	82	0	26	16	90	2,901



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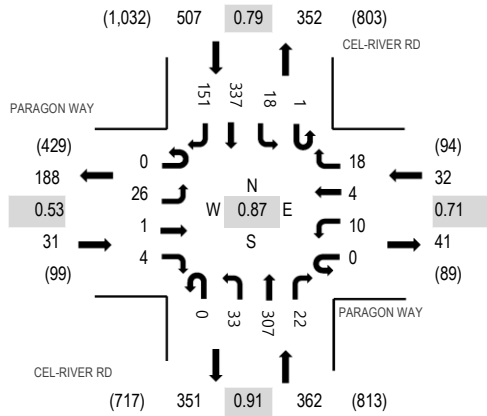
Location: 7 CEL-RIVER RD & PARAGON WAY AM

Date and Start Time: Thursday, May 9, 2019

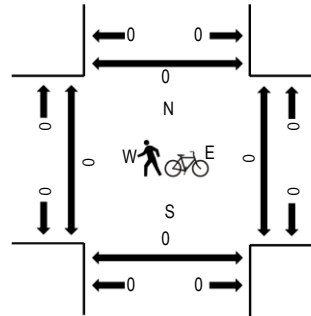
Peak Hour: 07:30 AM - 08:30 AM

Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



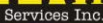
Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	PARAGON WAY Eastbound				PARAGON WAY Westbound				CEL-RIVER RD Northbound				CEL-RIVER RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:30 AM	0	7	0	1	0	2	0	1	0	10	55	3	0	6	32	18	135	726	0	0	0	0
6:45 AM	0	13	0	1	0	3	10	2	0	12	56	1	0	5	44	48	195	824	0	0	0	0
7:00 AM	0	16	1	7	0	7	3	7	0	8	56	5	0	7	49	28	194	897	0	0	0	0
7:15 AM	0	4	0	1	0	5	2	5	0	8	91	5	0	1	52	28	202	927	0	0	0	0
7:30 AM	0	7	0	1	0	1	0	3	0	8	88	6	0	5	82	32	233	932	0	0	0	0
7:45 AM	0	3	0	0	0	5	3	4	0	13	72	7	0	6	98	57	268	894	0	0	0	0
8:00 AM	0	4	1	1	0	2	1	7	0	8	68	6	1	3	87	35	224	811	0	0	0	0
8:15 AM	0	12	0	2	0	2	0	4	0	4	79	3	0	4	70	27	207		0	0	0	0
8:30 AM	0	5	2	2	0	1	3	3	0	8	74	2	0	4	64	27	195		0	0	0	0
8:45 AM	0	5	0	3	0	3	2	3	0	5	48	4	0	2	89	21	185		0	0	0	0

Peak Rolling Hour Flow Rates

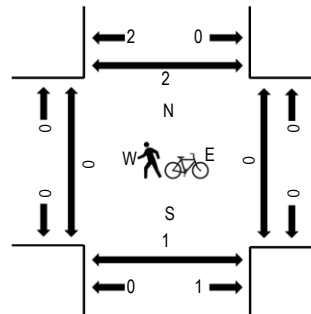
Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	5	0	0	0	0	0	1	0	1	1	0	0	0	1	13	22
Lights	0	13	1	4	0	10	4	17	0	32	296	22	1	18	324	132	874
Mediums	0	8	0	0	0	0	0	0	0	0	10	0	0	0	12	6	36
Total	0	26	1	4	0	10	4	18	0	33	307	22	1	18	337	151	932



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Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Interval Start Time	DAVE LYLE BLVD				DAVE LYLY BLVD				I-77 SB ON RAMP				I-77 SB OFF RAMP				Total	Rolling Hour	Pedestrian Crossings			
	Eastbound				Westbound				Northbound				Southbound						West	East	South	North
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	S-Turn	Left	Thru	Right						
6:30 AM	0	0	183	26	0	33	76	0	0	0	0	0	63	71	0	2	454	2,064	0	0	0	0
6:45 AM	0	0	227	21	0	31	81	0	0	0	0	0	58	69	0	9	496	2,238	0	0	0	0
7:00 AM	0	0	191	26	0	36	116	0	0	0	2	0	47	70	0	11	499	2,459	0	0	0	1
7:15 AM	0	0	252	30	0	39	151	0	0	0	2	0	58	64	1	18	615	2,575	0	0	0	2
7:30 AM	0	0	240	38	1	28	137	0	0	0	0	0	93	78	0	13	628	2,512	0	0	0	0
7:45 AM	0	0	288	18	0	27	160	0	0	0	0	0	104	97	0	23	717	2,440	0	0	0	0
8:00 AM	0	0	234	31	0	25	151	0	0	0	0	0	75	74	0	25	615	2,323	0	0	1	0
8:15 AM	0	0	205	20	0	16	133	0	0	0	0	0	89	73	0	16	552		0	0	0	0
8:30 AM	0	0	204	16	0	23	117	0	0	0	0	0	90	82	0	24	556		0	0	0	0
8:45 AM	0	0	201	11	0	19	157	0	0	0	0	0	102	90	0	20	600		0	0	0	0

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	S-Turn	Left	Thru	Right	
Articulated Trucks	0	0	8	4	0	3	4	0	0	0	0	0	0	3	0	0	22
Lights	0	0	985	111	1	112	584	0	0	0	2	0	329	302	1	79	2,506
Mediums	0	0	21	2	0	4	11	0	0	0	0	0	1	8	0	0	47
Total	0	0	1,014	117	1	119	599	0	0	0	2	0	330	313	1	79	2,575



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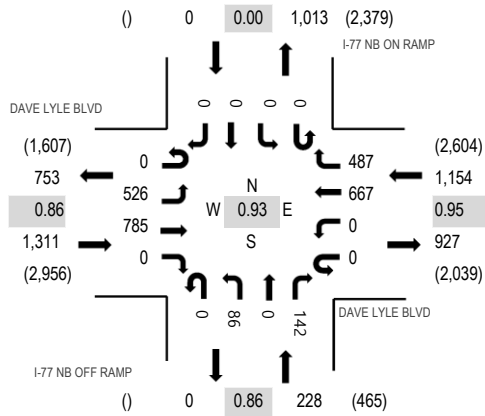
Location: 9 I-77 NB OFF RAMP & DAVE LYLE BLVD AM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 07:15 AM - 08:15 AM

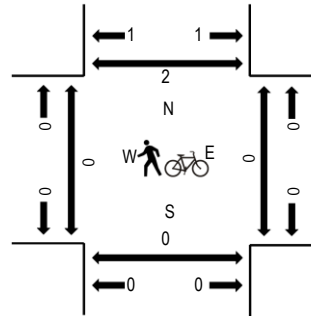
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	DAVE LYLE BLVD Eastbound				DAVE LYLE BLVD Westbound				I-77 NB OFF RAMP Northbound				I-77 NB ON RAMP Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:30 AM	0	136	117	0	0	0	105	142	0	11	0	13	0	0	0	0	524	2,304	0	0	0	0
6:45 AM	0	129	140	0	0	0	109	131	0	14	0	22	0	0	0	0	545	2,469	0	0	0	0
7:00 AM	0	145	124	0	1	0	142	148	0	17	0	25	0	0	0	0	602	2,646	0	0	0	0
7:15 AM	0	131	158	0	0	0	173	132	0	15	0	24	0	0	0	0	633	2,693	0	0	0	2
7:30 AM	0	143	195	0	0	0	154	141	0	21	0	35	0	0	0	0	689	2,609	0	0	0	0
7:45 AM	0	131	250	0	0	0	167	105	0	28	0	41	0	0	0	0	722	2,473	0	0	0	0
8:00 AM	0	121	182	0	0	0	173	109	0	22	0	42	0	0	0	0	649	2,310	0	0	0	0
8:15 AM	0	100	178	0	0	0	130	93	0	18	0	30	0	0	0	0	549		0	0	1	0
8:30 AM	1	105	183	0	1	0	135	88	0	10	0	30	0	0	0	0	553		0	0	0	0
8:45 AM	0	63	224	0	0	0	139	86	0	23	0	24	0	0	0	0	559		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	5	7	0	0	0	4	5	0	2	0	6	0	0	0	0	29
Lights	0	508	756	0	0	0	646	473	0	84	0	132	0	0	0	0	2,599
Mediums	0	13	22	0	0	0	17	9	0	0	0	4	0	0	0	0	65
Total	0	526	785	0	0	0	667	487	0	86	0	142	0	0	0	0	2,693



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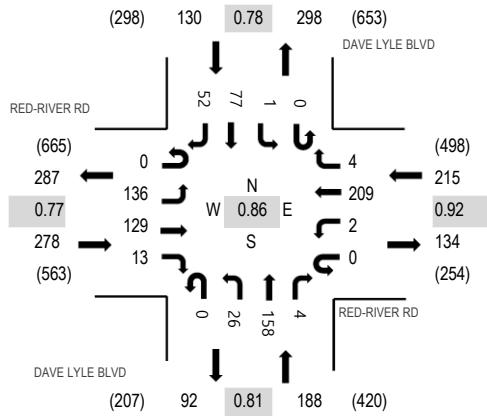
Location: 10 DAVE LYLE BLVD & RED-RIVER RD AM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 07:15 AM - 08:15 AM

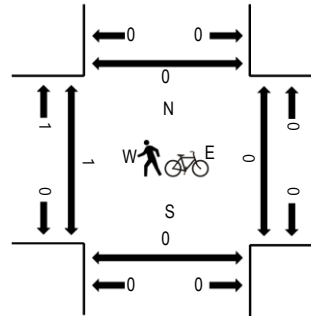
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	RED-RIVER RD				RED-RIVER RD				DAVE LYLE BLVD				DAVE LYLE BLVD				Total	Rolling Hour	Pedestrian Crossings			
	Eastbound				Westbound				Northbound				Southbound						West East South North			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:30 AM	0	22	5	0	0	0	57	0	0	6	38	0	0	2	8	8	146	657	0	0	0	0
6:45 AM	1	25	10	3	0	0	62	0	0	3	37	0	0	0	10	7	158	722	0	1	0	0
7:00 AM	0	34	13	3	0	2	51	0	0	2	30	2	0	0	18	10	165	801	0	0	0	0
7:15 AM	0	28	29	2	0	0	65	2	0	3	33	0	0	0	16	10	188	811	0	0	0	0
7:30 AM	0	34	31	4	0	0	63	1	0	8	43	0	0	1	19	7	211	791	1	0	0	0
7:45 AM	0	44	45	2	0	1	46	1	0	9	49	2	0	0	17	21	237	757	0	0	0	0
8:00 AM	0	30	24	5	0	1	35	0	0	6	33	2	0	0	25	14	175	674	0	0	0	0
8:15 AM	0	33	28	2	0	2	28	1	0	6	36	1	0	1	17	13	168		0	0	0	0
8:30 AM	1	21	28	4	1	3	49	1	0	4	35	2	0	0	13	15	177		0	0	0	0
8:45 AM	1	20	25	6	0	0	26	0	0	8	22	0	0	2	24	20	154		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	4	1	0	0	0	4	0	0	1	0	0	0	0	0	2	12
Lights	0	131	122	13	0	2	200	3	0	24	150	4	0	1	72	47	769
Mediums	0	1	6	0	0	0	5	1	0	1	8	0	0	0	5	3	30
Total	0	136	129	13	0	2	209	4	0	26	158	4	0	1	77	52	811



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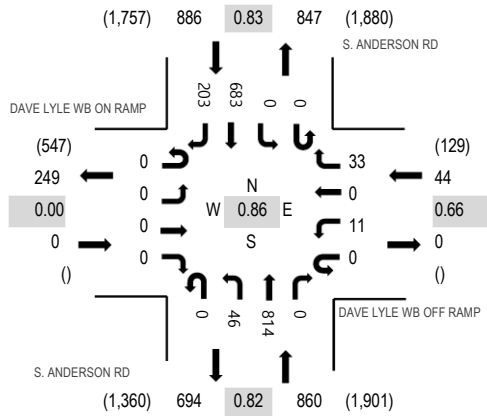
Location: 11 S. ANDERSON RD & DAVE LYLE WB OFF RAMP AM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 07:15 AM - 08:15 AM

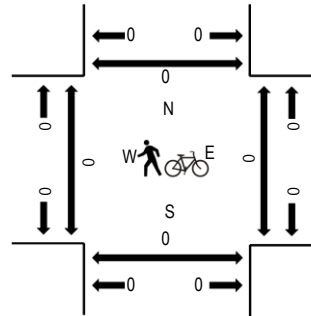
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	DAVE LYLE WB ON RAMP				DAVE LYLE WB OFF RAMP				S. ANDERSON RD				S. ANDERSON RD				Total	Rolling Hour	Pedestrian Crossings			
	Eastbound				Westbound				Northbound				Southbound						West	East	South	North
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right						
6:30 AM	0	0	0	0	0	2	0	8	0	8	138	0	0	0	78	17	251	1,242	0	0	0	0
6:45 AM	0	0	0	0	0	2	0	8	0	9	168	0	0	0	72	41	300	1,480	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	10	0	6	143	0	0	0	103	53	315	1,703	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	11	0	11	178	0	0	0	125	51	376	1,790	0	0	0	0
7:30 AM	0	0	0	0	0	2	0	9	0	16	245	0	0	0	160	57	489	1,787	0	0	0	0
7:45 AM	0	0	0	0	0	5	0	6	0	9	236	0	0	0	215	52	523	1,683	0	0	0	0
8:00 AM	0	0	0	0	0	4	0	7	0	10	155	0	0	0	183	43	402	1,533	0	0	0	0
8:15 AM	0	0	0	0	0	9	0	11	0	10	171	0	0	0	141	31	373		0	0	0	0
8:30 AM	0	0	0	0	0	6	0	4	0	13	202	0	0	0	125	35	385		0	0	0	0
8:45 AM	0	0	0	0	0	8	0	17	1	19	153	0	0	0	119	56	373		0	2	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	1	0	0	0	0	7	0	0	0	3	0	11
Lights	0	0	0	0	0	10	0	33	0	43	769	0	0	0	651	201	1,707
Mediums	0	0	0	0	0	0	0	0	0	3	38	0	0	0	29	2	72
Total	0	0	0	0	0	11	0	33	0	46	814	0	0	0	683	203	1,790



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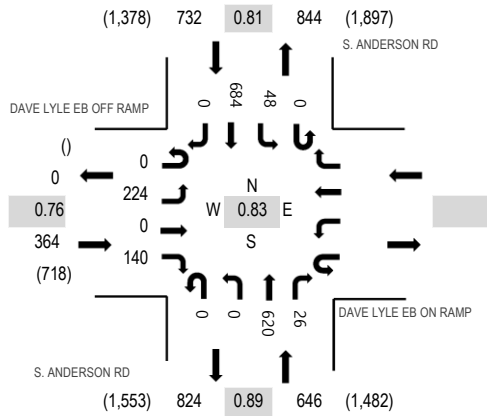
Location: 12 S. ANDERSON RD & DAVE LYLE EB ON RAMP AM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 07:30 AM - 08:30 AM

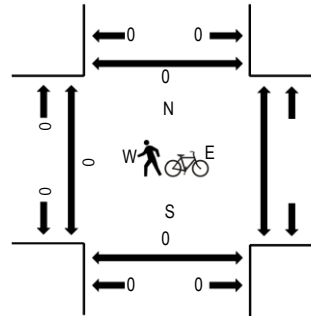
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	DAVE LYLE EB OFF RAMP				DAVE LYLE EB ON RAMP				S. ANDERSON RD Northbound				S. ANDERSON RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:30 AM	0	35	0	9					0	0	110	2	0	4	74	0	234	1,117	0		0	0
6:45 AM	0	54	0	12					0	0	125	4	0	3	73	0	271	1,333	0		0	0
7:00 AM	0	36	0	8					0	0	110	5	0	4	103	0	266	1,587	0		0	0
7:15 AM	0	44	0	19					0	0	155	1	0	6	121	0	346	1,718	0		0	0
7:30 AM	0	72	0	33					0	0	184	1	0	15	145	0	450	1,742	0		0	0
7:45 AM	0	68	0	52					0	0	172	7	0	11	215	0	525	1,669	0		0	0
8:00 AM	0	40	0	30					0	0	128	8	0	10	181	0	397	1,486	0		0	0
8:15 AM	0	44	0	25					0	0	136	10	0	12	143	0	370		0		0	0
8:30 AM	0	45	1	28					0	0	170	5	0	7	121	0	377		0		0	0
8:45 AM	0	27	0	36					0	0	142	7	0	5	125	0	342		0		0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0					0	0	4	1	0	0	7	0	12
Lights	0	220	0	136					0	0	583	24	0	46	649	0	1,658
Mediums	0	4	0	4					0	0	33	1	0	2	28	0	72
Total	0	224	0	140					0	0	620	26	0	48	684	0	1,742



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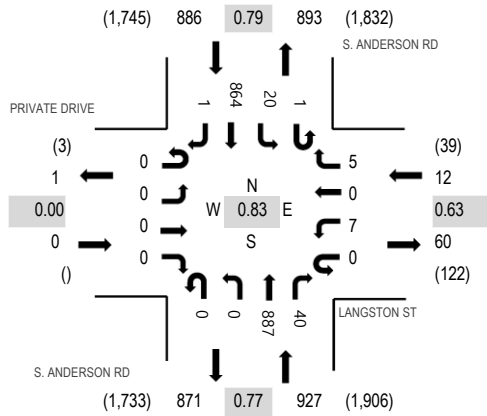
Location: 13 S. ANDERSON RD & LANGSTON ST AM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 07:15 AM - 08:15 AM

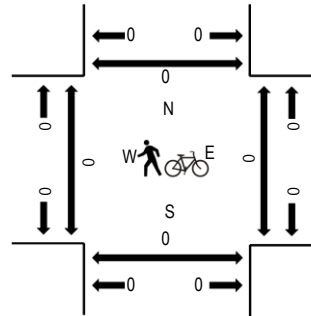
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	PRIVATE DRIVE Eastbound				LANGSTON ST Westbound				S. ANDERSON RD Northbound				S. ANDERSON RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:30 AM	0	0	0	0	0	1	0	0	0	0	129	6	0	1	92	0	229	1,199	0	0	0	0
6:45 AM	0	0	0	0	0	5	0	0	0	0	147	19	0	5	106	0	282	1,499	0	0	0	0
7:00 AM	0	0	0	0	0	1	0	1	0	0	149	7	0	3	152	0	313	1,770	0	0	0	0
7:15 AM	0	0	0	0	0	2	0	1	0	0	170	3	1	2	196	0	375	1,825	0	0	0	0
7:30 AM	0	0	0	0	0	3	0	2	0	0	289	12	0	4	219	0	529	1,780	0	0	0	0
7:45 AM	0	0	0	0	0	2	0	1	0	0	255	16	0	12	267	0	553	1,610	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	1	0	0	173	9	0	2	182	1	368	1,409	0	0	0	0
8:15 AM	0	0	0	0	0	3	0	5	0	1	145	6	0	2	168	0	330		0	0	0	0
8:30 AM	0	0	0	0	0	3	0	4	0	0	183	5	0	0	164	0	359		0	0	0	0
8:45 AM	0	0	0	0	0	2	0	2	0	1	174	7	0	1	165	0	352		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	5	1	0	0	6	0	12
Lights	0	0	0	0	0	6	0	5	0	0	837	39	1	19	827	1	1,735
Mediums	0	0	0	0	0	1	0	0	0	0	45	0	0	1	31	0	78
Total	0	0	0	0	0	7	0	5	0	0	887	40	1	20	864	1	1,825



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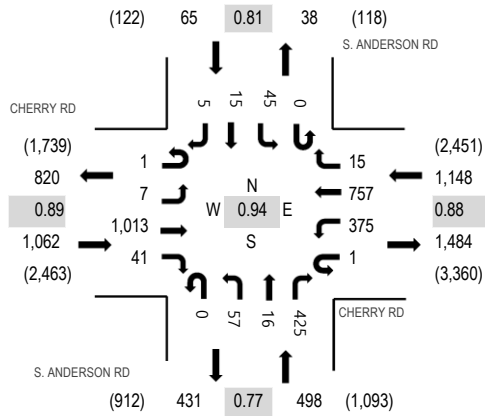
Location: 14 S. ANDERSON RD & CHERRY RD AM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 07:15 AM - 08:15 AM

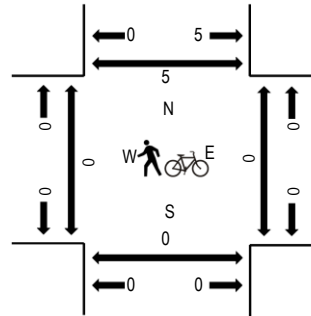
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	CHERRY RD Eastbound				CHERRY RD Westbound				S. ANDERSON RD Northbound				S. ANDERSON RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:30 AM	0	0	280	4	0	43	108	1	0	12	0	85	0	1	1	0	535	2,319	0	0	0	0
6:45 AM	0	0	235	5	0	58	127	3	0	4	0	100	0	6	3	1	542	2,506	0	0	0	0
7:00 AM	0	1	259	12	0	71	115	0	0	10	4	81	0	3	3	2	561	2,703	0	0	1	0
7:15 AM	1	3	302	5	0	80	168	2	0	15	2	86	0	11	4	2	681	2,773	0	0	0	2
7:30 AM	0	3	226	13	0	123	207	2	0	12	3	122	0	6	2	3	722	2,704	0	0	0	0
7:45 AM	0	0	248	10	0	107	185	10	0	21	5	136	0	14	3	0	739	2,529	0	0	0	3
8:00 AM	0	1	237	13	1	65	197	1	0	9	6	81	0	14	6	0	631	2,349	0	0	0	0
8:15 AM	1	1	216	6	0	89	178	9	0	14	4	83	0	7	2	2	612		0	0	0	0
8:30 AM	0	3	177	12	0	79	145	12	0	16	8	83	0	8	2	2	547		0	0	0	0
8:45 AM	1	3	178	7	0	81	164	20	0	15	11	65	0	9	3	2	559		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	7	0	0	4	5	0	0	1	0	3	0	0	0	0	20
Lights	1	7	989	39	1	361	734	14	0	56	16	402	0	45	15	5	2,685
Mediums	0	0	17	2	0	10	18	1	0	0	0	20	0	0	0	0	68
Total	1	7	1,013	41	1	375	757	15	0	57	16	425	0	45	15	5	2,773



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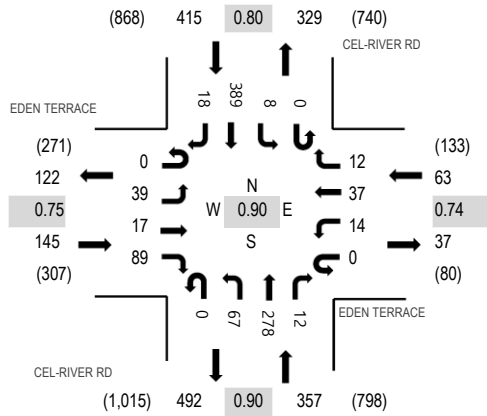
Location: 15 CEL-RIVER RD & EDEN TERRACE AM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 07:15 AM - 08:15 AM

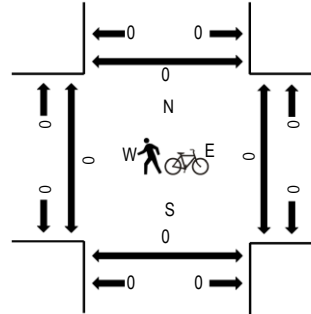
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk

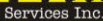


Traffic Counts

Interval Start Time	EDEN TERRACE Eastbound				EDEN TERRACE Westbound				CEL-RIVER RD Northbound				CEL-RIVER RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:30 AM	0	5	3	13	0	2	5	6	0	6	57	1	0	0	40	6	144	749	0	0	0	0
6:45 AM	0	9	2	26	0	0	7	3	0	13	54	1	0	0	72	10	197	861	0	0	0	0
7:00 AM	0	6	3	14	0	4	6	2	0	13	66	1	0	3	62	6	186	937	0	0	0	0
7:15 AM	0	7	2	14	0	5	11	2	0	23	75	2	0	4	70	7	222	980	0	0	0	0
7:30 AM	0	14	5	20	0	5	9	8	0	11	85	4	0	0	89	6	256	980	0	0	0	0
7:45 AM	0	11	4	35	0	2	10	1	0	14	61	3	0	3	126	3	273	923	0	0	0	0
8:00 AM	0	7	6	20	0	2	7	1	0	19	57	3	0	1	104	2	229	828	0	0	0	0
8:15 AM	0	8	3	17	0	3	7	2	0	14	76	6	0	2	76	8	222		0	0	0	0
8:30 AM	0	8	1	16	0	2	5	0	0	15	62	6	0	2	74	8	199		0	0	0	0
8:45 AM	0	4	4	20	0	5	9	2	0	6	41	3	0	2	77	5	178		0	0	0	0

Peak Rolling Hour Flow Rates

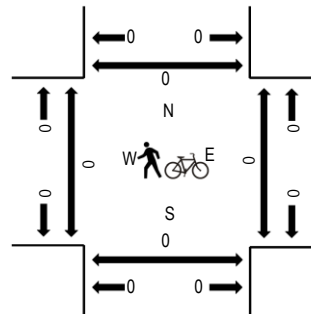
Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	4	0	0	0	0	0	0	0	1	5	0	0	0	20	1	31
Lights	0	35	17	89	0	14	36	12	0	64	264	12	0	7	360	15	925
Mediums	0	0	0	0	0	0	1	0	0	2	9	0	0	1	9	2	24
Total	0	39	17	89	0	14	37	12	0	67	278	12	0	8	389	18	980



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Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Interval Start Time	EDEN TERRACE				EDEN TERRACE				RIVERVIEW RD				RIVERVIEW RD				Total	Rolling Hour	Pedestrian Crossings			
	Eastbound				Westbound				Northbound				Southbound						West	East	South	North
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right						
6:30 AM	0	21	19	0	0	0	5	3	0	0	0	0	1	4	0	9	62	392	0	0	0	0
6:45 AM	0	35	44	0	0	0	23	1	0	0	0	0	0	6	0	10	119	456	0	0	0	0
7:00 AM	0	21	27	0	0	0	25	7	0	0	0	0	0	7	0	10	97	489	0	0	0	0
7:15 AM	0	32	29	0	0	0	30	2	0	0	0	0	0	6	0	15	114	504	0	0	0	0
7:30 AM	0	38	38	0	0	0	21	8	0	0	0	0	0	8	0	13	126	476	0	0	0	0
7:45 AM	0	36	65	0	0	0	24	5	0	0	0	0	0	6	0	16	152	434	0	0	0	0
8:00 AM	0	26	35	0	0	0	27	4	0	0	0	0	0	8	0	12	112	374	0	0	0	0
8:15 AM	0	14	27	0	0	0	20	3	0	0	0	0	0	8	0	14	86		0	0	0	0
8:30 AM	0	25	20	0	0	0	20	4	0	0	0	0	0	4	0	11	84		0	0	0	0
8:45 AM	0	19	32	0	0	0	21	5	0	0	0	0	0	4	0	11	92		0	0	0	0

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	2
Lights	0	129	165	0	0	0	100	17	0	0	0	0	0	26	0	54	491
Mediums	0	3	2	0	0	0	2	1	0	0	0	0	0	1	0	2	11
Total	0	132	167	0	0	0	102	19	0	0	0	0	0	28	0	56	504



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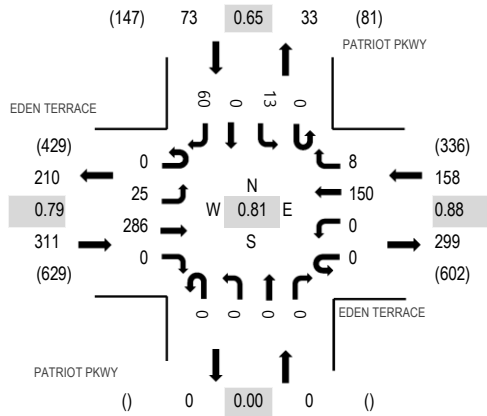
Location: 17 PATRIOT PKWY & EDEN TERRACE AM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 07:15 AM - 08:15 AM

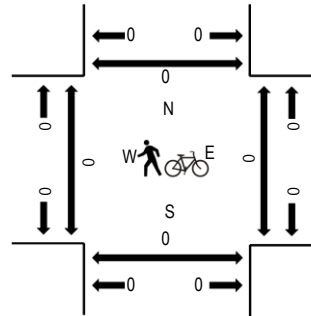
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	EDEN TERRACE				EDEN TERRACE				PATRIOT PKWY				PATRIOT PKWY				Total	Rolling Hour	Pedestrian Crossings			
	Eastbound				Westbound				Northbound				Southbound						Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:30 AM	0	7	40	0	0	0	13	1	0	0	0	0	0	1	0	9	71	423	0	0	0	0
6:45 AM	0	4	74	0	0	0	31	3	0	0	0	0	0	6	0	10	128	475	0	0	0	0
7:00 AM	0	5	43	0	0	0	32	2	0	0	0	0	0	3	0	10	95	515	0	0	0	0
7:15 AM	0	6	57	0	0	0	43	2	0	0	0	0	0	3	0	18	129	542	0	0	0	0
7:30 AM	0	5	76	0	0	0	31	1	0	0	0	0	0	0	0	10	123	501	0	0	0	0
7:45 AM	0	5	94	0	0	0	39	2	0	0	0	0	0	7	0	21	168	472	0	0	0	0
8:00 AM	0	9	59	0	0	0	37	3	0	0	0	0	0	3	0	11	122	398	0	0	0	0
8:15 AM	0	5	39	0	0	0	32	2	0	0	0	0	0	4	0	6	88		0	0	0	0
8:30 AM	0	7	43	0	0	0	26	5	0	0	0	0	0	2	0	11	94		0	0	0	0
8:45 AM	0	5	46	0	0	0	29	2	0	0	0	0	0	2	0	10	94		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	0	25	283	0	0	0	145	8	0	0	0	0	0	13	0	53	527
Mediums	0	0	3	0	0	0	5	0	0	0	0	0	0	0	0	7	15
Total	0	25	286	0	0	0	150	8	0	0	0	0	0	13	0	60	542



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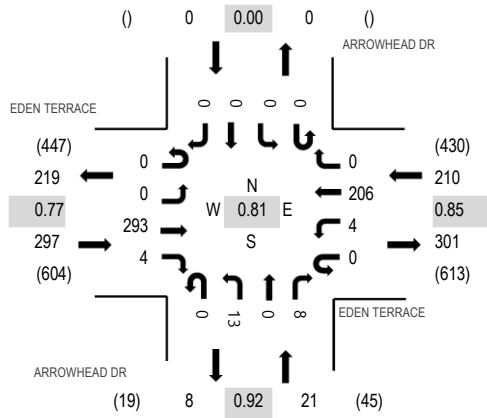
Location: 18 ARROWHEAD DR & EDEN TERRACE AM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 07:15 AM - 08:15 AM

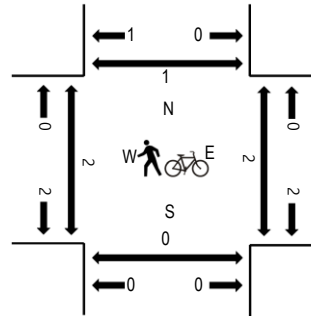
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	EDEN TERRACE Eastbound				EDEN TERRACE Westbound				ARROWHEAD DR Northbound				ARROWHEAD DR Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:30 AM	0	0	43	0	0	0	22	0	0	0	0	3	0	0	0	0	68	406	0	0	0	0
6:45 AM	0	0	77	1	0	0	40	0	0	0	0	4	0	0	0	0	122	463	0	0	0	0
7:00 AM	0	0	39	2	0	1	44	0	0	3	0	3	0	0	0	0	92	504	0	0	0	0
7:15 AM	0	0	57	0	0	2	59	0	0	4	0	2	0	0	0	0	124	528	1	1	0	0
7:30 AM	0	0	76	2	0	0	41	0	0	3	0	3	0	0	0	0	125	488	1	1	0	1
7:45 AM	0	0	96	1	0	2	60	0	0	2	0	2	0	0	0	0	163	452	0	0	0	0
8:00 AM	0	0	64	1	0	0	46	0	0	4	0	1	0	0	0	0	116	385	0	0	0	0
8:15 AM	0	0	43	0	0	1	37	0	0	3	0	0	0	0	0	0	84		0	0	0	0
8:30 AM	0	0	48	1	0	1	36	0	0	1	0	2	0	0	0	0	89		0	0	0	0
8:45 AM	0	0	50	3	0	1	37	0	0	5	0	0	0	0	0	0	96		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	0	0	290	4	0	4	192	0	0	12	0	8	0	0	0	0	510
Mediums	0	0	3	0	0	0	14	0	0	1	0	0	0	0	0	0	18
Total	0	0	293	4	0	4	206	0	0	13	0	8	0	0	0	0	528



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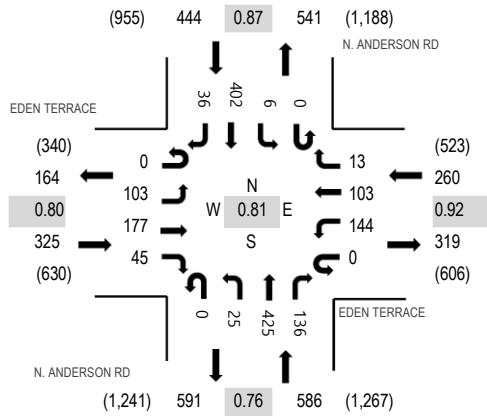
Location: 19 N. ANDERSON RD & EDEN TERRACE AM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 07:15 AM - 08:15 AM

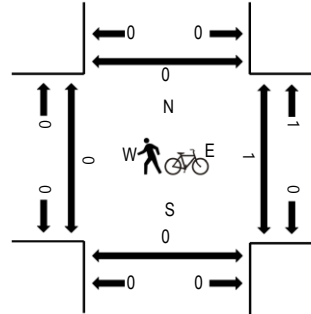
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	EDEN TERRACE Eastbound				EDEN TERRACE Westbound				N. ANDERSON RD Northbound				N. ANDERSON RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:30 AM	0	11	14	2	0	20	6	2	1	1	80	19	0	0	49	4	209	1,114	0	0	0	0
6:45 AM	0	23	26	4	0	22	15	2	0	7	77	28	0	2	63	6	275	1,363	0	0	0	0
7:00 AM	0	21	22	5	0	32	25	4	0	5	81	16	0	1	72	3	287	1,586	0	0	0	0
7:15 AM	0	27	31	8	0	39	32	1	0	6	68	27	0	2	95	7	343	1,615	0	0	0	0
7:30 AM	0	34	43	16	0	34	24	3	0	7	132	42	0	0	110	13	458	1,600	0	0	0	0
7:45 AM	0	33	62	10	0	40	26	6	0	8	142	44	0	3	116	8	498	1,466	0	1	0	0
8:00 AM	0	9	41	11	0	31	21	3	0	4	83	23	0	1	81	8	316	1,305	0	0	0	0
8:15 AM	0	21	38	17	0	19	18	4	0	6	88	14	0	0	94	9	328		0	0	0	0
8:30 AM	0	12	25	12	0	22	14	3	0	7	101	24	0	7	89	8	324		0	1	0	1
8:45 AM	0	15	27	10	0	28	22	5	0	8	97	21	0	3	89	12	337		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	1	0	0	0	0	0	0	0	0	4	0	0	0	2	0	7
Lights	0	102	176	44	0	136	100	11	0	25	403	132	0	6	387	35	1,557
Mediums	0	0	1	1	0	8	3	2	0	0	18	4	0	0	13	1	51
Total	0	103	177	45	0	144	103	13	0	25	425	136	0	6	402	36	1,615



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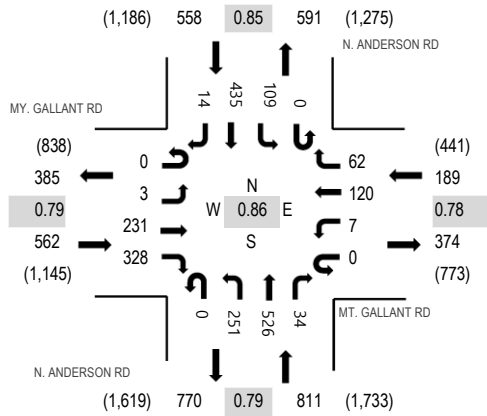
Location: 20 N. ANDERSON RD & MT. GALLANT RD AM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 07:30 AM - 08:30 AM

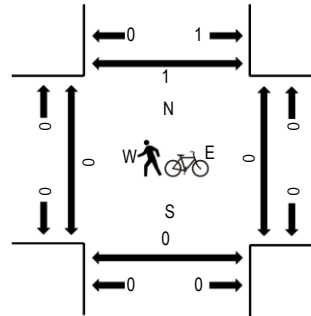
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	MY. GALLANT RD Eastbound				MT. GALLANT RD Westbound				N. ANDERSON RD Northbound				N. ANDERSON RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:30 AM	0	0	26	55	0	0	12	12	0	35	88	4	0	22	41	0	295	1,450	0	0	0	0
6:45 AM	0	1	49	52	0	1	22	8	0	32	114	6	0	27	52	1	365	1,742	0	0	0	0
7:00 AM	0	1	25	42	0	0	28	12	0	45	86	5	0	22	93	1	360	1,990	0	0	0	0
7:15 AM	0	0	34	74	0	0	33	9	0	59	83	11	0	19	107	1	430	2,105	0	0	0	1
7:30 AM	0	0	45	88	0	0	29	9	0	85	169	7	0	20	128	7	587	2,120	0	0	0	0
7:45 AM	0	2	72	103	0	0	23	21	0	62	157	5	0	25	139	4	613	1,994	0	0	0	1
8:00 AM	0	0	54	69	0	2	32	18	0	57	110	15	0	32	85	1	475	1,855	0	0	0	0
8:15 AM	0	1	60	68	0	5	36	14	0	47	90	7	0	32	83	2	445		0	0	0	0
8:30 AM	0	2	49	66	0	4	22	18	0	49	117	11	0	17	103	3	461		0	0	0	0
8:45 AM	0	3	43	61	0	9	40	22	0	64	108	5	0	24	89	6	474		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	2	0	0	1	2	3	0	3	0	0	0	1	3	1	16
Lights	0	3	226	319	0	6	113	57	0	232	510	32	0	103	418	13	2,032
Mediums	0	0	3	9	0	0	5	2	0	16	16	2	0	5	14	0	72
Total	0	3	231	328	0	7	120	62	0	251	526	34	0	109	435	14	2,120



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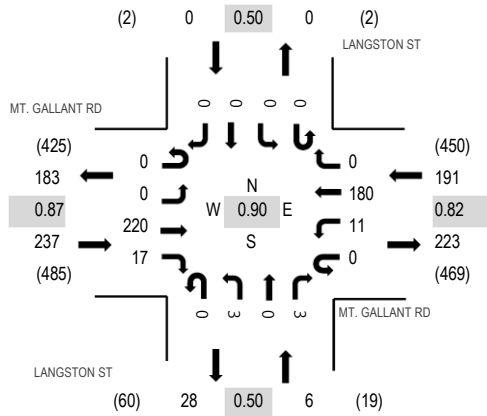
Location: 21 LANGSTON ST & MT. GALLANT RD AM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 07:45 AM - 08:45 AM

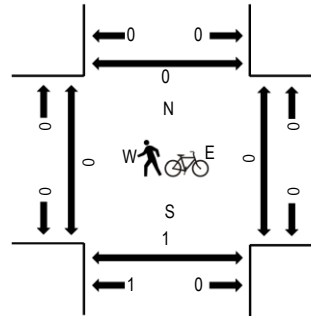
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	MT. GALLANT RD Eastbound				MT. GALLANT RD Westbound				LANGSTON ST Northbound				LANGSTON ST Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:30 AM	0	0	33	2	0	1	30	0	0	0	0	1	0	0	0	0	67	327	0	0	0	0
6:45 AM	0	0	51	2	0	4	31	0	0	0	0	0	0	1	0	0	89	345	0	0	0	2
7:00 AM	0	1	29	1	0	5	39	0	0	2	0	1	0	1	0	0	79	376	0	0	0	1
7:15 AM	0	1	45	1	0	3	42	0	0	0	0	0	0	0	0	0	92	408	0	0	0	0
7:30 AM	0	0	32	2	0	7	39	0	0	3	0	2	0	0	0	0	85	430	0	0	1	0
7:45 AM	0	0	54	4	0	5	55	0	0	0	0	2	0	0	0	0	120	434	0	0	0	0
8:00 AM	0	0	60	3	0	3	43	0	0	2	0	0	0	0	0	0	111	424	0	0	1	0
8:15 AM	0	0	62	6	0	0	45	0	0	1	0	0	0	0	0	0	114		0	0	0	0
8:30 AM	0	0	44	4	0	3	37	0	0	0	0	1	0	0	0	0	89		0	0	0	0
8:45 AM	0	0	46	2	0	2	56	0	0	0	0	4	0	0	0	0	110		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	2	0	0	0	2	0	0	0	0	1	0	0	0	0	5
Lights	0	0	213	17	0	10	172	0	0	2	0	2	0	0	0	0	416
Mediums	0	0	5	0	0	1	6	0	0	1	0	0	0	0	0	0	13
Total	0	0	220	17	0	11	180	0	0	3	0	3	0	0	0	0	434



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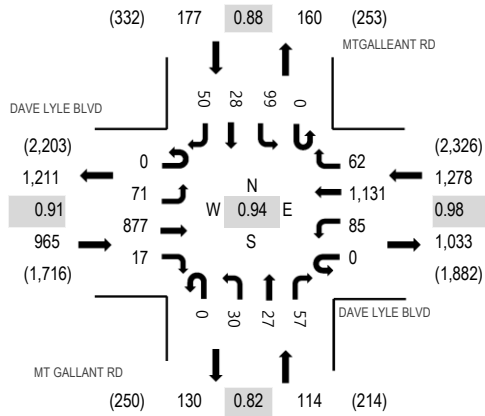
Location: 2 MT GALLANT RD & DAVE LYLE BLVD PM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 04:45 PM - 05:45 PM

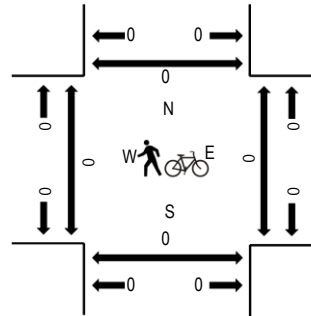
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	DAVE LYLE BLVD Eastbound				DAVE LYLE BLVD Westbound				MT GALLANT RD Northbound				MTGALLEANT RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	9	207	6	0	21	208	10	0	8	8	21	0	20	10	3	531	2,156	0	1	0	1
4:15 PM	0	8	172	3	0	15	227	7	0	4	4	16	0	18	7	12	493	2,298	0	0	0	0
4:30 PM	0	8	160	1	0	19	244	12	0	2	4	19	0	27	9	16	521	2,474	0	0	0	0
4:45 PM	0	12	220	7	0	21	269	14	0	2	4	21	0	27	8	6	611	2,534	0	0	0	0
5:00 PM	0	19	245	2	0	24	285	17	0	12	6	15	0	23	7	18	673	2,432	0	0	0	0
5:15 PM	0	22	238	5	0	27	285	14	0	9	13	15	0	22	8	11	669		0	0	0	0
5:30 PM	0	18	174	3	0	13	292	17	0	7	4	6	0	27	5	15	581		0	0	0	0
5:45 PM	1	10	160	6	0	19	255	11	0	2	2	10	0	19	4	10	509		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	1	0	0	0	0	5	2	0	0	0	0	0	2	0	0	10
Lights	0	69	869	17	0	84	1,109	60	0	30	27	57	0	97	28	50	2,497
Mediums	0	1	8	0	0	1	17	0	0	0	0	0	0	0	0	0	27
Total	0	71	877	17	0	85	1,131	62	0	30	27	57	0	99	28	50	2,534



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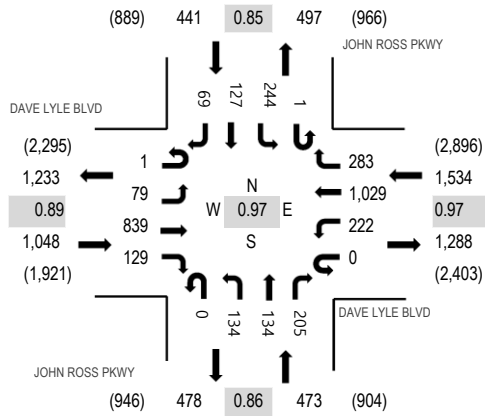
Location: 3 JOHN ROSS PKWY & DAVE LYLE BLVD PM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 04:45 PM - 05:45 PM

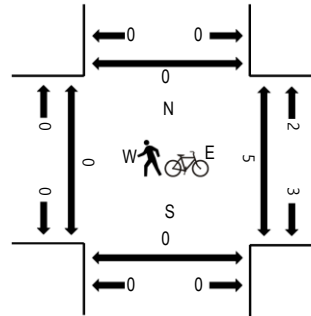
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	DAVE LYLE BLVD Eastbound				DAVE LYLE BLVD Westbound				JOHN ROSS PKWY Northbound				JOHN ROSS PKWY Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	20	203	35	1	51	197	56	0	24	27	46	0	54	25	20	759	3,206	0	0	0	0
4:15 PM	0	15	160	34	1	54	198	76	0	23	38	49	0	71	26	21	766	3,338	0	0	0	0
4:30 PM	0	20	169	34	0	55	256	72	0	30	30	64	0	49	33	20	832	3,473	0	0	0	0
4:45 PM	0	18	194	34	0	66	236	67	0	41	42	60	0	47	33	11	849	3,496	0	4	0	0
5:00 PM	0	18	239	36	0	42	266	73	0	31	29	51	0	61	31	14	891	3,404	0	0	0	0
5:15 PM	0	26	199	32	0	59	255	75	0	31	32	51	1	73	41	26	901		0	0	0	0
5:30 PM	1	17	207	27	0	55	272	68	0	31	31	43	0	63	22	18	855		0	1	0	0
5:45 PM	1	19	144	19	0	59	229	57	0	22	39	39	0	65	43	21	757		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	2	0	0	0	6	1	0	0	0	0	0	1	0	0	10
Lights	1	79	829	129	0	220	1,011	279	0	133	134	204	1	242	126	67	3,455
Mediums	0	0	8	0	0	2	12	3	0	1	0	1	0	1	1	2	31
Total	1	79	839	129	0	222	1,029	283	0	134	134	205	1	244	127	69	3,496



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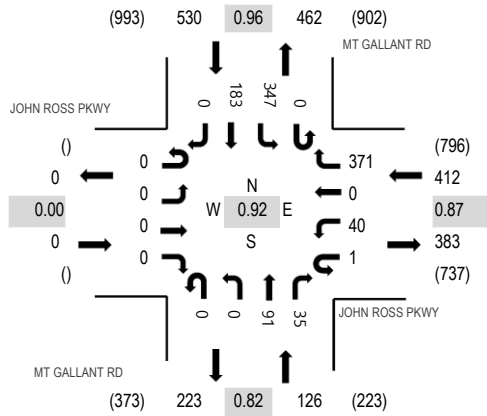
Location: 4 MT GALLANT RD & JOHN ROSS PKWY PM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 04:45 PM - 05:45 PM

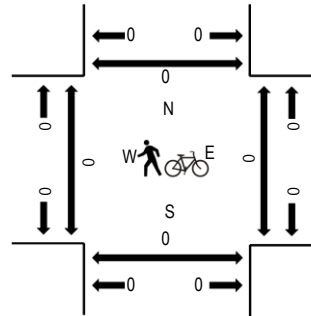
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	JOHN ROSS PKWY				JOHN ROSS PKWY				MT GALLANT RD				MT GALLANT RD				Total	Rolling Hour	Pedestrian Crossings			
	Eastbound				Westbound				Northbound				Southbound						West	East	South	North
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right						
4:00 PM	0	0	0	0	0	2	0	80	0	0	21	6	0	67	28	0	204	946	0	0	0	0
4:15 PM	0	0	0	0	0	5	0	102	0	0	17	4	0	82	26	0	236	998	0	0	0	0
4:30 PM	0	0	0	0	0	3	0	91	0	0	21	6	0	82	48	0	251	1,051	0	0	0	0
4:45 PM	0	0	0	0	0	9	0	95	0	0	19	7	0	87	38	0	255	1,068	0	0	0	0
5:00 PM	0	0	0	0	0	4	0	77	0	0	26	10	0	89	50	0	256	1,066	0	0	0	0
5:15 PM	0	0	0	0	1	12	0	106	0	0	27	12	0	83	48	0	289		0	0	0	0
5:30 PM	0	0	0	0	0	15	0	93	0	0	19	6	0	88	47	0	268		0	0	0	0
5:45 PM	0	0	0	0	0	6	0	95	0	0	13	9	0	98	32	0	253		0	1	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	1	0	0	3	0	0	0	2	0	6
Lights	0	0	0	0	1	40	0	368	0	0	87	34	0	346	180	0	1,056
Mediums	0	0	0	0	0	0	0	2	0	0	1	1	0	1	1	0	6
Total	0	0	0	0	1	40	0	371	0	0	91	35	0	347	183	0	1,068



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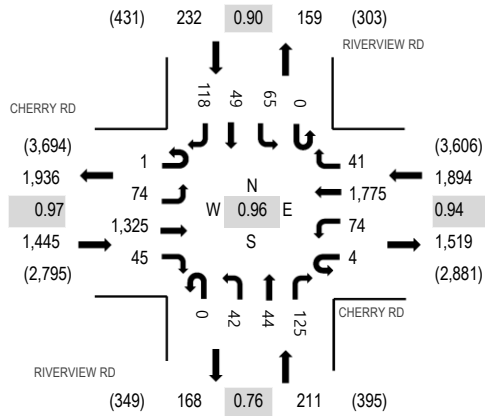
Location: 5 RIVERVIEW RD & CHERRY RD PM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 05:00 PM - 06:00 PM

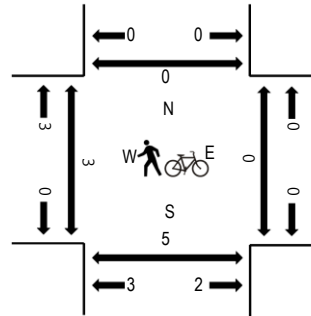
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	CHERRY RD Eastbound				CHERRY RD Westbound				RIVERVIEW RD Northbound				RIVERVIEW RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	15	305	13	0	15	393	6	0	14	7	29	0	6	7	31	841	3,445	0	0	0	0
4:15 PM	0	20	271	11	2	18	402	6	0	10	9	29	0	5	8	28	819	3,593	0	0	0	0
4:30 PM	1	11	315	15	2	28	392	7	0	8	8	28	0	12	7	43	877	3,723	0	0	0	0
4:45 PM	0	24	328	21	0	24	396	21	0	12	10	20	0	10	14	28	908	3,748	0	0	0	1
5:00 PM	1	19	348	10	2	16	443	10	0	16	13	42	0	25	13	31	989	3,782	0	0	1	0
5:15 PM	0	19	349	13	0	18	410	11	0	11	11	37	0	17	14	39	949		1	0	0	0
5:30 PM	0	20	317	9	2	22	444	11	0	3	7	26	0	8	8	25	902		0	0	2	0
5:45 PM	0	16	311	13	0	18	478	9	0	12	13	20	0	15	14	23	942		2	0	2	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	10	0	0	0	4	0	0	0	0	1	0	0	0	0	15
Lights	1	73	1,303	45	4	72	1,754	41	0	38	42	121	0	64	48	117	3,723
Mediums	0	1	12	0	0	2	17	0	0	4	2	3	0	1	1	1	44
Total	1	74	1,325	45	4	74	1,775	41	0	42	44	125	0	65	49	118	3,782



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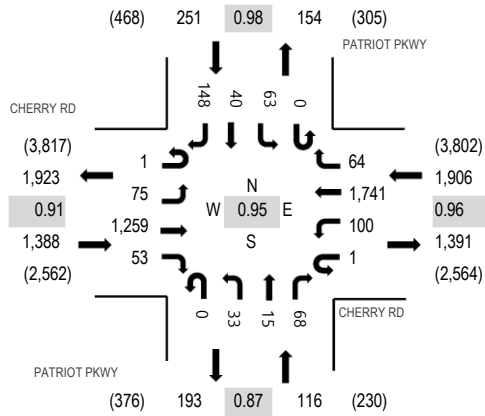
Location: 6 PATRIOT PKWY & CHERRY RD PM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 04:30 PM - 05:30 PM

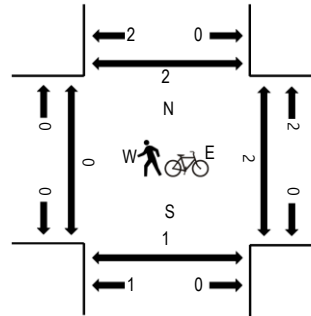
Peak 15-Minutes: 04:45 PM - 05:00 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	CHERRY RD Eastbound				CHERRY RD Westbound				PATRIOT PKWY Northbound				PATRIOT PKWY Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	1	18	276	10	1	27	409	21	0	6	10	9	0	13	6	29	836	3,476	0	0	0	0
4:15 PM	0	14	252	8	0	20	435	11	0	11	8	12	0	13	11	29	824	3,563	0	0	0	0
4:30 PM	0	15	282	9	1	23	416	14	0	6	1	20	0	17	11	36	851	3,661	0	0	0	0
4:45 PM	1	26	340	15	0	27	449	18	0	6	7	12	0	12	12	40	965	3,654	0	2	0	2
5:00 PM	0	13	312	13	0	24	453	18	0	6	4	19	0	21	4	36	923	3,586	0	0	1	0
5:15 PM	0	21	325	16	0	26	423	14	0	15	3	17	0	13	13	36	922		0	0	0	0
5:30 PM	0	9	267	14	0	32	423	14	0	12	4	11	0	19	8	31	844		0	2	0	0
5:45 PM	1	20	274	10	0	28	455	20	0	11	2	18	0	8	9	41	897		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	10	0	0	0	2	0	0	0	0	1	0	0	0	0	13
Lights	1	74	1,235	53	1	98	1,712	63	0	32	14	67	0	62	40	145	3,597
Mediums	0	1	14	0	0	2	27	1	0	1	1	0	0	1	0	3	51
Total	1	75	1,259	53	1	100	1,741	64	0	33	15	68	0	63	40	148	3,661



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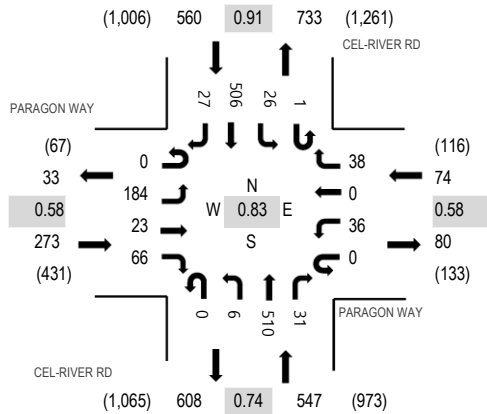
Location: 7 CEL-RIVER RD & PARAGON WAY PM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 04:30 PM - 05:30 PM

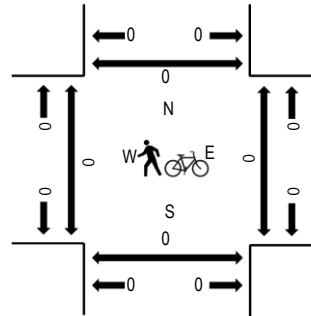
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	PARAGON WAY Eastbound				PARAGON WAY Westbound				CEL-RIVER RD Northbound				CEL-RIVER RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	34	2	6	0	7	0	3	0	2	103	8	0	6	92	7	270	1,213	0	0	0	0
4:15 PM	0	34	0	8	0	6	0	6	0	4	68	7	0	2	83	9	227	1,379	0	0	0	0
4:30 PM	0	77	10	33	0	6	0	4	0	1	125	4	0	8	107	10	385	1,454	0	0	0	0
4:45 PM	0	30	5	14	0	5	0	8	0	2	104	6	0	5	145	7	331	1,367	0	0	0	0
5:00 PM	0	52	4	11	0	14	0	18	0	2	170	14	0	6	138	7	436	1,313	0	0	0	0
5:15 PM	0	25	4	8	0	11	0	8	0	1	111	7	1	7	116	3	302		0	0	0	0
5:30 PM	0	22	2	8	0	6	1	3	0	0	112	7	0	6	123	8	298		0	0	0	0
5:45 PM	0	33	0	9	0	8	0	2	0	0	108	7	0	6	101	3	277		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	10	0	0	0	0	0	0	0	1	4	0	0	0	6	6	27
Lights	0	170	23	66	0	36	0	36	0	5	502	31	1	25	496	16	1,407
Mediums	0	4	0	0	0	0	0	2	0	0	4	0	0	1	4	5	20
Total	0	184	23	66	0	36	0	38	0	6	510	31	1	26	506	27	1,454



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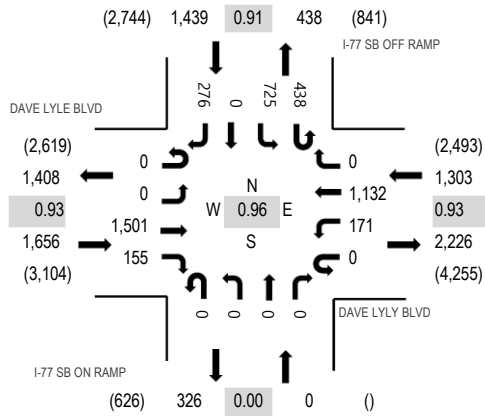
Location: 8 I-77 SB ON RAMP & DAVE LYLY BLVD PM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 04:45 PM - 05:45 PM

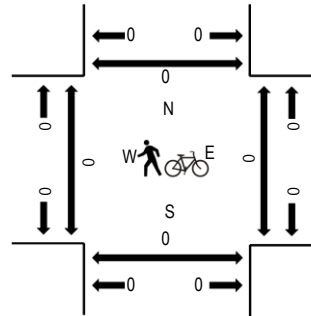
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	DAVE LYLY BLVD				DAVE LYLY BLVD				I-77 SB ON RAMP				I-77 SB OFF RAMP				Total	Rolling Hour	Pedestrian Crossings			
	Eastbound				Westbound				Northbound				Southbound						West	East	South	North
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	S-Turn	Left	Thru	Right						
4:00 PM	0	0	325	26	0	56	239	0	0	0	0	0	66	172	0	46	930	3,979	0	0	1	1
4:15 PM	0	0	352	24	1	35	248	0	0	0	0	0	111	170	0	40	981	4,193	0	0	0	0
4:30 PM	0	0	318	35	0	43	271	0	0	0	0	0	121	194	0	55	1,037	4,347	0	0	0	0
4:45 PM	0	0	365	18	0	36	275	0	0	0	0	0	127	166	0	44	1,031	4,398	0	0	0	0
5:00 PM	0	0	359	52	0	53	286	0	0	0	0	0	123	207	0	64	1,144	4,362	0	0	0	0
5:15 PM	0	0	408	38	0	47	307	0	0	0	0	0	80	168	0	87	1,135		0	0	0	0
5:30 PM	0	0	369	47	0	35	264	0	0	0	0	0	108	184	0	81	1,088		0	0	0	0
5:45 PM	0	0	333	35	0	46	251	0	0	0	0	0	105	164	0	61	995		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	S-Turn	Left	Thru	Right	
Articulated Trucks	0	0	2	1	0	3	4	0	0	0	0	0	0	2	0	0	12
Lights	0	0	1,491	153	0	167	1,108	0	0	0	0	0	437	718	0	276	4,350
Mediums	0	0	8	1	0	1	20	0	0	0	0	0	1	5	0	0	36
Total	0	0	1,501	155	0	171	1,132	0	0	0	0	0	438	725	0	276	4,398



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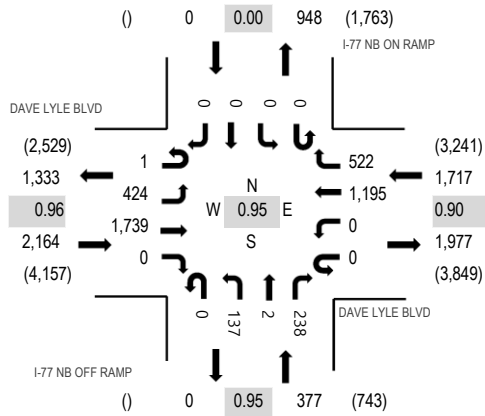
Location: 9 I-77 NB OFF RAMP & DAVE LYLE BLVD PM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 04:45 PM - 05:45 PM

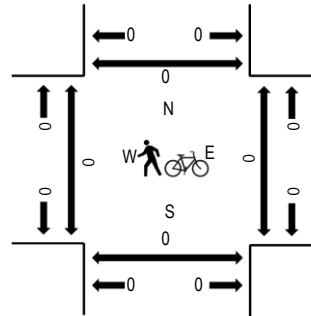
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	DAVE LYLE BLVD Eastbound				DAVE LYLE BLVD Westbound				I-77 NB OFF RAMP Northbound				I-77 NB ON RAMP Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	1	113	371	0	1	0	248	114	0	34	1	65	0	0	0	0	948	3,907	0	0	0	1
4:15 PM	1	83	428	0	1	0	264	96	0	20	0	60	0	0	0	0	953	4,058	0	0	0	0
4:30 PM	0	100	415	0	0	0	281	119	0	34	0	52	0	0	0	0	1,001	4,229	0	0	0	0
4:45 PM	1	84	432	0	0	0	278	124	0	28	1	57	0	0	0	0	1,005	4,258	0	0	0	0
5:00 PM	0	115	434	0	0	0	323	130	0	40	0	57	0	0	0	0	1,099	4,234	0	0	0	0
5:15 PM	0	104	432	0	0	0	349	136	0	38	1	64	0	0	0	0	1,124		0	0	0	0
5:30 PM	0	121	441	0	0	0	245	132	0	31	0	60	0	0	0	0	1,030		0	0	0	0
5:45 PM	0	66	415	0	0	0	277	123	0	36	0	64	0	0	0	0	981		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	1	2	0	0	0	4	4	0	2	0	1	0	0	0	0	14
Lights	1	419	1,724	0	0	0	1,175	513	0	133	2	234	0	0	0	0	4,201
Mediums	0	4	13	0	0	0	16	5	0	2	0	3	0	0	0	0	43
Total	1	424	1,739	0	0	0	1,195	522	0	137	2	238	0	0	0	0	4,258



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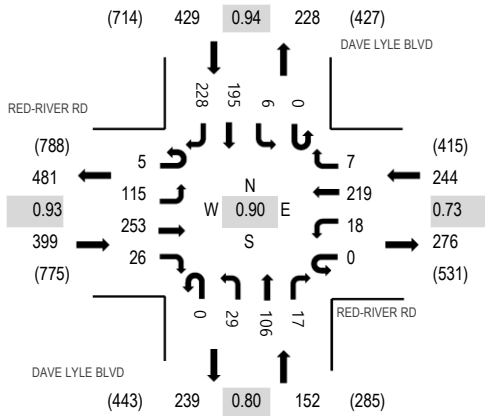
Location: 10 DAVE LYLE BLVD & RED-RIVER RD PM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 04:30 PM - 05:30 PM

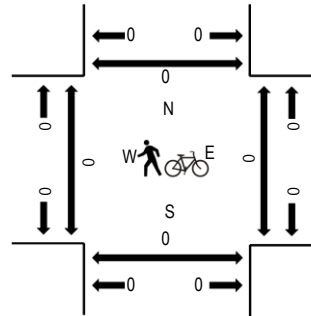
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	RED-RIVER RD Eastbound				RED-RIVER RD Westbound				DAVE LYLE BLVD Northbound				DAVE LYLE BLVD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	28	62	12	0	2	27	1	0	6	22	2	0	2	45	32	241	1,066	0	0	0	0
4:15 PM	0	30	61	4	0	5	48	1	0	9	18	5	0	2	21	31	235	1,166	0	0	0	0
4:30 PM	4	25	67	6	0	4	42	1	0	6	29	2	0	0	50	58	294	1,224	0	0	0	0
4:45 PM	1	28	59	7	0	3	57	0	0	8	19	6	0	4	54	50	296	1,173	0	0	0	0
5:00 PM	0	31	58	6	0	7	71	6	0	4	37	7	0	1	40	73	341	1,123	0	0	0	0
5:15 PM	0	31	69	7	0	4	49	0	0	11	21	2	0	1	51	47	293		0	0	0	0
5:30 PM	0	24	48	10	0	0	45	0	0	5	24	3	0	0	51	33	243		0	0	0	0
5:45 PM	0	19	66	12	0	4	38	0	0	4	32	3	0	1	38	29	246		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	1	1	0	0	0	3	0	0	0	3	1	0	0	2	2	13
Lights	5	113	247	26	0	18	209	7	0	28	102	16	0	6	192	224	1,193
Mediums	0	1	5	0	0	0	7	0	0	1	1	0	0	0	1	2	18
Total	5	115	253	26	0	18	219	7	0	29	106	17	0	6	195	228	1,224



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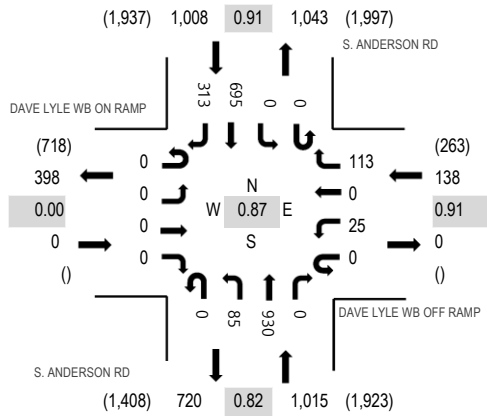
Location: 11 S. ANDERSON RD & DAVE LYLE WB OFF RAMP PM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 04:30 PM - 05:30 PM

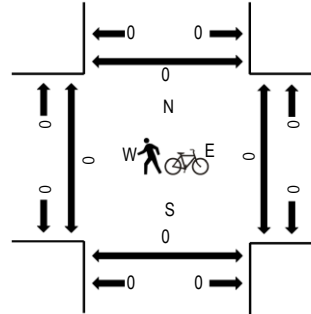
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	DAVE LYLE WB ON RAMP				DAVE LYLE WB OFF RAMP				S. ANDERSON RD				S. ANDERSON RD				Total	Rolling Hour	Pedestrian Crossings			
	Eastbound				Westbound				Northbound				Southbound						West	East	South	North
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right						
4:00 PM	0	0	0	0	0	5	0	20	0	15	245	0	0	0	179	80	544	2,047	0	0	0	0
4:15 PM	0	0	0	0	0	5	0	16	0	23	209	0	0	0	158	74	485	2,124	0	0	0	1
4:30 PM	0	0	0	0	0	7	0	28	0	21	204	0	0	0	156	90	506	2,161	0	0	0	0
4:45 PM	0	0	0	0	0	4	0	25	0	18	224	0	0	0	179	62	512	2,131	0	0	0	0
5:00 PM	0	0	0	0	0	8	0	26	0	24	286	0	0	0	187	90	621	2,076	0	0	0	0
5:15 PM	0	0	0	0	0	6	0	34	0	22	216	0	0	0	173	71	522		0	0	0	0
5:30 PM	0	0	0	0	0	2	0	35	0	17	190	0	0	0	178	54	476		0	0	0	0
5:45 PM	0	0	0	0	0	3	0	39	0	9	200	0	0	0	158	48	457		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	1	0	0	3	0	0	0	6	1	11
Lights	0	0	0	0	0	25	0	107	0	84	910	0	0	0	676	308	2,110
Mediums	0	0	0	0	0	0	0	5	0	1	17	0	0	0	13	4	40
Total	0	0	0	0	0	25	0	113	0	85	930	0	0	0	695	313	2,161



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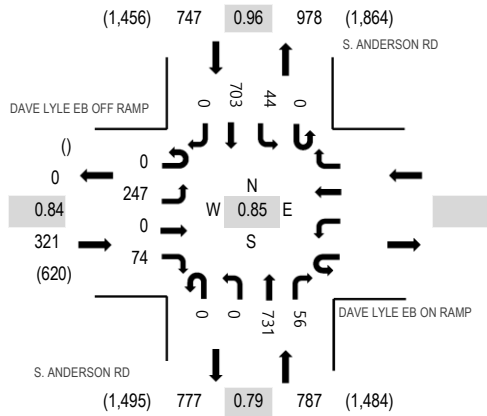
Location: 12 S. ANDERSON RD & DAVE LYLE EB ON RAMP PM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 04:30 PM - 05:30 PM

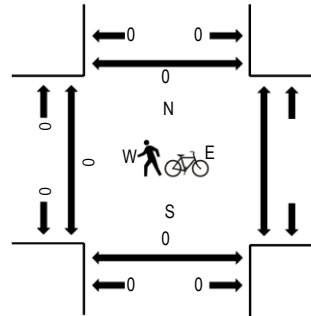
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	DAVE LYLE EB OFF RAMP				DAVE LYLE EB ON RAMP				S. ANDERSON RD Northbound				S. ANDERSON RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	56	0	18					0	0	188	10	0	17	175	0	464	1,757	0		0	0
4:15 PM	0	67	0	22					0	0	159	13	0	7	169	0	437	1,836	0		0	0
4:30 PM	0	49	0	17					0	0	159	17	0	10	161	0	413	1,855	0		0	0
4:45 PM	0	64	0	11					0	0	159	12	0	12	185	0	443	1,846	0		0	0
5:00 PM	0	75	0	23					0	0	234	16	0	10	185	0	543	1,803	0		0	0
5:15 PM	0	59	0	23					0	0	179	11	0	12	172	0	456		0		0	0
5:30 PM	0	53	0	10					0	0	156	7	0	16	162	0	404		0		0	0
5:45 PM	0	54	1	18					0	0	153	11	0	19	144	0	400		0		0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	1	0	1					0	0	2	0	0	0	4	0	8
Lights	0	245	0	73					0	0	713	55	0	40	687	0	1,813
Mediums	0	1	0	0					0	0	16	1	0	4	12	0	34
Total	0	247	0	74					0	0	731	56	0	44	703	0	1,855



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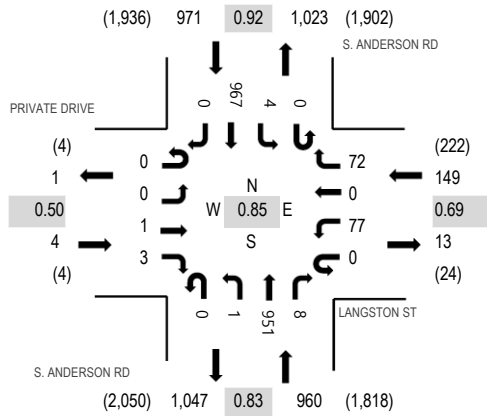
Location: 13 S. ANDERSON RD & LANGSTON ST PM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 04:30 PM - 05:30 PM

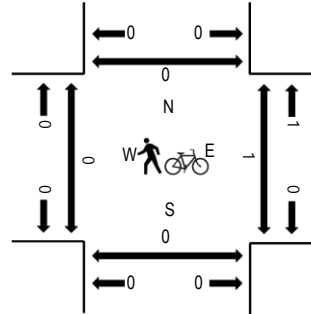
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	PRIVATE DRIVE Eastbound				LANGSTON ST Westbound				S. ANDERSON RD Northbound				S. ANDERSON RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	0	0	0	0	15	1	6	0	1	231	4	0	1	233	0	492	1,941	0	1	0	0
4:15 PM	0	0	0	0	0	9	0	8	0	1	204	2	0	0	247	0	471	2,061	0	0	0	0
4:30 PM	0	0	1	1	0	30	0	24	0	0	207	0	0	1	230	0	494	2,084	0	0	0	0
4:45 PM	0	0	0	1	0	11	0	13	0	1	232	2	0	1	223	0	484	2,061	0	0	0	0
5:00 PM	0	0	0	1	0	25	0	26	0	0	286	2	0	0	272	0	612	2,039	0	1	0	0
5:15 PM	0	0	0	0	0	11	0	9	0	0	226	4	0	2	242	0	494		0	0	0	0
5:30 PM	0	0	0	0	0	9	0	11	0	0	200	1	0	1	249	0	471		0	0	0	0
5:45 PM	0	0	0	0	0	7	0	7	1	0	212	1	0	1	233	0	462		1	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	1	0	2	0	0	3	1	0	0	5	0	12
Lights	0	0	1	3	0	76	0	69	0	1	932	7	0	4	946	0	2,039
Mediums	0	0	0	0	0	0	0	1	0	0	16	0	0	0	16	0	33
Total	0	0	1	3	0	77	0	72	0	1	951	8	0	4	967	0	2,084



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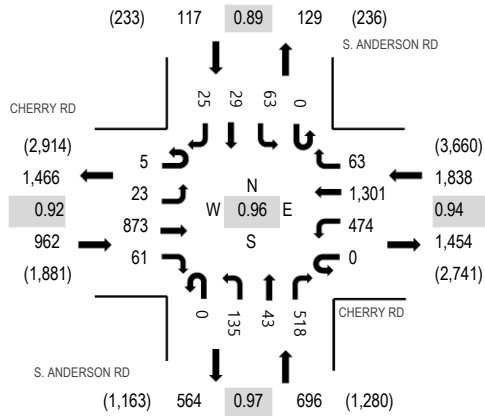
Location: 14 S. ANDERSON RD & CHERRY RD PM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 04:30 PM - 05:30 PM

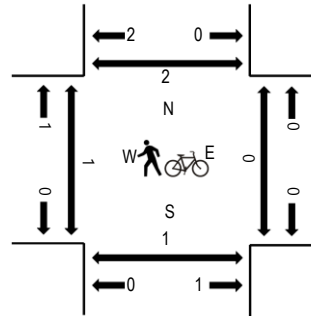
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	CHERRY RD Eastbound				CHERRY RD Westbound				S. ANDERSON RD Northbound				S. ANDERSON RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	5	213	19	0	112	303	15	0	35	13	106	0	16	13	6	856	3,461	0	0	0	0
4:15 PM	0	8	194	24	1	121	339	10	0	26	4	87	0	10	10	3	837	3,511	0	0	0	0
4:30 PM	0	5	203	19	0	106	317	15	0	34	8	133	0	18	7	5	870	3,613	0	0	0	0
4:45 PM	2	2	217	14	0	131	311	14	0	41	14	125	0	16	6	5	898	3,605	0	0	0	1
5:00 PM	2	8	243	13	0	110	322	16	0	27	10	124	0	15	9	7	906	3,593	1	0	1	0
5:15 PM	1	8	210	15	0	127	351	18	0	33	11	136	0	14	7	8	939		0	0	0	1
5:30 PM	0	6	218	18	0	115	314	12	0	30	7	108	0	14	8	12	862		0	0	0	0
5:45 PM	0	6	192	16	1	133	331	15	0	42	6	120	0	7	10	7	886		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	4	1	0	2	0	0	0	1	0	8	0	0	0	0	16
Lights	5	23	856	60	0	466	1,288	62	0	134	43	505	0	63	27	25	3,557
Mediums	0	0	13	0	0	6	13	1	0	0	0	5	0	0	2	0	40
Total	5	23	873	61	0	474	1,301	63	0	135	43	518	0	63	29	25	3,613



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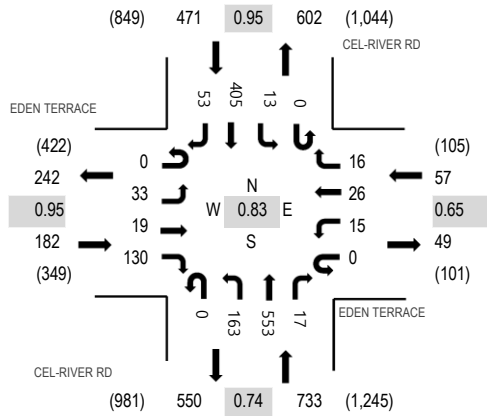
Location: 15 CEL-RIVER RD & EDEN TERRACE PM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 04:30 PM - 05:30 PM

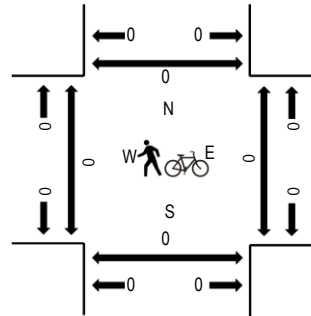
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	EDEN TERRACE Eastbound				EDEN TERRACE Westbound				CEL-RIVER RD Northbound				CEL-RIVER RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	6	3	27	0	1	6	4	0	34	103	1	0	2	72	16	275	1,196	0	0	0	0
4:15 PM	0	11	9	19	0	2	2	2	0	19	86	4	0	3	71	6	234	1,356	0	0	0	0
4:30 PM	0	8	4	28	0	4	13	5	0	53	143	5	0	6	95	9	373	1,443	0	0	0	0
4:45 PM	0	9	3	36	0	7	3	4	0	27	109	2	0	3	99	12	314	1,377	0	0	0	0
5:00 PM	0	5	6	40	0	3	6	4	0	54	187	7	0	1	105	17	435	1,352	0	0	0	0
5:15 PM	0	11	6	26	0	1	4	3	0	29	114	3	0	3	106	15	321		0	0	0	0
5:30 PM	0	11	11	29	0	4	7	6	0	27	95	6	0	2	97	12	307		1	0	0	0
5:45 PM	0	10	7	24	0	4	9	1	0	28	107	2	0	2	81	14	289		0	0	1	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	1	0	0	0	0	0	1	14	0	0	0	11	0	27
Lights	0	30	19	127	0	15	24	16	0	160	533	17	0	13	387	50	1,391
Mediums	0	3	0	2	0	0	2	0	0	2	6	0	0	0	7	3	25
Total	0	33	19	130	0	15	26	16	0	163	553	17	0	13	405	53	1,443



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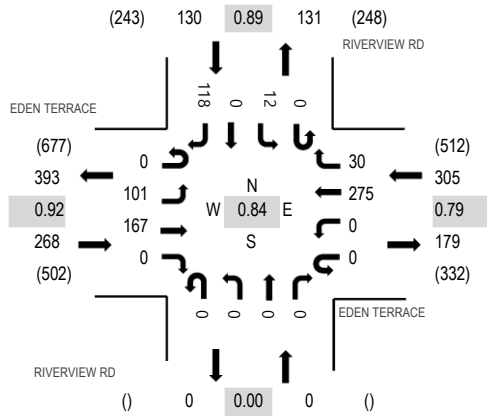
Location: 16 RIVERVIEW RD & EDEN TERRACE PM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 04:30 PM - 05:30 PM

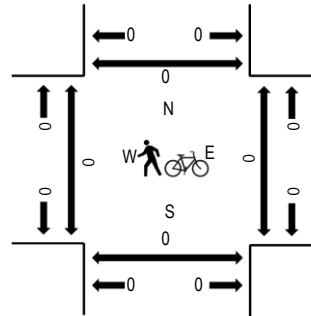
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	EDEN TERRACE Eastbound				EDEN TERRACE Westbound				RIVERVIEW RD Northbound				RIVERVIEW RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	23	24	0	0	0	56	8	0	0	0	0	0	5	0	23	139	600	0	0	0	0
4:15 PM	0	25	36	0	0	0	37	3	0	0	0	0	0	4	0	28	133	669	0	0	0	0
4:30 PM	0	25	37	0	0	0	87	3	0	0	0	0	0	4	0	22	178	703	0	0	0	0
4:45 PM	0	19	44	0	0	0	52	4	0	0	0	0	0	1	0	30	150	674	0	0	0	0
5:00 PM	0	30	45	0	0	0	81	16	0	0	0	0	0	4	0	32	208	657	0	0	0	0
5:15 PM	0	27	41	0	0	0	55	7	0	0	0	0	0	3	0	34	167		0	0	0	0
5:30 PM	0	24	46	0	0	0	48	3	0	0	0	0	0	3	0	25	149		0	0	0	0
5:45 PM	0	26	30	0	0	0	47	5	0	0	0	0	0	5	0	20	133		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	4
Lights	0	99	162	0	0	0	271	26	0	0	0	0	0	12	0	115	685
Mediums	0	2	5	0	0	0	2	2	0	0	0	0	0	0	0	3	14
Total	0	101	167	0	0	0	275	30	0	0	0	0	0	12	0	118	703



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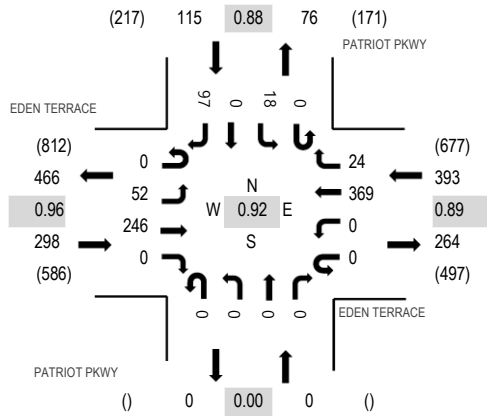
Location: 17 PATRIOT PKWY & EDEN TERRACE PM

Date and Start Time: Thursday, May 9, 2019

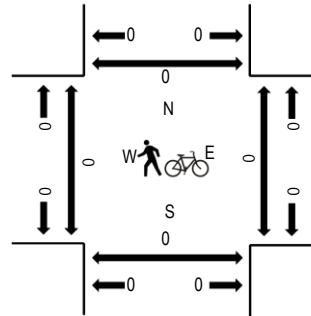
Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	EDEN TERRACE				EDEN TERRACE				PATRIOT PKWY				PATRIOT PKWY				Total	Rolling Hour	Pedestrian Crossings			
	Eastbound				Westbound				Northbound				Southbound									
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	16	44	0	0	0	72	7	0	0	0	0	0	2	0	14	155	720	0	0	0	0
4:15 PM	0	18	59	0	0	0	63	5	0	0	0	0	0	4	0	27	176	783	0	0	0	0
4:30 PM	0	14	56	0	0	0	106	3	0	0	0	0	0	5	0	24	208	806	0	0	0	0
4:45 PM	0	11	56	0	0	0	74	6	0	0	0	0	0	5	0	29	181	776	0	0	0	0
5:00 PM	0	11	70	0	0	0	102	9	0	0	0	0	0	5	0	21	218	760	0	0	0	0
5:15 PM	0	16	64	0	0	0	87	6	0	0	0	0	0	3	0	23	199		0	0	0	0
5:30 PM	0	15	65	0	0	0	64	6	0	0	0	0	0	4	0	24	178		0	0	0	0
5:45 PM	0	21	50	0	0	0	61	6	0	0	0	0	1	5	0	21	165		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Lights	0	52	241	0	0	0	364	24	0	0	0	0	0	17	0	97	795
Mediums	0	0	5	0	0	0	4	0	0	0	0	0	0	1	0	0	10
Total	0	52	246	0	0	0	369	24	0	0	0	0	0	18	0	97	806



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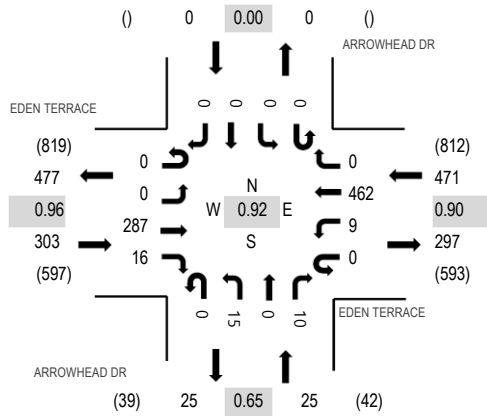
Location: 18 ARROWHEAD DR & EDEN TERRACE PM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 04:30 PM - 05:30 PM

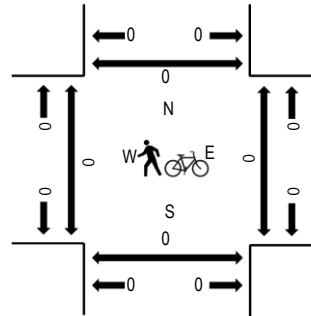
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	EDEN TERRACE Eastbound				EDEN TERRACE Westbound				ARROWHEAD DR Northbound				ARROWHEAD DR Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	1	0	57	1	0	1	84	0	0	4	0	4	0	0	0	0	152	707	0	0	0	1
4:15 PM	0	0	79	2	0	5	82	0	0	2	0	2	0	0	0	0	172	771	0	0	0	0
4:30 PM	0	0	64	6	0	1	130	0	0	6	0	4	0	0	0	0	211	799	0	0	0	0
4:45 PM	0	0	63	2	0	1	102	0	0	2	0	2	0	0	0	0	172	762	0	0	0	0
5:00 PM	0	0	80	4	0	3	122	0	0	5	0	2	0	0	0	0	216	744	0	0	0	0
5:15 PM	0	0	80	4	0	4	108	0	0	2	0	2	0	0	0	0	200		0	0	0	0
5:30 PM	0	0	80	1	0	1	89	0	0	3	0	0	0	0	0	0	174		0	0	0	0
5:45 PM	0	0	73	0	0	3	76	0	0	1	0	1	0	0	0	0	154		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Lights	0	0	282	16	0	9	457	0	0	15	0	10	0	0	0	0	789
Mediums	0	0	5	0	0	0	4	0	0	0	0	0	0	0	0	0	9
Total	0	0	287	16	0	9	462	0	0	15	0	10	0	0	0	0	799



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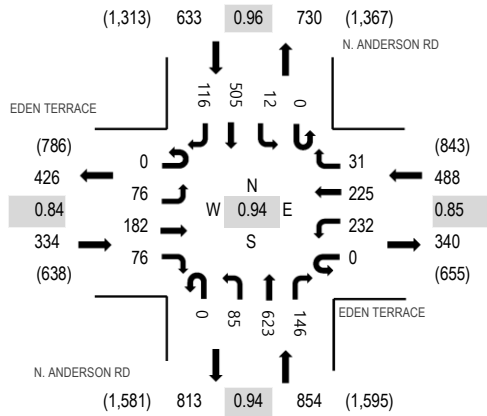
Location: 19 N. ANDERSON RD & EDEN TERRACE PM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 04:30 PM - 05:30 PM

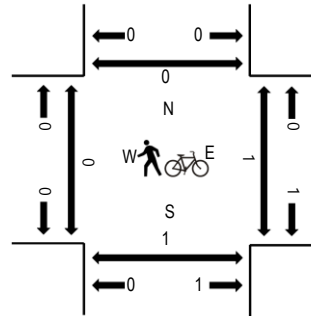
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	EDEN TERRACE Eastbound				EDEN TERRACE Westbound				N. ANDERSON RD Northbound				N. ANDERSON RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	28	37	16	0	47	38	6	0	11	134	35	0	2	119	41	514	2,129	0	0	0	1
4:15 PM	0	22	38	15	0	49	35	2	0	14	120	37	0	3	142	21	498	2,229	0	0	0	0
4:30 PM	0	26	46	27	0	66	66	11	0	18	165	23	0	1	116	24	589	2,309	0	0	0	0
4:45 PM	0	14	33	16	0	52	44	6	0	20	143	37	0	3	131	29	528	2,273	0	0	0	0
5:00 PM	0	19	46	16	0	58	65	9	0	24	158	45	0	6	134	34	614	2,260	0	0	0	0
5:15 PM	0	17	57	17	0	56	50	5	0	23	157	41	0	2	124	29	578		0	1	1	0
5:30 PM	0	17	36	15	0	47	53	2	0	19	147	43	0	2	128	44	553		0	0	0	0
5:45 PM	0	17	43	20	0	30	39	7	0	10	135	36	0	3	140	35	515		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	1	0	0	0	2	0	0	0	0	7	1	0	0	2	0	13
Lights	0	74	178	73	0	225	224	31	0	83	610	141	0	12	497	116	2,264
Mediums	0	1	4	3	0	5	1	0	0	2	6	4	0	0	6	0	32
Total	0	76	182	76	0	232	225	31	0	85	623	146	0	12	505	116	2,309



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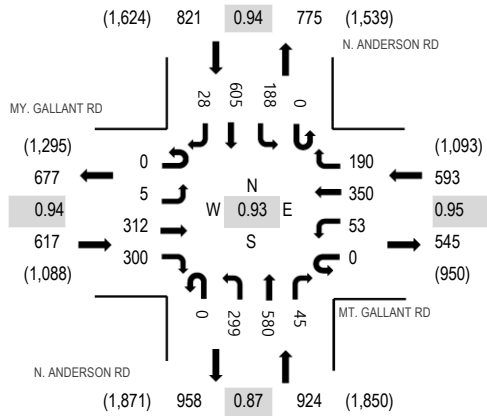
Location: 20 N. ANDERSON RD & MT. GALLANT RD PM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 05:00 PM - 06:00 PM

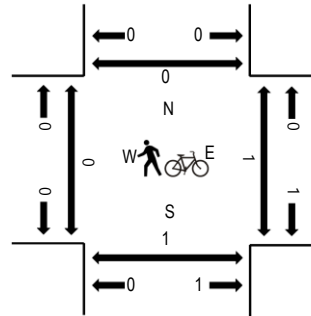
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	MY. GALLANT RD Eastbound				MT. GALLANT RD Westbound				N. ANDERSON RD Northbound				N. ANDERSON RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	0	40	64	0	7	68	41	0	84	140	12	0	40	155	7	658	2,700	0	0	0	0
4:15 PM	0	0	44	75	0	5	78	28	0	76	143	9	0	31	166	8	663	2,839	0	0	0	0
4:30 PM	0	0	51	59	0	9	83	64	0	72	151	5	0	45	142	6	687	2,915	0	0	0	0
4:45 PM	0	0	71	67	0	10	74	33	1	58	164	11	0	46	153	4	692	2,950	0	0	0	0
5:00 PM	0	1	72	66	0	15	91	50	0	92	177	9	0	45	165	14	797	2,955	0	0	0	0
5:15 PM	0	1	81	82	0	17	83	48	0	62	137	15	0	45	159	9	739		0	0	0	0
5:30 PM	0	2	79	79	0	10	82	53	0	81	130	8	0	53	143	2	722		0	0	1	0
5:45 PM	0	1	80	73	0	11	94	39	0	64	136	13	0	45	138	3	697		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	2	0	0	0	3	0	0	8	2	0	3	3	0	21
Lights	0	5	311	296	0	52	350	184	0	296	570	40	0	184	591	28	2,907
Mediums	0	0	1	2	0	1	0	3	0	3	2	3	0	1	11	0	27
Total	0	5	312	300	0	53	350	190	0	299	580	45	0	188	605	28	2,955



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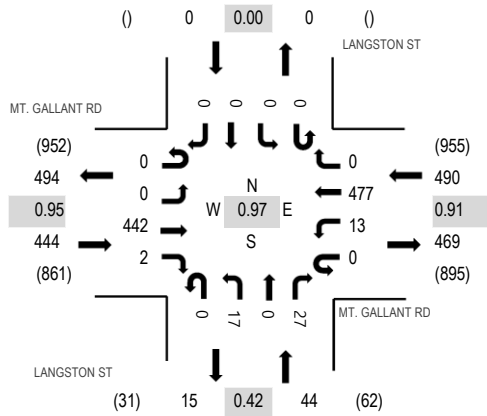
Location: 21 LANGSTON ST & MT. GALLANT RD PM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 04:30 PM - 05:30 PM

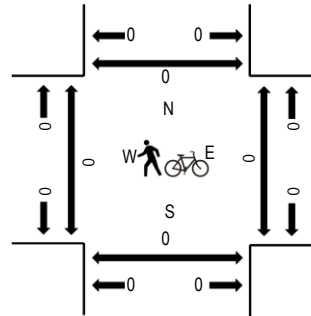
Peak 15-Minutes: 04:30 PM - 04:45 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	MT. GALLANT RD Eastbound				MT. GALLANT RD Westbound				LANGSTON ST Northbound				LANGSTON ST Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	0	89	0	0	6	97	0	0	0	0	3	0	0	0	0	195	915	0	0	0	0
4:15 PM	0	0	90	0	0	3	126	0	0	1	0	3	0	0	0	0	223	951	0	0	0	0
4:30 PM	0	0	95	1	0	3	126	0	0	11	0	16	0	0	0	0	252	978	0	0	0	0
4:45 PM	0	0	114	1	0	3	117	0	0	4	0	6	0	0	0	0	245	975	0	0	0	0
5:00 PM	0	0	121	0	0	6	100	0	0	1	0	3	0	0	0	0	231	963	0	0	0	0
5:15 PM	0	0	112	0	0	1	134	0	0	1	0	2	0	0	0	0	250		0	0	0	0
5:30 PM	0	0	113	1	0	3	125	0	0	3	0	4	0	0	0	0	249		0	0	0	0
5:45 PM	0	0	123	1	0	2	103	0	0	3	0	1	0	0	0	0	233		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	2	3	0	0	0	0	0	0	0	0	0	5
Lights	0	0	439	2	0	10	471	0	0	17	0	27	0	0	0	0	966
Mediums	0	0	3	0	0	1	3	0	0	0	0	0	0	0	0	0	7
Total	0	0	442	2	0	13	477	0	0	17	0	27	0	0	0	0	978



Location: I-77 NB Ramps & Celanese Rd

Date: 3/21/2019

Site Code: 14929613

	I-77 NB Ramps Southbound				Celanese Rd Westbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
07:00 AM	0	0	36	0	0	90	30	0
07:15 AM	1	0	78	0	0	136	26	0
07:30 AM	0	0	90	0	0	139	27	0
07:45 AM	1	0	82	0	0	155	21	0
08:00 AM	0	0	69	0	0	107	34	0
08:15 AM	1	0	62	0	0	120	26	0
08:30 AM	0	0	56	0	0	124	19	0
08:45 AM	1	0	49	0	0	102	17	0
Total	4	0	522	0	0	973	200	0

I-77 NB On Ramp Northbound				Celanese Rd Eastbound			
Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
0	0	0	0	3	212	415	0
0	0	0	0	3	221	422	0
0	0	0	0	2	256	411	0
0	0	0	0	2	257	330	0
0	0	0	0	2	237	378	0
0	0	0	0	1	211	332	0
0	0	0	0	1	189	306	0
0	0	0	0	0	202	245	0
0	0	0	0	14	1785	2839	0



Location: I-77 NB Ramps & Celanese Rd

Date: 3/21/2019

Site Code: 14929614

	I-77 NB Ramps Southbound				Celanese Rd Westbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
04:00 PM	2	0	71	0	0	167	51	0
04:15 PM	0	0	82	0	0	210	46	0
04:30 PM	2	0	77	0	0	243	46	0
04:45 PM	1	0	68	0	0	237	47	0
05:00 PM	2	0	61	0	0	281	65	0
05:15 PM	1	0	81	0	0	277	33	0
05:30 PM	2	0	76	0	0	218	58	0
05:45 PM	0	0	77	0	0	225	31	0
Total	10	0	593	0	0	1858	377	0

I-77 NB On Ramp Northbound				Celanese Rd Eastbound			
Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
0	0	0	0	0	174	181	0
0	0	0	0	0	175	194	1
0	0	0	0	1	194	200	1
0	0	0	0	0	204	207	0
0	0	0	0	0	211	204	0
0	0	0	0	0	217	187	0
0	0	0	0	0	216	191	0
0	0	0	0	0	174	195	0
0	0	0	0	1	1565	1559	2



Location: I-77 SB Ramps & Celanese Rd

Date: 3/21/2019

Site Code: 14929611

	I-77 SB Off Ramp Southbound				Celanese Rd Westbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
07:00 AM	13	0	158	0	0	119	0	0
07:15 AM	18	0	225	0	3	220	0	0
07:30 AM	16	0	244	0	3	236	0	0
07:45 AM	28	0	262	0	4	227	0	0
08:00 AM	27	0	204	0	3	171	0	0
08:15 AM	25	0	202	0	2	176	0	0
08:30 AM	31	0	188	0	2	177	0	0
08:45 AM	24	1	191	0	3	148	0	0
Total	182	1	1674	0	20	1474	0	0

I-77 SB On Ramp Northbound				Celanese Rd Eastbound			
Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
0	0	0	0	0	585	67	0
0	0	0	0	0	625	64	0
0	0	0	0	0	636	79	0
0	0	0	0	0	579	115	0
0	0	0	0	0	567	111	0
0	0	0	0	0	539	70	0
0	0	0	0	0	467	65	0
0	0	0	0	0	427	79	0
0	0	0	0	0	4425	650	0



Location: I-77 SB Ramps & Celanese Rd

Date: 3/21/2019

Site Code: 14929612

	I-77 SB Off Ramp Southbound				Celanese Rd Westbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
04:00 PM	26	0	400	0	1	231	0	0
04:15 PM	18	0	414	0	5	299	0	0
04:30 PM	25	0	387	0	6	308	0	0
04:45 PM	22	0	415	0	5	299	0	0
05:00 PM	19	1	373	0	6	318	0	0
05:15 PM	23	0	364	0	5	352	0	0
05:30 PM	28	0	394	0	0	298	0	0
05:45 PM	22	0	387	0	5	298	0	0
Total	183	1	3134	0	33	2403	0	0

I-77 SB On Ramp Northbound				Celanese Rd Eastbound			
Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
0	0	0	0	0	306	60	0
0	0	0	0	0	355	71	0
0	0	0	0	0	371	87	0
0	0	0	0	0	385	82	0
0	0	0	0	0	384	79	0
0	0	0	0	0	383	84	0
0	0	0	0	0	399	79	0
0	0	0	0	0	332	82	0
0	0	0	0	0	2915	624	0



Location: I-77 SB Ramps & Cherry Rd

Date: 3/21/2019

Site Code: 14929610

Start Time	I-77 SB Off Ramp Southbound				Cherry Rd Westbound			
	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
04:00 PM	14	0	236	0	53	210	0	0
04:15 PM	6	1	243	0	53	262	0	0
04:30 PM	8	1	220	0	60	221	0	0
04:45 PM	12	0	230	0	48	213	0	0
05:00 PM	11	0	262	0	64	251	0	0
05:15 PM	19	0	200	0	45	268	0	0
05:30 PM	15	0	226	0	57	248	1	0
05:45 PM	18	0	238	0	55	248	0	0
Total	103	2	1855	0	435	1921	1	0

I-77 SB On Ramp Northbound				Cherry Rd Eastbound			
Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
0	0	0	0	0	328	46	0
0	0	0	0	0	297	34	0
0	0	0	0	0	350	45	0
0	0	0	0	0	314	55	0
0	0	0	0	0	390	52	0
0	0	0	0	0	419	49	0
0	0	0	0	1	366	64	0
0	0	0	0	0	280	43	0
0	0	0	0	1	2744	388	0



Location: I-77 SB Ramps & Cherry Rd

Date: 3/21/2019

Site Code: 14929609

	I-77 SB Off Ramp Southbound				Cherry Rd Westbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
07:00 AM	8	0	102	0	21	92	0	0
07:15 AM	13	0	148	0	28	133	0	0
07:30 AM	19	0	176	0	21	170	0	0
07:45 AM	22	1	154	0	36	196	0	0
08:00 AM	11	1	117	0	27	163	0	0
08:15 AM	21	0	124	0	25	154	0	0
08:30 AM	7	1	122	0	24	155	0	0
08:45 AM	18	1	131	0	47	176	0	0
Total	119	4	1074	0	229	1239	0	0

I-77 SB On Ramp Northbound				Cherry Rd Eastbound			
Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
0	0	0	0	0	377	24	0
0	0	0	0	0	388	39	0
0	0	0	0	0	418	36	0
0	0	0	0	0	371	46	0
0	0	0	0	0	386	25	0
0	0	0	0	0	283	33	0
0	0	0	0	0	286	16	0
0	0	0	0	0	225	27	0
0	0	0	0	0	2734	246	0



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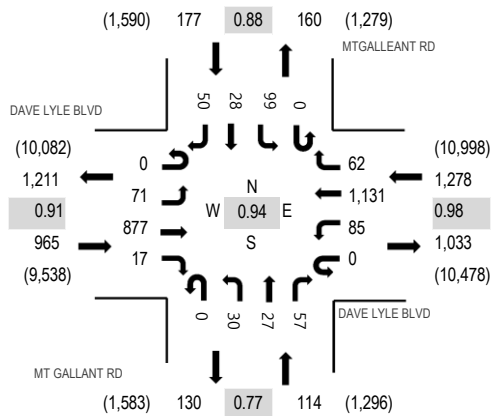
Location: 2 MT GALLANT RD & DAVE LYLE BLVD AM

Date and Start Time: Thursday, May 9, 2019

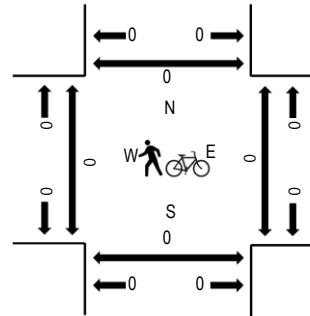
Peak Hour: 04:45 PM - 05:45 PM

Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	DAVE LYLE BLVD Eastbound				DAVE LYLE BLVD Westbound				MT GALLANT RD Northbound				MTGALLEANT RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:00 AM	0	5	69	2	0	0	30	2	0	0	1	1	0	0	0	0	110	749	0	0	0	0
6:15 AM	0	4	81	0	0	7	39	4	0	0	0	2	0	7	0	0	144	892	0	0	0	0
6:30 AM	0	5	112	1	1	0	98	5	0	0	0	0	0	9	1	4	236	1,091	0	0	0	0
6:45 AM	0	7	106	0	0	5	108	7	0	2	4	1	0	12	1	6	259	1,255	0	0	0	0
7:00 AM	0	11	110	0	0	5	109	4	0	1	0	0	0	8	1	4	253	1,468	0	1	0	0
7:15 AM	0	5	150	1	0	12	132	5	0	4	3	1	0	14	6	10	343	1,582	0	0	0	0
7:30 AM	0	6	175	4	0	23	154	7	0	1	2	4	0	6	3	15	400	1,574	0	0	0	0
7:45 AM	0	24	199	4	1	39	169	13	0	2	2	2	0	5	7	5	472	1,467	0	0	1	0
8:00 AM	0	5	141	5	0	31	133	2	0	8	0	17	0	5	10	10	367	1,380	0	0	0	0
8:15 AM	1	10	119	10	0	30	130	6	0	3	2	6	0	7	9	2	335	1,350	0	0	0	0
8:30 AM	0	5	114	6	0	30	109	4	0	2	4	6	0	7	2	4	293	1,328	0	0	0	0
8:45 AM	0	5	113	7	0	34	161	8	0	7	11	13	0	9	13	4	385	1,363	0	0	0	0
9:00 AM	0	7	116	4	0	31	124	3	0	8	8	14	0	10	5	7	337	1,287	0	1	0	0
9:15 AM	0	6	126	8	1	32	103	6	0	3	4	10	0	6	6	2	313	1,266	0	0	1	1
9:30 AM	0	3	102	6	0	24	129	9	0	7	3	18	0	15	8	4	328	1,286	0	0	0	0
9:45 AM	0	9	117	5	0	14	119	2	0	3	4	13	0	16	2	5	309	1,274	0	0	0	0
10:00 AM	0	8	117	6	0	17	115	6	0	4	2	17	0	16	6	2	316	1,384	0	0	0	0
10:15 AM	4	7	142	3	0	14	107	3	0	5	5	18	0	15	7	3	333	1,480	0	1	0	0
10:30 AM	0	6	123	8	0	14	106	5	0	7	1	21	0	12	6	7	316	1,558	0	0	0	0
10:45 AM	4	12	152	4	0	37	148	11	0	2	7	20	0	16	4	2	419	1,694	0	0	0	0
11:00 AM	0	5	166	4	0	26	145	8	0	2	2	19	0	22	6	7	412	1,791	0	1	0	0
11:15 AM	0	6	176	10	0	21	130	11	0	5	4	16	0	19	6	7	411	1,941	0	2	0	0
11:30 AM	1	17	176	7	0	27	138	8	0	4	3	30	0	32	5	4	452	2,050	0	0	0	0
11:45 AM	0	2	174	14	0	39	182	6	0	11	16	37	0	14	13	8	516	2,025	0	0	0	0
12:00 PM	3	6	226	3	0	35	158	10	0	12	9	54	0	31	11	4	562	2,025	0	0	0	0
12:15 PM	0	10	200	2	0	26	175	11	0	8	11	34	0	26	5	12	520	1,968	0	0	0	0
12:30 PM	0	7	182	4	1	17	134	15	0	5	7	28	0	15	5	7	427	1,910	0	0	0	0
12:45 PM	4	6	214	5	1	29	190	19	0	1	4	22	0	13	3	5	516	1,981	0	0	0	0
1:00 PM	0	9	176	5	0	24	202	15	0	5	8	28	0	19	10	4	505	1,926	0	0	0	2
1:15 PM	2	5	182	2	1	21	182	9	0	6	5	18	0	18	4	7	462	1,857	0	0	0	0
1:30 PM	0	4	145	6	0	25	233	16	0	6	7	22	0	17	9	8	498	1,824	0	0	0	0
1:45 PM	0	10	185	4	0	28	185	7	0	4	0	11	0	15	6	6	461	1,843	0	0	0	0
2:00 PM	1	9	156	5	0	11	195	16	0	8	6	11	0	10	3	5	436	1,832	0	0	0	0
2:15 PM	2	3	153	4	0	12	206	6	0	2	2	11	0	15	6	7	429	1,843	0	0	0	0
2:30 PM	1	12	193	5	0	25	210	12	0	7	3	14	0	20	3	12	517	1,880	0	0	0	0

2:45 PM	0	8	173	1	0	13	201	5	0	5	1	13	0	17	5	8	450	1,857	0	0	0	0
3:00 PM	0	4	167	5	0	19	194	13	0	1	3	12	0	13	8	8	447	1,923	0	0	0	0
3:15 PM	0	15	159	6	0	17	195	14	0	5	6	16	0	24	5	4	466	2,007	0	0	0	0
3:30 PM	0	11	203	4	0	19	181	11	0	7	5	12	0	17	9	15	494	2,034	0	0	0	1
3:45 PM	0	8	186	5	0	17	213	12	0	9	8	28	0	21	3	6	516	2,061	0	0	0	0
4:00 PM	0	9	207	6	0	21	208	10	0	8	8	21	0	20	10	3	531	2,156	0	1	0	1
4:15 PM	0	8	172	3	0	15	227	7	0	4	4	16	0	18	7	12	493	2,298	0	0	0	0
4:30 PM	0	8	160	1	0	19	244	12	0	2	4	19	0	27	9	16	521	2,474	0	0	0	0
4:45 PM	0	12	220	7	0	21	269	14	0	2	4	21	0	27	8	6	611	2,534	0	0	0	0
5:00 PM	0	19	245	2	0	24	285	17	0	12	6	15	0	23	7	18	673	2,432	0	0	0	0
5:15 PM	0	22	238	5	0	27	285	14	0	9	13	15	0	22	8	11	669	2,309	0	0	0	0
5:30 PM	0	18	174	3	0	13	292	17	0	7	4	6	0	27	5	15	581	2,066	0	0	0	0
5:45 PM	1	10	160	6	0	19	255	11	0	2	2	10	0	19	4	10	509	1,917	0	0	0	0
6:00 PM	0	14	218	0	0	9	254	10	0	1	1	5	0	26	3	9	550	1,777	0	0	0	0
6:15 PM	1	18	145	2	0	11	219	8	0	1	4	4	1	7	0	5	426	1,575	0	0	0	0
6:30 PM	0	22	153	2	0	5	192	21	0	0	4	15	0	12	2	4	432	1,478	0	0	0	0
6:45 PM	0	13	108	1	0	8	166	12	0	5	5	8	0	21	1	21	369	1,367	0	0	0	0
7:00 PM	1	7	131	0	0	5	144	9	0	0	6	10	0	25	2	8	348	1,292	0	0	0	0
7:15 PM	1	8	120	0	0	9	146	8	0	1	1	10	0	11	2	12	329		0	0	1	0
7:30 PM	1	7	134	3	0	3	127	12	0	3	3	8	0	14	1	5	321		0	0	0	0
7:45 PM	0	8	113	0	0	4	119	7	0	4	1	7	0	16	3	12	294		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	1	0	0	0	0	5	2	0	0	0	0	0	2	0	0	10
Lights	0	69	869	17	0	84	1,109	60	0	30	27	57	0	97	28	50	2,497
Mediums	0	1	8	0	0	1	17	0	0	0	0	0	0	0	0	0	27
Total	0	71	877	17	0	85	1,131	62	0	30	27	57	0	99	28	50	2,534



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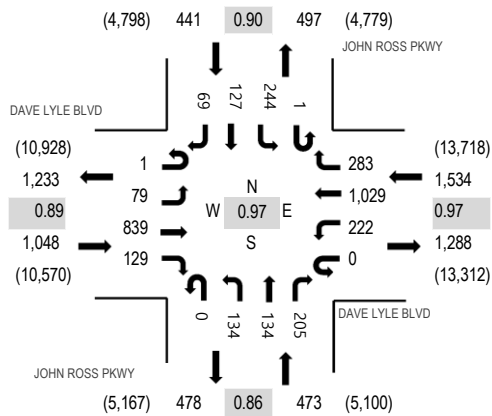
Location: 3 JOHN ROSS PKWY & DAVE LYLE BLVD AM

Date and Start Time: Thursday, May 9, 2019

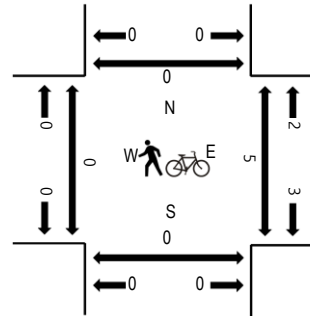
Peak Hour: 04:45 PM - 05:45 PM

Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	DAVE LYLE BLVD Eastbound				DAVE LYLE BLVD Westbound				JOHN ROSS PKWY Northbound				JOHN ROSS PKWY Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:00 AM	0	2	58	3	0	9	30	10	0	1	3	36	0	13	11	2	178	1,078	0	0	0	0
6:15 AM	0	1	78	2	0	22	43	8	0	6	4	33	0	11	3	0	211	1,281	0	0	0	0
6:30 AM	0	3	106	9	0	9	84	18	0	13	7	47	0	22	5	0	323	1,557	0	0	0	0
6:45 AM	0	1	106	11	0	16	96	25	0	17	9	57	0	21	7	0	366	1,811	0	0	0	0
7:00 AM	0	0	107	16	0	26	99	19	0	19	15	42	0	27	7	4	381	2,039	0	0	0	0
7:15 AM	0	1	137	19	1	37	129	29	0	24	23	47	0	26	13	1	487	2,170	0	0	0	0
7:30 AM	0	10	155	27	0	34	176	30	0	34	21	59	0	17	8	6	577	2,116	0	0	0	0
7:45 AM	0	9	166	25	1	37	180	34	0	24	22	56	0	23	15	2	594	1,984	0	1	0	0
8:00 AM	0	5	145	34	0	27	142	29	0	17	15	52	0	24	18	4	512	1,870	0	0	1	0
8:15 AM	0	4	109	23	0	28	128	22	0	26	18	38	0	23	11	3	433	1,806	0	0	0	0
8:30 AM	0	10	108	23	0	27	130	22	0	20	18	42	0	26	15	4	445	1,819	0	0	0	0
8:45 AM	0	3	110	29	1	29	169	17	0	28	16	33	0	19	22	4	480	1,839	0	0	0	0
9:00 AM	0	8	115	20	0	25	136	31	0	17	18	32	0	28	16	2	448	1,799	0	0	0	0
9:15 AM	0	9	104	30	0	36	106	28	0	16	15	54	0	23	16	9	446	1,821	0	0	0	0
9:30 AM	1	6	116	20	0	19	138	38	0	18	15	36	0	38	17	3	465	1,876	0	0	0	0
9:45 AM	0	11	109	22	1	31	119	27	0	15	17	36	0	27	18	7	440	1,890	0	0	0	0
10:00 AM	0	14	122	23	0	34	115	23	0	12	23	36	0	42	15	11	470	2,018	0	1	0	0
10:15 AM	0	11	130	28	0	39	97	39	0	16	22	47	0	42	18	12	501	2,184	0	0	0	0
10:30 AM	0	14	119	21	0	30	116	34	0	18	16	37	0	53	17	4	479	2,251	0	0	0	0
10:45 AM	0	17	142	26	0	36	154	34	0	19	25	38	0	47	19	11	568	2,416	0	0	0	0
11:00 AM	0	21	174	30	0	40	153	51	0	14	26	44	0	49	21	13	636	2,573	0	1	0	0
11:15 AM	0	22	148	32	0	36	126	37	0	15	22	33	0	50	31	16	568	2,685	0	0	0	0
11:30 AM	0	16	176	34	0	45	156	36	0	24	29	42	0	55	23	8	644	2,880	0	0	0	0
11:45 AM	0	25	161	33	0	52	166	66	0	26	29	60	0	65	22	20	725	2,907	0	0	0	0
12:00 PM	0	38	204	48	1	44	151	55	0	31	22	52	0	50	27	25	748	2,931	0	0	0	0
12:15 PM	0	48	196	36	0	50	159	54	0	32	26	42	0	53	40	27	763	2,910	0	0	0	0
12:30 PM	0	20	169	38	0	42	122	67	0	22	35	42	0	48	35	31	671	2,830	0	0	0	0
12:45 PM	1	28	175	37	3	42	166	47	0	32	29	45	0	74	39	31	749	2,852	0	0	0	0
1:00 PM	0	18	176	31	0	45	188	49	0	20	25	54	1	48	35	37	727	2,784	0	0	0	0
1:15 PM	0	24	157	30	3	47	169	50	0	22	38	52	0	50	22	19	683	2,704	0	1	0	0
1:30 PM	0	22	149	29	1	34	224	46	0	26	16	47	0	53	21	25	693	2,658	0	0	0	0
1:45 PM	0	19	152	27	0	48	164	53	0	25	21	52	0	57	34	29	681	2,673	0	0	0	0
2:00 PM	0	12	155	27	0	41	172	45	0	29	19	49	0	53	23	22	647	2,671	0	1	0	0
2:15 PM	0	18	126	30	0	58	164	52	0	25	27	42	0	47	25	23	637	2,701	0	0	0	0
2:30 PM	0	24	179	34	1	30	194	46	0	31	26	45	0	61	16	21	708	2,725	0	0	0	0

2:45 PM	0	21	148	35	0	48	178	43	0	25	26	39	0	65	33	18	679	2,716	0	0	0	0
3:00 PM	0	9	168	36	0	41	185	42	0	25	20	54	0	49	31	17	677	2,739	0	0	0	0
3:15 PM	0	16	127	31	1	58	183	61	0	15	28	39	0	54	31	17	661	2,821	0	0	0	0
3:30 PM	0	13	199	37	0	46	167	50	0	24	24	50	0	55	20	14	699	2,926	0	0	0	0
3:45 PM	0	21	165	38	0	40	201	55	0	28	22	44	0	46	25	17	702	3,059	0	0	0	0
4:00 PM	0	20	203	35	1	51	197	56	0	24	27	46	0	54	25	20	759	3,206	0	0	0	0
4:15 PM	0	15	160	34	1	54	198	76	0	23	38	49	0	71	26	21	766	3,338	0	0	0	0
4:30 PM	0	20	169	34	0	55	256	72	0	30	30	64	0	49	33	20	832	3,473	0	0	0	0
4:45 PM	0	18	194	34	0	66	236	67	0	41	42	60	0	47	33	11	849	3,496	0	4	0	0
5:00 PM	0	18	239	36	0	42	266	73	0	31	29	51	0	61	31	14	891	3,404	0	0	0	0
5:15 PM	0	26	199	32	0	59	255	75	0	31	32	51	1	73	41	26	901	3,325	0	0	0	0
5:30 PM	1	17	207	27	0	55	272	68	0	31	31	43	0	63	22	18	855	3,124	0	1	0	0
5:45 PM	1	19	144	19	0	59	229	57	0	22	39	39	0	65	43	21	757	2,963	0	0	0	0
6:00 PM	0	19	193	32	0	56	225	71	0	20	28	55	0	56	35	22	812	2,832	0	0	0	0
6:15 PM	0	25	114	23	1	52	188	76	0	22	40	47	0	63	27	22	700	2,684	0	0	0	0
6:30 PM	0	22	122	37	1	53	158	75	0	25	35	43	0	64	33	26	694	2,546	0	1	0	1
6:45 PM	0	21	113	23	0	56	143	64	0	19	30	39	0	70	28	20	626	2,383	0	1	0	0
7:00 PM	0	25	130	23	1	58	131	49	0	25	33	45	0	85	39	20	664	2,242	0	3	0	0
7:15 PM	0	18	99	16	2	55	113	51	0	17	31	27	0	72	41	20	562		0	0	0	0
7:30 PM	0	21	123	21	1	42	105	43	0	13	26	38	0	49	32	17	531		0	0	0	0
7:45 PM	0	12	98	13	0	44	111	48	0	14	21	35	0	44	35	10	485		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	2	0	0	0	6	1	0	0	0	0	0	1	0	0	10
Lights	1	79	829	129	0	220	1,011	279	0	133	134	204	1	242	126	67	3,455
Mediums	0	0	8	0	0	2	12	3	0	1	0	1	0	1	1	2	31
Total	1	79	839	129	0	222	1,029	283	0	134	134	205	1	244	127	69	3,496



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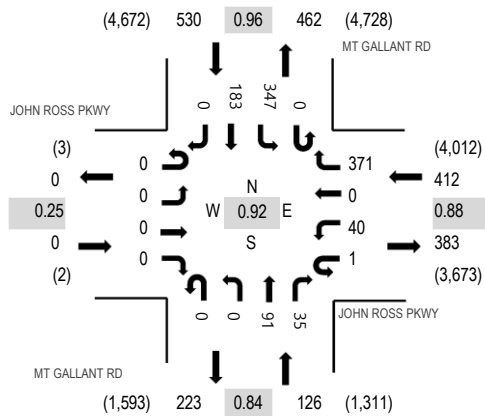
Location: 4 MT GALLANT RD & JOHN ROSS PKWY AM

Date and Start Time: Thursday, May 9, 2019

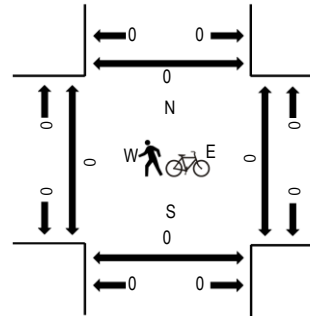
Peak Hour: 04:45 PM - 05:45 PM

Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	JOHN ROSS PKWY				JOHN ROSS PKWY				MT GALLANT RD				MT GALLANT RD				Total	Rolling Hour	Pedestrian Crossings			
	Eastbound				Westbound				Northbound				Southbound						West	East	South	North
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right						
6:00 AM	0	0	0	0	0	0	0	20	0	0	7	1	0	7	2	0	37	232	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	10	0	0	9	0	0	15	5	0	39	267	0	0	0	0
6:30 AM	0	0	0	0	0	2	0	23	0	0	12	1	0	17	4	0	59	333	0	0	0	0
6:45 AM	0	0	0	0	0	7	0	33	0	0	15	4	0	26	12	0	97	384	0	0	0	0
7:00 AM	0	0	0	0	0	1	0	35	0	0	12	0	0	20	4	0	72	426	0	1	0	0
7:15 AM	0	0	0	0	0	8	0	45	0	0	9	0	0	28	15	0	105	470	0	0	0	0
7:30 AM	0	0	0	0	0	15	0	48	0	0	16	2	0	23	6	0	110	480	0	1	0	0
7:45 AM	0	0	0	0	0	5	0	54	0	0	32	5	0	31	12	0	139	464	0	0	0	0
8:00 AM	0	0	0	0	0	11	0	47	0	0	10	4	0	28	16	0	116	439	0	1	0	0
8:15 AM	0	0	0	0	0	2	0	33	0	0	14	4	0	50	12	0	115	436	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	41	0	0	12	2	0	25	14	0	94	410	0	0	0	0
8:45 AM	0	0	0	0	0	3	0	28	0	0	21	2	0	36	24	0	114	436	0	0	0	0
9:00 AM	2	0	0	0	0	3	0	39	0	0	16	2	0	35	16	0	113	445	0	0	0	0
9:15 AM	0	0	0	0	0	1	0	26	0	0	11	2	0	33	16	0	89	480	0	0	0	0
9:30 AM	0	0	0	0	1	7	0	35	0	0	8	2	0	47	20	0	120	558	0	0	0	0
9:45 AM	0	0	0	0	0	2	0	41	0	0	10	6	0	47	17	0	123	591	0	0	0	0
10:00 AM	0	0	0	0	0	2	0	54	0	0	13	5	0	57	17	0	148	637	0	0	0	0
10:15 AM	0	0	0	0	0	1	0	61	0	0	13	6	0	57	29	0	167	672	0	0	0	0
10:30 AM	0	0	0	0	1	2	0	59	0	0	7	2	0	63	19	0	153	696	0	0	0	0
10:45 AM	0	0	0	0	0	5	0	56	0	0	17	6	0	64	21	0	169	748	0	0	0	0
11:00 AM	0	0	0	0	0	3	0	74	0	0	14	3	0	63	26	0	183	812	0	0	0	0
11:15 AM	0	0	0	0	0	4	0	59	0	0	18	2	0	81	27	0	191	859	0	0	0	0
11:30 AM	0	0	0	0	0	4	0	63	0	0	22	13	0	72	31	0	205	904	0	0	0	0
11:45 AM	0	0	0	0	0	9	0	79	0	0	26	3	0	78	38	0	233	936	0	0	0	0
12:00 PM	0	0	0	0	0	2	0	58	0	0	25	18	0	90	37	0	230	916	0	0	0	0
12:15 PM	0	0	0	0	0	5	0	83	0	0	30	7	0	85	26	0	236	903	0	0	0	0
12:30 PM	0	0	0	0	0	7	0	94	0	0	21	9	0	83	23	0	237	874	0	1	0	0
12:45 PM	0	0	0	0	0	5	0	79	0	0	20	2	0	84	23	0	213	834	0	0	0	0
1:00 PM	0	0	0	0	0	5	0	80	0	0	24	7	0	73	28	0	217	796	0	0	0	0
1:15 PM	0	0	0	0	0	5	0	103	0	0	18	5	0	52	24	0	207	752	0	0	0	0
1:30 PM	0	0	0	0	0	5	0	76	0	0	22	2	0	68	24	0	197	730	0	0	0	0
1:45 PM	0	0	0	0	0	4	0	88	0	0	11	3	0	49	20	0	175	746	0	0	0	0
2:00 PM	0	0	0	0	0	4	0	75	0	0	30	4	0	49	11	0	173	767	0	0	0	0
2:15 PM	0	0	0	0	0	4	0	95	0	0	11	2	0	51	22	0	185	790	0	0	0	0
2:30 PM	0	0	0	0	0	4	0	86	0	0	18	9	0	64	32	0	213	832	0	0	0	0

2:45 PM	0	0	0	0	1	4	0	71	0	0	7	9	0	80	24	0	196	817	0	0	0	0
3:00 PM	0	0	0	0	0	4	0	73	0	0	17	5	0	73	24	0	196	817	0	0	0	0
3:15 PM	0	0	0	0	0	3	0	95	0	1	27	5	0	67	29	0	227	825	0	0	0	0
3:30 PM	0	0	0	0	0	3	0	60	0	0	22	3	0	70	40	0	198	834	0	0	0	0
3:45 PM	0	0	0	0	1	2	0	77	0	0	21	4	0	67	24	0	196	887	0	0	0	0
4:00 PM	0	0	0	0	0	2	0	80	0	0	21	6	0	67	28	0	204	946	0	0	0	0
4:15 PM	0	0	0	0	0	5	0	102	0	0	17	4	0	82	26	0	236	998	0	0	0	0
4:30 PM	0	0	0	0	0	3	0	91	0	0	21	6	0	82	48	0	251	1,051	0	0	0	0
4:45 PM	0	0	0	0	0	9	0	95	0	0	19	7	0	87	38	0	255	1,068	0	0	0	0
5:00 PM	0	0	0	0	0	4	0	77	0	0	26	10	0	89	50	0	256	1,066	0	0	0	0
5:15 PM	0	0	0	0	1	12	0	106	0	0	27	12	0	83	48	0	289	1,036	0	0	0	0
5:30 PM	0	0	0	0	0	15	0	93	0	0	19	6	0	88	47	0	268	986	0	0	0	0
5:45 PM	0	0	0	0	0	6	0	95	0	0	13	9	0	98	32	0	253	946	0	1	0	0
6:00 PM	0	0	0	0	1	8	0	81	0	0	13	7	0	82	34	0	226	920	0	0	0	0
6:15 PM	0	0	0	0	0	7	0	97	0	0	14	13	0	85	23	0	239	885	0	0	0	0
6:30 PM	0	0	0	0	0	9	0	83	0	0	19	8	0	84	25	0	228	853	0	0	0	0
6:45 PM	0	0	0	0	0	8	0	77	0	0	23	24	0	74	21	0	227	818	0	0	0	0
7:00 PM	0	0	0	0	0	7	0	66	0	0	30	9	0	58	21	0	191	778	0	0	0	0
7:15 PM	0	0	0	0	0	5	0	74	0	0	10	7	0	81	30	0	207		0	0	0	0
7:30 PM	0	0	0	0	0	4	0	83	0	0	14	7	0	66	19	0	193		0	0	0	0
7:45 PM	0	0	0	0	0	6	0	77	0	0	41	9	0	38	16	0	187		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	1	0	0	3	0	0	0	2	0	6
Lights	0	0	0	0	1	40	0	368	0	0	87	34	0	346	180	0	1,056
Mediums	0	0	0	0	0	0	0	2	0	0	1	1	0	1	1	0	6
Total	0	0	0	0	1	40	0	371	0	0	91	35	0	347	183	0	1,068



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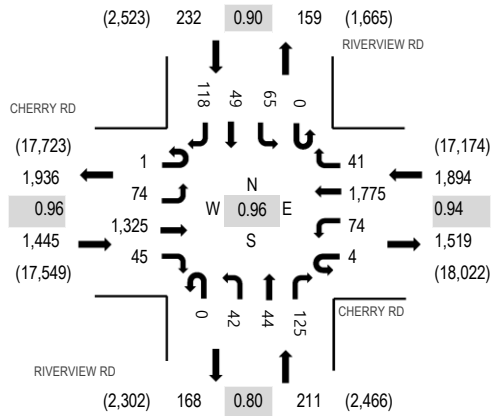
Location: 5 RIVERVIEW RD & CHERRY RD AM

Date and Start Time: Thursday, May 9, 2019

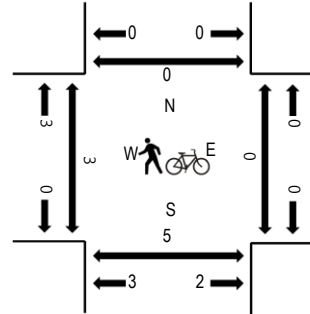
Peak Hour: 05:00 PM - 06:00 PM

Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	CHERRY RD Eastbound				CHERRY RD Westbound				RIVERVIEW RD Northbound				RIVERVIEW RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:00 AM	0	1	241	9	0	3	72	4	0	3	3	23	0	10	7	9	385	2,134	0	0	0	0
6:15 AM	0	4	292	11	1	7	106	4	0	6	5	24	0	10	2	3	475	2,397	0	0	0	0
6:30 AM	0	2	379	2	1	12	132	2	0	7	4	51	0	13	4	14	623	2,670	2	0	0	0
6:45 AM	0	8	356	11	0	14	179	4	0	6	4	37	0	14	9	9	651	2,873	0	0	0	1
7:00 AM	0	8	364	9	0	18	150	5	0	14	6	34	0	16	7	17	648	3,029	0	0	0	0
7:15 AM	0	10	378	12	2	17	225	8	0	10	9	32	0	15	10	20	748	3,064	1	0	0	0
7:30 AM	0	11	354	11	0	20	287	13	0	11	10	49	0	21	17	22	826	3,001	1	0	0	0
7:45 AM	0	9	389	9	0	27	266	8	0	3	14	32	0	17	14	19	807	2,777	0	0	1	0
8:00 AM	0	8	300	19	0	19	230	7	0	9	6	39	0	20	11	15	683	2,618	0	0	0	0
8:15 AM	3	13	307	11	0	15	245	6	0	5	5	32	0	9	8	26	685	2,505	0	1	0	0
8:30 AM	0	12	242	12	1	16	206	7	0	17	9	33	0	16	11	20	602	2,430	0	0	0	1
8:45 AM	0	24	243	13	0	29	244	6	0	7	7	35	0	8	10	22	648	2,422	0	0	0	0
9:00 AM	0	9	254	10	1	17	200	4	0	10	2	28	0	8	2	25	570	2,341	0	0	0	0
9:15 AM	1	15	234	17	1	18	241	5	0	10	2	30	0	6	9	21	610	2,278	0	0	0	1
9:30 AM	0	12	243	16	1	14	212	5	0	6	6	30	0	8	17	24	594	2,276	0	0	1	0
9:45 AM	0	11	219	15	1	12	225	3	0	10	5	28	0	8	13	17	567	2,284	0	0	0	0
10:00 AM	0	9	187	17	0	18	192	6	0	16	5	18	0	4	10	25	507	2,345	0	0	0	0
10:15 AM	0	12	247	13	0	20	229	6	0	11	12	27	0	4	7	20	608	2,401	0	0	0	0
10:30 AM	0	17	251	10	1	14	207	4	0	14	7	32	0	6	10	29	602	2,486	0	0	2	0
10:45 AM	0	14	233	8	0	29	256	5	0	7	8	23	0	8	10	27	628	2,500	0	0	0	0
11:00 AM	0	13	224	11	5	17	206	7	0	10	6	22	0	11	9	22	563	2,567	0	0	0	0
11:15 AM	0	25	281	14	2	21	237	10	0	12	12	34	0	7	8	30	693	2,713	0	0	1	0
11:30 AM	0	16	257	5	2	13	238	7	0	12	6	21	0	10	9	20	616	2,734	0	0	0	0
11:45 AM	0	13	283	20	0	21	255	5	0	11	3	21	0	6	15	42	695	2,843	0	0	0	0
12:00 PM	0	17	277	15	0	16	280	4	0	14	8	35	0	4	11	28	709	2,887	0	0	1	0
12:15 PM	1	20	271	17	5	20	275	6	0	11	11	18	0	6	12	41	714	2,887	0	0	0	0
12:30 PM	0	11	305	15	0	21	259	6	0	18	8	22	0	4	19	37	725	2,895	0	0	0	0
12:45 PM	0	28	316	19	0	16	247	12	0	10	4	33	0	5	10	39	739	2,900	0	1	0	0
1:00 PM	1	17	269	20	2	15	280	9	0	12	8	24	0	6	9	37	709	2,895	0	0	0	0
1:15 PM	0	16	318	17	1	18	268	7	0	5	7	26	0	4	14	21	722	2,858	0	1	0	0
1:30 PM	0	21	290	17	3	10	273	12	0	16	6	37	0	4	6	35	730	2,895	0	1	0	0
1:45 PM	0	20	300	16	2	19	273	7	0	13	6	21	0	12	11	34	734	2,899	0	0	0	0
2:00 PM	1	14	274	11	1	18	264	7	0	8	4	20	0	10	7	33	672	2,911	0	0	0	0
2:15 PM	0	20	285	11	1	20	325	12	0	12	7	21	0	7	12	26	759	2,964	0	0	0	0
2:30 PM	0	13	302	16	0	23	290	5	0	9	6	29	0	10	6	25	734	3,025	1	0	0	0

2:45 PM	0	24	277	5	2	20	319	4	0	12	5	28	0	5	19	26	746	3,093	0	1	0	0
3:00 PM	0	13	306	17	5	17	300	7	0	8	3	19	0	5	5	20	725	3,211	0	0	0	0
3:15 PM	2	16	297	8	2	22	385	9	0	11	6	20	0	8	7	27	820	3,327	0	0	0	0
3:30 PM	0	20	288	11	1	18	359	9	0	9	2	27	0	13	10	35	802	3,326	0	0	0	1
3:45 PM	0	22	276	19	0	29	417	12	0	16	7	21	0	4	8	33	864	3,401	0	0	0	0
4:00 PM	0	15	305	13	0	15	393	6	0	14	7	29	0	6	7	31	841	3,445	0	0	0	0
4:15 PM	0	20	271	11	2	18	402	6	0	10	9	29	0	5	8	28	819	3,593	0	0	0	0
4:30 PM	1	11	315	15	2	28	392	7	0	8	8	28	0	12	7	43	877	3,723	0	0	0	0
4:45 PM	0	24	328	21	0	24	396	21	0	12	10	20	0	10	14	28	908	3,748	0	0	0	1
5:00 PM	1	19	348	10	2	16	443	10	0	16	13	42	0	25	13	31	989	3,782	0	0	1	0
5:15 PM	0	19	349	13	0	18	410	11	0	11	11	37	0	17	14	39	949	3,681	1	0	0	0
5:30 PM	0	20	317	9	2	22	444	11	0	3	7	26	0	8	8	25	902	3,540	0	0	2	0
5:45 PM	0	16	311	13	0	18	478	9	0	12	13	20	0	15	14	23	942	3,466	2	0	2	0
6:00 PM	0	23	295	13	1	28	419	8	0	13	13	23	0	12	22	18	888	3,172	2	0	0	0
6:15 PM	0	14	288	16	1	24	385	8	0	15	4	17	0	9	7	20	808	2,870	0	0	0	0
6:30 PM	1	26	290	14	2	13	388	10	0	10	7	19	0	10	6	32	828	2,676	0	0	0	0
6:45 PM	0	25	233	9	1	18	284	3	0	14	1	17	0	3	12	28	648	2,456	0	0	0	0
7:00 PM	0	20	197	12	1	17	257	7	0	7	6	21	0	6	9	26	586	2,375	0	0	0	0
7:15 PM	0	21	237	15	1	12	260	8	0	6	4	14	0	3	6	27	614		0	0	0	0
7:30 PM	0	20	240	4	1	20	246	10	0	5	6	13	0	7	6	30	608		0	0	0	0
7:45 PM	1	15	205	15	1	20	227	7	0	12	5	18	0	4	8	29	567		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	10	0	0	0	4	0	0	0	0	1	0	0	0	0	15
Lights	1	73	1,303	45	4	72	1,754	41	0	38	42	121	0	64	48	117	3,723
Mediums	0	1	12	0	0	2	17	0	0	4	2	3	0	1	1	1	44
Total	1	74	1,325	45	4	74	1,775	41	0	42	44	125	0	65	49	118	3,782



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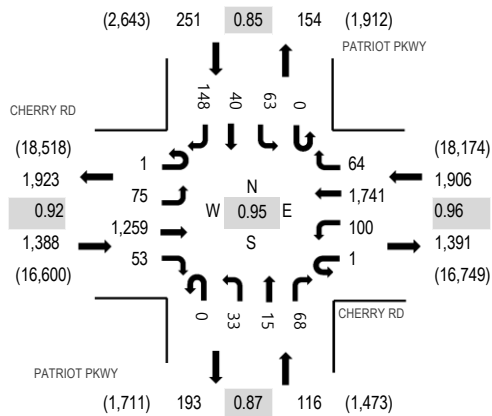
Location: 6 PATRIOT PKWY & CHERRY RD AM

Date and Start Time: Thursday, May 9, 2019

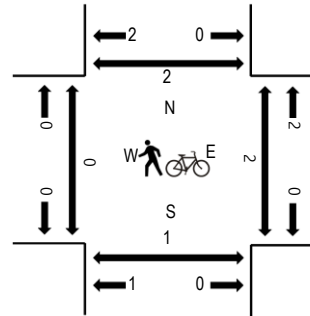
Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 04:45 PM - 05:00 PM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	CHERRY RD Eastbound				CHERRY RD Westbound				PATRIOT PKWY Northbound				PATRIOT PKWY Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:00 AM	0	8	216	2	0	7	77	7	0	1	5	17	0	4	0	6	343	1,900	0	0	0	0
6:15 AM	0	7	262	1	0	5	89	7	0	1	3	24	0	2	2	5	408	2,185	0	0	0	0
6:30 AM	0	2	358	1	1	5	152	8	0	5	3	24	0	1	3	5	568	2,460	0	0	0	0
6:45 AM	0	14	321	3	0	2	171	9	0	5	5	29	0	3	4	15	581	2,655	0	0	0	0
7:00 AM	0	9	368	3	0	5	174	10	0	2	2	23	0	7	4	21	628	2,853	0	2	0	0
7:15 AM	0	16	348	3	1	11	236	9	0	6	4	23	0	6	1	19	683	2,901	0	0	0	2
7:30 AM	0	11	346	2	0	2	327	7	0	5	5	27	0	3	3	25	763	2,855	0	0	0	1
7:45 AM	0	12	395	3	1	7	275	17	0	11	2	14	0	10	9	23	779	2,681	0	0	0	0
8:00 AM	0	9	313	9	0	7	268	11	0	6	2	18	0	7	3	23	676	2,490	0	0	1	0
8:15 AM	0	11	302	12	0	10	238	13	0	5	0	14	0	5	6	21	637	2,398	0	0	0	0
8:30 AM	1	13	248	4	0	14	257	7	0	2	3	14	0	6	4	16	589	2,334	0	0	0	0
8:45 AM	2	9	236	4	0	8	261	15	0	6	1	16	0	7	1	22	588	2,336	0	1	0	0
9:00 AM	1	9	247	9	2	6	235	11	0	5	1	21	0	7	3	27	584	2,279	0	0	1	1
9:15 AM	1	15	235	9	0	6	242	12	0	5	1	13	0	7	3	24	573	2,206	0	0	0	1
9:30 AM	1	14	255	7	1	11	236	7	0	8	4	14	0	6	3	24	591	2,195	1	0	2	2
9:45 AM	0	12	211	8	0	10	218	7	0	12	0	17	0	9	4	23	531	2,198	0	0	1	1
10:00 AM	1	17	193	5	0	14	226	9	0	10	3	10	0	4	4	15	511	2,243	0	0	0	0
10:15 AM	1	19	219	9	0	12	229	9	0	7	7	11	0	8	8	23	562	2,318	1	0	0	0
10:30 AM	0	12	238	7	0	13	245	12	0	8	2	12	0	12	3	30	594	2,422	0	1	0	0
10:45 AM	0	10	216	13	0	10	249	15	0	8	3	8	0	6	4	34	576	2,489	1	0	1	0
11:00 AM	2	18	226	2	0	10	257	13	0	6	3	11	0	10	5	23	586	2,593	0	0	0	0
11:15 AM	1	23	281	8	0	9	243	15	0	8	4	11	0	12	6	45	666	2,747	0	0	0	0
11:30 AM	0	18	265	5	1	13	250	28	0	11	6	9	0	15	4	36	661	2,791	0	0	0	0
11:45 AM	0	20	260	2	0	19	270	15	0	7	7	15	0	23	9	33	680	2,872	0	1	0	0
12:00 PM	1	23	291	11	0	18	302	17	0	5	8	8	0	15	4	37	740	2,912	1	0	1	1
12:15 PM	0	23	249	13	1	21	288	20	0	8	5	17	0	17	10	38	710	2,883	0	0	0	0
12:30 PM	0	18	295	10	1	14	296	24	0	5	2	10	0	23	6	38	742	2,815	0	0	0	2
12:45 PM	0	19	299	16	2	17	257	19	0	5	6	15	0	24	7	34	720	2,789	0	0	0	0
1:00 PM	2	20	239	19	0	16	319	19	0	9	3	15	0	19	4	27	711	2,701	0	0	1	2
1:15 PM	1	26	260	7	0	15	239	10	1	7	5	11	0	19	8	33	642	2,756	0	0	0	0
1:30 PM	1	19	250	8	1	15	322	20	0	8	3	12	0	16	7	34	716	2,829	0	3	0	0
1:45 PM	1	16	231	8	0	12	258	18	0	2	4	16	0	20	7	39	632	2,872	0	2	0	1
2:00 PM	3	17	297	10	0	18	322	21	0	9	6	14	0	13	2	34	766	3,015	0	0	0	0
2:15 PM	0	30	252	5	0	18	298	20	0	18	5	10	0	23	3	33	715	2,998	0	0	0	0
2:30 PM	0	14	302	3	0	19	334	14	0	5	2	12	0	12	11	31	759	3,064	0	0	0	0

2:45 PM	0	24	283	4	0	23	335	18	0	9	3	15	0	15	13	33	775	3,056	0	0	0	0
3:00 PM	2	25	302	8	0	17	318	14	0	4	4	12	0	9	9	25	749	3,151	0	1	0	1
3:15 PM	0	21	264	9	1	20	378	10	0	8	2	10	0	19	9	30	781	3,238	0	0	0	0
3:30 PM	0	10	286	8	1	21	349	7	0	9	3	14	0	7	8	28	751	3,281	0	0	0	1
3:45 PM	0	18	279	11	0	19	437	19	1	8	5	13	0	19	10	31	870	3,381	0	0	0	0
4:00 PM	1	18	276	10	1	27	409	21	0	6	10	9	0	13	6	29	836	3,476	0	0	0	0
4:15 PM	0	14	252	8	0	20	435	11	0	11	8	12	0	13	11	29	824	3,563	0	0	0	0
4:30 PM	0	15	282	9	1	23	416	14	0	6	1	20	0	17	11	36	851	3,661	0	0	0	0
4:45 PM	1	26	340	15	0	27	449	18	0	6	7	12	0	12	12	40	965	3,654	0	2	0	2
5:00 PM	0	13	312	13	0	24	453	18	0	6	4	19	0	21	4	36	923	3,586	0	0	1	0
5:15 PM	0	21	325	16	0	26	423	14	0	15	3	17	0	13	13	36	922	3,502	0	0	0	0
5:30 PM	0	9	267	14	0	32	423	14	0	12	4	11	0	19	8	31	844	3,436	0	2	0	0
5:45 PM	1	20	274	10	0	28	455	20	0	11	2	18	0	8	9	41	897	3,461	0	0	0	0
6:00 PM	0	14	275	9	2	28	395	14	0	3	6	16	0	22	11	44	839	3,263	0	0	0	0
6:15 PM	2	15	292	10	0	27	401	22	0	9	4	16	0	12	11	35	856	3,017	0	0	0	1
6:30 PM	1	23	286	16	1	25	399	14	0	9	5	21	0	20	13	36	869	2,794	0	0	0	0
6:45 PM	1	12	237	19	2	22	308	14	0	12	5	18	0	9	8	32	699	2,546	0	0	0	1
7:00 PM	3	20	190	12	0	19	274	11	0	7	5	15	0	11	6	20	593	2,428	0	1	0	1
7:15 PM	0	24	228	9	0	15	270	11	0	7	6	12	0	15	7	29	633		0	0	0	1
7:30 PM	1	17	228	9	0	21	252	17	0	12	2	14	0	10	7	31	621		1	0	0	0
7:45 PM	1	20	186	6	0	23	242	17	0	8	0	19	0	27	6	26	581		0	0	0	2

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	10	0	0	0	2	0	0	0	0	1	0	0	0	0	13
Lights	1	74	1,235	53	1	98	1,712	63	0	32	14	67	0	62	40	145	3,597
Mediums	0	1	14	0	0	2	27	1	0	1	1	0	0	1	0	3	51
Total	1	75	1,259	53	1	100	1,741	64	0	33	15	68	0	63	40	148	3,661



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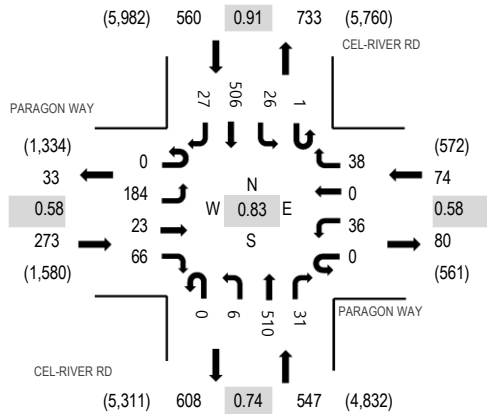
Location: 7 CEL-RIVER RD & PARAGON WAY AM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 04:30 PM - 05:30 PM

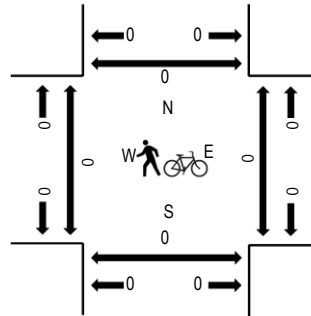
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	PARAGON WAY Eastbound				PARAGON WAY Westbound				CEL-RIVER RD Northbound				CEL-RIVER RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:00 AM	0	3	0	2	0	2	0	2	0	9	32	0	0	1	32	11	94	534	0	0	0	0
6:15 AM	0	3	0	2	0	0	0	6	0	5	39	0	0	2	34	19	110	634	0	0	0	0
6:30 AM	0	7	0	1	0	2	0	1	0	10	55	3	0	6	32	18	135	726	0	0	0	0
6:45 AM	0	13	0	1	0	3	10	2	0	12	56	1	0	5	44	48	195	824	0	0	0	0
7:00 AM	0	16	1	7	0	7	3	7	0	8	56	5	0	7	49	28	194	897	0	0	0	0
7:15 AM	0	4	0	1	0	5	2	5	0	8	91	5	0	1	52	28	202	927	0	0	0	0
7:30 AM	0	7	0	1	0	1	0	3	0	8	88	6	0	5	82	32	233	932	0	0	0	0
7:45 AM	0	3	0	0	0	5	3	4	0	13	72	7	0	6	98	57	268	894	0	0	0	0
8:00 AM	0	4	1	1	0	2	1	7	0	8	68	6	1	3	87	35	224	811	0	0	0	0
8:15 AM	0	12	0	2	0	2	0	4	0	4	79	3	0	4	70	27	207	743	0	0	0	0
8:30 AM	0	5	2	2	0	1	3	3	0	8	74	2	0	4	64	27	195	710	0	0	0	0
8:45 AM	0	5	0	3	0	3	2	3	0	5	48	4	0	2	89	21	185	713	0	0	0	0
9:00 AM	0	9	1	3	0	3	0	6	0	2	49	2	0	0	56	25	156	704	0	0	0	0
9:15 AM	0	11	1	3	0	4	1	0	0	9	46	2	0	1	74	22	174	742	0	0	0	0
9:30 AM	0	19	0	2	0	7	1	5	0	5	63	5	0	2	73	16	198	774	0	0	0	0
9:45 AM	0	14	4	7	0	8	1	2	0	4	53	1	0	2	64	16	176	772	0	0	0	0
10:00 AM	0	16	1	5	0	3	0	6	0	4	58	4	0	4	74	19	194	820	0	0	0	0
10:15 AM	0	15	2	4	1	5	1	1	0	4	68	7	0	1	78	19	206	829	0	0	0	0
10:30 AM	0	15	0	4	0	1	0	3	0	7	52	3	0	4	87	20	196	878	0	1	0	0
10:45 AM	0	10	1	3	0	11	1	7	0	3	63	8	0	3	82	32	224	946	0	0	0	0
11:00 AM	0	23	1	6	0	5	0	5	0	2	64	5	0	3	65	24	203	979	0	0	0	0
11:15 AM	0	39	2	11	1	5	0	9	0	5	65	0	0	5	82	31	255	1,070	0	0	0	0
11:30 AM	0	45	1	11	0	8	2	6	0	3	66	1	0	3	84	34	264	1,114	0	0	0	0
11:45 AM	0	35	0	8	0	3	1	5	0	2	74	4	0	9	89	27	257	1,103	0	1	0	0
12:00 PM	0	32	0	19	0	2	3	6	0	2	90	5	1	6	106	22	294	1,141	0	0	0	0
12:15 PM	0	28	2	7	0	9	1	5	0	9	95	0	0	9	103	31	299	1,068	0	0	0	0
12:30 PM	0	16	0	3	0	5	1	3	0	14	89	4	0	3	92	23	253	1,007	0	0	0	0
12:45 PM	0	18	1	8	2	6	1	8	0	6	88	7	0	6	121	23	295	1,015	0	0	0	0
1:00 PM	0	15	1	5	0	4	0	3	0	7	74	3	0	5	86	18	221	952	0	0	0	0
1:15 PM	0	23	0	3	0	2	0	3	0	4	82	7	0	7	84	23	238	963	0	0	0	0
1:30 PM	0	32	0	14	0	4	2	7	0	8	85	6	0	4	83	16	261	946	0	0	0	0
1:45 PM	0	18	0	11	0	0	0	4	0	7	83	2	0	3	81	23	232	960	0	0	0	0
2:00 PM	0	13	1	8	0	2	0	1	0	7	99	4	0	1	79	17	232	993	0	0	0	0
2:15 PM	0	21	1	1	0	8	1	1	0	2	75	6	0	7	77	21	221	1,037	0	0	0	0
2:30 PM	0	38	0	11	0	6	0	5	0	6	86	4	0	5	88	26	275	1,076	0	0	0	0

2:45 PM	0	18	1	4	0	3	0	4	0	9	91	2	0	5	105	23	265	1,056	0	0	0	0
3:00 PM	0	69	0	22	0	3	1	5	0	3	73	3	1	6	81	9	276	1,025	0	0	0	0
3:15 PM	0	23	0	8	0	6	0	4	0	6	84	4	0	6	108	11	260	1,019	0	0	0	0
3:30 PM	0	43	0	11	0	4	0	6	0	7	86	2	0	6	83	7	255	986	0	0	0	0
3:45 PM	0	16	0	7	0	10	0	7	0	2	72	5	0	7	97	11	234	1,116	0	0	0	0
4:00 PM	0	34	2	6	0	7	0	3	0	2	103	8	0	6	92	7	270	1,213	0	0	0	0
4:15 PM	0	34	0	8	0	6	0	6	0	4	68	7	0	2	83	9	227	1,379	0	0	0	0
4:30 PM	0	77	10	33	0	6	0	4	0	1	125	4	0	8	107	10	385	1,454	0	0	0	0
4:45 PM	0	30	5	14	0	5	0	8	0	2	104	6	0	5	145	7	331	1,367	0	0	0	0
5:00 PM	0	52	4	11	0	14	0	18	0	2	170	14	0	6	138	7	436	1,313	0	0	0	0
5:15 PM	0	25	4	8	0	11	0	8	0	1	111	7	1	7	116	3	302	1,130	0	0	0	0
5:30 PM	0	22	2	8	0	6	1	3	0	0	112	7	0	6	123	8	298	1,076	0	0	0	0
5:45 PM	0	33	0	9	0	8	0	2	0	0	108	7	0	6	101	3	277	998	0	0	0	0
6:00 PM	0	20	2	8	0	6	0	6	0	0	102	11	1	5	88	4	253	928	0	0	0	0
6:15 PM	0	27	1	5	0	3	0	4	0	1	101	5	0	4	93	4	248	876	0	0	0	0
6:30 PM	0	11	0	4	0	8	1	6	0	0	71	2	0	7	103	7	220	775	0	0	0	0
6:45 PM	0	20	1	0	0	1	0	3	0	1	77	5	0	7	86	6	207	708	0	0	0	0
7:00 PM	0	12	0	1	0	7	0	8	0	0	72	7	0	2	91	1	201	656	0	0	0	0
7:15 PM	0	2	0	1	0	1	0	3	0	0	61	3	0	5	68	3	147		0	0	0	0
7:30 PM	0	14	0	2	0	1	0	1	0	1	38	3	1	4	80	8	153		0	0	0	0
7:45 PM	0	4	0	1	0	4	0	3	0	0	67	5	0	3	67	1	155		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	10	0	0	0	0	0	0	0	1	4	0	0	0	6	6	27
Lights	0	170	23	66	0	36	0	36	0	5	502	31	1	25	496	16	1,407
Mediums	0	4	0	0	0	0	0	2	0	0	4	0	0	1	4	5	20
Total	0	184	23	66	0	36	0	38	0	6	510	31	1	26	506	27	1,454



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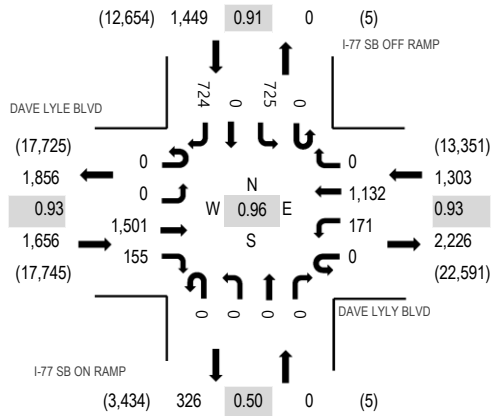
Location: 8 I-77 SB ON RAMP & DAVE LYLY BLVD AM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 04:45 PM - 05:45 PM

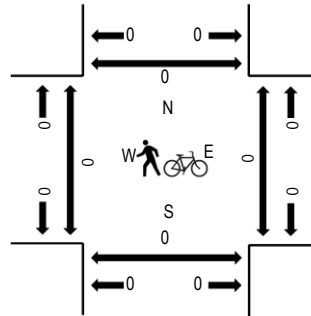
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	DAVE LYLY BLVD Eastbound				DAVE LYLY BLVD Westbound				I-77 SB ON RAMP Northbound				I-77 SB OFF RAMP Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:00 AM	0	0	128	10	0	12	49	0	0	0	0	0	0	33	0	24	256	1,513	0	0	0	0
6:15 AM	0	0	142	20	0	20	42	0	0	0	0	0	0	37	0	39	300	1,760	0	0	0	0
6:30 AM	0	0	183	26	0	33	76	0	0	0	0	0	0	71	0	70	459	2,075	0	0	0	0
6:45 AM	0	0	227	21	0	31	81	0	0	0	0	0	0	69	0	69	498	2,248	0	0	0	0
7:00 AM	0	0	191	26	0	36	116	0	0	0	2	0	0	70	0	62	503	2,468	0	0	0	1
7:15 AM	0	0	252	30	0	39	151	0	0	0	2	0	0	64	1	76	615	2,582	0	0	0	2
7:30 AM	0	0	240	38	1	28	137	0	0	0	0	0	0	78	0	110	632	2,523	0	0	0	0
7:45 AM	0	0	288	18	0	27	160	0	0	0	0	0	0	97	0	128	718	2,452	0	0	0	0
8:00 AM	0	0	234	31	0	25	151	0	0	0	0	0	0	74	0	102	617	2,338	0	0	1	0
8:15 AM	0	0	205	20	0	16	133	0	0	0	0	0	0	73	0	109	556	2,280	0	0	0	0
8:30 AM	0	0	204	16	0	23	117	0	0	0	0	0	0	82	0	119	561	2,320	0	0	0	0
8:45 AM	0	0	201	11	0	19	157	0	0	0	0	0	0	90	0	126	604	2,375	0	0	0	0
9:00 AM	0	0	182	22	0	18	131	0	0	0	0	0	0	93	0	113	559	2,370	0	0	0	1
9:15 AM	0	0	239	15	0	13	160	0	0	0	0	0	0	74	0	95	596	2,407	0	0	0	0
9:30 AM	0	0	226	22	0	13	151	0	0	0	0	0	0	101	0	103	616	2,479	0	0	4	0
9:45 AM	0	0	228	11	0	33	142	0	0	0	0	0	0	90	0	95	599	2,509	0	0	0	0
10:00 AM	0	0	223	24	0	20	143	0	0	0	0	0	0	107	1	78	596	2,641	0	0	0	0
10:15 AM	0	0	270	27	0	31	167	0	0	0	0	0	0	85	0	88	668	2,775	0	0	0	0
10:30 AM	0	0	248	29	0	26	155	0	0	0	0	0	0	98	0	90	646	2,814	0	0	0	0
10:45 AM	0	0	287	23	0	28	202	0	0	0	0	0	0	88	0	103	731	2,935	0	0	0	0
11:00 AM	0	0	303	22	0	26	202	0	0	0	0	0	0	106	0	71	730	3,093	0	0	0	0
11:15 AM	0	0	301	24	0	25	203	0	0	0	0	0	0	81	0	73	707	3,208	0	0	0	0
11:30 AM	0	0	291	29	0	30	215	0	0	0	0	0	0	118	0	84	767	3,419	0	0	0	0
11:45 AM	0	0	355	25	0	27	294	0	0	0	0	0	0	90	0	98	889	3,534	0	0	0	0
12:00 PM	0	0	354	33	0	32	218	0	0	0	0	0	0	113	1	94	845	3,565	0	0	0	0
12:15 PM	0	0	383	28	0	43	250	0	0	0	0	0	0	93	0	121	918	3,601	0	0	0	2
12:30 PM	0	0	363	24	0	29	216	0	0	0	0	0	0	136	0	114	882	3,622	0	0	0	1
12:45 PM	0	0	388	34	0	36	235	0	0	0	0	0	0	123	0	104	920	3,629	0	0	0	1
1:00 PM	0	0	326	41	0	38	280	0	0	0	0	0	0	97	1	98	881	3,598	1	0	2	1
1:15 PM	0	0	373	26	0	40	291	0	0	0	0	0	0	105	2	102	939	3,557	0	0	0	1
1:30 PM	0	0	328	32	0	41	252	0	0	0	0	0	0	125	0	111	889	3,524	0	0	0	0
1:45 PM	0	0	344	32	0	40	256	0	0	0	0	0	0	119	2	96	889	3,519	0	0	0	0
2:00 PM	0	0	315	26	0	41	254	0	0	0	0	0	0	106	0	98	840	3,532	0	0	1	0
2:15 PM	0	0	303	31	0	40	263	0	0	0	0	0	0	148	0	121	906	3,524	0	0	0	1
2:30 PM	0	0	326	30	0	44	242	0	0	0	0	0	0	133	0	109	884	3,476	0	0	0	1

2:45 PM	0	0	349	23	0	47	245	0	0	0	0	0	0	118	0	120	902	3,459	0	0	0	1
3:00 PM	0	0	302	35	0	34	241	0	0	0	0	0	0	131	0	89	832	3,485	0	0	0	0
3:15 PM	0	0	299	30	0	40	266	0	0	0	0	0	0	134	0	89	858	3,587	0	0	1	0
3:30 PM	0	0	340	30	0	36	206	0	0	0	0	0	0	152	0	103	867	3,713	0	0	0	0
3:45 PM	0	0	324	24	0	32	270	0	0	0	1	0	0	149	0	128	928	3,883	0	0	0	0
4:00 PM	0	0	325	26	0	56	239	0	0	0	0	0	0	172	0	116	934	3,987	0	0	1	1
4:15 PM	0	0	352	24	1	35	248	0	0	0	0	0	0	170	0	154	984	4,203	0	0	0	0
4:30 PM	0	0	318	35	0	43	271	0	0	0	0	0	0	194	0	176	1,037	4,356	0	0	0	0
4:45 PM	0	0	365	18	0	36	275	0	0	0	0	0	0	166	0	172	1,032	4,408	0	0	0	0
5:00 PM	0	0	359	52	0	53	286	0	0	0	0	0	0	207	0	193	1,150	4,373	0	0	0	0
5:15 PM	0	0	408	38	0	47	307	0	0	0	0	0	0	168	0	169	1,137	4,239	0	0	0	0
5:30 PM	0	0	369	47	0	35	264	0	0	0	0	0	0	184	0	190	1,089	4,054	0	0	0	0
5:45 PM	0	0	333	35	0	46	251	0	0	0	0	0	0	164	0	168	997	3,910	0	0	0	0
6:00 PM	0	0	323	32	1	39	249	0	0	0	0	0	0	182	0	190	1,016	3,794	0	0	0	0
6:15 PM	0	0	305	23	0	45	259	0	0	0	0	0	0	145	0	175	952	3,631	0	0	0	0
6:30 PM	0	0	283	39	0	39	253	0	0	0	0	0	0	174	0	157	945	3,416	0	0	0	0
6:45 PM	0	0	293	37	0	30	238	0	0	0	0	0	0	128	0	155	881	3,227	0	0	0	0
7:00 PM	0	0	289	48	1	43	244	0	0	0	0	0	0	119	0	109	853	2,998	0	0	1	0
7:15 PM	0	0	291	33	0	28	201	0	0	0	0	0	0	93	0	91	737		0	0	0	0
7:30 PM	0	0	246	43	0	29	207	0	0	0	0	0	0	131	1	99	756		0	0	0	0
7:45 PM	0	0	238	34	0	26	193	0	0	0	0	0	0	77	0	84	652		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	2	1	0	3	4	0	0	0	0	0	0	2	0	3	15
Lights	0	0	1,491	153	0	167	1,108	0	0	0	0	0	0	718	0	714	4,351
Mediums	0	0	8	1	0	1	20	0	0	0	0	0	0	5	0	7	42
Total	0	0	1,501	155	0	171	1,132	0	0	0	0	0	0	725	0	724	4,408



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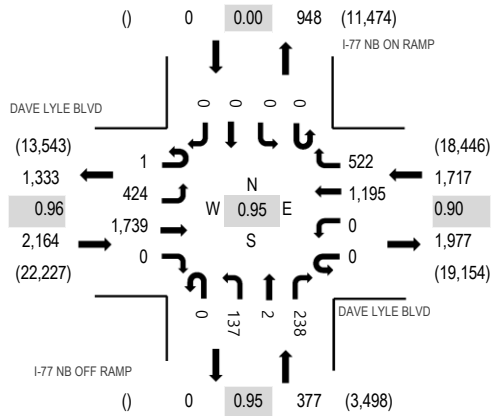
Location: 9 I-77 NB OFF RAMP & DAVE LYLE BLVD AM

Date and Start Time: Thursday, May 9, 2019

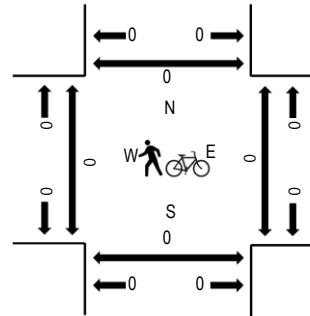
Peak Hour: 04:45 PM - 05:45 PM

Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	DAVE LYLE BLVD				DAVE LYLE BLVD				I-77 NB OFF RAMP				I-77 NB ON RAMP				Total	Rolling Hour	Pedestrian Crossings			
	Eastbound				Westbound				Northbound				Southbound						West	East	South	North
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right						
6:00 AM	0	97	54	0	0	0	54	91	0	9	0	9	0	0	0	0	314	1,760	0	0	0	0
6:15 AM	0	93	83	0	0	0	61	120	0	4	0	16	0	0	0	0	377	2,048	0	0	0	0
6:30 AM	0	136	117	0	0	0	105	142	0	11	0	13	0	0	0	0	524	2,304	0	0	0	0
6:45 AM	0	129	140	0	0	0	109	131	0	14	0	22	0	0	0	0	545	2,469	0	0	0	0
7:00 AM	0	145	124	0	1	0	142	148	0	17	0	25	0	0	0	0	602	2,646	0	0	0	0
7:15 AM	0	131	158	0	0	0	173	132	0	15	0	24	0	0	0	0	633	2,693	0	0	0	2
7:30 AM	0	143	195	0	0	0	154	141	0	21	0	35	0	0	0	0	689	2,609	0	0	0	0
7:45 AM	0	131	250	0	0	0	167	105	0	28	0	41	0	0	0	0	722	2,473	0	0	0	0
8:00 AM	0	121	182	0	0	0	173	109	0	22	0	42	0	0	0	0	649	2,310	0	0	0	0
8:15 AM	0	100	178	0	0	0	130	93	0	18	0	30	0	0	0	0	549	2,224	0	0	1	0
8:30 AM	1	105	183	0	1	0	135	88	0	10	0	30	0	0	0	0	553	2,260	0	0	0	0
8:45 AM	0	63	224	0	0	0	139	86	0	23	0	24	0	0	0	0	559	2,351	0	0	0	0
9:00 AM	0	67	221	0	0	0	141	89	0	18	0	27	0	0	0	0	563	2,382	0	0	0	1
9:15 AM	0	94	207	0	0	0	153	79	0	17	1	34	0	0	0	0	585	2,442	0	0	2	0
9:30 AM	0	95	246	0	0	0	159	94	0	12	0	38	0	0	0	0	644	2,543	0	0	3	0
9:45 AM	0	46	252	0	0	0	154	83	0	16	0	39	0	0	0	0	590	2,534	0	0	0	0
10:00 AM	0	68	272	0	0	0	144	85	0	18	0	36	0	0	0	0	623	2,658	0	0	0	0
10:15 AM	0	76	283	0	0	0	180	84	0	24	1	38	0	0	0	0	686	2,791	0	0	0	0
10:30 AM	1	65	279	0	0	0	150	92	0	17	0	31	0	0	0	0	635	2,848	0	0	0	0
10:45 AM	1	70	297	0	1	0	223	80	0	9	0	33	0	0	0	0	714	3,003	0	0	0	0
11:00 AM	0	89	302	0	0	0	213	97	0	20	0	35	0	0	0	0	756	3,200	0	0	0	0
11:15 AM	0	68	306	0	1	0	206	95	0	16	1	50	0	0	0	0	743	3,351	0	0	0	0
11:30 AM	1	73	334	0	1	0	208	107	0	25	0	41	0	0	0	0	790	3,537	0	0	0	0
11:45 AM	0	91	354	0	0	0	290	93	0	29	0	54	0	0	0	0	911	3,669	0	0	0	0
12:00 PM	3	96	360	0	1	0	252	103	0	41	1	50	0	0	0	0	907	3,754	0	0	0	0
12:15 PM	1	68	382	0	0	0	295	112	0	31	0	40	0	0	0	0	929	3,737	0	0	0	0
12:30 PM	0	98	403	0	1	0	233	97	0	28	1	61	0	0	0	0	922	3,798	0	0	0	0
12:45 PM	0	113	393	0	0	0	300	119	0	24	0	47	0	0	0	0	996	3,786	0	0	0	0
1:00 PM	1	101	331	0	0	0	267	109	0	32	0	49	0	0	0	0	890	3,691	0	0	1	0
1:15 PM	0	102	350	0	0	0	330	149	0	23	0	36	0	0	0	0	990	3,667	0	0	0	0
1:30 PM	0	118	351	0	1	0	254	126	0	20	1	39	0	0	0	0	910	3,590	0	0	1	0
1:45 PM	0	99	316	0	0	0	295	122	0	20	0	49	0	0	0	0	901	3,569	0	0	0	0
2:00 PM	2	107	322	0	0	0	245	133	0	20	2	35	0	0	0	0	866	3,560	0	0	0	0
2:15 PM	1	97	336	0	1	0	303	115	0	17	2	41	0	0	0	0	913	3,553	0	0	0	0
2:30 PM	1	95	352	0	0	0	262	113	0	22	0	44	0	0	0	0	889	3,553	0	0	0	0

2:45 PM	0	92	353	0	0	0	270	120	0	13	0	44	0	0	0	0	892	3,539	0	0	0	0
3:00 PM	0	100	326	0	0	0	256	119	0	23	0	35	0	0	0	0	859	3,598	0	0	0	0
3:15 PM	0	72	366	0	0	0	279	138	0	22	0	36	0	0	0	0	913	3,687	0	0	0	0
3:30 PM	1	106	392	0	1	0	222	98	0	20	0	35	0	0	0	0	875	3,727	0	0	0	0
3:45 PM	0	87	384	0	0	0	280	104	0	31	0	65	0	0	0	0	951	3,853	0	0	0	0
4:00 PM	1	113	371	0	1	0	248	114	0	34	1	65	0	0	0	0	948	3,907	0	0	0	1
4:15 PM	1	83	428	0	1	0	264	96	0	20	0	60	0	0	0	0	953	4,058	0	0	0	0
4:30 PM	0	100	415	0	0	0	281	119	0	34	0	52	0	0	0	0	1,001	4,229	0	0	0	0
4:45 PM	1	84	432	0	0	0	278	124	0	28	1	57	0	0	0	0	1,005	4,258	0	0	0	0
5:00 PM	0	115	434	0	0	0	323	130	0	40	0	57	0	0	0	0	1,099	4,234	0	0	0	0
5:15 PM	0	104	432	0	0	0	349	136	0	38	1	64	0	0	0	0	1,124	4,069	0	0	0	0
5:30 PM	0	121	441	0	0	0	245	132	0	31	0	60	0	0	0	0	1,030	3,859	0	0	0	0
5:45 PM	0	66	415	0	0	0	277	123	0	36	0	64	0	0	0	0	981	3,716	0	0	0	0
6:00 PM	0	92	406	0	0	0	249	109	0	31	0	47	0	0	0	0	934	3,553	0	0	0	0
6:15 PM	0	82	347	0	1	0	285	124	0	29	0	46	0	0	0	0	914	3,456	1	0	0	0
6:30 PM	0	84	371	0	0	0	250	121	0	26	1	34	0	0	0	0	887	3,266	0	0	0	0
6:45 PM	0	82	320	0	1	0	249	98	0	22	0	46	0	0	0	0	818	3,101	0	1	0	0
7:00 PM	0	118	292	0	0	0	273	102	0	14	1	37	0	0	0	0	837	2,918	0	0	1	0
7:15 PM	0	80	289	0	0	0	213	98	0	14	0	30	0	0	0	0	724		0	0	0	0
7:30 PM	0	81	304	0	0	0	201	84	0	21	0	31	0	0	0	0	722		0	0	0	0
7:45 PM	0	69	234	0	0	0	204	86	0	13	1	28	0	0	0	0	635		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	1	2	0	0	0	4	4	0	2	0	1	0	0	0	0	14
Lights	1	419	1,724	0	0	0	1,175	513	0	133	2	234	0	0	0	0	4,201
Mediums	0	4	13	0	0	0	16	5	0	2	0	3	0	0	0	0	43
Total	1	424	1,739	0	0	0	1,195	522	0	137	2	238	0	0	0	0	4,258



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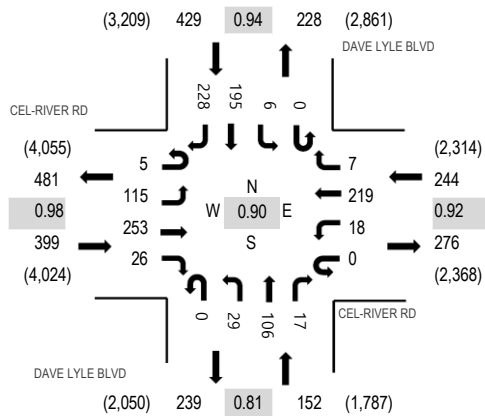
Location: 10 DAVE LYLE BLVD & CEL-RIVER RD AM

Date and Start Time: Thursday, May 9, 2019

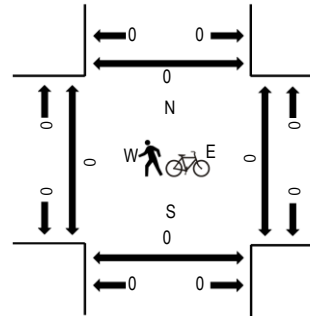
Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	CEL-RIVER RD Eastbound				CEL-RIVER RD Westbound				DAVE LYLE BLVD Northbound				DAVE LYLE BLVD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:00 AM	0	9	7	1	0	0	38	0	0	0	20	1	0	0	7	4	87	525	0	0	0	0
6:15 AM	0	21	10	1	0	0	54	1	0	2	34	1	0	0	2	8	134	603	0	0	0	0
6:30 AM	0	22	5	0	0	0	57	0	0	6	38	0	0	2	8	8	146	657	0	0	0	0
6:45 AM	1	25	10	3	0	0	62	0	0	3	37	0	0	0	10	7	158	722	0	1	0	0
7:00 AM	0	34	13	3	0	2	51	0	0	2	30	2	0	0	18	10	165	801	0	0	0	0
7:15 AM	0	28	29	2	0	0	65	2	0	3	33	0	0	0	16	10	188	811	0	0	0	0
7:30 AM	0	34	31	4	0	0	63	1	0	8	43	0	0	1	19	7	211	791	1	0	0	0
7:45 AM	0	44	45	2	0	1	46	1	0	9	49	2	0	0	17	21	237	757	0	0	0	0
8:00 AM	0	30	24	5	0	1	35	0	0	6	33	2	0	0	25	14	175	674	0	0	0	0
8:15 AM	0	33	28	2	0	2	28	1	0	6	36	1	0	1	17	13	168	646	0	0	0	0
8:30 AM	1	21	28	4	1	3	49	1	0	4	35	2	0	0	13	15	177	630	0	0	0	0
8:45 AM	1	20	25	6	0	0	26	0	0	8	22	0	0	2	24	20	154	637	0	0	0	0
9:00 AM	1	16	17	7	0	1	37	0	0	6	19	5	0	0	18	20	147	645	0	0	0	0
9:15 AM	0	28	29	4	0	3	25	4	0	7	17	2	0	0	16	17	152	658	0	0	0	0
9:30 AM	1	25	24	7	1	4	29	1	0	7	23	1	0	3	39	19	184	672	0	0	0	0
9:45 AM	1	26	21	7	0	3	27	0	0	5	17	2	0	0	23	30	162	648	0	0	0	0
10:00 AM	1	27	17	6	0	2	27	1	0	8	14	4	0	0	24	29	160	659	0	0	0	0
10:15 AM	1	22	22	6	0	3	22	1	0	7	20	1	0	1	32	28	166	697	0	1	0	0
10:30 AM	0	24	24	12	0	1	32	0	0	6	16	5	0	1	17	22	160	699	0	0	0	0
10:45 AM	0	21	24	6	0	2	32	2	0	11	13	1	0	0	32	29	173	750	0	0	0	0
11:00 AM	0	37	32	8	0	4	32	2	0	7	17	0	0	1	14	44	198	774	0	0	0	0
11:15 AM	0	20	21	5	0	2	30	0	0	6	25	0	0	1	31	27	168	838	0	0	0	0
11:30 AM	0	26	30	2	0	10	42	1	0	8	10	2	0	2	34	44	211	924	0	0	0	0
11:45 AM	0	26	31	2	0	3	46	0	0	5	15	8	0	1	24	36	197	928	0	0	0	0
12:00 PM	0	35	55	4	0	5	43	0	0	10	16	4	0	1	42	47	262	1,007	0	0	0	0
12:15 PM	0	44	39	8	0	1	39	1	0	9	25	3	0	2	36	47	254	973	0	0	0	0
12:30 PM	0	40	39	7	0	1	28	0	0	6	21	5	0	2	32	34	215	957	0	0	0	0
12:45 PM	2	57	50	9	0	7	27	3	0	10	27	3	0	2	32	47	276	963	0	0	0	1
1:00 PM	0	37	49	8	0	1	44	2	0	11	16	3	0	0	29	28	228	887	0	0	0	0
1:15 PM	1	36	53	8	0	0	39	0	0	9	32	2	0	1	24	33	238	872	0	0	0	0
1:30 PM	1	27	44	9	0	3	39	1	0	5	24	3	0	1	27	37	221	807	0	0	0	0
1:45 PM	0	46	28	14	0	1	28	4	0	2	13	5	0	5	27	27	200	800	0	0	0	0
2:00 PM	2	33	34	16	0	9	29	1	0	7	20	4	0	0	25	33	213	818	0	0	0	0
2:15 PM	0	11	25	11	1	1	39	2	0	6	25	2	0	2	26	22	173	838	0	0	0	0
2:30 PM	0	27	33	7	0	2	40	0	0	6	29	4	0	3	26	37	214	874	0	0	0	0

2:45 PM	1	29	41	4	0	1	38	2	0	6	19	4	0	0	39	34	218	897	0	0	0	0
3:00 PM	0	21	56	8	0	4	34	1	0	4	19	4	0	3	38	41	233	926	0	0	0	0
3:15 PM	0	32	48	8	0	5	29	0	0	7	17	1	0	0	34	28	209	934	0	0	0	0
3:30 PM	0	16	54	11	0	5	28	4	0	3	25	6	0	2	41	42	237	960	0	0	0	0
3:45 PM	0	25	73	3	0	6	28	3	0	9	33	2	0	1	38	26	247	1,017	0	0	0	0
4:00 PM	0	28	62	12	0	2	27	1	0	6	22	2	0	2	45	32	241	1,066	0	0	0	0
4:15 PM	0	30	61	4	0	5	48	1	0	9	18	5	0	2	21	31	235	1,166	0	0	0	0
4:30 PM	4	25	67	6	0	4	42	1	0	6	29	2	0	0	50	58	294	1,224	0	0	0	0
4:45 PM	1	28	59	7	0	3	57	0	0	8	19	6	0	4	54	50	296	1,173	0	0	0	0
5:00 PM	0	31	58	6	0	7	71	6	0	4	37	7	0	1	40	73	341	1,123	0	0	0	0
5:15 PM	0	31	69	7	0	4	49	0	0	11	21	2	0	1	51	47	293	980	0	0	0	0
5:30 PM	0	24	48	10	0	0	45	0	0	5	24	3	0	0	51	33	243	896	0	0	0	0
5:45 PM	0	19	66	12	0	4	38	0	0	4	32	3	0	1	38	29	246	854	0	0	0	0
6:00 PM	1	26	62	6	0	3	20	1	0	5	14	8	0	2	25	25	198	801	0	0	0	0
6:15 PM	1	16	43	7	0	3	40	0	0	5	21	5	0	2	34	32	209	776	0	0	0	0
6:30 PM	1	15	56	6	0	4	35	5	0	2	17	2	0	2	32	24	201	723	0	0	0	0
6:45 PM	1	19	64	3	0	4	27	1	0	6	14	2	0	1	22	29	193	686	0	0	0	0
7:00 PM	0	17	39	7	0	1	21	0	0	1	15	5	0	1	35	31	173	628	0	0	0	0
7:15 PM	3	20	44	4	0	2	28	0	0	4	17	2	0	0	17	15	156		0	0	0	0
7:30 PM	0	20	47	9	0	4	20	2	0	3	10	3	0	2	20	24	164		0	0	0	0
7:45 PM	1	15	34	4	0	1	24	1	0	2	13	2	0	0	19	19	135		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	1	1	0	0	0	3	0	0	0	3	1	0	0	2	2	13
Lights	5	113	247	26	0	18	209	7	0	28	102	16	0	6	192	224	1,193
Mediums	0	1	5	0	0	0	7	0	0	1	1	0	0	0	1	2	18
Total	5	115	253	26	0	18	219	7	0	29	106	17	0	6	195	228	1,224



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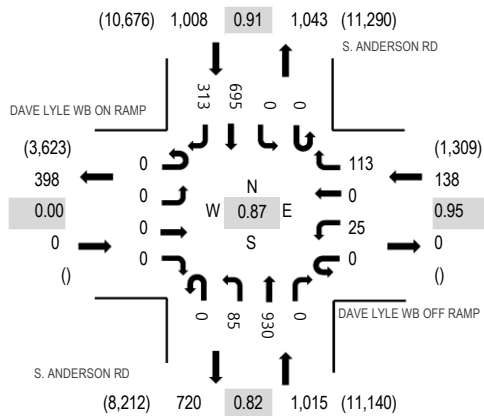
Location: 11 S. ANDERSON RD & DAVE LYLE WB OFF RAMP AM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 04:30 PM - 05:30 PM

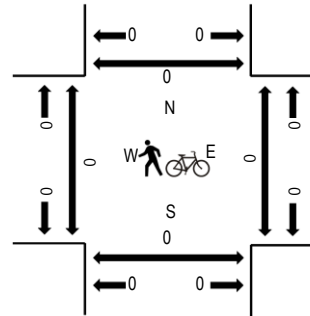
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	DAVE LYLE WB ON RAMP				DAVE LYLE WB OFF RAMP				S. ANDERSON RD				S. ANDERSON RD				Total	Rolling Hour	Pedestrian Crossings			
	Eastbound				Westbound				Northbound				Southbound						West	East	South	North
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right						
6:00 AM	0	0	0	0	0	0	0	1	0	6	61	0	0	0	34	9	111	832	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	1	0	6	101	0	0	0	49	13	170	1,036	0	0	0	0
6:30 AM	0	0	0	0	0	2	0	8	0	8	138	0	0	0	78	17	251	1,242	0	0	0	0
6:45 AM	0	0	0	0	0	2	0	8	0	9	168	0	0	0	72	41	300	1,480	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	10	0	6	143	0	0	0	103	53	315	1,703	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	11	0	11	178	0	0	0	125	51	376	1,790	0	0	0	0
7:30 AM	0	0	0	0	0	2	0	9	0	16	245	0	0	0	160	57	489	1,787	0	0	0	0
7:45 AM	0	0	0	0	0	5	0	6	0	9	236	0	0	0	215	52	523	1,683	0	0	0	0
8:00 AM	0	0	0	0	0	4	0	7	0	10	155	0	0	0	183	43	402	1,533	0	0	0	0
8:15 AM	0	0	0	0	0	9	0	11	0	10	171	0	0	0	141	31	373	1,457	0	0	0	0
8:30 AM	0	0	0	0	0	6	0	4	0	13	202	0	0	0	125	35	385	1,437	0	0	0	0
8:45 AM	0	0	0	0	0	8	0	17	1	19	153	0	0	0	119	56	373	1,365	0	2	0	0
9:00 AM	0	0	0	0	0	10	0	7	0	14	129	0	0	0	129	37	326	1,343	1	0	0	0
9:15 AM	0	0	0	0	0	7	0	13	0	16	142	0	0	0	135	40	353	1,342	0	2	0	0
9:30 AM	0	0	0	0	0	10	0	16	0	7	148	0	0	0	102	30	313	1,374	0	0	0	0
9:45 AM	0	0	0	0	0	11	0	15	0	9	165	0	0	0	113	38	351	1,456	0	0	0	0
10:00 AM	0	0	0	0	0	6	0	15	1	15	147	0	0	0	111	30	325	1,520	0	1	0	0
10:15 AM	0	0	0	0	0	4	0	12	0	12	207	0	0	0	121	29	385	1,617	0	0	0	0
10:30 AM	0	0	0	0	0	6	0	17	0	13	174	0	0	0	147	38	395	1,625	0	0	0	0
10:45 AM	0	0	0	0	0	7	0	19	0	28	194	0	0	0	116	51	415	1,636	0	1	0	0
11:00 AM	0	0	0	0	0	4	0	18	0	14	191	0	0	0	144	51	422	1,645	0	0	0	0
11:15 AM	0	0	0	0	0	12	0	15	0	18	181	0	0	0	126	41	393	1,707	0	0	0	0
11:30 AM	0	0	0	0	0	4	0	19	0	20	187	0	0	0	134	42	406	1,780	0	0	0	0
11:45 AM	0	0	0	0	0	10	0	19	0	13	210	0	0	0	129	43	424	1,823	0	0	0	0
12:00 PM	0	0	0	0	0	8	0	15	1	24	239	0	0	0	153	44	484	1,870	0	0	0	0
12:15 PM	0	0	0	0	0	9	0	14	0	16	231	0	0	0	145	51	466	1,848	3	0	0	0
12:30 PM	0	0	0	0	0	2	0	15	0	19	214	0	0	0	147	52	449	1,834	0	0	0	0
12:45 PM	0	0	0	0	0	10	0	21	0	20	178	0	0	0	170	72	471	1,810	0	0	0	0
1:00 PM	0	0	0	0	0	12	0	27	0	25	202	0	0	0	138	58	462	1,772	0	0	0	0
1:15 PM	0	0	0	0	0	6	0	19	0	25	201	0	0	0	146	55	452	1,757	0	0	0	0
1:30 PM	0	0	0	0	0	11	0	18	0	23	151	0	0	0	157	65	425	1,727	0	0	0	0
1:45 PM	0	0	0	0	0	4	0	28	0	18	181	0	1	0	143	58	433	1,780	0	0	0	0
2:00 PM	0	0	0	0	0	10	0	24	0	13	199	0	0	0	159	42	447	1,825	0	0	0	0
2:15 PM	0	0	0	0	0	2	0	29	0	14	197	0	0	0	134	46	422	1,873	0	0	0	0
2:30 PM	0	0	0	0	0	6	0	20	0	21	215	0	0	0	146	70	478	1,901	0	0	0	0

2:45 PM	0	0	0	0	0	9	0	25	0	17	187	0	0	0	176	64	478	1,912	0	0	0	0
3:00 PM	0	0	0	0	0	6	0	17	0	18	203	0	0	0	196	55	495	1,983	0	0	0	0
3:15 PM	0	0	0	0	0	7	0	17	0	20	177	0	0	0	174	55	450	2,032	0	0	0	0
3:30 PM	0	0	0	0	0	3	0	20	0	17	182	0	0	0	202	65	489	2,067	0	0	0	0
3:45 PM	0	0	0	0	0	9	0	35	0	24	248	0	0	0	179	54	549	2,084	0	0	0	0
4:00 PM	0	0	0	0	0	5	0	20	0	15	245	0	0	0	179	80	544	2,047	0	0	0	0
4:15 PM	0	0	0	0	0	5	0	16	0	23	209	0	0	0	158	74	485	2,124	0	0	0	1
4:30 PM	0	0	0	0	0	7	0	28	0	21	204	0	0	0	156	90	506	2,161	0	0	0	0
4:45 PM	0	0	0	0	0	4	0	25	0	18	224	0	0	0	179	62	512	2,131	0	0	0	0
5:00 PM	0	0	0	0	0	8	0	26	0	24	286	0	0	0	187	90	621	2,076	0	0	0	0
5:15 PM	0	0	0	0	0	6	0	34	0	22	216	0	0	0	173	71	522	1,961	0	0	0	0
5:30 PM	0	0	0	0	0	2	0	35	0	17	190	0	0	0	178	54	476	1,859	0	0	0	0
5:45 PM	0	0	0	0	0	3	0	39	0	9	200	0	0	0	158	48	457	1,792	0	0	0	0
6:00 PM	0	0	0	0	0	2	0	38	0	23	215	0	0	0	162	66	506	1,742	0	0	0	0
6:15 PM	0	0	0	0	0	2	0	26	0	12	203	0	0	0	141	36	420	1,574	0	0	0	0
6:30 PM	0	0	0	0	0	2	0	19	0	9	163	0	0	0	157	59	409	1,483	0	0	0	0
6:45 PM	0	0	0	0	0	4	0	25	0	12	182	0	0	0	135	49	407	1,361	0	1	0	0
7:00 PM	0	0	0	0	0	4	0	15	0	15	121	0	0	0	137	46	338	1,234	0	0	0	0
7:15 PM	0	0	0	0	0	1	0	19	0	11	147	0	0	0	110	41	329		0	2	0	0
7:30 PM	0	0	0	0	0	2	0	11	0	4	130	0	0	0	107	33	287		0	0	0	0
7:45 PM	0	0	0	0	0	1	0	10	0	5	115	0	0	0	115	34	280		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	1	0	0	3	0	0	0	6	1	11
Lights	0	0	0	0	0	25	0	107	0	84	910	0	0	0	676	308	2,110
Mediums	0	0	0	0	0	0	0	5	0	1	17	0	0	0	13	4	40
Total	0	0	0	0	0	25	0	113	0	85	930	0	0	0	695	313	2,161



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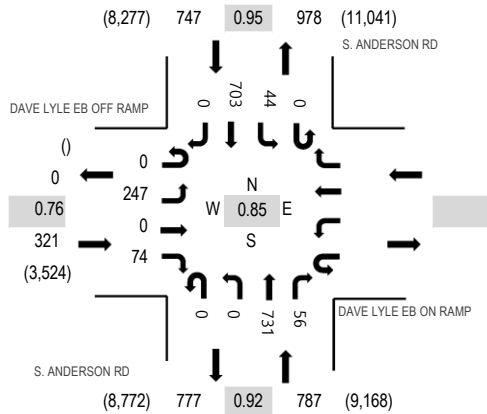
Location: 12 S. ANDERSON RD & DAVE LYLE EB ON RAMP AM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 04:30 PM - 05:30 PM

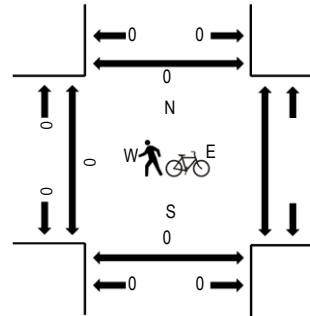
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	DAVE LYLE EB OFF RAMP				DAVE LYLE EB ON RAMP				S. ANDERSON RD				S. ANDERSON RD				Total	Rolling Hour	Pedestrian Crossings			
	Eastbound				Westbound				Northbound				Southbound						West	East	South	North
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right						
6:00 AM	0	15	0	4					0	0	52	3	0	0	35	0	109	777	0		0	0
6:15 AM	0	27	0	6					0	0	78	2	0	1	49	0	163	934	0		0	0
6:30 AM	0	35	0	9					0	0	110	2	0	4	74	0	234	1,117	0		0	0
6:45 AM	0	54	0	12					0	0	125	4	0	3	73	0	271	1,333	0		0	0
7:00 AM	0	36	0	8					0	0	110	5	0	4	103	0	266	1,587	0		0	0
7:15 AM	0	44	0	19					0	0	155	1	0	6	121	0	346	1,718	0		0	0
7:30 AM	0	72	0	33					0	0	184	1	0	15	145	0	450	1,742	0		0	0
7:45 AM	0	68	0	52					0	0	172	7	0	11	215	0	525	1,669	0		0	0
8:00 AM	0	40	0	30					0	0	128	8	0	10	181	0	397	1,486	0		0	0
8:15 AM	0	44	0	25					0	0	136	10	0	12	143	0	370	1,411	0		0	0
8:30 AM	0	45	1	28					0	0	170	5	0	7	121	0	377	1,387	0		0	0
8:45 AM	0	27	0	36					0	0	142	7	0	5	125	0	342	1,312	0		0	0
9:00 AM	0	29	0	34					0	0	114	3	0	3	139	0	322	1,302	1		0	0
9:15 AM	0	32	0	42					0	0	124	6	0	7	135	0	346	1,296	0		0	0
9:30 AM	0	31	0	18					0	0	125	13	0	9	106	0	302	1,335	0		0	0
9:45 AM	0	29	0	20					0	0	150	12	0	10	111	0	332	1,407	0		0	0
10:00 AM	0	26	0	22					0	0	134	13	0	8	113	0	316	1,471	0		0	0
10:15 AM	0	50	0	23					0	0	175	11	0	11	115	0	385	1,543	0		0	0
10:30 AM	0	43	0	23					0	0	149	8	0	13	138	0	374	1,545	0		0	0
10:45 AM	0	52	0	33					0	0	174	12	0	8	117	0	396	1,548	0		0	0
11:00 AM	0	38	0	22					0	0	168	13	0	12	135	0	388	1,562	0		0	0
11:15 AM	0	37	0	24					0	0	164	20	0	15	127	0	387	1,634	0		0	0
11:30 AM	0	37	0	17					0	0	167	18	1	11	126	0	377	1,687	0		0	0
11:45 AM	0	45	0	31					0	0	177	13	0	11	133	0	410	1,707	0		0	0
12:00 PM	0	56	0	22					0	0	188	33	0	13	148	0	460	1,687	0		0	0
12:15 PM	0	54	0	17					0	0	189	26	0	10	144	0	440	1,643	0		0	0
12:30 PM	0	61	0	17					0	0	159	13	0	10	137	0	397	1,611	0		0	0
12:45 PM	0	38	0	20					0	0	154	10	0	8	160	0	390	1,592	0		0	0
1:00 PM	0	44	0	16					0	0	181	24	0	13	138	0	416	1,572	0		0	0
1:15 PM	0	36	0	19					0	0	188	17	1	10	137	0	408	1,559	0		0	0
1:30 PM	0	38	0	19					0	0	137	11	0	13	160	0	378	1,533	0		0	0
1:45 PM	0	42	0	15					0	0	158	7	0	12	136	0	370	1,584	0		0	0
2:00 PM	0	50	0	15					0	0	160	10	0	11	157	0	403	1,623	0		0	0
2:15 PM	0	50	0	19					0	0	161	15	0	16	121	0	382	1,671	0		0	0
2:30 PM	0	53	0	23					0	0	182	11	0	12	148	0	429	1,696	0		0	0

2:45 PM	0	42	0	16	0	0	161	7	0	16	167	0	409	1,701	0	0	0
3:00 PM	0	36	0	15	0	0	186	11	0	18	185	0	451	1,774	0	0	0
3:15 PM	0	39	0	16	0	0	160	12	0	12	168	0	407	1,787	0	0	0
3:30 PM	0	38	0	23	0	0	156	12	0	14	191	0	434	1,817	0	0	0
3:45 PM	0	38	0	15	0	0	229	11	0	13	176	0	482	1,796	0	0	0
4:00 PM	0	56	0	18	0	0	188	10	0	17	175	0	464	1,757	0	0	0
4:15 PM	0	67	0	22	0	0	159	13	0	7	169	0	437	1,836	0	0	0
4:30 PM	0	49	0	17	0	0	159	17	0	10	161	0	413	1,855	0	0	0
4:45 PM	0	64	0	11	0	0	159	12	0	12	185	0	443	1,846	0	0	0
5:00 PM	0	75	0	23	0	0	234	16	0	10	185	0	543	1,803	0	0	0
5:15 PM	0	59	0	23	0	0	179	11	0	12	172	0	456	1,681	0	0	0
5:30 PM	0	53	0	10	0	0	156	7	0	16	162	0	404	1,588	0	0	0
5:45 PM	0	54	1	18	0	0	153	11	0	19	144	0	400	1,517	0	0	0
6:00 PM	0	58	0	10	0	0	180	8	0	12	153	0	421	1,462	0	0	0
6:15 PM	0	51	0	9	0	0	160	6	0	8	129	0	363	1,343	0	0	0
6:30 PM	0	38	0	5	0	0	135	8	0	7	140	0	333	1,285	0	0	0
6:45 PM	0	43	0	13	0	0	151	7	0	5	126	0	345	1,206	0	0	0
7:00 PM	0	24	0	11	0	0	112	6	0	14	135	0	302	1,106	0	0	0
7:15 PM	0	39	0	11	0	0	129	12	1	5	108	0	305		0	0	0
7:30 PM	0	23	0	5	0	0	108	8	0	7	103	0	254		0	0	0
7:45 PM	0	30	0	4	0	0	90	5	0	12	104	0	245		0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	1	0	1					0	0	2	0	0	0	4	0	8
Lights	0	245	0	73					0	0	713	55	0	40	687	0	1,813
Mediums	0	1	0	0					0	0	16	1	0	4	12	0	34
Total	0	247	0	74					0	0	731	56	0	44	703	0	1,855



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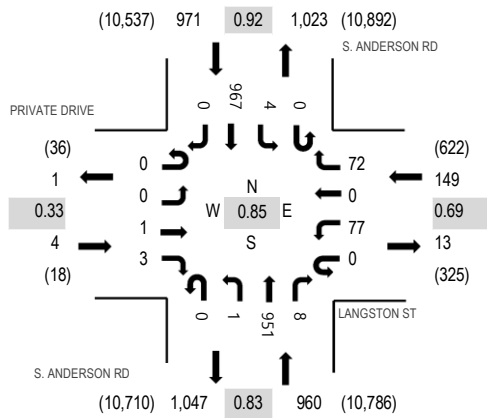
Location: 13 S. ANDERSON RD & LANGSTON ST AM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 04:30 PM - 05:30 PM

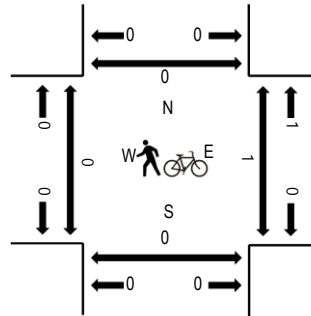
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	PRIVATE DRIVE Eastbound				LANGSTON ST Westbound				S. ANDERSON RD Northbound				S. ANDERSON RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:00 AM	0	0	0	0	0	2	0	0	0	0	65	3	0	0	44	0	114	783	0	0	0	0
6:15 AM	0	0	0	0	0	1	0	1	0	0	94	5	0	1	56	0	158	982	0	0	0	0
6:30 AM	0	0	0	0	0	1	0	0	0	0	129	6	0	1	92	0	229	1,199	0	0	0	0
6:45 AM	0	0	0	0	0	5	0	0	0	0	147	19	0	5	106	0	282	1,499	0	0	0	0
7:00 AM	0	0	0	0	0	1	0	1	0	0	149	7	0	3	152	0	313	1,770	0	0	0	0
7:15 AM	0	0	0	0	0	2	0	1	0	0	170	3	1	2	196	0	375	1,825	0	0	0	0
7:30 AM	0	0	0	0	0	3	0	2	0	0	289	12	0	4	219	0	529	1,780	0	0	0	0
7:45 AM	0	0	0	0	0	2	0	1	0	0	255	16	0	12	267	0	553	1,610	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	1	0	0	173	9	0	2	182	1	368	1,409	0	0	0	0
8:15 AM	0	0	0	0	0	3	0	5	0	1	145	6	0	2	168	0	330	1,359	0	0	0	0
8:30 AM	0	0	0	0	0	3	0	4	0	0	183	5	0	0	164	0	359	1,353	0	0	0	0
8:45 AM	0	0	0	0	0	2	0	2	0	1	174	7	0	1	165	0	352	1,289	0	0	0	0
9:00 AM	0	0	0	0	0	3	0	1	0	0	140	1	1	3	168	1	318	1,282	0	0	0	0
9:15 AM	0	1	0	0	0	3	0	7	0	1	144	0	1	2	164	1	324	1,276	1	0	0	0
9:30 AM	0	0	0	0	0	0	0	5	0	1	142	3	0	1	142	1	295	1,283	0	0	0	0
9:45 AM	0	0	1	0	0	2	0	1	0	1	184	5	0	0	151	0	345	1,377	1	0	0	0
10:00 AM	0	0	0	1	0	3	0	5	0	0	156	0	0	5	141	1	312	1,416	0	0	0	0
10:15 AM	0	0	0	0	0	2	0	3	0	1	189	0	0	2	134	0	331	1,507	0	0	0	0
10:30 AM	0	1	0	0	0	0	0	2	0	0	197	4	0	1	182	2	389	1,538	0	1	0	0
10:45 AM	0	0	0	0	0	1	0	3	0	2	203	4	1	2	168	0	384	1,502	0	0	0	0
11:00 AM	0	0	0	0	0	3	0	9	0	1	204	6	0	1	179	0	403	1,558	0	0	0	0
11:15 AM	0	0	0	1	0	2	1	11	0	0	174	1	0	3	169	0	362	1,618	0	0	0	0
11:30 AM	0	0	1	0	0	3	0	7	0	1	187	0	1	6	147	0	353	1,730	0	0	0	0
11:45 AM	0	0	0	1	0	5	0	15	0	0	233	1	0	6	179	0	440	1,801	0	0	0	0
12:00 PM	0	0	0	0	0	1	0	16	0	0	241	6	0	9	190	0	463	1,804	0	0	0	0
12:15 PM	0	0	0	0	0	5	0	6	0	0	250	6	0	7	200	0	474	1,750	0	0	0	0
12:30 PM	0	0	0	0	0	2	0	12	0	0	211	2	0	8	188	1	424	1,690	0	0	0	0
12:45 PM	0	0	0	1	0	0	0	2	0	0	198	3	0	5	234	0	443	1,645	0	0	0	0
1:00 PM	0	0	0	0	0	2	0	7	0	2	208	3	0	0	187	0	409	1,619	0	0	0	0
1:15 PM	0	0	0	1	0	4	0	3	0	0	213	3	0	3	185	2	414	1,619	0	0	0	0
1:30 PM	0	0	0	0	0	2	0	8	0	0	162	0	0	5	202	0	379	1,617	0	0	0	0
1:45 PM	0	0	0	3	0	1	0	5	0	1	201	3	0	2	201	0	417	1,691	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	3	0	0	192	6	0	2	205	1	409	1,736	0	0	0	0
2:15 PM	0	0	0	0	0	6	0	5	0	1	205	0	0	0	195	0	412	1,829	0	0	0	0
2:30 PM	0	0	0	1	0	7	0	3	0	0	210	1	0	1	229	1	453	1,832	0	0	0	0

2:45 PM	0	0	0	0	0	3	0	5	0	1	220	2	0	2	229	0	462	1,849	0	0	0	0
3:00 PM	0	0	0	0	0	8	0	7	0	1	237	3	0	2	244	0	502	1,891	0	0	0	0
3:15 PM	0	1	0	0	0	4	0	1	0	0	201	3	0	0	205	0	415	1,881	0	0	0	0
3:30 PM	0	0	0	0	0	53	0	15	0	0	179	2	0	1	220	0	470	1,937	0	0	0	0
3:45 PM	0	0	0	0	0	12	0	12	0	2	248	2	0	2	225	1	504	1,961	0	0	0	0
4:00 PM	0	0	0	0	0	15	1	6	0	1	231	4	0	1	233	0	492	1,941	0	1	0	0
4:15 PM	0	0	0	0	0	9	0	8	0	1	204	2	0	0	247	0	471	2,061	0	0	0	0
4:30 PM	0	0	1	1	0	30	0	24	0	0	207	0	0	1	230	0	494	2,084	0	0	0	0
4:45 PM	0	0	0	1	0	11	0	13	0	1	232	2	0	1	223	0	484	2,061	0	0	0	0
5:00 PM	0	0	0	1	0	25	0	26	0	0	286	2	0	0	272	0	612	2,039	0	1	0	0
5:15 PM	0	0	0	0	0	11	0	9	0	0	226	4	0	2	242	0	494	1,866	0	0	0	0
5:30 PM	0	0	0	0	0	9	0	11	0	0	200	1	0	1	249	0	471	1,763	0	0	0	0
5:45 PM	0	0	0	0	0	7	0	7	1	0	212	1	0	1	233	0	462	1,650	1	0	0	0
6:00 PM	0	0	0	0	0	6	0	5	0	0	197	3	0	0	228	0	439	1,546	1	1	0	0
6:15 PM	0	0	0	0	0	2	0	1	0	0	195	0	0	0	193	0	391	1,422	0	0	0	0
6:30 PM	0	0	0	0	0	3	0	0	0	0	167	1	0	2	185	0	358	1,339	0	0	0	0
6:45 PM	0	0	0	0	0	3	0	3	0	0	165	4	0	1	182	0	358	1,267	0	0	0	0
7:00 PM	0	0	0	0	0	6	0	4	0	0	147	0	0	0	158	0	315	1,169	0	0	0	0
7:15 PM	0	0	0	0	0	1	0	1	0	0	139	2	0	1	164	0	308		0	0	0	0
7:30 PM	0	0	0	0	0	4	0	0	0	0	139	2	0	0	141	0	286		0	0	0	0
7:45 PM	0	0	0	0	0	0	0	1	0	0	119	0	0	1	139	0	260		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	1	0	2	0	0	3	1	0	0	5	0	12
Lights	0	0	1	3	0	76	0	69	0	1	932	7	0	4	946	0	2,039
Mediums	0	0	0	0	0	0	0	1	0	0	16	0	0	0	16	0	33
Total	0	0	1	3	0	77	0	72	0	1	951	8	0	4	967	0	2,084



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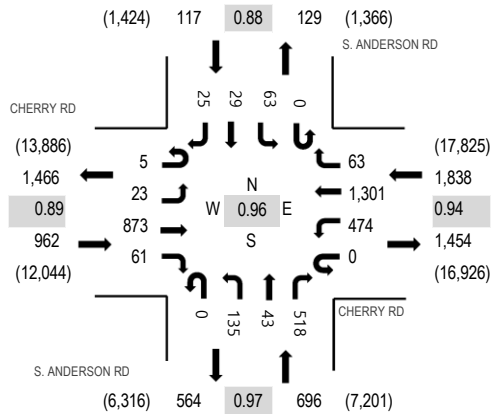
Location: 14 S. ANDERSON RD & CHERRY RD AM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 04:30 PM - 05:30 PM

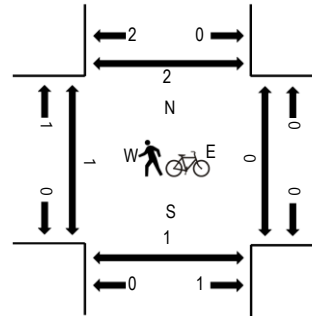
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	CHERRY RD Eastbound				CHERRY RD Westbound				S. ANDERSON RD Northbound				S. ANDERSON RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:00 AM	0	0	185	2	0	21	55	1	0	2	0	48	0	1	0	0	315	1,806	0	0	0	0
6:15 AM	0	0	224	4	0	29	70	1	0	3	0	81	0	1	1	0	414	2,052	0	0	0	0
6:30 AM	0	0	280	4	0	43	108	1	0	12	0	85	0	1	1	0	535	2,319	0	0	0	0
6:45 AM	0	0	235	5	0	58	127	3	0	4	0	100	0	6	3	1	542	2,506	0	0	0	0
7:00 AM	0	1	259	12	0	71	115	0	0	10	4	81	0	3	3	2	561	2,703	0	0	1	0
7:15 AM	1	3	302	5	0	80	168	2	0	15	2	86	0	11	4	2	681	2,773	0	0	0	2
7:30 AM	0	3	226	13	0	123	207	2	0	12	3	122	0	6	2	3	722	2,704	0	0	0	0
7:45 AM	0	0	248	10	0	107	185	10	0	21	5	136	0	14	3	0	739	2,529	0	0	0	3
8:00 AM	0	1	237	13	1	65	197	1	0	9	6	81	0	14	6	0	631	2,349	0	0	0	0
8:15 AM	1	1	216	6	0	89	178	9	0	14	4	83	0	7	2	2	612	2,295	0	0	0	0
8:30 AM	0	3	177	12	0	79	145	12	0	16	8	83	0	8	2	2	547	2,282	0	0	0	0
8:45 AM	1	3	178	7	0	81	164	20	0	15	11	65	0	9	3	2	559	2,284	0	0	0	0
9:00 AM	0	4	174	13	4	84	159	8	0	19	9	86	0	8	6	3	577	2,273	0	1	0	1
9:15 AM	0	7	189	9	1	93	174	5	0	15	4	84	0	11	3	4	599	2,216	0	0	1	1
9:30 AM	1	2	171	11	1	57	180	11	0	20	5	70	0	14	5	1	549	2,199	0	0	3	1
9:45 AM	3	2	160	15	0	73	186	4	0	23	6	59	0	6	9	2	548	2,265	0	0	1	1
10:00 AM	0	5	141	26	0	67	164	3	0	20	8	69	0	14	3	0	520	2,326	0	0	0	0
10:15 AM	0	2	173	13	0	64	188	3	0	21	9	91	0	10	4	4	582	2,405	0	0	0	1
10:30 AM	0	7	145	23	0	81	180	14	0	28	11	105	0	9	9	3	615	2,512	0	0	0	0
10:45 AM	0	5	150	16	1	85	188	15	1	24	8	90	0	16	9	1	609	2,527	0	0	1	0
11:00 AM	0	4	149	23	0	81	168	20	1	26	13	92	0	5	11	6	599	2,601	0	0	0	0
11:15 AM	1	6	197	14	0	75	208	11	0	26	13	99	0	22	12	5	689	2,739	0	0	0	0
11:30 AM	0	6	162	28	0	73	177	21	0	38	8	86	0	14	10	7	630	2,760	0	0	0	1
11:45 AM	1	9	164	21	0	88	207	15	0	42	10	94	0	20	6	6	683	2,882	0	0	0	0
12:00 PM	0	4	200	17	1	90	219	14	0	30	14	118	0	16	10	4	737	2,944	0	0	0	0
12:15 PM	1	7	179	22	1	83	224	13	0	43	16	84	0	27	7	3	710	2,941	0	0	0	0
12:30 PM	0	11	191	26	1	92	221	18	0	32	17	100	0	26	12	5	752	2,970	0	0	0	0
12:45 PM	0	10	214	27	3	91	194	11	0	41	18	100	0	14	18	4	745	2,980	0	0	0	0
1:00 PM	0	6	192	21	0	84	233	23	0	31	12	90	0	21	15	6	734	2,908	0	0	0	0
1:15 PM	0	3	231	28	0	70	190	19	0	31	13	106	0	27	17	4	739	2,898	0	0	0	0
1:30 PM	1	7	187	27	0	111	220	16	1	36	9	105	0	25	8	9	762	2,866	0	0	0	0
1:45 PM	0	6	187	16	0	85	200	15	0	27	13	93	0	22	4	5	673	2,847	0	0	0	1
2:00 PM	0	2	181	30	0	105	229	21	0	35	4	98	0	12	7	0	724	2,941	0	0	0	0
2:15 PM	0	4	195	23	0	101	219	16	0	29	6	81	0	21	9	3	707	2,942	0	0	0	0
2:30 PM	0	5	203	15	0	109	230	7	0	29	7	102	0	15	16	5	743	2,985	0	0	0	0

2:45 PM	0	5	197	36	0	116	232	11	0	29	8	99	0	19	11	4	767	3,024	0	0	0	0
3:00 PM	0	1	183	15	0	91	224	13	0	31	10	135	0	9	8	5	725	3,098	0	0	0	2
3:15 PM	0	4	149	14	0	100	266	20	0	31	12	129	0	11	7	7	750	3,229	0	0	0	0
3:30 PM	1	8	182	17	2	112	275	8	0	31	4	101	0	25	9	7	782	3,316	0	0	0	1
3:45 PM	0	3	196	21	1	133	313	12	0	37	9	86	0	15	10	5	841	3,404	0	0	0	0
4:00 PM	0	5	213	19	0	112	303	15	0	35	13	106	0	16	13	6	856	3,461	0	0	0	0
4:15 PM	0	8	194	24	1	121	339	10	0	26	4	87	0	10	10	3	837	3,511	0	0	0	0
4:30 PM	0	5	203	19	0	106	317	15	0	34	8	133	0	18	7	5	870	3,613	0	0	0	0
4:45 PM	2	2	217	14	0	131	311	14	0	41	14	125	0	16	6	5	898	3,605	0	0	0	1
5:00 PM	2	8	243	13	0	110	322	16	0	27	10	124	0	15	9	7	906	3,593	1	0	1	0
5:15 PM	1	8	210	15	0	127	351	18	0	33	11	136	0	14	7	8	939	3,476	0	0	0	1
5:30 PM	0	6	218	18	0	115	314	12	0	30	7	108	0	14	8	12	862	3,331	0	0	0	0
5:45 PM	0	6	192	16	1	133	331	15	0	42	6	120	0	7	10	7	886	3,268	0	0	0	0
6:00 PM	0	6	189	18	0	110	292	13	0	21	18	92	0	11	11	8	789	3,010	0	0	0	0
6:15 PM	0	5	210	15	0	90	296	11	0	30	10	90	0	18	12	7	794	2,851	0	0	1	2
6:30 PM	0	5	180	18	0	98	318	18	0	26	15	89	0	16	8	8	799	2,729	0	0	0	0
6:45 PM	0	4	145	13	0	87	232	14	0	34	5	71	0	13	5	5	628	2,546	0	0	0	1
7:00 PM	0	4	167	13	0	68	232	8	0	22	10	85	0	13	5	3	630	2,481	0	0	0	1
7:15 PM	1	5	160	27	0	76	262	10	0	25	8	69	0	19	5	5	672		0	0	0	2
7:30 PM	1	2	165	15	0	70	203	16	1	25	8	78	0	16	12	4	616		0	0	0	0
7:45 PM	0	8	134	12	0	65	189	14	0	30	5	71	0	20	11	4	563		0	1	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	4	1	0	2	0	0	0	1	0	8	0	0	0	0	16
Lights	5	23	856	60	0	466	1,288	62	0	134	43	505	0	63	27	25	3,557
Mediums	0	0	13	0	0	6	13	1	0	0	0	5	0	0	2	0	40
Total	5	23	873	61	0	474	1,301	63	0	135	43	518	0	63	29	25	3,613



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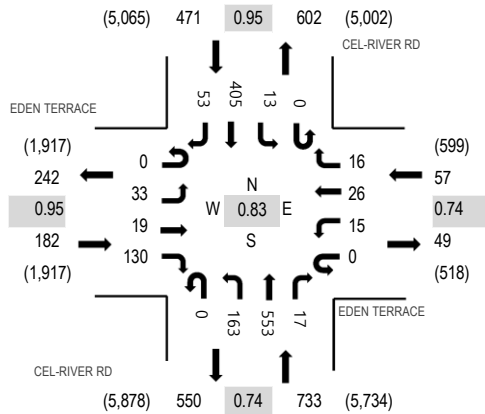
Location: 15 CEL-RIVER RD & EDEN TERRACE AM

Date and Start Time: Thursday, May 9, 2019

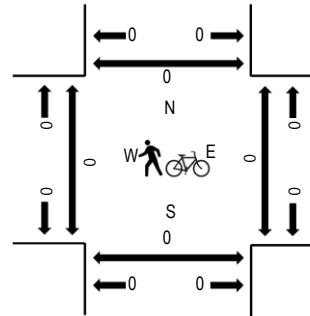
Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	EDEN TERRACE Eastbound				EDEN TERRACE Westbound				CEL-RIVER RD Northbound				CEL-RIVER RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:00 AM	0	5	0	11	0	1	0	0	0	7	29	1	0	1	33	1	89	550	0	0	0	0
6:15 AM	0	6	0	13	0	0	0	3	0	10	35	2	0	0	47	4	120	647	0	0	0	0
6:30 AM	0	5	3	13	0	2	5	6	0	6	57	1	0	0	40	6	144	749	0	0	0	0
6:45 AM	0	9	2	26	0	0	7	3	0	13	54	1	0	0	72	10	197	861	0	0	0	0
7:00 AM	0	6	3	14	0	4	6	2	0	13	66	1	0	3	62	6	186	937	0	0	0	0
7:15 AM	0	7	2	14	0	5	11	2	0	23	75	2	0	4	70	7	222	980	0	0	0	0
7:30 AM	0	14	5	20	0	5	9	8	0	11	85	4	0	0	89	6	256	980	0	0	0	0
7:45 AM	0	11	4	35	0	2	10	1	0	14	61	3	0	3	126	3	273	923	0	0	0	0
8:00 AM	0	7	6	20	0	2	7	1	0	19	57	3	0	1	104	2	229	828	0	0	0	0
8:15 AM	0	8	3	17	0	3	7	2	0	14	76	6	0	2	76	8	222	776	0	0	0	0
8:30 AM	0	8	1	16	0	2	5	0	0	15	62	6	0	2	74	8	199	739	0	0	0	0
8:45 AM	0	4	4	20	0	5	9	2	0	6	41	3	0	2	77	5	178	740	0	0	0	0
9:00 AM	0	6	1	11	0	0	3	2	0	14	48	2	0	3	71	16	177	729	0	0	0	0
9:15 AM	0	10	1	14	0	2	6	2	0	7	55	1	0	1	81	5	185	749	0	0	0	0
9:30 AM	0	9	4	14	0	0	5	7	0	14	70	1	0	2	69	5	200	773	0	0	0	0
9:45 AM	0	1	4	14	0	2	6	1	0	19	47	1	0	1	65	6	167	782	0	0	0	0
10:00 AM	0	5	2	20	0	4	5	2	0	9	69	1	0	1	73	6	197	835	0	0	0	0
10:15 AM	0	3	6	21	0	2	5	5	0	14	61	4	0	2	76	10	209	852	0	0	0	0
10:30 AM	0	6	6	21	0	1	3	2	0	19	52	1	0	3	85	10	209	892	0	0	1	0
10:45 AM	0	5	2	22	0	3	7	3	0	11	64	1	0	3	94	5	220	958	0	0	0	0
11:00 AM	0	9	5	15	0	3	4	1	0	17	73	3	0	1	74	9	214	1,001	0	0	0	0
11:15 AM	0	6	4	32	0	1	3	4	0	30	79	2	0	1	82	5	249	1,077	0	0	0	0
11:30 AM	0	13	4	24	0	3	6	4	1	27	81	3	0	1	99	9	275	1,122	0	0	0	0
11:45 AM	0	9	4	38	0	5	4	1	0	21	92	3	0	1	75	10	263	1,106	0	0	0	0
12:00 PM	0	3	10	32	0	2	2	2	0	32	90	5	0	3	94	15	290	1,133	0	0	0	0
12:15 PM	0	13	2	30	0	0	5	3	0	22	99	4	0	1	110	5	294	1,058	0	0	0	0
12:30 PM	0	13	2	27	0	1	5	7	0	24	86	0	0	3	83	8	259	1,015	0	0	0	0
12:45 PM	0	7	3	37	0	4	6	5	1	27	84	1	0	3	103	9	290	1,020	1	0	0	0
1:00 PM	0	2	4	30	0	3	4	2	0	22	66	2	0	2	69	9	215	958	0	0	0	0
1:15 PM	0	9	6	30	0	3	2	3	0	16	86	3	1	3	80	9	251	974	0	0	0	0
1:30 PM	0	10	7	27	0	4	5	0	0	24	101	1	1	5	72	7	264	954	0	0	0	0
1:45 PM	0	7	5	14	0	1	4	4	0	14	84	3	0	1	84	7	228	959	0	0	0	0
2:00 PM	0	9	5	20	0	0	10	0	0	18	85	3	0	3	72	6	231	1,010	0	0	0	0
2:15 PM	0	7	1	23	0	1	4	0	0	15	86	1	0	3	83	7	231	1,063	0	0	0	0
2:30 PM	0	10	3	23	0	4	3	2	0	21	104	3	0	2	89	5	269	1,088	0	0	0	0

2:45 PM	0	10	4	33	0	6	3	2	0	21	91	3	0	1	94	11	279	1,081	0	0	0	0
3:00 PM	0	9	5	22	0	5	5	4	0	43	104	2	0	2	74	9	284	1,056	1	0	0	0
3:15 PM	0	6	4	22	0	1	5	2	1	24	84	2	0	2	97	6	256	1,047	0	0	0	0
3:30 PM	0	6	9	18	0	5	2	2	0	29	102	2	0	1	75	11	262	1,025	0	0	0	0
3:45 PM	0	4	4	31	0	2	7	4	0	26	70	2	0	3	81	20	254	1,136	0	0	0	0
4:00 PM	0	6	3	27	0	1	6	4	0	34	103	1	0	2	72	16	275	1,196	0	0	0	0
4:15 PM	0	11	9	19	0	2	2	2	0	19	86	4	0	3	71	6	234	1,356	0	0	0	0
4:30 PM	0	8	4	28	0	4	13	5	0	53	143	5	0	6	95	9	373	1,443	0	0	0	0
4:45 PM	0	9	3	36	0	7	3	4	0	27	109	2	0	3	99	12	314	1,377	0	0	0	0
5:00 PM	0	5	6	40	0	3	6	4	0	54	187	7	0	1	105	17	435	1,352	0	0	0	0
5:15 PM	0	11	6	26	0	1	4	3	0	29	114	3	0	3	106	15	321	1,182	0	0	0	0
5:30 PM	0	11	11	29	0	4	7	6	0	27	95	6	0	2	97	12	307	1,138	1	0	0	0
5:45 PM	0	10	7	24	0	4	9	1	0	28	107	2	0	2	81	14	289	1,070	0	0	1	0
6:00 PM	0	4	6	19	0	1	12	1	0	27	102	3	0	2	72	16	265	1,009	0	0	0	0
6:15 PM	0	7	9	22	0	3	5	1	0	28	103	5	0	8	75	11	277	967	0	0	0	0
6:30 PM	0	3	6	21	0	1	13	1	0	13	74	4	0	4	91	8	239	866	0	0	0	0
6:45 PM	0	4	5	28	0	3	5	4	0	15	86	1	0	4	68	5	228	785	0	0	0	0
7:00 PM	0	8	9	15	0	5	8	2	0	23	66	1	1	0	76	9	223	721	0	0	0	0
7:15 PM	0	10	4	18	0	1	4	1	0	8	57	4	0	1	61	7	176		0	0	0	0
7:30 PM	0	0	6	15	0	1	3	3	0	12	42	2	0	0	73	1	158		0	0	0	0
7:45 PM	0	4	4	10	0	2	4	0	0	11	58	6	0	4	56	5	164		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	1	0	0	0	0	0	1	14	0	0	0	11	0	27
Lights	0	30	19	127	0	15	24	16	0	160	533	17	0	13	387	50	1,391
Mediums	0	3	0	2	0	0	2	0	0	2	6	0	0	0	7	3	25
Total	0	33	19	130	0	15	26	16	0	163	553	17	0	13	405	53	1,443



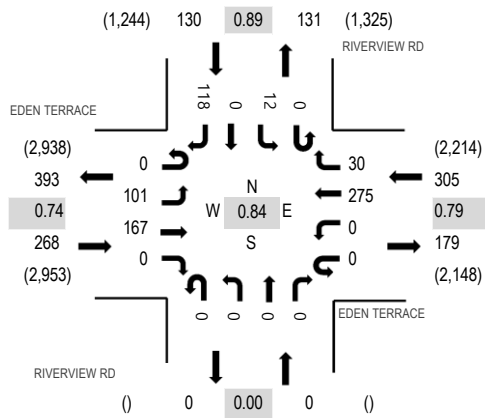
Location: 16 RIVERVIEW RD & EDEN TERRACE AM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 04:30 PM - 05:30 PM

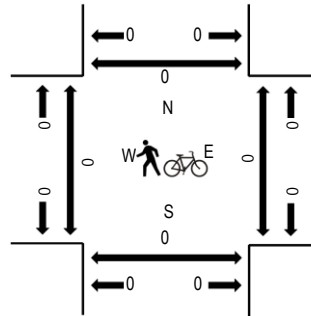
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	EDEN TERRACE Eastbound				EDEN TERRACE Westbound				RIVERVIEW RD Northbound				RIVERVIEW RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:00 AM	0	15	22	0	0	0	0	7	2	0	0	0	0	2	0	5	53	283	0	0	0	0
6:15 AM	0	11	28	0	0	0	0	5	1	0	0	0	0	2	0	2	49	327	0	0	0	0
6:30 AM	0	21	19	0	0	0	0	5	3	0	0	0	0	4	0	9	62	392	0	0	0	0
6:45 AM	0	35	44	0	0	0	0	23	1	0	0	0	0	6	0	10	119	456	0	0	0	0
7:00 AM	0	21	27	0	0	0	0	25	7	0	0	0	0	7	0	10	97	489	0	0	0	0
7:15 AM	0	32	29	0	0	0	0	30	2	0	0	0	0	6	0	15	114	504	0	0	0	0
7:30 AM	0	38	38	0	0	0	0	21	8	0	0	0	0	8	0	13	126	476	0	0	0	0
7:45 AM	0	36	65	0	0	0	0	24	5	0	0	0	0	6	0	16	152	434	0	0	0	0
8:00 AM	0	26	35	0	0	0	0	27	4	0	0	0	0	8	0	12	112	374	0	0	0	0
8:15 AM	0	14	27	0	0	0	0	20	3	0	0	0	0	8	0	14	86	338	0	0	0	0
8:30 AM	0	25	20	0	0	0	0	20	4	0	0	0	0	4	0	11	84	322	0	0	0	0
8:45 AM	0	19	32	0	0	0	0	21	5	0	0	0	0	4	0	11	92	333	0	0	0	0
9:00 AM	0	14	16	0	0	0	0	23	7	0	0	0	0	4	0	11	76	325	0	0	0	0
9:15 AM	0	14	22	0	0	0	0	19	1	0	0	0	0	1	0	13	70	328	0	0	0	0
9:30 AM	0	18	26	0	0	0	0	19	2	0	0	0	0	7	0	23	95	362	0	0	0	0
9:45 AM	0	12	19	0	0	0	0	35	3	0	0	0	0	0	0	15	84	367	0	0	0	0
10:00 AM	0	13	22	0	0	0	0	17	5	0	0	0	0	6	0	16	79	391	0	0	0	0
10:15 AM	0	16	33	0	0	0	0	24	7	0	0	0	0	5	0	19	104	426	0	0	0	0
10:30 AM	0	19	30	0	0	0	0	28	5	0	0	0	0	4	0	14	100	438	0	0	1	0
10:45 AM	0	25	29	0	0	0	0	32	2	0	0	0	0	7	0	13	108	470	0	0	0	0
11:00 AM	0	21	25	0	0	0	0	31	8	0	0	0	0	6	0	23	114	493	0	0	0	0
11:15 AM	0	10	38	0	0	0	0	39	10	0	0	0	0	4	0	15	116	527	0	0	0	0
11:30 AM	0	14	46	0	0	0	0	47	5	0	0	0	0	4	0	16	132	554	0	0	0	1
11:45 AM	0	13	50	0	0	0	0	42	3	0	0	0	0	6	0	17	131	562	0	0	0	0
12:00 PM	0	19	43	0	0	0	0	47	11	0	0	0	0	9	0	19	148	551	0	0	0	0
12:15 PM	0	20	47	0	0	0	0	41	5	0	0	0	0	8	0	22	143	527	0	0	0	0
12:30 PM	0	20	45	0	0	0	0	38	4	0	0	0	0	6	0	27	140	507	0	0	0	0
12:45 PM	0	7	50	0	0	0	0	38	6	0	0	0	0	5	0	14	120	483	0	0	0	0
1:00 PM	0	22	34	0	0	0	0	42	3	0	0	0	0	8	0	15	124	458	0	0	0	0
1:15 PM	0	23	41	0	0	0	0	29	4	0	0	0	0	11	0	15	123	445	0	0	0	0
1:30 PM	0	18	40	0	0	0	0	30	7	0	0	0	0	4	0	17	116	425	0	0	0	0
1:45 PM	0	15	32	0	0	0	0	32	2	0	0	0	0	3	0	11	95	430	0	0	0	0
2:00 PM	0	14	32	0	0	0	0	40	2	0	0	0	0	2	0	21	111	466	0	0	0	0
2:15 PM	0	19	31	0	0	0	0	30	3	0	0	0	0	5	0	15	103	497	0	0	0	0
2:30 PM	1	20	32	0	0	0	0	39	3	0	0	0	0	8	0	18	121	520	0	0	0	0

2:45 PM	0	17	43	0	0	0	38	5	0	0	0	0	1	5	0	22	131	530	0	0	0	0
3:00 PM	0	23	31	0	0	0	62	2	0	0	0	0	0	7	0	17	142	544	0	0	0	0
3:15 PM	0	19	33	0	0	0	38	10	0	0	0	0	0	4	0	22	126	541	0	0	0	0
3:30 PM	0	23	35	0	0	0	42	8	0	0	0	0	0	2	0	21	131	548	0	0	0	0
3:45 PM	0	22	37	0	0	0	44	8	0	0	0	0	0	7	0	27	145	595	0	0	0	0
4:00 PM	0	23	24	0	0	0	56	8	0	0	0	0	0	5	0	23	139	600	0	0	0	0
4:15 PM	0	25	36	0	0	0	37	3	0	0	0	0	0	4	0	28	133	669	0	0	0	0
4:30 PM	0	25	37	0	0	0	87	3	0	0	0	0	0	4	0	22	178	703	0	0	0	0
4:45 PM	0	19	44	0	0	0	52	4	0	0	0	0	0	1	0	30	150	674	0	0	0	0
5:00 PM	0	30	45	0	0	0	81	16	0	0	0	0	0	4	0	32	208	657	0	0	0	0
5:15 PM	0	27	41	0	0	0	55	7	0	0	0	0	0	3	0	34	167	596	0	0	0	0
5:30 PM	0	24	46	0	0	0	48	3	0	0	0	0	0	3	0	25	149	540	0	0	0	0
5:45 PM	0	26	30	0	0	0	47	5	0	0	0	0	0	5	0	20	133	496	0	0	0	0
6:00 PM	0	14	30	0	0	0	61	4	0	0	0	0	0	6	0	32	147	467	0	0	0	0
6:15 PM	0	10	30	0	0	0	47	3	0	0	0	0	0	3	0	18	111	424	0	0	0	0
6:30 PM	0	12	36	0	0	0	41	2	0	0	0	0	0	1	0	13	105	389	0	0	0	0
6:45 PM	0	10	34	0	0	0	26	4	0	0	0	0	0	6	0	24	104	353	0	0	0	0
7:00 PM	0	10	35	0	0	0	46	1	0	0	0	0	0	1	0	11	104	313	0	0	0	0
7:15 PM	0	7	31	0	0	0	23	0	0	0	0	0	0	2	0	13	76		0	0	0	0
7:30 PM	0	13	19	0	0	0	19	3	0	0	0	0	0	0	0	15	69		0	0	0	0
7:45 PM	0	9	19	0	0	0	19	3	0	0	0	0	0	2	0	12	64		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	4
Lights	0	99	162	0	0	0	271	26	0	0	0	0	0	12	0	115	685
Mediums	0	2	5	0	0	0	2	2	0	0	0	0	0	0	0	3	14
Total	0	101	167	0	0	0	275	30	0	0	0	0	0	12	0	118	703



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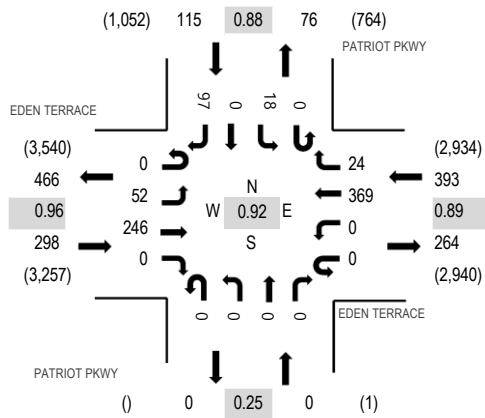
Location: 17 PATRIOT PKWY & EDEN TERRACE AM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 04:30 PM - 05:30 PM

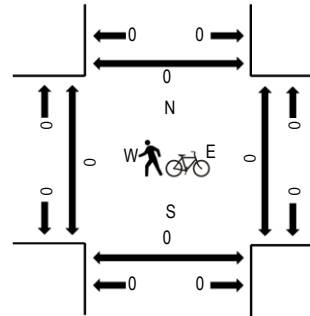
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	EDEN TERRACE Eastbound				EDEN TERRACE Westbound				PATRIOT PKWY Northbound				PATRIOT PKWY Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:00 AM	0	4	32	0	0	0	0	11	1	0	0	0	0	3	0	6	57	322	0	0	0	0
6:15 AM	0	2	40	0	0	0	0	10	1	0	0	0	0	3	0	10	66	360	0	0	0	1
6:30 AM	0	7	40	0	0	0	0	13	1	0	0	0	0	1	0	9	71	423	0	0	0	0
6:45 AM	0	4	74	0	0	0	0	31	3	0	0	0	0	6	0	10	128	475	0	0	0	0
7:00 AM	0	5	43	0	0	0	0	32	2	0	0	0	0	3	0	10	95	515	0	0	0	0
7:15 AM	0	6	57	0	0	0	0	43	2	0	0	0	0	3	0	18	129	542	0	0	0	0
7:30 AM	0	5	76	0	0	0	0	31	1	0	0	0	0	0	0	10	123	501	0	0	0	0
7:45 AM	0	5	94	0	0	0	0	39	2	0	0	0	0	7	0	21	168	472	0	0	0	0
8:00 AM	0	9	59	0	0	0	0	37	3	0	0	0	0	3	0	11	122	398	0	0	0	0
8:15 AM	0	5	39	0	0	0	0	32	2	0	0	0	0	4	0	6	88	357	0	0	0	0
8:30 AM	0	7	43	0	0	0	0	26	5	0	0	0	0	2	0	11	94	358	0	0	0	0
8:45 AM	0	5	46	0	0	0	0	29	2	0	0	0	0	2	0	10	94	365	0	0	0	0
9:00 AM	0	7	30	0	0	0	0	29	2	0	0	0	0	2	0	11	81	363	0	1	0	0
9:15 AM	0	6	33	0	0	0	0	33	1	0	0	0	0	2	0	14	89	369	0	0	0	0
9:30 AM	1	5	39	0	0	0	0	40	2	0	0	0	0	5	0	9	101	387	0	0	0	0
9:45 AM	0	2	27	0	0	0	0	46	3	0	0	0	0	4	0	10	92	395	0	0	0	0
10:00 AM	0	8	31	0	0	0	0	31	3	0	0	0	0	4	0	10	87	418	0	0	0	1
10:15 AM	0	3	45	0	0	0	0	38	4	0	0	0	1	4	0	12	107	445	0	0	0	0
10:30 AM	0	10	41	0	0	0	0	40	3	0	0	0	1	5	0	9	109	461	0	0	0	1
10:45 AM	0	8	42	0	0	0	0	40	5	0	0	0	0	9	0	11	115	496	0	0	0	0
11:00 AM	0	6	45	0	0	0	0	49	3	0	0	0	0	2	0	9	114	525	0	0	0	0
11:15 AM	0	6	43	0	0	0	0	47	8	0	0	0	0	8	0	11	123	559	0	0	0	0
11:30 AM	0	11	51	0	0	0	0	59	4	0	0	0	0	7	0	12	144	591	0	0	0	0
11:45 AM	0	7	55	0	0	0	0	53	5	0	0	0	0	8	0	16	144	606	0	0	0	0
12:00 PM	0	11	58	0	0	0	0	57	8	0	1	0	0	3	0	10	148	607	0	0	0	0
12:15 PM	0	14	62	0	0	0	0	57	4	0	0	0	0	6	0	12	155	593	0	0	0	0
12:30 PM	0	13	62	0	0	0	0	64	5	0	0	0	0	6	0	9	159	570	0	0	0	0
12:45 PM	0	9	56	0	0	0	0	45	6	0	0	0	0	6	0	23	145	531	0	0	0	0
1:00 PM	0	13	47	0	0	0	0	51	6	0	0	0	0	6	0	11	134	495	0	0	0	0
1:15 PM	0	9	61	0	0	0	0	42	2	0	0	0	0	4	0	14	132	500	0	0	0	0
1:30 PM	0	5	55	0	0	0	0	45	3	0	0	0	0	2	0	10	120	488	0	0	0	0
1:45 PM	0	14	41	0	0	0	0	38	1	0	0	0	0	4	0	11	109	494	0	0	0	0
2:00 PM	0	9	45	0	0	0	0	59	3	0	0	0	0	2	0	21	139	532	0	0	0	0
2:15 PM	0	11	45	0	0	0	0	42	4	0	0	0	0	2	0	16	120	552	0	0	0	0
2:30 PM	0	4	44	0	0	0	0	49	8	0	0	0	0	2	0	19	126	570	0	0	0	0

2:45 PM	0	9	58	0	0	0	55	6	0	0	0	0	0	4	0	15	147	596	0	0	0	0
3:00 PM	0	6	47	0	0	0	80	1	0	0	0	0	0	5	0	20	159	601	0	0	0	0
3:15 PM	0	15	49	0	0	0	50	7	0	0	0	0	0	3	0	14	138	597	0	0	0	0
3:30 PM	0	9	53	0	0	0	57	8	0	0	0	0	0	4	0	21	152	635	0	0	0	0
3:45 PM	0	5	55	0	0	0	62	6	0	0	0	0	0	5	0	19	152	691	0	0	0	0
4:00 PM	0	16	44	0	0	0	72	7	0	0	0	0	0	2	0	14	155	720	0	0	0	0
4:15 PM	0	18	59	0	0	0	63	5	0	0	0	0	0	4	0	27	176	783	0	0	0	0
4:30 PM	0	14	56	0	0	0	106	3	0	0	0	0	0	5	0	24	208	806	0	0	0	0
4:45 PM	0	11	56	0	0	0	74	6	0	0	0	0	0	5	0	29	181	776	0	0	0	0
5:00 PM	0	11	70	0	0	0	102	9	0	0	0	0	0	5	0	21	218	760	0	0	0	0
5:15 PM	0	16	64	0	0	0	87	6	0	0	0	0	0	3	0	23	199	722	0	0	0	0
5:30 PM	0	15	65	0	0	0	64	6	0	0	0	0	0	4	0	24	178	672	0	0	0	0
5:45 PM	0	21	50	0	0	0	61	6	0	0	0	0	1	5	0	21	165	635	0	0	0	0
6:00 PM	1	22	43	0	0	0	88	5	0	0	0	0	0	3	0	18	180	593	0	0	0	0
6:15 PM	0	23	31	0	0	0	63	1	0	0	0	0	0	5	0	26	149	533	0	0	0	0
6:30 PM	0	17	43	0	0	0	54	1	0	0	0	0	0	4	0	22	141	483	0	0	0	0
6:45 PM	0	11	45	0	0	0	45	4	0	0	0	0	0	4	0	14	123	439	0	0	0	0
7:00 PM	0	6	42	0	0	0	46	13	0	0	0	0	0	2	0	11	120	395	0	0	0	0
7:15 PM	0	8	34	0	0	0	33	4	0	0	0	0	0	3	0	17	99		0	0	0	0
7:30 PM	0	17	29	0	0	0	29	4	0	0	0	0	0	3	0	15	97		0	0	0	0
7:45 PM	0	10	26	0	0	0	29	0	0	0	0	0	0	2	0	12	79		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Lights	0	52	241	0	0	0	364	24	0	0	0	0	0	17	0	97	795
Mediums	0	0	5	0	0	0	4	0	0	0	0	0	0	1	0	0	10
Total	0	52	246	0	0	0	369	24	0	0	0	0	0	18	0	97	806



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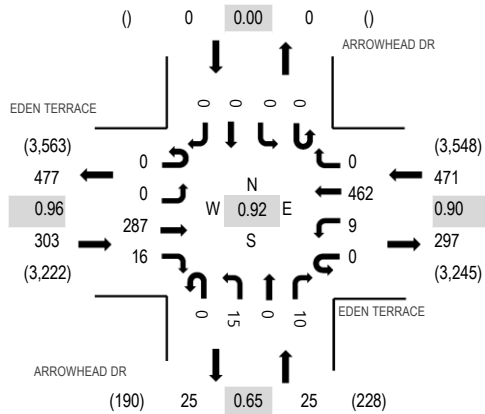
Location: 18 ARROWHEAD DR & EDEN TERRACE AM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 04:30 PM - 05:30 PM

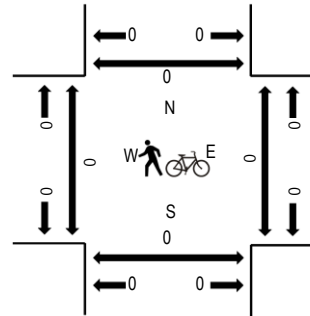
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	EDEN TERRACE Eastbound				EDEN TERRACE Westbound				ARROWHEAD DR Northbound				ARROWHEAD DR Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:00 AM	0	0	33	1	0	0	0	16	0	0	0	0	3	0	0	0	53	307	0	0	0	0
6:15 AM	0	0	39	0	0	0	0	21	0	0	0	0	4	0	0	0	64	346	0	0	0	1
6:30 AM	0	0	43	0	0	0	0	22	0	0	0	0	3	0	0	0	68	406	0	0	0	0
6:45 AM	0	0	77	1	0	0	0	40	0	0	0	0	4	0	0	0	122	463	0	0	0	0
7:00 AM	0	0	39	2	0	1	44	0	0	3	0	3	0	0	0	0	92	504	0	0	0	0
7:15 AM	0	0	57	0	0	2	59	0	0	4	0	2	0	0	0	0	124	528	1	1	0	0
7:30 AM	0	0	76	2	0	0	41	0	0	3	0	3	0	0	0	0	125	488	1	1	0	1
7:45 AM	0	0	96	1	0	2	60	0	0	2	0	2	0	0	0	0	163	452	0	0	0	0
8:00 AM	0	0	64	1	0	0	46	0	0	4	0	1	0	0	0	0	116	385	0	0	0	0
8:15 AM	0	0	43	0	0	1	37	0	0	3	0	0	0	0	0	0	84	349	0	0	0	0
8:30 AM	0	0	48	1	0	1	36	0	0	1	0	2	0	0	0	0	89	354	0	0	0	0
8:45 AM	0	0	50	3	0	1	37	0	0	5	0	0	0	0	0	0	96	357	0	0	0	0
9:00 AM	0	0	34	1	0	0	41	0	0	2	0	2	0	0	0	0	80	348	0	0	0	0
9:15 AM	0	0	39	1	0	3	44	0	0	1	0	1	0	0	0	0	89	350	0	0	0	0
9:30 AM	0	0	43	0	0	1	47	0	0	0	0	1	0	0	0	0	92	362	0	0	0	1
9:45 AM	0	0	28	1	0	1	55	0	0	1	0	1	0	0	0	0	87	371	0	0	0	1
10:00 AM	0	0	39	0	0	0	41	0	0	2	0	0	0	0	0	0	82	394	1	0	0	1
10:15 AM	0	0	46	2	0	2	48	0	0	1	0	2	0	0	0	0	101	422	0	0	0	0
10:30 AM	0	0	50	0	0	1	46	0	0	2	0	2	0	0	0	0	101	439	0	0	0	0
10:45 AM	0	0	52	3	0	3	47	0	0	3	0	2	0	0	0	0	110	472	0	0	0	1
11:00 AM	0	0	44	1	0	5	56	0	0	2	0	2	0	0	0	0	110	500	0	0	0	0
11:15 AM	0	0	52	4	0	4	54	0	0	2	0	2	0	0	0	0	118	529	0	0	0	0
11:30 AM	0	0	58	0	0	2	70	0	0	3	0	1	0	0	0	0	134	564	0	0	0	0
11:45 AM	0	0	61	2	0	0	70	0	0	3	0	2	0	0	0	0	138	580	0	0	0	0
12:00 PM	0	0	67	1	0	2	65	0	0	1	0	3	0	0	0	0	139	578	0	0	0	0
12:15 PM	0	0	73	2	0	6	68	0	0	0	0	4	0	0	0	0	153	563	0	0	0	0
12:30 PM	0	0	68	2	0	4	70	0	0	2	0	4	0	0	0	0	150	538	0	0	0	0
12:45 PM	0	0	61	2	0	1	66	0	0	4	0	2	0	0	0	0	136	507	0	0	0	0
1:00 PM	0	0	59	1	0	1	61	0	0	0	0	2	0	0	0	0	124	478	0	0	0	0
1:15 PM	0	0	67	3	0	3	52	0	0	2	0	1	0	0	0	0	128	488	0	0	0	0
1:30 PM	0	0	59	1	0	3	53	0	0	0	0	3	0	0	0	0	119	479	0	0	0	0
1:45 PM	0	0	54	3	0	0	49	0	0	0	0	1	0	0	0	0	107	487	0	0	0	0
2:00 PM	0	0	50	1	0	2	74	0	0	4	0	3	0	0	0	0	134	514	0	0	0	1
2:15 PM	0	0	54	0	0	0	59	0	0	5	0	1	0	0	0	0	119	537	0	0	0	0
2:30 PM	0	0	54	1	0	1	68	0	0	2	0	1	0	0	0	0	127	550	0	0	0	0

2:45 PM	0	0	60	1	0	4	66	0	0	0	0	3	0	0	0	0	134	568	0	0	0	2
3:00 PM	0	0	54	1	0	0	99	0	0	2	0	1	0	0	0	0	157	580	0	0	0	0
3:15 PM	0	0	62	2	0	1	64	0	0	1	0	2	0	0	0	0	132	575	0	0	0	0
3:30 PM	0	0	61	2	0	2	77	0	0	3	0	0	0	0	0	0	145	615	0	0	0	0
3:45 PM	1	0	55	4	0	4	78	0	0	1	0	3	0	0	0	0	146	681	0	0	0	0
4:00 PM	1	0	57	1	0	1	84	0	0	4	0	4	0	0	0	0	152	707	0	0	0	1
4:15 PM	0	0	79	2	0	5	82	0	0	2	0	2	0	0	0	0	172	771	0	0	0	0
4:30 PM	0	0	64	6	0	1	130	0	0	6	0	4	0	0	0	0	211	799	0	0	0	0
4:45 PM	0	0	63	2	0	1	102	0	0	2	0	2	0	0	0	0	172	762	0	0	0	0
5:00 PM	0	0	80	4	0	3	122	0	0	5	0	2	0	0	0	0	216	744	0	0	0	0
5:15 PM	0	0	80	4	0	4	108	0	0	2	0	2	0	0	0	0	200	701	0	0	0	0
5:30 PM	0	0	80	1	0	1	89	0	0	3	0	0	0	0	0	0	174	651	0	0	0	0
5:45 PM	0	0	73	0	0	3	76	0	0	1	0	1	0	0	0	0	154	623	0	0	0	0
6:00 PM	0	0	60	1	0	3	104	0	0	3	0	2	0	0	0	0	173	583	0	0	0	0
6:15 PM	0	0	57	0	0	2	87	0	0	2	0	2	0	0	0	0	150	513	0	0	0	0
6:30 PM	1	0	61	0	0	2	76	0	1	3	0	2	0	0	0	0	146	454	0	0	0	0
6:45 PM	0	0	51	2	0	2	57	0	0	1	0	1	0	0	0	0	114	408	0	0	0	0
7:00 PM	0	0	43	1	0	1	53	0	0	2	0	3	0	0	0	0	103	376	0	0	0	0
7:15 PM	0	0	42	0	0	3	45	0	0	0	0	1	0	0	0	0	91		0	0	0	0
7:30 PM	0	0	44	4	0	4	46	0	0	1	0	1	0	0	0	0	100		0	0	0	0
7:45 PM	0	0	32	2	0	5	35	0	0	6	0	2	0	0	0	0	82		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Lights	0	0	282	16	0	9	457	0	0	15	0	10	0	0	0	0	789
Mediums	0	0	5	0	0	0	4	0	0	0	0	0	0	0	0	0	9
Total	0	0	287	16	0	9	462	0	0	15	0	10	0	0	0	0	799



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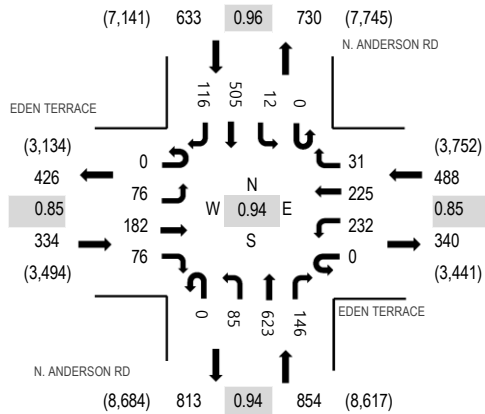
Location: 19 N. ANDERSON RD & EDEN TERRACE AM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 04:30 PM - 05:30 PM

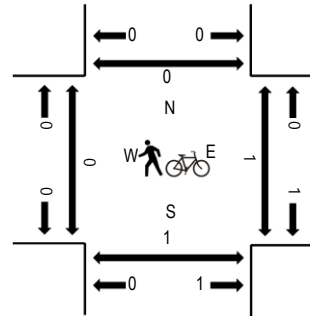
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	EDEN TERRACE Eastbound				EDEN TERRACE Westbound				N. ANDERSON RD Northbound				N. ANDERSON RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:00 AM	0	7	15	3	0	11	2	4	0	1	35	13	0	0	24	1	116	779	0	0	0	1
6:15 AM	0	19	17	1	0	12	13	0	0	1	66	15	0	2	32	1	179	950	0	0	0	0
6:30 AM	0	11	14	2	0	20	6	2	1	1	80	19	0	0	49	4	209	1,114	0	0	0	0
6:45 AM	0	23	26	4	0	22	15	2	0	7	77	28	0	2	63	6	275	1,363	0	0	0	0
7:00 AM	0	21	22	5	0	32	25	4	0	5	81	16	0	1	72	3	287	1,586	0	0	0	0
7:15 AM	0	27	31	8	0	39	32	1	0	6	68	27	0	2	95	7	343	1,615	0	0	0	0
7:30 AM	0	34	43	16	0	34	24	3	0	7	132	42	0	0	110	13	458	1,600	0	0	0	0
7:45 AM	0	33	62	10	0	40	26	6	0	8	142	44	0	3	116	8	498	1,466	0	1	0	0
8:00 AM	0	9	41	11	0	31	21	3	0	4	83	23	0	1	81	8	316	1,305	0	0	0	0
8:15 AM	0	21	38	17	0	19	18	4	0	6	88	14	0	0	94	9	328	1,311	0	0	0	0
8:30 AM	0	12	25	12	0	22	14	3	0	7	101	24	0	7	89	8	324	1,294	0	1	0	1
8:45 AM	0	15	27	10	0	28	22	5	0	8	97	21	0	3	89	12	337	1,249	0	0	0	0
9:00 AM	0	12	20	14	0	27	15	1	0	8	95	18	0	2	95	15	322	1,221	0	0	0	0
9:15 AM	0	14	18	17	0	34	9	4	0	7	88	14	0	3	86	17	311	1,211	1	0	0	0
9:30 AM	0	6	15	11	0	26	21	4	0	7	83	25	0	0	76	5	279	1,242	0	0	1	0
9:45 AM	0	11	13	12	0	29	18	8	0	3	95	17	0	2	93	8	309	1,345	0	0	0	2
10:00 AM	0	14	19	11	0	26	19	4	0	19	88	20	0	5	76	11	312	1,412	0	0	0	0
10:15 AM	0	22	23	12	0	18	23	6	0	5	98	26	0	2	95	12	342	1,507	0	1	0	0
10:30 AM	0	16	23	10	0	26	23	4	0	7	124	35	0	3	103	8	382	1,558	0	0	0	0
10:45 AM	0	13	23	10	0	35	21	2	0	8	120	28	0	3	98	15	376	1,605	1	0	0	1
11:00 AM	0	18	23	16	0	33	19	8	0	18	130	18	0	6	111	7	407	1,692	1	0	0	0
11:15 AM	0	21	31	15	0	31	17	9	0	7	123	25	1	1	101	11	393	1,765	1	0	0	0
11:30 AM	0	14	38	12	0	31	44	5	0	18	127	24	0	3	95	18	429	1,850	0	0	0	0
11:45 AM	0	13	32	25	0	35	25	12	0	13	146	28	0	3	115	16	463	1,906	0	0	0	0
12:00 PM	0	23	34	20	0	30	32	6	0	21	144	33	0	6	114	17	480	1,942	0	1	0	0
12:15 PM	0	18	42	14	0	31	22	8	0	8	146	36	0	7	132	14	478	1,910	0	0	0	0
12:30 PM	0	27	34	21	0	31	31	11	0	20	117	25	0	6	140	22	485	1,864	0	0	0	0
12:45 PM	0	22	40	17	0	37	25	11	0	10	140	23	0	7	150	17	499	1,857	0	0	0	0
1:00 PM	0	14	37	15	0	28	26	9	0	12	144	19	0	8	121	15	448	1,766	0	0	0	0
1:15 PM	0	12	35	16	0	31	19	5	0	7	140	28	0	6	115	18	432	1,760	0	1	0	0
1:30 PM	0	19	26	19	0	28	20	4	0	11	150	28	0	7	154	12	478	1,758	0	0	0	0
1:45 PM	0	17	22	27	0	28	23	1	0	8	114	36	0	3	112	17	408	1,783	0	0	0	0
2:00 PM	0	12	24	9	0	43	40	4	0	2	129	26	0	5	128	20	442	1,869	0	0	0	0
2:15 PM	0	19	25	10	0	32	26	3	0	16	112	35	0	6	120	26	430	1,950	0	0	0	0
2:30 PM	0	19	28	18	0	41	25	8	0	15	139	35	0	4	139	32	503	1,986	0	0	0	0

2:45 PM	0	17	32	20	0	42	24	11	0	10	130	38	0	2	149	19	494	1,961	0	0	0	0
3:00 PM	0	22	31	20	0	57	37	4	0	10	163	27	0	1	138	13	523	1,968	0	0	1	0
3:15 PM	0	19	30	11	0	40	21	9	0	16	145	30	0	2	115	28	466	1,959	0	0	0	0
3:30 PM	0	16	26	14	0	38	35	5	0	14	145	41	0	2	125	17	478	1,991	0	0	1	0
3:45 PM	0	20	31	30	0	38	37	5	0	12	119	30	0	2	149	28	501	2,102	0	0	0	0
4:00 PM	0	28	37	16	0	47	38	6	0	11	134	35	0	2	119	41	514	2,129	0	0	0	1
4:15 PM	0	22	38	15	0	49	35	2	0	14	120	37	0	3	142	21	498	2,229	0	0	0	0
4:30 PM	0	26	46	27	0	66	66	11	0	18	165	23	0	1	116	24	589	2,309	0	0	0	0
4:45 PM	0	14	33	16	0	52	44	6	0	20	143	37	0	3	131	29	528	2,273	0	0	0	0
5:00 PM	0	19	46	16	0	58	65	9	0	24	158	45	0	6	134	34	614	2,260	0	0	0	0
5:15 PM	0	17	57	17	0	56	50	5	0	23	157	41	0	2	124	29	578	2,122	0	1	1	0
5:30 PM	0	17	36	15	0	47	53	2	0	19	147	43	0	2	128	44	553	1,981	0	0	0	0
5:45 PM	0	17	43	20	0	30	39	7	0	10	135	36	0	3	140	35	515	1,870	0	0	0	0
6:00 PM	0	13	36	17	0	50	48	5	0	13	96	37	0	4	125	32	476	1,728	0	0	0	0
6:15 PM	0	30	27	14	0	40	44	4	0	7	102	30	0	1	106	32	437	1,626	0	0	0	0
6:30 PM	0	16	39	12	0	31	48	5	0	14	102	25	0	6	121	23	442	1,529	0	0	0	0
6:45 PM	0	10	33	14	0	31	38	3	0	18	83	22	0	3	94	24	373	1,421	0	0	0	1
7:00 PM	0	23	25	15	0	22	26	5	0	13	108	22	0	4	94	17	374	1,347	0	0	0	0
7:15 PM	0	9	34	17	0	29	20	4	0	8	94	20	0	2	87	16	340		0	0	0	0
7:30 PM	0	14	24	10	0	32	11	3	0	7	95	27	0	3	86	22	334		0	0	0	0
7:45 PM	0	11	23	7	0	21	23	7	0	6	81	20	0	1	87	12	299		1	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	1	0	0	0	2	0	0	0	0	7	1	0	0	2	0	13
Lights	0	74	178	73	0	225	224	31	0	83	610	141	0	12	497	116	2,264
Mediums	0	1	4	3	0	5	1	0	0	2	6	4	0	0	6	0	32
Total	0	76	182	76	0	232	225	31	0	85	623	146	0	12	505	116	2,309



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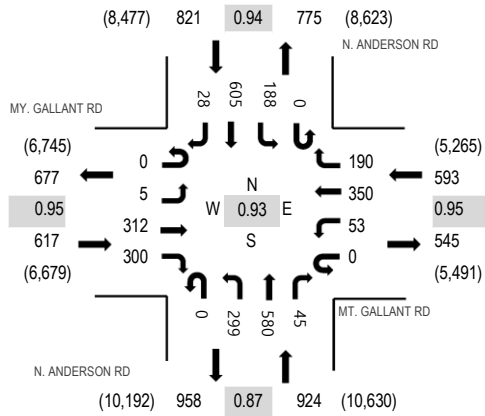
Location: 20 N. ANDERSON RD & MT. GALLANT RD AM

Date and Start Time: Thursday, May 9, 2019

Peak Hour: 05:00 PM - 06:00 PM

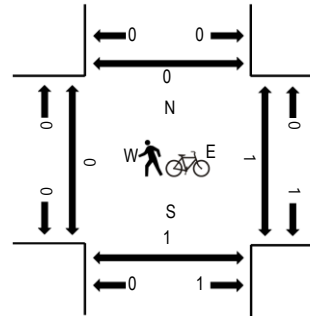
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



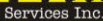
Traffic Counts

Interval Start Time	MY. GALLANT RD Eastbound				MT. GALLANT RD Westbound				N. ANDERSON RD Northbound				N. ANDERSON RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:00 AM	0	0	14	29	0	1	11	8	0	8	42	4	0	10	24	0	151	1,011	0	0	0	0
6:15 AM	0	0	17	27	0	1	8	7	0	16	75	2	0	20	26	1	200	1,220	0	0	0	0
6:30 AM	0	0	26	55	0	0	12	12	0	35	88	4	0	22	41	0	295	1,450	0	0	0	0
6:45 AM	0	1	49	52	0	1	22	8	0	32	114	6	0	27	52	1	365	1,742	0	0	0	0
7:00 AM	0	1	25	42	0	0	28	12	0	45	86	5	0	22	93	1	360	1,990	0	0	0	0
7:15 AM	0	0	34	74	0	0	33	9	0	59	83	11	0	19	107	1	430	2,105	0	0	0	1
7:30 AM	0	0	45	88	0	0	29	9	0	85	169	7	0	20	128	7	587	2,120	0	0	0	0
7:45 AM	0	2	72	103	0	0	23	21	0	62	157	5	0	25	139	4	613	1,994	0	0	0	1
8:00 AM	0	0	54	69	0	2	32	18	0	57	110	15	0	32	85	1	475	1,855	0	0	0	0
8:15 AM	0	1	60	68	0	5	36	14	0	47	90	7	0	32	83	2	445	1,838	0	0	0	0
8:30 AM	0	2	49	66	0	4	22	18	0	49	117	11	0	17	103	3	461	1,812	0	0	0	0
8:45 AM	0	3	43	61	0	9	40	22	0	64	108	5	0	24	89	6	474	1,766	0	0	0	0
9:00 AM	0	1	42	62	0	12	52	36	0	45	83	4	0	24	96	1	458	1,750	0	0	0	0
9:15 AM	0	0	28	71	0	2	21	21	0	46	95	6	0	22	103	4	419	1,744	1	0	0	0
9:30 AM	0	0	46	55	0	6	25	16	0	55	91	10	0	23	85	3	415	1,812	0	0	0	0
9:45 AM	0	0	53	50	0	5	32	14	0	63	103	8	0	27	100	3	458	1,944	0	2	0	0
10:00 AM	0	4	43	46	0	6	38	34	0	49	100	6	0	28	93	5	452	2,032	0	0	0	0
10:15 AM	0	3	65	52	0	8	48	18	0	54	124	9	0	27	77	2	487	2,160	0	1	0	0
10:30 AM	0	4	48	74	0	7	40	31	0	60	126	12	0	28	113	4	547	2,179	0	0	0	0
10:45 AM	0	3	65	62	0	7	41	26	0	67	133	10	0	25	102	5	546	2,190	0	0	0	0
11:00 AM	0	2	54	57	0	7	51	36	0	70	126	9	0	43	120	5	580	2,291	0	0	0	0
11:15 AM	0	0	60	60	0	3	54	29	0	47	119	4	0	33	93	4	506	2,384	0	0	0	0
11:30 AM	0	2	67	49	0	6	45	45	0	66	121	9	0	36	105	7	558	2,548	0	0	0	0
11:45 AM	0	0	69	60	0	10	76	28	0	63	153	19	0	46	114	9	647	2,625	0	0	0	0
12:00 PM	0	5	66	64	0	4	53	55	0	71	169	11	0	43	129	3	673	2,617	0	0	0	0
12:15 PM	0	4	80	62	0	11	66	37	0	85	150	7	0	55	110	3	670	2,548	0	0	0	0
12:30 PM	0	2	61	55	0	9	80	40	0	69	138	5	0	52	120	4	635	2,487	0	0	0	0
12:45 PM	0	1	72	71	0	9	62	30	0	63	128	7	0	55	140	1	639	2,439	0	0	0	0
1:00 PM	0	1	77	55	0	10	53	36	1	65	142	7	0	32	114	11	604	2,366	0	0	0	0
1:15 PM	0	1	44	70	0	6	81	34	0	61	147	12	0	33	112	8	609	2,345	0	0	0	0
1:30 PM	0	2	50	62	0	3	61	35	0	43	133	5	0	41	147	5	587	2,329	0	0	0	0
1:45 PM	0	1	53	62	0	11	61	35	0	65	113	5	0	31	120	9	566	2,434	0	0	0	0
2:00 PM	0	2	43	62	0	5	65	37	0	68	125	8	0	37	130	1	583	2,513	0	0	0	0
2:15 PM	0	1	43	72	0	7	62	38	0	73	124	10	0	37	118	8	593	2,581	0	0	0	0
2:30 PM	0	8	71	56	0	13	74	37	0	68	156	8	0	41	153	7	692	2,612	0	0	0	0

2:45 PM	0	1	64	67	0	5	46	37	0	69	136	9	0	50	155	6	645	2,564	0	0	1	0
3:00 PM	0	1	61	70	0	6	66	41	0	74	155	10	1	30	134	2	651	2,577	0	0	0	0
3:15 PM	0	1	62	60	0	6	75	51	0	64	133	8	0	35	125	4	624	2,584	0	0	0	0
3:30 PM	0	2	64	76	0	13	64	67	0	72	109	5	0	31	137	4	644	2,623	0	0	0	0
3:45 PM	0	2	55	73	0	8	79	23	0	73	140	10	0	41	151	3	658	2,666	0	0	0	0
4:00 PM	0	0	40	64	0	7	68	41	0	84	140	12	0	40	155	7	658	2,700	0	0	0	0
4:15 PM	0	0	44	75	0	5	78	28	0	76	143	9	0	31	166	8	663	2,839	0	0	0	0
4:30 PM	0	0	51	59	0	9	83	64	0	72	151	5	0	45	142	6	687	2,915	0	0	0	0
4:45 PM	0	0	71	67	0	10	74	33	1	58	164	11	0	46	153	4	692	2,950	0	0	0	0
5:00 PM	0	1	72	66	0	15	91	50	0	92	177	9	0	45	165	14	797	2,955	0	0	0	0
5:15 PM	0	1	81	82	0	17	83	48	0	62	137	15	0	45	159	9	739	2,799	0	0	0	0
5:30 PM	0	2	79	79	0	10	82	53	0	81	130	8	0	53	143	2	722	2,669	0	0	1	0
5:45 PM	0	1	80	73	0	11	94	39	0	64	136	13	0	45	138	3	697	2,551	0	0	0	0
6:00 PM	0	2	68	73	0	6	67	41	0	72	112	11	0	44	140	5	641	2,432	0	1	0	0
6:15 PM	0	2	88	59	0	12	69	33	0	66	99	13	0	36	130	2	609	2,302	0	0	0	1
6:30 PM	0	0	67	54	0	12	80	47	0	75	104	12	0	32	119	2	604	2,196	0	0	0	0
6:45 PM	0	3	71	61	0	8	75	34	0	62	106	13	0	31	107	7	578	2,096	0	0	0	0
7:00 PM	0	4	57	50	0	6	65	44	0	55	103	6	0	30	88	3	511	1,962	0	0	0	0
7:15 PM	0	3	67	51	0	4	66	22	0	49	87	7	0	39	102	6	503		0	0	0	0
7:30 PM	0	2	66	42	0	9	83	30	0	53	95	7	0	22	93	2	504		0	0	0	0
7:45 PM	0	0	35	39	0	8	98	33	0	36	77	6	0	28	84	0	444		0	0	0	0

Peak Rolling Hour Flow Rates

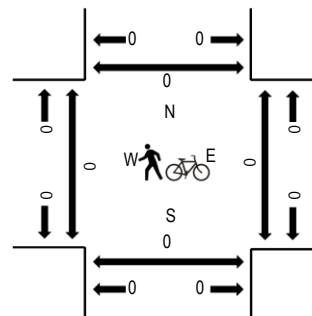
Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	2	0	0	0	3	0	0	8	2	0	3	3	0	21
Lights	0	5	311	296	0	52	350	184	0	296	570	40	0	184	591	28	2,907
Mediums	0	0	1	2	0	1	0	3	0	3	2	3	0	1	11	0	27
Total	0	5	312	300	0	53	350	190	0	299	580	45	0	188	605	28	2,955



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Peak 15-Minutes: 04:30 PM - 04:45 PM

Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	MT. GALLANT RD				MT. GALLANT RD				LANGSTON ST				LANGSTON ST				Rolling		Pedestrian Crossings							
	Eastbound				Westbound				Northbound				Southbound						West				East		South	
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	Hour	West	East	South	North				
6:00 AM	0	0	10	2	0	0	18	0	0	0	0	0	0	0	0	0	30	230	0	0	1	0				
6:15 AM	0	0	28	0	0	0	16	0	0	0	0	0	0	0	0	0	44	279	0	0	0	0				
6:30 AM	0	0	33	2	0	1	30	0	0	0	0	1	0	0	0	0	67	327	0	0	0	0				
6:45 AM	0	0	51	2	0	4	31	0	0	0	0	0	0	1	0	0	89	345	0	0	0	2				
7:00 AM	0	1	29	1	0	5	39	0	0	2	0	1	0	1	0	0	79	376	0	0	0	1				
7:15 AM	0	1	45	1	0	3	42	0	0	0	0	0	0	0	0	0	92	408	0	0	0	0				
7:30 AM	0	0	32	2	0	7	39	0	0	3	0	2	0	0	0	0	85	430	0	0	1	0				
7:45 AM	0	0	54	4	0	5	55	0	0	0	0	2	0	0	0	0	120	434	0	0	0	0				
8:00 AM	0	0	60	3	0	3	43	0	0	2	0	0	0	0	0	0	111	424	0	0	1	0				
8:15 AM	0	0	62	6	0	0	45	0	0	1	0	0	0	0	0	0	114	431	0	0	0	0				
8:30 AM	0	0	44	4	0	3	37	0	0	0	0	1	0	0	0	0	89	405	0	0	0	0				
8:45 AM	0	0	46	2	0	2	56	0	0	0	0	4	0	0	0	0	110	425	0	0	0	0				
9:00 AM	0	0	61	1	0	2	52	0	0	0	1	0	0	0	1	0	118	441	0	0	0	0				
9:15 AM	0	0	49	1	0	0	36	0	0	2	0	0	0	0	0	0	88	459	0	0	0	0				
9:30 AM	0	0	63	1	0	2	42	0	0	0	0	1	0	0	0	0	109	526	0	0	0	0				
9:45 AM	0	0	77	0	0	3	44	0	0	0	0	2	0	0	0	0	126	572	0	0	0	0				
10:00 AM	0	0	64	1	0	0	67	0	0	1	0	3	0	0	0	0	136	607	0	0	0	0				
10:15 AM	0	0	77	2	0	2	70	1	0	1	0	1	0	1	0	0	155	662	0	0	0	0				
10:30 AM	0	0	80	2	0	1	70	0	0	2	0	0	0	0	0	0	155	693	0	0	0	0				
10:45 AM	0	0	83	1	0	3	69	0	0	1	0	4	0	0	0	0	161	728	0	0	0	1				
11:00 AM	0	0	88	0	0	1	94	0	0	0	0	8	0	0	0	0	191	801	0	0	0	0				
11:15 AM	0	0	99	0	0	9	72	0	0	2	0	4	0	0	0	0	186	839	0	0	0	0				
11:30 AM	0	0	96	2	0	2	79	0	0	4	0	6	0	1	0	0	190	883	0	0	0	0				
11:45 AM	0	0	114	2	0	5	111	0	0	1	0	1	0	0	0	0	234	925	0	0	0	0				
12:00 PM	0	1	114	4	0	4	98	0	0	3	0	4	0	0	0	1	229	899	0	0	0	1				
12:15 PM	0	0	110	2	0	4	108	0	0	1	0	5	0	0	0	0	230	888	0	0	0	0				
12:30 PM	0	0	100	2	0	9	115	0	0	1	0	5	0	0	0	0	232	862	0	0	0	0				
12:45 PM	0	0	108	1	0	2	90	0	0	7	0	0	0	0	0	0	208	824	0	0	0	0				
1:00 PM	0	0	106	3	0	6	96	0	0	1	0	6	0	0	0	0	218	773	0	0	0	0				
1:15 PM	0	0	77	3	0	4	115	0	0	3	0	2	0	0	0	0	204	736	0	0	0	0				
1:30 PM	0	0	86	3	0	3	94	0	0	2	0	6	0	0	0	0	194	555	0	0	0	1				
1:45 PM	0	0	60	1	0	4	89	0	0	0	0	3	0	0	0	0	157	361	0	0	0	0				
2:00 PM	0	0	70	3	0	3	100	0	0	2	0	3	0	0	0	0	181	335	0	0	1	0				
2:15 PM	0	0	6	0	0	1	15	0	0	0	0	1	0	0	0	0	23	341	0	0	0	0				
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	536	0	0	0	0				

2:45 PM	0	0	62	1	0	2	64	0	0	0	0	2	0	0	0	0	131	717	0	0	0	0
3:00 PM	0	0	93	1	0	3	89	0	0	0	0	1	0	0	0	0	187	775	0	0	0	0
3:15 PM	0	0	97	0	0	2	116	0	0	1	0	2	0	0	0	0	218	783	0	0	0	0
3:30 PM	0	0	79	0	0	1	85	0	0	2	0	14	0	0	0	0	181	788	0	0	0	0
3:45 PM	0	0	87	2	0	0	93	0	1	4	0	2	0	0	0	0	189	859	0	0	0	0
4:00 PM	0	0	89	0	0	6	97	0	0	0	0	3	0	0	0	0	195	915	0	0	0	0
4:15 PM	0	0	90	0	0	3	126	0	0	1	0	3	0	0	0	0	223	951	0	0	0	0
4:30 PM	0	0	95	1	0	3	126	0	0	11	0	16	0	0	0	0	252	978	0	0	0	0
4:45 PM	0	0	114	1	0	3	117	0	0	4	0	6	0	0	0	0	245	975	0	0	0	0
5:00 PM	0	0	121	0	0	6	100	0	0	1	0	3	0	0	0	0	231	963	0	0	0	0
5:15 PM	0	0	112	0	0	1	134	0	0	1	0	2	0	0	0	0	250	940	0	0	0	0
5:30 PM	0	0	113	1	0	3	125	0	0	3	0	4	0	0	0	0	249	914	0	0	0	0
5:45 PM	0	0	123	1	0	2	103	0	0	3	0	1	0	0	0	0	233	884	0	0	0	0
6:00 PM	0	0	108	0	0	0	96	0	0	0	0	4	0	0	0	0	208	844	0	0	0	0
6:15 PM	0	0	108	1	0	2	111	0	0	1	0	1	0	0	0	0	224	820	0	0	0	0
6:30 PM	0	0	101	2	0	1	113	0	0	1	0	1	0	0	0	0	219	779	0	0	1	0
6:45 PM	0	0	85	1	0	0	106	0	0	0	0	1	0	0	0	0	193	744	0	0	0	1
7:00 PM	0	0	86	1	0	0	96	0	0	0	0	1	0	0	0	0	184	723	0	0	0	0
7:15 PM	0	0	98	0	0	1	83	0	0	0	0	1	0	0	0	0	183		0	0	0	0
7:30 PM	0	0	85	0	0	0	99	0	0	0	0	0	0	0	0	0	184		0	0	0	0
7:45 PM	0	0	53	0	0	1	116	0	0	0	0	2	0	0	0	0	172		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	2	3	0	0	0	0	0	0	0	0	0	5
Lights	0	0	439	2	0	10	471	0	0	17	0	27	0	0	0	0	966
Mediums	0	0	3	0	0	1	3	0	0	0	0	0	0	0	0	0	7
Total	0	0	442	2	0	13	477	0	0	17	0	27	0	0	0	0	978

Site Code: 1
Station ID: 1
I-77 BTW RR XING BRIDGE &
EDEN TERRACE OVERPASS

NB

Start Time	Lights	Mediums	Trucks	Total
05/09/19	114	1	38	153
00:15	132	2	27	161
00:30	76	2	34	112
00:45	65	4	31	100
	387	9	130	526
01:00	42	2	26	70
01:15	49	2	26	77
01:30	40	3	24	67
01:45	43	1	29	73
	174	8	105	287
02:00	41	4	36	81
02:15	33	4	35	72
02:30	36	1	32	69
02:45	46	0	28	74
	156	9	131	296
03:00	45	1	20	66
03:15	49	3	39	91
03:30	71	2	31	104
03:45	69	3	37	109
	234	9	127	370
04:00	65	2	42	109
04:15	107	4	33	144
04:30	124	4	34	162
04:45	185	4	38	227
	481	14	147	642
05:00	228	3	56	287
05:15	316	2	64	382
05:30	421	8	81	510
05:45	454	10	88	552
	1419	23	289	1731
06:00	632	13	81	726
06:15	787	18	80	885
06:30	866	19	79	964
06:45	781	22	86	889
	3066	72	326	3464
07:00	799	23	74	896
07:15	803	19	71	893
07:30	797	19	72	888
07:45	705	27	68	800
	3104	88	285	3477
08:00	700	22	60	782
08:15	641	30	67	738
08:30	615	19	73	707
08:45	520	24	63	607
	2476	95	263	2834
09:00	512	17	77	606
09:15	522	16	72	610
09:30	561	26	81	668
09:45	532	23	88	643
	2127	82	318	2527
10:00	532	25	77	634
10:15	542	25	87	654
10:30	506	27	77	610
10:45	521	26	95	642
	2101	103	336	2540
11:00	578	16	103	697
11:15	546	26	93	665
11:30	556	23	81	660
11:45	548	23	88	659
	2228	88	365	2681
Total	17953	600	2822	21375
Percent	0.0%	0.0%	0.0%	0.0%

Site Code: 1
Station ID: 1
I-77 BTW RR XING BRIDGE &
EDEN TERRACE OVERPASS

NB

Start Time	Lights	Mediums	Trucks	Total
12 PM	561	22	82	665
12:15	588	23	87	698
12:30	562	33	93	688
12:45	560	20	98	678
	2271	98	360	2729
13:00	571	25	91	687
13:15	608	26	74	708
13:30	602	23	75	700
13:45	611	30	93	734
	2392	104	333	2829
14:00	695	36	83	814
14:15	665	18	76	759
14:30	672	16	67	755
14:45	721	26	91	838
	2753	96	317	3166
15:00	699	24	77	800
15:15	757	27	54	838
15:30	713	23	72	808
15:45	709	28	65	802
	2878	102	268	3248
16:00	714	20	65	799
16:15	724	19	54	797
16:30	672	18	48	738
16:45	631	18	53	702
	2741	75	220	3036
17:00	683	10	50	743
17:15	716	21	56	793
17:30	701	18	51	770
17:45	670	16	76	762
	2770	65	233	3068
18:00	653	15	58	726
18:15	614	15	55	684
18:30	650	13	57	720
18:45	536	8	55	599
	2453	51	225	2729
19:00	536	5	36	577
19:15	509	14	35	558
19:30	477	16	53	546
19:45	423	7	52	482
	1945	42	176	2163
20:00	455	15	33	503
20:15	409	6	40	455
20:30	394	6	41	441
20:45	379	8	45	432
	1637	35	159	1831
21:00	379	8	33	420
21:15	328	3	28	359
21:30	291	1	35	327
21:45	246	2	46	294
	1244	14	142	1400
22:00	265	5	31	301
22:15	224	2	38	264
22:30	227	3	51	281
22:45	169	4	35	208
	885	14	155	1054
23:00	176	4	33	213
23:15	158	1	34	193
23:30	127	2	32	161
23:45	111	4	31	146
	572	11	130	713
Total	24541	707	2718	27966
Percent	0.0%	0.0%	0.0%	0.0%

Site Code: 1
Station ID: 1
I-77 BTW RR XING BRIDGE &
EDEN TERRACE OVERPASS

NB

Start Time	Lights	Mediums	Trucks	Total
05/10/19	97	2	38	137
00:15	140	1	38	179
00:30	56	0	44	100
00:45	65	2	28	95
	358	5	148	511
01:00	58	8	35	101
01:15	39	1	17	57
01:30	58	1	23	82
01:45	49	3	17	69
	204	13	92	309
02:00	59	7	23	89
02:15	39	2	31	72
02:30	49	2	24	75
02:45	41	4	24	69
	188	15	102	305
03:00	51	1	25	77
03:15	65	7	25	97
03:30	92	10	29	131
03:45	71	3	35	109
	279	21	114	414
04:00	75	5	34	114
04:15	104	7	47	158
04:30	182	6	44	232
04:45	168	5	44	217
	529	23	169	721
05:00	215	2	51	268
05:15	286	5	58	349
05:30	383	7	69	459
05:45	423	8	71	502
	1307	22	249	1578
06:00	549	14	84	647
06:15	679	20	75	774
06:30	834	15	91	940
06:45	709	24	92	825
	2771	73	342	3186
07:00	732	15	64	811
07:15	802	19	53	874
07:30	814	17	78	909
07:45	774	27	48	849
	3122	78	243	3443
08:00	612	24	64	700
08:15	617	16	66	699
08:30	569	12	81	662
08:45	570	27	69	666
	2368	79	280	2727
09:00	532	18	80	630
09:15	509	17	70	596
09:30	547	18	70	635
09:45	548	25	79	652
	2136	78	299	2513
10:00	484	14	76	574
10:15	560	24	78	662
10:30	508	21	76	605
10:45	616	24	74	714
	2168	83	304	2555
11:00	573	24	76	673
11:15	571	27	74	672
11:30	630	32	63	725
11:45	676	21	79	776
	2450	104	292	2846
Total	17880	594	2634	21108
Percent	0.0%	0.0%	0.0%	0.0%

Site Code: 1
Station ID: 1
I-77 BTW RR XING BRIDGE &
EDEN TERRACE OVERPASS

NB

Start Time	Lights	Mediums	Trucks	Total
12 PM	622	24	87	733
12:15	651	23	72	746
12:30	645	22	72	739
12:45	702	14	64	780
	2620	83	295	2998
13:00	647	22	79	748
13:15	723	17	88	828
13:30	719	27	77	823
13:45	702	24	82	808
	2791	90	326	3207
14:00	742	21	75	838
14:15	744	20	41	805
14:30	825	33	61	919
14:45	705	21	60	786
	3016	95	237	3348
15:00	771	20	60	851
15:15	805	17	59	881
15:30	862	21	56	939
15:45	724	25	54	803
	3162	83	229	3474
16:00	806	18	58	882
16:15	818	22	59	899
16:30	707	12	53	772
16:45	744	16	46	806
	3075	68	216	3359
17:00	777	11	56	844
17:15	787	14	38	839
17:30	771	12	50	833
17:45	678	11	41	730
	3013	48	185	3246
18:00	760	8	40	808
18:15	676	13	36	725
18:30	708	17	42	767
18:45	666	25	42	733
	2810	63	160	3033
19:00	629	8	55	692
19:15	624	12	33	669
19:30	605	2	43	650
19:45	566	8	38	612
	2424	30	169	2623
20:00	594	10	29	633
20:15	582	5	27	614
20:30	542	11	27	580
20:45	479	15	23	517
	2197	41	106	2344
21:00	488	4	27	519
21:15	449	2	20	471
21:30	428	5	27	460
21:45	400	2	26	428
	1765	13	100	1878
22:00	366	3	29	398
22:15	303	2	27	332
22:30	267	7	31	305
22:45	254	3	31	288
	1190	15	118	1323
23:00	247	4	27	278
23:15	227	1	16	244
23:30	183	3	23	209
23:45	217	6	19	242
	874	14	85	973
Total	28937	643	2226	31806
Percent	0.0%	0.0%	0.0%	0.0%

Site Code: 1
Station ID: 1
I-77 BTW RR XING BRIDGE &
EDEN TERRACE OVERPASS

NB

Start Time	Lights	Mediums	Trucks	Total
05/11/19	158	2	8	168
00:15	122	1	13	136
00:30	119	1	10	130
00:45	96	4	5	105
	495	8	36	539
01:00	77	2	8	87
01:15	63	1	1	65
01:30	74	1	7	82
01:45	45	0	3	48
	259	4	19	282
02:00	79	0	7	86
02:15	92	1	11	104
02:30	62	1	13	76
02:45	49	2	8	59
	282	4	39	325
03:00	51	1	10	62
03:15	47	1	13	61
03:30	57	3	7	67
03:45	57	0	5	62
	212	5	35	252
04:00	55	1	8	64
04:15	56	0	9	65
04:30	71	1	7	79
04:45	56	0	8	64
	238	2	32	272
05:00	71	0	12	83
05:15	95	0	4	99
05:30	98	0	8	106
05:45	104	0	14	118
	368	0	38	406
06:00	110	0	10	120
06:15	120	1	11	132
06:30	125	4	18	147
06:45	125	2	16	143
	480	7	55	542
07:00	132	2	11	145
07:15	174	3	25	202
07:30	214	4	10	228
07:45	219	3	14	236
	739	12	60	811
08:00	230	1	11	242
08:15	287	9	12	308
08:30	278	4	14	296
08:45	384	6	11	401
	1179	20	48	1247
09:00	344	3	24	371
09:15	419	4	13	436
09:30	480	2	15	497
09:45	475	2	16	493
	1718	11	68	1797
10:00	521	5	18	544
10:15	555	3	21	579
10:30	578	1	24	603
10:45	545	6	19	570
	2199	15	82	2296
11:00	638	2	27	667
11:15	699	7	13	719
11:30	703	11	15	729
11:45	715	5	25	745
	2755	25	80	2860
Total	10924	113	592	11629
Percent	0.0%	0.0%	0.0%	0.0%

Site Code: 1
Station ID: 1
I-77 BTW RR XING BRIDGE &
EDEN TERRACE OVERPASS

NB

Start Time	Lights	Mediums	Trucks	Total
12 PM	823	7	17	847
12:15	753	4	15	772
12:30	815	5	19	839
12:45	850	8	16	874
	3241	24	67	3332
13:00	779	4	23	806
13:15	832	4	19	855
13:30	858	7	15	880
13:45	782	8	24	814
	3251	23	81	3355
14:00	834	10	20	864
14:15	796	5	18	819
14:30	831	7	20	858
14:45	816	3	33	852
	3277	25	91	3393
15:00	818	5	14	837
15:15	924	2	33	959
15:30	845	5	19	869
15:45	812	5	29	846
	3399	17	95	3511
16:00	848	6	23	877
16:15	842	5	31	878
16:30	853	6	14	873
16:45	780	4	21	805
	3323	21	89	3433
17:00	775	4	11	790
17:15	789	5	23	817
17:30	799	3	16	818
17:45	783	5	18	806
	3146	17	68	3231
18:00	815	3	17	835
18:15	812	4	20	836
18:30	791	10	24	825
18:45	747	7	26	780
	3165	24	87	3276
19:00	677	3	15	695
19:15	678	6	6	690
19:30	656	2	19	677
19:45	635	3	14	652
	2646	14	54	2714
20:00	652	7	20	679
20:15	596	1	26	623
20:30	611	5	23	639
20:45	551	6	30	587
	2410	19	99	2528
21:00	452	2	17	471
21:15	465	1	19	485
21:30	397	5	20	422
21:45	351	1	20	372
	1665	9	76	1750
22:00	344	2	19	365
22:15	340	5	15	360
22:30	241	0	20	261
22:45	203	1	15	219
	1128	8	69	1205
23:00	206	2	9	217
23:15	182	4	8	194
23:30	139	1	16	156
23:45	117	0	11	128
	644	7	44	695
Total	31295	208	920	32423
Percent	0.0%	0.0%	0.0%	0.0%

Site Code: 1
Station ID: 1
I-77 BTW RR XING BRIDGE &
EDEN TERRACE OVERPASS

NB

Start Time	Lights	Mediums	Trucks	Total
05/12/19	154	2	8	164
00:15	119	1	13	133
00:30	116	1	10	127
00:45	94	4	5	103
	483	8	36	527
01:00	75	2	8	85
01:15	62	1	1	64
01:30	72	1	7	80
01:45	44	0	3	47
	253	4	19	276
02:00	77	0	7	84
02:15	90	1	11	102
02:30	61	1	13	75
02:45	48	2	8	58
	276	4	39	319
03:00	50	1	10	61
03:15	46	1	13	60
03:30	56	3	7	66
03:45	56	0	5	61
	208	5	35	248
04:00	54	1	8	63
04:15	55	0	9	64
04:30	69	1	7	77
04:45	55	0	8	63
	233	2	32	267
05:00	69	0	12	81
05:15	93	0	4	97
05:30	96	0	8	104
05:45	102	0	14	116
	360	0	38	398
06:00	107	0	10	117
06:15	117	1	11	129
06:30	122	4	18	144
06:45	122	2	16	140
	468	7	55	530
07:00	129	2	11	142
07:15	170	3	24	197
07:30	209	4	10	223
07:45	214	3	14	231
	722	12	59	793
08:00	225	1	11	237
08:15	280	9	12	301
08:30	272	4	14	290
08:45	375	6	11	392
	1152	20	48	1220
09:00	336	3	23	362
09:15	409	4	13	426
09:30	469	2	15	486
09:45	464	2	16	482
	1678	11	67	1756
10:00	509	5	18	532
10:15	542	3	21	566
10:30	565	1	23	589
10:45	532	6	19	557
	2148	15	81	2244
11:00	623	2	26	651
11:15	683	7	13	703
11:30	687	11	15	713
11:45	699	5	24	728
	2692	25	78	2795
Total	10673	113	587	11373
Percent	0.0%	0.0%	0.0%	0.0%

Site Code: 1
Station ID: 1
I-77 BTW RR XING BRIDGE &
EDEN TERRACE OVERPASS

NB

Start Time	Lights	Mediums	Trucks	Total
12 PM	804	7	17	828
12:15	736	4	15	755
12:30	796	5	19	820
12:45	830	8	16	854
	3166	24	67	3257
13:00	761	4	22	787
13:15	813	4	19	836
13:30	838	7	15	860
13:45	764	8	23	795
	3176	23	79	3278
14:00	815	10	20	845
14:15	778	5	18	801
14:30	812	7	20	839
14:45	797	3	32	832
	3202	25	90	3317
15:00	799	5	14	818
15:15	903	2	32	937
15:30	826	5	19	850
15:45	793	5	28	826
	3321	17	93	3431
16:00	828	6	22	856
16:15	823	5	30	858
16:30	833	6	14	853
16:45	762	4	21	787
	3246	21	87	3354
17:00	757	4	11	772
17:15	771	5	22	798
17:30	781	3	16	800
17:45	765	5	18	788
	3074	17	67	3158
18:00	796	3	17	816
18:15	793	4	20	817
18:30	773	10	23	806
18:45	730	7	25	762
	3092	24	85	3201
19:00	661	3	15	679
19:15	662	6	6	674
19:30	641	2	19	662
19:45	620	3	14	637
	2584	14	54	2652
20:00	637	7	20	664
20:15	582	1	25	608
20:30	597	5	22	624
20:45	538	6	29	573
	2354	19	96	2469
21:00	442	2	17	461
21:15	454	1	19	474
21:30	388	5	20	413
21:45	343	1	20	364
	1627	9	76	1712
22:00	336	2	19	357
22:15	332	5	15	352
22:30	235	0	20	255
22:45	198	1	15	214
	1101	8	69	1178
23:00	201	2	9	212
23:15	178	4	8	190
23:30	136	1	16	153
23:45	114	0	11	125
	629	7	44	680
Total	30572	208	907	31687
Percent	0.0%	0.0%	0.0%	0.0%

Site Code: 1
Station ID: 1
I-77 BTW RR XING BRIDGE &
EDEN TERRACE OVERPASS

NB

Start Time	Lights	Mediums	Trucks	Total
05/13/19	110	1	18	129
00:15	113	0	17	130
00:30	117	1	18	136
00:45	118	2	19	139
	458	4	72	534
01:00	98	3	14	115
01:15	86	1	19	106
01:30	58	2	12	72
01:45	51	6	12	69
	293	12	57	362
02:00	52	2	15	69
02:15	42	2	9	53
02:30	49	4	13	66
02:45	37	1	19	57
	180	9	56	245
03:00	58	0	17	75
03:15	60	0	21	81
03:30	97	1	20	118
03:45	80	1	23	104
	295	2	81	378
04:00	85	2	15	102
04:15	115	3	17	135
04:30	159	1	26	186
04:45	171	3	32	206
	530	9	90	629
05:00	246	4	49	299
05:15	315	3	33	351
05:30	400	5	56	461
05:45	486	8	56	550
	1447	20	194	1661
06:00	599	11	67	677
06:15	843	13	62	918
06:30	895	15	48	958
06:45	827	13	56	896
	3164	52	233	3449
07:00	791	7	59	857
07:15	776	14	56	846
07:30	733	25	57	815
07:45	739	22	58	819
	3039	68	230	3337
08:00	682	20	45	747
08:15	687	10	52	749
08:30	581	19	69	669
08:45	556	17	49	622
	2506	66	215	2787
09:00	505	15	64	584
09:15	510	24	58	592
09:30	522	30	60	612
09:45	477	19	54	550
	2014	88	236	2338
10:00	523	19	75	617
10:15	444	22	66	532
10:30	523	19	65	607
10:45	446	19	75	540
	1936	79	281	2296
11:00	525	27	57	609
11:15	494	23	55	572
11:30	521	25	81	627
11:45	537	18	57	612
	2077	93	250	2420
Total	17939	502	1995	20436
Percent	0.0%	0.0%	0.0%	0.0%

Site Code: 1
Station ID: 1
I-77 BTW RR XING BRIDGE &
EDEN TERRACE OVERPASS

NB

Start Time	Lights	Mediums	Trucks	Total
12 PM	531	28	62	621
12:15	502	21	60	583
12:30	570	28	67	665
12:45	535	22	94	651
	2138	99	283	2520
13:00	570	28	82	680
13:15	584	19	63	666
13:30	639	25	91	755
13:45	527	28	59	614
	2320	100	295	2715
14:00	572	19	64	655
14:15	545	31	91	667
14:30	594	16	79	689
14:45	579	19	69	667
	2290	85	303	2678
15:00	635	15	60	710
15:15	684	26	63	773
15:30	621	22	67	710
15:45	608	16	60	684
	2548	79	250	2877
16:00	638	25	65	728
16:15	614	19	69	702
16:30	647	14	54	715
16:45	546	13	51	610
	2445	71	239	2755
17:00	652	15	48	715
17:15	649	12	55	716
17:30	630	14	54	698
17:45	616	9	35	660
	2547	50	192	2789
18:00	597	15	55	667
18:15	575	9	53	637
18:30	536	8	67	611
18:45	442	16	54	512
	2150	48	229	2427
19:00	405	7	54	466
19:15	428	10	48	486
19:30	411	8	53	472
19:45	401	6	51	458
	1645	31	206	1882
20:00	397	9	51	457
20:15	352	15	52	419
20:30	318	12	35	365
20:45	313	10	29	352
	1380	46	167	1593
21:00	317	2	33	352
21:15	257	4	45	306
21:30	243	2	30	275
21:45	217	5	30	252
	1034	13	138	1185
22:00	242	3	36	281
22:15	209	4	51	264
22:30	209	1	44	254
22:45	160	5	31	196
	820	13	162	995
23:00	133	1	39	173
23:15	147	2	39	188
23:30	92	3	30	125
23:45	101	5	16	122
	473	11	124	608
Total	21790	646	2588	25024
Percent	0.0%	0.0%	0.0%	0.0%

Site Code: 1
Station ID: 1
I-77 BTW RR XING BRIDGE &
EDEN TERRACE OVERPASS

NB

Start Time	Lights	Mediums	Trucks	Total
05/14/19	91	4	25	120
00:15	143	1	36	180
00:30	66	0	27	93
00:45	57	3	29	89
	357	8	117	482
01:00	47	2	25	74
01:15	39	6	27	72
01:30	48	1	31	80
01:45	25	5	29	59
	159	14	112	285
02:00	44	2	25	71
02:15	47	2	24	73
02:30	36	1	32	69
02:45	40	1	24	65
	167	6	105	278
03:00	30	2	32	64
03:15	52	0	35	87
03:30	68	0	40	108
03:45	60	1	29	90
	210	3	136	349
04:00	91	3	31	125
04:15	105	3	37	145
04:30	147	3	35	185
04:45	175	6	50	231
	518	15	153	686
05:00	208	5	58	271
05:15	287	5	79	371
05:30	391	6	80	477
05:45	393	8	77	478
	1279	24	294	1597
06:00	643	15	62	720
06:15	779	11	96	886
06:30	830	18	80	928
06:45	806	22	77	905
	3058	66	315	3439
07:00	787	14	70	871
07:15	833	15	67	915
07:30	796	20	78	894
07:45	740	20	65	825
	3156	69	280	3505
08:00	628	15	80	723
08:15	608	9	64	681
08:30	605	20	82	707
08:45	540	21	79	640
	2381	65	305	2751
09:00	462	22	83	567
09:15	491	19	91	601
09:30	452	24	78	554
09:45	439	22	78	539
	1844	87	330	2261
10:00	435	27	95	557
10:15	484	22	101	607
10:30	460	20	74	554
10:45	430	18	82	530
	1809	87	352	2248
11:00	427	23	94	544
11:15	471	27	92	590
11:30	448	29	97	574
11:45	450	17	77	544
	1796	96	360	2252
Total	16734	540	2859	20133
Percent	0.0%	0.0%	0.0%	0.0%

Site Code: 1
Station ID: 1
I-77 BTW RR XING BRIDGE &
EDEN TERRACE OVERPASS

NB

Start Time	Lights	Mediums	Trucks	Total
12 PM	455	23	96	574
12:15	474	25	105	604
12:30	462	19	89	570
12:45	521	19	72	612
	1912	86	362	2360
13:00	498	22	80	600
13:15	473	25	82	580
13:30	561	31	91	683
13:45	564	24	93	681
	2096	102	346	2544
14:00	598	30	78	706
14:15	590	31	80	701
14:30	576	23	74	673
14:45	556	37	79	672
	2320	121	311	2752
15:00	562	22	67	651
15:15	621	22	56	699
15:30	629	21	79	729
15:45	589	14	76	679
	2401	79	278	2758
16:00	657	22	72	751
16:15	641	16	62	719
16:30	606	19	83	708
16:45	621	13	67	701
	2525	70	284	2879
17:00	641	19	72	732
17:15	699	13	63	775
17:30	607	17	55	679
17:45	569	14	52	635
	2516	63	242	2821
18:00	582	10	53	645
18:15	527	9	59	595
18:30	523	15	43	581
18:45	446	9	44	499
	2078	43	199	2320
19:00	412	5	58	475
19:15	426	9	58	493
19:30	409	10	54	473
19:45	332	10	56	398
	1579	34	226	1839
20:00	380	9	53	442
20:15	364	11	51	426
20:30	374	9	49	432
20:45	294	5	51	350
	1412	34	204	1650
21:00	302	4	38	344
21:15	245	5	34	284
21:30	263	9	37	309
21:45	226	6	37	269
	1036	24	146	1206
22:00	208	9	36	253
22:15	202	2	40	244
22:30	188	5	39	232
22:45	129	2	46	177
	727	18	161	906
23:00	169	1	43	213
23:15	162	1	32	195
23:30	122	3	30	155
23:45	75	1	31	107
	528	6	136	670
Total	21130	680	2895	24705
Percent	0.0%	0.0%	0.0%	0.0%

Site Code: 1
Station ID: 1
I-77 BTW RR XING BRIDGE &
EDEN TERRACE OVERPASS

NB

Start Time	Lights	Mediums	Trucks	Total
05/15/19	78	1	23	102
00:15	128	1	27	156
00:30	73	3	39	115
00:45	43	3	33	79
	322	8	122	452
01:00	53	3	27	83
01:15	37	3	32	72
01:30	28	2	16	46
01:45	31	1	41	73
	149	9	116	274
02:00	41	3	27	71
02:15	31	2	25	58
02:30	32	0	24	56
02:45	32	1	30	63
	136	6	106	248
03:00	35	3	23	61
03:15	62	2	28	92
03:30	71	3	30	104
03:45	79	1	29	109
	247	9	110	366
04:00	79	4	43	126
04:15	104	4	40	148
04:30	153	2	50	205
04:45	168	6	49	223
	504	16	182	702
05:00	221	4	56	281
05:15	317	5	75	397
05:30	420	11	66	497
05:45	454	13	73	540
	1412	33	270	1715
06:00	574	7	73	654
06:15	782	14	85	881
06:30	878	22	75	975
06:45	806	14	92	912
	3040	57	325	3422
07:00	774	10	66	850
07:15	835	22	71	928
07:30	789	27	72	888
07:45	713	24	79	816
	3111	83	288	3482
08:00	665	15	68	748
08:15	594	24	73	691
08:30	579	22	69	670
08:45	530	24	71	625
	2368	85	281	2734
09:00	483	24	91	598
09:15	466	18	83	567
09:30	466	34	77	577
09:45	433	26	85	544
	1848	102	336	2286
10:00	441	24	67	532
10:15	471	23	92	586
10:30	537	14	72	623
10:45	455	12	56	523
	1904	73	287	2264
11:00	475	33	72	580
11:15	479	32	69	580
11:30	491	27	75	593
11:45	512	31	80	623
	1957	123	296	2376
Total	16998	604	2719	20321
Percent	0.0%	0.0%	0.0%	0.0%

Site Code: 1
Station ID: 1
I-77 BTW RR XING BRIDGE &
EDEN TERRACE OVERPASS

NB

Start Time	Lights	Mediums	Trucks	Total
12 PM	495	28	91	614
12:15	520	33	97	650
12:30	563	26	105	694
12:45	512	19	94	625
	2090	106	387	2583
13:00	504	17	91	612
13:15	578	18	77	673
13:30	594	24	84	702
13:45	606	18	63	687
	2282	77	315	2674
14:00	562	26	76	664
14:15	627	32	78	737
14:30	571	21	78	670
14:45	578	27	80	685
	2338	106	312	2756
15:00	660	39	83	782
15:15	660	23	76	759
15:30	645	24	64	733
15:45	674	26	63	763
	2639	112	286	3037
16:00	727	27	74	828
16:15	593	19	55	667
16:30	666	21	83	770
16:45	647	15	80	742
	2633	82	292	3007
17:00	671	19	51	741
17:15	713	11	56	780
17:30	656	10	69	735
17:45	594	16	53	663
	2634	56	229	2919
18:00	613	16	64	693
18:15	517	15	62	594
18:30	591	17	74	682
18:45	477	12	62	551
	2198	60	262	2520
19:00	461	17	49	527
19:15	480	11	55	546
19:30	378	8	49	435
19:45	391	5	48	444
	1710	41	201	1952
20:00	384	6	44	434
20:15	309	4	33	346
20:30	362	9	47	418
20:45	294	8	30	332
	1349	27	154	1530
21:00	290	7	38	335
21:15	304	6	33	343
21:30	239	7	35	281
21:45	231	6	42	279
	1064	26	148	1238
22:00	225	4	39	268
22:15	206	4	45	255
22:30	168	7	43	218
22:45	126	2	27	155
	725	17	154	896
23:00	136	7	37	180
23:15	134	5	30	169
23:30	92	4	36	132
23:45	100	2	38	140
	462	18	141	621
Total	22124	728	2881	25733
Percent	0.0%	0.0%	0.0%	0.0%
Grand Total	289490	6886	29343	325719
Percent	0.0%	0.0%	0.0%	0.0%

Site Code: 1
Station ID: 1
I-77 BTW RR XING BRIDGE &
EDEN TERRACE OVERPASS

SB

Start Time	Lights	Mediums	Trucks	Total
05/09/19	90	0	29	119
00:15	107	3	31	141
00:30	87	4	34	125
00:45	75	2	22	99
	359	9	116	484
01:00	60	3	32	95
01:15	54	4	30	88
01:30	73	8	18	99
01:45	57	2	16	75
	244	17	96	357
02:00	48	1	35	84
02:15	67	2	27	96
02:30	51	0	24	75
02:45	72	4	41	117
	238	7	127	372
03:00	49	10	45	104
03:15	44	5	34	83
03:30	61	3	39	103
03:45	43	7	41	91
	197	25	159	381
04:00	53	3	49	105
04:15	84	2	47	133
04:30	78	3	54	135
04:45	93	3	54	150
	308	11	204	523
05:00	88	7	44	139
05:15	154	12	50	216
05:30	199	12	56	267
05:45	238	12	52	302
	679	43	202	924
06:00	301	17	70	388
06:15	365	13	68	446
06:30	516	31	78	625
06:45	524	24	57	605
	1706	85	273	2064
07:00	474	20	54	548
07:15	626	27	61	714
07:30	601	23	43	667
07:45	668	14	50	732
	2369	84	208	2661
08:00	517	20	63	600
08:15	504	20	51	575
08:30	520	27	64	611
08:45	523	31	75	629
	2064	98	253	2415
09:00	528	29	73	630
09:15	527	20	90	637
09:30	584	29	110	723
09:45	570	28	121	719
	2209	106	394	2709
10:00	515	23	111	649
10:15	518	34	111	663
10:30	509	16	116	641
10:45	566	28	101	695
	2108	101	439	2648
11:00	492	27	123	642
11:15	521	30	101	652
11:30	548	20	123	691
11:45	583	25	90	698
	2144	102	437	2683
Total	14625	688	2908	18221
Percent	0.0%	0.0%	0.0%	0.0%

Site Code: 1
Station ID: 1
I-77 BTW RR XING BRIDGE &
EDEN TERRACE OVERPASS

SB

Start Time	Lights	Mediums	Trucks	Total
12 PM	542	23	101	666
12:15	540	21	102	663
12:30	515	25	110	650
12:45	543	21	93	657
	2140	90	406	2636
13:00	527	14	75	616
13:15	621	23	88	732
13:30	595	20	86	701
13:45	590	11	89	690
	2333	68	338	2739
14:00	617	21	76	714
14:15	715	18	101	834
14:30	637	18	85	740
14:45	702	20	78	800
	2671	77	340	3088
15:00	694	23	76	793
15:15	792	20	60	872
15:30	842	19	72	933
15:45	878	14	66	958
	3206	76	274	3556
16:00	911	17	82	1010
16:15	1033	15	66	1114
16:30	1002	15	46	1063
16:45	992	12	49	1053
	3938	59	243	4240
17:00	1115	10	43	1168
17:15	1046	11	38	1095
17:30	1053	8	36	1097
17:45	951	14	43	1008
	4165	43	160	4368
18:00	907	14	55	976
18:15	872	16	63	951
18:30	778	12	75	865
18:45	706	11	48	765
	3263	53	241	3557
19:00	569	6	45	620
19:15	577	9	47	633
19:30	535	7	65	607
19:45	454	7	52	513
	2135	29	209	2373
20:00	432	4	41	477
20:15	395	7	36	438
20:30	374	9	35	418
20:45	368	10	19	397
	1569	30	131	1730
21:00	313	11	26	350
21:15	287	8	19	314
21:30	272	6	23	301
21:45	274	2	20	296
	1146	27	88	1261
22:00	285	3	26	314
22:15	277	2	34	313
22:30	216	2	28	246
22:45	199	1	26	226
	977	8	114	1099
23:00	210	4	41	255
23:15	220	2	38	260
23:30	204	4	35	243
23:45	178	3	43	224
	812	13	157	982
Total	28355	573	2701	31629
Percent	0.0%	0.0%	0.0%	0.0%

Site Code: 1
Station ID: 1
I-77 BTW RR XING BRIDGE &
EDEN TERRACE OVERPASS

SB

Start Time	Lights	Mediums	Trucks	Total
05/10/19	139	7	37	183
00:15	144	1	27	172
00:30	119	3	29	151
00:45	130	2	30	162
	532	13	123	668
01:00	87	2	43	132
01:15	83	2	33	118
01:30	68	3	29	100
01:45	64	2	32	98
	302	9	137	448
02:00	47	3	33	83
02:15	57	0	39	96
02:30	64	0	32	96
02:45	68	3	43	114
	236	6	147	389
03:00	49	3	34	86
03:15	52	10	42	104
03:30	57	9	39	105
03:45	60	7	44	111
	218	29	159	406
04:00	73	9	45	127
04:15	75	10	42	127
04:30	68	4	43	115
04:45	113	4	40	157
	329	27	170	526
05:00	124	7	64	195
05:15	127	9	55	191
05:30	172	18	57	247
05:45	237	9	48	294
	660	43	224	927
06:00	208	6	46	260
06:15	320	16	76	412
06:30	409	19	65	493
06:45	514	15	60	589
	1451	56	247	1754
07:00	463	21	54	538
07:15	574	22	50	646
07:30	546	27	51	624
07:45	567	25	48	640
	2150	95	203	2448
08:00	532	17	54	603
08:15	490	23	74	587
08:30	457	28	76	561
08:45	556	28	69	653
	2035	96	273	2404
09:00	494	21	64	579
09:15	514	38	86	638
09:30	593	30	76	699
09:45	621	23	99	743
	2222	112	325	2659
10:00	637	23	94	754
10:15	647	22	109	778
10:30	531	19	82	632
10:45	418	9	40	467
	2233	73	325	2631
11:00	693	26	113	832
11:15	878	23	122	1023
11:30	724	29	78	831
11:45	674	30	113	817
	2969	108	426	3503
Total	15337	667	2759	18763
Percent	0.0%	0.0%	0.0%	0.0%

Site Code: 1
Station ID: 1
I-77 BTW RR XING BRIDGE &
EDEN TERRACE OVERPASS

SB

Start Time	Lights	Mediums	Trucks	Total
12 PM	726	22	73	821
12:15	752	13	91	856
12:30	759	17	81	857
12:45	718	24	69	811
	2955	76	314	3345
13:00	739	17	77	833
13:15	656	17	59	732
13:30	629	20	51	700
13:45	646	15	63	724
	2670	69	250	2989
14:00	823	9	78	910
14:15	850	15	85	950
14:30	753	17	75	845
14:45	853	19	57	929
	3279	60	295	3634
15:00	828	21	56	905
15:15	903	12	53	968
15:30	977	16	65	1058
15:45	1081	15	42	1138
	3789	64	216	4069
16:00	1071	12	60	1143
16:15	1073	17	53	1143
16:30	1018	16	51	1085
16:45	1090	8	37	1135
	4252	53	201	4506
17:00	1010	13	38	1061
17:15	921	8	34	963
17:30	1145	13	41	1199
17:45	1006	11	44	1061
	4082	45	157	4284
18:00	926	13	60	999
18:15	966	12	52	1030
18:30	842	7	40	889
18:45	741	7	30	778
	3475	39	182	3696
19:00	687	10	41	738
19:15	672	5	32	709
19:30	540	3	20	563
19:45	534	7	19	560
	2433	25	112	2570
20:00	596	7	27	630
20:15	529	9	27	565
20:30	463	7	19	489
20:45	432	4	27	463
	2020	27	100	2147
21:00	446	6	31	483
21:15	413	1	23	437
21:30	403	4	32	439
21:45	363	4	20	387
	1625	15	106	1746
22:00	340	5	25	370
22:15	324	4	36	364
22:30	295	1	24	320
22:45	287	4	16	307
	1246	14	101	1361
23:00	267	4	18	289
23:15	276	1	30	307
23:30	196	2	22	220
23:45	168	4	31	203
	907	11	101	1019
Total	32733	498	2135	35366
Percent	0.0%	0.0%	0.0%	0.0%

Site Code: 1
Station ID: 1
I-77 BTW RR XING BRIDGE &
EDEN TERRACE OVERPASS

SB

Start Time	Lights	Mediums	Trucks	Total
05/11/19	158	2	10	170
00:15	144	1	7	152
00:30	131	2	7	140
00:45	127	2	7	136
	560	7	31	598
01:00	89	1	3	93
01:15	76	2	4	82
01:30	88	1	4	93
01:45	93	2	2	97
	346	6	13	365
02:00	80	1	5	86
02:15	81	1	5	87
02:30	71	1	3	75
02:45	70	2	4	76
	302	5	17	324
03:00	65	0	6	71
03:15	54	1	6	61
03:30	49	1	5	55
03:45	36	2	3	41
	204	4	20	228
04:00	34	0	7	41
04:15	47	4	3	54
04:30	52	2	7	61
04:45	49	1	4	54
	182	7	21	210
05:00	59	2	8	69
05:15	53	1	9	63
05:30	67	0	11	78
05:45	77	1	9	87
	256	4	37	297
06:00	82	1	10	93
06:15	116	0	9	125
06:30	116	1	18	135
06:45	133	1	19	153
	447	3	56	506
07:00	141	2	13	156
07:15	173	2	13	188
07:30	222	3	21	246
07:45	241	4	21	266
	777	11	68	856
08:00	264	6	20	290
08:15	305	1	27	333
08:30	389	1	20	410
08:45	451	2	27	480
	1409	10	94	1513
09:00	450	2	27	479
09:15	483	5	22	510
09:30	577	5	6	588
09:45	594	6	19	619
	2104	18	74	2196
10:00	599	0	23	622
10:15	594	7	23	624
10:30	616	1	26	643
10:45	663	1	24	688
	2472	9	96	2577
11:00	673	6	23	702
11:15	754	2	21	777
11:30	704	5	19	728
11:45	727	4	25	756
	2858	17	88	2963
Total	11917	101	615	12633
Percent	0.0%	0.0%	0.0%	0.0%

Site Code: 1
Station ID: 1
I-77 BTW RR XING BRIDGE &
EDEN TERRACE OVERPASS

SB

Start Time	Lights	Mediums	Trucks	Total
12 PM	645	7	27	679
12:15	765	8	26	799
12:30	800	9	20	829
12:45	774	6	24	804
	2984	30	97	3111
13:00	846	3	23	872
13:15	761	6	29	796
13:30	735	5	27	767
13:45	770	8	27	805
	3112	22	106	3240
14:00	796	5	18	819
14:15	776	4	31	811
14:30	780	5	44	829
14:45	761	2	24	787
	3113	16	117	3246
15:00	778	6	32	816
15:15	736	3	25	764
15:30	820	2	25	847
15:45	771	5	29	805
	3105	16	111	3232
16:00	776	5	32	813
16:15	717	4	32	753
16:30	780	5	19	804
16:45	726	2	28	756
	2999	16	111	3126
17:00	669	6	29	704
17:15	698	3	26	727
17:30	693	5	15	713
17:45	652	2	22	676
	2712	16	92	2820
18:00	613	4	26	643
18:15	648	1	25	674
18:30	634	2	23	659
18:45	603	3	24	630
	2498	10	98	2606
19:00	529	2	21	552
19:15	547	1	27	575
19:30	541	2	18	561
19:45	488	1	25	514
	2105	6	91	2202
20:00	447	1	19	467
20:15	434	2	22	458
20:30	408	2	21	431
20:45	371	3	21	395
	1660	8	83	1751
21:00	350	2	14	366
21:15	279	0	12	291
21:30	276	2	9	287
21:45	239	0	19	258
	1144	4	54	1202
22:00	230	2	24	256
22:15	234	2	20	256
22:30	212	1	18	231
22:45	199	4	28	231
	875	9	90	974
23:00	183	0	15	198
23:15	146	2	12	160
23:30	103	3	11	117
23:45	100	0	29	129
	532	5	67	604
Total	26839	158	1117	28114
Percent	0.0%	0.0%	0.0%	0.0%

Site Code: 1
Station ID: 1
I-77 BTW RR XING BRIDGE &
EDEN TERRACE OVERPASS

SB

Start Time	Lights	Mediums	Trucks	Total
05/12/19	153	2	10	165
00:15	139	1	7	147
00:30	127	2	7	136
00:45	123	2	7	132
	542	7	31	580
01:00	86	1	3	90
01:15	74	2	4	80
01:30	85	1	4	90
01:45	90	2	2	94
	335	6	13	354
02:00	77	1	5	83
02:15	78	1	5	84
02:30	69	1	3	73
02:45	68	2	4	74
	292	5	17	314
03:00	63	0	6	69
03:15	52	1	6	59
03:30	47	2	5	54
03:45	35	2	3	40
	197	5	20	222
04:00	33	0	7	40
04:15	46	4	3	53
04:30	50	2	7	59
04:45	47	3	4	54
	176	9	21	206
05:00	57	2	8	67
05:15	51	1	9	61
05:30	65	0	11	76
05:45	75	4	9	88
	248	7	37	292
06:00	79	2	10	91
06:15	112	2	9	123
06:30	112	1	16	129
06:45	129	1	17	147
	432	6	52	490
07:00	137	2	13	152
07:15	168	2	13	183
07:30	215	3	19	237
07:45	233	4	19	256
	753	11	64	828
08:00	256	6	18	280
08:15	295	6	25	326
08:30	377	5	18	400
08:45	437	2	25	464
	1365	19	86	1470
09:00	436	2	25	463
09:15	468	5	20	493
09:30	559	5	6	570
09:45	575	5	17	597
	2038	17	68	2123
10:00	580	8	21	609
10:15	575	7	21	603
10:30	597	2	24	623
10:45	642	6	22	670
	2394	23	88	2505
11:00	652	6	21	679
11:15	730	8	19	757
11:30	682	5	17	704
11:45	704	7	23	734
	2768	26	80	2874
Total	11540	141	577	12258
Percent	0.0%	0.0%	0.0%	0.0%

Site Code: 1
Station ID: 1
I-77 BTW RR XING BRIDGE &
EDEN TERRACE OVERPASS

SB

Start Time	Lights	Mediums	Trucks	Total
12 PM	625	5	25	655
12:15	741	7	24	772
12:30	775	1	18	794
12:45	750	3	22	775
	2891	16	89	2996
13:00	819	6	21	846
13:15	737	5	27	769
13:30	712	6	25	743
13:45	746	9	25	780
	3014	26	98	3138
14:00	771	6	16	793
14:15	752	4	29	785
14:30	755	7	42	804
14:45	737	8	22	767
	3015	25	109	3149
15:00	753	7	30	790
15:15	713	7	23	743
15:30	794	6	23	823
15:45	747	8	27	782
	3007	28	103	3138
16:00	752	3	30	785
16:15	694	7	30	731
16:30	755	9	17	781
16:45	703	5	26	734
	2904	24	103	3031
17:00	648	8	27	683
17:15	676	7	24	707
17:30	671	2	15	688
17:45	631	4	20	655
	2626	21	86	2733
18:00	594	3	24	621
18:15	628	5	23	656
18:30	614	4	21	639
18:45	584	1	22	607
	2420	13	90	2523
19:00	512	3	19	534
19:15	530	1	25	556
19:30	524	6	16	546
19:45	473	7	23	503
	2039	17	83	2139
20:00	433	1	17	451
20:15	420	1	20	441
20:30	395	1	19	415
20:45	359	3	19	381
	1607	6	75	1688
21:00	339	1	14	354
21:15	270	2	12	284
21:30	267	0	9	276
21:45	231	5	17	253
	1107	8	52	1167
22:00	223	1	22	246
22:15	227	3	18	248
22:30	205	4	16	225
22:45	193	2	26	221
	848	10	82	940
23:00	177	3	15	195
23:15	141	4	12	157
23:30	100	3	11	114
23:45	97	0	28	125
	515	10	66	591
Total	25993	204	1036	27233
Percent	0.0%	0.0%	0.0%	0.0%

Site Code: 1
Station ID: 1
I-77 BTW RR XING BRIDGE &
EDEN TERRACE OVERPASS

SB

Start Time	Lights	Mediums	Trucks	Total
05/13/19	93	2	20	115
00:15	89	1	16	106
00:30	82	1	12	95
00:45	70	5	20	95
	334	9	68	411
01:00	66	1	17	84
01:15	48	2	21	71
01:30	43	5	10	58
01:45	50	0	15	65
	207	8	63	278
02:00	48	1	25	74
02:15	36	3	16	55
02:30	49	3	14	66
02:45	49	4	9	62
	182	11	64	257
03:00	46	1	22	69
03:15	47	14	24	85
03:30	60	9	25	94
03:45	64	3	15	82
	217	27	86	330
04:00	66	10	36	112
04:15	94	7	31	132
04:30	112	4	45	161
04:45	146	2	42	190
	418	23	154	595
05:00	127	8	48	183
05:15	205	12	43	260
05:30	227	7	42	276
05:45	286	11	49	346
	845	38	182	1065
06:00	300	19	59	378
06:15	430	13	57	500
06:30	488	20	43	551
06:45	510	16	46	572
	1728	68	205	2001
07:00	527	20	49	596
07:15	556	18	44	618
07:30	584	18	37	639
07:45	576	15	36	627
	2243	71	166	2480
08:00	481	18	37	536
08:15	498	27	65	590
08:30	484	28	70	582
08:45	538	24	84	646
	2001	97	256	2354
09:00	464	26	82	572
09:15	483	28	99	610
09:30	549	25	82	656
09:45	511	28	101	640
	2007	107	364	2478
10:00	481	35	101	617
10:15	484	21	94	599
10:30	531	15	94	640
10:45	527	22	100	649
	2023	93	389	2505
11:00	568	18	91	677
11:15	542	22	90	654
11:30	553	21	86	660
11:45	553	27	98	678
	2216	88	365	2669
Total	14421	640	2362	17423
Percent	0.0%	0.0%	0.0%	0.0%

Site Code: 1
Station ID: 1
I-77 BTW RR XING BRIDGE &
EDEN TERRACE OVERPASS

SB

Start Time	Lights	Mediums	Trucks	Total
12 PM	539	17	93	649
12:15	547	21	80	648
12:30	536	20	79	635
12:45	524	16	80	620
	2146	74	332	2552
13:00	498	11	85	594
13:15	525	20	77	622
13:30	517	17	72	606
13:45	541	22	83	646
	2081	70	317	2468
14:00	550	24	54	628
14:15	552	15	67	634
14:30	569	14	74	657
14:45	639	17	74	730
	2310	70	269	2649
15:00	644	19	78	741
15:15	736	23	69	828
15:30	750	11	64	825
15:45	866	21	48	935
	2996	74	259	3329
16:00	777	10	68	855
16:15	892	19	61	972
16:30	965	12	71	1048
16:45	844	18	32	894
	3478	59	232	3769
17:00	1001	13	40	1054
17:15	941	4	26	971
17:30	954	9	42	1005
17:45	895	9	45	949
	3791	35	153	3979
18:00	868	11	56	935
18:15	768	13	51	832
18:30	629	9	49	687
18:45	532	6	54	592
	2797	39	210	3046
19:00	468	13	62	543
19:15	490	8	48	546
19:30	450	5	31	486
19:45	402	3	23	428
	1810	29	164	2003
20:00	381	10	33	424
20:15	329	4	34	367
20:30	301	4	26	331
20:45	281	1	24	306
	1292	19	117	1428
21:00	280	4	23	307
21:15	287	5	22	314
21:30	224	3	33	260
21:45	228	5	35	268
	1019	17	113	1149
22:00	219	7	26	252
22:15	205	1	28	234
22:30	173	1	32	206
22:45	143	1	30	174
	740	10	116	866
23:00	154	4	52	210
23:15	168	5	42	215
23:30	211	2	40	253
23:45	126	4	36	166
	659	15	170	844
Total	25119	511	2452	28082
Percent	0.0%	0.0%	0.0%	0.0%

Site Code: 1
Station ID: 1
I-77 BTW RR XING BRIDGE &
EDEN TERRACE OVERPASS

SB

Start Time	Lights	Mediums	Trucks	Total
05/14/19	81	4	24	109
00:15	83	0	24	107
00:30	61	3	39	103
00:45	64	2	29	95
	289	9	116	414
01:00	63	3	46	112
01:15	71	6	32	109
01:30	53	7	25	85
01:45	38	3	26	67
	225	19	129	373
02:00	39	0	18	57
02:15	60	0	32	92
02:30	38	2	29	69
02:45	30	6	37	73
	167	8	116	291
03:00	35	6	24	65
03:15	47	3	28	78
03:30	49	9	29	87
03:45	45	6	28	79
	176	24	109	309
04:00	49	15	37	101
04:15	55	24	31	110
04:30	84	14	32	130
04:45	102	13	37	152
	290	66	137	493
05:00	98	13	34	145
05:15	150	10	55	215
05:30	180	12	60	252
05:45	253	19	44	316
	681	54	193	928
06:00	276	33	37	346
06:15	377	22	69	468
06:30	396	25	41	462
06:45	448	18	44	510
	1497	98	191	1786
07:00	490	19	46	555
07:15	533	20	57	610
07:30	528	16	46	590
07:45	560	16	36	612
	2111	71	185	2367
08:00	486	25	42	553
08:15	474	26	49	549
08:30	471	20	79	570
08:45	516	25	74	615
	1947	96	244	2287
09:00	460	31	85	576
09:15	457	45	106	608
09:30	484	26	115	625
09:45	447	26	112	585
	1848	128	418	2394
10:00	461	15	121	597
10:15	434	22	110	566
10:30	439	17	108	564
10:45	491	26	112	629
	1825	80	451	2356
11:00	435	33	110	578
11:15	445	28	92	565
11:30	496	11	107	614
11:45	463	16	110	589
	1839	88	419	2346
Total	12895	741	2708	16344
Percent	0.0%	0.0%	0.0%	0.0%

Site Code: 1
Station ID: 1
I-77 BTW RR XING BRIDGE &
EDEN TERRACE OVERPASS

SB

Start Time	Lights	Mediums	Trucks	Total
12 PM	487	18	106	611
12:15	455	19	121	595
12:30	471	19	106	596
12:45	445	15	88	548
	1858	71	421	2350
13:00	494	25	94	613
13:15	489	16	106	611
13:30	509	14	69	592
13:45	511	21	99	631
	2003	76	368	2447
14:00	546	15	87	648
14:15	563	25	88	676
14:30	531	24	82	637
14:45	608	24	76	708
	2248	88	333	2669
15:00	609	22	68	699
15:15	649	20	68	737
15:30	681	20	77	778
15:45	809	20	69	898
	2748	82	282	3112
16:00	865	16	68	949
16:15	935	20	67	1022
16:30	878	16	70	964
16:45	944	10	49	1003
	3622	62	254	3938
17:00	912	9	46	967
17:15	952	8	33	993
17:30	803	7	37	847
17:45	581	8	18	607
	3248	32	134	3414
18:00	839	18	38	895
18:15	793	14	54	861
18:30	753	15	60	828
18:45	698	20	81	799
	3083	67	233	3383
19:00	523	19	45	587
19:15	477	19	49	545
19:30	442	16	57	515
19:45	430	13	61	504
	1872	67	212	2151
20:00	355	15	28	398
20:15	358	5	37	400
20:30	355	6	39	400
20:45	338	5	24	367
	1406	31	128	1565
21:00	239	2	20	261
21:15	292	3	24	319
21:30	250	3	27	280
21:45	273	5	33	311
	1054	13	104	1171
22:00	243	8	27	278
22:15	235	4	41	280
22:30	198	8	25	231
22:45	170	3	34	207
	846	23	127	996
23:00	171	5	50	226
23:15	198	3	40	241
23:30	141	0	33	174
23:45	128	5	34	167
	638	13	157	808
Total	24626	625	2753	28004
Percent	0.0%	0.0%	0.0%	0.0%

Site Code: 1
Station ID: 1
I-77 BTW RR XING BRIDGE &
EDEN TERRACE OVERPASS

SB

Start Time	Lights	Mediums	Trucks	Total
05/15/19	100	4	36	140
00:15	98	2	36	136
00:30	81	3	35	119
00:45	61	4	31	96
	340	13	138	491
01:00	61	2	19	82
01:15	54	9	24	87
01:30	60	5	26	91
01:45	46	5	19	70
	221	21	88	330
02:00	39	9	15	63
02:15	45	4	31	80
02:30	37	4	35	76
02:45	48	6	22	76
	169	23	103	295
03:00	36	4	32	72
03:15	42	6	39	87
03:30	28	9	42	79
03:45	45	3	31	79
	151	22	144	317
04:00	58	5	38	101
04:15	84	3	50	137
04:30	90	2	44	136
04:45	100	0	52	152
	332	10	184	526
05:00	103	27	44	174
05:15	154	37	35	226
05:30	209	14	42	265
05:45	233	29	64	326
	699	107	185	991
06:00	248	25	46	319
06:15	390	31	44	465
06:30	460	33	43	536
06:45	506	27	57	590
	1604	116	190	1910
07:00	480	27	51	558
07:15	570	23	46	639
07:30	594	21	38	653
07:45	579	15	47	641
	2223	86	182	2491
08:00	512	31	50	593
08:15	497	21	66	584
08:30	473	21	91	585
08:45	509	34	60	603
	1991	107	267	2365
09:00	465	38	93	596
09:15	513	29	138	680
09:30	516	36	134	686
09:45	510	25	130	665
	2004	128	495	2627
10:00	465	32	125	622
10:15	470	32	109	611
10:30	454	23	101	578
10:45	491	30	104	625
	1880	117	439	2436
11:00	462	35	97	594
11:15	442	32	102	576
11:30	469	33	93	595
11:45	488	34	93	615
	1861	134	385	2380
Total	13475	884	2800	17159
Percent	0.0%	0.0%	0.0%	0.0%

Site Code: 1
Station ID: 1
I-77 BTW RR XING BRIDGE &
EDEN TERRACE OVERPASS

SB

Start Time	Lights	Mediums	Trucks	Total
12 PM	470	26	82	578
12:15	517	22	93	632
12:30	502	21	92	615
12:45	493	26	85	604
	1982	95	352	2429
13:00	517	25	101	643
13:15	511	28	89	628
13:30	546	19	67	632
13:45	518	22	95	635
	2092	94	352	2538
14:00	506	35	77	618
14:15	585	24	92	701
14:30	599	25	78	702
14:45	631	28	75	734
	2321	112	322	2755
15:00	703	18	89	810
15:15	810	16	81	907
15:30	758	18	80	856
15:45	965	16	76	1057
	3236	68	326	3630
16:00	851	16	70	937
16:15	912	15	58	985
16:30	944	24	50	1018
16:45	951	9	46	1006
	3658	64	224	3946
17:00	996	25	53	1074
17:15	985	23	41	1049
17:30	843	17	27	887
17:45	773	15	28	816
	3597	80	149	3826
18:00	897	16	68	981
18:15	946	13	60	1019
18:30	681	8	51	740
18:45	596	13	49	658
	3120	50	228	3398
19:00	537	10	53	600
19:15	514	8	49	571
19:30	437	8	53	498
19:45	375	9	48	432
	1863	35	203	2101
20:00	365	4	43	412
20:15	391	3	30	424
20:30	337	1	22	360
20:45	331	6	29	366
	1424	14	124	1562
21:00	288	5	29	322
21:15	310	3	26	339
21:30	264	0	28	292
21:45	268	4	19	291
	1130	12	102	1244
22:00	215	6	29	250
22:15	220	2	56	278
22:30	181	4	40	225
22:45	156	7	28	191
	772	19	153	944
23:00	173	9	38	220
23:15	202	3	30	235
23:30	175	5	30	210
23:45	148	1	26	175
	698	18	124	840
Total	25893	661	2659	29213
Percent	0.0%	0.0%	0.0%	0.0%
Grand Total	283768	7092	29582	320442
Percent	0.0%	0.0%	0.0%	0.0%

Appendix C

Bluetooth Origin Destination Data

All Traffic Data Services

Travel Time Summary - from 04:00 PM to 06:00 PM

Origin	Destination	Number of Trips	Distance (miles)	Travel Time (minutes)						Speed (mph)					
				Minimum	Median	Mean	Maximum	85th Percentile	95th Percentile	Minimum	Median	Mean	Maximum	85th Percentile	95th Percentile
20627 - A	20627 - B	20	1.20	1.83	2.98	2.81	3.83	3.71	3.74	18.78	24.13	27.34	39.27	35.75	36.74
20627 - A	20627 - C	104	0.90	0.92	1.04	1.16	1.97	1.48	1.67	27.46	51.84	48.65	58.91	57.86	58.91
20627 - A	20627 - D	6	1.70	3.07	4.32	4.36	5.25	5.15	5.22	19.43	23.66	24.15	33.26	27.05	31.19
20627 - A	20627 - E	1	3.80	8.37	8.37	8.37	8.37	8.37	8.37	27.25	27.25	27.25	27.25	27.25	27.25
20627 - A	20627 - F	28	3.50	3.62	4.33	4.51	6.45	5.23	6.18	32.56	48.56	47.69	58.06	54.68	57.80
20627 - A	20627 - G	326	4.11	3.62	4.30	4.36	7.47	4.75	5.23	33.00	57.31	57.10	68.14	61.93	65.57
20627 - A	20627 - H	1	2.40	3.65	3.65	3.65	3.65	3.65	3.65	39.45	39.45	39.45	39.45	39.45	39.45
20627 - A	20627 - J	7	4.10	5.48	6.38	6.28	7.25	7.16	7.22	33.93	38.54	39.62	44.86	44.74	44.82
20627 - B	20627 - A	262	1.00	0.92	1.17	1.20	2.00	1.37	1.55	30.00	51.43	51.39	65.45	60.00	62.07
20627 - B	20627 - C	121	0.30	0.92	1.20	1.27	2.00	1.62	1.87	9.00	15.00	14.90	19.64	18.31	18.62
20627 - B	20627 - D	32	1.10	2.75	3.51	3.62	5.97	4.17	4.82	11.06	18.81	18.82	24.00	22.12	23.22
20627 - B	20627 - E	1	3.20	8.57	8.57	8.57	8.57	8.57	8.57	22.41	22.41	22.41	22.41	22.41	22.41
20627 - B	20627 - F	6	2.90	5.15	6.00	6.32	9.02	7.13	8.39	19.30	29.04	28.51	33.79	33.30	33.63
20627 - B	20627 - G	63	3.50	3.62	4.13	4.25	5.95	4.70	5.38	35.29	50.81	50.09	58.06	55.19	56.99
20627 - B	20627 - H	56	1.30	1.98	2.94	2.92	4.00	3.66	3.86	19.50	26.52	27.88	39.33	34.67	38.76
20627 - B	20627 - I	5	1.90	3.90	4.50	4.50	5.00	4.90	4.97	22.80	25.33	25.53	29.23	27.72	28.73
20627 - B	20627 - J	7	3.30	5.42	6.62	7.60	11.87	9.50	11.08	16.69	29.92	27.97	36.55	35.96	36.36
20627 - C	20627 - A	24	1.10	1.82	2.39	2.59	3.50	3.26	3.40	18.86	27.60	26.47	36.33	32.20	33.39
20627 - C	20627 - B	112	0.30	0.93	1.37	1.37	2.00	1.67	1.97	9.00	13.17	13.83	19.29	17.81	18.45
20627 - C	20627 - D	25	0.90	1.83	2.67	2.66	4.00	3.02	3.81	13.50	20.25	21.25	29.45	27.09	28.38
20627 - C	20627 - E	3	2.90	6.05	6.92	6.84	7.55	7.36	7.49	23.05	25.16	25.65	28.76	27.68	28.40
20627 - C	20627 - F	23	2.70	2.72	3.42	3.63	5.15	4.49	5.08	31.46	47.41	46.38	59.63	54.95	59.49
20627 - C	20627 - G	187	3.30	2.75	3.53	3.58	4.82	3.99	4.32	41.11	56.04	56.02	72.00	62.23	66.26
20627 - C	20627 - H	27	1.60	3.10	4.47	4.45	5.82	5.04	5.64	16.50	21.49	22.11	30.97	25.71	28.78
20627 - C	20627 - I	2	2.20	6.83	6.98	6.98	7.12	7.07	7.10	18.55	18.93	18.93	19.32	19.20	19.28
20627 - C	20627 - J	4	3.30	4.67	5.91	5.96	7.37	7.11	7.28	26.88	34.29	34.47	42.43	41.10	41.98
20627 - D	20627 - A	4	2.00	3.63	5.48	5.47	7.30	6.65	7.08	16.44	22.02	23.38	33.03	28.75	31.60
20627 - D	20627 - B	12	1.10	2.00	3.39	3.11	3.98	3.83	3.98	16.57	19.47	22.41	33.00	29.27	31.10
20627 - D	20627 - C	25	0.90	1.82	3.13	3.10	3.98	3.58	3.98	13.56	17.23	18.03	29.72	20.92	24.91
20627 - D	20627 - E	36	2.00	2.98	3.61	3.69	4.70	4.12	4.52	25.53	33.26	33.03	40.22	37.21	39.83
20627 - D	20627 - F	28	3.00	4.72	5.98	6.22	9.93	6.88	9.36	18.12	30.13	30.00	38.16	34.95	36.44
20627 - D	20627 - G	8	4.10	5.32	6.78	6.70	8.55	7.45	8.17	28.77	36.32	37.53	46.27	44.28	45.64
20627 - D	20627 - H	5	2.40	6.13	6.87	6.84	7.53	7.27	7.45	19.12	20.97	21.17	23.48	22.58	23.18
20627 - D	20627 - I	1	3.10	9.83	9.83	9.83	9.83	9.83	9.83	18.92	18.92	18.92	18.92	18.92	18.92
20627 - E	20627 - A	2	4.00	9.03	9.28	9.28	9.53	9.46	9.51	25.17	25.87	25.87	26.57	26.36	26.50
20627 - E	20627 - B	3	3.10	6.07	7.57	8.40	11.57	10.37	11.17	16.08	24.58	23.77	30.66	28.84	30.05
20627 - E	20627 - C	3	2.80	6.00	7.50	7.83	10.00	9.25	9.75	16.80	22.40	22.40	28.00	26.32	27.44
20627 - E	20627 - D	48	2.00	2.98	3.82	3.94	5.82	4.58	5.30	20.63	31.45	31.39	40.22	38.30	39.63
20627 - E	20627 - F	61	0.97	1.80	2.33	2.54	3.93	3.10	3.33	14.80	24.94	23.85	32.33	29.10	31.18
20627 - E	20627 - G	10	1.68	3.08	4.07	4.25	6.18	5.12	5.79	16.27	24.75	24.68	32.64	29.49	31.27
20627 - E	20627 - H	3	4.40	8.58	8.77	10.26	13.43	12.03	12.97	19.65	30.11	26.84	30.76	30.56	30.69
20627 - E	20627 - I	1	2.37	5.42	5.42	5.42	5.42	5.42	5.42	26.24	26.24	26.24	26.24	26.24	26.24
20627 - E	20627 - J	1	1.63	5.13	5.13	5.13	5.13	5.13	5.13	19.07	19.07	19.07	19.07	19.07	19.07
20627 - F	20627 - A	34	3.55	3.55	3.95	4.26	7.15	4.75	6.54	29.81	53.96	51.65	60.04	58.40	59.03
20627 - F	20627 - B	14	2.70	3.62	4.38	4.56	6.10	5.16	5.56	26.53	36.92	36.21	44.75	40.80	44.22
20627 - F	20627 - C	4	2.81	4.32	5.03	5.01	5.67	5.40	5.58	29.78	33.54	33.99	39.10	36.75	38.31
20627 - F	20627 - D	25	3.00	5.08	5.80	6.04	9.02	6.88	7.54	19.96	31.03	30.41	35.41	34.33	35.18

20627 - F	20627 - E	73	1.00	1.00	1.50	1.42	1.88	1.58	1.77	31.86	40.00	43.35	60.00	52.17	59.02
20627 - F	20627 - G	63	0.71	1.15	1.48	1.51	2.23	1.76	2.03	19.00	28.60	28.84	36.89	33.68	35.80
20627 - F	20627 - H	14	3.93	6.27	6.88	7.57	10.98	8.60	10.21	21.47	34.31	32.10	37.64	37.25	37.51
20627 - F	20627 - I	7	2.05	4.85	6.02	5.91	6.88	6.61	6.79	17.88	20.46	21.15	25.38	24.41	25.06
20627 - F	20627 - J	32	0.66	2.65	3.23	3.43	5.68	4.05	4.63	6.99	12.31	11.95	14.98	13.99	14.69
20627 - G	20627 - A	364	4.11	3.33	4.38	4.46	6.80	5.02	5.50	36.24	56.22	56.09	73.93	63.46	65.72
20627 - G	20627 - B	290	3.25	3.40	4.08	4.31	7.15	5.03	5.88	27.29	47.79	46.43	57.39	54.20	56.17
20627 - G	20627 - C	56	3.37	3.82	5.07	5.08	8.02	5.68	6.22	25.21	39.89	40.62	52.94	47.18	50.63
20627 - G	20627 - D	14	4.23	6.78	8.98	9.08	12.33	11.49	11.81	20.58	28.26	28.90	37.42	36.28	36.90
20627 - G	20627 - E	10	2.00	4.15	5.38	5.59	7.28	6.89	7.13	16.46	22.38	22.48	28.88	28.50	28.73
20627 - G	20627 - F	16	0.90	2.08	3.02	3.05	3.92	3.65	3.90	13.79	17.90	18.28	25.92	20.19	25.61
20627 - G	20627 - H	20	4.49	5.97	7.25	7.73	10.50	9.57	9.85	25.63	37.17	35.98	45.11	44.18	44.87
20627 - G	20627 - I	3	2.61	7.25	8.50	8.36	9.33	9.08	9.25	16.80	18.45	18.96	21.63	20.67	21.31
20627 - G	20627 - J	110	1.22	2.90	3.87	4.12	6.40	5.22	5.95	11.46	18.98	18.63	25.30	23.75	24.46
20627 - H	20627 - B	49	1.30	1.95	3.12	3.11	3.98	3.72	3.84	19.58	25.03	25.86	40.00	30.79	34.08
20627 - H	20627 - C	46	1.50	2.78	4.53	4.49	6.00	5.26	5.78	15.00	19.89	20.71	32.34	24.52	28.06
20627 - H	20627 - D	2	2.40	6.03	6.98	6.98	7.92	7.63	7.82	18.19	21.03	21.03	23.87	23.02	23.58
20627 - H	20627 - E	1	4.40	14.95	14.95	14.95	14.95	14.95	14.95	17.66	17.66	17.66	17.66	17.66	17.66
20627 - H	20627 - F	15	4.20	7.27	9.68	10.05	15.00	13.74	14.92	16.80	26.02	26.53	34.68	33.61	34.68
20627 - H	20627 - G	21	4.80	6.90	7.82	8.67	13.50	10.00	12.67	21.33	36.84	34.47	41.74	39.63	40.75
20627 - H	20627 - I	3	1.70	2.85	5.70	4.84	5.97	5.89	5.94	17.09	17.89	23.59	35.79	30.42	34.00
20627 - H	20627 - J	17	2.90	5.48	8.65	8.71	11.60	10.92	11.41	15.00	20.12	20.96	31.73	26.75	30.56
20627 - I	20627 - B	2	2.10	6.23	6.43	6.43	6.62	6.56	6.60	19.04	19.63	19.63	20.21	20.04	20.16
20627 - I	20627 - C	3	2.36	5.25	7.00	6.57	7.45	7.32	7.41	19.04	20.27	22.11	27.02	24.99	26.35
20627 - I	20627 - F	9	2.05	4.70	6.17	6.11	8.72	6.91	8.01	14.12	19.96	20.86	26.19	24.56	25.60
20627 - I	20627 - G	7	2.88	6.50	7.00	7.88	11.23	9.10	10.52	15.37	24.67	22.65	26.57	25.74	26.29
20627 - I	20627 - H	4	1.70	3.40	4.57	4.61	5.90	5.31	5.70	17.29	22.34	22.99	30.00	26.59	28.86
20627 - I	20627 - J	20	1.40	2.80	3.21	3.47	5.03	4.08	4.59	16.69	26.19	24.96	30.00	29.47	30.00
20627 - J	20627 - A	9	3.71	4.03	4.87	4.75	5.62	5.16	5.45	39.65	45.77	47.38	55.22	52.54	54.26
20627 - J	20627 - B	13	2.86	4.02	4.73	5.29	8.85	6.45	8.44	19.37	36.21	34.40	42.67	41.17	41.85
20627 - J	20627 - C	6	2.97	4.57	5.01	5.87	9.48	7.28	8.75	18.80	35.64	32.52	39.05	38.84	38.98
20627 - J	20627 - D	3	3.84	8.03	10.10	10.29	12.75	11.96	12.49	18.05	22.78	23.16	28.64	26.89	28.06
20627 - J	20627 - E	4	1.60	3.42	3.83	4.11	5.37	4.76	5.16	17.92	25.14	24.08	28.14	27.33	27.87
20627 - J	20627 - F	75	0.65	1.98	2.42	2.56	3.98	3.02	3.60	9.81	16.17	15.78	19.70	18.74	19.54
20627 - J	20627 - G	61	1.48	2.50	3.15	3.32	5.10	4.12	4.42	17.38	28.15	27.49	35.46	32.24	34.54
20627 - J	20627 - H	15	4.09	6.93	11.28	10.45	12.83	12.43	12.73	19.12	21.75	24.46	35.39	32.03	33.52
20627 - J	20627 - I	16	1.40	2.83	3.42	3.48	4.62	3.83	4.44	18.19	24.60	24.53	29.65	27.92	28.65

All Traffic Data Services

Travel Time Summary - from 07:00 AM to 09:00 AM

Origin	Destination	Number of Trips	Distance (miles)	Travel Time (minutes)						Speed (mph)					
				Minimum	Median	Mean	Maximum	85th Percentile	95th Percentile	Minimum	Median	Mean	Maximum	85th Percentile	95th Percentile
20627 - A	20627 - B	7	1.20	2.00	2.52	2.46	3.02	2.99	3.01	23.87	28.61	30.19	36.00	36.00	36.00
20627 - A	20627 - C	91	0.90	0.92	1.00	1.14	2.00	1.48	1.72	27.00	54.00	49.39	58.91	56.35	58.38
20627 - A	20627 - D	9	1.70	2.98	3.22	3.24	3.52	3.46	3.50	29.00	31.71	31.56	34.19	33.78	34.11
20627 - A	20627 - E	6	3.80	5.62	6.13	6.59	9.70	7.18	8.86	23.51	37.18	35.82	40.59	40.50	40.56
20627 - A	20627 - F	27	3.50	3.68	4.47	4.69	7.83	5.00	7.03	26.81	47.01	46.29	57.01	54.57	56.35
20627 - A	20627 - G	289	4.11	3.62	4.27	4.29	6.52	4.65	4.90	37.82	57.76	57.96	68.14	64.23	66.19
20627 - A	20627 - H	2	2.40	5.82	5.86	5.86	5.90	5.89	5.90	24.41	24.58	24.58	24.76	24.70	24.74
20627 - A	20627 - J	1	4.10	5.47	5.47	5.47	5.47	5.47	5.47	45.00	45.00	45.00	45.00	45.00	45.00
20627 - B	20627 - A	221	1.00	0.92	1.18	1.18	1.82	1.35	1.42	33.03	50.70	51.64	65.45	59.02	61.02
20627 - B	20627 - C	52	0.30	0.92	1.15	1.25	2.00	1.51	1.82	9.00	15.65	15.10	19.64	18.00	19.29
20627 - B	20627 - D	12	1.10	2.75	3.05	3.19	4.25	3.37	3.93	15.53	21.64	20.93	24.00	22.12	22.97
20627 - B	20627 - E	5	3.20	5.85	8.17	7.99	10.72	9.48	10.30	17.92	23.51	25.14	32.82	30.67	32.10
20627 - B	20627 - F	8	2.90	4.52	5.04	5.20	6.75	5.49	6.31	25.78	34.56	33.92	38.52	37.11	38.04
20627 - B	20627 - G	58	3.50	3.62	4.03	4.19	5.58	4.70	5.20	37.61	52.17	50.75	58.06	56.76	57.31
20627 - B	20627 - H	26	1.30	1.82	2.23	2.37	3.15	2.91	3.14	24.76	34.93	34.00	42.94	39.41	42.84
20627 - B	20627 - I	1	1.90	5.97	5.97	5.97	5.97	5.97	5.97	19.11	19.11	19.11	19.11	19.11	19.11
20627 - B	20627 - J	3	3.30	5.75	7.00	6.73	7.45	7.32	7.41	26.58	28.29	29.77	34.43	32.59	33.82
20627 - C	20627 - A	13	1.10	1.82	2.35	2.45	3.75	3.02	3.31	17.60	28.09	28.11	36.33	33.32	35.94
20627 - C	20627 - B	30	0.30	0.95	1.17	1.26	1.87	1.53	1.74	9.64	15.43	14.84	18.95	17.42	18.17
20627 - C	20627 - D	16	0.90	2.02	2.27	2.33	2.77	2.64	2.70	19.52	23.82	23.48	26.78	26.50	26.78
20627 - C	20627 - E	5	2.90	4.68	5.47	6.27	8.67	7.78	8.37	20.08	31.83	29.16	37.15	34.38	36.23
20627 - C	20627 - F	22	2.70	2.73	3.93	3.77	5.02	4.25	4.48	32.29	41.28	43.93	59.27	50.89	54.20
20627 - C	20627 - G	215	3.30	2.77	3.48	3.48	5.78	3.82	4.13	34.24	56.84	57.49	71.57	63.84	66.11
20627 - C	20627 - H	8	1.60	2.77	3.48	3.62	5.53	3.82	4.94	17.35	27.56	27.51	34.70	31.99	33.82
20627 - C	20627 - J	3	3.30	4.97	6.00	5.83	6.52	6.36	6.47	30.38	33.00	34.42	39.87	37.81	39.18
20627 - D	20627 - A	3	2.00	4.52	4.68	4.72	4.97	4.88	4.94	24.16	25.62	25.45	26.57	26.28	26.47
20627 - D	20627 - B	19	1.10	1.92	2.23	2.44	3.67	3.02	3.37	18.00	29.55	28.00	34.43	32.81	33.14
20627 - D	20627 - C	18	0.90	1.95	2.27	2.34	2.83	2.66	2.82	19.06	23.82	23.39	27.69	26.78	27.10
20627 - D	20627 - E	27	2.00	2.85	3.27	3.33	4.50	3.75	3.77	26.67	36.73	36.48	42.11	40.11	42.03
20627 - D	20627 - F	21	3.00	4.65	6.00	5.87	8.60	6.78	7.40	20.93	30.00	31.47	38.71	36.73	38.30
20627 - D	20627 - G	8	4.10	5.07	5.67	5.88	7.98	6.00	7.29	30.81	43.41	42.62	48.55	47.62	48.28
20627 - D	20627 - H	6	2.40	3.75	4.33	4.27	4.68	4.55	4.64	30.75	33.31	33.94	38.40	36.49	37.76
20627 - E	20627 - A	2	4.00	7.38	10.83	10.83	14.28	13.25	13.94	16.80	24.65	24.65	32.51	30.15	31.72
20627 - E	20627 - B	1	3.10	7.18	7.18	7.18	7.18	7.18	7.18	25.89	25.89	25.89	25.89	25.89	25.89
20627 - E	20627 - C	1	2.80	8.65	8.65	8.65	8.65	8.65	8.65	19.42	19.42	19.42	19.42	19.42	19.42
20627 - E	20627 - D	20	2.00	2.90	3.92	4.07	5.93	5.07	5.59	20.22	30.64	30.70	41.38	36.75	40.28
20627 - E	20627 - F	38	0.97	1.80	2.59	2.61	3.83	3.16	3.54	15.18	22.46	23.33	32.33	29.21	32.04
20627 - E	20627 - G	11	1.68	3.23	4.33	4.25	5.42	5.18	5.39	18.58	23.22	24.41	31.12	29.73	31.12
20627 - E	20627 - J	1	1.63	9.25	9.25	9.25	9.25	9.25	9.25	10.58	10.58	10.58	10.58	10.58	10.58
20627 - F	20627 - A	28	3.55	3.57	4.07	4.20	6.03	4.74	5.42	35.33	52.41	51.61	59.76	57.32	59.47
20627 - F	20627 - B	11	2.70	3.80	4.20	4.39	5.40	4.93	5.21	29.97	38.53	37.26	42.59	40.98	42.13
20627 - F	20627 - C	3	2.81	5.12	5.50	6.43	8.67	7.72	8.35	19.47	30.69	27.72	32.99	32.30	32.76
20627 - F	20627 - D	23	3.00	4.55	5.23	5.56	8.40	6.00	7.60	21.43	34.39	33.15	39.56	37.08	38.46
20627 - F	20627 - E	65	1.00	0.95	1.42	1.37	1.92	1.53	1.73	31.30	42.35	45.21	63.16	55.58	60.00
20627 - F	20627 - G	76	0.71	1.13	1.37	1.46	2.47	1.70	2.13	17.20	31.04	29.95	37.44	34.40	36.50
20627 - F	20627 - H	10	3.93	5.98	6.85	7.38	11.02	8.48	10.14	21.41	34.43	32.98	39.42	36.96	38.80
20627 - F	20627 - I	7	2.05	5.23	5.30	6.37	9.85	8.14	9.28	12.50	23.23	20.41	23.52	23.32	23.46
20627 - F	20627 - J	10	0.66	2.60	3.03	3.06	4.00	3.17	3.63	9.93	13.09	13.16	15.27	14.55	15.10
20627 - G	20627 - A	260	4.11	3.35	4.28	4.32	6.58	4.70	4.93	37.43	57.53	57.45	73.56	61.61	65.47

20627 - G	20627 - B	135	3.25	3.40	3.75	4.00	7.52	4.52	5.13	25.96	52.04	49.90	57.39	55.49	56.64
20627 - G	20627 - C	24	3.37	3.82	4.71	4.99	7.83	5.68	6.64	25.80	42.92	41.80	52.94	50.24	52.29
20627 - G	20627 - D	10	4.23	6.50	7.24	7.25	8.63	7.71	8.28	29.40	35.06	35.24	39.05	38.26	38.88
20627 - G	20627 - E	15	2.00	3.72	4.80	4.79	6.03	5.53	5.82	19.87	24.97	25.58	32.25	30.80	32.05
20627 - G	20627 - F	17	0.90	2.27	3.02	2.98	3.80	3.54	3.69	14.21	17.90	18.63	23.82	23.09	23.68
20627 - G	20627 - H	14	4.49	5.47	6.67	7.07	10.12	8.04	9.89	26.60	40.37	39.32	49.23	45.06	49.04
20627 - G	20627 - I	4	2.61	5.18	5.43	5.43	5.67	5.61	5.65	27.67	28.92	28.94	30.25	29.91	30.14
20627 - G	20627 - J	24	1.22	2.98	3.13	3.50	6.02	4.04	5.75	12.19	23.48	21.78	24.59	24.40	24.46
20627 - H	20627 - A	1	2.30	6.18	6.18	6.18	6.18	6.18	6.18	22.32	22.32	22.32	22.32	22.32	22.32
20627 - H	20627 - B	26	1.30	1.85	2.88	2.78	3.83	3.29	3.76	20.35	27.14	29.38	42.16	38.36	38.92
20627 - H	20627 - C	22	1.50	2.73	3.87	3.79	5.85	4.48	4.74	15.38	23.28	24.64	32.93	29.98	32.29
20627 - H	20627 - D	4	2.40	4.78	5.34	6.00	8.53	7.18	8.08	16.88	26.99	25.24	30.10	29.10	29.77
20627 - H	20627 - E	2	4.40	8.18	11.41	11.41	14.63	13.67	14.31	18.04	25.15	25.15	32.26	30.13	31.55
20627 - H	20627 - F	3	4.20	7.32	7.60	7.67	8.10	7.95	8.05	31.11	33.16	32.90	34.44	34.06	34.31
20627 - H	20627 - G	14	4.80	6.50	7.61	8.46	13.17	11.21	12.48	21.87	37.85	35.73	44.31	42.72	43.94
20627 - H	20627 - I	2	1.70	2.80	3.63	3.63	4.47	4.22	4.38	22.84	29.63	29.63	36.43	34.39	35.75
20627 - H	20627 - J	13	2.90	5.45	6.62	7.67	10.63	10.22	10.55	16.36	26.30	24.20	31.93	31.30	31.87
20627 - I	20627 - C	1	2.36	9.12	9.12	9.12	9.12	9.12	9.12	15.56	15.56	15.56	15.56	15.56	15.56
20627 - I	20627 - D	1	3.23	13.53	13.53	13.53	13.53	13.53	13.53	14.31	14.31	14.31	14.31	14.31	14.31
20627 - I	20627 - E	2	2.37	4.43	4.79	4.79	5.15	5.04	5.11	27.60	29.83	29.83	32.07	31.40	31.84
20627 - I	20627 - F	6	2.05	5.00	6.05	6.01	7.27	6.43	6.99	16.94	20.35	20.77	24.62	22.89	24.04
20627 - I	20627 - G	6	2.88	5.65	6.48	7.30	10.97	8.87	10.27	15.75	26.65	24.88	30.56	29.05	30.06
20627 - I	20627 - J	21	1.40	2.82	3.28	3.84	5.82	5.50	5.78	14.44	25.58	23.23	29.82	28.16	28.47
20627 - J	20627 - A	4	3.71	4.52	4.83	4.86	5.27	5.12	5.22	42.29	46.11	45.95	49.31	48.37	49.00
20627 - J	20627 - B	3	2.86	4.22	4.53	4.86	5.82	5.43	5.69	29.46	37.81	35.97	40.65	39.79	40.36
20627 - J	20627 - C	2	2.97	5.12	5.59	5.59	6.07	5.92	6.02	29.39	32.12	32.12	34.85	34.03	34.58
20627 - J	20627 - E	2	1.60	4.08	4.09	4.09	4.10	4.10	4.10	23.45	23.50	23.50	23.55	23.53	23.54
20627 - J	20627 - F	62	0.65	1.95	2.33	2.56	3.97	3.03	3.43	9.85	16.75	15.82	20.04	19.30	19.54
20627 - J	20627 - G	71	1.48	2.62	3.22	3.32	5.27	3.78	4.39	16.83	27.56	27.26	33.88	31.11	33.04
20627 - J	20627 - H	11	4.09	7.53	8.52	8.68	10.18	9.96	10.09	24.10	28.81	28.57	32.57	31.55	32.43
20627 - J	20627 - I	16	1.40	2.73	3.01	3.11	4.02	3.16	3.82	20.91	27.92	27.20	30.73	28.52	29.28

All Traffic Data Services

Travel Time Summary - from 12:00 AM to 11:45 PM

Origin	Destination	Number of Trips	Distance (miles)	Travel Time (minutes)						Speed (mph)					
				Minimum	Median	Mean	Maximum	85th Percentile	95th Percentile	Minimum	Median	Mean	Maximum	85th Percentile	95th Percentile
20627 - A	20627 - B	96	1.20	1.83	2.68	2.74	3.92	3.48	3.75	18.38	26.92	27.58	39.27	35.70	36.38
20627 - A	20627 - C	823	0.90	0.92	1.02	1.13	2.00	1.38	1.68	27.00	53.11	49.57	58.91	56.84	58.91
20627 - A	20627 - D	34	1.70	2.80	3.47	3.64	5.25	4.48	4.85	19.43	29.42	28.92	36.43	34.01	35.28
20627 - A	20627 - E	19	3.80	5.62	6.23	6.78	9.70	8.52	9.34	23.51	36.58	34.63	40.59	38.68	40.49
20627 - A	20627 - F	192	3.50	3.62	4.47	4.67	8.00	5.26	7.51	26.25	47.01	46.63	58.06	55.75	57.53
20627 - A	20627 - G	3011	4.11	3.62	4.27	4.29	7.47	4.63	4.93	33.00	57.76	57.88	68.14	62.39	66.01
20627 - A	20627 - H	13	2.40	3.65	5.25	5.47	7.93	7.04	7.60	18.15	27.43	27.72	39.45	33.70	36.52
20627 - A	20627 - I	2	3.90	8.00	8.20	8.20	8.40	8.34	8.38	27.86	28.55	28.55	29.25	29.04	29.18
20627 - A	20627 - J	29	4.10	5.45	6.18	7.00	11.70	8.63	10.92	21.03	39.78	36.87	45.14	44.49	44.95
20627 - B	20627 - A	2437	1.00	0.92	1.18	1.19	2.00	1.35	1.50	30.00	50.70	51.15	65.45	59.02	61.02
20627 - B	20627 - C	641	0.30	0.92	1.20	1.27	2.00	1.53	1.83	9.00	15.00	14.87	19.64	18.00	18.95
20627 - B	20627 - D	147	1.10	2.72	3.22	3.51	5.97	4.14	4.95	11.06	20.52	19.38	24.29	22.12	23.57
20627 - B	20627 - E	32	3.20	5.50	7.53	7.59	11.62	9.21	10.99	16.53	25.49	26.43	34.91	32.19	33.15
20627 - B	20627 - F	55	2.90	4.52	5.83	6.43	9.97	8.71	9.38	17.46	29.83	28.66	38.52	35.78	37.41
20627 - B	20627 - G	455	3.50	3.62	4.13	4.32	6.52	5.00	5.49	32.23	50.81	49.58	58.06	56.76	57.80
20627 - B	20627 - H	307	1.30	1.82	2.62	2.66	4.00	3.25	3.68	19.50	29.81	30.59	42.94	38.36	39.66
20627 - B	20627 - I	21	1.90	2.75	4.48	4.46	6.00	5.47	5.97	19.00	25.43	27.01	41.45	36.97	40.24
20627 - B	20627 - J	50	3.30	5.42	7.64	7.93	11.93	10.59	11.56	16.59	25.91	26.28	36.55	32.61	35.56
20627 - C	20627 - A	143	1.10	1.82	2.32	2.43	3.98	2.92	3.27	16.57	28.49	28.00	36.33	32.73	35.58
20627 - C	20627 - B	463	0.30	0.92	1.18	1.27	2.00	1.53	1.82	9.00	15.21	14.86	19.64	18.00	18.95
20627 - C	20627 - D	126	0.90	1.83	2.40	2.52	4.00	3.02	3.49	13.50	22.50	22.22	29.45	26.78	27.94
20627 - C	20627 - E	32	2.90	4.52	5.68	5.98	8.67	7.55	8.26	20.08	30.62	30.09	38.52	34.81	37.21
20627 - C	20627 - F	166	2.70	2.72	3.39	3.57	5.72	4.34	4.91	28.34	47.76	46.97	59.63	56.51	59.27
20627 - C	20627 - G	1744	3.30	2.72	3.48	3.50	5.78	3.82	4.07	34.24	56.84	57.09	72.88	62.86	66.37
20627 - C	20627 - H	180	1.60	2.73	3.62	3.72	5.82	4.45	4.99	16.50	26.54	26.58	35.12	32.00	33.70
20627 - C	20627 - I	18	2.20	3.68	4.93	5.10	7.12	6.37	6.88	18.55	26.81	26.83	35.84	31.81	34.77
20627 - C	20627 - J	56	3.30	4.55	6.08	6.48	9.83	8.43	9.40	20.14	32.55	32.25	43.52	40.55	43.08
20627 - D	20627 - A	16	2.00	3.63	4.98	5.27	7.33	6.79	7.31	16.36	24.08	23.83	33.03	28.18	32.26
20627 - D	20627 - B	96	1.10	1.82	2.72	2.82	4.00	3.63	3.95	16.50	24.29	24.71	36.33	32.46	33.07
20627 - D	20627 - C	127	0.90	1.82	2.70	2.73	3.98	3.46	3.79	13.56	20.00	20.76	29.72	26.78	27.86
20627 - D	20627 - E	215	2.00	2.85	3.58	3.67	5.93	4.10	4.67	20.22	33.49	33.31	42.11	37.89	40.00
20627 - D	20627 - F	156	3.00	4.65	5.73	5.92	9.93	6.75	8.34	18.12	31.40	31.21	38.71	36.12	38.16
20627 - D	20627 - G	62	4.10	4.65	6.37	6.41	9.57	7.81	8.80	25.71	38.64	39.86	52.90	48.83	51.76
20627 - D	20627 - H	20	2.40	3.75	5.51	5.70	8.00	7.43	7.59	18.00	26.15	26.92	38.40	35.94	36.70
20627 - D	20627 - I	1	3.10	9.83	9.83	9.83	9.83	9.83	9.83	18.92	18.92	18.92	18.92	18.92	18.92
20627 - D	20627 - J	4	3.60	7.22	12.83	11.78	14.25	14.21	14.24	15.16	17.01	19.78	29.93	24.91	28.26
20627 - E	20627 - A	23	4.00	6.50	7.68	9.08	14.28	12.50	12.85	16.80	31.24	28.01	36.92	33.15	35.84
20627 - E	20627 - B	42	3.10	5.70	7.08	7.54	11.68	8.71	11.55	15.92	26.29	25.73	32.63	30.49	31.33
20627 - E	20627 - C	29	2.80	4.65	6.22	6.59	10.00	7.87	9.58	16.80	27.02	26.50	36.13	30.61	34.93
20627 - E	20627 - D	259	2.00	2.73	3.73	3.78	6.00	4.39	5.05	20.00	32.14	32.56	43.90	38.63	40.22
20627 - E	20627 - F	334	0.97	1.80	2.48	2.57	3.93	3.12	3.50	14.80	23.44	23.62	32.33	29.10	30.29
20627 - E	20627 - G	86	1.68	3.08	4.15	4.27	6.67	5.32	6.00	15.09	24.25	24.42	32.64	29.60	31.61
20627 - E	20627 - H	9	4.40	8.58	10.37	11.23	14.13	13.41	13.85	18.68	25.47	24.34	30.76	29.80	30.50
20627 - E	20627 - I	7	2.37	4.27	4.50	4.90	6.92	5.57	6.47	20.55	31.59	29.78	33.32	33.20	33.28
20627 - E	20627 - J	10	1.63	5.00	8.06	7.62	9.50	9.27	9.40	10.31	12.20	13.55	19.58	17.89	19.35
20627 - F	20627 - A	343	3.55	3.53	3.88	4.11	7.68	4.53	5.52	27.74	54.89	52.84	60.32	58.40	59.76
20627 - F	20627 - B	116	2.70	3.62	4.43	4.80	7.82	5.94	7.37	20.70	36.51	35.18	44.75	42.40	43.16

20627 - F	20627 - C	44	2.81	4.13	5.58	5.86	8.82	7.55	8.47	19.14	30.24	30.14	40.83	36.59	40.02
20627 - F	20627 - D	183	3.00	4.52	5.37	5.65	9.02	6.36	7.46	19.96	33.54	32.48	39.85	36.70	38.43
20627 - F	20627 - E	499	1.00	0.92	1.50	1.44	2.00	1.66	1.80	30.00	40.00	42.90	65.45	51.43	59.02
20627 - F	20627 - G	570	0.71	1.13	1.38	1.47	2.48	1.73	2.08	17.08	30.67	29.78	37.44	34.87	36.89
20627 - F	20627 - H	91	3.93	5.63	6.85	7.36	11.23	9.04	10.82	21.00	34.43	33.16	41.87	38.66	40.20
20627 - F	20627 - I	57	2.05	4.67	5.87	6.40	10.23	8.50	9.80	12.03	20.98	20.23	26.38	24.49	26.12
20627 - F	20627 - J	129	0.66	2.58	3.08	3.39	5.68	4.38	5.07	6.99	12.88	12.24	15.37	14.62	14.98
20627 - G	20627 - A	3073	4.11	3.32	4.38	4.38	7.12	4.77	5.05	34.63	56.22	56.72	74.30	62.13	65.72
20627 - G	20627 - B	1462	3.25	3.40	3.77	4.01	7.53	4.57	5.33	25.90	51.81	49.77	57.39	55.75	57.11
20627 - G	20627 - C	270	3.37	3.82	4.82	4.94	8.28	5.65	6.77	24.39	41.95	42.15	52.94	50.52	52.04
20627 - G	20627 - D	61	4.23	6.02	7.52	8.23	13.15	9.67	12.33	19.30	33.77	32.16	42.19	37.98	40.08
20627 - G	20627 - E	90	2.00	3.60	4.78	4.96	7.32	6.03	6.83	16.38	25.10	25.02	33.30	29.51	32.19
20627 - G	20627 - F	141	0.90	1.83	3.02	3.00	4.00	3.68	3.87	13.50	17.90	18.74	29.45	23.82	26.78
20627 - G	20627 - H	129	4.49	5.32	6.70	7.22	11.73	8.89	10.49	22.94	40.17	38.77	50.62	46.14	48.88
20627 - G	20627 - I	30	2.61	5.18	6.46	7.16	10.77	9.53	9.91	14.56	24.29	23.22	30.25	29.49	30.21
20627 - G	20627 - J	351	1.22	2.90	3.47	3.73	6.40	4.60	5.68	11.46	21.16	20.50	25.30	24.32	24.59
20627 - H	20627 - A	6	2.30	4.10	6.61	6.16	7.77	7.58	7.70	17.77	20.97	23.89	33.66	32.12	33.14
20627 - H	20627 - B	299	1.30	1.83	2.98	2.90	4.00	3.50	3.77	19.50	26.15	27.94	42.55	34.67	39.00
20627 - H	20627 - C	249	1.50	2.73	3.78	3.92	6.00	4.75	5.31	15.00	23.79	23.78	32.93	28.88	30.10
20627 - H	20627 - D	26	2.40	4.57	6.15	6.42	9.23	8.03	8.56	15.60	23.42	23.46	31.53	28.77	31.17
20627 - H	20627 - E	22	4.40	7.38	11.41	11.47	14.95	14.53	14.63	17.66	23.15	24.24	35.76	30.28	34.04
20627 - H	20627 - F	75	4.20	7.27	9.95	10.58	15.87	13.91	14.92	15.88	25.33	25.28	34.68	33.12	34.44
20627 - H	20627 - G	130	4.80	6.32	7.56	8.41	14.00	10.99	13.05	20.57	38.10	35.90	45.59	42.42	44.31
20627 - H	20627 - I	18	1.70	2.80	4.53	4.46	5.98	5.65	5.97	17.05	22.50	24.38	36.43	34.19	35.89
20627 - H	20627 - J	123	2.90	5.45	8.48	8.59	11.72	10.50	11.22	14.85	20.51	21.13	31.93	26.58	29.60
20627 - I	20627 - A	1	3.12	7.18	7.18	7.18	7.18	7.18	7.18	26.04	26.04	26.04	26.04	26.04	26.04
20627 - I	20627 - B	11	2.10	3.83	5.22	5.31	6.62	6.43	6.61	19.04	24.15	24.50	32.87	29.25	31.26
20627 - I	20627 - C	16	2.36	4.98	6.46	6.70	9.12	8.71	9.03	15.56	22.03	22.19	28.47	27.48	28.40
20627 - I	20627 - D	2	3.23	7.87	10.70	10.70	13.53	12.68	13.25	14.31	19.46	19.46	24.61	23.07	24.10
20627 - I	20627 - E	12	2.37	4.23	5.24	5.81	8.82	7.32	8.81	16.12	27.12	25.77	33.58	31.09	32.75
20627 - I	20627 - F	54	2.05	4.57	5.75	5.97	9.63	6.95	8.42	12.78	21.41	21.35	26.96	25.66	26.26
20627 - I	20627 - G	51	2.88	5.13	6.65	6.98	11.23	8.52	10.01	15.37	25.97	25.81	33.64	31.59	32.95
20627 - I	20627 - H	19	1.70	2.83	4.23	4.13	5.90	5.11	5.57	17.29	24.09	25.91	36.00	32.69	34.37
20627 - I	20627 - J	150	1.40	2.72	3.20	3.49	5.98	4.19	5.05	14.04	26.25	24.87	30.92	28.16	29.57
20627 - J	20627 - A	58	3.71	3.97	4.54	4.78	7.70	5.30	5.73	28.93	49.04	47.37	56.15	53.12	54.65
20627 - J	20627 - B	86	2.86	4.02	4.84	5.27	8.85	6.94	8.13	19.37	35.40	34.15	42.67	41.13	42.62
20627 - J	20627 - C	44	2.97	4.57	5.76	6.22	9.60	7.71	9.28	18.58	30.97	29.92	39.05	35.35	38.23
20627 - J	20627 - D	18	3.84	6.75	8.80	9.44	14.32	12.14	13.10	16.07	26.15	25.64	34.09	31.99	32.99
20627 - J	20627 - E	22	1.60	3.42	4.09	4.66	7.35	6.91	7.35	13.08	23.50	22.15	28.14	27.66	28.13
20627 - J	20627 - F	433	0.65	1.95	2.35	2.55	4.22	3.03	3.67	9.27	16.63	15.89	20.04	19.22	19.54
20627 - J	20627 - G	465	1.48	2.48	3.02	3.18	5.50	3.69	4.16	16.12	29.39	28.59	35.70	33.04	34.95
20627 - J	20627 - H	109	4.09	5.97	9.50	9.47	13.00	11.68	12.68	18.88	25.83	27.23	41.13	33.99	39.43
20627 - J	20627 - I	120	1.40	2.73	3.31	3.54	6.00	4.19	4.88	14.00	25.39	24.53	30.73	28.66	30.36

Appendix D

Volume Development Worksheets

INTERSECTION VOLUME DEVELOPMENT (SBR Slip Ramp)

I-77 SB On Ramp/I-77 SB Off Ramp and Celanese Road AM PEAK HOUR

Description	I-77 SB On Ramp <u>Northbound</u>			I-77 SB Off Ramp <u>Southbound</u>			Celanese Road <u>Eastbound</u>			Celanese Road <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed Volumes	0	0	0	0	0	905	0	2,776	0	0	1,789	0
Balanced Volumes	0	0	0	0	0	0	0	24	0	0	-905	0
2019 Existing Traffic	0	0	0	0	0	905	0	2,800	0	0	884	0
2019 PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
2023 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	12%	2%	2%	2%	2%	5%	2%
Annual Growth Rate (2023)	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Annual Growth Rate (2043)	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Growth Factor #1	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082
Growth Factor #2	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608
2023 Background Traffic (No AD)	0	0	0	0	0	980	0	3,031	0	0	957	0
2043 Background Traffic (No AD)	0	0	0	0	0	1,456	0	4,504	0	0	1,422	0
Approved Development #2023	0	0	0	0	0	0	0	20	0	0	0	0
Approved Development #2043	0	0	0	0	0	0	0	78	0	0	0	0
Approved Development #3	0	0	0	0	0	0	0	0	0	0	0	0
Approved Development Trips	0	0	0	0	0	0	0	98	0	0	0	0
2023 Opening Year No Build Traffic	0	0	0	0	0	980	0	3,051	0	0	957	0
2043 Horizon No Build Traffic	0	0	0	0	0	1,456	0	4,582	0	0	1,422	0
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Project Trips	0	0	0	0	0	0	0	0	0	0	0	0
Project Trips (Total)	0	0	0	0	0	0	0	0	0	0	0	0
Shift Traffic (2023)								-30			-15	
Shift Traffic (2043)	0	0	0	0	0	0	0	-44	0	0	-24	0
2023 Opening Year Build Total	0	0	0	0	0	980	0	2,987	0	0	933	0
2043 Horizon Year Build Total	0	0	0	0	0	1,456	0	4,460	0	0	1,398	0

PM PEAK HOUR

Description	I-77 SB On Ramp <u>Northbound</u>			I-77 SB Off Ramp <u>Southbound</u>			Celanese Road <u>Eastbound</u>			Celanese Road <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed Volumes	0	0	0	0	0	1,042	0	1,875	0	0	2,813	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	-1,002	0
2019 Existing Traffic	0	0	0	0	0	1,042	0	1,875	0	0	1,811	0
2019 PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
2023 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	15%	2%	2%	2%	2%	2%	2%
Annual Growth Rate (2023)	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Growth Factor #1	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082
Growth Factor #2	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608
Annual Growth Rate (2043)	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
2023 Background Traffic (No AD)	0	0	0	0	0	1,128	0	2,030	0	0	1,960	0
2043 Background Traffic (No AD)	0	0	0	0	0	1,676	0	3,016	0	0	2,913	0
Approved Development #2023	0	0	0	0	0	0	0	5	0	0	0	0
Approved Development #2043	0	0	0	0	0	0	0	31	0	0	0	0
Approved Development #3	0	0	0	0	0	0	0	0	0	0	0	0
Approved Development Trips	0	0	0	0	0	0	0	36	0	0	0	0
2023 Opening Year No Build Traffic	0	0	0	0	0	1,128	0	2,035	0	0	1,960	0
2043 Horizon No Build Traffic	0	0	0	0	0	1,676	0	3,047	0	0	2,913	0
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Project Trips	0	0	0	0	0	0	0	0	0	0	0	0
Project Trips (Total)	0	0	0	0	0	0	0	0	0	0	0	0
Shift Traffic (2023)								-26			-13	
Shift Traffic (2043)	0	0	0	0	0	0	0	-38	0	0	-21	0
2023 Opening Year Build Total	0	0	0	0	0	1,128	0	1,992	0	0	1,939	0
2043 Horizon Year Build Total	0	0	0	0	0	1,676	0	2,978	0	0	2,892	0

INTERSECTION VOLUME DEVELOPMENT

I-77 SB On Ramp/I-77 SB Off Ramp and Celanese Road AM PEAK HOUR

Description	I-77 SB On Ramp <u>Northbound</u>			I-77 SB Off Ramp <u>Southbound</u>			Celanese Road <u>Eastbound</u>			Celanese Road <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed Volumes	0	0	0	89	0	935	0	2,407	369	13	854	0
Balanced Volumes	0	0	0	1	0	-905	0	24	0	0	0	0
2019 Existing Traffic	0	0	0	90	0	30	0	2,431	369	13	854	0
2019 PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
2023 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	11%	2%	4%	2%	2%	4%	8%	5%	2%
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Growth Factor #2	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082
Growth Factor #2	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608
2023 Background Traffic (No AD)	0	0	0	97	0	32	0	2,631	399	14	924	0
2043 Background Traffic (No AD)	0	0	0	145	0	48	0	3,910	594	21	1,374	0
Approved Development #2023	0	0	0	0	0	20	0	0	0	0	0	0
Approved Development #2043	0	0	0	0	0	78	0	0	0	0	0	0
Approved Development #3	0	0	0	0	0	0	0	0	0	0	0	0
Approved Development Trips	0	0	0	0	0	98	0	0	0	0	0	0
2023 Opening Year No Build Traffic	0	0	0	97	0	52	0	2,631	399	14	924	0
2043 Horizon No Build Traffic	0	0	0	145	0	126	0	3,910	594	21	1,374	0
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Project Trips	0	0	0	0	0	0	0	0	0	0	0	0
Project Trips (Total)	0	0	0	-28	0	-14	0	0	0	0	0	0
Shift Traffic (2023)	0	0	0	-30	0	-15	0	-30	0	0	0	0
Shift Traffic (2043)	0	0	0	-49	0	-24	0	-44	0	0	0	0
2023 Opening Year Build Total	0	0	0	67	0	17	0	2,601	399	14	924	0
2043 Horizon Year Build Total	0	0	0	96	0	24	0	3,866	594	21	1,374	0

PM PEAK HOUR

Description	I-77 SB On Ramp <u>Northbound</u>			I-77 SB Off Ramp <u>Southbound</u>			Celanese Road <u>Eastbound</u>			Celanese Road <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed Volumes	0	0	0	92	1	1,546	0	1,551	324	16	1,267	0
Balanced Volumes	0	0	0	0	0	-1,042	0	0	0	2	40	0
2019 Existing Traffic	0	0	0	92	1	504	0	1,551	324	18	1,307	0
2019 PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
2023 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	4%	2%	2%	2%	2%	2%	19%	2%	2%
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Growth Factor #2	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082
Growth Factor #2	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608
2023 Background Traffic (No AD)	0	0	0	100	1	546	0	1,679	351	19	1,415	0
2043 Background Traffic (No AD)	0	0	0	148	2	811	0	2,495	521	29	2,102	0
Approved Development #2023	0	0	0	0	0	5	0	0	0	0	0	0
Approved Development #2043	0	0	0	0	0	31	0	0	0	0	0	0
Approved Development #3	0	0	0	0	0	0	0	0	0	0	0	0
Approved Development Trips	0	0	0	0	0	36	0	0	0	0	0	0
2023 Opening Year No Build Traffic	0	0	0	100	1	551	0	1,679	351	19	1,415	0
2043 Horizon No Build Traffic	0	0	0	148	2	842	0	2,495	521	29	2,102	0
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Project Trips	0	0	0	0	0	0	0	0	0	0	0	0
Project Trips (Total)	0	0	0	-15	0	-12	0	0	0	0	0	0
Shift Traffic (2023)	0	0	0	-16	0	-13	0	-26	0	0	0	0
Shift Traffic (2043)	0	0	0	-26	0	-21	0	-38	0	0	0	0
2023 Opening Year Build Total	0	0	0	84	1	533	0	1,653	351	19	1,415	0
2043 Horizon Year Build Total	0	0	0	122	2	790	0	2,457	521	29	2,102	0

INTERSECTION VOLUME DEVELOPMENT

I-77 NB On Ramp/I-77 NB Off Ramp and Celanese Road AM PEAK HOUR

Description	I-77 NB On Ramp <u>Northbound</u>			I-77 NB Off Ramp <u>Southbound</u>			Celanese Road <u>Eastbound</u>			Celanese Road <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed Volumes	0	0	0	2	0	319	0	971	1,541	0	537	108
Balanced Volumes	0	0	0	0	0	4	0	9	0	0	7	0
2019 Existing Traffic	0	0	0	2	0	323	0	980	1,541	0	544	108
2019 PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
2023 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	50%	2%	7%	2%	3%	2%	2%	5%	8%
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Growth Factor #3	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082
Growth Factor #2	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608
2023 Background Traffic (No AD)	0	0	0	2	0	350	0	1,061	1,668	0	589	117
2043 Background Traffic (No AD)	0	0	0	3	0	520	0	1,576	2,479	0	875	174
Approved Development #2023	0	0	0	0	0	0	0	0	0	0	0	71
Approved Development #2043	0	0	0	0	0	0	0	0	0	0	0	329
Approved Development #3	0	0	0	0	0	0	0	0	0	0	0	0
Approved Development Trips	0	0	0	0	0	0	0	0	0	0	0	400
2023 Opening Year No Build Traffic	0	0	0	2	0	350	0	1,061	1,668	0	589	188
2043 Horizon No Build Traffic	0	0	0	3	0	520	0	1,576	2,479	0	875	503
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Project Trips	0	0	0	0	0	0	0	0	0	0	0	0
Shift Traffic (Existing)	0	0	0	0	0	0	0	0	-28	0	0	-28
Shift Traffic (2023)	0	0	0	0	0	0	0	-30	-30	0	0	-30
Shift Traffic (2043)	0	0	0	0	0	0	0	-49	-44	0	0	-45
2023 Opening Year Build Total	0	0	0	2	0	350	0	1,031	1,638	0	589	87
2043 Horizon Year Build Total	0	0	0	3	0	520	0	1,527	2,435	0	875	129

PM PEAK HOUR

Description	I-77 NB On Ramp <u>Northbound</u>			I-77 NB Off Ramp <u>Southbound</u>			Celanese Road <u>Eastbound</u>			Celanese Road <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed Volumes	0	0	0	6	0	287	0	826	798	0	1,038	191
Balanced Volumes	0	0	0	0	0	0	0	12	7	0	0	0
2019 Existing Traffic	0	0	0	6	0	287	0	838	805	0	1,038	191
2019 PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
2023 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	5%
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Growth Factor #3	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082
Growth Factor #2	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608
2023 Background Traffic (No AD)	0	0	0	6	0	311	0	907	871	0	1,124	207
2043 Background Traffic (No AD)	0	0	0	10	0	462	0	1,348	1,295	0	1,670	307
Approved Development #2023	0	0	0	0	0	0	0	0	0	0	0	374
Approved Development #2043	0	0	0	0	0	0	0	0	0	0	0	1,517
Approved Development #3	0	0	0	0	0	0	0	0	0	0	0	0
Approved Development Trips	0	0	0	0	0	0	0	0	0	0	0	1,891
2023 Opening Year No Build Traffic	0	0	0	6	0	311	0	907	871	0	1,124	581
2043 Horizon No Build Traffic	0	0	0	10	0	462	0	1,348	1,295	0	1,670	1,824
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Project Trips	0	0	0	0	0	0	0	0	0	0	0	0
Shift Traffic (Existing)	0	0	0	0	0	0	0	0	-24	0	0	-15
Shift Traffic (2023)	0	0	0	0	0	0	0	-16	-26	0	0	-16
Shift Traffic (2043)	0	0	0	0	0	0	0	-26	-38	0	0	-24
2023 Opening Year Build Total	0	0	0	6	0	311	0	891	845	0	1,124	191
2043 Horizon Year Build Total	0	0	0	10	0	462	0	1,322	1,257	0	1,670	283

INTERSECTION VOLUME DEVELOPMENT

I-77 SB On Ramp/I-77 SB Off Ramp and Cherry Road AM PEAK HOUR

Description	I-77 SB On Ramp <u>Northbound</u>			I-77 SB Off Ramp <u>Southbound</u>			Cherry Road <u>Eastbound</u>			Cherry Road <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed Volumes	0	0	0	65	2	595	0	1,563	146	112	662	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0
2019 Existing Traffic	0	0	0	65	2	595	0	1,563	146	112	662	0
2019 PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
2023 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	9%	50%	4%	2%	5%	2%	6%	3%	2%
Annual Growth Rate (2023)	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Annual Growth Rate (2043)	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Growth Factor #1	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082
Growth Factor #2	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608
2023 Background Traffic (No AD)	0	0	0	70	2	644	0	1,692	158	121	717	0
2043 Background Traffic (No AD)	0	0	0	105	3	957	0	2,514	235	180	1,065	0
Approved Development #2023	0	0	0	0	0	387	0	4	0	0	24	0
Approved Development #2043	0	0	0	0	0	1,484	0	20	0	0	94	0
Approved Development #3	0	0	0	0	0	0	0	0	0	0	0	0
Approved Development Trips	0	0	0	0	0	1,871	0	24	0	0	118	0
2023 Opening Year No Build Traffic	0	0	0	70	2	1,031	0	1,696	158	121	741	0
2043 Horizon No Build Traffic	0	0	0	105	3	2,441	0	2,534	235	180	1,159	0
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Project Trips	0	0	0	0	0	0	0	0	0	0	0	0
Shift Traffic (Existing)	0	0	0	0	0	-262	0	-354	-10	0	-28	0
Shift Traffic (2023)	0	0	0	0	0	-284	0	-384	-10	0	-30	0
Shift Traffic (2043)	0	0	0	0	0	-422	0	-570	-15	0	-45	0
2043 Opening Year Build Total	0	0	0	70	2	360	0	1,308	148	121	687	0
0.02 Horizon Year Build Total	0	0	0	105	3	535	0	1,944	220	180	1,020	0

PM PEAK HOUR

Description	I-77 SB On Ramp <u>Northbound</u>			I-77 SB Off Ramp <u>Southbound</u>			Cherry Road <u>Eastbound</u>			Cherry Road <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed Volumes	0	0	0	63	0	926	0	1,455	208	221	1,015	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0
2019 Existing Traffic	0	0	0	63	0	926	0	1,455	208	221	1,015	0
2019 PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
2023 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Annual Growth Rate (2023)	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Annual Growth Rate (2043)	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Growth Factor #1	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082
Growth Factor #2	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608
2023 Background Traffic (No AD)	0	0	0	68	0	1,002	0	1,575	225	239	1,099	0
2043 Background Traffic (No AD)	0	0	0	101	0	1,489	0	2,340	335	355	1,633	0
Approved Development #2023	0	0	0	0	0	99	0	22	0	0	6	0
Approved Development #2043	0	0	0	0	0	581	0	91	0	0	37	0
Approved Development #3	0	0	0	0	0	0	0	0	0	0	0	0
Approved Development Trips	0	0	0	0	0	680	0	113	0	0	43	0
2023 Opening Year No Build Traffic	0	0	0	68	0	1,101	0	1,597	225	239	1,105	0
2043 Horizon No Build Traffic	0	0	0	101	0	2,070	0	2,431	335	355	1,670	0
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Project Trips	0	0	0	0	0	0	0	0	0	0	0	0
Shift Traffic (Existing)	0	0	0	0	0	-224	0	-242	-58	0	-189	0
Shift Traffic (2023)	0	0	0	0	0	-243	0	-262	-62	0	-205	0
Shift Traffic (2043)	0	0	0	0	0	-361	0	-390	-93	0	-304	0
2043 Opening Year Build Total	0	0	0	68	0	759	0	1,313	163	239	894	0
0.02 Horizon Year Build Total	0	0	0	101	0	1,128	0	1,950	242	355	1,329	0

INTERSECTION VOLUME DEVELOPMENT

I-77 NB Off Ramp and Cherry Road AM PEAK HOUR

Description	I-77 NB Off Ramp <u>Northbound</u>			I-77 NB Off Ramp <u>Southbound</u>			Cherry Road <u>Eastbound</u>			Cherry Road <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed Volumes	0	0	314	0	0	158	0	823	805	0	616	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0
2019 Existing Traffic	0	0	314	0	0	158	0	823	805	0	616	0
2019 PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
2023 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	8%	2%	2%	4%	2%	2%	12%	2%	2%	2%
Annual Growth Rate (2023)	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Annual Growth Rate (2043)	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Growth Factor #2	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082
Growth Factor #2	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608
2023 Background Traffic (No AD)	0	0	340	0	0	171	0	891	871	0	667	0
2043 Background Traffic (No AD)	0	0	505	0	0	254	0	1,324	1,295	0	991	0
Approved Development #2023	0	0	0	0	0	0	0	4	0	0	24	0
Approved Development #2043	0	0	0	0	0	0	0	20	0	0	94	0
Approved Development #3	0	0	0	0	0	0	0	0	0	0	0	0
Approved Development Trips	0	0	0	0	0	0	0	24	0	0	118	0
2023 Opening Year No Build Traffic	0	0	340	0	0	171	0	895	871	0	691	0
2043 Horizon No Build Traffic	0	0	505	0	0	254	0	1,344	1,295	0	1,085	0
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Project Trips	0	0	0	0	0	0	0	0	0	0	0	0
Shift Traffic (Existing)	0	0	0	0	0	0	0	-106	-248	0	-28	0
Shift Traffic (2023)	0	0	0	0	0	0	0	-115	-269	0	-30	0
Site Traffic (2043)	0	0	0	0	0	0	0	-170	-400	0	-45	0
2023 Opening Year Build Total	0	0	340	0	0	171	0	780	602	0	661	0
2043 Horizon Year Build Total	0	0	505	0	0	254	0	1,174	895	0	1,040	0

PM PEAK HOUR

Description	I-77 NB Off Ramp <u>Northbound</u>			I-77 NB Off Ramp <u>Southbound</u>			Cherry Road <u>Eastbound</u>			Cherry Road <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed Volumes	0	0	334	0	0	196	0	896	622	0	1,040	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0
2019 Existing Traffic	0	0	334	0	0	196	0	896	622	0	1,040	0
2019 PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
2023 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Annual Growth Rate (2023)	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Annual Growth Rate (2043)	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Growth Factor #2	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082
Growth Factor #2	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608
2023 Background Traffic (No AD)	0	0	362	0	0	212	0	970	673	0	1,126	0
2043 Background Traffic (No AD)	0	0	537	0	0	315	0	1,441	1,000	0	1,673	0
Approved Development #2023	0	0	0	0	0	0	0	22	0	0	6	0
Approved Development #2043	0	0	0	0	0	0	0	91	0	0	37	0
Approved Development #3	0	0	0	0	0	0	0	0	0	0	0	0
Approved Development Trips	0	0	0	0	0	0	0	113	0	0	43	0
2023 Opening Year No Build Traffic	0	0	362	0	0	212	0	992	673	0	1,132	0
2043 Horizon No Build Traffic	0	0	537	0	0	315	0	1,532	1,000	0	1,710	0
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Project Trips	0	0	0	0	0	0	0	0	0	0	0	0
Shift Traffic (Existing)	0	0	0	0	0	0	0	-30	-212	0	-189	0
Shift Traffic (2023)	0	0	0	0	0	0	0	-32	-230	0	-205	0
Site Traffic (2043)	0	0	0	0	0	0	0	-48	-342	0	-304	0
2023 Opening Year Build Total	0	0	362	0	0	212	0	960	443	0	927	0
2043 Horizon Year Build Total	0	0	537	0	0	315	0	1,484	658	0	1,406	0

INTERSECTION VOLUME DEVELOPMENT (SBR Slip Ramp)

I-77 SB On Ramp/I-77 SB Off Ramp and Dave Lyle Blvd AM PEAK HOUR

Description	I-77 SB On Ramp <u>Northbound</u>			I-77 SB Off Ramp <u>Southbound</u>			Dave Lyle Blvd <u>Eastbound</u>			Dave Lyle Blvd <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed Volumes	0	0	0	0	0	330	0	1,131	0	0	678	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	29	0
2019 Existing Traffic	0	0	0	0	0	330	0	1,131	0	0	707	0
2019 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
2023 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	4%	2%	2%	2%	3%	5%	6%	3%	2%
Annual Growth Rate (2023)	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Annual Growth Rate (2043)	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Growth Factor #1	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082
Growth Factor #2	1.127	1.127	1.127	1.127	1.127	1.127	1.127	1.127	1.127	1.127	1.127	1.127
2023 Background Traffic (No AD)	0	0	0	0	0	357	0	1,224	0	0	765	0
2043 Background Traffic (No AD)	0	0	0	0	0	372	0	1,275	0	0	797	0
Approved Development #2023	0	0	0	0	0	0	0	35	0	0	203	0
Approved Development #2043	0	0	0	0	0	0	0	164	0	0	781	0
Approved Development #3	0	0	0	0	0	0	0	0	0	0	0	0
Approved Development Trips	0	0	0	0	0	0	0	199	0	0	984	0
2023 Opening Year No Build Traffic	0	0	0	0	0	357	0	1,259	0	0	968	0
2043 Horizon No Build Traffic	0	0	0	0	0	372	0	1,439	0	0	1,578	0
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Project Trips	0	0	0	0	0	0	0	0	0	0	0	0
Shift Traffic (Existing)	0	0	0	0	0	0	0	-10	0	0	-9	0
Shift Traffic (2023)	0	0	0	0	0	0	0	-11	0	0	-10	0
Shift Traffic (2043)	0	0	0	0	0	0	0	-12	0	0	-22	0
2043 Opening Year Build Total	0	0	0	0	0	357	0	1,213	0	0	755	0
Horizon Year Build Total	0	0	0	0	0	372	0	1,263	0	0	775	0

PM PEAK HOUR

Description	I-77 SB On Ramp <u>Northbound</u>			I-77 SB Off Ramp <u>Southbound</u>			Dave Lyle Blvd <u>Eastbound</u>			Dave Lyle Blvd <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed Volumes	0	0	0	0	0	438	0	1,656	0	0	1,408	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	25	0
2019 Existing Traffic	0	0	0	0	0	438	0	1,656	0	0	1,433	0
2019 PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
2023 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Annual Growth Rate (2023)	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Annual Growth Rate (2043)	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Growth Factor #1	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082
Growth Factor #2	1.127	1.127	1.127	1.127	1.127	1.127	1.127	1.127	1.127	1.127	1.127	1.127
2023 Background Traffic (No AD)	0	0	0	0	0	474	0	1,793	0	0	1,551	0
2043 Background Traffic (No AD)	0	0	0	0	0	494	0	1,867	0	0	1,615	0
Approved Development #2023	0	0	0	0	0	0	0	187	0	0	52	0
Approved Development #2043	0	0	0	0	0	0	0	759	0	0	306	0
Approved Development #3	0	0	0	0	0	0	0	0	0	0	0	0
Approved Development Trips	0	0	0	0	0	0	0	946	0	0	358	0
2023 Opening Year No Build Traffic	0	0	0	0	0	474	0	1,980	0	0	1,603	0
2043 Horizon No Build Traffic	0	0	0	0	0	494	0	2,626	0	0	1,921	0
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Project Trips	0	0	0	0	0	0	0	0	0	0	0	0
Shift Traffic (Existing)	0	0	0	0	0	0	0	-58	0	0	-72	0
Shift Traffic (2023)	0	0	0	0	0	0	0	-62	0	0	-80	0
Shift Traffic (2043)	0	0	0	0	0	0	0	-65	0	0	-175	0
2043 Opening Year Build Total	0	0	0	0	0	474	0	1,731	0	0	1,471	0
Horizon Year Build Total	0	0	0	0	0	494	0	1,802	0	0	1,440	0

INTERSECTION VOLUME DEVELOPMENT

I-77 SB On Ramp/I-77 SB Off Ramp and Dave Lyle Blvd AM PEAK HOUR

Description	I-77 SB On Ramp <u>Northbound</u>			I-77 SB Off Ramp <u>Southbound</u>			Dave Lyle Blvd <u>Eastbound</u>			Dave Lyle Blvd <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed Volumes	0	0	0	313	1	79	0	1,014	117	119	599	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	6	29	0
2019 Existing Traffic	0	0	0	313	1	79	0	1,014	117	125	628	0
2019 PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
2023 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%	3%	2%
Annual Growth Rate (2023)	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Annual Growth Rate (2043)	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Growth Factor #2	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082
Growth Factor #2	1.127	1.127	1.127	1.127	1.127	1.127	1.127	1.127	1.127	1.127	1.127	1.127
2023 Background Traffic (No AD)	0	0	0	339	1	86	0	1,126	127	135	696	0
2043 Background Traffic (No AD)	0	0	0	353	1	89	0	2,857	132	141	1,681	0
Approved Development #2023	0	0	0	0	0	0	0	0	35	0	203	0
Approved Development #2023	0	0	0	0	0	0	0	0	164	0	781	0
Approved Development #3	0	0	0	0	0	0	0	0	0	0	0	0
Approved Development Trips	0	0	0	0	0	0	0	0	199	0	984	0
2023 Opening Year No Build Traffic	0	0	0	339	1	86	0	1,126	162	135	899	0
2043 Horizon No Build Traffic	0	0	0	353	1	89	0	2,857	296	141	2,462	0
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Project Trips	0	0	0	0	0	0	0	0	0	0	0	0
Shift Traffic (Existing)	0	0	0	0	0	0	0	0	-10	-47	-9	0
Shift Traffic (2023)	0	0	0	0	0	0	0	0	-10	-51	-10	0
Shift Traffic (2043)	0	0	0	0	0	0	0	0	-11	-53	-22	0
2023 Opening Year Build Total	0	0	0	339	1	86	0	1,126	117	84	686	0
2043 Horizon Year Build Total	0	0	0	353	1	89	0	2,857	121	88	1,659	0

PM PEAK HOUR

Description	I-77 SB On Ramp <u>Northbound</u>			I-77 SB Off Ramp <u>Southbound</u>			Dave Lyle Blvd <u>Eastbound</u>			Dave Lyle Blvd <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed Volumes	0	0	0	725	0	276	0	1,501	155	171	1,132	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	4	25	0
2019 Existing Traffic	0	0	0	725	0	276	0	1,501	155	175	1,157	0
2019 PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
2023 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Annual Growth Rate (2023)	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Annual Growth Rate (2043)	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Growth Factor #2	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082
Growth Factor #2	1.127	1.127	1.127	1.127	1.127	1.127	1.127	1.127	1.127	1.127	1.127	1.127
2023 Background Traffic (No AD)	0	0	0	785	0	299	0	1,672	168	189	1,281	0
2043 Background Traffic (No AD)	0	0	0	817	0	311	0	4,568	175	197	3,025	0
Approved Development #2023	0	0	0	0	0	0	0	0	187	0	52	0
Approved Development #2023	0	0	0	0	0	0	0	0	759	0	306	0
Approved Development #3	0	0	0	0	0	0	0	0	0	0	0	0
Approved Development Trips	0	0	0	0	0	0	0	0	946	0	358	0
2023 Opening Year No Build Traffic	0	0	0	785	0	299	0	1,672	355	189	1,333	0
2043 Horizon No Build Traffic	0	0	0	817	0	311	0	4,568	934	197	3,331	0
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Project Trips	0	0	0	0	0	0	0	0	0	0	0	0
Shift Traffic (Existing)	0	0	0	0	0	0	0	0	-58	-15	-72	0
Shift Traffic (2023)	0	0	0	0	0	0	0	0	-62	-17	-80	0
Shift Traffic (2043)	0	0	0	0	0	0	0	0	-65	-36	-175	0
2023 Opening Year Build Total	0	0	0	785	0	299	0	1,672	106	172	1,201	0
2043 Horizon Year Build Total	0	0	0	817	0	311	0	4,568	110	161	2,850	0

INTERSECTION VOLUME DEVELOPMENT

I-77 NB Off Ramp/I-77 NB On Ramp and Dave Lyle Blvd AM PEAK HOUR

Description	I-77 NB Off Ramp <u>Northbound</u>			I-77 NB On Ramp <u>Southbound</u>			Dave Lyle Blvd <u>Eastbound</u>			Dave Lyle Blvd <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed Volumes	86	0	142	0	0	0	526	785	0	0	667	487
Balanced Volumes	0	0	0	0	0	0	6	10	0	0	0	0
2019 Existing Traffic	86	0	142	0	0	0	532	795	0	0	667	487
2019 PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
2023 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	7%	2%	2%	2%	3%	4%	2%	2%	3%	3%
Annual Growth Rate (2023)	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
Annual Growth Rate (2043)	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%
Growth Factor #3	1.104	1.104	1.104	1.104	1.104	1.104	1.104	1.104	1.104	1.104	1.104	1.104
Growth Factor #2	2.419	2.419	2.419	2.419	2.419	2.419	2.419	2.419	2.419	2.419	2.419	2.419
2023 Background Traffic (No AD)	95	0	157	0	0	0	587	878	0	0	736	538
2043 Background Traffic (No AD)	208	0	344	0	0	0	1,287	1,923	0	0	1,614	1,178
Approved Development #2023	203	0	0	0	0	0	0	0	0	0	0	0
Approved Development #2043	781	0	0	0	0	0	0	0	0	0	0	0
Approved Development #3	0	0	0	0	0	0	0	0	0	0	0	0
Approved Development Trips	984	0	0	0	0	0	0	0	0	0	0	0
2023 Background Traffic	298	0	157	0	0	0	587	878	0	0	736	538
2043 Background Traffic	989	0	344	0	0	0	1,287	1,923	0	0	1,614	1,178
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Project Trips	0	0	0	0	0	0	0	0	0	0	0	0
Shift Traffic (Existing)	-9	0	0	0	0	0	0	0	0	0	-47	0
Shift Traffic (2023)	-10	0	0	0	0	0	0	0	0	0	-51	0
Shift Traffic (2043)	-22	0	0	0	0	0	0	0	0	0	-53	0
2023 Buildout Total	85	0	157	0	0	0	587	878	0	0	685	538
2043 Buildout Total	186	0	344	0	0	0	1,287	1,923	0	0	1,561	1,178

PM PEAK HOUR

Description	I-77 NB Off Ramp <u>Northbound</u>			I-77 NB On Ramp <u>Southbound</u>			Dave Lyle Blvd <u>Eastbound</u>			Dave Lyle Blvd <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed Volumes	137	2	238	0	0	0	425	1,739	0	0	1,195	522
Balanced Volumes	0	0	0	0	0	0	12	50	0	0	0	0
2019 Existing Traffic	137	2	238	0	0	0	437	1,789	0	0	1,195	522
2019 PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
2023 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Annual Growth Rate (2023)	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
Annual Growth Rate (2043)	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%
Growth Factor #3	1.104	1.104	1.104	1.104	1.104	1.104	1.104	1.104	1.104	1.104	1.104	1.104
Growth Factor #2	2.419	2.419	2.419	2.419	2.419	2.419	2.419	2.419	2.419	2.419	2.419	2.419
2023 Background Traffic (No AD)	151	2	263	0	0	0	482	1,975	0	0	1,319	576
2043 Background Traffic (No AD)	331	5	576	0	0	0	1,057	4,328	0	0	2,891	1,263
Approved Development #2023	52	0	0	0	0	0	0	0	0	0	0	0
Approved Development #2043	306	0	0	0	0	0	0	0	0	0	0	0
Approved Development #3	0	0	0	0	0	0	0	0	0	0	0	0
Approved Development Trips	358	0	0	0	0	0	0	0	0	0	0	0
Opening Year No Build Traffic	203	2	263	0	0	0	482	1,975	0	0	1,319	576
Horizon No Build Traffic	637	5	576	0	0	0	1,057	4,328	0	0	2,891	1,263
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Project Trips	0	0	0	0	0	0	0	0	0	0	0	0
Shift Traffic (Existing)	-72	0	0	0	0	0	0	0	0	0	-15	0
Shift Traffic (2023)	-80	0	0	0	0	0	0	0	0	0	-17	0
Shift Traffic (2043)	-175	0	0	0	0	0	0	0	0	0	-36	0
Opening Year Build Total	71	2	263	0	0	0	482	1,975	0	0	1,302	576
Horizon Year Build Total	156	5	576	0	0	0	1,057	4,328	0	0	2,855	1,263

I-77 NB Off Ramp at Panters Interchange

2043 Build Volume Development

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM Peak Hour												
Shift Traffic	55	0	84	0	0	0	0	242	499	51	135	0
Site Traffic	781	0	0	0	0	0	0	20	329	0	94	0
2043 Traffic	836	0	84	0	0	0	0	262	828	51	229	0
PM Peak Hour												
Shift Traffic	436	0	26	0	0	0	0	80	428	26	368	0
Site Traffic	306	0	0	0	0	0	0	91	1517	0	37	0
2043 Traffic	742	0	26	0	0	0	0	171	1945	26	405	0

2023 Opening Year Volume Development

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM Peak Hour												
Shift Traffic	34	0	51	0	0	0	0	148	304	31	82	0
Site Traffic	203	0	0	0	0	0	0	4	71	0	24	0
2023 Traffic	237	0	51	0	0	0	0	152	375	31	106	0
PM Peak Hour												
Shift Traffic	266	0	16	0	0	0	0	49	261	16	225	0
Site Traffic	52	0	0	0	0	0	0	22	374	0	6	0
2023 Traffic	318	0	16	0	0	0	0	71	635	16	231	0

I-77 SB Off Ramp at Panters Interchange

2043 Build Volume Development

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM Peak Hour												
Shift Traffic	0	40	35	51	25	474	75	656	0	5	101	84
Site Traffic	18	112	272	0	1090	472	52	77	164	610	265	0
2043 Traffic	18	152	307	51	1115	946	127	733	164	615	366	84
PM Peak Hour												
Shift Traffic	0	243	24	26	21	406	452	481	0	39	739	26
Site Traffic	83	518	1276	0	427	185	241	331	64	239	104	0
2043 Traffic	83	761	1300	26	448	591	693	812	64	278	843	26

2023 Opening Year Volume Development

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM Peak Hour												
Shift Traffic	0	25	21	31	15	289	45	400	0	3	61	51
Site Traffic	2	32	69	0	298	109	3	14	46	167	61	0
2023 Traffic	2	57	90	31	313	398	48	414	46	170	122	51
PM Peak Hour												
Shift Traffic	0	148	15	16	13	248	276	279	0	24	451	16
Site Traffic	10	170	354	0	76	28	17	42	12	42	16	0
2023 Traffic	10	318	369	16	89	276	293	321	12	66	467	16

Access Road 2 at Access Road 3

2043 Build Volume Development												
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM Peak Hour												
Shift Traffic								731			574	
Site Traffic	12	12	32	67	117	18	71	194	55	254	207	294
2043 Traffic	12	12	32	67	117	18	71	925	55	254	781	294
PM Peak Hour												
Shift Traffic								932			1145	
Site Traffic	54	54	148	277	46	31	67	212	22	99	106	166
2043 Traffic	54	54	148	277	46	31	67	1144	22	99	1251	166

2023 Opening Year Volume Development												
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM Peak Hour												
Shift Traffic								436			350	
Site Traffic	2	2	0	9	24	7	3	54	12	57	113	2
2023 Traffic	2	2	0	9	24	7	3	490	12	57	463	2
PM Peak Hour												
Shift Traffic								553			850	
Site Traffic	9	10	0	2	6	2	17	69	3	14	29	10
2023 Traffic	9	10	0	2	6	2	17	622	3	14	879	10

Appendix E

Signal Timing Plans

SIGNAL EQUIPMENT

ONE (1) ⑧ PHASE FULLY ACTUATED STANDARD 170 CONTROLLER WITH FLASHER, SIGNAL MONITOR UNIT, AND POLE/BASE-MOUNTED 3365/332A CABINET. EXT. PROP.

4 MODEL 222, (2)-CHANNEL VEHICLE DETECTOR UNITS

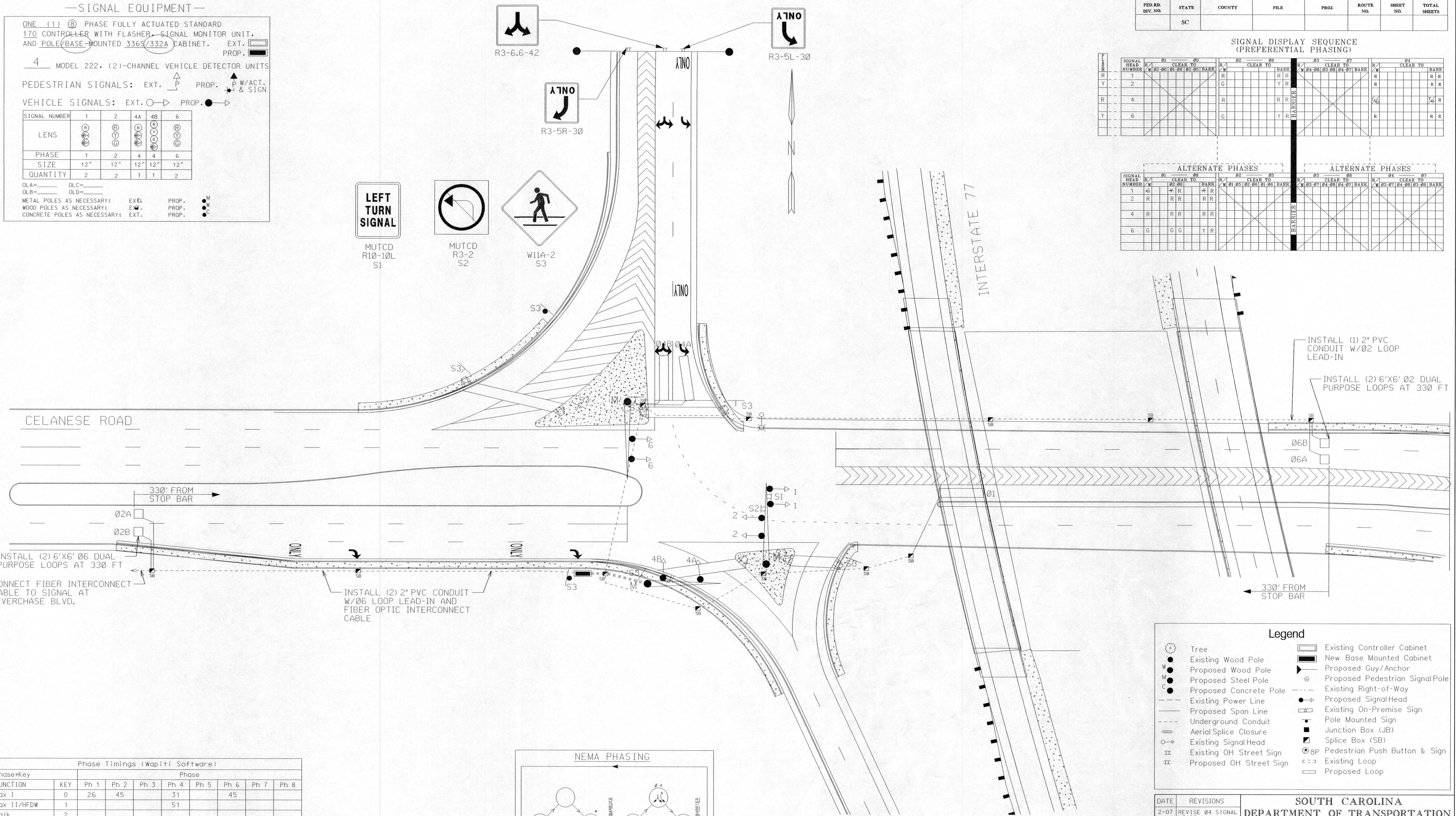
PEDESTRIAN SIGNALS: EXT. PROP. W/ACT. & SIGN

VEHICLE SIGNALS: EXT. PROP.

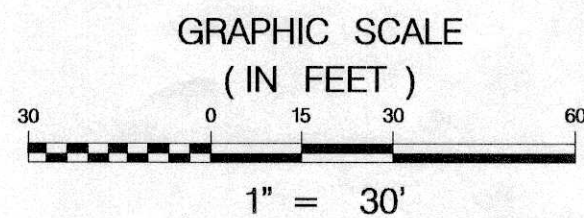
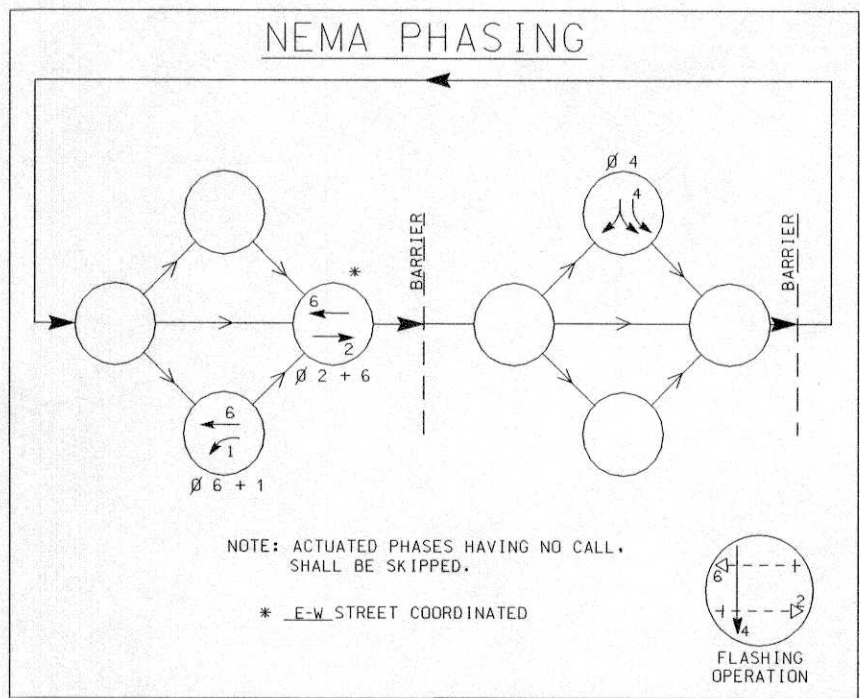
SIGNAL NUMBER	1	2	4A	4B	6
LENS					
PHASE	1	2	4	4	6
SIZE	12"	12"	12"	12"	12"
QUANTITY	2	2	1	1	2

OLA= OLC= OLB= OLD=

METAL POLES AS NECESSARY: EXD. PROP. CONCRETE POLES AS NECESSARY: EXT. PROP. PROP.



Phase Timings (Wapiti Software)								
Phase+Key	KEY	Ph 1	Ph 2	Ph 3	Ph 4	Ph 5	Ph 6	Ph 7
FUNCTION								
Max I	0	26	45		31		45	
Max II/HFDW	1				51			
Walk	2							
Flashing DW	3							
Max Initial	4							
Min Green	5	8			8			
TBR	6							
TTR	7							
Observe Gap	8							
Passage	9	3.0			3.0			
Min Gap	A							
Added Actuation	B							
Yellow	C	4.3	4.3		3.7		4.3	
Red Clear	D	2.1	2.1		2.7		2.1	
Red Revert	E							
Walk II	F							



FED. RD. DIV. NO.	STATE	COUNTY	FILE	PROJ.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
	SC						

SIGNAL DISPLAY SEQUENCE (PREFERENTIAL PHASING)															
SIGNAL HEAD NUMBER	R	W	B	Y	R	W	B	Y	R	W	B	Y	R	W	B
1															
2															
4															
6															

ALTERNATE PHASES															
SIGNAL HEAD NUMBER	R	W	B	Y	R	W	B	Y	R	W	B	Y	R	W	B
1															
2															
4															
6															

Legend

- Tree
- Existing Wood Pole
- Proposed Wood Pole
- Proposed Steel Pole
- Proposed Concrete Pole
- Existing Power Line
- Proposed Span Line
- Underground Conduit
- Aerial Splice Closure
- Existing Signal Head
- Existing OH Street Sign
- Proposed OH Street Sign
- Existing Controller Cabinet
- New Base Mounted Cabinet
- Proposed Guy/Anchor
- Proposed Pedestrian Signal Pole
- Existing Right-of-Way
- Proposed Signal Head
- Existing On-Premise Sign
- Pole Mounted Sign
- Junction Box (JB)
- Splice Box (SB)
- Pedestrian Push Button & Sign
- Existing Loop
- Proposed Loop

DATE	2-07	REVISIONS	REVISE 04 SIGNAL HEADS.	SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION	
				COLUMBIA S.C.	
				SUBJECT TITLE: ROCK\HILL, I-77 SIGNAL SYSTEM PROJECT	
				SPECIFIC LOCATION: INTERSECTION NO. 2 PROPOSED CONDITIONS FOR CELANESE ROAD AT I-77 SB RAMP	
				CITY: ROCKHILL	COUNTY: YORK
DESIGNED: GKS				APPROVED BY:	APPROVED BY:
DRAWN: HF				ENGINEER	
CHECKED: GKS				SCALE: 1\"/>	
REVIEWED: MTD				DATE: JANUARY 2002	INDEX NO. 46-775B-161
RECOMMENDED:					

Times [1.1.1]	1	2	3	4	5	6	7	8	pat#	Cyc	Off	Split	Seq	pat#	Cyc	Off	Split	Seq	pat#	Cyc	Off	Split	Seq	pat#	Cyc	Off	Split	Seq	STD8							
Min Green									1	120	0	1	1	13					25					37												
Gap, Ext									2	110	0	2	1	14					26					38												
Max 1									3	130	119	3	1	15					27					39												
Max 2									4	110	23	4	1	16					28					40					Ring/Startup [1.1.4]							
Yel Clear									5					17					29					41					Phs	Ring	Start	Enable				
Red Clear									6					18					30					42					1	1	RED	1				
Walk									7					19					31					43					2	1	Green	1				
Ped Clear									8					20					32					44					3	1	RED	1				
Red Revert									9					21					33					45					4	1	RED	1				
Add Initial									10					22					34					46					5	2	RED	1				
Max Initial									11					23					35					47					6	2	Green	1				
Time B4 Reduct									12					24					36					48					7	2	RED	1				
Cars B4 Reduct									Split				1	2	3	4	5	6	7	8	Split				1	2	3	4	5	6	7	8	8	2	RED	1
Time to Reduce									1	Coord	25	55		40		80		40	13	Coord									Coord Modes [2.1]							
Reduced By									In	2						Max			13	2		Max				Max			Test OpMode	0						
Min Gap									2	Coord	25	45		40		70		40	14	Coord								Correction	SHRT/LNG							
DyMaxLim									ave	2						Max			14	2		Max				Max			Maximum	Max inhib						
Max Step									3	Coord	25	50		55		75		55	15	Coord								Force-off	FIXED							
Options [1.1.2]	1	2	3	4	5	6	7	8	out	2						Max			15	2		Max				Max			Closed Loop	ON						
Enable									4	Coord	21	38		51		59		51	16	Coord								Stop-in-Walk	ON							
Min Recall									In	2				Max		Max			16	2		Max				Max			Auto Rest	ON						
Max Recall									5	Coord									17	Coord								Expand Splt	OFF							
Ped Recall									ave	2		Max				Max			17	2		Max				Max			Ped Recycle	No Recycle						
Soft Recall									6	Coord									18	Coord								Before	Timed							
Lock Calls									out	2		Max				Max			18	2		Max				Max			After	Timed						
Auto Flash Entry									7	Coord									19	Coord								Auto Flash [1.4.1]								
Auto Flash Exit									In	2		Max				Max			19	2		Max				Max			Auto Flash	PH OVER						
Dual Entry									8	Coord									20	Coord								Flash Yel	4							
Enable Simul Gap									ave	2		Max				Max			20	2		Max				Max			Flash Red	2						
Gaurantee Pass.									9	Coord									21	Coord								Unit Params [1.2.1]								
Rest in Walk									out	2		Max				Max			21	2		Max				Max			Phase Mode	STD8						
Condition Serv.									10	Coord									22	Coord								IO mode	Mode 0							
Non-Actuated 1										2		Max				Max			22	2		Max				Max			Loc Flsh Start	ON						
Non-Actuated 2									11	Coord									23	Coord								Start Flash(s)	0							
Add Init Calc										2		Max				Max			23	2		Max				Max			Star ALLRed	0						
Options [1.1.3]	1	2	3	4	5	6	7	8	12	Coord									24	Coord								Yellow < 3	OFF							
Reservice										2		Max				Max			24	2		Max				Max			Display Time	15						
PedClr Thru Yel									DayPlan1 M-F					DayPlan2 Sat&Sun					DayPlan3				Notes				Red Revert	4								
Skip Red No Call										Hour	Min	Act			Hour	Min	Act			Hour	Min	Act						MCE Timeout	0							
Red Rest									1	0	0	99		1	0	0	99		1									Feature Profile	0							
Max II									2	6	0	1		2	6	0	1		2									Free Ring Seq	1							
Conflicting Pha									3	9	0	2		3	9	0	2		3									Auxswitch	STOPTM							
Conflicting Pha									4	14	30	3		4	14	30	3		4									SDLC Retry	0							
Omit Yellow									5	16	0	4		5	22	0	99		5									TS2 Det Faults	OFF							
Ped Delay									6	18	30	3		6					6									Auto Ped Clear	OFF							
Grn/Ped Delay									7	22	0	99		7					7									SDLC Retry	0							
									8					8					8																	
System: Celanese Road									Act 99 = free																											
Intersection: Celanese Road at I-77 Southbound Off-Ramp																																				

SIGNAL EQUIPMENT

ONE (1) 8 PHASE FULLY ACTUATED STANDARD
2070 CONTROLLER WITH FLASHER, SIGNAL MONITOR UNIT,
AND NEW BASE-MOUNTED 332A CABINET.

EXT. ☐
PROP. ☐

4 MODEL 222, (2)-CHANNEL VEHICLE DETECTOR UNITS

PEDESTRIAN SIGNALS: PROP. PUSHBUTTON ☐

VEHICLE SIGNALS: EXT. ☐ ☐ PROP. ☐ ☐

SIGNAL NUMBER	1, 2F	2	4	4A	4B	6			
LENS	⊕ ⊕ ⊕ ⊕	⊕ ⊕ ⊕ ⊕	⊕ ⊕ ⊕ ⊕	⊕ ⊕ ⊕ ⊕	⊕ ⊕ ⊕ ⊕	⊕ ⊕ ⊕ ⊕			
PHASE	1, OLA	2	4	4	4	6			
SIZE	12" 12"		12" 12"	12" 12"	12" 12"	12"			
QUANTITY	1	3	1	1	1	2			

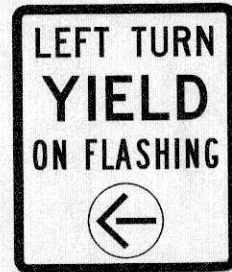
OLA= 1+2(FYA)

1, 2F

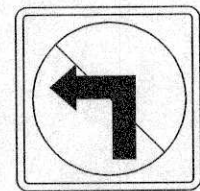
SIGN A

SIGN B

OLA RED ☐
OLA YELLOW ☐
OLA GREEN ☐
Ø1 GREEN ☐



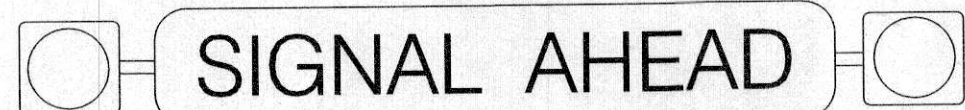
R10-12A-30



R3-2-24

2 12" YELLOW BEACONS TO FLASH ALTERNATELY
IN A CONTINUOUS OPERATION.

SIGN C



OHW3-3a-108

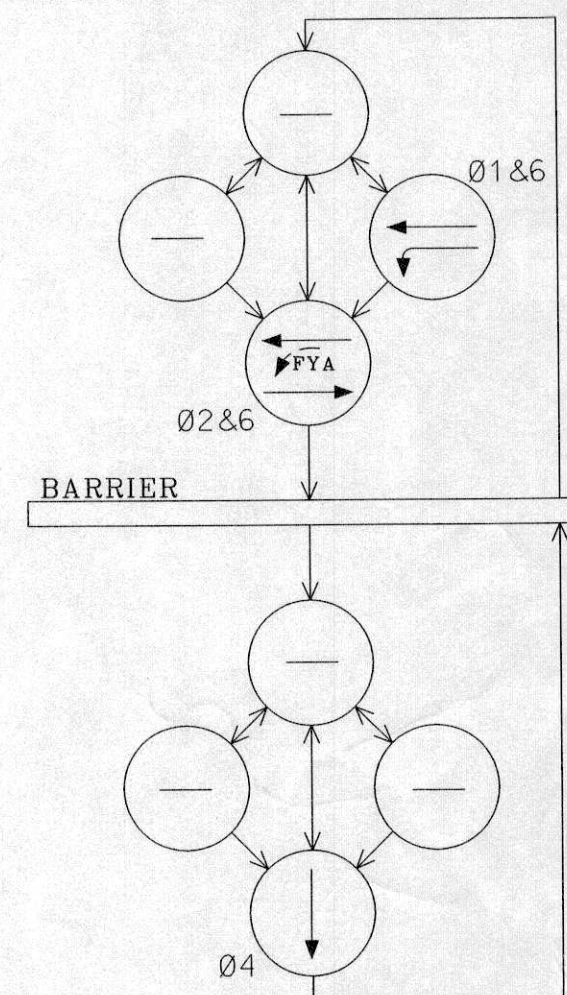
SIGNAL DISPLAY SEQUENCE
(PREFERENTIAL PHASING)

SIGNAL HEAD NUMBER	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
1, 2F	W	Ø2-Ø6	Ø1-Ø6	Ø2-Ø5	BARR.			
2						Y	R	
4						R	R	
4A						R	R	
4B						R	R	
6						G	G	

ALTERNATE PHASES

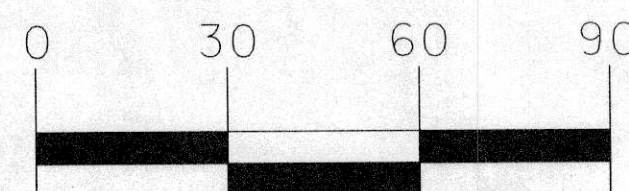
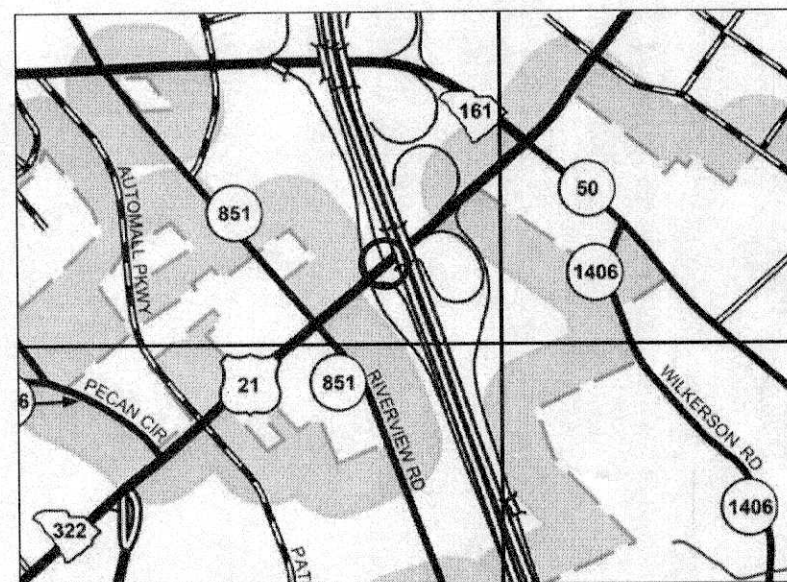
SIGNAL HEAD NUMBER	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
1, 2F	G							
2	R	R	R	R	R	R	R	R
4	R	R	R	R	R	R	R	R
4A	R	R	R	R	R	R	R	R
4B	R	R	R	R	R	R	R	R
6	G	G	G	G	G	G	G	G

SIGNAL PHASE SEQUENCE



Phase Timings							
	Ph 1	Ph 2	Ph 3	Ph 4	Ph 5	Ph 6	Ph 7
Min Green	8	28		8		28	
Gap, Ext	3.0	3.0		3.0		3.0	
Max 1	30	45		30		45	
Max 2							
Yel Clearance	3.0	4.0		4.0		4.0	
Red Clearance	4.2	3.2		2.8		3.2	
Walk							
Ped Clearance							
Red Revert							
Add Initial							
Max Initial							
Time B4 Reduct							
Cars B4 Reduct							
Time To Reduce							
Reduce By							
Min Gap							
DyMaxLim							
Max Step							
Recall	Off	Min		Off		Min	

PHASE/ LOOP LTR#	DETECTOR AMP NO. CHAN NO.	WIRED TO PHASE(S)	X LOOK X NON-LOOK X PULSE X PRES	OPERATION DELAY SEC EXT SEC	SPECIAL FEATURES TIME OF DAY-TOD SWITCHING, etc.	LOOP DESIGN SIZE X NO. OF TURNS DISTANCE FROM S
1A		1	X	X		QUAD 6'X30' 2-4-2 50'
2A		2	X	X		6'X6' 5 300'
2B		2	X	X		6'X6' 5 300'
2C		2	X	X		6'X6' 5 300'
4A		4	X	X		QUAD 6'X30' 2-4-2 0'
4B		4	X	X		QUAD 6'X30' 2-4-2 0'
6A		6	X	X		6'X6' 5 300'
6B		6	X	X		6'X6' 5 300'



SCDOT

Post Office Box 191
Columbia, South Carolina 29202

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DKT. NO. SHEET NO.

ROUTE NUMBER US 21 177 SB
APPROACH DIRECTION EB WB - SB
SIGNAL DESIGN SPEED 40 40 - 35
GRADE (%) 0 0 - -4

DATE	REVISIONS	SUBJECT TITLE	CITY	COUNTY	APPROVED BY	SCALE	DATE	SHEET NO.	INDEX NO.
1-16	REVISE Ø1 PROT. ONLY TO FYA REVISE CLEAR TIMES	TRAFFIC SIGNAL	ROCK HILL	YORK	Maui & Shaw	1" = 30'	1/23/16	46-77SB-21	

Times [1.1.1]	1	2	3	4	5	6	7	8	pat#	Cyc	Off	Split	Seq	pat#	Cyc	Off	Split	Seq	pat#	Cyc	Off	Split	Seq	pat#	Cyc	Off	Split	Seq	STD8						
Min Green									1	120	31	1	1	13					25					37						<div>Ring/Startup [1.1.4]</div> <div>Phs Ring Start Enable</div> <div>1 1 RED 1</div> <div>2 1 Green 1</div> <div>3 1 RED 1</div> <div>4 1 RED 1</div> <div>5 2 RED 1</div> <div>6 2 Green 1</div> <div>7 2 RED 1</div> <div>8 2 RED 1</div>					
Gap, Ext									2	120	34	2	1	14					26					38											
Max 1									3	130	46	3	1	15					27					39											
Max 2									4					16					28					40											
Yel Clear									5					17					29					41											
Red Clear									6					18					30					42											
Walk									7					19					31					43											
Ped Clear									8					20					32					44											
Red Revert									9					21					33					45											
Add Initial									10					22					34					46											
Max Initial									11					23					35					47											
Time B4 Reduct									12					24					36					48											
Cars B4 Reduct									Split		1	2	3	4	5	6	7	8	Split		1	2	3	4	5	6	7	8	8	2	RED	1			
Time to Reduce									1	Coord	22	63		35		85		35	13	Coord													Coord Modes [2.1]		
Reduced By									am	6						Max			13	2		Max				Max							Test OpMode 0		
Min Gap									2	Coord	22	63		35		85		35	14	Coord													Correction SHRT/LNG		
DyMaxLim									nn	6						Max			14	2		Max				Max							Maximum Max inhib		
Max Step									3	Coord	20	65		45		85		45	15	Coord													Force-off FIXED		
Options [1.1.2]	1	2	3	4	5	6	7	8	pm	6						Max			15	2		Max				Max							Closed Loop ON		
Enable	x	x		x		x			4	Coord									16	Coord													Stop-in-Walk ON		
Min Recall									In	2		Max				Max			16	2		Max				Max							Auto Rest ON		
Max Recall									5	Coord									17	Coord													Expand Splt OFF		
Ped Recall									AM	2		Max				Max			17	2		Max				Max							Ped Recycle No Recycle		
Soft Recall									6	Coord									18	Coord													Before Timed		
Lock Calls									NN	2		Max				Max			18	2		Max				Max							After Timed		
Auto Flash Entry									7	Coord									19	Coord													Auto Flash [1.4.1]		
Auto Flash Exit									PM	2		Max				Max			19	2		Max				Max							Auto Flash PH OVER		
Dual Entry									8	Coord									20	Coord													Flash Yel 4		
Enable Simul Gap									ave	2		Max				Max			20	2		Max				Max							Flash Red 2		
Gaurantee Pass.									9	Coord									21	Coord													Unit Params [1.2.1]		
Rest in Walk									out	2		Max				Max			21	2		Max				Max							Phase Mode STD8		
Condition Serv.									10	Coord									22	Coord													IO mode Mode 0		
Non-Actuated 1										2		Max				Max			22	2		Max				Max							Loc Flsh Start ON		
Non-Actuated 2									11	Coord									23	Coord													Start Flash(s) 0		
Add Init Calc										2		Max				Max			23	2		Max				Max							Star ALLRed 0		
Options [1.1.3]	1	2	3	4	5	6	7	8	12	Coord									24	Coord													Yellow < 3 OFF		
Reservice										2		Max				Max			24	2		Max				Max							Display Time 15		
PedClr Thru Yel									DayPlan1	M-F				DayPlan2	Sat&Sun				DayPlan3														Red Revert 4		
Skip Red No Call										Hour	Min	Act			Hour	Min	Act			Hour	Min	Act											MCE Timeout 0		
Red Rest									1	0	0	99		1	0	0	99		1														Feature Profile 0		
Max II									2	6	0	1		2	6	0	1		2														Free Ring Seq 1		
Conflicting Pha									3	9	0	2		3	9	0	2		3														Auxswitch STOPTM		
Conflicting Pha									4	14	30	3		4	14	30	3		4														SDLC Retry 0		
Omit Yellow									5	22	0	99		5	22	0	99		5														TS2 Det Faults OFF		
Ped Delay									6					6					6														Auto Ped Clear OFF		
Grn/Ped Delay									7					7					7															SDLC Retry 0	
									8					8					8																

System: Cherry Road

Intersection: Cherry Road at I-77 Southbound Ramp

Act 99 = free

Appendix F

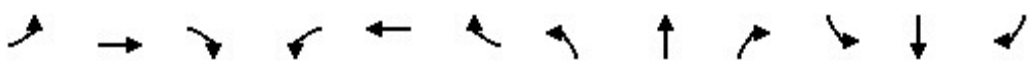
Synchro Analysis Results

Existing

Lanes, Volumes, Timings

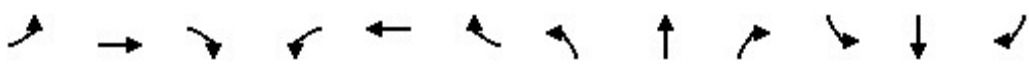
1: I-77 SB On Ramp/I-77 SB Off Ramp & Celanese Rd

Celanese Road
Celanese Rd_2019 Existing AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑	↑↑					↑	↑	
Traffic Volume (vph)	0	2431	369	13	854	0	0	0	0	90	0	30
Future Volume (vph)	0	2431	369	13	854	0	0	0	0	90	0	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	350		0	0		65	475		0
Storage Lanes	0		1	1		0	0		0	1		0
Taper Length (ft)	100			100			100			250		
Lane Util. Factor	1.00	*0.80	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt			0.850								0.924	
Flt Protected				0.950						0.950	0.976	
Satd. Flow (prot)	0	4471	1553	1671	3438	0	0	0	0	1545	1515	0
Flt Permitted				0.950						0.950	0.976	
Satd. Flow (perm)	0	4471	1553	1671	3438	0	0	0	0	1545	1515	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			147								89	
Link Speed (mph)		45			45			25			45	
Link Distance (ft)		190			746			853			1033	
Travel Time (s)		2.9			11.3			23.3			15.7	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	4%	8%	5%	2%	2%	2%	2%	11%	2%	4%
Adj. Flow (vph)	0	2532	384	14	890	0	0	0	0	94	0	31
Shared Lane Traffic (%)										32%		
Lane Group Flow (vph)	0	2532	384	14	890	0	0	0	0	64	61	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	Yes
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			16			18			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
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	15		9
Number of Detectors		1	0	1	1					1	1	
Detector Template										Left	Thru	
Leading Detector (ft)		336	0	30	336					30	30	
Trailing Detector (ft)		330	0	0	330					0	0	
Detector 1 Position(ft)		330	0	0	330					0	0	
Detector 1 Size(ft)		6	20	30	6					30	30	
Detector 1 Type		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	
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	
Turn Type		NA	Free	Prot	NA					Split	NA	
Protected Phases		2		1	6					4	4	
Permitted Phases			Free									
Detector Phase		2		1	6					4	4	
Switch Phase												
Minimum Initial (s)		15.0		8.0	15.0					8.0	8.0	
Minimum Split (s)		21.6		14.6	21.6					14.6	14.6	

Lanes, Volumes, Timings
1: I-77 SB On Ramp/I-77 SB Off Ramp & Celanese Rd

Celanese Road
Celanese Rd_2019 Existing AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)		55.0		25.0	80.0					40.0	40.0	
Total Split (%)		45.8%		20.8%	66.7%					33.3%	33.3%	
Maximum Green (s)		48.6		18.6	73.6					33.6	33.6	
Yellow Time (s)		4.3		4.3	4.3					3.7	3.7	
All-Red Time (s)		2.1		2.1	2.1					2.7	2.7	
Lost Time Adjust (s)		0.0		0.0	0.0					0.0	0.0	
Total Lost Time (s)		6.4		6.4	6.4					6.4	6.4	
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	
Recall Mode		C-Max		None	C-Max					None	None	
Act Effect Green (s)		94.8	120.0	8.1	100.6					10.7	10.7	
Actuated g/C Ratio		0.79	1.00	0.07	0.84					0.09	0.09	
v/c Ratio		0.72	0.25	0.12	0.31					0.46	0.28	
Control Delay		11.2	0.4	55.4	3.3					62.2	7.4	
Queue Delay		0.0	0.0	0.0	0.0					0.0	0.0	
Total Delay		11.2	0.4	55.4	3.3					62.2	7.4	
LOS		B	A	E	A					E	A	
Approach Delay		9.8			4.1						35.4	
Approach LOS		A			A						D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 9.3

Intersection LOS: A

Intersection Capacity Utilization 64.3%

ICU Level of Service C

Analysis Period (min) 15

* User Entered Value

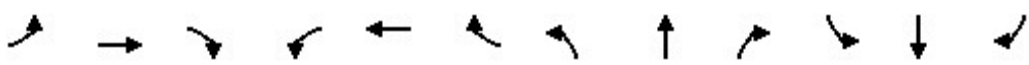
Splits and Phases: 2: I-77 SB On Ramp/I-77 SB Off Ramp & Celanese Rd



HCM Signalized Intersection Capacity Analysis













1: I-77 SB On Ramp/I-77 SB Off Ramp & Celanese Rd

Celanese Road
Celanese Rd_2019 Existing AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑	↑↑					↑	↑	
Traffic Volume (vph)	0	2431	369	13	854	0	0	0	0	90	0	30
Future Volume (vph)	0	2431	369	13	854	0	0	0	0	90	0	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.4	4.0	6.4	6.4					6.4	6.4	
Lane Util. Factor		*0.80	1.00	1.00	0.95					0.95	0.95	
Frt		1.00	0.85	1.00	1.00					1.00	0.92	
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.98	
Satd. Flow (prot)		4471	1553	1671	3438					1545	1515	
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.98	
Satd. Flow (perm)		4471	1553	1671	3438					1545	1515	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	2532	384	14	890	0	0	0	0	94	0	31
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	56	0
Lane Group Flow (vph)	0	2532	384	14	890	0	0	0	0	64	5	0
Heavy Vehicles (%)	2%	2%	4%	8%	5%	2%	2%	2%	2%	11%	2%	4%
Turn Type		NA	Free	Prot	NA					Split	NA	
Protected Phases		2		1	6					4	4	
Permitted Phases			Free									
Actuated Green, G (s)		88.4	120.0	3.3	98.1					9.1	9.1	
Effective Green, g (s)		88.4	120.0	3.3	98.1					9.1	9.1	
Actuated g/C Ratio		0.74	1.00	0.03	0.82					0.08	0.08	
Clearance Time (s)		6.4		6.4	6.4					6.4	6.4	
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		3293	1553	45	2810					117	114	
v/s Ratio Prot		c0.57		0.01	0.26					c0.04	0.00	
v/s Ratio Perm			c0.25									
v/c Ratio		0.77	0.25	0.31	0.32					0.55	0.04	
Uniform Delay, d1		9.6	0.0	57.2	2.7					53.5	51.4	
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	
Incremental Delay, d2		1.8	0.4	3.9	0.3					5.1	0.1	
Delay (s)		11.4	0.4	61.2	3.0					58.6	51.6	
Level of Service		B	A	E	A					E	D	
Approach Delay (s)		9.9			3.9			0.0			55.2	
Approach LOS		A			A			A			E	
Intersection Summary												
HCM 2000 Control Delay			10.0			HCM 2000 Level of Service				A		
HCM 2000 Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)				19.2		
Intersection Capacity Utilization			64.3%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
2: I-77 NB On Ramp & Celanese Rd

Celanese Road
Celanese Rd_2019 Existing AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗				↗		↗
Traffic Volume (vph)	0	980	1541	0	544	108	0	0	0	2	0	323
Future Volume (vph)	0	980	1541	0	544	108	0	0	0	2	0	323
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		325	0		0	125		0
Storage Lanes	0		1	0		1	0		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850						0.850
Flt Protected										0.950		
Satd. Flow (prot)	0	3505	1583	0	3438	1495	0	0	0	1203	0	1509
Flt Permitted										0.950		
Satd. Flow (perm)	0	3505	1583	0	3438	1495	0	0	0	1203	0	1509
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		746			824			769			757	
Travel Time (s)		11.3			12.5			11.7			11.5	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	3%	2%	2%	5%	8%	2%	2%	2%	50%	2%	7%
Adj. Flow (vph)	0	1043	1639	0	579	115	0	0	0	2	0	344
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1043	1639	0	579	115	0	0	0	2	0	344
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)		16			16			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
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		25	15		25	15		9	15		9
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type: Unsignalized												
Intersection Capacity Utilization 98.8%												
ICU Level of Service F												
Analysis Period (min) 15												

HCM 2010 TWSC
2: I-77 NB On Ramp & Celanese Rd

Celanese Road
Celanese Rd_2019 Existing AM

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗				↘		↗
Traffic Vol, veh/h	0	980	1541	0	544	108	0	0	0	2	0	323
Future Vol, veh/h	0	980	1541	0	544	108	0	0	0	2	0	323
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	Yield
Storage Length	-	-	0	-	-	325	-	-	-	125	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	16965	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	3	2	2	5	8	2	2	2	50	2	7
Mvmt Flow	0	1043	1639	0	579	115	0	0	0	2	0	344
Major/Minor	Major1			Major2			Minor2					
Conflicting Flow All	-	0	0	-	-	0				1101	-	290
Stage 1	-	-	-	-	-	-				579	-	-
Stage 2	-	-	-	-	-	-				522	-	-
Critical Hdwy	-	-	-	-	-	-				7.8	-	7.04
Critical Hdwy Stg 1	-	-	-	-	-	-				6.8	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-				6.8	-	-
Follow-up Hdwy	-	-	-	-	-	-				4	-	3.37
Pot Cap-1 Maneuver	0	-	-	0	-	0				144	0	692
Stage 1	0	-	-	0	-	0				409	0	-
Stage 2	0	-	-	0	-	0				442	0	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	-	-	-				144	0	692
Mov Cap-2 Maneuver	-	-	-	-	-	-				259	0	-
Stage 1	-	-	-	-	-	-				409	0	-
Stage 2	-	-	-	-	-	-				442	0	-
Approach	EB			WB			SB					
HCM Control Delay, s	0			0			15.2					
HCM LOS							C					
Minor Lane/Major Mvmt	EBT	EBR	WBT	SBLn1	SBLn2							
Capacity (veh/h)	-	-	-	259	692							
HCM Lane V/C Ratio	-	-	-	0.008	0.497							
HCM Control Delay (s)	-	-	-	19	15.2							
HCM Lane LOS	-	-	-	C	C							
HCM 95th %tile Q(veh)	-	-	-	0	2.8							

Queues

1: I-77 SB On Ramp/I-77 SB Off Ramp & Celanese Rd

Celanese Road

Celanese Road_2019 Existing PM



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT
Lane Group Flow (vph)	1567	327	18	1320	84	519
v/c Ratio	0.62	0.21	0.17	0.61	0.18	1.12
Control Delay	20.2	0.3	56.6	15.8	34.1	113.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.2	0.3	56.6	15.8	34.1	113.3
Queue Length 50th (ft)	282	0	13	311	51	~448
Queue Length 95th (ft)	458	0	38	376	96	#677
Internal Link Dist (ft)	110			666		953
Turn Bay Length (ft)			350		475	
Base Capacity (vph)	2518	1583	235	2170	461	465
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.21	0.08	0.61	0.18	1.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

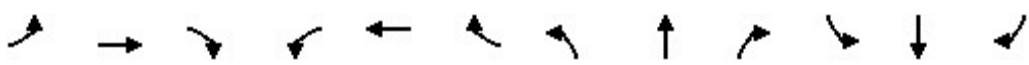
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

1: I-77 SB On Ramp/I-77 SB Off Ramp & Celanese Rd

Celanese Road
Celanese Road_2019 Existing PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑	↑↑					↑	↑	
Traffic Volume (vph)	0	1551	324	18	1307	0	0	0	0	92	1	504
Future Volume (vph)	0	1551	324	18	1307	0	0	0	0	92	1	504
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.4	4.0	6.4	6.4					6.4	6.4	
Lane Util. Factor		*0.80	1.00	1.00	0.95					0.95	0.95	
Frt		1.00	0.85	1.00	1.00					1.00	0.85	
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	
Satd. Flow (prot)		4471	1583	1517	3539					1649	1507	
Flt Permitted		1.00	1.00	0.95	1.00					0.95	1.00	
Satd. Flow (perm)		4471	1583	1517	3539					1649	1507	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	0	1567	327	18	1320	0	0	0	0	93	1	509
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	44	0
Lane Group Flow (vph)	0	1567	327	18	1320	0	0	0	0	84	475	0
Heavy Vehicles (%)	2%	2%	2%	19%	2%	2%	2%	2%	2%	4%	2%	2%
Turn Type		NA	Free	Prot	NA					Split	NA	
Protected Phases		2		1	6					4	4	
Permitted Phases			Free									
Actuated Green, G (s)		63.8	120.0	3.4	73.6					33.6	33.6	
Effective Green, g (s)		63.8	120.0	3.4	73.6					33.6	33.6	
Actuated g/C Ratio		0.53	1.00	0.03	0.61					0.28	0.28	
Clearance Time (s)		6.4		6.4	6.4					6.4	6.4	
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		2377	1583	42	2170					461	421	
v/s Ratio Prot		c0.35		0.01	c0.37					0.05	c0.32	
v/s Ratio Perm			0.21									
v/c Ratio		0.66	0.21	0.43	0.61					0.18	1.13	
Uniform Delay, d1		20.3	0.0	57.3	14.3					32.8	43.2	
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	
Incremental Delay, d2		0.7	0.3	6.9	1.3					0.2	83.7	
Delay (s)		20.9	0.3	64.2	15.6					33.0	126.9	
Level of Service		C	A	E	B					C	F	
Approach Delay (s)		17.4			16.2			0.0			113.8	
Approach LOS		B			B			A			F	
Intersection Summary												
HCM 2000 Control Delay			32.1			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.84									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)				19.2		
Intersection Capacity Utilization			64.9%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 2010 TWSC
2: I-77 NB On Ramp & Celanese Rd

Celanese Road
Celanese Road_2019 Existing PM

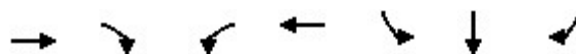
Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑				↓		↑
Traffic Vol, veh/h	0	838	805	0	1038	191	0	0	0	6	0	287
Future Vol, veh/h	0	838	805	0	1038	191	0	0	0	6	0	287
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	Yield
Storage Length	-	-	0	-	-	325	-	-	-	125	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	16965	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	5	2	2	2	2	2	2
Mvmt Flow	0	882	847	0	1093	201	0	0	0	6	0	302
Major/Minor	Major1			Major2			Minor2					
Conflicting Flow All	-	0	0	-	-	0				1534	-	547
Stage 1	-	-	-	-	-	-				1093	-	-
Stage 2	-	-	-	-	-	-				441	-	-
Critical Hdwy	-	-	-	-	-	-				6.84	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-				5.84	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-				5.84	-	-
Follow-up Hdwy	-	-	-	-	-	-				3.52	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	-	0				107	0	481
Stage 1	0	-	-	0	-	0				283	0	-
Stage 2	0	-	-	0	-	0				616	0	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	-	-	-				107	0	481
Mov Cap-2 Maneuver	-	-	-	-	-	-				217	0	-
Stage 1	-	-	-	-	-	-				283	0	-
Stage 2	-	-	-	-	-	-				616	0	-
Approach	EB			WB			SB					
HCM Control Delay, s	0			0			24.3					
HCM LOS							C					
Minor Lane/Major Mvmt	EBT	EBR	WBT	SBLn1	SBLn2							
Capacity (veh/h)	-	-	-	217	481							
HCM Lane V/C Ratio	-	-	-	0.029	0.628							
HCM Control Delay (s)	-	-	-	22.1	24.3							
HCM Lane LOS	-	-	-	C	C							
HCM 95th %tile Q(veh)	-	-	-	0.1	4.3							

Queues

Cherry Road

3: I-77 SB On Ramp/I-77 SB Off Ramp & Cherry Rd

2019 Existing AM



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	1663	155	119	704	35	36	633
v/c Ratio	0.66	0.10	0.56	0.31	0.09	0.10	1.10
Control Delay	23.7	0.1	23.9	9.7	36.8	36.9	94.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.7	0.1	23.9	9.7	36.8	36.9	94.4
Queue Length 50th (ft)	328	0	32	116	22	23	~390
Queue Length 95th (ft)	419	0	85	148	52	53	#621
Internal Link Dist (ft)	1322			244		1267	
Turn Bay Length (ft)		275	250		300		700
Base Capacity (vph)	2514	1583	281	2272	377	371	574
Starvation 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	0.66	0.10	0.42	0.31	0.09	0.10	1.10

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

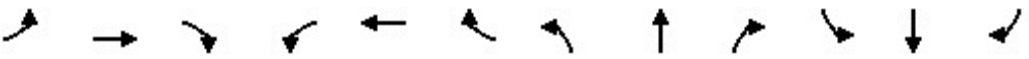
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

3: I-77 SB On Ramp/I-77 SB Off Ramp & Cherry Rd

Cherry Road
2019 Existing AM

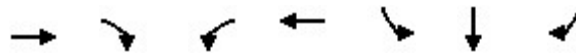
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑	↑↑					↑	↑	↑
Traffic Volume (vph)	0	1563	146	112	662	0	0	0	0	65	2	595
Future Volume (vph)	0	1563	146	112	662	0	0	0	0	65	2	595
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			-4%	
Total Lost time (s)		7.2	4.0	7.2	7.2					6.8	6.8	6.8
Lane Util. Factor		0.91	1.00	1.00	0.95					0.95	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		4940	1583	1703	3505					1605	1580	1584
Flt Permitted		1.00	1.00	0.08	1.00					0.95	0.95	1.00
Satd. Flow (perm)		4940	1583	136	3505					1605	1580	1584
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	1663	155	119	704	0	0	0	0	69	2	633
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	203
Lane Group Flow (vph)	0	1663	155	119	704	0	0	0	0	35	36	430
Heavy Vehicles (%)	2%	5%	2%	6%	3%	2%	2%	2%	2%	9%	50%	4%
Turn Type		NA	Free	pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			Free	6						4		4
Actuated Green, G (s)		61.1	120.0	77.8	77.8					28.2	28.2	28.2
Effective Green, g (s)		61.1	120.0	77.8	77.8					28.2	28.2	28.2
Actuated g/C Ratio		0.51	1.00	0.65	0.65					0.23	0.23	0.23
Clearance Time (s)		7.2		7.2	7.2					6.8	6.8	6.8
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		2515	1583	212	2272					377	371	372
v/s Ratio Prot		c0.34		c0.04	0.20							
v/s Ratio Perm			0.10	0.32						0.02	0.02	c0.27
v/c Ratio		0.66	0.10	0.56	0.31					0.09	0.10	1.16
Uniform Delay, d1		21.8	0.0	15.4	9.3					35.9	35.9	45.9
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.7	0.1	3.4	0.4					0.1	0.1	96.6
Delay (s)		22.5	0.1	18.7	9.6					36.0	36.0	142.5
Level of Service		C	A	B	A					D	D	F
Approach Delay (s)		20.6			11.0			0.0			131.7	
Approach LOS		C			B			A			F	
Intersection Summary												
HCM 2000 Control Delay			41.6			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.79									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)				21.2		
Intersection Capacity Utilization			71.8%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

3: I-77 SB On Ramp/I-77 SB Off Ramp & Cherry Rd

Cherry Road

2019 Existing PM



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	1548	221	235	1080	33	34	985
v/c Ratio	0.68	0.14	0.96	0.51	0.07	0.07	1.81
Control Delay	30.8	0.2	80.3	16.1	33.7	33.7	396.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.8	0.2	80.3	16.1	33.7	33.7	396.8
Queue Length 50th (ft)	374	0	137	262	21	22	~1196
Queue Length 95th (ft)	430	0	#305	317	49	49	#1455
Internal Link Dist (ft)	1322			244		1267	
Turn Bay Length (ft)		275	250		300		700
Base Capacity (vph)	2260	1583	244	2117	503	503	545
Starvation 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	0.68	0.14	0.96	0.51	0.07	0.07	1.81

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.













95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

3: I-77 SB On Ramp/I-77 SB Off Ramp & Cherry Rd

Cherry Road
2019 Existing PM

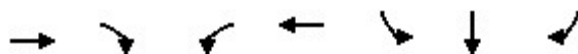
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑	↑↑					↑	↑	↑
Traffic Volume (vph)	0	1455	208	221	1015	0	0	0	0	63	0	926
Future Volume (vph)	0	1455	208	221	1015	0	0	0	0	63	0	926
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			-4%	
Total Lost time (s)		7.2	4.0	7.2	7.2					6.8	6.8	6.8
Lane Util. Factor		0.91	1.00	1.00	0.95					0.95	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		5085	1583	1770	3539					1715	1715	1615
Flt Permitted		1.00	1.00	0.08	1.00					0.95	0.95	1.00
Satd. Flow (perm)		5085	1583	140	3539					1715	1715	1615
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	1548	221	235	1080	0	0	0	0	67	0	985
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	71
Lane Group Flow (vph)	0	1548	221	235	1080	0	0	0	0	33	34	914
Turn Type		NA	Free	pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			Free	6						4		4
Actuated Green, G (s)		57.8	130.0	77.8	77.8					38.2	38.2	38.2
Effective Green, g (s)		57.8	130.0	77.8	77.8					38.2	38.2	38.2
Actuated g/C Ratio		0.44	1.00	0.60	0.60					0.29	0.29	0.29
Clearance Time (s)		7.2		7.2	7.2					6.8	6.8	6.8
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		2260	1583	244	2117					503	503	474
v/s Ratio Prot		0.30		c0.09	0.31							
v/s Ratio Perm			0.14	c0.48						0.02	0.02	c0.57
v/c Ratio		0.68	0.14	0.96	0.51					0.07	0.07	1.93
Uniform Delay, d1		28.8	0.0	36.1	15.1					33.0	33.1	45.9
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.9	0.2	47.0	0.9					0.1	0.1	425.8
Delay (s)		29.7	0.2	83.1	16.0					33.1	33.1	471.7
Level of Service		C	A	F	B					C	C	F
Approach Delay (s)		26.0			28.0			0.0			443.8	
Approach LOS		C			C			A			F	
Intersection Summary												
HCM 2000 Control Delay			132.9			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.33									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			21.2			
Intersection Capacity Utilization			97.1%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

5: I-77 SB On Ramp/I-77 SB Off Ramp & Dave Lyle Blvd

Dave Lyle Blvd

2019 Existing AM















Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	1114	129	137	690	172	173	87
v/c Ratio	0.52	0.13	0.37	0.26	0.71	0.71	0.29
Control Delay	14.7	2.3	9.7	0.4	64.0	64.1	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.7	2.3	9.7	0.4	64.0	64.1	11.1
Queue Length 50th (ft)	236	0	15	2	134	135	0
Queue Length 95th (ft)	349	27	58	4	205	207	44
Internal Link Dist (ft)	114			932		489	
Turn Bay Length (ft)		250	250		775		550
Base Capacity (vph)	2127	1010	427	2649	323	324	374
Starvation 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	0.52	0.13	0.32	0.26	0.53	0.53	0.23
Intersection Summary							

HCM Signalized Intersection Capacity Analysis

5: I-77 SB On Ramp/I-77 SB Off Ramp & Dave Lyle Blvd

Dave Lyle Blvd
2019 Existing AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑					↑	↑	↑
Traffic Volume (vph)	0	1014	117	125	628	0	0	0	0	313	1	79
Future Volume (vph)	0	1014	117	125	628	0	0	0	0	313	1	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			-3%			0%			0%	
Total Lost time (s)		6.3	6.3	6.3	6.3					6.9	6.9	6.9
Lane Util. Factor		0.95	1.00	1.00	0.95					0.95	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		3435	1552	1796	3557					1681	1686	1583
Flt Permitted		1.00	1.00	0.19	1.00					0.95	0.95	1.00
Satd. Flow (perm)		3435	1552	351	3557					1681	1686	1583
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	0	1114	129	137	690	0	0	0	0	344	1	87
RTOR Reduction (vph)	0	0	49	0	0	0	0	0	0	0	0	74
Lane Group Flow (vph)	0	1114	80	137	690	0	0	0	0	172	173	13
Heavy Vehicles (%)	2%	3%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2	6						4		4
Actuated Green, G (s)		74.3	74.3	89.4	89.4					17.4	17.4	17.4
Effective Green, g (s)		74.3	74.3	89.4	89.4					17.4	17.4	17.4
Actuated g/C Ratio		0.62	0.62	0.75	0.75					0.14	0.14	0.14
Clearance Time (s)		6.3	6.3	6.3	6.3					6.9	6.9	6.9
Vehicle Extension (s)		6.0	6.0	3.0	6.0					3.0	3.0	3.0
Lane Grp Cap (vph)		2126	960	367	2649					243	244	229
v/s Ratio Prot		c0.32		c0.03	0.19							
v/s Ratio Perm			0.05	0.25						0.10	0.10	0.01
v/c Ratio		0.52	0.08	0.37	0.26					0.71	0.71	0.06
Uniform Delay, d1		12.9	9.2	7.1	4.8					48.9	48.9	44.2
Progression Factor		1.00	1.00	1.44	0.04					1.00	1.00	1.00
Incremental Delay, d2		0.9	0.2	0.6	0.2					9.1	9.1	0.1
Delay (s)		13.8	9.3	10.8	0.4					57.9	58.0	44.3
Level of Service		B	A	B	A					E	E	D
Approach Delay (s)		13.3			2.1			0.0			55.2	
Approach LOS		B			A			A			E	
Intersection Summary												
HCM 2000 Control Delay			16.9			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.55									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)				19.5		
Intersection Capacity Utilization			67.9%			ICU Level of Service				C		
Analysis Period (min)			15									

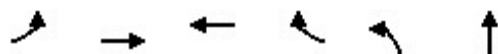
c Critical Lane Group

Queues

Dave Lyle Blvd

6: I-77 NB Off Ramp/I-77 NB On Ramp & Dave Lyle Blvd

2019 Existing AM

























Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	572	855	717	524	83	162
v/c Ratio	0.80	0.31	0.38	0.49	0.52	0.58
Control Delay	54.1	4.4	18.3	4.4	62.4	18.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.1	4.4	18.3	4.4	62.4	18.1
Queue Length 50th (ft)	225	53	163	17	65	6
Queue Length 95th (ft)	281	175	251	96	117	75
Internal Link Dist (ft)		932	850			475
Turn Bay Length (ft)	225				250	
Base Capacity (vph)	851	2770	1872	1059	288	375
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.31	0.38	0.49	0.29	0.43
Intersection Summary						

HCM Signalized Intersection Capacity Analysis

6: I-77 NB Off Ramp/I-77 NB On Ramp & Dave Lyle Blvd

Dave Lyle Blvd
2019 Existing AM

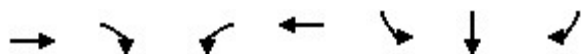
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 			 				
Traffic Volume (vph)	532	795	0	0	667	487	86	0	142	0	0	0
Future Volume (vph)	532	795	0	0	667	487	86	0	142	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	6.3			6.3	6.3	6.4	6.4				
Lane Util. Factor	0.97	0.95			0.95	1.00	0.95	0.95				
Frt	1.00	1.00			1.00	0.85	1.00	0.86				
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (prot)	3400	3471			3505	1568	1681	1448				
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (perm)	3400	3471			3505	1568	1681	1448				
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	572	855	0	0	717	524	92	0	153	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	222	0	138	0	0	0	0
Lane Group Flow (vph)	572	855	0	0	717	302	83	24	0	0	0	0
Heavy Vehicles (%)	3%	4%	2%	2%	3%	3%	2%	2%	7%	2%	2%	2%
Turn Type	Prot	NA			NA	Perm	Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases						6	8					
Actuated Green, G (s)	25.4	95.8			64.1	64.1	11.5	11.5				
Effective Green, g (s)	25.4	95.8			64.1	64.1	11.5	11.5				
Actuated g/C Ratio	0.21	0.80			0.53	0.53	0.10	0.10				
Clearance Time (s)	6.3	6.3			6.3	6.3	6.4	6.4				
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)	719	2771			1872	837	161	138				
v/s Ratio Prot	c0.17	0.25			c0.20							
v/s Ratio Perm						0.19	c0.05	0.02				
v/c Ratio	0.80	0.31			0.38	0.36	0.52	0.17				
Uniform Delay, d1	44.8	3.2			16.4	16.1	51.6	49.9				
Progression Factor	1.04	1.20			1.00	1.00	1.00	1.00				
Incremental Delay, d2	5.3	0.2			0.6	1.2	2.8	0.6				
Delay (s)	52.1	4.1			17.0	17.3	54.4	50.5				
Level of Service	D	A			B	B	D	D				
Approach Delay (s)		23.3			17.1			51.8			0.0	
Approach LOS		C			B			D			A	
Intersection Summary												
HCM 2000 Control Delay			23.1									
HCM 2000 Volume to Capacity ratio			0.50									
Actuated Cycle Length (s)			120.0									
Intersection Capacity Utilization			67.9%									
Analysis Period (min)			15									
c Critical Lane Group												

Queues

5: I-77 SB On Ramp/I-77 SB Off Ramp & Dave Lyle Blvd

Dave Lyle Blvd

Dave Lyle 2019 Existing PM















Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	1114	129	137	690	172	173	87
v/c Ratio	0.53	0.13	0.38	0.26	0.70	0.70	0.28
Control Delay	15.0	2.4	15.3	4.5	62.9	63.0	10.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.0	2.4	15.3	4.5	62.9	63.0	10.9
Queue Length 50th (ft)	237	0	18	68	134	135	0
Queue Length 95th (ft)	357	28	88	92	203	205	44
Internal Link Dist (ft)	114			932		489	
Turn Bay Length (ft)		250	250		775		550
Base Capacity (vph)	2120	1007	449	2642	393	394	437
Starvation 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	0.53	0.13	0.31	0.26	0.44	0.44	0.20
Intersection Summary							

HCM Signalized Intersection Capacity Analysis

5: I-77 SB On Ramp/I-77 SB Off Ramp & Dave Lyle Blvd

Dave Lyle Blvd
Dave Lyle 2019 Existing PM

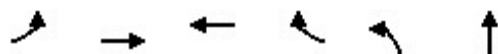
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑					↑	↑	↑
Traffic Volume (vph)	0	1014	117	125	628	0	0	0	0	313	1	79
Future Volume (vph)	0	1014	117	125	628	0	0	0	0	313	1	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			-3%			0%			0%	
Total Lost time (s)		6.3	6.3	6.3	6.3					6.9	6.9	6.9
Lane Util. Factor		0.95	1.00	1.00	0.95					0.95	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		3435	1552	1796	3557					1681	1686	1583
Flt Permitted		1.00	1.00	0.19	1.00					0.95	0.95	1.00
Satd. Flow (perm)		3435	1552	350	3557					1681	1686	1583
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	0	1114	129	137	690	0	0	0	0	344	1	87
RTOR Reduction (vph)	0	0	49	0	0	0	0	0	0	0	0	74
Lane Group Flow (vph)	0	1114	80	137	690	0	0	0	0	172	173	13
Heavy Vehicles (%)	2%	3%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2	6						4		4
Actuated Green, G (s)		74.0	74.0	89.1	89.1					17.7	17.7	17.7
Effective Green, g (s)		74.0	74.0	89.1	89.1					17.7	17.7	17.7
Actuated g/C Ratio		0.62	0.62	0.74	0.74					0.15	0.15	0.15
Clearance Time (s)		6.3	6.3	6.3	6.3					6.9	6.9	6.9
Vehicle Extension (s)		6.0	6.0	3.0	6.0					3.0	3.0	3.0
Lane Grp Cap (vph)		2118	957	365	2641					247	248	233
v/s Ratio Prot		c0.32		c0.03	0.19							
v/s Ratio Perm			0.05	0.25						0.10	0.10	0.01
v/c Ratio		0.53	0.08	0.38	0.26					0.70	0.70	0.06
Uniform Delay, d1		13.0	9.3	7.2	4.9					48.6	48.6	44.0
Progression Factor		1.00	1.00	2.52	0.79					1.00	1.00	1.00
Incremental Delay, d2		0.9	0.2	0.6	0.2					8.3	8.3	0.1
Delay (s)		14.0	9.5	18.7	4.1					56.9	56.9	44.1
Level of Service		B	A	B	A					E	E	D
Approach Delay (s)		13.5			6.5			0.0			54.3	
Approach LOS		B			A			A			D	
Intersection Summary												
HCM 2000 Control Delay			18.2			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.55									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)				19.5		
Intersection Capacity Utilization			67.9%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

6: I-77 NB Off Ramp/I-77 NB On Ramp & Dave Lyle Blvd

Dave Lyle Blvd

Dave Lyle 2019 Existing PM





























Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	572	855	717	524	83	162
v/c Ratio	0.80	0.31	0.38	0.48	0.52	0.58
Control Delay	62.1	3.0	17.9	3.3	62.4	18.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.1	3.0	17.9	3.3	62.4	18.1
Queue Length 50th (ft)	245	47	164	2	65	6
Queue Length 95th (ft)	304	94	239	60	117	75
Internal Link Dist (ft)		932	850			475
Turn Bay Length (ft)	225				250	
Base Capacity (vph)	734	2770	1880	1081	288	375
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.31	0.38	0.48	0.29	0.43
Intersection Summary						

HCM Signalized Intersection Capacity Analysis

6: I-77 NB Off Ramp/I-77 NB On Ramp & Dave Lyle Blvd

Dave Lyle Blvd
Dave Lyle 2019 Existing PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 	 	 	 	 			
Traffic Volume (vph)	532	795	0	0	667	487	86	0	142	0	0	0
Future Volume (vph)	532	795	0	0	667	487	86	0	142	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	6.3			6.3	6.3	6.4	6.4				
Lane Util. Factor	0.97	0.95			0.95	1.00	0.95	0.95				
Frt	1.00	1.00			1.00	0.85	1.00	0.86				
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (prot)	3400	3471			3505	1568	1681	1448				
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (perm)	3400	3471			3505	1568	1681	1448				
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	572	855	0	0	717	524	92	0	153	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	240	0	138	0	0	0	0
Lane Group Flow (vph)	572	855	0	0	717	284	83	24	0	0	0	0
Heavy Vehicles (%)	3%	4%	2%	2%	3%	3%	2%	2%	7%	2%	2%	2%
Turn Type	Prot	NA			NA	Perm	Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases						6	8					
Actuated Green, G (s)	25.1	95.8			64.4	64.4	11.5	11.5				
Effective Green, g (s)	25.1	95.8			64.4	64.4	11.5	11.5				
Actuated g/C Ratio	0.21	0.80			0.54	0.54	0.10	0.10				
Clearance Time (s)	6.3	6.3			6.3	6.3	6.4	6.4				
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)	711	2771			1881	841	161	138				
v/s Ratio Prot	c0.17	0.25			c0.20							
v/s Ratio Perm						0.18	c0.05	0.02				
v/c Ratio	0.80	0.31			0.38	0.34	0.52	0.17				
Uniform Delay, d1	45.1	3.2			16.2	15.7	51.6	49.9				
Progression Factor	1.20	0.79			1.00	1.00	1.00	1.00				
Incremental Delay, d2	5.8	0.3			0.6	1.1	2.8	0.6				
Delay (s)	60.0	2.8			16.8	16.8	54.4	50.5				
Level of Service	E	A			B	B	D	D				
Approach Delay (s)		25.7			16.8			51.8			0.0	
Approach LOS		C			B			D			A	
Intersection Summary												
HCM 2000 Control Delay			24.1				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.50									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)			19.0		
Intersection Capacity Utilization			67.9%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

2023 No Build

Queues

1: I-77 SB On Ramp/I-77 SB Off Ramp & Celanese Rd

Celanese Road

2023 Opening Year AM_NoBuild

	→	↘	↙	←	↘	↓
Lane Group	EBT	EBR	WBL	WBT	SBL	SBT
Lane Group Flow (vph)	2923	443	16	1027	86	80
v/c Ratio	0.87	0.29	0.09	0.38	0.51	0.30
Control Delay	14.5	0.5	35.4	3.9	46.6	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.5	0.5	35.4	3.9	46.6	6.1
Queue Length 50th (ft)	367	0	7	80	41	0
Queue Length 95th (ft)	#885	0	28	104	#118	21
Internal Link Dist (ft)	110			666		953
Turn Bay Length (ft)			350		475	
Base Capacity (vph)	3371	1553	184	3279	171	270
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.29	0.09	0.31	0.50	0.30

Intersection Summary

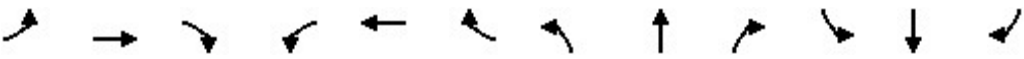
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

1: I-77 SB On Ramp/I-77 SB Off Ramp & Celanese Rd

Celanese Road
2023 Opening Year AM_NoBuild

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑	↑↑					↑	↑↓	
Traffic Volume (vph)	0	2631	399	14	924	0	0	0	0	97	0	52
Future Volume (vph)	0	2631	399	14	924	0	0	0	0	97	0	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.4	4.0	6.4	6.4					6.4	6.4	
Lane Util. Factor		*0.80	1.00	1.00	0.95					0.95	0.95	
Frt		1.00	0.85	1.00	1.00					1.00	0.89	
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.99	
Satd. Flow (prot)		4471	1553	1671	3438					1545	1498	
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.99	
Satd. Flow (perm)		4471	1553	1671	3438					1545	1498	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	2923	443	16	1027	0	0	0	0	108	0	58
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	74	0
Lane Group Flow (vph)	0	2923	443	16	1027	0	0	0	0	86	6	0
Heavy Vehicles (%)	2%	2%	4%	8%	5%	2%	2%	2%	2%	11%	2%	4%
Turn Type		NA	Free	Prot	NA					Split	NA	
Protected Phases		2		1	6					4	4	
Permitted Phases			Free									
Actuated Green, G (s)		55.2	82.0	1.3	62.9					6.3	6.3	
Effective Green, g (s)		55.2	82.0	1.3	62.9					6.3	6.3	
Actuated g/C Ratio		0.67	1.00	0.02	0.77					0.08	0.08	
Clearance Time (s)		6.4		6.4	6.4					6.4	6.4	
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		3009	1553	26	2637					118	115	
v/s Ratio Prot		c0.65		0.01	0.30					c0.06	0.00	
v/s Ratio Perm			c0.29									
v/c Ratio		0.97	0.29	0.62	0.39					0.73	0.05	
Uniform Delay, d1		12.7	0.0	40.1	3.2					37.0	35.1	
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	
Incremental Delay, d2		10.6	0.5	36.3	0.1					20.0	0.2	
Delay (s)		23.3	0.5	76.4	3.3					57.0	35.3	
Level of Service		C	A	E	A					E	D	
Approach Delay (s)		20.3			4.4			0.0			46.5	
Approach LOS		C			A			A			D	
Intersection Summary												
HCM 2000 Control Delay			17.6			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.96									
Actuated Cycle Length (s)			82.0			Sum of lost time (s)				19.2		
Intersection Capacity Utilization			68.2%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 2010 TWSC
2: I-77 NB On Ramp & Celanese Rd

Celanese Road
2023 Opening Year AM_NoBuild

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	0	1061	1668	0	589	188	0	0	0	2	0	350
Future Vol, veh/h	0	1061	1668	0	589	188	0	0	0	2	0	350
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	Yield
Storage Length	-	-	0	-	-	325	-	-	-	125	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	16965	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	3	2	2	5	8	2	2	2	50	2	7
Mvmt Flow	0	1179	1853	0	654	209	0	0	0	2	0	389
Major/Minor	Major1			Major2			Minor2					
Conflicting Flow All	-	0	0	-	-	0				1244	-	327
Stage 1	-	-	-	-	-	-				654	-	-
Stage 2	-	-	-	-	-	-				590	-	-
Critical Hdwy	-	-	-	-	-	-				7.8	-	7.04
Critical Hdwy Stg 1	-	-	-	-	-	-				6.8	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-				6.8	-	-
Follow-up Hdwy	-	-	-	-	-	-				4	-	3.37
Pot Cap-1 Maneuver	0	-	-	0	-	0				112	0	654
Stage 1	0	-	-	0	-	0				368	0	-
Stage 2	0	-	-	0	-	0				403	0	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	-	-	-				112	0	654
Mov Cap-2 Maneuver	-	-	-	-	-	-				227	0	-
Stage 1	-	-	-	-	-	-				368	0	-
Stage 2	-	-	-	-	-	-				403	0	-
Approach	EB			WB			SB					
HCM Control Delay, s	0			0			18.3					
HCM LOS							C					
Minor Lane/Major Mvmt	EBT	EBR	WBT	SBLn1	SBLn2							
Capacity (veh/h)	-	-	-	227	654							
HCM Lane V/C Ratio	-	-	-	0.01	0.595							
HCM Control Delay (s)	-	-	-	21	18.3							
HCM Lane LOS	-	-	-	C	C							
HCM 95th %tile Q(veh)	-	-	-	0	3.9							

Queues

1: I-77 SB On Ramp/I-77 SB Off Ramp & Celanese Rd

Celanese Road

2023 Opening Year PM_NoBuild



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT
Lane Group Flow (vph)	1866	390	21	1572	100	624
v/c Ratio	0.94	0.25	0.19	0.90	0.15	1.03
Control Delay	41.0	0.4	55.9	34.0	24.4	80.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.0	0.4	55.9	34.0	24.4	80.0
Queue Length 50th (ft)	469	0	14	523	46	~457
Queue Length 95th (ft)	#752	0	43	630	97	#814
Internal Link Dist (ft)	110			666		953
Turn Bay Length (ft)			350		475	
Base Capacity (vph)	1986	1583	111	2010	647	603
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.94	0.25	0.19	0.78	0.15	1.03

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.


95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

1: I-77 SB On Ramp/I-77 SB Off Ramp & Celanese Rd

Celanese Road
2023 Opening Year PM_NoBuild

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑	↑↑					↑	↑	
Traffic Volume (vph)	0	1679	351	19	1415	0	0	0	0	100	1	551
Future Volume (vph)	0	1679	351	19	1415	0	0	0	0	100	1	551
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.4	4.0	6.4	6.4					6.4	6.4	
Lane Util. Factor		*0.80	1.00	1.00	0.95					0.95	0.95	
Frt		1.00	0.85	1.00	1.00					1.00	0.85	
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	
Satd. Flow (prot)		4471	1583	1517	3539					1649	1507	
Flt Permitted		1.00	1.00	0.95	1.00					0.95	1.00	
Satd. Flow (perm)		4471	1583	1517	3539					1649	1507	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1866	390	21	1572	0	0	0	0	111	1	612
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	12	0
Lane Group Flow (vph)	0	1866	390	21	1572	0	0	0	0	100	612	0
Heavy Vehicles (%)	2%	2%	2%	19%	2%	2%	2%	2%	2%	4%	2%	2%
Turn Type		NA	Free	Prot	NA					Split	NA	
Protected Phases		2		1	6					4	4	
Permitted Phases			Free									
Actuated Green, G (s)		49.7	115.9	3.0	59.1					44.0	44.0	
Effective Green, g (s)		49.7	115.9	3.0	59.1					44.0	44.0	
Actuated g/C Ratio		0.43	1.00	0.03	0.51					0.38	0.38	
Clearance Time (s)		6.4		6.4	6.4					6.4	6.4	
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		1917	1583	39	1804					626	572	
v/s Ratio Prot		c0.42		0.01	c0.44					0.06	c0.41	
v/s Ratio Perm			0.25									
v/c Ratio		0.97	0.25	0.54	0.87					0.16	1.07	
Uniform Delay, d1		32.5	0.0	55.8	25.0					23.7	36.0	
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	
Incremental Delay, d2		14.7	0.4	13.5	4.9					0.1	57.8	
Delay (s)		47.1	0.4	69.3	30.0					23.9	93.8	
Level of Service		D	A	E	C					C	F	
Approach Delay (s)		39.1			30.5			0.0			84.1	
Approach LOS		D			C			A			F	
Intersection Summary												
HCM 2000 Control Delay			43.2			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			1.05									
Actuated Cycle Length (s)			115.9			Sum of lost time (s)				19.2		
Intersection Capacity Utilization			69.6%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 2010 TWSC
2: I-77 NB On Ramp & Celanese Rd

Celanese Road
2023 Opening Year PM_NoBuild

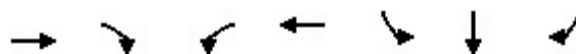
Intersection												
Int Delay, s/veh	3.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑				↓		↑
Traffic Vol, veh/h	0	907	871	0	1124	581	0	0	0	6	0	311
Future Vol, veh/h	0	907	871	0	1124	581	0	0	0	6	0	311
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	Yield
Storage Length	-	-	0	-	-	325	-	-	-	125	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	16965	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	5	2	2	2	2	2	2
Mvmt Flow	0	1008	968	0	1249	646	0	0	0	7	0	346
Major/Minor	Major1			Major2			Minor2					
Conflicting Flow All	-	0	0	-	-	0				1753	-	625
Stage 1	-	-	-	-	-	-				1249	-	-
Stage 2	-	-	-	-	-	-				504	-	-
Critical Hdwy	-	-	-	-	-	-				6.84	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-				5.84	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-				5.84	-	-
Follow-up Hdwy	-	-	-	-	-	-				3.52	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	-	0				76	0	428
Stage 1	0	-	-	0	-	0				234	0	-
Stage 2	0	-	-	0	-	0				572	0	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	-	-	-				76	0	428
Mov Cap-2 Maneuver	-	-	-	-	-	-				179	0	-
Stage 1	-	-	-	-	-	-				234	0	-
Stage 2	-	-	-	-	-	-				572	0	-
Approach	EB			WB			SB					
HCM Control Delay, s	0			0			40					
HCM LOS							E					
Minor Lane/Major Mvmt	EBT	EBR	WBT	SBLn1	SBLn2							
Capacity (veh/h)	-	-	-	179	428							
HCM Lane V/C Ratio	-	-	-	0.037	0.807							
HCM Control Delay (s)	-	-	-	25.9	40.3							
HCM Lane LOS	-	-	-	D	E							
HCM 95th %tile Q(veh)	-	-	-	0.1	7.3							

Queues

Cherry Road

3: I-77 SB On Ramp/I-77 SB Off Ramp & Cherry Rd

Cherry_2023 Opening Year No Build AM



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	1884	176	134	823	40	40	1146
v/c Ratio	1.18	0.11	0.97	0.55	0.05	0.05	1.42
Control Delay	131.0	0.1	102.2	34.1	21.1	21.1	227.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	131.0	0.1	102.2	34.1	21.1	21.1	227.6
Queue Length 50th (ft)	~805	0	83	315	21	21	~1472
Queue Length 95th (ft)	#899	0	#225	381	45	45	#1742
Internal Link Dist (ft)	1322			244		1267	
Turn Bay Length (ft)		275	250		300		700
Base Capacity (vph)	1600	1583	138	1490	772	761	805
Starvation 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	1.18	0.11	0.97	0.55	0.05	0.05	1.42

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.













95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

3: I-77 SB On Ramp/I-77 SB Off Ramp & Cherry Rd

Cherry Road
Cherry_2023 Opening Year No Build AM

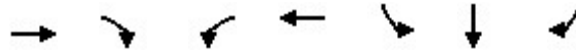
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑	↑↑					↑	↑	↑
Traffic Volume (vph)	0	1696	158	121	741	0	0	0	0	70	2	1031
Future Volume (vph)	0	1696	158	121	741	0	0	0	0	70	2	1031
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			-4%	
Total Lost time (s)		7.2	4.0	7.2	7.2					6.8	6.8	6.8
Lane Util. Factor		0.91	1.00	1.00	0.95					0.95	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		4940	1583	1703	3505					1605	1583	1584
Flt Permitted		1.00	1.00	0.07	1.00					0.95	0.95	1.00
Satd. Flow (perm)		4940	1583	128	3505					1605	1583	1584
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1884	176	134	823	0	0	0	0	78	2	1146
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	43
Lane Group Flow (vph)	0	1884	176	134	823	0	0	0	0	40	40	1103
Heavy Vehicles (%)	2%	5%	2%	6%	3%	2%	2%	2%	2%	9%	50%	4%
Turn Type		NA	Free	pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			Free	6						4		4
Actuated Green, G (s)		48.6	150.0	63.8	63.8					72.2	72.2	72.2
Effective Green, g (s)		48.6	150.0	63.8	63.8					72.2	72.2	72.2
Actuated g/C Ratio		0.32	1.00	0.43	0.43					0.48	0.48	0.48
Clearance Time (s)		7.2		7.2	7.2					6.8	6.8	6.8
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1600	1583	138	1490					772	761	762
v/s Ratio Prot		c0.38		c0.05	0.23							
v/s Ratio Perm			0.11	0.36						0.02	0.03	c0.70
v/c Ratio		1.18	0.11	0.97	0.55					0.05	0.05	1.45
Uniform Delay, d1		50.7	0.0	38.0	32.4					20.7	20.7	38.9
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		86.7	0.1	67.4	1.5					0.0	0.0	208.7
Delay (s)		137.4	0.1	105.4	33.9					20.7	20.7	247.6
Level of Service		F	A	F	C					C	C	F
Approach Delay (s)		125.7			43.9			0.0			232.8	
Approach LOS		F			D			A			F	
Intersection Summary												
HCM 2000 Control Delay			138.2			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.32									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)				21.2		
Intersection Capacity Utilization			98.8%			ICU Level of Service				F		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

3: I-77 SB On Ramp/I-77 SB Off Ramp & Cherry Rd

Cherry Road

Cherry_2023 Opening Year No Build PM



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	1774	250	266	1262	38	38	1223
v/c Ratio	1.28	0.16	1.50	0.91	0.04	0.04	1.40
Control Delay	176.3	0.2	282.5	53.8	18.4	18.4	217.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	176.3	0.2	282.5	53.8	18.4	18.4	217.8
Queue Length 50th (ft)	~804	0	~311	611	18	18	~1565
Queue Length 95th (ft)	#899	0	#498	#720	40	40	#1836
Internal Link Dist (ft)	1322			244		1267	
Turn Bay Length (ft)		275	250		300		700
Base Capacity (vph)	1383	1583	177	1387	882	882	871
Starvation 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	1.28	0.16	1.50	0.91	0.04	0.04	1.40

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.


95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

3: I-77 SB On Ramp/I-77 SB Off Ramp & Cherry Rd

Cherry Road
Cherry_2023 Opening Year No Build PM

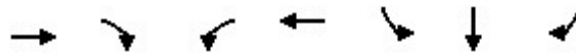
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑	↑↑					↑	↑	↑
Traffic Volume (vph)	0	1597	225	239	1136	0	0	0	0	68	0	1101
Future Volume (vph)	0	1597	225	239	1136	0	0	0	0	68	0	1101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			-4%	
Total Lost time (s)		7.2	4.0	7.2	7.2					6.8	6.8	6.8
Lane Util. Factor		0.91	1.00	1.00	0.95					0.95	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		5085	1583	1770	3539					1715	1715	1615
Flt Permitted		1.00	1.00	0.08	1.00					0.95	0.95	1.00
Satd. Flow (perm)		5085	1583	155	3539					1715	1715	1615
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1774	250	266	1262	0	0	0	0	76	0	1223
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	40
Lane Group Flow (vph)	0	1774	250	266	1262	0	0	0	0	38	38	1183
Turn Type		NA	Free	pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			Free	6						4		4
Actuated Green, G (s)		40.8	150.0	58.8	58.8					77.2	77.2	77.2
Effective Green, g (s)		40.8	150.0	58.8	58.8					77.2	77.2	77.2
Actuated g/C Ratio		0.27	1.00	0.39	0.39					0.51	0.51	0.51
Clearance Time (s)		7.2		7.2	7.2					6.8	6.8	6.8
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1383	1583	177	1387					882	882	831
v/s Ratio Prot		0.35		c0.11	0.36							
v/s Ratio Perm			0.16	c0.48						0.02	0.02	c0.73
v/c Ratio		1.28	0.16	1.50	0.91					0.04	0.04	1.42
Uniform Delay, d1		54.6	0.0	41.9	43.1					18.1	18.1	36.4
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		132.9	0.2	253.4	10.4					0.0	0.0	197.5
Delay (s)		187.5	0.2	295.3	53.5					18.1	18.1	233.9
Level of Service		F	A	F	D					B	B	F
Approach Delay (s)		164.3			95.6			0.0			221.3	
Approach LOS		F			F			A			F	
Intersection Summary												
HCM 2000 Control Delay			157.9			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.49									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)				21.2		
Intersection Capacity Utilization			111.2%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

5: I-77 SB On Ramp/I-77 SB Off Ramp & Dave Lyle Blvd

Dave Lyle Blvd

Dave Lyle_2023 Opening Year No Build_AM



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	1251	180	150	999	188	190	96
v/c Ratio	0.74	0.21	0.48	0.43	0.72	0.73	0.26
Control Delay	19.2	2.8	20.7	0.7	45.1	45.7	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.2	2.8	20.7	0.7	45.1	45.7	3.5
Queue Length 50th (ft)	237	0	17	3	81	82	0
Queue Length 95th (ft)	321	31	m38	m9	#170	#173	15
Internal Link Dist (ft)	114			932		489	
Turn Bay Length (ft)		250	250		775		550
Base Capacity (vph)	1691	855	311	2332	276	276	385
Starvation 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	0.74	0.21	0.48	0.43	0.68	0.69	0.25

Intersection Summary

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.

HCM Signalized Intersection Capacity Analysis

5: I-77 SB On Ramp/I-77 SB Off Ramp & Dave Lyle Blvd

Dave Lyle Blvd
Dave Lyle_2023 Opening Year No Build_AM

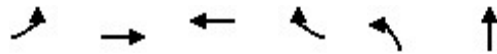
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑					↑	↑	↑
Traffic Volume (vph)	0	1126	162	135	899	0	0	0	0	339	1	86
Future Volume (vph)	0	1126	162	135	899	0	0	0	0	339	1	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			-3%			0%			0%	
Total Lost time (s)		6.3	6.3	6.3	6.3					6.9	6.9	6.9
Lane Util. Factor		0.95	1.00	1.00	0.95					0.95	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		3435	1552	1796	3557					1681	1686	1583
Flt Permitted		1.00	1.00	0.10	1.00					0.95	0.95	1.00
Satd. Flow (perm)		3435	1552	195	3557					1681	1686	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1251	180	150	999	0	0	0	0	377	1	96
RTOR Reduction (vph)	0	0	95	0	0	0	0	0	0	0	0	81
Lane Group Flow (vph)	0	1251	85	150	999	0	0	0	0	188	190	15
Heavy Vehicles (%)	2%	3%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2	6						4		4
Actuated Green, G (s)		33.2	33.2	45.9	45.9					10.9	10.9	10.9
Effective Green, g (s)		33.2	33.2	45.9	45.9					10.9	10.9	10.9
Actuated g/C Ratio		0.47	0.47	0.66	0.66					0.16	0.16	0.16
Clearance Time (s)		6.3	6.3	6.3	6.3					6.9	6.9	6.9
Vehicle Extension (s)		6.0	6.0	3.0	6.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1629	736	274	2332					261	262	246
v/s Ratio Prot		c0.36		0.05	c0.28							
v/s Ratio Perm			0.06	0.31						0.11	0.11	0.01
v/c Ratio		0.77	0.12	0.55	0.43					0.72	0.73	0.06
Uniform Delay, d1		15.2	10.2	9.5	5.8					28.1	28.1	25.2
Progression Factor		1.00	1.00	2.40	0.06					1.00	1.00	1.00
Incremental Delay, d2		3.5	0.3	1.4	0.4					9.4	9.6	0.1
Delay (s)		18.8	10.6	24.3	0.7					37.5	37.7	25.3
Level of Service		B	B	C	A					D	D	C
Approach Delay (s)		17.7			3.8			0.0			35.1	
Approach LOS		B			A			A			D	
Intersection Summary												
HCM 2000 Control Delay			15.2			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			70.0			Sum of lost time (s)				19.5		
Intersection Capacity Utilization			78.9%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

6: I-77 NB Off Ramp/I-77 NB On Ramp & Dave Lyle Blvd

Dave Lyle Blvd

Dave Lyle_2023 Opening Year No Build_AM



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	652	976	818	598	261	244
v/c Ratio	0.85	0.47	0.81	0.68	0.72	0.55
Control Delay	30.5	3.2	32.5	6.8	37.0	14.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.5	3.2	32.5	6.8	37.0	14.6
Queue Length 50th (ft)	86	1	178	0	108	35
Queue Length 95th (ft)	#230	61	#281	78	181	97
Internal Link Dist (ft)		932	850			475
Turn Bay Length (ft)	225				250	
Base Capacity (vph)	769	2093	1005	876	432	498
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.47	0.81	0.68	0.60	0.49

Intersection Summary



















95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

6: I-77 NB Off Ramp/I-77 NB On Ramp & Dave Lyle Blvd

Dave Lyle Blvd
Dave Lyle_2023 Opening Year No Build_AM

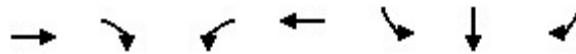
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	587	878	0	0	736	538	298	0	157	0	0	0
Future Volume (vph)	587	878	0	0	736	538	298	0	157	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	6.3			6.3	6.3	6.4	6.4				
Lane Util. Factor	0.97	0.95			0.95	1.00	0.95	0.95				
Frt	1.00	1.00			1.00	0.85	1.00	0.89				
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.99				
Satd. Flow (prot)	3400	3471			3505	1568	1681	1505				
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.99				
Satd. Flow (perm)	3400	3471			3505	1568	1681	1505				
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	652	976	0	0	818	598	331	0	174	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	426	0	118	0	0	0	0
Lane Group Flow (vph)	652	976	0	0	818	172	261	126	0	0	0	0
Heavy Vehicles (%)	3%	4%	2%	2%	3%	3%	2%	2%	7%	2%	2%	2%
Turn Type	Prot	NA			NA	Perm	Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases						6	8					
Actuated Green, G (s)	15.8	42.2			20.1	20.1	15.1	15.1				
Effective Green, g (s)	15.8	42.2			20.1	20.1	15.1	15.1				
Actuated g/C Ratio	0.23	0.60			0.29	0.29	0.22	0.22				
Clearance Time (s)	6.3	6.3			6.3	6.3	6.4	6.4				
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)	767	2092			1006	450	362	324				
v/s Ratio Prot	c0.19	0.28			c0.23							
v/s Ratio Perm						0.11	c0.16	0.08				
v/c Ratio	0.85	0.47			0.81	0.38	0.72	0.39				
Uniform Delay, d1	26.0	7.7			23.2	20.0	25.5	23.5				
Progression Factor	0.78	0.32			1.00	1.00	1.00	1.00				
Incremental Delay, d2	6.2	0.5			7.2	2.4	6.9	0.8				
Delay (s)	26.5	3.0			30.4	22.4	32.4	24.3				
Level of Service	C	A			C	C	C	C				
Approach Delay (s)		12.4			27.0			28.5			0.0	
Approach LOS		B			C			C			A	
Intersection Summary												
HCM 2000 Control Delay			20.5									
HCM 2000 Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			70.0									
Intersection Capacity Utilization			78.9%									
Analysis Period (min)			15									
c Critical Lane Group												

Queues

5: I-77 SB On Ramp/I-77 SB Off Ramp & Dave Lyle Blvd

Dave Lyle Blvd

Dave Lyle 2023 Opening Year No Build PM



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	1858	394	210	1481	436	436	332
v/c Ratio	1.04	0.42	1.02	0.64	1.07	1.07	0.74
Control Delay	61.5	6.6	81.3	2.6	108.5	108.5	41.7
Queue Delay	10.2	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.7	6.6	81.3	2.6	108.5	108.5	41.7
Queue Length 50th (ft)	~817	47	~127	81	~393	~393	178
Queue Length 95th (ft)	#955	114	m#178	m87	#607	#607	290
Internal Link Dist (ft)	114			932		489	
Turn Bay Length (ft)		250	250		775		550
Base Capacity (vph)	1788	933	205	2325	407	407	449
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	44	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.07	0.42	1.02	0.64	1.07	1.07	0.74

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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.

HCM Signalized Intersection Capacity Analysis

5: I-77 SB On Ramp/I-77 SB Off Ramp & Dave Lyle Blvd

Dave Lyle Blvd
Dave Lyle 2023 Opening Year No Build PM

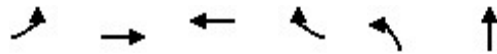
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑					↑	↑	↑
Traffic Volume (vph)	0	1672	355	189	1333	0	0	0	0	785	0	299
Future Volume (vph)	0	1672	355	189	1333	0	0	0	0	785	0	299
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			-3%			0%			0%	
Total Lost time (s)		6.3	6.3	6.3	6.3					6.9	6.9	6.9
Lane Util. Factor		0.95	1.00	1.00	0.95					0.95	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		3468	1552	1796	3592					1681	1681	1583
Flt Permitted		1.00	1.00	0.06	1.00					0.95	0.95	1.00
Satd. Flow (perm)		3468	1552	111	3592					1681	1681	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1858	394	210	1481	0	0	0	0	872	0	332
RTOR Reduction (vph)	0	0	133	0	0	0	0	0	0	0	0	66
Lane Group Flow (vph)	0	1858	261	210	1481	0	0	0	0	436	436	266
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2	6						4		4
Actuated Green, G (s)		61.9	61.9	77.7	77.7					29.1	29.1	29.1
Effective Green, g (s)		61.9	61.9	77.7	77.7					29.1	29.1	29.1
Actuated g/C Ratio		0.52	0.52	0.65	0.65					0.24	0.24	0.24
Clearance Time (s)		6.3	6.3	6.3	6.3					6.9	6.9	6.9
Vehicle Extension (s)		6.0	6.0	3.0	6.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1788	800	205	2325					407	407	383
v/s Ratio Prot		0.54		c0.08	0.41							
v/s Ratio Perm			0.17	c0.58						c0.26	0.26	0.17
v/c Ratio		1.04	0.33	1.02	0.64					1.07	1.07	0.69
Uniform Delay, d1		29.1	16.9	50.9	12.7					45.5	45.5	41.4
Progression Factor		1.00	1.00	0.67	0.15					1.00	1.00	1.00
Incremental Delay, d2		32.2	1.1	49.6	0.6					64.9	64.9	5.4
Delay (s)		61.3	18.0	83.8	2.5					110.4	110.4	46.8
Level of Service		E	B	F	A					F	F	D
Approach Delay (s)		53.7			12.6			0.0			92.8	
Approach LOS		D			B			A			F	
Intersection Summary												
HCM 2000 Control Delay			49.4			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			1.08									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)				19.5		
Intersection Capacity Utilization			94.7%			ICU Level of Service				F		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

6: I-77 NB Off Ramp/I-77 NB On Ramp & Dave Lyle Blvd

Dave Lyle Blvd

Dave Lyle 2023 Opening Year No Build PM



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	536	2194	1466	640	203	317
v/c Ratio	0.91	0.91	0.90	0.64	0.58	0.96
Control Delay	40.5	6.7	39.4	8.3	49.9	85.2
Queue Delay	0.0	0.4	0.0	0.0	0.0	0.0
Total Delay	40.5	7.1	39.4	8.3	49.9	85.2
Queue Length 50th (ft)	205	311	542	62	149	247
Queue Length 95th (ft)	m193	m296	#668	186	234	#437
Internal Link Dist (ft)		932	850			475
Turn Bay Length (ft)	225				250	
Base Capacity (vph)	592	2416	1620	997	355	334
Starvation Cap Reductn	0	40	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.92	0.90	0.64	0.57	0.95

Intersection Summary

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.

HCM Signalized Intersection Capacity Analysis

6: I-77 NB Off Ramp/I-77 NB On Ramp & Dave Lyle Blvd

Dave Lyle Blvd
Dave Lyle 2023 Opening Year No Build PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	482	1975	0	0	1319	576	203	2	263	0	0	0
Future Volume (vph)	482	1975	0	0	1319	576	203	2	263	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	6.3			6.3	6.3	6.4	6.4				
Lane Util. Factor	0.97	0.95			0.95	1.00	0.95	0.95				
Frt	1.00	1.00			1.00	0.85	1.00	0.86				
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (prot)	3433	3539			3539	1583	1665	1519				
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (perm)	3433	3539			3539	1583	1665	1519				
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	536	2194	0	0	1466	640	226	2	292	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	273	0	10	0	0	0	0
Lane Group Flow (vph)	536	2194	0	0	1466	367	203	307	0	0	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	2%	2%	2%	2%	2%
Turn Type	Prot	NA			NA	Perm	Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases						6	8					
Actuated Green, G (s)	20.7	81.9			54.9	54.9	25.4	25.4				
Effective Green, g (s)	20.7	81.9			54.9	54.9	25.4	25.4				
Actuated g/C Ratio	0.17	0.68			0.46	0.46	0.21	0.21				
Clearance Time (s)	6.3	6.3			6.3	6.3	6.4	6.4				
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)	592	2415			1619	724	352	321				
v/s Ratio Prot	0.16	0.62			0.41							
v/s Ratio Perm						0.23	0.12	0.20				
v/c Ratio	0.91	0.91			0.91	0.51	0.58	0.96				
Uniform Delay, d1	48.7	15.9			30.1	23.0	42.5	46.7				
Progression Factor	0.76	0.34			1.00	1.00	1.00	1.00				
Incremental Delay, d2	2.1	0.7			8.8	2.5	2.3	38.2				
Delay (s)	39.3	6.0			39.0	25.5	44.8	84.9				
Level of Service	D	A			D	C	D	F				
Approach Delay (s)		12.6			34.9			69.2			0.0	
Approach LOS		B			C			E			A	
Intersection Summary												
HCM 2000 Control Delay			26.8									
HCM 2000 Volume to Capacity ratio			0.98									
Actuated Cycle Length (s)			120.0									
Intersection Capacity Utilization			94.7%									
Analysis Period (min)			15									
c Critical Lane Group												

2023 Build

Queues

1: I-77 SB On Ramp/I-77 SB Off Ramp & Celanese Rd

Celanese Road

Celanese Rd_2023 Opening Year Build AM



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT
Lane Group Flow (vph)	2890	443	16	1027	47	46
v/c Ratio	0.85	0.29	0.11	0.37	0.34	0.20
Control Delay	15.1	0.5	43.1	3.3	48.7	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.1	0.5	43.1	3.3	48.7	1.9
Queue Length 50th (ft)	350	0	8	79	25	0
Queue Length 95th (ft)	#911	0	31	102	69	0
Internal Link Dist (ft)	110			666		953
Turn Bay Length (ft)			350		475	
Base Capacity (vph)	3399	1553	151	3050	139	235
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.29	0.11	0.34	0.34	0.20

Intersection Summary


95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

1: I-77 SB On Ramp/I-77 SB Off Ramp & Celanese Rd

Celanese Road
Celanese Rd_2023 Opening Year Build AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑	↑↑					↑	↑	
Traffic Volume (vph)	0	2601	399	14	924	0	0	0	0	67	0	17
Future Volume (vph)	0	2601	399	14	924	0	0	0	0	67	0	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.4	4.0	6.4	6.4					6.4	6.4	
Lane Util. Factor		*0.80	1.00	1.00	0.95					0.95	0.95	
Frt		1.00	0.85	1.00	1.00					1.00	0.94	
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.97	
Satd. Flow (prot)		4471	1553	1671	3438					1545	1522	
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.97	
Satd. Flow (perm)		4471	1553	1671	3438					1545	1522	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	2890	443	16	1027	0	0	0	0	74	0	19
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	43	0
Lane Group Flow (vph)	0	2890	443	16	1027	0	0	0	0	47	3	0
Heavy Vehicles (%)	2%	2%	4%	8%	5%	2%	2%	2%	2%	11%	2%	4%
Turn Type		NA	Free	Prot	NA					Split	NA	
Protected Phases		2		1	6					4	4	
Permitted Phases			Free									
Actuated Green, G (s)		68.0	96.6	3.0	77.4					6.4	6.4	
Effective Green, g (s)		68.0	96.6	3.0	77.4					6.4	6.4	
Actuated g/C Ratio		0.70	1.00	0.03	0.80					0.07	0.07	
Clearance Time (s)		6.4		6.4	6.4					6.4	6.4	
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		3147	1553	51	2754					102	100	
v/s Ratio Prot		c0.65		0.01	0.30					0.03	0.00	
v/s Ratio Perm			c0.29									
v/c Ratio		0.92	0.29	0.31	0.37					0.46	0.03	
Uniform Delay, d1		12.0	0.0	45.8	2.7					43.4	42.2	
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	
Incremental Delay, d2		5.6	0.5	3.5	0.1					3.3	0.1	
Delay (s)		17.6	0.5	49.3	2.8					46.7	42.3	
Level of Service		B	A	D	A					D	D	
Approach Delay (s)		15.3			3.5			0.0			44.5	
Approach LOS		B			A			A			D	
Intersection Summary												
HCM 2000 Control Delay			13.1			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.89									
Actuated Cycle Length (s)			96.6			Sum of lost time (s)				19.2		
Intersection Capacity Utilization			67.6%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 2010 TWSC
2: I-77 NB On Ramp & Celanese Rd

Celanese Road
Celanese Rd_2023 Opening Year Build AM

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	0	1031	1638	0	589	87	0	0	0	2	0	350
Future Vol, veh/h	0	1031	1638	0	589	87	0	0	0	2	0	350
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	Yield
Storage Length	-	-	0	-	-	325	-	-	-	125	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	16965	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	3	2	2	5	8	2	2	2	50	2	7
Mvmt Flow	0	1146	1820	0	654	97	0	0	0	2	0	389
Major/Minor	Major1			Major2			Minor2					
Conflicting Flow All	-	0	0	-	-	0				1227	-	327
Stage 1	-	-	-	-	-	-				654	-	-
Stage 2	-	-	-	-	-	-				573	-	-
Critical Hdwy	-	-	-	-	-	-				7.8	-	7.04
Critical Hdwy Stg 1	-	-	-	-	-	-				6.8	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-				6.8	-	-
Follow-up Hdwy	-	-	-	-	-	-				4	-	3.37
Pot Cap-1 Maneuver	0	-	-	0	-	0				116	0	654
Stage 1	0	-	-	0	-	0				368	0	-
Stage 2	0	-	-	0	-	0				412	0	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	-	-	-				116	0	654
Mov Cap-2 Maneuver	-	-	-	-	-	-				230	0	-
Stage 1	-	-	-	-	-	-				368	0	-
Stage 2	-	-	-	-	-	-				412	0	-
Approach	EB			WB			SB					
HCM Control Delay, s	0			0			18.3					
HCM LOS							C					
Minor Lane/Major Mvmt	EBT	EBR	WBT	SBLn1	SBLn2							
Capacity (veh/h)	-	-	-	230	654							
HCM Lane V/C Ratio	-	-	-	0.01	0.595							
HCM Control Delay (s)	-	-	-	20.8	18.3							
HCM Lane LOS	-	-	-	C	C							
HCM 95th %tile Q(veh)	-	-	-	0	3.9							

Queues

1: I-77 SB On Ramp/I-77 SB Off Ramp & Celanese Rd

Celanese Road

Celanese Road_2023 Opening Year Build PM



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT
Lane Group Flow (vph)	1837	390	21	1572	84	602
v/c Ratio	0.89	0.25	0.24	0.85	0.13	1.02
Control Delay	41.5	0.4	70.1	33.8	28.9	84.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.5	0.4	70.1	33.8	28.9	84.4
Queue Length 50th (ft)	675	0	19	624	51	~601
Queue Length 95th (ft)	#814	0	48	733	92	#850
Internal Link Dist (ft)	110			666		953
Turn Bay Length (ft)			350		475	
Base Capacity (vph)	2072	1583	88	1860	631	588
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.25	0.24	0.85	0.13	1.02

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

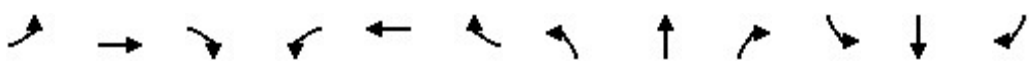
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

1: I-77 SB On Ramp/I-77 SB Off Ramp & Celanese Rd

Celanese Road
Celanese Road_2023 Opening Year Build PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑	↑↑					↑	↑	
Traffic Volume (vph)	0	1653	351	19	1415	0	0	0	0	84	1	533
Future Volume (vph)	0	1653	351	19	1415	0	0	0	0	84	1	533
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.4	4.0	6.4	6.4					6.4	6.4	
Lane Util. Factor		*0.80	1.00	1.00	0.95					0.95	0.95	
Frt		1.00	0.85	1.00	1.00					1.00	0.85	
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	
Satd. Flow (prot)		4471	1583	1517	3539					1649	1507	
Flt Permitted		1.00	1.00	0.95	1.00					0.95	1.00	
Satd. Flow (perm)		4471	1583	1517	3539					1649	1507	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1837	390	21	1572	0	0	0	0	93	1	592
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	12	0
Lane Group Flow (vph)	0	1837	390	21	1572	0	0	0	0	84	590	0
Heavy Vehicles (%)	2%	2%	2%	19%	2%	2%	2%	2%	2%	4%	2%	2%
Turn Type		NA	Free	Prot	NA					Split	NA	
Protected Phases		2		1	6					4	4	
Permitted Phases			Free									
Actuated Green, G (s)		62.3	140.0	4.9	73.6					53.6	53.6	
Effective Green, g (s)		62.3	140.0	4.9	73.6					53.6	53.6	
Actuated g/C Ratio		0.44	1.00	0.04	0.53					0.38	0.38	
Clearance Time (s)		6.4		6.4	6.4					6.4	6.4	
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		1989	1583	53	1860					631	576	
v/s Ratio Prot		c0.41		0.01	c0.44					0.05	c0.39	
v/s Ratio Perm			0.25									
v/c Ratio		0.92	0.25	0.40	0.85					0.13	1.02	
Uniform Delay, d1		36.6	0.0	66.1	28.3					28.1	43.2	
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	
Incremental Delay, d2		7.8	0.4	4.8	4.9					0.1	43.9	
Delay (s)		44.4	0.4	70.9	33.3					28.2	87.1	
Level of Service		D	A	E	C					C	F	
Approach Delay (s)		36.7			33.8			0.0			79.9	
Approach LOS		D			C			A			E	
Intersection Summary												
HCM 2000 Control Delay			42.2			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.99									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)				19.2		
Intersection Capacity Utilization			68.6%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

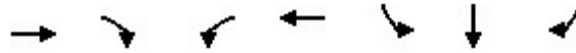
HCM 2010 TWSC
2: I-77 NB On Ramp & Celanese Rd

Celanese Road
Celanese Road_2023 Opening Year Build PM

Intersection												
Int Delay, s/veh	4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑				↑		↑
Traffic Vol, veh/h	0	891	845	0	1124	191	0	0	0	6	0	311
Future Vol, veh/h	0	891	845	0	1124	191	0	0	0	6	0	311
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	Yield
Storage Length	-	-	0	-	-	325	-	-	-	125	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	16965	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	5	2	2	2	2	2	2
Mvmt Flow	0	990	939	0	1249	212	0	0	0	7	0	346
Major/Minor	Major1			Major2			Minor2					
Conflicting Flow All	-	0	0	-	-	0				1744	-	625
Stage 1	-	-	-	-	-	-				1249	-	-
Stage 2	-	-	-	-	-	-				495	-	-
Critical Hdwy	-	-	-	-	-	-				6.84	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-				5.84	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-				5.84	-	-
Follow-up Hdwy	-	-	-	-	-	-				3.52	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	-	0				78	0	428
Stage 1	0	-	-	0	-	0				234	0	-
Stage 2	0	-	-	0	-	0				578	0	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	-	-	-				78	0	428
Mov Cap-2 Maneuver	-	-	-	-	-	-				180	0	-
Stage 1	-	-	-	-	-	-				234	0	-
Stage 2	-	-	-	-	-	-				578	0	-
Approach	EB			WB			SB					
HCM Control Delay, s	0			0			40					
HCM LOS							E					
Minor Lane/Major Mvmt	EBT	EBR	WBT	SBLn1	SBLn2							
Capacity (veh/h)	-	-	-	180	428							
HCM Lane V/C Ratio	-	-	-	0.037	0.807							
HCM Control Delay (s)	-	-	-	25.8	40.3							
HCM Lane LOS	-	-	-	D	E							
HCM 95th %tile Q(veh)	-	-	-	0.1	7.3							

Queues

3: I-77 SB On Ramp/I-77 SB Off Ramp & Cherry Rd

Cherry Road
Cherry_2023 Opening Year Build AM

Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	1880	176	134	797	40	40	716
v/c Ratio	0.76	0.11	0.65	0.35	0.11	0.11	1.33
Control Delay	26.9	0.1	36.2	10.1	37.1	37.1	186.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.9	0.1	36.2	10.1	37.1	37.1	186.8
Queue Length 50th (ft)	405	0	51	136	25	25	~584
Queue Length 95th (ft)	516	0	116	171	57	57	#822
Internal Link Dist (ft)	1322			244		1267	
Turn Bay Length (ft)		275	250		300		700
Base Capacity (vph)	2482	1583	265	2272	377	372	539
Starvation 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	0.76	0.11	0.51	0.35	0.11	0.11	1.33

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

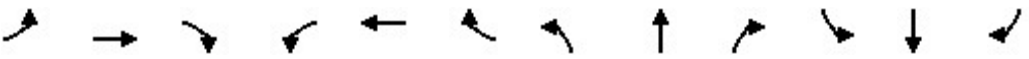
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

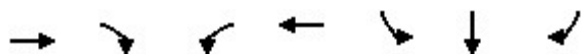
3: I-77 SB On Ramp/I-77 SB Off Ramp & Cherry Rd

Cherry Road
Cherry_2023 Opening Year Build AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑	↑↑					↑	↑	↑
Traffic Volume (vph)	0	1692	158	121	717	0	0	0	0	70	2	644
Future Volume (vph)	0	1692	158	121	717	0	0	0	0	70	2	644
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			-4%	
Total Lost time (s)		7.2	4.0	7.2	7.2					6.8	6.8	6.8
Lane Util. Factor		0.91	1.00	1.00	0.95					0.95	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		4940	1583	1703	3505					1605	1583	1584
Flt Permitted		1.00	1.00	0.06	1.00					0.95	0.95	1.00
Satd. Flow (perm)		4940	1583	106	3505					1605	1583	1584
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1880	176	134	797	0	0	0	0	78	2	716
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	168
Lane Group Flow (vph)	0	1880	176	134	797	0	0	0	0	40	40	548
Heavy Vehicles (%)	2%	5%	2%	6%	3%	2%	2%	2%	2%	9%	50%	4%
Turn Type		NA	Free	pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			Free	6						4		4
Actuated Green, G (s)		60.3	120.0	77.8	77.8					28.2	28.2	28.2
Effective Green, g (s)		60.3	120.0	77.8	77.8					28.2	28.2	28.2
Actuated g/C Ratio		0.50	1.00	0.65	0.65					0.23	0.23	0.23
Clearance Time (s)		7.2		7.2	7.2					6.8	6.8	6.8
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		2482	1583	205	2272					377	372	372
v/s Ratio Prot		c0.38		c0.06	0.23							
v/s Ratio Perm			0.11	0.37						0.02	0.03	c0.35
v/c Ratio		0.76	0.11	0.65	0.35					0.11	0.11	1.47
Uniform Delay, d1		24.0	0.0	25.6	9.6					36.0	36.0	45.9
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		1.4	0.1	7.3	0.4					0.1	0.1	227.6
Delay (s)		25.3	0.1	32.9	10.0					36.1	36.2	273.5
Level of Service		C	A	C	B					D	D	F
Approach Delay (s)		23.2			13.3			0.0			249.6	
Approach LOS		C			B			A			F	
Intersection Summary												
HCM 2000 Control Delay			68.4			HCM 2000 Level of Service				E		
HCM 2000 Volume to Capacity ratio			0.95									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)				21.2		
Intersection Capacity Utilization			74.9%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

3: I-77 SB On Ramp/I-77 SB Off Ramp & Cherry Rd

Cherry Road
Cherry_2023 Opening Year Build PM

Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	1459	181	266	993	38	38	843
v/c Ratio	0.96	0.11	1.08	0.60	0.06	0.06	1.19
Control Delay	51.0	0.1	104.6	21.6	19.3	19.3	125.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.0	0.1	104.6	21.6	19.3	19.3	125.5
Queue Length 50th (ft)	334	0	~138	238	15	15	~603
Queue Length 95th (ft)	#436	0	#299	303	37	37	#840
Internal Link Dist (ft)	1322			244		1267	
Turn Bay Length (ft)		275	250		300		700
Base Capacity (vph)	1515	1583	247	1656	672	672	708
Starvation 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	0.96	0.11	1.08	0.60	0.06	0.06	1.19

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

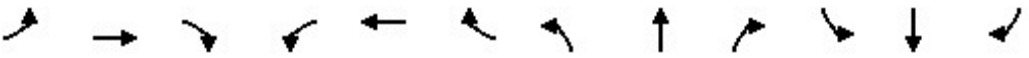
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

3: I-77 SB On Ramp/I-77 SB Off Ramp & Cherry Rd

Cherry Road
Cherry_2023 Opening Year Build PM

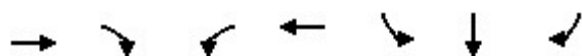
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑	↑↑					↑	↑	↑
Traffic Volume (vph)	0	1313	163	239	894	0	0	0	0	68	0	759
Future Volume (vph)	0	1313	163	239	894	0	0	0	0	68	0	759
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			-4%	
Total Lost time (s)		7.2	4.0	7.2	7.2					6.8	6.8	6.8
Lane Util. Factor		0.91	1.00	1.00	0.95					0.95	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		5085	1583	1770	3539					1715	1715	1615
Flt Permitted		1.00	1.00	0.11	1.00					0.95	0.95	1.00
Satd. Flow (perm)		5085	1583	201	3539					1715	1715	1615
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1459	181	266	993	0	0	0	0	76	0	843
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	75
Lane Group Flow (vph)	0	1459	181	266	993	0	0	0	0	38	38	768
Turn Type		NA	Free	pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			Free	6						4		4
Actuated Green, G (s)		29.8	100.0	46.8	46.8					39.2	39.2	39.2
Effective Green, g (s)		29.8	100.0	46.8	46.8					39.2	39.2	39.2
Actuated g/C Ratio		0.30	1.00	0.47	0.47					0.39	0.39	0.39
Clearance Time (s)		7.2		7.2	7.2					6.8	6.8	6.8
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1515	1583	247	1656					672	672	633
v/s Ratio Prot		0.29		c0.11	0.28							
v/s Ratio Perm			0.11	c0.40						0.02	0.02	c0.48
v/c Ratio		0.96	0.11	1.08	0.60					0.06	0.06	1.21
Uniform Delay, d1		34.6	0.0	26.4	19.7					18.9	18.9	30.4
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		15.2	0.1	79.2	1.6					0.0	0.0	109.8
Delay (s)		49.7	0.1	105.6	21.3					18.9	18.9	140.2
Level of Service		D	A	F	C					B	B	F
Approach Delay (s)		44.2			39.1			0.0			130.2	
Approach LOS		D			D			A			F	
Intersection Summary												
HCM 2000 Control Delay			63.2			HCM 2000 Level of Service				E		
HCM 2000 Volume to Capacity ratio			1.18									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)				21.2		
Intersection Capacity Utilization			83.4%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

5: I-77 SB On Ramp/I-77 SB Off Ramp & Dave Lyle Blvd

Dave Lyle Blvd

Dave Lyle_2023 Opening Year Build_AM



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	1251	130	93	762	188	190	96
v/c Ratio	0.75	0.16	0.30	0.33	0.70	0.71	0.25
Control Delay	19.8	2.0	18.3	0.4	43.0	43.3	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.8	2.0	18.3	0.4	43.0	43.3	3.5
Queue Length 50th (ft)	241	0	7	0	80	81	0
Queue Length 95th (ft)	#331	20	m30	1	#164	#166	15
Internal Link Dist (ft)	114			932		489	
Turn Bay Length (ft)		250	250		775		550
Base Capacity (vph)	1677	838	308	2318	290	291	397
Starvation 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	0.75	0.16	0.30	0.33	0.65	0.65	0.24

Intersection Summary

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.

HCM Signalized Intersection Capacity Analysis

5: I-77 SB On Ramp/I-77 SB Off Ramp & Dave Lyle Blvd

Dave Lyle Blvd
Dave Lyle_2023 Opening Year Build_AM

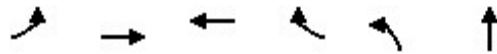
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑					↑	↑	↑
Traffic Volume (vph)	0	1126	117	84	686	0	0	0	0	339	1	86
Future Volume (vph)	0	1126	117	84	686	0	0	0	0	339	1	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			-3%			0%			0%	
Total Lost time (s)		6.3	6.3	6.3	6.3					6.9	6.9	6.9
Lane Util. Factor		0.95	1.00	1.00	0.95					0.95	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		3435	1552	1796	3557					1681	1686	1583
Flt Permitted		1.00	1.00	0.10	1.00					0.95	0.95	1.00
Satd. Flow (perm)		3435	1552	193	3557					1681	1686	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1251	130	93	762	0	0	0	0	377	1	96
RTOR Reduction (vph)	0	0	69	0	0	0	0	0	0	0	0	81
Lane Group Flow (vph)	0	1251	61	93	762	0	0	0	0	188	190	15
Heavy Vehicles (%)	2%	3%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2	6						4		4
Actuated Green, G (s)		32.9	32.9	45.6	45.6					11.2	11.2	11.2
Effective Green, g (s)		32.9	32.9	45.6	45.6					11.2	11.2	11.2
Actuated g/C Ratio		0.47	0.47	0.65	0.65					0.16	0.16	0.16
Clearance Time (s)		6.3	6.3	6.3	6.3					6.9	6.9	6.9
Vehicle Extension (s)		6.0	6.0	3.0	6.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1614	729	272	2317					268	269	253
v/s Ratio Prot		c0.36		0.03	c0.21							
v/s Ratio Perm			0.04	0.19						0.11	0.11	0.01
v/c Ratio		0.78	0.08	0.34	0.33					0.70	0.71	0.06
Uniform Delay, d1		15.5	10.2	8.7	5.4					27.8	27.8	24.9
Progression Factor		1.00	1.00	3.36	0.02					1.00	1.00	1.00
Incremental Delay, d2		3.7	0.2	0.6	0.3					8.0	8.2	0.1
Delay (s)		19.2	10.5	29.7	0.4					35.9	36.0	25.0
Level of Service		B	B	C	A					D	D	C
Approach Delay (s)		18.4			3.6			0.0			33.7	
Approach LOS		B			A			A			C	
Intersection Summary												
HCM 2000 Control Delay			16.4			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			70.0			Sum of lost time (s)				19.5		
Intersection Capacity Utilization			73.1%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

6: I-77 NB Off Ramp/I-77 NB On Ramp

Dave Lyle Blvd

Dave Lyle_2023 Opening Year Build_AM



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	652	976	761	598	85	183
v/c Ratio	0.72	0.41	0.67	0.66	0.36	0.55
Control Delay	19.8	2.2	25.6	6.2	31.0	14.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.8	2.2	25.6	6.2	31.0	14.4
Queue Length 50th (ft)	63	0	146	0	35	13
Queue Length 95th (ft)	143	31	#250	78	71	66
Internal Link Dist (ft)		932	850			475
Turn Bay Length (ft)	225				250	
Base Capacity (vph)	903	2356	1132	911	432	483
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.41	0.67	0.66	0.20	0.38

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.



















Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

6: I-77 NB Off Ramp/I-77 NB On Ramp

Dave Lyle Blvd

Dave Lyle_2023 Opening Year Build_AM

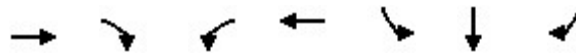
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	587	878	0	0	685	538	85	0	157	0	0	0
Future Volume (vph)	587	878	0	0	685	538	85	0	157	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	6.3			6.3	6.3	6.4	6.4				
Lane Util. Factor	0.97	0.95			0.95	1.00	0.95	0.95				
Frt	1.00	1.00			1.00	0.85	1.00	0.86				
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (prot)	3400	3471			3505	1568	1681	1446				
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (perm)	3400	3471			3505	1568	1681	1446				
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	652	976	0	0	761	598	94	0	174	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	405	0	129	0	0	0	0
Lane Group Flow (vph)	652	976	0	0	761	193	85	54	0	0	0	0
Heavy Vehicles (%)	3%	4%	2%	2%	3%	3%	2%	2%	7%	2%	2%	2%
Turn Type	Prot	NA			NA	Perm	Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases						6	8					
Actuated Green, G (s)	18.6	47.5			22.6	22.6	9.8	9.8				
Effective Green, g (s)	18.6	47.5			22.6	22.6	9.8	9.8				
Actuated g/C Ratio	0.27	0.68			0.32	0.32	0.14	0.14				
Clearance Time (s)	6.3	6.3			6.3	6.3	6.4	6.4				
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)	903	2355			1131	506	235	202				
v/s Ratio Prot	c0.19	0.28			c0.22							
v/s Ratio Perm						0.12	c0.05	0.04				
v/c Ratio	0.72	0.41			0.67	0.38	0.36	0.27				
Uniform Delay, d1	23.4	5.0			20.5	18.3	27.3	26.9				
Progression Factor	0.70	0.34			1.00	1.00	1.00	1.00				
Incremental Delay, d2	2.0	0.4			3.2	2.2	1.0	0.7				
Delay (s)	18.4	2.1			23.7	20.5	28.2	27.6				
Level of Service	B	A			C	C	C	C				
Approach Delay (s)		8.6			22.3			27.8			0.0	
Approach LOS		A			C			C			A	
Intersection Summary												
HCM 2000 Control Delay			15.9				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			70.0				Sum of lost time (s)			19.0		
Intersection Capacity Utilization			73.1%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

5: I-77 SB On Ramp/I-77 SB Off Ramp & Dave Lyle Blvd

Dave Lyle Blvd

Dave Lyle 2023 Opening Year Build PM



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	1858	118	191	1334	436	436	332
v/c Ratio	1.04	0.14	0.99	0.58	1.04	1.04	0.72
Control Delay	62.5	5.0	72.4	1.4	97.6	97.6	39.9
Queue Delay	10.4	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.9	5.0	72.4	1.4	97.6	97.6	39.9
Queue Length 50th (ft)	~820	9	109	26	~382	~382	176
Queue Length 95th (ft)	#957	39	m#151	29	#595	#595	286
Internal Link Dist (ft)	114			932		489	
Turn Bay Length (ft)		250	250		775		550
Base Capacity (vph)	1783	843	193	2295	421	421	462
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	44	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.07	0.14	0.99	0.58	1.04	1.04	0.72

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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.

HCM Signalized Intersection Capacity Analysis

5: I-77 SB On Ramp/I-77 SB Off Ramp & Dave Lyle Blvd

Dave Lyle Blvd
Dave Lyle 2023 Opening Year Build PM

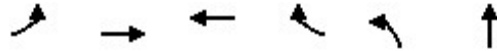
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑					↑	↑	↑
Traffic Volume (vph)	0	1672	106	172	1201	0	0	0	0	785	0	299
Future Volume (vph)	0	1672	106	172	1201	0	0	0	0	785	0	299
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			-3%			0%			0%	
Total Lost time (s)		6.3	6.3	6.3	6.3					6.9	6.9	6.9
Lane Util. Factor		0.95	1.00	1.00	0.95					0.95	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		3468	1552	1796	3592					1681	1681	1583
Flt Permitted		1.00	1.00	0.06	1.00					0.95	0.95	1.00
Satd. Flow (perm)		3468	1552	111	3592					1681	1681	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1858	118	191	1334	0	0	0	0	872	0	332
RTOR Reduction (vph)	0	0	45	0	0	0	0	0	0	0	0	65
Lane Group Flow (vph)	0	1858	73	191	1334	0	0	0	0	436	436	267
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2	6						4		4
Actuated Green, G (s)		61.7	61.7	76.7	76.7					30.1	30.1	30.1
Effective Green, g (s)		61.7	61.7	76.7	76.7					30.1	30.1	30.1
Actuated g/C Ratio		0.51	0.51	0.64	0.64					0.25	0.25	0.25
Clearance Time (s)		6.3	6.3	6.3	6.3					6.9	6.9	6.9
Vehicle Extension (s)		6.0	6.0	3.0	6.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1783	797	193	2295					421	421	397
v/s Ratio Prot		0.54		c0.07	0.37							
v/s Ratio Perm			0.05	c0.56						c0.26	0.26	0.17
v/c Ratio		1.04	0.09	0.99	0.58					1.04	1.04	0.67
Uniform Delay, d1		29.1	14.9	51.3	12.4					45.0	45.0	40.5
Progression Factor		1.00	1.00	0.60	0.07					1.00	1.00	1.00
Incremental Delay, d2		33.2	0.2	42.6	0.5					53.4	53.4	4.4
Delay (s)		62.3	15.1	73.2	1.4					98.3	98.3	44.9
Level of Service		E	B	E	A					F	F	D
Approach Delay (s)		59.5			10.3			0.0			83.6	
Approach LOS		E			B			A			F	
Intersection Summary												
HCM 2000 Control Delay			49.7			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			1.04									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)				19.5		
Intersection Capacity Utilization			93.7%			ICU Level of Service				F		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

6: I-77 NB Off Ramp/I-77 NB On Ramp

Dave Lyle Blvd

Dave Lyle 2023 Opening Year Build PM



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	536	2194	1447	640	71	302
v/c Ratio	0.91	0.90	0.89	0.64	0.21	0.93
Control Delay	40.5	6.6	37.5	8.1	40.8	81.4
Queue Delay	0.0	0.4	0.0	0.0	0.0	0.0
Total Delay	40.5	7.0	37.5	8.1	40.8	81.4
Queue Length 50th (ft)	205	310	530	59	48	232
Queue Length 95th (ft)	m195	m298	641	180	92	#411
Internal Link Dist (ft)		932	850			475
Turn Bay Length (ft)	225				250	
Base Capacity (vph)	592	2431	1635	1005	355	332
Starvation Cap Reductn	0	40	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.92	0.89	0.64	0.20	0.91

Intersection Summary

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.

HCM Signalized Intersection Capacity Analysis

6: I-77 NB Off Ramp/I-77 NB On Ramp

Dave Lyle Blvd
Dave Lyle 2023 Opening Year Build PM







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 			 				
Traffic Volume (vph)	482	1975	0	0	1302	576	71	2	263	0	0	0
Future Volume (vph)	482	1975	0	0	1302	576	71	2	263	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	6.3			6.3	6.3	6.4	6.4				
Lane Util. Factor	0.97	0.95			0.95	1.00	0.95	0.95				
Frt	1.00	1.00			1.00	0.85	1.00	0.85				
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (prot)	3433	3539			3539	1583	1665	1511				
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (perm)	3433	3539			3539	1583	1665	1511				
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	536	2194	0	0	1447	640	79	2	292	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	274	0	10	0	0	0	0
Lane Group Flow (vph)	536	2194	0	0	1447	366	71	292	0	0	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	2%	2%	2%	2%	2%
Turn Type	Prot	NA			NA	Perm	Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases						6	8					
Actuated Green, G (s)	20.7	82.5			55.5	55.5	24.8	24.8				
Effective Green, g (s)	20.7	82.5			55.5	55.5	24.8	24.8				
Actuated g/C Ratio	0.17	0.69			0.46	0.46	0.21	0.21				
Clearance Time (s)	6.3	6.3			6.3	6.3	6.4	6.4				
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)	592	2433			1636	732	344	312				
v/s Ratio Prot	0.16	0.62			0.41							
v/s Ratio Perm						0.23	0.04	0.19				
v/c Ratio	0.91	0.90			0.88	0.50	0.21	0.93				
Uniform Delay, d1	48.7	15.4			29.3	22.6	39.4	46.8				
Progression Factor	0.76	0.34			1.00	1.00	1.00	1.00				
Incremental Delay, d2	2.1	0.6			7.4	2.4	0.3	34.0				
Delay (s)	39.3	5.8			36.7	25.0	39.7	80.8				
Level of Service	D	A			D	C	D	F				
Approach Delay (s)		12.4			33.1			73.0			0.0	
Approach LOS		B			C			E			A	
Intersection Summary												
HCM 2000 Control Delay		25.1			HCM 2000 Level of Service		C					
HCM 2000 Volume to Capacity ratio		0.97										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)		19.0					
Intersection Capacity Utilization		93.7%			ICU Level of Service		F					
Analysis Period (min)		15										
c Critical Lane Group												

Queues

9: I-77 NB Off Ramp & Paragon Way

Panther Interchange DB













2023 Build AM Alt 4B Clover Signalized _Opening Year

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	169	417	34	118	263	57
v/c Ratio	0.22	0.17	0.18	0.07	0.22	0.04
Control Delay	6.7	1.3	30.5	9.8	17.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.7	1.3	30.5	9.8	17.0	0.0
Queue Length 50th (ft)	11	0	14	13	40	0
Queue Length 95th (ft)	24	0	38	25	66	0
Internal Link Dist (ft)	1157			1452	1123	
Turn Bay Length (ft)			250		1000	
Base Capacity (vph)	753	2513	227	1718	1177	1583
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.17	0.15	0.07	0.22	0.04
Intersection Summary						

HCM Signalized Intersection Capacity Analysis

9: I-77 NB Off Ramp & Paragon Way













Panther Interchange DB
2023 Build AM Alt 4B Clover Signalized _Opening Year

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	152	375	31	106	237	51
Future Volume (vph)	152	375	31	106	237	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	4.0
Lane Util. Factor	1.00	0.88	1.00	0.95	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1863	2787	1770	3539	3433	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1863	2787	1770	3539	3433	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	169	417	34	118	263	57
RTOR Reduction (vph)	0	127	0	0	0	0
Lane Group Flow (vph)	169	290	34	118	263	57
Turn Type	NA	pm+ov	Prot	NA	Prot	Free
Protected Phases	2	3	1	6	3	
Permitted Phases		2				Free
Actuated Green, G (s)	28.3	48.7	3.3	37.6	20.4	70.0
Effective Green, g (s)	28.3	48.7	3.3	37.6	20.4	70.0
Actuated g/C Ratio	0.40	0.70	0.05	0.54	0.29	1.00
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	753	2177	83	1900	1000	1583
v/s Ratio Prot	c0.09	0.04	c0.02	0.03	c0.08	
v/s Ratio Perm		0.07				0.04
v/c Ratio	0.22	0.13	0.41	0.06	0.26	0.04
Uniform Delay, d1	13.7	3.6	32.4	7.8	19.0	0.0
Progression Factor	0.37	2.81	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.1	3.3	0.0	0.6	0.0
Delay (s)	5.7	10.2	35.7	7.8	19.7	0.0
Level of Service	A	B	D	A	B	A
Approach Delay (s)	8.9			14.0	16.2	
Approach LOS	A			B	B	
Intersection Summary						
HCM 2000 Control Delay			11.8	HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio			0.25			
Actuated Cycle Length (s)			70.0	Sum of lost time (s)		18.0
Intersection Capacity Utilization			40.1%	ICU Level of Service		A
Analysis Period (min)			15			
c Critical Lane Group						

Queues

Panther Interchange DB

























8: Panther Parkway/I-77 SB Off Ramp & Paragon Way 2023 Build AM Alt 4B Clover Signalized _Opening Year

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	53	451	182	189	136	57	2	63	100	34	220	222
v/c Ratio	0.15	0.32	0.24	0.48	0.08	0.05	0.01	0.15	0.12	0.19	0.23	0.39
Control Delay	29.7	17.1	2.2	23.6	10.2	0.7	16.5	28.4	0.3	31.6	23.9	2.8
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	29.7	17.1	2.2	23.6	10.2	0.7	16.5	28.4	0.3	31.6	23.9	2.8
Queue Length 50th (ft)	10	75	0	22	13	0	1	13	0	14	25	0
Queue Length 95th (ft)	26	123	23	37	26	0	5	28	0	39	51	12
Internal Link Dist (ft)		196			1157			306			1113	
Turn Bay Length (ft)	276		150	600		200	150		250	150		250
Base Capacity (vph)	441	1412	772	392	1717	1137	262	707	812	182	1194	622
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	0.12	0.32	0.24	0.48	0.08	0.05	0.01	0.09	0.12	0.19	0.18	0.36
Intersection Summary												

HCM Signalized Intersection Capacity Analysis

Panther Interchange DB

8: Panther Parkway/I-77 SB Off Ramp & Paragon Way 2023 Build AM Alt 4B Clover Signalized _Opening Year











												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	406	164	170	122	51	2	57	90	31	198	200
Future Volume (vph)	48	406	164	170	122	51	2	57	90	31	198	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	0.88	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1770	3539	2787	1770	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.61	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	1134	3539	2787	1770	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	53	451	182	189	136	57	2	63	100	34	220	222
RTOR Reduction (vph)	0	0	109	0	0	31	0	0	82	0	0	179
Lane Group Flow (vph)	53	451	73	189	136	26	2	63	18	34	220	43
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	Perm
Protected Phases	5	2		1	6	7	3	8	1	7	4	
Permitted Phases			2			6	8		8			4
Actuated Green, G (s)	4.4	27.9	27.9	3.2	26.7	32.5	10.5	9.1	12.3	5.8	13.5	13.5
Effective Green, g (s)	4.4	27.9	27.9	3.2	26.7	32.5	10.5	9.1	12.3	5.8	13.5	13.5
Actuated g/C Ratio	0.06	0.40	0.40	0.05	0.38	0.46	0.15	0.13	0.18	0.08	0.19	0.19
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	215	1410	630	156	1349	870	182	460	489	146	980	305
v/s Ratio Prot	0.02	c0.13		c0.06	0.04	0.00	0.00	0.02	0.00	c0.02	c0.04	
v/s Ratio Perm			0.05			0.01	0.00		0.00			0.03
v/c Ratio	0.25	0.32	0.12	1.21	0.10	0.03	0.01	0.14	0.04	0.23	0.22	0.14
Uniform Delay, d1	31.2	14.5	13.3	33.4	13.9	10.2	25.3	27.0	23.9	30.0	23.8	23.4
Progression Factor	1.00	1.00	1.00	0.66	0.70	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.6	0.4	139.8	0.1	0.0	0.0	0.1	0.0	0.8	0.1	0.2
Delay (s)	31.8	15.1	13.6	162.0	9.9	10.2	25.3	27.1	24.0	30.8	24.0	23.6
Level of Service	C	B	B	F	A	B	C	C	C	C	C	C
Approach Delay (s)		16.0			85.2			25.2			24.3	
Approach LOS		B			F			C			C	
Intersection Summary												
HCM 2000 Control Delay			34.7			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.37									
Actuated Cycle Length (s)			70.0			Sum of lost time (s)			24.0			
Intersection Capacity Utilization			45.7%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

7: Paragon Way & Hutchison Road

Panther Interchange DB





























2023 Build AM Alt 4B Clover Signalized _Opening Year

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	3	677	13	63	517	2	2	2	10	35
v/c Ratio	0.01	0.18	0.01	0.25	0.18	0.00	0.01	0.01	0.04	0.12
Control Delay	27.0	7.9	0.0	26.0	5.6	0.0	27.0	27.0	20.8	17.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.0	7.9	0.0	26.0	5.6	0.0	27.0	27.0	20.8	17.9
Queue Length 50th (ft)	1	0	0	12	0	0	0	0	2	5
Queue Length 95th (ft)	9	114	0	64	122	0	7	7	16	32
Internal Link Dist (ft)		469			138			497		741
Turn Bay Length (ft)	260		260				150			
Base Capacity (vph)	298	3937	1283	563	2882	1323	488	488	344	980
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.17	0.01	0.11	0.18	0.00	0.00	0.00	0.03	0.04
Intersection Summary										

HCM Signalized Intersection Capacity Analysis

7: Paragon Way & Hutchison Road

Panther Interchange DB
2023 Build AM Alt 4B Clover Signalized _Opening Year







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			 						 	
Traffic Volume (vph)	3	609	12	57	465	2	2	2	0	9	24	7
Future Volume (vph)	3	609	12	57	465	2	2	2	0	9	24	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5085	1583	1770	3539	1583	1770	1863		1770	1799	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00		0.76	1.00	
Satd. Flow (perm)	1770	5085	1583	1770	3539	1583	1863	1863		1409	1799	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	3	677	13	63	517	2	2	2	0	10	27	8
RTOR Reduction (vph)	0	0	6	0	0	1	0	0	0	0	7	0
Lane Group Flow (vph)	3	677	7	63	517	1	2	2	0	10	28	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	pm+ov	pm+pt	NA	
Protected Phases	5	2		1	6			8	1	7	4	
Permitted Phases			2			6	8		8	4		
Actuated Green, G (s)	1.0	39.2	39.2	3.2	41.4	41.4	2.5	2.5		9.5	9.5	
Effective Green, g (s)	1.0	39.2	39.2	3.2	41.4	41.4	2.5	2.5		9.5	9.5	
Actuated g/C Ratio	0.01	0.56	0.56	0.05	0.59	0.59	0.04	0.04		0.14	0.14	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	25	2851	887	81	2096	937	66	66		196	244	
v/s Ratio Prot	0.00	0.13		c0.04	c0.15			0.00		0.00	c0.02	
v/s Ratio Perm			0.00			0.00	0.00			0.01		
v/c Ratio	0.12	0.24	0.01	0.78	0.25	0.00	0.03	0.03		0.05	0.12	
Uniform Delay, d1	34.0	7.8	6.8	33.0	6.8	5.8	32.5	32.5		26.3	26.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.1	0.0	0.0	36.4	0.3	0.0	0.2	0.2		0.1	0.2	
Delay (s)	36.2	7.8	6.8	69.4	7.1	5.8	32.7	32.7		26.4	26.7	
Level of Service	D	A	A	E	A	A	C	C		C	C	
Approach Delay (s)		7.9			13.8			32.7			26.6	
Approach LOS		A			B			C			C	
Intersection Summary												
HCM 2000 Control Delay	11.2			HCM 2000 Level of Service			B					
HCM 2000 Volume to Capacity ratio	0.30											
Actuated Cycle Length (s)	69.9			Sum of lost time (s)			24.0					
Intersection Capacity Utilization	40.9%			ICU Level of Service			A					
Analysis Period (min)	15											
c Critical Lane Group												

Queues

9: I-77 NB Off Ramp & Paragon Way

Panther Interchange DB

2023 Build AM Alt 4B Clover Signalized _Opening Year

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	79	706	18	257	353	18
v/c Ratio	0.09	0.26	0.10	0.15	0.30	0.01
Control Delay	8.8	0.6	29.9	10.3	17.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.8	0.6	29.9	10.3	17.7	0.0
Queue Length 50th (ft)	10	0	7	30	56	0
Queue Length 95th (ft)	34	5	25	49	87	0
Internal Link Dist (ft)	1157			1452	1123	
Turn Bay Length (ft)			250		1000	
Base Capacity (vph)	832	2670	227	1718	1177	1583
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.26	0.08	0.15	0.30	0.01
Intersection Summary						

HCM Signalized Intersection Capacity Analysis

9: I-77 NB Off Ramp & Paragon Way













Panther Interchange DB
2023 Build AM Alt 4B Clover Signalized _Opening Year

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑↑	↘	↑↑	↘↘	↗
Traffic Volume (vph)	71	635	16	231	318	16
Future Volume (vph)	71	635	16	231	318	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	4.0
Lane Util. Factor	1.00	0.88	1.00	0.95	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1863	2787	1770	3539	3433	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1863	2787	1770	3539	3433	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	79	706	18	257	353	18
RTOR Reduction (vph)	0	197	0	0	0	0
Lane Group Flow (vph)	79	509	18	257	353	18
Turn Type	NA	pm+ov	Prot	NA	Prot	Free
Protected Phases	2	3	1	6	3	
Permitted Phases		2				Free
Actuated Green, G (s)	31.3	50.5	1.5	38.8	19.2	70.0
Effective Green, g (s)	31.3	50.5	1.5	38.8	19.2	70.0
Actuated g/C Ratio	0.45	0.72	0.02	0.55	0.27	1.00
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	833	2249	37	1961	941	1583
v/s Ratio Prot	0.04	c0.06	c0.01	0.07	c0.10	
v/s Ratio Perm		0.12				0.01
v/c Ratio	0.09	0.23	0.49	0.13	0.38	0.01
Uniform Delay, d1	11.2	3.2	33.9	7.5	20.5	0.0
Progression Factor	0.63	1.59	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.2	9.7	0.0	1.1	0.0
Delay (s)	7.3	5.4	43.6	7.5	21.7	0.0
Level of Service	A	A	D	A	C	A
Approach Delay (s)	5.6			9.9	20.6	
Approach LOS	A			A	C	
Intersection Summary						
HCM 2000 Control Delay			10.3		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.30			
Actuated Cycle Length (s)			70.0		Sum of lost time (s)	18.0
Intersection Capacity Utilization			38.0%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Queues

Panther Interchange DB

8: Panther Parkway/I-77 SB Off Ramp & Paragon Way 2023 Build AM Alt 4B Clover Signalized _Opening Year

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	326	357	13	73	519	18	11	353	410	18	99	140
v/c Ratio	0.67	0.26	0.02	0.19	0.41	0.02	0.03	0.59	0.34	0.10	0.09	0.24
Control Delay	36.6	17.8	0.1	21.7	14.8	0.2	15.5	30.7	1.9	30.2	21.4	1.0
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	36.6	17.8	0.1	21.7	14.8	0.2	15.5	30.7	1.9	30.2	21.4	1.0
Queue Length 50th (ft)	67	46	0	10	61	0	4	74	0	7	13	0
Queue Length 95th (ft)	#125	105	0	21	100	m0	12	111	17	25	25	0
Internal Link Dist (ft)		196			1157			306			1113	
Turn Bay Length (ft)	276		150	600		200	150		250	150		250
Base Capacity (vph)	492	1360	752	392	1259	921	317	707	1207	177	1199	623
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	0.26	0.02	0.19	0.41	0.02	0.03	0.50	0.34	0.10	0.08	0.22

Intersection Summary

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.

HCM Signalized Intersection Capacity Analysis

Panther Interchange DB

8: Panther Parkway/I-77 SB Off Ramp & Paragon Way 2023 Build AM Alt 4B Clover Signalized _Opening Year











												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	293	321	12	66	467	16	10	318	369	16	89	126
Future Volume (vph)	293	321	12	66	467	16	10	318	369	16	89	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	0.88	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1770	3539	2787	1770	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.69	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	1279	3539	2787	1770	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	326	357	13	73	519	18	11	353	410	18	99	140
RTOR Reduction (vph)	0	0	8	0	0	12	0	0	315	0	0	111
Lane Group Flow (vph)	326	357	5	73	519	6	11	353	95	18	99	29
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	Perm
Protected Phases	5	2		1	6	7	3	8	1	7	4	
Permitted Phases			2			6	8		8			4
Actuated Green, G (s)	10.0	26.9	26.9	3.2	20.1	22.9	14.5	13.1	16.3	2.8	14.5	14.5
Effective Green, g (s)	10.0	26.9	26.9	3.2	20.1	22.9	14.5	13.1	16.3	2.8	14.5	14.5
Actuated g/C Ratio	0.14	0.38	0.38	0.05	0.29	0.33	0.21	0.19	0.23	0.04	0.21	0.21
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	490	1359	608	156	1016	653	274	662	648	70	1053	327
v/s Ratio Prot	c0.09	0.10		0.02	c0.15	0.00	0.00	c0.10	0.01	c0.01	0.02	
v/s Ratio Perm			0.00			0.00	0.01		0.03			0.02
v/c Ratio	0.67	0.26	0.01	0.47	0.51	0.01	0.04	0.53	0.15	0.26	0.09	0.09
Uniform Delay, d1	28.4	14.8	13.3	32.6	20.8	15.9	22.1	25.7	21.3	32.6	22.4	22.4
Progression Factor	1.00	1.00	1.00	0.73	0.71	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.4	0.5	0.0	9.6	1.8	0.0	0.1	0.8	0.1	1.9	0.0	0.1
Delay (s)	31.8	15.2	13.3	33.4	16.6	15.9	22.2	26.5	21.4	34.5	22.5	22.5
Level of Service	C	B	B	C	B	B	C	C	C	C	C	C
Approach Delay (s)		23.0			18.6			23.8			23.4	
Approach LOS		C			B			C			C	
Intersection Summary												
HCM 2000 Control Delay			22.1									
HCM 2000 Level of Service												C
HCM 2000 Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			70.0									
Sum of lost time (s)											24.0	
Intersection Capacity Utilization			49.6%									
ICU Level of Service												A
Analysis Period (min)			15									
c Critical Lane Group												

Queues

7: Paragon Way & Hutchison Road

Panther Interchange DB




























2023 Build AM Alt 4B Clover Signalized _Opening Year

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	
Lane Group Flow (vph)	19	691	3	16	810	11	10	11	2	9	
v/c Ratio	0.03	0.16	0.00	0.02	0.28	0.01	0.04	0.05	0.01	0.03	
Control Delay	4.6	5.0	0.0	4.6	5.8	0.0	28.6	28.5	19.5	20.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	4.6	5.0	0.0	4.6	5.8	0.0	28.6	28.5	19.5	20.6	
Queue Length 50th (ft)	1	0	0	1	0	0	2	2	1	2	
Queue Length 95th (ft)	11	106	0	10	203	0	20	21	6	14	
Internal Link Dist (ft)	469				138				497		741
Turn Bay Length (ft)	260		260				150				
Base Capacity (vph)	607	4192	1350	810	2917	1337	449	449	293	838	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.03	0.16	0.00	0.02	0.28	0.01	0.02	0.02	0.01	0.01	
Intersection Summary											

HCM Signalized Intersection Capacity Analysis

7: Paragon Way & Hutchison Road

Panther Interchange DB
2023 Build AM Alt 4B Clover Signalized _Opening Year

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			 						 	
Traffic Volume (vph)	17	622	3	14	729	10	9	10	0	2	6	2
Future Volume (vph)	17	622	3	14	729	10	9	10	0	2	6	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5085	1583	1770	3539	1583	1770	1863		1770	1801	
Flt Permitted	0.32	1.00	1.00	0.38	1.00	1.00	1.00	1.00		0.75	1.00	
Satd. Flow (perm)	604	5085	1583	703	3539	1583	1863	1863		1398	1801	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	19	691	3	16	810	11	10	11	0	2	7	2
RTOR Reduction (vph)	0	0	1	0	0	4	0	0	0	0	2	0
Lane Group Flow (vph)	19	691	2	16	810	7	10	11	0	2	7	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	pm+ov	pm+pt	NA	
Protected Phases	5	2		1	6			8	1	7	4	
Permitted Phases	2		2	6		6	8		8	4		
Actuated Green, G (s)	46.8	45.8	45.8	46.8	45.8	45.8	2.6	2.6		9.6	9.6	
Effective Green, g (s)	46.8	45.8	45.8	46.8	45.8	45.8	2.6	2.6		9.6	9.6	
Actuated g/C Ratio	0.63	0.62	0.62	0.63	0.62	0.62	0.03	0.03		0.13	0.13	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	395	3130	974	456	2178	974	65	65		185	232	
v/s Ratio Prot	c0.00	0.14		0.00	c0.23			c0.01		0.00	c0.00	
v/s Ratio Perm	0.03		0.00	0.02		0.00	0.01			0.00		
v/c Ratio	0.05	0.22	0.00	0.04	0.37	0.01	0.15	0.17		0.01	0.03	
Uniform Delay, d1	5.2	6.4	5.5	5.2	7.1	5.5	34.8	34.9		28.3	28.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.0	0.0	0.0	0.5	0.0	1.1	1.2		0.0	0.1	
Delay (s)	5.3	6.4	5.5	5.2	7.6	5.5	35.9	36.1		28.3	28.4	
Level of Service	A	A	A	A	A	A	D	D		C	C	
Approach Delay (s)		6.4			7.5			36.0			28.4	
Approach LOS		A			A			D			C	
Intersection Summary												
HCM 2000 Control Delay	7.5			HCM 2000 Level of Service					A			
HCM 2000 Volume to Capacity ratio	0.35											
Actuated Cycle Length (s)	74.4			Sum of lost time (s)					24.0			
Intersection Capacity Utilization	37.3%			ICU Level of Service					A			
Analysis Period (min)	15											
c Critical Lane Group												

2043 No Build

Queues

Celanese Road

01/13/2020

1: I-77 SB On Ramp/I-77 SB Off Ramp & Celanese Rd



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT
Lane Group Flow (vph)	4344	660	23	1527	145	156
v/c Ratio	1.26	0.42	0.26	0.53	1.12	0.74
Control Delay	139.0	0.9	75.4	4.7	175.5	48.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	139.0	0.9	75.4	4.7	175.5	48.1
Queue Length 50th (ft)	~2283	0	22	194	~171	61
Queue Length 95th (ft)	#2323	0	55	227	#327	#172
Internal Link Dist (ft)	110			666		953
Turn Bay Length (ft)			350		475	
Base Capacity (vph)	3453	1553	91	2855	129	211
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.26	0.42	0.25	0.53	1.12	0.74

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

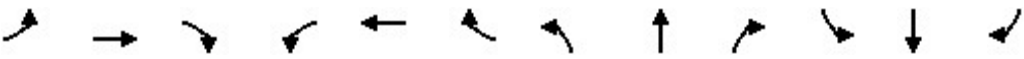
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

1: I-77 SB On Ramp/I-77 SB Off Ramp & Celanese Rd

Celanese Road

01/13/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑	↑↑					↑	↑	
Traffic Volume (vph)	0	3910	594	21	1374	0	0	0	0	145	0	126
Future Volume (vph)	0	3910	594	21	1374	0	0	0	0	145	0	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.4	4.0	6.4	6.4					6.4	6.4	
Lane Util. Factor		*0.80	1.00	1.00	0.95					0.95	0.95	
Frt		1.00	0.85	1.00	1.00					1.00	0.87	
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.99	
Satd. Flow (prot)		4471	1553	1671	3438					1545	1484	
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.99	
Satd. Flow (perm)		4471	1553	1671	3438					1545	1484	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	4344	660	23	1527	0	0	0	0	161	0	140
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	87	0
Lane Group Flow (vph)	0	4344	660	23	1527	0	0	0	0	145	69	0
Heavy Vehicles (%)	2%	2%	4%	8%	5%	2%	2%	2%	2%	11%	2%	4%
Turn Type		NA	Free	Prot	NA					Split	NA	
Protected Phases		2		1	6					4	4	
Permitted Phases			Free									
Actuated Green, G (s)		113.3	150.0	4.9	124.6					12.6	12.6	
Effective Green, g (s)		113.3	150.0	4.9	124.6					12.6	12.6	
Actuated g/C Ratio		0.76	1.00	0.03	0.83					0.08	0.08	
Clearance Time (s)		6.4		6.4	6.4					6.4	6.4	
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		3377	1553	54	2855					129	124	
v/s Ratio Prot		c0.97		0.01	0.44					c0.09	0.05	
v/s Ratio Perm			c0.43									
v/c Ratio		1.29	0.42	0.43	0.53					1.12	0.56	
Uniform Delay, d1		18.4	0.0	71.2	3.9					68.7	66.0	
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	
Incremental Delay, d2		131.2	0.9	5.3	0.7					116.4	5.3	
Delay (s)		149.6	0.9	76.5	4.6					185.1	71.3	
Level of Service		F	A	E	A					F	E	
Approach Delay (s)		129.9			5.7			0.0			126.2	
Approach LOS		F			A			A			F	
Intersection Summary												
HCM 2000 Control Delay			101.7			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.26									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)				19.2		
Intersection Capacity Utilization			94.1%			ICU Level of Service				F		
Analysis Period (min)			15									
c Critical Lane Group												

Intersection												
Int Delay, s/veh	10.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑				↑		↑
Traffic Vol, veh/h	0	1576	2479	0	875	503	0	0	0	3	0	520
Future Vol, veh/h	0	1576	2479	0	875	503	0	0	0	3	0	520
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	Yield
Storage Length	-	-	0	-	-	325	-	-	-	125	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	16965	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	3	2	2	5	8	2	2	2	50	2	7
Mvmt Flow	0	1751	2754	0	972	559	0	0	0	3	0	578

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	-	-	0	1848	-	486
Stage 1	-	-	-	-	-	-	972	-	-
Stage 2	-	-	-	-	-	-	876	-	-
Critical Hdwy	-	-	-	-	-	-	7.8	-	7.04
Critical Hdwy Stg 1	-	-	-	-	-	-	6.8	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.8	-	-
Follow-up Hdwy	-	-	-	-	-	-	4	-	3.37
Pot Cap-1 Maneuver	0	-	-	0	-	0	39	0	~ 514
Stage 1	0	-	-	0	-	0	235	0	-
Stage 2	0	-	-	0	-	0	269	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	39	0	~ 514
Mov Cap-2 Maneuver	-	-	-	-	-	-	132	0	-
Stage 1	-	-	-	-	-	-	235	0	-
Stage 2	-	-	-	-	-	-	269	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	105.3
HCM LOS			F

Minor Lane/Major Mvmt	EBT	EBR	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	-	132	514
HCM Lane V/C Ratio	-	-	-	0.025	1.124
HCM Control Delay (s)	-	-	-	33	105.7
HCM Lane LOS	-	-	-	D	F
HCM 95th %tile Q(veh)	-	-	-	0.1	19.2

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

Queues

1: I-77 SB On Ramp/I-77 SB Off Ramp & Celanese Rd

Celanese Road

Celanese Road_2043 Horizon No Build PM



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT
Lane Group Flow (vph)	2772	579	32	2336	148	954
v/c Ratio	1.35	0.37	0.40	1.28	0.23	1.59
Control Delay	195.0	0.7	83.0	161.2	31.1	306.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	195.0	0.7	83.0	161.2	31.1	306.3
Queue Length 50th (ft)	~1549	0	31	~1516	100	~1405
Queue Length 95th (ft)	#1637	0	69	#1641	157	#1684
Internal Link Dist (ft)	110			666		953
Turn Bay Length (ft)			350		475	
Base Capacity (vph)	2051	1583	82	1830	655	599
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.35	0.37	0.39	1.28	0.23	1.59

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

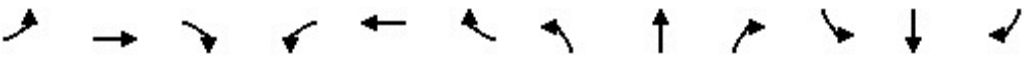
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

1: I-77 SB On Ramp/I-77 SB Off Ramp & Celanese Rd

Celanese Road
Celanese Road_2043 Horizon No Build PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑	↑↑					↑	↑	
Traffic Volume (vph)	0	2495	521	29	2102	0	0	0	0	148	2	842
Future Volume (vph)	0	2495	521	29	2102	0	0	0	0	148	2	842
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.4	4.0	6.4	6.4					6.4	6.4	
Lane Util. Factor		*0.80	1.00	1.00	0.95					0.95	0.95	
Frt		1.00	0.85	1.00	1.00					1.00	0.85	
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	
Satd. Flow (prot)		4471	1583	1517	3539					1649	1507	
Flt Permitted		1.00	1.00	0.95	1.00					0.95	1.00	
Satd. Flow (perm)		4471	1583	1517	3539					1649	1507	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	2772	579	32	2336	0	0	0	0	164	2	936
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	2772	579	32	2336	0	0	0	0	148	953	0
Heavy Vehicles (%)	2%	2%	2%	19%	2%	2%	2%	2%	2%	4%	2%	2%
Turn Type		NA	Free	Prot	NA					Split	NA	
Protected Phases		2		1	6					4	4	
Permitted Phases			Free									
Actuated Green, G (s)		66.3	150.0	4.9	77.6					59.6	59.6	
Effective Green, g (s)		66.3	150.0	4.9	77.6					59.6	59.6	
Actuated g/C Ratio		0.44	1.00	0.03	0.52					0.40	0.40	
Clearance Time (s)		6.4		6.4	6.4					6.4	6.4	
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		1976	1583	49	1830					655	598	
v/s Ratio Prot		c0.62		0.02	c0.66					0.09	c0.63	
v/s Ratio Perm			0.37									
v/c Ratio		1.40	0.37	0.65	1.28					0.23	1.59	
Uniform Delay, d1		41.9	0.0	71.7	36.2					29.9	45.2	
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	
Incremental Delay, d2		184.4	0.7	27.1	128.8					0.2	274.8	
Delay (s)		226.2	0.7	98.8	165.0					30.1	320.0	
Level of Service		F	A	F	F					C	F	
Approach Delay (s)		187.3			164.1			0.0			281.1	
Approach LOS		F			F			A			F	
Intersection Summary												
HCM 2000 Control Delay			194.4			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.52									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)				19.2		
Intersection Capacity Utilization			98.9%			ICU Level of Service				F		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 2010 TWSC
2: I-77 NB On Ramp & Celanese Rd

Celanese Road
Celanese Road_2043 Horizon No Build PM

Intersection												
Int Delay, s/veh	43.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑				↑		↑
Traffic Vol, veh/h	0	1348	1295	0	1670	1824	0	0	0	10	0	462
Future Vol, veh/h	0	1348	1295	0	1670	1824	0	0	0	10	0	462
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	Yield
Storage Length	-	-	0	-	-	325	-	-	-	125	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	16965	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	5	2	2	2	2	2	2
Mvmt Flow	0	1498	1439	0	1856	2027	0	0	0	11	0	513

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	-	-	0	2605	-	928
Stage 1	-	-	-	-	-	-	1856	-	-
Stage 2	-	-	-	-	-	-	749	-	-
Critical Hdwy	-	-	-	-	-	-	6.84	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	5.84	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.84	-	-
Follow-up Hdwy	-	-	-	-	-	-	3.52	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	-	0	20	0	~ 270
Stage 1	0	-	-	0	-	0	109	0	-
Stage 2	0	-	-	0	-	0	428	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	20	0	~ 270
Mov Cap-2 Maneuver	-	-	-	-	-	-	85	0	-
Stage 1	-	-	-	-	-	-	109	0	-
Stage 2	-	-	-	-	-	-	428	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	\$ 441.9
HCM LOS			F

Minor Lane/Major Mvmt	EBT	EBR	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	-	85	270
HCM Lane V/C Ratio	-	-	-	0.131	1.901
HCM Control Delay (s)	-	-	-	53.6	450.3
HCM Lane LOS	-	-	-	F	F
HCM 95th %tile Q(veh)	-	-	-	0.4	35.8

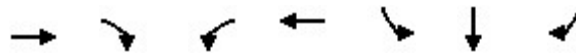
Notes				
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon	

Queues

Cherry Road

3: I-77 SB On Ramp/I-77 SB Off Ramp & Cherry Rd

Cherry_2043 Horizon Year No Build AM



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	2816	261	200	1288	60	60	2712
v/c Ratio	1.65	0.16	1.36	0.81	0.08	0.08	3.55
Control Delay	328.2	0.2	229.1	40.7	23.7	23.7	1163.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	328.2	0.2	229.1	40.7	23.7	23.7	1163.6
Queue Length 50th (ft)	~1458	0	~207	567	34	34	~4731
Queue Length 95th (ft)	#1535	0	#378	664	65	65	#4951
Internal Link Dist (ft)	1322			244		1267	
Turn Bay Length (ft)		275	250		300		700
Base Capacity (vph)	1705	1583	147	1584	729	719	765
Starvation 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	1.65	0.16	1.36	0.81	0.08	0.08	3.55

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.


95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

3: I-77 SB On Ramp/I-77 SB Off Ramp & Cherry Rd

Cherry Road
Cherry_2043 Horizon Year No Build AM

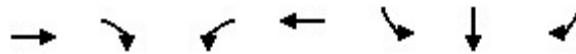
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑	↑↑					↑	↑	↑
Traffic Volume (vph)	0	2534	235	180	1159	0	0	0	0	105	3	2441
Future Volume (vph)	0	2534	235	180	1159	0	0	0	0	105	3	2441
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			-4%	
Total Lost time (s)		7.2	4.0	7.2	7.2					6.8	6.8	6.8
Lane Util. Factor		0.91	1.00	1.00	0.95					0.95	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		4940	1583	1703	3505					1605	1583	1584
Flt Permitted		1.00	1.00	0.07	1.00					0.95	0.95	1.00
Satd. Flow (perm)		4940	1583	122	3505					1605	1583	1584
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	2816	261	200	1288	0	0	0	0	117	3	2712
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	45
Lane Group Flow (vph)	0	2816	261	200	1288	0	0	0	0	60	60	2667
Heavy Vehicles (%)	2%	5%	2%	6%	3%	2%	2%	2%	2%	9%	50%	4%
Turn Type		NA	Free	pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			Free	6						4		4
Actuated Green, G (s)		51.8	150.0	67.8	67.8					68.2	68.2	68.2
Effective Green, g (s)		51.8	150.0	67.8	67.8					68.2	68.2	68.2
Actuated g/C Ratio		0.35	1.00	0.45	0.45					0.45	0.45	0.45
Clearance Time (s)		7.2		7.2	7.2					6.8	6.8	6.8
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1705	1583	147	1584					729	719	720
v/s Ratio Prot		c0.57		c0.08	0.37							
v/s Ratio Perm			0.16	0.53						0.04	0.04	c1.68
v/c Ratio		1.65	0.16	1.36	0.81					0.08	0.08	3.70
Uniform Delay, d1		49.1	0.0	41.8	35.6					23.2	23.2	40.9
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		295.9	0.2	199.8	4.7					0.0	0.1	1220.1
Delay (s)		345.0	0.2	241.5	40.3					23.2	23.2	1261.0
Level of Service		F	A	F	D					C	C	F
Approach Delay (s)		315.7			67.3			0.0			1208.6	
Approach LOS		F			E			A			F	
Intersection Summary												
HCM 2000 Control Delay			607.6			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			2.72									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)				21.2		
Intersection Capacity Utilization			194.8%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

3: I-77 SB On Ramp/I-77 SB Off Ramp & Cherry Rd

Cherry Road

Cherry_2043 Horizon Year No Build PM



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	2701	372	394	1856	56	56	2300
v/c Ratio	1.60	0.23	1.86	1.11	0.08	0.08	3.07
Control Delay	306.5	0.3	430.8	96.6	25.2	25.2	954.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	306.5	0.3	430.8	96.6	25.2	25.2	954.4
Queue Length 50th (ft)	~1379	0	~538	~1090	33	33	~3900
Queue Length 95th (ft)	#1459	0	#753	#1225	64	64	#4140
Internal Link Dist (ft)	1322			244		1267	
Turn Bay Length (ft)		275	250		300		700
Base Capacity (vph)	1688	1583	212	1670	745	745	748
Starvation 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	1.60	0.23	1.86	1.11	0.08	0.08	3.07

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

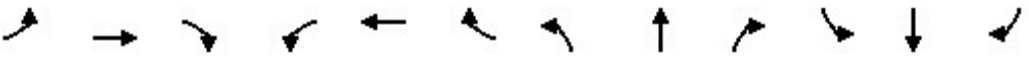
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

3: I-77 SB On Ramp/I-77 SB Off Ramp & Cherry Rd

Cherry Road
Cherry_2043 Horizon Year No Build PM

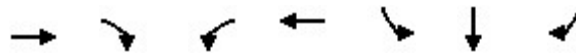
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑	↑↑					↑	↑	↑
Traffic Volume (vph)	0	2431	335	355	1670	0	0	0	0	101	0	2070
Future Volume (vph)	0	2431	335	355	1670	0	0	0	0	101	0	2070
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			-4%	
Total Lost time (s)		7.2	4.0	7.2	7.2					6.8	6.8	6.8
Lane Util. Factor		0.91	1.00	1.00	0.95					0.95	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		5085	1583	1770	3539					1715	1715	1615
Flt Permitted		1.00	1.00	0.07	1.00					0.95	0.95	1.00
Satd. Flow (perm)		5085	1583	131	3539					1715	1715	1615
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	2701	372	394	1856	0	0	0	0	112	0	2300
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	47
Lane Group Flow (vph)	0	2701	372	394	1856	0	0	0	0	56	56	2253
Turn Type		NA	Free	pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			Free	6						4		4
Actuated Green, G (s)		49.8	150.0	70.8	70.8					65.2	65.2	65.2
Effective Green, g (s)		49.8	150.0	70.8	70.8					65.2	65.2	65.2
Actuated g/C Ratio		0.33	1.00	0.47	0.47					0.43	0.43	0.43
Clearance Time (s)		7.2		7.2	7.2					6.8	6.8	6.8
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1688	1583	212	1670					745	745	701
v/s Ratio Prot		0.53		c0.17	0.52							
v/s Ratio Perm			0.23	c0.71						0.03	0.03	c1.40
v/c Ratio		1.60	0.23	1.86	1.11					0.08	0.08	3.21
Uniform Delay, d1		50.1	0.0	47.4	39.6					24.8	24.8	42.4
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		272.9	0.3	403.9	59.2					0.0	0.0	1000.1
Delay (s)		323.0	0.3	451.3	98.8					24.8	24.8	1042.5
Level of Service		F	A	F	F					C	C	F
Approach Delay (s)		283.9			160.6			0.0			995.2	
Approach LOS		F			F			A			F	
Intersection Summary												
HCM 2000 Control Delay			469.8			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			2.58									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)				21.2		
Intersection Capacity Utilization			186.0%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

5: I-77 SB On Ramp/I-77 SB Off Ramp & Dave Lyle Blvd

Dave Lyle Blvd

Dave Lyle_2043 Horizon Year No Build_AM



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	3174	329	157	2736	196	197	99
v/c Ratio	1.26	0.28	1.15	0.94	1.16	1.17	0.46
Control Delay	144.5	3.9	126.5	13.0	181.4	183.2	37.2
Queue Delay	0.3	0.0	0.0	9.0	0.0	0.0	0.0
Total Delay	144.8	3.9	126.5	22.0	181.4	183.2	37.2
Queue Length 50th (ft)	~2323	48	~156	304	~270	~272	39
Queue Length 95th (ft)	#2403	83	m78	m2	#454	#456	105
Internal Link Dist (ft)	114			932		489	
Turn Bay Length (ft)		250	250		775		550
Base Capacity (vph)	2519	1184	137	2923	169	169	214
Starvation Cap Reductn	0	0	0	209	0	0	0
Spillback Cap Reductn	345	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.46	0.28	1.15	1.01	1.16	1.17	0.46

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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.

HCM Signalized Intersection Capacity Analysis

5: I-77 SB On Ramp/I-77 SB Off Ramp & Dave Lyle Blvd

Dave Lyle Blvd
Dave Lyle_2043 Horizon Year No Build_AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑					↑	↑	↑
Traffic Volume (vph)	0	2857	296	141	2462	0	0	0	0	353	1	89
Future Volume (vph)	0	2857	296	141	2462	0	0	0	0	353	1	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			-3%			0%			0%	
Total Lost time (s)		6.3	6.3	6.3	6.3					6.9	6.9	6.9
Lane Util. Factor		0.95	1.00	1.00	0.95					0.95	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		3435	1552	1796	3557					1681	1686	1583
Flt Permitted		1.00	1.00	0.03	1.00					0.95	0.95	1.00
Satd. Flow (perm)		3435	1552	58	3557					1681	1686	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	3174	329	157	2736	0	0	0	0	392	1	99
RTOR Reduction (vph)	0	0	46	0	0	0	0	0	0	0	0	56
Lane Group Flow (vph)	0	3174	283	157	2736	0	0	0	0	196	197	43
Heavy Vehicles (%)	2%	3%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2	6						4		4
Actuated Green, G (s)		124.7	124.7	139.7	139.7					17.1	17.1	17.1
Effective Green, g (s)		124.7	124.7	139.7	139.7					17.1	17.1	17.1
Actuated g/C Ratio		0.73	0.73	0.82	0.82					0.10	0.10	0.10
Clearance Time (s)		6.3	6.3	6.3	6.3					6.9	6.9	6.9
Vehicle Extension (s)		6.0	6.0	3.0	6.0					3.0	3.0	3.0
Lane Grp Cap (vph)		2519	1138	136	2923					169	169	159
v/s Ratio Prot		c0.92		0.06	c0.77							
v/s Ratio Perm			0.18	0.89						0.12	0.12	0.03
v/c Ratio		1.26	0.25	1.15	0.94					1.16	1.17	0.27
Uniform Delay, d1		22.6	7.4	68.6	11.7					76.5	76.5	70.7
Progression Factor		1.00	1.00	1.38	0.98					1.00	1.00	1.00
Incremental Delay, d2		120.4	0.5	77.5	0.8					118.7	120.8	0.9
Delay (s)		143.0	7.9	172.1	12.3					195.2	197.3	71.6
Level of Service		F	A	F	B					F	F	E
Approach Delay (s)		130.3			20.9			0.0			171.1	
Approach LOS		F			C			A			F	
Intersection Summary												
HCM 2000 Control Delay			87.3			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.25									
Actuated Cycle Length (s)			170.0			Sum of lost time (s)				19.5		
Intersection Capacity Utilization			163.4%			ICU Level of Service				H		
Analysis Period (min)			15									

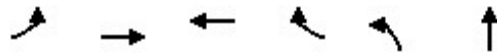
c Critical Lane Group

Queues

6: I-77 NB Off Ramp/I-77 NB On Ramp & Dave Lyle Blvd

Dave Lyle Blvd

Dave Lyle_2043 Horizon Year No Build_AM



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	1430	2137	1793	1309	758	723
v/c Ratio	1.67	0.97	1.48	1.52	1.55	1.46
Control Delay	338.6	25.1	259.8	261.6	295.0	254.6
Queue Delay	0.0	42.1	0.0	0.0	0.3	0.3
Total Delay	338.6	67.2	259.8	261.6	295.3	254.9
Queue Length 50th (ft)	~1198	1245	~1442	~1654	~1245	~1104
Queue Length 95th (ft)	m#858	m630	#1575	#1924	#1514	#1376
Internal Link Dist (ft)		932	850			475
Turn Bay Length (ft)	225				250	
Base Capacity (vph)	854	2198	1210	864	490	496
Starvation Cap Reductn	0	335	0	0	0	0
Spillback Cap Reductn	0	0	0	0	19	18
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.67	1.15	1.48	1.52	1.61	1.51

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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.

HCM Signalized Intersection Capacity Analysis

6: I-77 NB Off Ramp/I-77 NB On Ramp & Dave Lyle Blvd

Dave Lyle Blvd
Dave Lyle_2043 Horizon Year No Build_AM

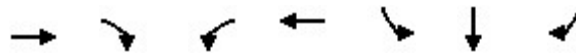
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1287	1923	0	0	1614	1178	989	0	344	0	0	0
Future Volume (vph)	1287	1923	0	0	1614	1178	989	0	344	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	6.3			6.3	6.3	6.4	6.4				
Lane Util. Factor	0.97	0.95			0.95	1.00	0.95	0.95				
Frt	1.00	1.00			1.00	0.85	1.00	0.92				
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.98				
Satd. Flow (prot)	3400	3471			3505	1568	1681	1552				
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.98				
Satd. Flow (perm)	3400	3471			3505	1568	1681	1552				
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1430	2137	0	0	1793	1309	1099	0	382	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	323	0	44	0	0	0	0
Lane Group Flow (vph)	1430	2137	0	0	1793	986	758	679	0	0	0	0
Heavy Vehicles (%)	3%	4%	2%	2%	3%	3%	2%	2%	7%	2%	2%	2%
Turn Type	Prot	NA			NA	Perm	Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases						6	8					
Actuated Green, G (s)	42.7	107.7			58.7	58.7	49.6	49.6				
Effective Green, g (s)	42.7	107.7			58.7	58.7	49.6	49.6				
Actuated g/C Ratio	0.25	0.63			0.35	0.35	0.29	0.29				
Clearance Time (s)	6.3	6.3			6.3	6.3	6.4	6.4				
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)	854	2198			1210	541	490	452				
v/s Ratio Prot	c0.42	0.62			0.51							
v/s Ratio Perm						c0.63	c0.45	0.44				
v/c Ratio	1.67	0.97			1.48	1.82	1.55	1.50				
Uniform Delay, d1	63.6	29.7			55.6	55.6	60.2	60.2				
Progression Factor	0.89	0.76			1.00	1.00	1.00	1.00				
Incremental Delay, d2	304.0	2.2			221.3	377.6	256.1	237.4				
Delay (s)	360.7	24.8			277.0	433.2	316.3	297.6				
Level of Service	F	C			F	F	F	F				
Approach Delay (s)		159.4			342.9			307.2			0.0	
Approach LOS		F			F			F			A	
Intersection Summary												
HCM 2000 Control Delay		256.1			HCM 2000 Level of Service		F					
HCM 2000 Volume to Capacity ratio		1.69										
Actuated Cycle Length (s)		170.0			Sum of lost time (s)		19.0					
Intersection Capacity Utilization		163.4%			ICU Level of Service		H					
Analysis Period (min)		15										
c Critical Lane Group												

Queues

5: I-77 SB On Ramp/I-77 SB Off Ramp & Dave Lyle Blvd

Dave Lyle Blvd

Dave Lyle 2043 Horizon Year No Build PM



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	5076	1038	219	3701	454	454	346
v/c Ratio	2.22	0.94	1.38	1.36	1.62	1.62	1.11
Control Delay	571.7	36.5	213.5	181.8	335.8	335.8	136.2
Queue Delay	1.8	0.0	0.0	0.5	0.0	0.0	0.0
Total Delay	573.5	36.5	213.5	182.2	335.8	335.8	136.2
Queue Length 50th (ft)	~5061	882	~301	~3078	~806	~806	~404
Queue Length 95th (ft)	#5014	#1346	m99	m137	#1053	#1053	#624
Internal Link Dist (ft)	114			932		489	
Turn Bay Length (ft)		250	250		775		550
Base Capacity (vph)	2286	1108	159	2727	281	281	313
Starvation Cap Reductn	0	0	0	528	0	0	0
Spillback Cap Reductn	1013	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	3.99	0.94	1.38	1.68	1.62	1.62	1.11

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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.

HCM Signalized Intersection Capacity Analysis

5: I-77 SB On Ramp/I-77 SB Off Ramp & Dave Lyle Blvd

Dave Lyle Blvd
Dave Lyle 2043 Horizon Year No Build PM

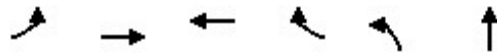
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑					↑	↑	↑
Traffic Volume (vph)	0	4568	934	197	3331	0	0	0	0	817	0	311
Future Volume (vph)	0	4568	934	197	3331	0	0	0	0	817	0	311
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			-3%			0%			0%	
Total Lost time (s)		6.3	6.3	6.3	6.3					6.9	6.9	6.9
Lane Util. Factor		0.95	1.00	1.00	0.95					0.95	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		3468	1552	1796	3592					1681	1681	1583
Flt Permitted		1.00	1.00	0.03	1.00					0.95	0.95	1.00
Satd. Flow (perm)		3468	1552	61	3592					1681	1681	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	5076	1038	219	3701	0	0	0	0	908	0	346
RTOR Reduction (vph)	0	0	85	0	0	0	0	0	0	0	0	48
Lane Group Flow (vph)	0	5076	953	219	3701	0	0	0	0	454	454	298
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2	6						4		4
Actuated Green, G (s)		118.7	118.7	136.7	136.7					30.1	30.1	30.1
Effective Green, g (s)		118.7	118.7	136.7	136.7					30.1	30.1	30.1
Actuated g/C Ratio		0.66	0.66	0.76	0.76					0.17	0.17	0.17
Clearance Time (s)		6.3	6.3	6.3	6.3					6.9	6.9	6.9
Vehicle Extension (s)		6.0	6.0	3.0	6.0					3.0	3.0	3.0
Lane Grp Cap (vph)		2286	1023	159	2727					281	281	264
v/s Ratio Prot		c1.46		0.09	c1.03							
v/s Ratio Perm			0.61	0.96						c0.27	0.27	0.19
v/c Ratio		2.22	0.93	1.38	1.36					1.62	1.62	1.13
Uniform Delay, d1		30.6	27.0	79.7	21.7					75.0	75.0	75.0
Progression Factor		1.00	1.00	0.82	0.78					1.00	1.00	1.00
Incremental Delay, d2		550.6	15.8	173.5	161.0					292.9	292.9	94.2
Delay (s)		581.3	42.8	238.4	177.9					367.9	367.9	169.1
Level of Service		F	D	F	F					F	F	F
Approach Delay (s)		489.9			181.3			0.0			313.1	
Approach LOS		F			F			A			F	
Intersection Summary												
HCM 2000 Control Delay			363.1			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			2.06									
Actuated Cycle Length (s)			180.0			Sum of lost time (s)				19.5		
Intersection Capacity Utilization			176.1%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

6: I-77 NB Off Ramp/I-77 NB On Ramp & Dave Lyle Blvd

Dave Lyle Blvd

Dave Lyle 2043 Horizon Year No Build PM



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	1174	4809	3212	1403	637	717
v/c Ratio	1.94	2.03	1.98	1.54	1.48	1.82
Control Delay	455.0	479.9	469.2	275.8	270.9	413.8
Queue Delay	0.0	0.2	1.2	0.0	0.0	0.0
Total Delay	455.0	480.1	470.3	275.8	270.9	413.8
Queue Length 50th (ft)	~1103	~4681	~3087	~2103	~1085	~1337
Queue Length 95th (ft)	m332	m858	#3156	#2370	#1352	#1610
Internal Link Dist (ft)		932	850			475
Turn Bay Length (ft)	225				250	
Base Capacity (vph)	604	2373	1625	910	431	394
Starvation Cap Reductn	0	189	0	0	0	0
Spillback Cap Reductn	0	0	451	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.94	2.20	2.74	1.54	1.48	1.82

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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.

HCM Signalized Intersection Capacity Analysis

6: I-77 NB Off Ramp/I-77 NB On Ramp & Dave Lyle Blvd

Dave Lyle Blvd
Dave Lyle 2043 Horizon Year No Build PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 			 				
Traffic Volume (vph)	1057	4328	0	0	2891	1263	637	5	576	0	0	0
Future Volume (vph)	1057	4328	0	0	2891	1263	637	5	576	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	6.3			6.3	6.3	6.4	6.4				
Lane Util. Factor	0.97	0.95			0.95	1.00	0.95	0.95				
Frt	1.00	1.00			1.00	0.85	1.00	0.87				
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (prot)	3433	3539			3539	1583	1665	1524				
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (perm)	3433	3539			3539	1583	1665	1524				
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1174	4809	0	0	3212	1403	708	6	640	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	183	0	0	0	0	0	0
Lane Group Flow (vph)	1174	4809	0	0	3212	1220	637	717	0	0	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	2%	2%	2%	2%	2%
Turn Type	Prot	NA			NA	Perm	Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases						6	8					
Actuated Green, G (s)	31.7	120.7			82.7	82.7	46.6	46.6				
Effective Green, g (s)	31.7	120.7			82.7	82.7	46.6	46.6				
Actuated g/C Ratio	0.18	0.67			0.46	0.46	0.26	0.26				
Clearance Time (s)	6.3	6.3			6.3	6.3	6.4	6.4				
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)	604	2373			1625	727	431	394				
v/s Ratio Prot	0.34	c1.36			0.91							
v/s Ratio Perm						0.77	0.38	0.47				
v/c Ratio	1.94	2.03			1.98	1.68	1.48	1.82				
Uniform Delay, d1	74.2	29.6			48.6	48.6	66.7	66.7				
Progression Factor	0.75	0.39			1.00	1.00	1.00	1.00				
Incremental Delay, d2	425.2	462.1			441.7	311.3	227.3	378.8				
Delay (s)	481.2	473.5			490.4	360.0	294.0	445.5				
Level of Service	F	F			F	F	F	F				
Approach Delay (s)		475.0			450.7			374.2			0.0	
Approach LOS		F			F			F			A	
Intersection Summary												
HCM 2000 Control Delay		454.2			HCM 2000 Level of Service		F					
HCM 2000 Volume to Capacity ratio		2.05										
Actuated Cycle Length (s)		180.0			Sum of lost time (s)		19.0					
Intersection Capacity Utilization		176.1%			ICU Level of Service		H					
Analysis Period (min)		15										
c Critical Lane Group												

2043 Build

Queues

Celanese Road

01/13/2020

1: I-77 SB On Ramp/I-77 SB Off Ramp & Celanese Rd



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT
Lane Group Flow (vph)	4296	660	23	1527	68	66
v/c Ratio	1.20	0.42	0.26	0.52	0.81	0.44
Control Delay	110.7	0.9	75.4	3.3	124.3	22.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	110.7	0.9	75.4	3.3	124.3	22.0
Queue Length 50th (ft)	~2187	0	22	150	70	0
Queue Length 95th (ft)	#2228	0	55	176	#168	48
Internal Link Dist (ft)	110			666		953
Turn Bay Length (ft)			350		475	
Base Capacity (vph)	3585	1553	91	2956	84	150
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.20	0.42	0.25	0.52	0.81	0.44

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

1: I-77 SB On Ramp/I-77 SB Off Ramp & Celanese Rd

Celanese Road

01/13/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑	↑↑					↑	↑	
Traffic Volume (vph)	0	3866	594	21	1374	0	0	0	0	96	0	24
Future Volume (vph)	0	3866	594	21	1374	0	0	0	0	96	0	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.4	4.0	6.4	6.4					6.4	6.4	
Lane Util. Factor		*0.80	1.00	1.00	0.95					0.95	0.95	
Frt		1.00	0.85	1.00	1.00					1.00	0.94	
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.97	
Satd. Flow (prot)		4471	1553	1671	3438					1545	1522	
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.97	
Satd. Flow (perm)		4471	1553	1671	3438					1545	1522	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	4296	660	23	1527	0	0	0	0	107	0	27
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	62	0
Lane Group Flow (vph)	0	4296	660	23	1527	0	0	0	0	68	4	0
Heavy Vehicles (%)	2%	2%	4%	8%	5%	2%	2%	2%	2%	11%	2%	4%
Turn Type		NA	Free	Prot	NA					Split	NA	
Protected Phases		2		1	6					4	4	
Permitted Phases			Free									
Actuated Green, G (s)		117.7	150.0	4.9	129.0					8.2	8.2	
Effective Green, g (s)		117.7	150.0	4.9	129.0					8.2	8.2	
Actuated g/C Ratio		0.78	1.00	0.03	0.86					0.05	0.05	
Clearance Time (s)		6.4		6.4	6.4					6.4	6.4	
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		3508	1553	54	2956					84	83	
v/s Ratio Prot		c0.96		0.01	0.44					c0.04	0.00	
v/s Ratio Perm			c0.43									
v/c Ratio		1.22	0.42	0.43	0.52					0.81	0.04	
Uniform Delay, d1		16.1	0.0	71.2	2.6					70.1	67.2	
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	
Incremental Delay, d2		103.8	0.9	5.3	0.6					41.7	0.2	
Delay (s)		120.0	0.9	76.5	3.3					111.8	67.4	
Level of Service		F	A	E	A					F	E	
Approach Delay (s)		104.1			4.4			0.0			89.9	
Approach LOS		F			A			A			F	
Intersection Summary												
HCM 2000 Control Delay			80.5			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.19									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)				19.2		
Intersection Capacity Utilization			92.0%			ICU Level of Service				F		
Analysis Period (min)			15									
c Critical Lane Group												

Intersection												
Int Delay, s/veh	10.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑				↑		↑
Traffic Vol, veh/h	0	1527	2435	0	875	129	0	0	0	3	0	520
Future Vol, veh/h	0	1527	2435	0	875	129	0	0	0	3	0	520
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	Yield
Storage Length	-	-	0	-	-	325	-	-	-	125	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	16965	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	3	2	2	5	8	2	2	2	50	2	7
Mvmt Flow	0	1697	2706	0	972	143	0	0	0	3	0	578

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	-	-	0	1821	-	486
Stage 1	-	-	-	-	-	-	972	-	-
Stage 2	-	-	-	-	-	-	849	-	-
Critical Hdwy	-	-	-	-	-	-	7.8	-	7.04
Critical Hdwy Stg 1	-	-	-	-	-	-	6.8	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.8	-	-
Follow-up Hdwy	-	-	-	-	-	-	4	-	3.37
Pot Cap-1 Maneuver	0	-	-	0	-	0	41	0	~ 514
Stage 1	0	-	-	0	-	0	235	0	-
Stage 2	0	-	-	0	-	0	280	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	41	0	~ 514
Mov Cap-2 Maneuver	-	-	-	-	-	-	135	0	-
Stage 1	-	-	-	-	-	-	235	0	-
Stage 2	-	-	-	-	-	-	280	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	105.3
HCM LOS			F

Minor Lane/Major Mvmt	EBT	EBR	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	-	135	514
HCM Lane V/C Ratio	-	-	-	0.025	1.124
HCM Control Delay (s)	-	-	-	32.3	105.7
HCM Lane LOS	-	-	-	D	F
HCM 95th %tile Q(veh)	-	-	-	0.1	19.2

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

Queues

1: I-77 SB On Ramp/I-77 SB Off Ramp & Celanese Rd

Celanese Road

Celanease Road_2023 Horizon Build PM



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT
Lane Group Flow (vph)	2730	579	32	2336	122	894
v/c Ratio	1.31	0.37	0.40	1.26	0.19	1.52
Control Delay	177.8	0.7	83.0	153.8	31.1	273.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	177.8	0.7	83.0	153.8	31.1	273.8
Queue Length 50th (ft)	~1501	0	31	~1504	82	~1286
Queue Length 95th (ft)	#1590	0	69	#1628	133	#1563
Internal Link Dist (ft)	110			666		953
Turn Bay Length (ft)			350		475	
Base Capacity (vph)	2081	1583	82	1854	644	590
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.31	0.37	0.39	1.26	0.19	1.52

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.


95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

1: I-77 SB On Ramp/I-77 SB Off Ramp & Celanese Rd

Celanese Road
Celanese Road_2023 Horizon Build PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑	↑↑					↑	↑	
Traffic Volume (vph)	0	2457	521	29	2102	0	0	0	0	122	2	790
Future Volume (vph)	0	2457	521	29	2102	0	0	0	0	122	2	790
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.4	4.0	6.4	6.4					6.4	6.4	
Lane Util. Factor		*0.80	1.00	1.00	0.95					0.95	0.95	
Frt		1.00	0.85	1.00	1.00					1.00	0.85	
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	
Satd. Flow (prot)		4471	1583	1517	3539					1649	1507	
Flt Permitted		1.00	1.00	0.95	1.00					0.95	1.00	
Satd. Flow (perm)		4471	1583	1517	3539					1649	1507	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	2730	579	32	2336	0	0	0	0	136	2	878
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	2730	579	32	2336	0	0	0	0	122	893	0
Heavy Vehicles (%)	2%	2%	2%	19%	2%	2%	2%	2%	2%	4%	2%	2%
Turn Type		NA	Free	Prot	NA					Split	NA	
Protected Phases		2		1	6					4	4	
Permitted Phases			Free									
Actuated Green, G (s)		67.3	150.0	4.9	78.6					58.6	58.6	
Effective Green, g (s)		67.3	150.0	4.9	78.6					58.6	58.6	
Actuated g/C Ratio		0.45	1.00	0.03	0.52					0.39	0.39	
Clearance Time (s)		6.4		6.4	6.4					6.4	6.4	
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		2005	1583	49	1854					644	588	
v/s Ratio Prot		c0.61		0.02	c0.66					0.07	c0.59	
v/s Ratio Perm			0.37									
v/c Ratio		1.36	0.37	0.65	1.26					0.19	1.52	
Uniform Delay, d1		41.4	0.0	71.7	35.7					30.1	45.7	
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	
Incremental Delay, d2		166.0	0.7	27.1	121.5					0.1	241.9	
Delay (s)		207.4	0.7	98.8	157.2					30.2	287.6	
Level of Service		F	A	F	F					C	F	
Approach Delay (s)		171.2			156.4			0.0			256.7	
Approach LOS		F			F			A			F	
Intersection Summary												
HCM 2000 Control Delay			179.0			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.46									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)				19.2		
Intersection Capacity Utilization			96.6%			ICU Level of Service				F		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 2010 TWSC
2: I-77 NB On Ramp & Celanese Rd

Celanese Road
Celanese Road_2023 Horizon Build PM

Intersection												
Int Delay, s/veh	44.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑				↑		↑
Traffic Vol, veh/h	0	1322	1257	0	1670	283	0	0	0	10	0	462
Future Vol, veh/h	0	1322	1257	0	1670	283	0	0	0	10	0	462
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	Yield
Storage Length	-	-	0	-	-	325	-	-	-	125	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	16965	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	5	2	2	2	2	2	2
Mvmt Flow	0	1469	1397	0	1856	314	0	0	0	11	0	513

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	-	-	0	2591	-	928
Stage 1	-	-	-	-	-	-	1856	-	-
Stage 2	-	-	-	-	-	-	735	-	-
Critical Hdwy	-	-	-	-	-	-	6.84	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	5.84	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.84	-	-
Follow-up Hdwy	-	-	-	-	-	-	3.52	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	-	0	20	0	~ 270
Stage 1	0	-	-	0	-	0	109	0	-
Stage 2	0	-	-	0	-	0	435	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	20	0	~ 270
Mov Cap-2 Maneuver	-	-	-	-	-	-	85	0	-
Stage 1	-	-	-	-	-	-	109	0	-
Stage 2	-	-	-	-	-	-	435	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	\$ 441.9
HCM LOS			F

Minor Lane/Major Mvmt	EBT	EBR	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	-	85	270
HCM Lane V/C Ratio	-	-	-	0.131	1.901
HCM Control Delay (s)	-	-	-	53.6	450.3
HCM Lane LOS	-	-	-	F	F
HCM 95th %tile Q(veh)	-	-	-	0.4	35.8

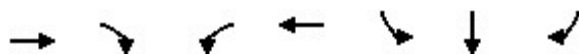
Notes				
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon	

Queues

3: I-77 SB On Ramp/I-77 SB Off Ramp & Cherry Rd

Cherry Road

Cherry_2043 Horizon Year Build AM



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	2160	244	200	1133	60	60	594
v/c Ratio	1.01	0.15	0.98	0.56	0.13	0.13	1.09
Control Delay	53.7	0.2	85.5	15.7	29.6	29.7	97.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.7	0.2	85.5	15.7	29.6	29.7	97.6
Queue Length 50th (ft)	~561	0	93	246	32	32	~415
Queue Length 95th (ft)	#684	0	#244	305	68	68	#636
Internal Link Dist (ft)	1322			244		1267	
Turn Bay Length (ft)		275	250		300		700
Base Capacity (vph)	2137	1583	204	2032	469	463	543
Starvation 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	1.01	0.15	0.98	0.56	0.13	0.13	1.09

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.
























95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

3: I-77 SB On Ramp/I-77 SB Off Ramp & Cherry Rd

Cherry Road
Cherry_2043 Horizon Year Build AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			 						 	
Traffic Volume (vph)	0	1944	220	180	1020	0	0	0	0	105	3	535
Future Volume (vph)	0	1944	220	180	1020	0	0	0	0	105	3	535
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			-4%	
Total Lost time (s)		7.2	4.0	7.2	7.2					6.8	6.8	6.8
Lane Util. Factor		0.91	1.00	1.00	0.95					0.95	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		4940	1583	1703	3505					1605	1583	1584
Flt Permitted		1.00	1.00	0.07	1.00					0.95	0.95	1.00
Satd. Flow (perm)		4940	1583	131	3505					1605	1583	1584
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	2160	244	200	1133	0	0	0	0	117	3	594
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	80
Lane Group Flow (vph)	0	2160	244	200	1133	0	0	0	0	60	60	514
Heavy Vehicles (%)	2%	5%	2%	6%	3%	2%	2%	2%	2%	9%	50%	4%
Turn Type		NA	Free	pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			Free	6						4		4
Actuated Green, G (s)		47.6	110.0	63.8	63.8					32.2	32.2	32.2
Effective Green, g (s)		47.6	110.0	63.8	63.8					32.2	32.2	32.2
Actuated g/C Ratio		0.43	1.00	0.58	0.58					0.29	0.29	0.29
Clearance Time (s)		7.2		7.2	7.2					6.8	6.8	6.8
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		2137	1583	204	2032					469	463	463
v/s Ratio Prot		0.44		c0.08	0.32							
v/s Ratio Perm			0.15	c0.49						0.04	0.04	c0.32
v/c Ratio		1.01	0.15	0.98	0.56					0.13	0.13	1.11
Uniform Delay, d1		31.2	0.0	32.9	14.3					28.6	28.6	38.9
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		22.1	0.2	57.1	1.1					0.1	0.1	75.4
Delay (s)		53.3	0.2	90.1	15.4					28.7	28.7	114.3
Level of Service		D	A	F	B					C	C	F
Approach Delay (s)		48.0			26.6			0.0			99.9	
Approach LOS		D			C			A			F	
Intersection Summary												
HCM 2000 Control Delay			49.9			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			1.06									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)			21.2			
Intersection Capacity Utilization			73.0%			ICU Level of Service			C			
Analysis Period (min)			15									

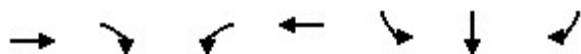
c Critical Lane Group

Queues

3: I-77 SB On Ramp/I-77 SB Off Ramp & Cherry Rd

Cherry Road

Cherry_2043 Horizon Year Build PM



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	2167	269	394	1477	56	56	1253
v/c Ratio	1.25	0.17	1.58	0.82	0.09	0.09	1.86
Control Delay	154.1	0.2	304.1	30.0	24.7	24.7	417.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	154.1	0.2	304.1	30.0	24.7	24.7	417.5
Queue Length 50th (ft)	~768	0	~385	493	29	29	~1439
Queue Length 95th (ft)	#863	0	#585	595	60	60	#1705
Internal Link Dist (ft)	1322			244		1267	
Turn Bay Length (ft)		275	250		300		700
Base Capacity (vph)	1728	1583	250	1793	645	645	673
Starvation 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	1.25	0.17	1.58	0.82	0.09	0.09	1.86

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.













95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

3: I-77 SB On Ramp/I-77 SB Off Ramp & Cherry Rd

Cherry Road
Cherry_2043 Horizon Year Build PM

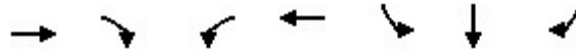
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑	↑↑					↑	↑	↑
Traffic Volume (vph)	0	1950	242	355	1329	0	0	0	0	101	0	1128
Future Volume (vph)	0	1950	242	355	1329	0	0	0	0	101	0	1128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			-4%	
Total Lost time (s)		7.2	4.0	7.2	7.2					6.8	6.8	6.8
Lane Util. Factor		0.91	1.00	1.00	0.95					0.95	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		5085	1583	1770	3539					1715	1715	1615
Flt Permitted		1.00	1.00	0.08	1.00					0.95	0.95	1.00
Satd. Flow (perm)		5085	1583	155	3539					1715	1715	1615
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	2167	269	394	1477	0	0	0	0	112	0	1253
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	65
Lane Group Flow (vph)	0	2167	269	394	1477	0	0	0	0	56	56	1188
Turn Type		NA	Free	pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			Free	6						4		4
Actuated Green, G (s)		40.8	120.0	60.8	60.8					45.2	45.2	45.2
Effective Green, g (s)		40.8	120.0	60.8	60.8					45.2	45.2	45.2
Actuated g/C Ratio		0.34	1.00	0.51	0.51					0.38	0.38	0.38
Clearance Time (s)		7.2		7.2	7.2					6.8	6.8	6.8
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1728	1583	250	1793					645	645	608
v/s Ratio Prot		0.43		c0.17	0.42							
v/s Ratio Perm			0.17	c0.63						0.03	0.03	c0.74
v/c Ratio		1.25	0.17	1.58	0.82					0.09	0.09	1.95
Uniform Delay, d1		39.6	0.0	36.8	25.1					24.1	24.1	37.4
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		119.3	0.2	277.6	4.4					0.1	0.1	435.4
Delay (s)		158.9	0.2	314.4	29.5					24.2	24.2	472.8
Level of Service		F	A	F	C					C	C	F
Approach Delay (s)		141.3			89.5			0.0			436.0	
Approach LOS		F			F			A			F	
Intersection Summary												
HCM 2000 Control Delay		195.1			HCM 2000 Level of Service			F				
HCM 2000 Volume to Capacity ratio		1.79										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)			21.2				
Intersection Capacity Utilization		118.2%			ICU Level of Service			H				
Analysis Period (min)		15										
c Critical Lane Group												

Queues

5: Dave Lyle Blvd & I-77 SB Off Ramp

Dave Lyle Blvd

Dave Lyle_2043 Horizon Year Build_AM



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	3174	134	98	1843	196	197	99
v/c Ratio	1.24	0.11	0.81	0.63	1.16	1.17	0.47
Control Delay	134.8	3.2	55.3	3.3	184.6	186.3	41.4
Queue Delay	0.0	0.0	0.0	1.3	0.0	0.0	0.0
Total Delay	134.8	3.2	55.3	4.6	184.6	186.3	41.4
Queue Length 50th (ft)	~2434	18	82	61	~287	~288	46
Queue Length 95th (ft)	#2505	38	m76	m6	#474	#476	114
Internal Link Dist (ft)	114			932		489	
Turn Bay Length (ft)		250	250		775		550
Base Capacity (vph)	2564	1176	121	2938	169	169	211
Starvation Cap Reductn	0	0	0	814	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	1.24	0.11	0.81	0.87	1.16	1.17	0.47

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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.

HCM Signalized Intersection Capacity Analysis

5: Dave Lyle Blvd & I-77 SB Off Ramp

Dave Lyle Blvd

Dave Lyle_2043 Horizon Year Build_AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗	↗	↑↑					↗	↗	↗
Traffic Volume (vph)	0	2857	121	88	1659	0	0	0	0	353	1	89
Future Volume (vph)	0	2857	121	88	1659	0	0	0	0	353	1	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			-3%			0%			0%	
Total Lost time (s)		6.3	6.3	6.3	6.3					6.9	6.9	6.9
Lane Util. Factor		0.95	1.00	1.00	0.95					0.95	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		3435	1552	1796	3557					1681	1686	1583
Flt Permitted		1.00	1.00	0.03	1.00					0.95	0.95	1.00
Satd. Flow (perm)		3435	1552	54	3557					1681	1686	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	3174	134	98	1843	0	0	0	0	392	1	99
RTOR Reduction (vph)	0	0	18	0	0	0	0	0	0	0	0	52
Lane Group Flow (vph)	0	3174	116	98	1843	0	0	0	0	196	197	47
Heavy Vehicles (%)	2%	3%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2	6						4		4
Actuated Green, G (s)		134.4	134.4	148.7	148.7					18.1	18.1	18.1
Effective Green, g (s)		134.4	134.4	148.7	148.7					18.1	18.1	18.1
Actuated g/C Ratio		0.75	0.75	0.83	0.83					0.10	0.10	0.10
Clearance Time (s)		6.3	6.3	6.3	6.3					6.9	6.9	6.9
Vehicle Extension (s)		6.0	6.0	3.0	6.0					3.0	3.0	3.0
Lane Grp Cap (vph)		2564	1158	122	2938					169	169	159
v/s Ratio Prot		c0.92		0.04	c0.52							
v/s Ratio Perm			0.07	0.63						0.12	0.12	0.03
v/c Ratio		1.24	0.10	0.80	0.63					1.16	1.17	0.29
Uniform Delay, d1		22.8	6.2	80.6	5.6					81.0	81.0	75.0
Progression Factor		1.00	1.00	0.95	0.56					1.00	1.00	1.00
Incremental Delay, d2		110.6	0.2	3.5	0.1					118.7	120.8	1.0
Delay (s)		133.4	6.4	79.8	3.3					199.7	201.8	76.1
Level of Service		F	A	E	A					F	F	E
Approach Delay (s)		128.3			7.1			0.0			175.6	
Approach LOS		F			A			A			F	
Intersection Summary												
HCM 2000 Control Delay			91.4			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.21									
Actuated Cycle Length (s)			180.0			Sum of lost time (s)				19.5		
Intersection Capacity Utilization			141.2%			ICU Level of Service				H		
Analysis Period (min)			15									

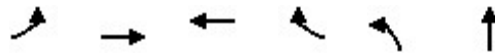
c Critical Lane Group

Queues

6: I-77 NB Off Ramp/I-77 NB On Ramp & Dave Lyle Blvd

Dave Lyle Blvd

Dave Lyle_2043 Horizon Year Build_AM



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	1430	2137	1734	1309	186	403
v/c Ratio	1.49	0.82	1.13	1.42	0.63	1.34
Control Delay	259.1	4.4	113.7	222.1	79.4	217.9
Queue Delay	0.0	7.6	0.0	0.0	0.0	0.0
Total Delay	259.1	12.0	113.7	222.1	79.4	217.9
Queue Length 50th (ft)	~1202	330	~1245	~1790	217	~588
Queue Length 95th (ft)	m#864	m176	#1376	#2060	315	#830
Internal Link Dist (ft)		932	850			475
Turn Bay Length (ft)	225				250	
Base Capacity (vph)	957	2616	1532	921	295	301
Starvation Cap Reductn	0	457	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.49	0.99	1.13	1.42	0.63	1.34

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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.

HCM Signalized Intersection Capacity Analysis

6: I-77 NB Off Ramp/I-77 NB On Ramp & Dave Lyle Blvd

Dave Lyle Blvd
Dave Lyle_2043 Horizon Year Build_AM

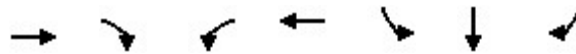
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1287	1923	0	0	1561	1178	186	0	344	0	0	0
Future Volume (vph)	1287	1923	0	0	1561	1178	186	0	344	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	6.3			6.3	6.3	6.4	6.4				
Lane Util. Factor	0.97	0.95			0.95	1.00	0.95	0.95				
Frt	1.00	1.00			1.00	0.85	1.00	0.86				
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (prot)	3400	3471			3505	1568	1681	1447				
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (perm)	3400	3471			3505	1568	1681	1447				
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1430	2137	0	0	1734	1309	207	0	382	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	236	0	48	0	0	0	0
Lane Group Flow (vph)	1430	2137	0	0	1734	1073	186	355	0	0	0	0
Heavy Vehicles (%)	3%	4%	2%	2%	3%	3%	2%	2%	7%	2%	2%	2%
Turn Type	Prot	NA			NA	Perm	Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases						6	8					
Actuated Green, G (s)	50.7	135.7			78.7	78.7	31.6	31.6				
Effective Green, g (s)	50.7	135.7			78.7	78.7	31.6	31.6				
Actuated g/C Ratio	0.28	0.75			0.44	0.44	0.18	0.18				
Clearance Time (s)	6.3	6.3			6.3	6.3	6.4	6.4				
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)	957	2616			1532	685	295	254				
v/s Ratio Prot	c0.42	0.62			0.49							
v/s Ratio Perm						c0.68	0.11	0.25				
v/c Ratio	1.49	0.82			1.13	1.57	0.63	1.40				
Uniform Delay, d1	64.7	14.2			50.6	50.6	68.8	74.2				
Progression Factor	0.79	0.28			1.00	1.00	1.00	1.00				
Incremental Delay, d2	222.9	0.3			68.1	262.1	4.3	201.4				
Delay (s)	274.1	4.3			118.8	312.7	73.1	275.6				
Level of Service	F	A			F	F	E	F				
Approach Delay (s)		112.5			202.2			211.7			0.0	
Approach LOS		F			F			F			A	
Intersection Summary												
HCM 2000 Control Delay		158.5			HCM 2000 Level of Service			F				
HCM 2000 Volume to Capacity ratio		1.51										
Actuated Cycle Length (s)		180.0			Sum of lost time (s)			19.0				
Intersection Capacity Utilization		141.2%			ICU Level of Service			H				
Analysis Period (min)		15										
c Critical Lane Group												

Queues

5: I-77 SB On Ramp/I-77 SB Off Ramp & Dave Lyle Blvd

Dave Lyle Blvd

Dave Lyle 2043 Horizon Year Build PM



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	5076	122	179	3167	454	454	346
v/c Ratio	2.20	0.12	1.29	1.17	1.57	1.57	1.08
Control Delay	563.1	5.6	172.7	106.4	314.8	314.8	127.7
Queue Delay	1.7	0.0	0.0	0.4	0.0	0.0	0.0
Total Delay	564.8	5.6	172.7	106.9	314.8	314.8	127.7
Queue Length 50th (ft)	~5048	24	~225	~2385	~794	~794	~394
Queue Length 95th (ft)	#5002	50	m86	m42	#1042	#1042	#614
Internal Link Dist (ft)	114			932		489	
Turn Bay Length (ft)		250	250		775		550
Base Capacity (vph)	2306	1052	139	2707	290	290	321
Starvation Cap Reductn	0	0	0	480	0	0	0
Spillback Cap Reductn	990	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	3.86	0.12	1.29	1.42	1.57	1.57	1.08

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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.

HCM Signalized Intersection Capacity Analysis

5: I-77 SB On Ramp/I-77 SB Off Ramp & Dave Lyle Blvd

Dave Lyle Blvd
Dave Lyle 2043 Horizon Year Build PM

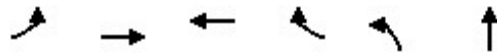
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑					↑	↑	↑
Traffic Volume (vph)	0	4568	110	161	2850	0	0	0	0	817	0	311
Future Volume (vph)	0	4568	110	161	2850	0	0	0	0	817	0	311
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			-3%			0%			0%	
Total Lost time (s)		6.3	6.3	6.3	6.3					6.9	6.9	6.9
Lane Util. Factor		0.95	1.00	1.00	0.95					0.95	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		3468	1552	1796	3592					1681	1681	1583
Flt Permitted		1.00	1.00	0.03	1.00					0.95	0.95	1.00
Satd. Flow (perm)		3468	1552	60	3592					1681	1681	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	5076	122	179	3167	0	0	0	0	908	0	346
RTOR Reduction (vph)	0	0	21	0	0	0	0	0	0	0	0	48
Lane Group Flow (vph)	0	5076	101	179	3167	0	0	0	0	454	454	298
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2	6						4		4
Actuated Green, G (s)		119.7	119.7	135.7	135.7					31.1	31.1	31.1
Effective Green, g (s)		119.7	119.7	135.7	135.7					31.1	31.1	31.1
Actuated g/C Ratio		0.67	0.67	0.75	0.75					0.17	0.17	0.17
Clearance Time (s)		6.3	6.3	6.3	6.3					6.9	6.9	6.9
Vehicle Extension (s)		6.0	6.0	3.0	6.0					3.0	3.0	3.0
Lane Grp Cap (vph)		2306	1032	138	2707					290	290	273
v/s Ratio Prot		c1.46		0.07	c0.88							
v/s Ratio Perm			0.07	0.90						c0.27	0.27	0.19
v/c Ratio		2.20	0.10	1.30	1.17					1.57	1.57	1.09
Uniform Delay, d1		30.1	10.8	80.7	22.2					74.5	74.5	74.5
Progression Factor		1.00	1.00	0.72	1.37					1.00	1.00	1.00
Incremental Delay, d2		542.0	0.2	138.6	76.9					270.6	270.6	81.2
Delay (s)		572.1	11.0	196.8	107.2					345.1	345.1	155.6
Level of Service		F	B	F	F					F	F	F
Approach Delay (s)		559.0			112.0			0.0			292.8	
Approach LOS		F			F			A			F	
Intersection Summary												
HCM 2000 Control Delay			372.2			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			2.03									
Actuated Cycle Length (s)			180.0			Sum of lost time (s)				19.5		
Intersection Capacity Utilization			174.1%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

6: I-77 NB Off Ramp/I-77 SB On Ramp & Dave Lyle Blvd

Dave Lyle Blvd

Dave Lyle 2043 Horizon Year Build PM



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	1174	4809	3172	1403	156	663
v/c Ratio	1.94	1.99	1.91	1.51	0.38	1.77
Control Delay	455.2	465.1	437.6	261.7	59.4	394.7
Queue Delay	0.0	0.2	0.0	0.0	0.8	0.0
Total Delay	455.2	465.3	437.7	261.7	60.2	394.7
Queue Length 50th (ft)	~1102	~4656	~3010	~2076	163	~1224
Queue Length 95th (ft)	m338	m826	#3081	#2343	243	#1492
Internal Link Dist (ft)		932	850			475
Turn Bay Length (ft)	225				250	
Base Capacity (vph)	604	2412	1665	929	412	374
Starvation Cap Reductn	0	197	0	0	0	0
Spillback Cap Reductn	0	0	25	0	91	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.94	2.17	1.93	1.51	0.49	1.77

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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.

HCM Signalized Intersection Capacity Analysis

6: I-77 NB Off Ramp/I-77 SB On Ramp & Dave Lyle Blvd

Dave Lyle Blvd
Dave Lyle 2043 Horizon Year Build PM







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1057	4328	0	0	2855	1263	156	5	576	0	0	0
Future Volume (vph)	1057	4328	0	0	2855	1263	156	5	576	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	6.3			6.3	6.3	6.4	6.4				
Lane Util. Factor	0.97	0.95			0.95	1.00	0.95	0.95				
Frt	1.00	1.00			1.00	0.85	1.00	0.86				
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (prot)	3433	3539			3539	1583	1665	1511				
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (perm)	3433	3539			3539	1583	1665	1511				
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1174	4809	0	0	3172	1403	173	6	640	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	185	0	0	0	0	0	0
Lane Group Flow (vph)	1174	4809	0	0	3172	1218	156	663	0	0	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	2%	2%	2%	2%	2%
Turn Type	Prot	NA			NA	Perm	Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases						6	8					
Actuated Green, G (s)	31.7	122.7			84.7	84.7	44.6	44.6				
Effective Green, g (s)	31.7	122.7			84.7	84.7	44.6	44.6				
Actuated g/C Ratio	0.18	0.68			0.47	0.47	0.25	0.25				
Clearance Time (s)	6.3	6.3			6.3	6.3	6.4	6.4				
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)	604	2412			1665	744	412	374				
v/s Ratio Prot	0.34	c1.36			0.90							
v/s Ratio Perm						0.77	0.09	0.44				
v/c Ratio	1.94	1.99			1.91	1.64	0.38	1.77				
Uniform Delay, d1	74.2	28.6			47.6	47.6	56.2	67.7				
Progression Factor	0.76	0.39			1.00	1.00	1.00	1.00				
Incremental Delay, d2	425.2	447.3			409.6	292.9	0.6	358.4				
Delay (s)	481.8	458.4			457.2	340.6	56.8	426.1				
Level of Service	F	F			F	F	E	F				
Approach Delay (s)		463.0			421.4			355.8			0.0	
Approach LOS		F			F			F			A	
Intersection Summary												
HCM 2000 Control Delay		438.6			HCM 2000 Level of Service			F				
HCM 2000 Volume to Capacity ratio		2.01										
Actuated Cycle Length (s)		180.0			Sum of lost time (s)			19.0				
Intersection Capacity Utilization		174.1%			ICU Level of Service			H				
Analysis Period (min)		15										
c Critical Lane Group												

Queues

9: I-77 NB Off Ramp & Paragon Way

Panther Interchange DB

2043 Build AM Alt 4B Clover Signalized _Horizon Year

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	291	920	57	254	929	93
v/c Ratio	0.54	0.37	0.38	0.18	0.58	0.06
Control Delay	14.0	1.9	50.1	18.2	22.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.0	1.9	50.1	18.2	22.0	0.1
Queue Length 50th (ft)	55	5	35	50	226	0
Queue Length 95th (ft)	m72	m38	74	74	298	0
Internal Link Dist (ft)	1157			1452	1123	
Turn Bay Length (ft)			250		1000	
Base Capacity (vph)	540	2474	177	1592	1614	1583
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.37	0.32	0.16	0.58	0.06

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

9: I-77 NB Off Ramp & Paragon Way













Panther Interchange DB
2043 Build AM Alt 4B Clover Signalized _Horizon Year

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑↑	↘	↑↑	↘↙	↗
Traffic Volume (vph)	262	828	51	229	836	84
Future Volume (vph)	262	828	51	229	836	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	4.0
Lane Util. Factor	1.00	0.88	1.00	0.95	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1863	2787	1770	3539	3433	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1863	2787	1770	3539	3433	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	291	920	57	254	929	93
RTOR Reduction (vph)	0	232	0	0	0	0
Lane Group Flow (vph)	291	688	57	254	929	93
Turn Type	NA	pm+ov	Prot	NA	Prot	Free
Protected Phases	2	3	1	6	3	
Permitted Phases		2				Free
Actuated Green, G (s)	29.0	74.8	7.2	42.2	45.8	100.0
Effective Green, g (s)	29.0	74.8	7.2	42.2	45.8	100.0
Actuated g/C Ratio	0.29	0.75	0.07	0.42	0.46	1.00
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	540	2251	127	1493	1572	1583
v/s Ratio Prot	c0.16	0.14	c0.03	0.07	c0.27	
v/s Ratio Perm		0.11				0.06
v/c Ratio	0.54	0.31	0.45	0.17	0.59	0.06
Uniform Delay, d1	29.9	4.1	44.5	18.0	20.1	0.0
Progression Factor	0.37	8.16	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.8	0.3	2.5	0.1	1.6	0.1
Delay (s)	13.8	33.9	47.0	18.1	21.8	0.1
Level of Service	B	C	D	B	C	A
Approach Delay (s)	29.0			23.4	19.8	
Approach LOS	C			C	B	
Intersection Summary						
HCM 2000 Control Delay			24.6		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.56			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	18.0
Intersection Capacity Utilization			58.5%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Queues

Panther Interchange DB

8: Panther Parkway/I-77 SB Off Ramp & Paragon Way 2043 Build AM Alt 4B Clover Signalized _Horizon Year

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	141	814	182	683	407	93	20	169	341	57	1239	607
v/c Ratio	0.50	0.88	0.34	0.95	0.29	0.11	0.11	0.20	0.24	0.42	0.82	0.74
Control Delay	58.9	32.0	3.5	51.8	12.7	0.6	21.4	31.7	3.4	53.9	39.2	13.3
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	58.9	32.0	3.5	51.8	12.7	0.6	21.4	31.7	3.4	53.9	39.2	13.3
Queue Length 50th (ft)	24	269	1	228	38	0	8	46	13	35	241	49
Queue Length 95th (ft)	74	#371	31	#339	51	m0	23	73	29	76	#386	211
Internal Link Dist (ft)		196			1157			306			1113	
Turn Bay Length (ft)	276		150	600		200	150		250	150		250
Base Capacity (vph)	287	927	536	720	1381	885	187	884	1405	141	1504	817
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	0.49	0.88	0.34	0.95	0.29	0.11	0.11	0.19	0.24	0.40	0.82	0.74

Intersection Summary

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.

HCM Signalized Intersection Capacity Analysis

Panther Interchange DB

8: Panther Parkway/I-77 SB Off Ramp & Paragon Way 2043 Build AM Alt 4B Clover Signalized _Horizon Year












												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	127	733	164	615	366	84	18	152	307	51	1115	546
Future Volume (vph)	127	733	164	615	366	84	18	152	307	51	1115	546
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	0.88	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1770	3539	2787	1770	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.15	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	285	3539	2787	1770	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	141	814	182	683	407	93	20	169	341	57	1239	607
RTOR Reduction (vph)	0	0	121	0	0	54	0	0	132	0	0	348
Lane Group Flow (vph)	141	814	61	683	407	39	20	169	209	57	1239	259
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	Perm
Protected Phases	5	2		1	6	7	3	8	1	7	4	
Permitted Phases			2			6	8		8			4
Actuated Green, G (s)	8.2	26.2	26.2	17.4	35.4	41.7	28.9	26.1	43.5	6.3	29.6	29.6
Effective Green, g (s)	8.2	26.2	26.2	17.4	35.4	41.7	28.9	26.1	43.5	6.3	29.6	29.6
Actuated g/C Ratio	0.08	0.26	0.26	0.17	0.35	0.42	0.29	0.26	0.44	0.06	0.30	0.30
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	281	927	414	597	1252	755	123	923	1212	111	1505	468
v/s Ratio Prot	0.04	c0.23		c0.20	0.11	0.00	0.00	0.05	0.03	c0.03	c0.24	
v/s Ratio Perm			0.04			0.02	0.04		0.05			0.16
v/c Ratio	0.50	0.88	0.15	1.14	0.33	0.05	0.16	0.18	0.17	0.51	0.82	0.55
Uniform Delay, d1	43.9	35.4	28.3	41.3	23.6	17.4	26.6	28.7	17.3	45.4	32.8	29.6
Progression Factor	1.20	0.52	0.27	0.74	0.56	0.14	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.3	10.7	0.7	81.7	0.6	0.0	0.6	0.1	0.1	4.0	3.8	1.4
Delay (s)	54.0	28.9	8.4	112.3	13.8	2.4	27.2	28.8	17.3	49.3	36.6	31.0
Level of Service	D	C	A	F	B	A	C	C	B	D	D	C
Approach Delay (s)		28.7			69.7			21.4			35.2	
Approach LOS		C			E			C			D	
Intersection Summary												
HCM 2000 Control Delay			40.7			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.93									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			24.0			
Intersection Capacity Utilization			85.2%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

7: Paragon Way & Hutchison Road

Panther Interchange DB




























2043 Build AM Alt 4B Clover Signalized _Horizon Year

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	79	1028	61	282	868	327	13	13	36	74	150
v/c Ratio	0.50	0.46	0.07	0.69	0.40	0.30	0.11	0.09	0.07	0.37	0.54
Control Delay	54.1	22.3	0.2	38.5	11.7	1.9	45.1	44.3	0.2	41.0	43.3
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.1	22.3	0.2	38.5	11.9	1.9	45.1	44.3	0.2	41.0	43.3
Queue Length 50th (ft)	48	167	0	157	135	3	8	8	0	43	87
Queue Length 95th (ft)	96	241	0	m233	221	m22	27	27	0	78	136
Internal Link Dist (ft)		469			138			497			741
Turn Bay Length (ft)	260		260				150		150		
Base Capacity (vph)	177	2237	824	460	2151	1090	217	260	537	199	498
Starvation Cap Reductn	0	0	0	0	509	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	0.45	0.46	0.07	0.61	0.53	0.30	0.06	0.05	0.07	0.37	0.30
Intersection Summary											
m Volume for 95th percentile queue is metered by upstream signal.											

HCM Signalized Intersection Capacity Analysis

7: Paragon Way & Hutchison Road

Panther Interchange DB
2043 Build AM Alt 4B Clover Signalized _Horizon Year

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			 						 	
Traffic Volume (vph)	71	925	55	254	781	294	12	12	32	67	117	18
Future Volume (vph)	71	925	55	254	781	294	12	12	32	67	117	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5085	1583	1770	3539	1583	1770	1863	1583	1770	1825	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.83	1.00	1.00	0.37	1.00	
Satd. Flow (perm)	1770	5085	1583	1770	3539	1583	1552	1863	1583	690	1825	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	79	1028	61	282	868	327	13	13	36	74	130	20
RTOR Reduction (vph)	0	0	37	0	0	144	0	0	25	0	7	0
Lane Group Flow (vph)	79	1028	24	282	868	183	13	13	11	74	143	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	pm+ov	pm+pt	NA	
Protected Phases	5	2		1	6			8	1	7	4	
Permitted Phases			2			6	8		8	4		
Actuated Green, G (s)	7.6	39.2	39.2	24.4	56.0	56.0	4.8	4.8	29.2	18.4	18.4	
Effective Green, g (s)	7.6	39.2	39.2	24.4	56.0	56.0	4.8	4.8	29.2	18.4	18.4	
Actuated g/C Ratio	0.08	0.39	0.39	0.24	0.56	0.56	0.05	0.05	0.29	0.18	0.18	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	134	1993	620	431	1981	886	74	89	462	209	335	
v/s Ratio Prot	0.04	c0.20		c0.16	0.25			0.01	0.01	0.03	c0.08	
v/s Ratio Perm			0.02			0.12	0.01		0.00	0.04		
v/c Ratio	0.59	0.52	0.04	0.65	0.44	0.21	0.18	0.15	0.02	0.35	0.43	
Uniform Delay, d1	44.7	23.2	18.8	34.0	12.8	10.9	45.7	45.6	25.2	34.9	36.1	
Progression Factor	1.00	1.00	1.00	0.86	0.92	0.79	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	6.5	1.0	0.1	3.3	0.7	0.5	1.1	0.8	0.0	1.0	0.9	
Delay (s)	51.2	24.1	18.9	32.7	12.4	9.2	46.8	46.4	25.3	36.0	37.0	
Level of Service	D	C	B	C	B	A	D	D	C	D	D	
Approach Delay (s)		25.7			15.6			34.2			36.7	
Approach LOS		C			B			C			D	
Intersection Summary												
HCM 2000 Control Delay	21.6			HCM 2000 Level of Service			C					
HCM 2000 Volume to Capacity ratio	0.58											
Actuated Cycle Length (s)	100.0			Sum of lost time (s)			24.0					
Intersection Capacity Utilization	57.3%			ICU Level of Service			B					
Analysis Period (min)	15											
c Critical Lane Group												

Queues

9: I-77 NB Off Ramp & Paragon Way

Panther Interchange DB

2043 Build AM Alt 4B Clover Signalized _Horizon Year

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	190	2161	29	450	824	29
v/c Ratio	0.68	0.83	0.28	0.59	0.35	0.02
Control Delay	47.7	5.3	61.4	44.9	9.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.7	5.3	61.4	44.9	9.0	0.0
Queue Length 50th (ft)	137	87	22	156	143	0
Queue Length 95th (ft)	m148	m109	54	208	180	0
Internal Link Dist (ft)	1157			1452	1123	
Turn Bay Length (ft)			250		1000	
Base Capacity (vph)	280	2618	103	914	2349	1583
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.83	0.28	0.49	0.35	0.02













Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

9: I-77 NB Off Ramp & Paragon Way













Panther Interchange DB
2043 Build AM Alt 4B Clover Signalized _Horizon Year

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	171	1945	26	405	742	26
Future Volume (vph)	171	1945	26	405	742	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	4.0
Lane Util. Factor	1.00	0.88	1.00	0.95	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1863	2787	1770	3539	3433	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1863	2787	1770	3539	3433	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	190	2161	29	450	824	29
RTOR Reduction (vph)	0	188	0	0	0	0
Lane Group Flow (vph)	190	1973	29	450	824	29
Turn Type	NA	pm+ov	Prot	NA	Prot	Free
Protected Phases	2	3	1	6	3	
Permitted Phases		2				Free
Actuated Green, G (s)	18.1	97.8	4.2	28.3	79.7	120.0
Effective Green, g (s)	18.1	97.8	4.2	28.3	79.7	120.0
Actuated g/C Ratio	0.15	0.81	0.04	0.24	0.66	1.00
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	281	2410	61	834	2280	1583
v/s Ratio Prot	0.10	c0.54	0.02	c0.13	0.24	
v/s Ratio Perm		0.16				0.02
v/c Ratio	0.68	0.82	0.48	0.54	0.36	0.02
Uniform Delay, d1	48.2	6.2	56.8	40.1	8.9	0.0
Progression Factor	0.88	1.82	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.4	1.1	5.7	0.7	0.4	0.0
Delay (s)	46.9	12.4	62.6	40.8	9.4	0.0
Level of Service	D	B	E	D	A	A
Approach Delay (s)	15.2			42.1	9.0	
Approach LOS	B			D	A	
Intersection Summary						
HCM 2000 Control Delay			17.3	HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio			0.87			
Actuated Cycle Length (s)			120.0	Sum of lost time (s)		18.0
Intersection Capacity Utilization			83.9%	ICU Level of Service		E
Analysis Period (min)			15			
c Critical Lane Group						

Queues

Panther Interchange DB

8: Panther Parkway/I-77 SB Off Ramp & Paragon Way 2043 Build AM Alt 4B Clover Signalized _Horizon Year

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	770	902	71	309	937	29	92	846	1421	29	498	323
v/c Ratio	1.00	0.99	0.14	0.35	0.91	0.05	0.35	0.97	0.93	0.28	0.44	0.53
Control Delay	69.8	65.0	3.1	36.4	45.1	0.9	31.9	69.4	28.4	61.4	41.1	7.6
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	69.8	65.0	3.1	36.4	45.1	0.9	31.9	69.4	28.4	61.4	41.1	7.6
Queue Length 50th (ft)	319	~228	0	112	288	0	49	~367	343	22	120	0
Queue Length 95th (ft)	#450	#501	m11	156	#484	m4	89	#495	#421	54	157	75
Internal Link Dist (ft)		196			1157			306			1113	
Turn Bay Length (ft)	276		150	600		200	150		250	150		250
Base Capacity (vph)	772	914	509	886	1032	607	265	872	1533	103	1186	617
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	1.00	0.99	0.14	0.35	0.91	0.05	0.35	0.97	0.93	0.28	0.42	0.52

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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.

HCM Signalized Intersection Capacity Analysis

Panther Interchange DB

8: Panther Parkway/I-77 SB Off Ramp & Paragon Way 2043 Build AM Alt 4B Clover Signalized _Horizon Year












												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	693	812	64	278	843	26	83	761	1279	26	448	291
Future Volume (vph)	693	812	64	278	843	26	83	761	1279	26	448	291
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	0.88	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1770	3539	2787	1770	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.37	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	690	3539	2787	1770	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	770	902	71	309	937	29	92	846	1421	29	498	323
RTOR Reduction (vph)	0	0	53	0	0	19	0	0	103	0	0	247
Lane Group Flow (vph)	770	902	18	309	937	10	92	846	1318	29	498	76
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	Perm
Protected Phases	5	2		1	6	7	3	8	1	7	4	
Permitted Phases			2			6	8		8			4
Actuated Green, G (s)	27.0	31.0	31.0	29.8	33.8	39.4	36.6	29.6	59.4	5.6	28.2	28.2
Effective Green, g (s)	27.0	31.0	31.0	29.8	33.8	39.4	36.6	29.6	59.4	5.6	28.2	28.2
Actuated g/C Ratio	0.22	0.26	0.26	0.25	0.28	0.33	0.31	0.25	0.49	0.05	0.23	0.23
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	772	914	408	852	996	519	273	872	1379	82	1194	372
v/s Ratio Prot	0.22	0.25		0.09	c0.26	0.00	c0.02	c0.24	c0.24	0.02	0.10	
v/s Ratio Perm			0.01			0.01	0.08		0.24			0.05
v/c Ratio	1.00	0.99	0.04	0.36	0.94	0.02	0.34	0.97	0.96	0.35	0.42	0.20
Uniform Delay, d1	46.5	44.3	33.4	37.3	42.1	27.2	30.7	44.8	29.1	55.4	38.9	36.9
Progression Factor	0.86	0.89	1.00	0.97	0.77	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	28.9	24.4	0.2	1.1	16.5	0.0	0.7	23.3	14.9	2.6	0.2	0.3
Delay (s)	68.8	64.0	33.6	37.1	49.1	27.2	31.5	68.1	44.0	58.1	39.2	37.2
Level of Service	E	E	C	D	D	C	C	E	D	E	D	D
Approach Delay (s)		64.9			45.7			52.1			39.0	
Approach LOS		E			D			D			D	
Intersection Summary												
HCM 2000 Control Delay			52.6			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.95									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			24.0			
Intersection Capacity Utilization			89.9%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

9: Paragon Way & Hutchison Road

Panther Interchange DB

2043 Build AM Alt 4B Clover Signalized _Horizon Year

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	74	1271	24	110	1390	184	60	60	164	308	85
v/c Ratio	0.63	0.52	0.03	0.61	0.73	0.20	0.52	0.36	0.47	0.74	0.17
Control Delay	77.9	23.8	0.0	73.0	10.0	0.7	67.1	56.7	16.0	51.8	22.0
Queue Delay	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.9	23.8	0.0	73.0	10.3	0.7	67.1	56.7	16.0	51.8	22.0
Queue Length 50th (ft)	57	261	0	88	168	0	45	44	36	202	31
Queue Length 95th (ft)	#126	319	0	m114	m207	m3	89	87	75	298	71
Internal Link Dist (ft)		469			138			497			741
Turn Bay Length (ft)	260		260				150		150		
Base Capacity (vph)	121	2454	862	221	1908	928	152	217	385	419	545
Starvation Cap Reductn	0	0	0	0	133	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	0.61	0.52	0.03	0.50	0.78	0.20	0.39	0.28	0.43	0.74	0.16

Intersection Summary

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.

HCM Signalized Intersection Capacity Analysis

9: Paragon Way & Hutchison Road

Panther Interchange DB

2043 Build AM Alt 4B Clover Signalized _Horizon Year

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			 						 	
Traffic Volume (vph)	67	1144	22	99	1251	166	54	54	148	277	46	31
Future Volume (vph)	67	1144	22	99	1251	166	54	54	148	277	46	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5085	1583	1770	3539	1583	1770	1863	1583	1770	1751	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.70	1.00	1.00	0.72	1.00	
Satd. Flow (perm)	1770	5085	1583	1770	3539	1583	1307	1863	1583	1337	1751	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	74	1271	24	110	1390	184	60	60	164	308	51	34
RTOR Reduction (vph)	0	0	13	0	0	77	0	0	67	0	21	0
Lane Group Flow (vph)	74	1271	11	110	1390	107	60	60	97	308	64	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	pm+ov	pm+pt	NA	
Protected Phases	5	2		1	6			8	1	7	4	
Permitted Phases			2			6	8		8	4		
Actuated Green, G (s)	6.6	56.7	56.7	12.2	62.3	62.3	9.3	9.3	21.5	33.1	33.1	
Effective Green, g (s)	6.6	56.7	56.7	12.2	62.3	62.3	9.3	9.3	21.5	33.1	33.1	
Actuated g/C Ratio	0.05	0.47	0.47	0.10	0.52	0.52	0.08	0.08	0.18	0.28	0.28	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	97	2402	747	179	1837	821	101	144	283	433	482	
v/s Ratio Prot	0.04	0.25		c0.06	c0.39			0.03	0.03	c0.11	0.04	
v/s Ratio Perm			0.01			0.07	0.05		0.03	c0.09		
v/c Ratio	0.76	0.53	0.02	0.61	0.76	0.13	0.59	0.42	0.34	0.71	0.13	
Uniform Delay, d1	55.9	22.3	16.8	51.6	22.8	14.9	53.5	52.8	43.1	38.2	32.7	
Progression Factor	1.00	1.00	1.00	1.20	0.34	0.08	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	29.2	0.8	0.0	4.8	2.3	0.3	9.0	1.9	0.7	5.4	0.1	
Delay (s)	85.2	23.1	16.9	66.8	10.1	1.4	62.6	54.7	43.8	43.6	32.8	
Level of Service	F	C	B	E	B	A	E	D	D	D	C	
Approach Delay (s)		26.3			12.9			50.1			41.3	
Approach LOS		C			B			D			D	
Intersection Summary												
HCM 2000 Control Delay	23.6			HCM 2000 Level of Service			C					
HCM 2000 Volume to Capacity ratio	0.80											
Actuated Cycle Length (s)	120.0			Sum of lost time (s)			24.0					
Intersection Capacity Utilization	77.4%			ICU Level of Service			D					
Analysis Period (min)	15											
c Critical Lane Group												

Queuing and Blocking Report
 2043 Build AM Alt 4B Clover Signalized Horizon Year

02/17/2020

Intersection: 9: I-77 NB Off Ramp & Paragon Way

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	R	R	L	T	T	L	L
Maximum Queue (ft)	166	6	40	111	154	111	307	264
Average Queue (ft)	79	0	1	46	71	48	172	134
95th Queue (ft)	138	6	24	90	123	90	267	228
Link Distance (ft)	1120	1120	1120			1505		
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)				250	250		1000	1000
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 8: Panther Parkway/I-77 SB Off Ramp & Paragon Way

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	L	T	T	L	T	T
Maximum Queue (ft)	113	110	290	268	184	283	283	124	139	51	122	108
Average Queue (ft)	50	40	189	158	47	171	185	51	65	14	60	30
95th Queue (ft)	87	90	317	272	117	255	260	104	119	42	103	80
Link Distance (ft)	152	152	152	152	152			1120	1120		290	290
Upstream Blk Time (%)	0		23	17	0							
Queuing Penalty (veh)	0		47	35	0							
Storage Bay Dist (ft)						600	600			150		
Storage Blk Time (%)												0
Queuing Penalty (veh)												0

Intersection: 8: Panther Parkway/I-77 SB Off Ramp & Paragon Way

Movement	NB	NB	B4	SB	SB	SB	SB	SB
Directions Served	R	R	T	L	T	T	T	R
Maximum Queue (ft)	114	25	4	92	204	233	220	195
Average Queue (ft)	11	1	0	29	126	137	102	52
95th Queue (ft)	68	18	4	69	184	196	169	143
Link Distance (ft)	290		716		929	929		
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		250		150			250	250
Storage Blk Time (%)					3	0	0	0
Queuing Penalty (veh)					2	1	0	1

2043 Build AM Alt 4B Clover Signalized Horizon Year

02/17/2020

Intersection: 7: Paragon Way & Hutchison Road

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	T	T	T	R	L	T	T	R	L	T	R
Maximum Queue (ft)	120	268	341	292	89	201	195	241	234	48	44	50
Average Queue (ft)	49	70	187	155	23	112	100	130	80	13	11	14
95th Queue (ft)	98	191	295	254	77	180	173	217	213	40	35	41
Link Distance (ft)			500	500		131	131	131	131		505	
Upstream Blk Time (%)			0			5	3	7	4			
Queuing Penalty (veh)			0			17	10	25	15			
Storage Bay Dist (ft)	260	260			260					150		150
Storage Blk Time (%)		0	2	1								
Queuing Penalty (veh)		0	9	1								

Intersection: 7: Paragon Way & Hutchison Road

Movement	SB	SB
Directions Served	L	TR
Maximum Queue (ft)	106	180
Average Queue (ft)	45	86
95th Queue (ft)	94	152
Link Distance (ft)	764	764
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Queuing and Blocking Report
 2043 Build AM Alt 4B Clover Signalized Horizon Year

02/17/2020

Intersection: 9: I-77 NB Off Ramp & Paragon Way

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	R	R	L	T	T	L	L
Maximum Queue (ft)	234	127	135	80	249	254	212	238
Average Queue (ft)	120	6	6	23	136	141	92	122
95th Queue (ft)	206	80	83	61	214	218	220	248
Link Distance (ft)	1120	1120	1120			1505		
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)				250	250		1000	1000
Storage Blk Time (%)					0	1		
Queuing Penalty (veh)					1	1		

Intersection: 8: Panther Parkway/I-77 SB Off Ramp & Paragon Way

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	L	T	T	R	L	L	T	T	R	L	T
Maximum Queue (ft)	295	304	280	274	107	157	340	598	600	244	289	368
Average Queue (ft)	251	250	214	221	26	70	135	325	339	21	99	273
95th Queue (ft)	314	315	309	305	71	132	401	705	717	157	262	392
Link Distance (ft)	152	152	152	152	152			1120	1120			290
Upstream Blk Time (%)	43	47	35	39				1	1		0	12
Queuing Penalty (veh)	137	148	111	123				6	7		0	0
Storage Bay Dist (ft)						600	600			200	150	
Storage Blk Time (%)								6	27		0	39
Queuing Penalty (veh)								17	7		0	33

Intersection: 8: Panther Parkway/I-77 SB Off Ramp & Paragon Way

Movement	NB	NB	NB	B4	B4	B4	SB	SB	SB	SB	SB
Directions Served	T	R	R	T	T	T	L	T	T	T	R
Maximum Queue (ft)	353	367	289	382	456	497	77	290	337	210	235
Average Queue (ft)	250	235	197	48	51	55	16	101	112	72	62
95th Queue (ft)	361	349	330	288	324	338	51	217	321	202	197
Link Distance (ft)	290	290		716	716	716		929	929		
Upstream Blk Time (%)	8	1	0	0	2	2			0		
Queuing Penalty (veh)	0	0	0	0	0	0			0		
Storage Bay Dist (ft)			250				150			250	250
Storage Blk Time (%)		3	1					2	1	1	4
Queuing Penalty (veh)		20	5					0	3	2	6

Intersection: 7: Paragon Way & Hutchison Road

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	T	T	T	R	L	T	T	R	L	T	R
Maximum Queue (ft)	284	349	427	379	37	179	244	275	264	139	156	145
Average Queue (ft)	79	228	212	181	8	84	144	183	144	50	55	59
95th Queue (ft)	229	370	449	366	30	157	231	278	297	107	133	121
Link Distance (ft)			500	500		131	131	131	131		505	
Upstream Blk Time (%)			7	1		7	11	25	16			
Queuing Penalty (veh)			0	0		26	43	97	61			
Storage Bay Dist (ft)	260	260			260					150		150
Storage Blk Time (%)	0	14	3	1						0	0	2
Queuing Penalty (veh)	0	52	11	0						1	1	2

Intersection: 7: Paragon Way & Hutchison Road

Movement	SB	SB
Directions Served	L	TR
Maximum Queue (ft)	383	126
Average Queue (ft)	208	50
95th Queue (ft)	351	102
Link Distance (ft)	764	764
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: Paragon Way

Movement	EB	EB	EB	EB	WB	WB	SW
Directions Served	T	T	T	T	T	T	R
Maximum Queue (ft)	198	207	204	226	153	163	167
Average Queue (ft)	69	71	44	50	21	31	16
95th Queue (ft)	203	205	166	179	121	158	108
Link Distance (ft)	131	131	131	131	152	152	959
Upstream Blk Time (%)	7	7	5	6	3	8	
Queuing Penalty (veh)	28	29	21	25	20	49	
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Network Summary

Network wide Queuing Penalty: 1093

Intersection: 6: I-77 SB Off Ramp

Movement

Directions Served

Maximum Queue (ft)

Average Queue (ft)

95th Queue (ft)

Link Distance (ft)

Upstream Blk Time (%)

Queuing Penalty (veh)

Storage Bay Dist (ft)

Storage Blk Time (%)

Queuing Penalty (veh)

Intersection: 10: Paragon Way

Movement	EB	EB	WB	WB	SW
Directions Served	T	T	T	T	R
Maximum Queue (ft)	185	160	26	18	21
Average Queue (ft)	35	29	1	1	1
95th Queue (ft)	149	134	15	14	11
Link Distance (ft)	131	131	152	152	959
Upstream Blk Time (%)	2	2			
Queuing Penalty (veh)	6	5			
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 171

Appendix F

HCS Analysis Results

HCS REPORTS
BASIC FREEWAY SEGMENTS
2019 EXISTING AM

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: North of Celanese Road
Jurisdiction: SCDOT
Analysis Year: 2019 Existing
Description: I-77 SB, North of Celanese Road

Flow Inputs and Adjustments

Volume, V	3536	veh/h
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v15	911	v
Trucks and buses	11	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.948	
Driver population factor, fp	1.00	
Flow rate, vp	961	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	961	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	14.8	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone:
E-mail:

Fax:

-----Operational Analysis-----

Analyst: Kimley Horn
 Agency or Company:
 Date Performed: 1/7/2020
 Analysis Time Period: AM Peak Hour
 Freeway/Direction: I 77 Southbound
 From/To: Celanese Rd/Cherry Rd Ramps
 Jurisdiction: SCDOT
 Analysis Year: 2019 Existing
 Description: I-77 SB, Between Celanese Road/Cherry Road SB On/Off-Ramps

-----Flow Inputs and Adjustments-----

Volume, V	1849	veh/h
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v15	477	v
Trucks and buses	11	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.948	
Driver population factor, fp	1.00	
Flow rate, vp	503	pc/h/ln

-----Speed Inputs and Adjustments-----

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

-----LOS and Performance Measures-----

Flow rate, vp	503	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	7.7	pc/mi/ln
Level of service, LOS	A	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone:
E-mail:

Fax:

-----Operational Analysis-----

Analyst: Kimley Horn
 Agency or Company:
 Date Performed: 1/7/2020
 Analysis Time Period: AM Peak Hour
 Freeway/Direction: I 77 Southbound
 From/To: Cherry Rd to Dave Lyle Blvd
 Jurisdiction: SCDOT
 Analysis Year: 2019 Existing
 Description: I-77 SB, Between Cherry Road and Dave Lyle Boulevard

-----Flow Inputs and Adjustments-----

Volume, V	2491	veh/h
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v15	642	v
Trucks and buses	11	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.948	
Driver population factor, fp	1.00	
Flow rate, vp	677	pc/h/ln

-----Speed Inputs and Adjustments-----

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

-----LOS and Performance Measures-----

Flow rate, vp	677	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	10.4	pc/mi/ln
Level of service, LOS	A	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone:
E-mail:

Fax:

-----Operational Analysis-----

Analyst: Kimley Horn
 Agency or Company:
 Date Performed: 1/7/2020
 Analysis Time Period: AM Peak Hour
 Freeway/Direction: I 77 Southbound
 From/To: Dave Lyle Blvd Ramps
 Jurisdiction: SCDOT
 Analysis Year: 2019 Existing
 Description: I-77 SB, Between Dave Lyle Boulevard SB On/Off Ramps

-----Flow Inputs and Adjustments-----

Volume, V	1768	veh/h
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v15	456	v
Trucks and buses	11	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.948	
Driver population factor, fp	1.00	
Flow rate, vp	481	pc/h/ln

-----Speed Inputs and Adjustments-----

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

-----LOS and Performance Measures-----

Flow rate, vp	481	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	7.4	pc/mi/ln
Level of service, LOS	A	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

-----Operational Analysis-----

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: South of Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2019 Existing
Description: I-77 SB, South of Dave Lyle Boulevard

-----Flow Inputs and Adjustments-----

Volume, V	2011	veh/h
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v15	518	v
Trucks and buses	11	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.948	
Driver population factor, fp	1.00	
Flow rate, vp	547	pc/h/ln

-----Speed Inputs and Adjustments-----

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

-----LOS and Performance Measures-----

Flow rate, vp	547	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	8.4	pc/mi/ln
Level of service, LOS	A	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

-----Operational Analysis-----

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: South of Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2019 Existing
Description: I-77 NB, South of Dave Lyle Boulevard

-----Flow Inputs and Adjustments-----

Volume, V	2660	veh/h
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v15	686	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	720	pc/h/ln

-----Speed Inputs and Adjustments-----

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

-----LOS and Performance Measures-----

Flow rate, vp	720	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	11.1	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

-----Operational Analysis-----

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: Dave Lyle Blvd Ramps
Jurisdiction: SCDOT
Analysis Year: 2019 Existing
Description: I-77 NB, Between Dave Lyle Boulevard NB On/Off Ramps

-----Flow Inputs and Adjustments-----

Volume, V	2432	veh/h
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v15	627	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	658	pc/h/ln

-----Speed Inputs and Adjustments-----

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

-----LOS and Performance Measures-----

Flow rate, vp	658	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	10.1	pc/mi/ln
Level of service, LOS	A	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone:
E-mail:

Fax:

Operational Analysis

Analyst: Kimley Horn
 Agency or Company:
 Date Performed: 1/7/2020
 Analysis Time Period: AM Peak Hour
 Freeway/Direction: I 77 Northbound
 From/To: Dave Lyle Blvd to Cherry Rd
 Jurisdiction: SCDOT
 Analysis Year: 2019 Existing
 Description: I-77 NB, Between Dave Lyle Boulevard and Cherry Road

Flow Inputs and Adjustments

Volume, V	3451	veh/h
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v15	889	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	934	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	934	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	14.4	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone:
E-mail:

Fax:

Operational Analysis

Analyst: Kimley Horn
 Agency or Company:
 Date Performed: 1/7/2020
 Analysis Time Period: AM Peak Hour
 Freeway/Direction: I 77 Northbound
 From/To: Celanese Rd/Cherry Rd Ramps
 Jurisdiction: SCDOT
 Analysis Year: 2019 Existing
 Description: I-77 NB, Between Celanese Road/Cherry Road NB On/Off Ramps

Flow Inputs and Adjustments

Volume, V	2654	veh/h
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v15	684	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	718	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	718	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	11.0+	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

-----Operational Analysis-----

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: North of Celanese Road
Jurisdiction: SCDOT
Analysis Year: 2019 Existing
Description: I-77 NB, North of Celanese Road

-----Flow Inputs and Adjustments-----

Volume, V	5108	veh/h
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v15	1316	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	1382	pc/h/ln

-----Speed Inputs and Adjustments-----

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

-----LOS and Performance Measures-----

Flow rate, vp	1382	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	21.3	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS REPORTS
BASIC FREEWAY SEGMENTS
2019 EXISTING PM

Phone:
E-mail:

Fax:

Operational Analysis

Analyst: Kimley Horn
 Agency or Company:
 Date Performed: 1/7/2020
 Analysis Time Period: PM Peak Hour
 Freeway/Direction: I 77 Southbound
 From/To: North of Celanese Road
 Jurisdiction: SCDOT
 Analysis Year: 2019 Existing
 Description: I-77 SB, North of Celanese Road

Flow Inputs and Adjustments

Volume, V	6037	veh/h
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v15	1540	v
Trucks and buses	6	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.971	
Driver population factor, fp	1.00	
Flow rate, vp	1586	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1586	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	64.5	mi/h
Number of lanes, N	4	
Density, D	24.6	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone:
E-mail:

Fax:

-----Operational Analysis-----

Analyst: Kimley Horn
 Agency or Company:
 Date Performed: 1/7/2020
 Analysis Time Period: PM Peak Hour
 Freeway/Direction: I 77 Southbound
 From/To: Celanese Rd/Cherry Rd Ramps
 Jurisdiction: SCDOT
 Analysis Year: 2019 Existing
 Description: I-77 SB, Between Celanese Road/Cherry Road SB On/Off-Ramps

-----Flow Inputs and Adjustments-----

Volume, V	3409	veh/h
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v15	870	v
Trucks and buses	6	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.971	
Driver population factor, fp	1.00	
Flow rate, vp	896	pc/h/ln

-----Speed Inputs and Adjustments-----

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

-----LOS and Performance Measures-----

Flow rate, vp	896	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	13.8	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone:
E-mail:

Fax:

Operational Analysis

Analyst: Kimley Horn
 Agency or Company:
 Date Performed: 1/7/2020
 Analysis Time Period: PM Peak Hour
 Freeway/Direction: I 77 Southbound
 From/To: Cherry Rd to Dave Lyle Blvd
 Jurisdiction: SCDOT
 Analysis Year: 2019 Existing
 Description: I-77 SB, Between Cherry Road and Dave Lyle Boulevard

Flow Inputs and Adjustments

Volume, V	4181	veh/h
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v15	1067	v
Trucks and buses	6	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.971	
Driver population factor, fp	1.00	
Flow rate, vp	1099	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1099	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	16.9	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone:
E-mail:

Fax:

-----Operational Analysis-----

Analyst: Kimley Horn
 Agency or Company:
 Date Performed: 1/7/2020
 Analysis Time Period: PM Peak Hour
 Freeway/Direction: I 77 Southbound
 From/To: Dave Lyle Blvd Ramps
 Jurisdiction: SCDOT
 Analysis Year: 2019 Existing
 Description: I-77 SB, Between Dave Lyle Boulevard SB On/Off Ramps

-----Flow Inputs and Adjustments-----

Volume, V	2742	veh/h
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v15	699	v
Trucks and buses	6	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.971	
Driver population factor, fp	1.00	
Flow rate, vp	720	pc/h/ln

-----Speed Inputs and Adjustments-----

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

-----LOS and Performance Measures-----

Flow rate, vp	720	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	11.1	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

-----Operational Analysis-----

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: South of Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2019 Existing
Description: I-77 SB, South of Dave Lyle Boulevard

-----Flow Inputs and Adjustments-----

Volume, V	3072	veh/h
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v15	784	v
Trucks and buses	6	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.971	
Driver population factor, fp	1.00	
Flow rate, vp	807	pc/h/ln

-----Speed Inputs and Adjustments-----

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

-----LOS and Performance Measures-----

Flow rate, vp	807	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	12.4	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

-----Operational Analysis-----

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: South of Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2019 Existing
Description: I-77 NB, South of Dave Lyle Boulevard

-----Flow Inputs and Adjustments-----

Volume, V	2394	veh/h
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v15	611	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	641	pc/h/ln

-----Speed Inputs and Adjustments-----

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

-----LOS and Performance Measures-----

Flow rate, vp	641	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	9.9	pc/mi/ln
Level of service, LOS	A	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone:
E-mail:

Fax:

-----Operational Analysis-----

Analyst: Kimley Horn
 Agency or Company:
 Date Performed: 1/7/2020
 Analysis Time Period: PM Peak Hour
 Freeway/Direction: I 77 Northbound
 From/To: Dave Lyle Blvd Ramps
 Jurisdiction: SCDOT
 Analysis Year: 2019 Existing
 Description: I-77 NB, Between Dave Lyle Boulevard NB On/Off Ramps

-----Flow Inputs and Adjustments-----

Volume, V	2017	veh/h
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v15	515	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	540	pc/h/ln

-----Speed Inputs and Adjustments-----

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

-----LOS and Performance Measures-----

Flow rate, vp	540	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	8.3	pc/mi/ln
Level of service, LOS	A	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

-----Operational Analysis-----

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: Dave Lyle Blvd to Cherry Rd
Jurisdiction: SCDOT
Analysis Year: 2019 Existing
Description: I-77 NB, Between Dave Lyle Boulevard and Cherry Road

-----Flow Inputs and Adjustments-----

Volume, V	2978	veh/h
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v15	760	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	798	pc/h/ln

-----Speed Inputs and Adjustments-----

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

-----LOS and Performance Measures-----

Flow rate, vp	798	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	12.3	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: _____ Fax: _____
 E-mail: _____

-----Operational Analysis-----

Analyst: Kimley Horn
 Agency or Company:
 Date Performed: 1/7/2020
 Analysis Time Period: PM Peak Hour
 Freeway/Direction: I 77 Northbound
 From/To: Celanese Rd/Cherry Rd Ramps
 Jurisdiction: SCDOT
 Analysis Year: 2019 Existing
 Description: I-77 NB, Between Celanese Road/Cherry Road NB On/Off Ramps

-----Flow Inputs and Adjustments-----

Volume, V	2155	veh/h
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v15	550	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	577	pc/h/ln

-----Speed Inputs and Adjustments-----

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

-----LOS and Performance Measures-----

Flow rate, vp	577	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	8.9	pc/mi/ln
Level of service, LOS	A	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

-----Operational Analysis-----

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: North of Celanese Road
Jurisdiction: SCDOT
Analysis Year: 2019 Existing
Description: I-77 NB, North of Celanese Road

-----Flow Inputs and Adjustments-----

Volume, V	3773	veh/h
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v15	962	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	1011	pc/h/ln

-----Speed Inputs and Adjustments-----

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

-----LOS and Performance Measures-----

Flow rate, vp	1011	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	15.6	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS REPORTS
BASIC FREEWAY SEGMENTS
2023 OPENING YEAR NO BUILD AM

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: South of Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year No Build
Description: I-77 NB, South of Dave Lyle Boulevard

Flow Inputs and Adjustments

Volume, V	3082	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	856	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	899	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	899	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	13.8	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: Dave Lyle Blvd Ramps
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year No Build
Description: I-77 NB, Between Dave Lyle Boulevard NB On/Off Ramps

Flow Inputs and Adjustments

Volume, V	2627	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	730	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	766	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	766	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	11.8	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: Dave Lyle Blvd to Cherry Rd
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year No Build
Description: I-77 NB, Between Dave Lyle Boulevard and Cherry Road

Flow Inputs and Adjustments

Volume, V	3752	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1042	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	1094	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1094	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	16.8	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: Celanese Rd/Cherry Rd Ramps
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year No Build
Description: I-77 NB, Between Celanese Road/Cherry Road NB On/Off Ramps

Flow Inputs and Adjustments

Volume, V	2889	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	803	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	843	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	843	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	13.0	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: North of Celanese Road
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year No Build
Description: I-77 NB, North of Celanese Road

Flow Inputs and Adjustments

Volume, V	5616	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1560	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	1638	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1638	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	64.2	mi/h
Number of lanes, N	4	
Density, D	25.5	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: North of Celanese Road
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year No Build
Description: I-77 SB, North of Celanese Road

Flow Inputs and Adjustments

Volume, V	4234	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1176	v
Trucks and buses	11	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.948	
Driver population factor, fp	1.00	
Flow rate, vp	1241	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1241	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	19.1	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: Celanese Rd/Cherry Rd Ramps
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year No Build
Description: I-77 SB, Between Celanese Road/Cherry Road SB On/Off-Ramps

Flow Inputs and Adjustments

Volume, V	2001	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	556	v
Trucks and buses	11	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.948	
Driver population factor, fp	1.00	
Flow rate, vp	586	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	586	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	9.0	pc/mi/ln
Level of service, LOS	A	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: Cherry Rd to Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year No Build
Description: I-77 SB, Between Cherry Road and Dave Lyle Boulevard

Flow Inputs and Adjustments

Volume, V	2696	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	749	v
Trucks and buses	11	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.948	
Driver population factor, fp	1.00	
Flow rate, vp	790	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	790	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	12.2	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: Dave Lyle Blvd Ramps
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year No Build
Description: I-77 SB, Between Dave Lyle Boulevard SB On/Off Ramps

Flow Inputs and Adjustments

Volume, V	1913	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	531	v
Trucks and buses	11	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.948	
Driver population factor, fp	1.00	
Flow rate, vp	561	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	561	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	8.6	pc/mi/ln
Level of service, LOS	A	

Overall results are not computed when free-flow speed is less than 55 mph.

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E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: South of Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year No Build
Description: I-77 SB, South of Dave Lyle Boulevard

Flow Inputs and Adjustments

Volume, V	2211	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	614	v
Trucks and buses	11	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.948	
Driver population factor, fp	1.00	
Flow rate, vp	648	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	648	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	10.0	pc/mi/ln
Level of service, LOS	A	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS REPORTS
BASIC FREEWAY SEGMENTS
2023 OPENING YEAR NO BUILD PM

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: South of Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year No Build
Description: I-77 NB, South of Dave Lyle Boulevard

Flow Inputs and Adjustments

Volume, V	2643	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	734	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	771	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	771	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	11.9	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: Dave Lyle Blvd Ramps
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year No Build
Description: I-77 NB, Between Dave Lyle Boulevard NB On/Off Ramps

Flow Inputs and Adjustments

Volume, V	2175	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	604	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	634	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	634	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	9.8	pc/mi/ln
Level of service, LOS	A	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: Dave Lyle Blvd to Cherry Rd
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year No Build
Description: I-77 NB, Between Dave Lyle Boulevard and Cherry Road

Flow Inputs and Adjustments

Volume, V	3236	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	899	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	944	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	944	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	14.5	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
 Agency or Company:
 Date Performed: 1/7/2020
 Analysis Time Period: PM Peak Hour
 Freeway/Direction: I 77 Northbound
 From/To: Celanese Rd/Cherry Rd Ramps
 Jurisdiction: SCDOT
 Analysis Year: 2023 Opening Year No Build
 Description: I-77 NB, Between Celanese Road/Cherry Road NB On/Off Ramps

Flow Inputs and Adjustments

Volume, V	2345	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	651	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	684	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	684	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	10.5	pc/mi/ln
Level of service, LOS	A	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: North of Celanese Road
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year No Build
Description: I-77 NB, North of Celanese Road

Flow Inputs and Adjustments

Volume, V	4470	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1242	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	1304	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1304	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	20.1	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: North of Celanese Road
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year No Build
Description: I-77 SB, North of Celanese Road

Flow Inputs and Adjustments

Volume, V	6639	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1844	v
Trucks and buses	6	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.971	
Driver population factor, fp	1.00	
Flow rate, vp	1899	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1899	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	61.5	mi/h
Number of lanes, N	4	
Density, D	30.9	pc/mi/ln
Level of service, LOS	D	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: Celanese Rd/Cherry Rd Ramps
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year No Build
Description: I-77 SB, Between Celanese Road/Cherry Road SB On/Off-Ramps

Flow Inputs and Adjustments

Volume, V	3690	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1025	v
Trucks and buses	6	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.971	
Driver population factor, fp	1.00	
Flow rate, vp	1056	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1056	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	16.2	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: Cherry Rd to Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year No Build
Description: I-77 SB, Between Cherry Road and Dave Lyle Boulevard

Flow Inputs and Adjustments

Volume, V	4526	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1257	v
Trucks and buses	6	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.971	
Driver population factor, fp	1.00	
Flow rate, vp	1295	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1295	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	19.9	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: Dave Lyle Blvd Ramps
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year No Build
Description: I-77 SB, Between Dave Lyle Boulevard SB On/Off Ramps

Flow Inputs and Adjustments

Volume, V	2968	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	824	v
Trucks and buses	6	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.971	
Driver population factor, fp	1.00	
Flow rate, vp	849	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	849	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	13.1	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: South of Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year No Build
Description: I-77 SB, South of Dave Lyle Boulevard

Flow Inputs and Adjustments

Volume, V	3512	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	976	v
Trucks and buses	6	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.971	
Driver population factor, fp	1.00	
Flow rate, vp	1005	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1005	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	15.5	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS REPORTS
BASIC FREEWAY SEGMENTS
2023 OPENING YEAR BUILD AM

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: South of Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 NB, South of Dave Lyle Boulevard

Flow Inputs and Adjustments

Volume, V	3082	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	856	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	899	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	899	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	13.8	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: Dave Lyle Blvd Ramps
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 NB, Between Dave Lyle Boulevard NB On/Off Ramps

Flow Inputs and Adjustments

Volume, V	2915	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	810	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	850	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	850	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	13.1	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: Dave Lyle Blvd to Panthers
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 NB, Between Dave Lyle Boulevard and Panthers

Flow Inputs and Adjustments

Volume, V	4040	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1122	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	1178	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1178	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	18.1	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: Panthers Ramps
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 NB, Between Panthers NB On/Off Ramps

Flow Inputs and Adjustments

Volume, V	3752	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1042	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	1094	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1094	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	16.8	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: Panthers to Cherry Rd
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 NB, Between Panthers and Cherry Road

Flow Inputs and Adjustments

Volume, V	4158	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1155	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	1213	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1213	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	18.7	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: Celanese Rd/Cherry Rd Ramps
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 NB, Between Celanese Road/Cherry Road NB On/Off Ramps

Flow Inputs and Adjustments

Volume, V	3295	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	915	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	961	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	961	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	14.8	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: North of Celanese Road
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 NB, North of Celanese Road

Flow Inputs and Adjustments

Volume, V	5616	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1560	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	1638	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1638	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	64.2	mi/h
Number of lanes, N	4	
Density, D	25.5	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: North of Celanese Road
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 SB, North of Celanese Road

Flow Inputs and Adjustments

Volume, V	4234	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1176	v
Trucks and buses	11	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.948	
Driver population factor, fp	1.00	
Flow rate, vp	1241	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1241	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	19.1	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: Celanese Rd/Cherry Rd Ramps
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 SB, Between Celanese Road/Cherry Road SB On/Off-Ramps

Flow Inputs and Adjustments

Volume, V	2743	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	762	v
Trucks and buses	11	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.948	
Driver population factor, fp	1.00	
Flow rate, vp	804	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	804	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	12.4	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: Cherry Rd to Panthers
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 SB, Between Cherry Road and Panthers

Flow Inputs and Adjustments

Volume, V	3438	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	955	v
Trucks and buses	11	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.948	
Driver population factor, fp	1.00	
Flow rate, vp	1008	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1008	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	15.5	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: Panthers Ramps
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 SB, Between Panthers SB On/Off Ramps

Flow Inputs and Adjustments

Volume, V	2696	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	749	v
Trucks and buses	11	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.948	
Driver population factor, fp	1.00	
Flow rate, vp	790	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	790	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	12.2	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: Panthers to Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 SB, Between Panthers and Dave Lyle Boulevard

Flow Inputs and Adjustments

Volume, V	2852	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	792	v
Trucks and buses	11	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.948	
Driver population factor, fp	1.00	
Flow rate, vp	836	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	836	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	12.9	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: Dave Lyle Blvd Ramps
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 SB, Between Dave Lyle Boulevard SB On/Off Ramps

Flow Inputs and Adjustments

Volume, V	2069	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	575	v
Trucks and buses	11	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.948	
Driver population factor, fp	1.00	
Flow rate, vp	606	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	606	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	9.3	pc/mi/ln
Level of service, LOS	A	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: South of Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 SB, South of Dave Lyle Boulevard

Flow Inputs and Adjustments

Volume, V	2211	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	614	v
Trucks and buses	11	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.948	
Driver population factor, fp	1.00	
Flow rate, vp	648	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	648	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	10.0	pc/mi/ln
Level of service, LOS	A	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS REPORTS
BASIC FREEWAY SEGMENTS
2023 OPENING YEAR BUILD PM

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: South of Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 NB, South of Dave Lyle Boulevard

Flow Inputs and Adjustments

Volume, V	2643	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	734	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	771	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	771	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	11.9	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: Dave Lyle Blvd Ramps
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 NB, Between Dave Lyle Boulevard NB On/Off Ramps

Flow Inputs and Adjustments

Volume, V	2509	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	697	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	732	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	732	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	11.3	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: Dave Lyle Blvd to Panthers
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 NB, Between Dave Lyle Boulevard and Panthers

Flow Inputs and Adjustments

Volume, V	3570	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	992	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	1041	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1041	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	16.0	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: Panthers Ramps
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 NB, Between Panthers NB On/Off Ramps

Flow Inputs and Adjustments

Volume, V	3236	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	899	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	944	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	944	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	14.5	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: Panthers to Cherry Rd
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 NB, Between Panthers and Cherry Road

Flow Inputs and Adjustments

Volume, V	3887	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1080	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	1134	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1134	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	17.4	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: Celanese Rd/Cherry Rd Ramps
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 NB, Between Celanese Road/Cherry Road NB On/Off Ramps

Flow Inputs and Adjustments

Volume, V	2996	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	832	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	874	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	874	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	13.4	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: North of Celanese Road
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 NB, North of Celanese Road

Flow Inputs and Adjustments

Volume, V	4470	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1242	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	1304	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1304	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	20.1	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: North of Celanese Road
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 SB, North of Celanese Road

Flow Inputs and Adjustments

Volume, V	6639	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1844	v
Trucks and buses	6	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.971	
Driver population factor, fp	1.00	
Flow rate, vp	1899	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1899	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	61.5	mi/h
Number of lanes, N	4	
Density, D	30.9	pc/mi/ln
Level of service, LOS	D	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
 Agency or Company:
 Date Performed: 1/7/2020
 Analysis Time Period: PM Peak Hour
 Freeway/Direction: I 77 Southbound
 From/To: Celanese Rd/Cherry Rd Ramps
 Jurisdiction: SCDOT
 Analysis Year: 2023 Opening Year Build
 Description: I-77 SB, Between Celanese Road/Cherry Road SB On/Off-Ramps

Flow Inputs and Adjustments

Volume, V	4071	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1131	v
Trucks and buses	6	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.971	
Driver population factor, fp	1.00	
Flow rate, vp	1165	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1165	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	17.9	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: Cherry Rd to Panthers
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 SB, Between Cherry Road and Panthers

Flow Inputs and Adjustments

Volume, V	4687	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1302	v
Trucks and buses	6	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.971	
Driver population factor, fp	1.00	
Flow rate, vp	1341	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1341	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	20.6	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: Panthers Ramps
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 SB, Between Panthers SB On/Off Ramps

Flow Inputs and Adjustments

Volume, V	4306	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1196	v
Trucks and buses	6	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.971	
Driver population factor, fp	1.00	
Flow rate, vp	1232	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1232	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	19.0	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: Panthers to Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 SB, Between Panthers and Dave Lyle Boulevard

Flow Inputs and Adjustments

Volume, V	4933	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1370	v
Trucks and buses	6	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.971	
Driver population factor, fp	1.00	
Flow rate, vp	1411	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1411	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	21.7	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: Dave Lyle Blvd Ramps
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 SB, Between Dave Lyle Boulevard SB On/Off Ramps

Flow Inputs and Adjustments

Volume, V	3375	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	938	v
Trucks and buses	6	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.971	
Driver population factor, fp	1.00	
Flow rate, vp	966	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	966	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	14.9	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: South of Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 SB, South of Dave Lyle Boulevard

Flow Inputs and Adjustments

Volume, V	3512	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	976	v
Trucks and buses	6	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.971	
Driver population factor, fp	1.00	
Flow rate, vp	1005	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1005	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	15.5	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS REPORTS
BASIC FREEWAY SEGMENTS
2043 HORIZON YEAR NO BUILD AM

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: South of Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year No Build
Description: I-77 NB, South of Dave Lyle Boulevard

Flow Inputs and Adjustments

Volume, V	4583	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1273	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	1337	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1337	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	20.6	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: Dave Lyle Blvd Ramps
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year No Build
Description: I-77 NB, Between Dave Lyle Boulevard NB On/Off Ramps

Flow Inputs and Adjustments

Volume, V	3250	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	903	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	948	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	948	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	14.6	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: Dave Lyle Blvd to Cherry Rd
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year No Build
Description: I-77 NB, Between Dave Lyle Boulevard and Cherry Road

Flow Inputs and Adjustments

Volume, V	5715	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1588	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	1667	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1667	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	64.0	mi/h
Number of lanes, N	4	
Density, D	26.1	pc/mi/ln
Level of service, LOS	D	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
 Agency or Company:
 Date Performed: 1/7/2020
 Analysis Time Period: AM Peak Hour
 Freeway/Direction: I 77 Northbound
 From/To: Celanese Rd/Cherry Rd Ramps
 Jurisdiction: SCDOT
 Analysis Year: 2043 Horizon Year No Build
 Description: I-77 NB, Between Celanese Road/Cherry Road NB On/Off Ramps

Flow Inputs and Adjustments

Volume, V	4433	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1231	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	1293	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1293	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	19.9	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: North of Celanese Road
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year No Build
Description: I-77 NB, North of Celanese Road

Flow Inputs and Adjustments

Volume, V	8709	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2419	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	2540	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	2540	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	46.6	mi/h
Number of lanes, N	4	
Density, D	54.5	pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: North of Celanese Road
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year No Build
Description: I-77 SB, North of Celanese Road

Flow Inputs and Adjustments

Volume, V	6617	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1838	v
Trucks and buses	11	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.948	
Driver population factor, fp	1.00	
Flow rate, vp	1939	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1939	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	60.9	mi/h
Number of lanes, N	4	
Density, D	31.8	pc/mi/ln
Level of service, LOS	D	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: Celanese Rd/Cherry Rd Ramps
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year No Build
Description: I-77 SB, Between Celanese Road/Cherry Road SB On/Off-Ramps

Flow Inputs and Adjustments

Volume, V	2342	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	651	v
Trucks and buses	11	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.948	
Driver population factor, fp	1.00	
Flow rate, vp	686	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	686	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	10.6	pc/mi/ln
Level of service, LOS	A	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: Cherry Rd to Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year No Build
Description: I-77 SB, Between Cherry Road and Dave Lyle Boulevard

Flow Inputs and Adjustments

Volume, V	3375	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	938	v
Trucks and buses	11	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.948	
Driver population factor, fp	1.00	
Flow rate, vp	989	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	989	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	15.2	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone:
E-mail:

Fax:

Operational Analysis

Analyst: Kimley Horn
 Agency or Company:
 Date Performed: 1/7/2020
 Analysis Time Period: AM Peak Hour
 Freeway/Direction: I 77 Southbound
 From/To: Dave Lyle Blvd Ramps
 Jurisdiction: SCDOT
 Analysis Year: 2043 Horizon Year No Build
 Description: I-77 SB, Between Dave Lyle Boulevard SB On/Off Ramps

Flow Inputs and Adjustments

Volume, V	2560	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	711	v
Trucks and buses	11	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.948	
Driver population factor, fp	1.00	
Flow rate, vp	750	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	750	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	11.5	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: South of Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year No Build
Description: I-77 SB, South of Dave Lyle Boulevard

Flow Inputs and Adjustments

Volume, V	2998	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	833	v
Trucks and buses	11	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.948	
Driver population factor, fp	1.00	
Flow rate, vp	879	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	879	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	13.5	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS REPORTS
BASIC FREEWAY SEGMENTS
2043 HORIZON YEAR NO BUILD PM

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: South of Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year No Build
Description: I-77 NB, South of Dave Lyle Boulevard

Flow Inputs and Adjustments

Volume, V	3728	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1036	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	1087	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1087	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	16.7	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: Dave Lyle Blvd Ramps
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year No Build
Description: I-77 NB, Between Dave Lyle Boulevard NB On/Off Ramps

Flow Inputs and Adjustments

Volume, V	2510	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	697	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	732	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	732	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	11.3	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: Dave Lyle Blvd to Cherry Rd
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year No Build
Description: I-77 NB, Between Dave Lyle Boulevard and Cherry Road

Flow Inputs and Adjustments

Volume, V	4835	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1343	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	1410	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1410	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	21.7	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: Celanese Rd/Cherry Rd Ramps
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year No Build
Description: I-77 NB, Between Celanese Road/Cherry Road NB On/Off Ramps

Flow Inputs and Adjustments

Volume, V	3511	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	975	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	1024	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1024	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	15.8	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: North of Celanese Road
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year No Build
Description: I-77 NB, North of Celanese Road

Flow Inputs and Adjustments

Volume, V	7630	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2119	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	2225	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	2225	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	55.3	mi/h
Number of lanes, N	4	
Density, D	40.2	pc/mi/ln
Level of service, LOS	E	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: North of Celanese Road
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year No Build
Description: I-77 SB, North of Celanese Road

Flow Inputs and Adjustments

Volume, V	9242	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2567	v
Trucks and buses	6	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.971	
Driver population factor, fp	1.00	
Flow rate, vp	2644	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	2644	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	43.1	mi/h
Number of lanes, N	4	
Density, D	61.4	pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: Celanese Rd/Cherry Rd Ramps
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year No Build
Description: I-77 SB, Between Celanese Road/Cherry Road SB On/Off-Ramps

Flow Inputs and Adjustments

Volume, V	4403	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1223	v
Trucks and buses	6	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.971	
Driver population factor, fp	1.00	
Flow rate, vp	1260	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1260	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	19.4	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: Cherry Rd to Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year No Build
Description: I-77 SB, Between Cherry Road and Dave Lyle Boulevard

Flow Inputs and Adjustments

Volume, V	5645	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1568	v
Trucks and buses	6	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.971	
Driver population factor, fp	1.00	
Flow rate, vp	1615	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1615	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	64.3	mi/h
Number of lanes, N	4	
Density, D	25.1	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: Dave Lyle Blvd Ramps
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year No Build
Description: I-77 SB, Between Dave Lyle Boulevard SB On/Off Ramps

Flow Inputs and Adjustments

Volume, V	4023	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1118	v
Trucks and buses	6	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.971	
Driver population factor, fp	1.00	
Flow rate, vp	1151	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1151	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	17.7	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: South of Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year No Build
Description: I-77 SB, South of Dave Lyle Boulevard

Flow Inputs and Adjustments

Volume, V	5154	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1432	v
Trucks and buses	6	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.971	
Driver population factor, fp	1.00	
Flow rate, vp	1475	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1475	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	64.9	mi/h
Number of lanes, N	4	
Density, D	22.7	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS REPORTS
BASIC FREEWAY SEGMENTS
2043 HORIZON YEAR BUILD AM

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: South of Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 NB, South of Dave Lyle Boulevard

Flow Inputs and Adjustments

Volume, V	4583	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1273	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	1337	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1337	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	20.6	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: Dave Lyle Blvd Ramps
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 NB, Between Dave Lyle Boulevard NB On/Off Ramps

Flow Inputs and Adjustments

Volume, V	4170	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1158	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	1216	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1216	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	18.7	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: Dave Lyle Blvd to Panthers
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 NB, Between Dave Lyle Boulevard and Panthers

Flow Inputs and Adjustments

Volume, V	6635	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1843	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	1935	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1935	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	60.9	mi/h
Number of lanes, N	4	
Density, D	31.8	pc/mi/ln
Level of service, LOS	D	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: Panthers Ramps
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 NB, Between Panthers NB On/Off Ramps

Flow Inputs and Adjustments

Volume, V	5715	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1588	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	1667	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1667	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	64.0	mi/h
Number of lanes, N	4	
Density, D	26.1	pc/mi/ln
Level of service, LOS	D	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: Panthers to Cherry Rd
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 NB, Between Panthers and Cherry Road

Flow Inputs and Adjustments

Volume, V	6594	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1832	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	1923	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1923	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	61.1	mi/h
Number of lanes, N	4	
Density, D	31.5	pc/mi/ln
Level of service, LOS	D	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
 Agency or Company:
 Date Performed: 1/7/2020
 Analysis Time Period: AM Peak Hour
 Freeway/Direction: I 77 Northbound
 From/To: Celanese Rd/Cherry Rd Ramps
 Jurisdiction: SCDOT
 Analysis Year: 2043 Horizon Year Build
 Description: I-77 NB, Between Celanese Road/Cherry Road NB On/Off Ramps

Flow Inputs and Adjustments

Volume, V	5312	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1476	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	1549	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1549	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	64.7	mi/h
Number of lanes, N	4	
Density, D	23.9	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: North of Celanese Road
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 NB, North of Celanese Road

Flow Inputs and Adjustments

Volume, V	8709	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2419	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	2540	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	2540	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	46.6	mi/h
Number of lanes, N	4	
Density, D	54.5	pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: North of Celanese Road
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 SB, North of Celanese Road

Flow Inputs and Adjustments

Volume, V	6617	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1838	v
Trucks and buses	11	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.948	
Driver population factor, fp	1.00	
Flow rate, vp	1939	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1939	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	60.9	mi/h
Number of lanes, N	4	
Density, D	31.8	pc/mi/ln
Level of service, LOS	D	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: Celanese Rd/Cherry Rd Ramps
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 SB, Between Celanese Road/Cherry Road SB On/Off-Ramps

Flow Inputs and Adjustments

Volume, V	4454	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1237	v
Trucks and buses	11	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.948	
Driver population factor, fp	1.00	
Flow rate, vp	1305	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1305	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	20.1	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: Cherry Rd to Panthers
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 SB, Between Cherry Road and Panthers

Flow Inputs and Adjustments

Volume, V	5487	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1524	v
Trucks and buses	11	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.948	
Driver population factor, fp	1.00	
Flow rate, vp	1608	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1608	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	64.4	mi/h
Number of lanes, N	4	
Density, D	25.0	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: Panthers Ramps
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 SB, Between Panthers SB On/Off Ramps

Flow Inputs and Adjustments

Volume, V	3375	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	938	v
Trucks and buses	11	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.948	
Driver population factor, fp	1.00	
Flow rate, vp	989	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	989	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	15.2	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: Panthers to Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 SB, Between Panthers and Dave Lyle Boulevard

Flow Inputs and Adjustments

Volume, V	3738	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1038	v
Trucks and buses	11	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.948	
Driver population factor, fp	1.00	
Flow rate, vp	1095	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1095	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	16.8	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: Dave Lyle Blvd Ramps
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 SB, Between Dave Lyle Boulevard SB On/Off Ramps

Flow Inputs and Adjustments

Volume, V	2923	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	812	v
Trucks and buses	11	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.948	
Driver population factor, fp	1.00	
Flow rate, vp	857	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	857	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	13.2	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: AM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: South of Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 SB, South of Dave Lyle Boulevard

Flow Inputs and Adjustments

Volume, V	2998	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	833	v
Trucks and buses	11	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.948	
Driver population factor, fp	1.00	
Flow rate, vp	879	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	879	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	13.5	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS REPORTS
BASIC FREEWAY SEGMENTS
2043 HORIZON YEAR BUILD PM

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: South of Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 NB, South of Dave Lyle Boulevard

Flow Inputs and Adjustments

Volume, V	3728	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1036	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	1087	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1087	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	16.7	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: Dave Lyle Blvd Ramps
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build2
Description: I-77 NB, Between Dave Lyle Boulevard NB On/Off Ramps

Flow Inputs and Adjustments

Volume, V	3278	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	911	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	956	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	956	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	14.7	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: Dave Lyle Blvd to Panthers
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 NB, Between Dave Lyle Boulevard and Panthers

Flow Inputs and Adjustments

Volume, V	5603	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1556	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	1634	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1634	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	64.2	mi/h
Number of lanes, N	4	
Density, D	25.4	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: Panthers Ramps
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 NB, Between Panthers NB On/Off Ramps

Flow Inputs and Adjustments

Volume, V	4835	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1343	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	1410	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1410	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	21.7	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: Panthers to Cherry Rd
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 NB, Between Panthers and Cherry Road

Flow Inputs and Adjustments

Volume, V	6806	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1891	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	1985	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1985	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	60.1	mi/h
Number of lanes, N	4	
Density, D	33.0	pc/mi/ln
Level of service, LOS	D	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: Celanese Rd/Cherry Rd Ramps
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 NB, Between Celanese Road/Cherry Road NB On/Off Ramps

Flow Inputs and Adjustments

Volume, V	5482	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1523	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	1599	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1599	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	64.4	mi/h
Number of lanes, N	4	
Density, D	24.8	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Northbound
From/To: North of Celanese Road
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 NB, North of Celanese Road

Flow Inputs and Adjustments

Volume, V	7630	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2119	v
Trucks and buses	10	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.952	
Driver population factor, fp	1.00	
Flow rate, vp	2225	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	2225	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	55.3	mi/h
Number of lanes, N	4	
Density, D	40.2	pc/mi/ln
Level of service, LOS	E	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: North of Celanese Road
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 SB, North of Celanese Road

Flow Inputs and Adjustments

Volume, V	9242	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2567	v
Trucks and buses	6	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.971	
Driver population factor, fp	1.00	
Flow rate, vp	2644	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	2644	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	43.1	mi/h
Number of lanes, N	4	
Density, D	61.4	pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: Celanese Rd/Cherry Rd Ramps
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 SB, Between Celanese Road/Cherry Road SB On/Off-Ramps

Flow Inputs and Adjustments

Volume, V	5469	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1519	v
Trucks and buses	6	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.971	
Driver population factor, fp	1.00	
Flow rate, vp	1565	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1565	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	64.6	mi/h
Number of lanes, N	4	
Density, D	24.2	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: Cherry Rd to Panthers
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 SB, Between Cherry Road and Panthers

Flow Inputs and Adjustments

Volume, V	6230	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1731	v
Trucks and buses	6	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.971	
Driver population factor, fp	1.00	
Flow rate, vp	1782	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1782	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	62.9	mi/h
Number of lanes, N	4	
Density, D	28.3	pc/mi/ln
Level of service, LOS	D	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: Panthers Ramps
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 SB, Between Panthers SB On/Off Ramps

Flow Inputs and Adjustments

Volume, V	5164	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1434	v
Trucks and buses	6	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.971	
Driver population factor, fp	1.00	
Flow rate, vp	1477	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1477	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	64.9	mi/h
Number of lanes, N	4	
Density, D	22.8	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: Panthers to Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 SB, Between Panthers and Dave Lyle Boulevard

Flow Inputs and Adjustments

Volume, V	6644	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1846	v
Trucks and buses	6	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.971	
Driver population factor, fp	1.00	
Flow rate, vp	1901	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1901	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	61.4	mi/h
Number of lanes, N	4	
Density, D	30.9	pc/mi/ln
Level of service, LOS	D	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: Dave Lyle Blvd Ramps
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 SB, Between Dave Lyle Boulevard SB On/Off Ramps

Flow Inputs and Adjustments

Volume, V	5022	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1395	v
Trucks and buses	6	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.971	
Driver population factor, fp	1.00	
Flow rate, vp	1437	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1437	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	22.1	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kimley Horn
Agency or Company:
Date Performed: 1/7/2020
Analysis Time Period: PM Peak Hour
Freeway/Direction: I 77 Southbound
From/To: South of Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 SB, South of Dave Lyle Boulevard

Flow Inputs and Adjustments

Volume, V	5154	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1432	v
Trucks and buses	6	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.971	
Driver population factor, fp	1.00	
Flow rate, vp	1475	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	65.0	mi/h

LOS and Performance Measures

Flow rate, vp	1475	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	64.9	mi/h
Number of lanes, N	4	
Density, D	22.7	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS REPORTS
DIVERGE SEGMENTS
2019 EXISTING AM

Phone:
E-mail:

Fax:

Diverge Analysis

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: AM Peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Dave Lyle Blvd SB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2019 Existing
 Description: I-77 NB at Dave Lyle Blvd NB Off-Ramp Downstream

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2660	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	228	vph
Length of first accel/decel lane	475	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1019	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2025	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	2660		228		1019	vph
Peak-hour factor, PHF	0.97		0.93		0.93	
Peak 15-min volume, v15	686		61		274	v
Trucks and buses	10		5		3	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.952	0.976	0.985	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2879	251	1112	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

$$EQ$$

$$P = 0.436 \quad \text{Using Equation 0}$$

$$FD$$

$$v_{12} = v_R + (v_F - v_R) P = 1397 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2879	9400	No
$v_{FO} = v_F - v_R$	2628	9400	No
v_R	251	2100	No
v_3 or v_{av34}	741 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 1397$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1397	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	$= 12.0$	pc/mi/ln
Level of service for ramp-freeway junction areas of influence B			

Speed Estimation

Intermediate speed variable,	$D_S = 0.321$	
Space mean speed in ramp influence area,	$S_R = 57.6$	mph
Space mean speed in outer lanes,	$S_0 = 71.3$	mph
Space mean speed for all vehicles,	$S = 63.9$	mph

Phone: _____ Fax: _____
 E-mail: _____

-----Diverge Analysis-----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: AM Peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Celanese/Cherry Rd NB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2019 Existing
 Description: I-77 SB at Celanese Road/Cherry Road NB Off-Ramp Downstream

-----Freeway Data-----

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3451	vph

-----Off Ramp Data-----

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	797	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	2454	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	6100	ft

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3451	797	2454	vph
Peak-hour factor, PHF	0.97	0.94	0.94	
Peak 15-min volume, v15	889	212	653	v
Trucks and buses	10	7	6	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.966	0.971	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3736	878	2689	pcph

Estimation of V12 Diverge Areas

L = (Equation 13-12 or 13-13)

EQ

P = 0.436 Using Equation 0

FD

$v_{12} = v_R + (v_F - v_R) P = 2124$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3736	9400	No
$v_{FO} = v_F - v_R$	2858	9400	No
v_R	878	2000	No
v_3 or v_{av34}	806 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 2124$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2124	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086 v_{12} - 0.009 L_D = 19.8$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	$D_S = 0.507$	
Space mean speed in ramp influence area,	$S_R = 53.3$	mph
Space mean speed in outer lanes,	$S_O = 71.3$	mph
Space mean speed for all vehicles,	$S = 59.8$	mph

Phone:
E-mail:

Fax:

Diverge Analysis

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: AM Peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Celanese/Cherry Rd NB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2019 Existing
 Description: I-77 SB at Celanese Road/Cherry Road NB Off-Ramp Upstream

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3451	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	797	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1019	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	7725	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	3451		797		1019	vph
Peak-hour factor, PHF	0.97		0.94		0.93	
Peak 15-min volume, v15	889		212		274	v
Trucks and buses	10		7		3	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.952	0.966	0.985	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3736	878	1112	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.436 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 2124 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3736	9400	No
$v_{FO} = v_F - v_R$	2858	9400	No
v_R	878	2000	No
v_3 or v_{av34}	806 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 2124$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2124	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	$= 19.8$	pc/mi/ln
Level of service for ramp-freeway junction areas of influence B			

Speed Estimation

Intermediate speed variable,	$D_S = 0.507$	
Space mean speed in ramp influence area,	$S_R = 53.3$	mph
Space mean speed in outer lanes,	$S_0 = 71.3$	mph
Space mean speed for all vehicles,	$S = 59.8$	mph

Phone:
E-mail:

Fax:

Diverge Analysis

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: AM Peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Celanese/Cherry Rd SB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2019 Existing
 Description: I-77 SB at Celanese Road/Cherry Road SB Off-Ramp Downstream

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3536	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	2	
Free-Flow speed on ramp	50.0	mph
Volume on ramp	1687	vph
Length of first accel/decel lane	225	ft
Length of second accel/decel lane	1325	ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	642	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	5675	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	3536		1687		642	vph
Peak-hour factor, PHF	0.97		0.95		0.95	
Peak 15-min volume, v15	911		444		169	v
Trucks and buses	11		9		4	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.948	0.957	0.980	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3846	1856	689	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

$$EQ$$

$$P = 0.260 \quad \text{Using Equation } 0$$

$$FD$$

$$v_{12} = v_R + (v_F - v_R) P = 2373 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3846	9400	No
$v_{FO} = v_F - v_R$	1990	9400	No
v_R	1856	4200	No
$v_3 \text{ or } v_{av34}$	736 pc/h	(Equation 13-14 or 13-17)	
Is $v_3 \text{ or } v_{av34} > 2700 \text{ pc/h?}$		No	
Is $v_3 \text{ or } v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 2373$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2373	4400	No

Level of Service Determination (if not F)

$$\text{Density, } D = 4.252 + 0.0086 v_R - 0.009 L_D = 8.7 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence A

Speed Estimation

Intermediate speed variable,	$D_S = 0.400$	
Space mean speed in ramp influence area,	$S_R = 55.8$	mph
Space mean speed in outer lanes,	$S_0 = 71.3$	mph
Space mean speed for all vehicles,	$S = 60.9$	mph

Phone:
E-mail:

Fax:

Diverge Analysis

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: AM Peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Dave Lyle Blvd SB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2019 Existing
 Description: I-77 SB at Dave Lyle Blvd SB Off-Ramp Downstream

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2491	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	723	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	243	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	3400	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	2491		723		243	vph
Peak-hour factor, PHF	0.97		0.91		0.91	
Peak 15-min volume, v15	642		199		67	v
Trucks and buses	11		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.948	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2709	802	270	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

$$EQ$$

$$P = 0.436 \quad \text{Using Equation } 0$$

$$FD$$

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 1633 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2709	9400	No
$v_{FO} = v_F - v_R$	1907	9400	No
v_R	802	2100	No
v_3 or v_{av34}	538 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 1633$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1633	4400	No

Level of Service Determination (if not F)

$$\text{Density, } D = 4.252 + 0.0086 v_R - 0.009 L_D = 16.5 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	$D_S = 0.370$	
Space mean speed in ramp influence area,	$S_R = 56.5$	mph
Space mean speed in outer lanes,	$S_0 = 71.3$	mph
Space mean speed for all vehicles,	$S = 61.6$	mph

Phone:
E-mail:

Fax:

Diverge Analysis

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: AM Peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Dave Lyle Blvd SB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2019 Existing
 Description: I-77 SB at Dave Lyle Blvd SB Off-Ramp Upstream

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2491	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	723	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	642	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	7900	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	2491		723		642	vph
Peak-hour factor, PHF	0.97		0.91		0.95	
Peak 15-min volume, v15	642		199		169	v
Trucks and buses	11		2		4	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.948	0.990	0.980	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2709	802	689	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

$$EQ$$

$$P = 0.436 \quad \text{Using Equation } 0$$

$$FD$$

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 1633 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2709	9400	No
$v_{FO} = v_F - v_R$	1907	9400	No
v_R	802	2100	No
v_3 or v_{av34}	538 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 1633$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1633	4400	No

Level of Service Determination (if not F)

$$\text{Density, } D = 4.252 + 0.0086 v_R - 0.009 L_D = 16.5 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	$D_S = 0.370$	
Space mean speed in ramp influence area,	$S_R = 56.5$	mph
Space mean speed in outer lanes,	$S_0 = 71.3$	mph
Space mean speed for all vehicles,	$S = 61.6$	mph

HCS REPORTS
DIVERGE SEGMENTS
2019 EXISTING PM

Phone:
E-mail:

Fax:

Diverge Analysis

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: PM Peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Dave Lyle Blvd SB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2019 Existing
 Description: I-77 NB at Dave Lyle Blvd NB Off-Ramp Downstream

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2394	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	377	vph
Length of first accel/decel lane	475	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	961	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2025	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	2394		377		961	vph
Peak-hour factor, PHF	0.98		0.95		0.95	
Peak 15-min volume, v15	611		99		253	v
Trucks and buses	10		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2565	401	1022	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.436 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 1345 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2565	9400	No
$v_{FO} = v_F - v_R$	2164	9400	No
v_R	401	2100	No
v_3 or v_{av34}	610 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 1345$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1345	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	$= 11.5$	pc/mi/ln
Level of service for ramp-freeway junction areas of influence B			

Speed Estimation

Intermediate speed variable,	$D_S = 0.334$	
Space mean speed in ramp influence area,	$S_R = 57.3$	mph
Space mean speed in outer lanes,	$S_0 = 71.3$	mph
Space mean speed for all vehicles,	$S = 63.2$	mph

Phone: _____ Fax: _____
 E-mail: _____

-----Diverge Analysis-----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: PM Peak Hour
 Freeway/Dir of Travel: I 77 Northbound
 Junction: Celanese/Cherry Rd NB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2019 Existing
 Description: I-77 NB at Celanese Road/Cherry Road NB Off-Ramp Downstream

-----Freeway Data-----

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2978	vph

-----Off Ramp Data-----

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	823	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1618	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	6100	ft

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2978	823	1618	vph
Peak-hour factor, PHF	0.98	0.93	0.94	
Peak 15-min volume, v15	760	221	430	v
Trucks and buses	10	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3191	894	1738	pcph

Estimation of V12 Diverge Areas

L = (Equation 13-12 or 13-13)

EQ

P = 0.436 Using Equation 0

FD

$v_{12} = v_R + (v_F - v_R) P_{FD} = 1895 \text{ pc/h}$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3191	9400	No
$v_{FO} = v_F - v_R$	2297	9400	No
v_R	894	2000	No
$v_3 \text{ or } v_{av34}$	648 pc/h	(Equation 13-14 or 13-17)	
Is $v_3 \text{ or } v_{av34} > 2700 \text{ pc/h?}$		No	
Is $v_3 \text{ or } v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 1895$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1895	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086 v_{12} - 0.009 L_D = 17.8 \text{ pc/mi/ln}$

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	$D_S = 0.508$	
Space mean speed in ramp influence area,	$S_R = 53.3$	mph
Space mean speed in outer lanes,	$S_O = 71.3$	mph
Space mean speed for all vehicles,	$S = 59.4$	mph

Phone:
E-mail:

Fax:

Diverge Analysis

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: PM Peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Celanese/Cherry Rd NB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2019 Existing
 Description: I-77 SB at Celanese Road/Cherry Road NB Off-Ramp Upstream

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2978	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	823	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	961	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	7725	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	2978		823		961	vph
Peak-hour factor, PHF	0.98		0.93		0.95	
Peak 15-min volume, v15	760		221		253	v
Trucks and buses	10		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3191	894	1022	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.436 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 1895 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3191	9400	No
$v_{FO} = v_F - v_R$	2297	9400	No
v_R	894	2000	No
v_3 or v_{av34}	648 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 1895$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1895	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	$= 17.8$	pc/mi/ln
Level of service for ramp-freeway junction areas of influence B			

Speed Estimation

Intermediate speed variable,	$D_S = 0.508$	
Space mean speed in ramp influence area,	$S_R = 53.3$	mph
Space mean speed in outer lanes,	$S_0 = 71.3$	mph
Space mean speed for all vehicles,	$S = 59.4$	mph

Phone:
E-mail:

Fax:

Diverge Analysis

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: PM Peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Celanese/Cherry Rd SB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2019 Existing
 Description: I-77 SB at Celanese Road/Cherry Road SB Off-Ramp Downstream

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	6037	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	2	
Free-Flow speed on ramp	50.0	mph
Volume on ramp	2628	vph
Length of first accel/decel lane	225	ft
Length of second accel/decel lane	1325	ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	772	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	5675	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	6037		2628		772	vph
Peak-hour factor, PHF	0.98		0.97		0.96	
Peak 15-min volume, v15	1540		677		201	v
Trucks and buses	6		7		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.971	0.966	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	6345	2804	812	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

$$EQ$$

$$P = 0.260 \quad \text{Using Equation 0}$$

$$FD$$

$$v_{12} = v_R + (v_F - v_R) P = 3725 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	6345	9400	No
$v_{FO} = v_F - v_R$	3541	9400	No
v_R	2804	4200	No
v_3 or v_{av34}	1310 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 3725$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3725	4400	No

Level of Service Determination (if not F)

$$\text{Density, } D = 4.252 + 0.0086 v_R - 0.009 L_D = 20.3 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	$D_S = 0.485$	
Space mean speed in ramp influence area,	$S_R = 53.8$	mph
Space mean speed in outer lanes,	$S_0 = 70.1$	mph
Space mean speed for all vehicles,	$S = 59.5$	mph

Phone:
E-mail:

Fax:

Diverge Analysis

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: AM Peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Dave Lyle Blvd SB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2019 Existing
 Description: I-77 SB at Dave Lyle Blvd SB Off-Ramp Downstream

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	4181	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	1439	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	330	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	3400	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4181		1439		330	vph
Peak-hour factor, PHF	0.98		0.94		0.94	
Peak 15-min volume, v15	1067		383		88	v
Trucks and buses	6		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.971	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4394	1546	355	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.436 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 2788 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4394	9400	No
$v_{FO} = v_F - v_R$	2848	9400	No
v_R	1546	2100	No
v_3 or v_{av34}	803 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 2788$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2788	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	$= 26.4$	pc/mi/ln
Level of service for ramp-freeway junction areas of influence C			

Speed Estimation

Intermediate speed variable,	$D_S = 0.437$	
Space mean speed in ramp influence area,	$S_R = 54.9$	mph
Space mean speed in outer lanes,	$S_0 = 71.3$	mph
Space mean speed for all vehicles,	$S = 60.0$	mph

Phone:
E-mail:

Fax:

Diverge Analysis

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: AM Peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Dave Lyle Blvd SB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2019 Existing
 Description: I-77 SB at Dave Lyle Blvd SB Off-Ramp Upstream

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	4181	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	1439	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	772	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	7900	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4181		1439		772	vph
Peak-hour factor, PHF	0.98		0.94		0.96	
Peak 15-min volume, v15	1067		383		201	v
Trucks and buses	6		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.971	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4394	1546	812	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

$$EQ$$

$$P = 0.436 \quad \text{Using Equation 0}$$

$$FD$$

$$v_{12} = v_R + (v_F - v_R) P = 2788 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4394	9400	No
$v_{FO} = v_F - v_R$	2848	9400	No
v_R	1546	2100	No
v_3 or v_{av34}	803 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 2788$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2788	4400	No

Level of Service Determination (if not F)

$$\text{Density, } D = 4.252 + 0.0086 v_R - 0.009 L_D = 26.4 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	$D_S = 0.437$	
Space mean speed in ramp influence area,	$S_R = 54.9$	mph
Space mean speed in outer lanes,	$S_0 = 71.3$	mph
Space mean speed for all vehicles,	$S = 60.0$	mph

HCS REPORTS
DIVERGE SEGMENTS
2023 OPENING YEAR NO BUILD AM

Phone: _____ Fax: _____
 E-mail: _____

-----Diverge Analysis-----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: AM Peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Celanese/Cherry Rd NB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2023 Opening Year No Build
 Description: I-77 SB at Celanese Road/Cherry Road NB Off-Ramp Downstream

-----Freeway Data-----

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3752	vph

-----Off Ramp Data-----

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	863	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1125	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	7725	ft

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3752	863	1125	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1042	240	313	v
Trucks and buses	10	7	3	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.966	0.985	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4377	992	1269	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

$$EQ$$

$$P = 0.436 \quad \text{Using Equation 0}$$

$$FD$$

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 2468 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4377	9400	No
$v_{FO} = v_F - v_R$	3385	9400	No
v_R	992	2000	No
v_3 or v_{av34}	954 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 2468$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2468	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_{12} - 0.009 L_D$	= 22.8	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		C	

Speed Estimation

Intermediate speed variable,	$D_S = 0.517$	
Space mean speed in ramp influence area,	$S_R = 53.1$	mph
Space mean speed in outer lanes,	$S_0 = 71.3$	mph
Space mean speed for all vehicles,	$S = 59.8$	mph

Phone: _____ Fax: _____
 E-mail: _____

----- Diverge Analysis -----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: AM Peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Celanese/Cherry Rd NB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2023 Opening Year No build
 Description: I-77 SB at Celanese Road/Cherry Road NB Off-Ramp Downstream

----- Freeway Data -----

Type of analysis	Diverge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	3752	vph	

----- Off Ramp Data -----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-Flow speed on ramp	35.0	mph	
Volume on ramp	863	vph	
Length of first accel/decel lane	300	ft	
Length of second accel/decel lane		ft	

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes		
Volume on adjacent ramp	2727	vph	
Position of adjacent ramp	Downstream		
Type of adjacent ramp	On		
Distance to adjacent ramp	6100	ft	

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	3752		863		2727	vph
Peak-hour factor, PHF	0.90		0.90		0.90	
Peak 15-min volume, v15	1042		240		758	v
Trucks and buses	10		7		6	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.952	0.966	0.971	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4377	992	3121	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.436 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 2468 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4377	9400	No
$v_{FO} = v_F - v_R$	3385	9400	No
v_R	992	2000	No
v_3 or v_{av34}	954 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 2468$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2468	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	= 22.8	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		C	

Speed Estimation

Intermediate speed variable,	$D_S = 0.517$	
Space mean speed in ramp influence area,	$S_R = 53.1$	mph
Space mean speed in outer lanes,	$S_0 = 71.3$	mph
Space mean speed for all vehicles,	$S = 59.8$	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: AM Peak Hour
Freeway/Dir of Travel: I 77 Southbound
Junction: Dave Lyle Blvd SB Off-Ramp
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year No Build
Description: I-77 NB at Dave Lyle Blvd NB Off-Ramp Downstream

Freeway Data

Type of analysis	Diverge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	3082	vph	

Off Ramp Data

Side of freeway	Right		
Number of lanes in ramp	1		
Free-Flow speed on ramp	45.0	mph	
Volume on ramp	455	vph	
Length of first accel/decel lane	475	ft	
Length of second accel/decel lane		ft	

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes		
Volume on adjacent ramp	1125	vph	
Position of adjacent ramp	Downstream		
Type of adjacent ramp	On		
Distance to adjacent ramp	2025	ft	

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	3082		455		1125	vph
Peak-hour factor, PHF	0.90		0.90		0.90	
Peak 15-min volume, v15	856		126		313	v
Trucks and buses	10		5		3	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.952	0.976	0.985	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3596	518	1269	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

$$EQ$$

$$P = 0.436 \quad \text{Using Equation } 0$$

$$FD$$

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 1860 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3596	9400	No
$v_{FO} = v_F - v_R$	3078	9400	No
v_R	518	2100	No
v_3 or v_{av34}	868 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 1860$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1860	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_{12} - 0.009 L_D$	= 16.0	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		B	

Speed Estimation

Intermediate speed variable,	$D_S = 0.345$	
Space mean speed in ramp influence area,	$S_R = 57.1$	mph
Space mean speed in outer lanes,	$S_0 = 71.3$	mph
Space mean speed for all vehicles,	$S = 63.2$	mph

Phone: _____ Fax: _____
 E-mail: _____

----- Diverge Analysis -----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: AM Peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Celanese/Cherry Rd SB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2023 Opening Year No Build
 Description: I-77 SB at Celanese Road/Cherry Road SB Off-Ramp Downstream

----- Freeway Data -----

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	4234	vph

----- Off Ramp Data -----

Side of freeway	Right	
Number of lanes in ramp	2	
Free-Flow speed on ramp	50.0	mph
Volume on ramp	2233	vph
Length of first accel/decel lane	225	ft
Length of second accel/decel lane	1325	ft

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	695	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	5675	ft

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4234	2233	695	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1176	620	193	v
Trucks and buses	11	9	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.948	0.957	0.980	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4963	2593	788	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.260 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 3209 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4963	9400	No
$v_{FO} = v_F - v_R$	2370	9400	No
v_R	2593	4200	No
v_3 or v_{av34}	877 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 3209$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3209	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_{12} - 0.009 L_D$	= 15.9	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		B	

Speed Estimation

Intermediate speed variable,	$D_S = 0.466$	
Space mean speed in ramp influence area,	$S_R = 54.3$	mph
Space mean speed in outer lanes,	$S_0 = 71.3$	mph
Space mean speed for all vehicles,	$S = 59.3$	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: AM Peak Hour
Freeway/Dir of Travel: I 77 Southbound
Junction: Dave Lyle Blvd SB Off-Ramp
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year No Build
Description: I-77 SB at Dave Lyle Blvd SB Off-Ramp Downstream

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2696	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	783	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	298	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	3400	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2696	783	298	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	749	218	83	v
Trucks and buses	11	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.948	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3160	879	334	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.436 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 1874 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3160	9400	No
$v_{FO} = v_F - v_R$	2281	9400	No
v_R	879	2100	No
v_3 or v_{av34}	643 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 1874$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1874	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_{12} - 0.009 L_D$	= 18.6	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		B	

Speed Estimation

Intermediate speed variable,	$D_S = 0.377$	
Space mean speed in ramp influence area,	$S_R = 56.3$	mph
Space mean speed in outer lanes,	$S_0 = 71.3$	mph
Space mean speed for all vehicles,	$S = 61.6$	mph

Phone: _____ Fax: _____
 E-mail: _____

-----Diverge Analysis-----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: AM Peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Dave Lyle Blvd SB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2023 Opening Year No Build
 Description: I-77 SB at Dave Lyle Blvd SB Off-Ramp Upstream

-----Freeway Data-----

Type of analysis	Diverge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	2696	vph	

-----Off Ramp Data-----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-Flow speed on ramp	45.0	mph	
Volume on ramp	783	vph	
Length of first accel/decel lane	200	ft	
Length of second accel/decel lane		ft	

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes		
Volume on adjacent ramp	695	vph	
Position of adjacent ramp	Upstream		
Type of adjacent ramp	On		
Distance to adjacent ramp	7900	ft	

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	2696		783		695	vph
Peak-hour factor, PHF	0.90		0.90		0.90	
Peak 15-min volume, v15	749		218		193	v
Trucks and buses	11		2		4	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.948	0.990	0.980	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3160	879	788	pcph

Estimation of V12 Diverge Areas

L = (Equation 13-12 or 13-13)

EQ

P = 0.436 Using Equation 0

FD

$v_{12} = v_R + (v_F - v_R) P_{FD} = 1874 \text{ pc/h}$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3160	9400	No
$v_{FO} = v_F - v_R$	2281	9400	No
v_R	879	2100	No
v_3 or v_{av34}	643 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700 \text{ pc/h?}$		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 1874$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1874	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086 v_{12} - 0.009 L_D = 18.6 \text{ pc/mi/ln}$

Level of service for ramp-freeway junction areas of influence **B**

Speed Estimation

Intermediate speed variable,	$D_S = 0.377$	
Space mean speed in ramp influence area,	$S_R = 56.3$	mph
Space mean speed in outer lanes,	$S_0 = 71.3$	mph
Space mean speed for all vehicles,	$S = 61.6$	mph

HCS REPORTS
DIVERGE SEGMENTS
2023 OPENING YEAR NO BUILD PM

Phone: _____ Fax: _____
 E-mail: _____

----- Diverge Analysis -----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: PM Peak Hour
 Freeway/Dir of Travel: I 77 Northbound
 Junction: Celanese/Cherry Rd NB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2023 Opening Year No Build
 Description: I-77 NB at Celanese Road/Cherry Road NB Off-Ramp Downstream

----- Freeway Data -----

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3236	vph

----- Off Ramp Data -----

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	891	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	2125	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	6100	ft

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3236	891	2125	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	899	248	590	v
Trucks and buses	10	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3775	1000	2385	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.436 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 2210 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3775	9400	No
$v_{FO} = v_F - v_R$	2775	9400	No
v_R	1000	2000	No
v_3 or v_{av34}	782 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 2210$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2210	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	$= 20.6$	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		C	

Speed Estimation

Intermediate speed variable,	$D_S = 0.518$	
Space mean speed in ramp influence area,	$S_R = 53.1$	mph
Space mean speed in outer lanes,	$S_0 = 71.3$	mph
Space mean speed for all vehicles,	$S = 59.4$	mph

Phone: _____ Fax: _____
 E-mail: _____

----- Diverge Analysis -----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: PM Peak Hour
 Freeway/Dir of Travel: I 77 Northbound
 Junction: Celanese/Cherry Rd NB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2023 Opening Year No Build
 Description: I-77 NB at Celanese Road/Cherry Road NB Off-Ramp Upstream

----- Freeway Data -----

Type of analysis	Diverge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	3236	vph	

----- Off Ramp Data -----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-Flow speed on ramp	35.0	mph	
Volume on ramp	891	vph	
Length of first accel/decel lane	300	ft	
Length of second accel/decel lane		ft	

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes		
Volume on adjacent ramp	1061	vph	
Position of adjacent ramp	Upstream		
Type of adjacent ramp	On		
Distance to adjacent ramp	7725	ft	

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	3236		891		1061	vph
Peak-hour factor, PHF	0.90		0.90		0.90	
Peak 15-min volume, v15	899		248		295	v
Trucks and buses	10		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3775	1000	1191	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.436 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 2210 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3775	9400	No
$v_{FO} = v_F - v_R$	2775	9400	No
v_R	1000	2000	No
v_3 or v_{av34}	782 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 2210$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2210	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	$= 20.6$	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		C	

Speed Estimation

Intermediate speed variable,	$D_S = 0.518$	
Space mean speed in ramp influence area,	$S_R = 53.1$	mph
Space mean speed in outer lanes,	$S_0 = 71.3$	mph
Space mean speed for all vehicles,	$S = 59.4$	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: PM Peak Hour
Freeway/Dir of Travel: I 77 Southbound
Junction: Dave Lyle Blvd SB Off-Ramp
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year No Build
Description: I-77 NB at Dave Lyle Blvd NB Off-Ramp Downstream

Freeway Data

Type of analysis	Diverge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	2643	vph	

Off Ramp Data

Side of freeway	Right		
Number of lanes in ramp	1		
Free-Flow speed on ramp	45.0	mph	
Volume on ramp	468	vph	
Length of first accel/decel lane	475	ft	
Length of second accel/decel lane		ft	

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes		
Volume on adjacent ramp	1061	vph	
Position of adjacent ramp	Downstream		
Type of adjacent ramp	On		
Distance to adjacent ramp	2025	ft	

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2643	468	1061	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	734	130	295	v
Trucks and buses	10	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3084	525	1191	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

$$EQ$$

$$P = 0.436 \quad \text{Using Equation 0}$$

$$FD$$

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 1641 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3084	9400	No
$v_{FO} = v_F - v_R$	2559	9400	No
v_R	525	2100	No
v_3 or v_{av34}	721 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 1641$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1641	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_{12} - 0.009 L_D$	= 14.1	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		B	

Speed Estimation

Intermediate speed variable,	$D_S = 0.345$	
Space mean speed in ramp influence area,	$S_R = 57.1$	mph
Space mean speed in outer lanes,	$S_0 = 71.3$	mph
Space mean speed for all vehicles,	$S = 62.9$	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: PM Peak Hour
Freeway/Dir of Travel: I 77 Southbound
Junction: Celanese/Cherry Rd SB Off-Ramp
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year No Build
Description: I-77 SB at Celanese Road/Cherry Road SB Off-Ramp Downstream

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	6639	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	2	
Free-Flow speed on ramp	50.0	mph
Volume on ramp	2949	vph
Length of first accel/decel lane	225	ft
Length of second accel/decel lane	1325	ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	836	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	5675	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	6639	2949	836	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1844	819	232	v
Trucks and buses	6	7	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.971	0.966	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	7598	3391	938	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.260 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 4485 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	7598	9400	No
$v_{FO} = v_F - v_R$	4207	9400	No
v_R	3391	4200	No
v_3 or v_{av34}	1556 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 4485$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4485	4400	Yes

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	= 26.8	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		C	

Speed Estimation

Intermediate speed variable,	$D_S = 0.538$	
Space mean speed in ramp influence area,	$S_R = 52.6$	mph
Space mean speed in outer lanes,	$S_0 = 69.1$	mph
Space mean speed for all vehicles,	$S = 58.3$	mph

Phone: _____ Fax: _____
 E-mail: _____

-----Diverge Analysis-----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: AM Peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Dave Lyle Blvd SB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2023 Opening Year No Build
 Description: I-77 SB at Dave Lyle Blvd SB Off-Ramp Downstream

-----Freeway Data-----

Type of analysis	Diverge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	4526	vph	

-----Off Ramp Data-----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-Flow speed on ramp	45.0	mph	
Volume on ramp	1558	vph	
Length of first accel/decel lane	200	ft	
Length of second accel/decel lane		ft	

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes		
Volume on adjacent ramp	544	vph	
Position of adjacent ramp	Downstream		
Type of adjacent ramp	On		
Distance to adjacent ramp	3400	ft	

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4526		1558		544	vph
Peak-hour factor, PHF	0.90		0.90		0.90	
Peak 15-min volume, v15	1257		433		151	v
Trucks and buses	6		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.971	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5180	1748	610	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

$$EQ$$

$$P = 0.436 \quad \text{Using Equation 0}$$

$$FD$$

$$v_{12} = v_R + (v_F - v_R) P = 3244 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_F = v_{Fi}$	5180	9400	No
$v_F = v_F - v_R$	3432	9400	No
v_R	1748	2100	No
v_3 or v_{av34}	968 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 3244$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3244	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_{12} - 0.009 L_D$	= 30.4	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		D	

Speed Estimation

Intermediate speed variable,	$D = 0.455$	
Space mean speed in ramp influence area,	$S_R = 54.5$	mph
Space mean speed in outer lanes,	$S_0 = 71.3$	mph
Space mean speed for all vehicles,	$S = 59.8$	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: AM Peak Hour
Freeway/Dir of Travel: I 77 Southbound
Junction: Dave Lyle Blvd SB Off-Ramp
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year No Build
Description: I-77 SB at Dave Lyle Blvd SB Off-Ramp Upstream

Freeway Data

Type of analysis	Diverge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	4526	vph	

Off Ramp Data

Side of freeway	Right		
Number of lanes in ramp	1		
Free-Flow speed on ramp	45.0	mph	
Volume on ramp	1558	vph	
Length of first accel/decel lane	200	ft	
Length of second accel/decel lane		ft	

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes		
Volume on adjacent ramp	836	vph	
Position of adjacent ramp	Upstream		
Type of adjacent ramp	On		
Distance to adjacent ramp	7900	ft	

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4526		1558		836	vph
Peak-hour factor, PHF	0.90		0.90		0.90	
Peak 15-min volume, v15	1257		433		232	v
Trucks and buses	6		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.971	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5180	1748	938	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.436 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 3244 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5180	9400	No
$v_{FO} = v_F - v_R$	3432	9400	No
v_R	1748	2100	No
v_3 or v_{av34}	968 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 3244$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3244	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_{12} - 0.009 L_D$	= 30.4	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		D	

Speed Estimation

Intermediate speed variable,	$D_S = 0.455$	
Space mean speed in ramp influence area,	$S_R = 54.5$	mph
Space mean speed in outer lanes,	$S_0 = 71.3$	mph
Space mean speed for all vehicles,	$S = 59.8$	mph

HCS REPORTS
DIVERGE SEGMENTS
2023 OPENING YEAR BUILD AM

Phone: _____ Fax: _____
 E-mail: _____

----- Diverge Analysis -----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: AM Peak Hour
 Freeway/Dir of Travel: I 77 Northbound
 Junction: Celanese/Cherry Rd NB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2023 Opening Year Build
 Description: I-77 NB at Celanese Road/Cherry Road NB Off-Ramp Upstream

----- Freeway Data -----

Type of analysis	Diverge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	4158	vph	

----- Off Ramp Data -----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-Flow speed on ramp	35.0	mph	
Volume on ramp	863	vph	
Length of first accel/decel lane	300	ft	
Length of second accel/decel lane		ft	

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes		
Volume on adjacent ramp	406	vph	
Position of adjacent ramp	Upstream		
Type of adjacent ramp	On		
Distance to adjacent ramp	300	ft	

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4158		863		406	vph
Peak-hour factor, PHF	0.90		0.90		0.90	
Peak 15-min volume, v15	1155		240		113	v
Trucks and buses	10		7		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.952	0.966	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4851	992	456	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

$$EQ$$

$$P = 0.436 \quad \text{Using Equation 0}$$

$$FD$$

$$v_{12} = v_R + (v_F - v_R) P = 2675 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4851	9400	No
$v_{FO} = v_F - v_R$	3859	9400	No
v_R	992	2000	No
v_3 or v_{av34}	1088 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 2675$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2675	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	$= 24.6$	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		C	

Speed Estimation

Intermediate speed variable,	$D_S = 0.517$	
Space mean speed in ramp influence area,	$S_R = 53.1$	mph
Space mean speed in outer lanes,	$S_0 = 71.0$	mph
Space mean speed for all vehicles,	$S = 59.9$	mph

Phone: _____ Fax: _____
 E-mail: _____

----- Diverge Analysis -----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: AM Peak Hour
 Freeway/Dir of Travel: I 77 Northbound
 Junction: Celanese/Cherry Rd NB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2023 Opening Year Build
 Description: I-77 NB at Celanese Road/Cherry Road NB Off-Ramp Downstream

----- Freeway Data -----

Type of analysis	Diverge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	4158	vph	

----- Off Ramp Data -----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-Flow speed on ramp	35.0	mph	
Volume on ramp	863	vph	
Length of first accel/decel lane	300	ft	
Length of second accel/decel lane		ft	

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes		
Volume on adjacent ramp	2321	vph	
Position of adjacent ramp	Downstream		
Type of adjacent ramp	On		
Distance to adjacent ramp	6100	ft	

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4158		863		2321	vph
Peak-hour factor, PHF	0.90		0.90		0.90	
Peak 15-min volume, v15	1155		240		645	v
Trucks and buses	10		7		6	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.952	0.966	0.971	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4851	992	2656	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.436 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 2675 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4851	9400	No
$v_{FO} = v_F - v_R$	3859	9400	No
v_R	992	2000	No
v_3 or v_{av34}	1088 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 2675$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2675	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	= 24.6	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		C	

Speed Estimation

Intermediate speed variable,	$D_S = 0.517$	
Space mean speed in ramp influence area,	$S_R = 53.1$	mph
Space mean speed in outer lanes,	$S_0 = 71.0$	mph
Space mean speed for all vehicles,	$S = 59.9$	mph

Phone: Fax:
E-mail:

-----Diverge Analysis-----

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: AM Peak Hour
Freeway/Dir of Travel: I 77 Northbound
Junction: Dave Lyle Blvd NB Off-Ramp
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 NB at Dave Lyle Blvd NB Off-Ramp Downstream

-----Freeway Data-----

Type of analysis	Diverge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	3082	vph	

-----Off Ramp Data-----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-Flow speed on ramp	45.0	mph	
Volume on ramp	167	vph	
Length of first accel/decel lane	475	ft	
Length of second accel/decel lane		ft	

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes		
Volume on adjacent ramp	1125	vph	
Position of adjacent ramp	Downstream		
Type of adjacent ramp	On		
Distance to adjacent ramp	2025	ft	

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	3082		167		1125	vph
Peak-hour factor, PHF	0.90		0.90		0.90	
Peak 15-min volume, v15	856		46		313	v
Trucks and buses	10		5		3	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.952	0.976	0.985	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3596	190	1269	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.436 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 1675 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3596	9400	No
$v_{FO} = v_F - v_R$	3406	9400	No
v_R	190	2100	No
v_3 or v_{av34}	960 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 1675$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1675	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_{12} - 0.009 L_D$	= 14.4	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		B	

Speed Estimation

Intermediate speed variable,	$D_S = 0.315$	
Space mean speed in ramp influence area,	$S_R = 57.8$	mph
Space mean speed in outer lanes,	$S_0 = 71.3$	mph
Space mean speed for all vehicles,	$S = 64.3$	mph

Phone: _____ Fax: _____
 E-mail: _____

----- Diverge Analysis -----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: AM Peak Hour
 Freeway/Dir of Travel: I 77 Northbound
 Junction: Panthers NB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2023 Opening Year Build
 Description: I-77 NB at Panthers NB Off-Ramp Downstream

----- Freeway Data -----

Type of analysis	Diverge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	4040	vph	

----- Off Ramp Data -----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-Flow speed on ramp	45.0	mph	
Volume on ramp	288	vph	
Length of first accel/decel lane	400	ft	
Length of second accel/decel lane		ft	

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes		
Volume on adjacent ramp	406	vph	
Position of adjacent ramp	Downstream		
Type of adjacent ramp	On		
Distance to adjacent ramp	3675	ft	

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4040		288		406	vph
Peak-hour factor, PHF	0.90		0.90		0.90	
Peak 15-min volume, v15	1122		80		113	v
Trucks and buses	10		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4713	323	456	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

$$EQ$$

$$P = 0.436 \quad \text{Using Equation 0}$$

$$FD$$

$$v_{12} = v_R + (v_F - v_R) P = 2237 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4713	9400	No
$v_{FO} = v_F - v_R$	4390	9400	No
v_R	323	2100	No
v_3 or v_{av34}	1238 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 2237$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2237	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_{12} - 0.009 L_D$	= 19.9	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		B	

Speed Estimation

Intermediate speed variable,	$D_S = 0.327$	
Space mean speed in ramp influence area,	$S_R = 57.5$	mph
Space mean speed in outer lanes,	$S_0 = 70.4$	mph
Space mean speed for all vehicles,	$S = 63.6$	mph

Phone: _____ Fax: _____
 E-mail: _____

-----Diverge Analysis-----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: AM Peak Hour
 Freeway/Dir of Travel: I 77 Northbound
 Junction: Panthers NB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2023 Opening Year Build
 Description: I-77 NB at Panthers NB Off-Ramp Upstream

-----Freeway Data-----

Type of analysis	Diverge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	4040	vph	

-----Off Ramp Data-----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-Flow speed on ramp	45.0	mph	
Volume on ramp	288	vph	
Length of first accel/decel lane	400	ft	
Length of second accel/decel lane		ft	

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes		
Volume on adjacent ramp	1125	vph	
Position of adjacent ramp	Upstream		
Type of adjacent ramp	On		
Distance to adjacent ramp	2600	ft	

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4040		288		1125	vph
Peak-hour factor, PHF	0.90		0.90		0.90	
Peak 15-min volume, v15	1122		80		313	v
Trucks and buses	10		2		3	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.985	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4713	323	1269	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

$$EQ$$

$$P = 0.436 \quad \text{Using Equation 0}$$

$$FD$$

$$v_{12} = v_R + (v_F - v_R) P = 2237 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4713	9400	No
$v_{FO} = v_F - v_R$	4390	9400	No
v_R	323	2100	No
v_3 or v_{av34}	1238 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 2237$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2237	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_{12} - 0.009 L_D$	= 19.9	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		B	

Speed Estimation

Intermediate speed variable,	$D_S = 0.327$	
Space mean speed in ramp influence area,	$S_R = 57.5$	mph
Space mean speed in outer lanes,	$S_0 = 70.4$	mph
Space mean speed for all vehicles,	$S = 63.6$	mph

Phone: _____ Fax: _____
 E-mail: _____

----- Diverge Analysis -----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: AM Peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Celanese/Cherry Rd SB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2023 Opening Year Build
 Description: I-77 SB at Celanese Road/Cherry Road SB Off-Ramp Downstream

----- Freeway Data -----

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	4234	vph

----- Off Ramp Data -----

Side of freeway	Right	
Number of lanes in ramp	2	
Free-Flow speed on ramp	50.0	mph
Volume on ramp	1491	vph
Length of first accel/decel lane	225	ft
Length of second accel/decel lane	1325	ft

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	695	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	5675	ft

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4234	1491	695	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1176	414	193	v
Trucks and buses	11	9	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.948	0.957	0.980	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4963	1731	788	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.260 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 2571 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4963	9400	No
$v_{FO} = v_F - v_R$	3232	9400	No
v_R	1731	4200	No
v_3 or v_{av34}	1196 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 2571$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2571	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_{12} - 0.009 L_D$	= 10.4	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		B	

Speed Estimation

Intermediate speed variable,	$D_S = 0.389$	
Space mean speed in ramp influence area,	$S_R = 56.1$	mph
Space mean speed in outer lanes,	$S_0 = 70.5$	mph
Space mean speed for all vehicles,	$S = 62.2$	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: AM Peak Hour
Freeway/Dir of Travel: I 77 Southbound
Junction: Dave Lyle Blvd SB Off-Ramp
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 SB at Dave Lyle Blvd SB Off-Ramp Downstream

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2852	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	783	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	142	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	3400	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2852	783	142	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	792	218	39	v
Trucks and buses	11	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.948	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3343	879	159	pcph

Estimation of V12 Diverge Areas

L = (Equation 13-12 or 13-13)

EQ

P = 0.436 Using Equation 0

FD

$v_{12} = v_R + (v_F - v_R) P_{FD} = 1953 \text{ pc/h}$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3343	9400	No
$v_{FO} = v_F - v_R$	2464	9400	No
v_R	879	2100	No
v_3 or v_{av34}	695 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700 \text{ pc/h?}$		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 1953$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1953	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086 v_{12} - 0.009 L_D = 19.2 \text{ pc/mi/ln}$

Level of service for ramp-freeway junction areas of influence **B**

Speed Estimation

Intermediate speed variable,	$D_S = 0.377$	
Space mean speed in ramp influence area,	$S_R = 56.3$	mph
Space mean speed in outer lanes,	$S_0 = 71.3$	mph
Space mean speed for all vehicles,	$S = 61.7$	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: AM Peak Hour
Freeway/Dir of Travel: I 77 Southbound
Junction: Dave Lyle Blvd SB Off-Ramp
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 SB at Dave Lyle Blvd SB Off-Ramp Upstream

Freeway Data

Type of analysis	Diverge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	2852	vph	

Off Ramp Data

Side of freeway	Right		
Number of lanes in ramp	1		
Free-Flow speed on ramp	45.0	mph	
Volume on ramp	783	vph	
Length of first accel/decel lane	200	ft	
Length of second accel/decel lane		ft	

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes		
Volume on adjacent ramp	156	vph	
Position of adjacent ramp	Upstream		
Type of adjacent ramp	On		
Distance to adjacent ramp	2100	ft	

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2852	783	156	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	792	218	43	v
Trucks and buses	11	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.948	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3343	879	175	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

$$EQ$$

$$P = 0.436 \quad \text{Using Equation 0}$$

$$FD$$

$$v_{12} = v_R + (v_F - v_R) P = 1953 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3343	9400	No
$v_{FO} = v_F - v_R$	2464	9400	No
v_R	879	2100	No
v_3 or v_{av34}	695 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 1953$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1953	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_{12} - 0.009 L_D$	= 19.2	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		B	

Speed Estimation

Intermediate speed variable,	$D_S = 0.377$	
Space mean speed in ramp influence area,	$S_R = 56.3$	mph
Space mean speed in outer lanes,	$S_0 = 71.3$	mph
Space mean speed for all vehicles,	$S = 61.7$	mph

Phone: _____ Fax: _____
 E-mail: _____

----- Diverge Analysis -----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: AM Peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Panthers SB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2023 Opening Year Build
 Description: I-77 SB at Panthers SB Off-Ramp Downstream

----- Freeway Data -----

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3438	vph

----- Off Ramp Data -----

Side of freeway	Right	
Number of lanes in ramp	2	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	742	vph
Length of first accel/decel lane	125	ft
Length of second accel/decel lane	800	ft

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	156	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	3775	ft

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3438	742	156	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	955	206	43	v
Trucks and buses	11	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.948	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4030	833	175	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.260 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 1664 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4030	9400	No
$v_{FO} = v_F - v_R$	3197	9400	No
v_R	833	4200	No
v_3 or v_{av34}	1183 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700 \text{ pc/h?}$		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 1664$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1664	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_{12} - 0.009 L_D$	= 9.1	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		A	

Speed Estimation

Intermediate speed variable,	$D_S = 0.373$	
Space mean speed in ramp influence area,	$S_R = 56.4$	mph
Space mean speed in outer lanes,	$S_0 = 70.6$	mph
Space mean speed for all vehicles,	$S = 64.0$	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: PM Peak Hour
Freeway/Dir of Travel: I 77 Southbound
Junction: Panthers SB Off-Ramp
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 SB at Panthers SB Off-Ramp Upstream

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3438	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	2	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	742	vph
Length of first accel/decel lane	125	ft
Length of second accel/decel lane	800	ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	695	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3438	742	695	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	955	206	193	v
Trucks and buses	11	2	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.948	0.990	0.980	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4030	833	788	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.260 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 1664 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4030	9400	No
$v_{FO} = v_F - v_R$	3197	9400	No
v_R	833	4200	No
v_3 or v_{av34}	1183 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 1664$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1664	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_{12} - 0.009 L_D$	= 9.1	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		A	

Speed Estimation

Intermediate speed variable,	$D_S = 0.373$	
Space mean speed in ramp influence area,	$S_R = 56.4$	mph
Space mean speed in outer lanes,	$S_0 = 70.6$	mph
Space mean speed for all vehicles,	$S = 64.0$	mph

HCS REPORTS
DIVERGE SEGMENTS
2023 OPENING YEAR BUILD PM

Phone: _____ Fax: _____
 E-mail: _____

----- Diverge Analysis -----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: PM Peak Hour
 Freeway/Dir of Travel: I 77 Northbound
 Junction: Celanese/Cherry Rd NB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2023 Opening Year Build
 Description: I-77 NB at Celanese Road/Cherry Road NB Off-Ramp Downstream

----- Freeway Data -----

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3887	vph

----- Off Ramp Data -----

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	891	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1474	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	6100	ft

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3887	891	1474	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1080	248	409	v
Trucks and buses	10	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4535	1000	1654	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.436 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 2541 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4535	9400	No
$v_{FO} = v_F - v_R$	3535	9400	No
v_R	1000	2000	No
v_3 or v_{av34}	997 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 2541$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2541	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	$= 23.4$	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		C	

Speed Estimation

Intermediate speed variable,	$D_S = 0.518$	
Space mean speed in ramp influence area,	$S_R = 53.1$	mph
Space mean speed in outer lanes,	$S_0 = 71.3$	mph
Space mean speed for all vehicles,	$S = 59.8$	mph

Phone: _____ Fax: _____
 E-mail: _____

-----Diverge Analysis-----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: PM Peak Hour
 Freeway/Dir of Travel: I 77 Northbound
 Junction: Celanese/Cherry Rd NB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2023 Opening Year Build
 Description: I-77 NB at Celanese Road/Cherry Road NB Off-Ramp Upstream

-----Freeway Data-----

Type of analysis	Diverge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	3887	vph	

-----Off Ramp Data-----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-Flow speed on ramp	35.0	mph	
Volume on ramp	891	vph	
Length of first accel/decel lane	300	ft	
Length of second accel/decel lane		ft	

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes		
Volume on adjacent ramp	651	vph	
Position of adjacent ramp	Upstream		
Type of adjacent ramp	On		
Distance to adjacent ramp	300	ft	

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	3887		891		651	vph
Peak-hour factor, PHF	0.90		0.90		0.90	
Peak 15-min volume, v15	1080		248		181	v
Trucks and buses	10		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4535	1000	731	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

$$EQ$$

$$P = 0.436 \quad \text{Using Equation 0}$$

$$FD$$

$$v_{12} = v_R + (v_F - v_R) P = 2541 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4535	9400	No
$v_{FO} = v_F - v_R$	3535	9400	No
v_R	1000	2000	No
v_3 or v_{av34}	997 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 2541$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2541	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	$= 23.4$	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		C	

Speed Estimation

Intermediate speed variable,	$D_S = 0.518$	
Space mean speed in ramp influence area,	$S_R = 53.1$	mph
Space mean speed in outer lanes,	$S_0 = 71.3$	mph
Space mean speed for all vehicles,	$S = 59.8$	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: PM Peak Hour
Freeway/Dir of Travel: I 77 Northbound
Junction: Dave Lyle Blvd NB Off-Ramp
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 NB at Dave Lyle Blvd NB Off-Ramp Downstream

Freeway Data

Type of analysis	Diverge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	2643	vph	

Off Ramp Data

Side of freeway	Right		
Number of lanes in ramp	1		
Free-Flow speed on ramp	45.0	mph	
Volume on ramp	134	vph	
Length of first accel/decel lane	475	ft	
Length of second accel/decel lane		ft	

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes		
Volume on adjacent ramp	1061	vph	
Position of adjacent ramp	Downstream		
Type of adjacent ramp	On		
Distance to adjacent ramp	2025	ft	

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2643	134	1061	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	734	37	295	v
Trucks and buses	10	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3084	150	1191	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.436 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 1429 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3084	9400	No
$v_{FO} = v_F - v_R$	2934	9400	No
v_R	150	2100	No
v_3 or v_{av34}	827 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 1429$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1429	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_{12} - 0.009 L_D$	= 12.3	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		B	

Speed Estimation

Intermediate speed variable,	$D_S = 0.312$	
Space mean speed in ramp influence area,	$S_R = 57.8$	mph
Space mean speed in outer lanes,	$S_0 = 71.3$	mph
Space mean speed for all vehicles,	$S = 64.4$	mph

Phone: _____ Fax: _____
 E-mail: _____

----- Diverge Analysis -----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: PM Peak Hour
 Freeway/Dir of Travel: I 77 Northbound
 Junction: Panthers NB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2023 Opening Year Build
 Description: I-77 NB at Panthers NB Off-Ramp Upstream

----- Freeway Data -----

Type of analysis	Diverge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	3570	vph	

----- Off Ramp Data -----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-Flow speed on ramp	45.0	mph	
Volume on ramp	334	vph	
Length of first accel/decel lane	400	ft	
Length of second accel/decel lane		ft	

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes		
Volume on adjacent ramp	1061	vph	
Position of adjacent ramp	Upstream		
Type of adjacent ramp	On		
Distance to adjacent ramp	2600	ft	

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	3570		334		1061	vph
Peak-hour factor, PHF	0.90		0.90		0.90	
Peak 15-min volume, v15	992		93		295	v
Trucks and buses	10		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4165	375	1191	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.436 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 2027 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4165	9400	No
$v_{FO} = v_F - v_R$	3790	9400	No
v_R	375	2100	No
v_3 or v_{av34}	1069 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 2027$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2027	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_{12} - 0.009 L_D$	= 18.1	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		B	

Speed Estimation

Intermediate speed variable,	$D_S = 0.332$	
Space mean speed in ramp influence area,	$S_R = 57.4$	mph
Space mean speed in outer lanes,	$S_0 = 71.0$	mph
Space mean speed for all vehicles,	$S = 63.7$	mph

Phone: _____ Fax: _____
 E-mail: _____

----- Diverge Analysis -----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: PM Peak Hour
 Freeway/Dir of Travel: I 77 Northbound
 Junction: Panthers NB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2023 Opening Year Build
 Description: I-77 NB at Panthers NB Off-Ramp Downstream

----- Freeway Data -----

Type of analysis	Diverge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	3570	vph	

----- Off Ramp Data -----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-Flow speed on ramp	45.0	mph	
Volume on ramp	334	vph	
Length of first accel/decel lane	400	ft	
Length of second accel/decel lane		ft	

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes		
Volume on adjacent ramp	651	vph	
Position of adjacent ramp	Downstream		
Type of adjacent ramp	On		
Distance to adjacent ramp	3675	ft	

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	3570		334		651	vph
Peak-hour factor, PHF	0.90		0.90		0.90	
Peak 15-min volume, v15	992		93		181	v
Trucks and buses	10		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4165	375	731	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

$$EQ$$

$$P = 0.436 \quad \text{Using Equation 0}$$

$$FD$$

$$v_{12} = v_R + (v_F - v_R) P = 2027 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4165	9400	No
$v_{FO} = v_F - v_R$	3790	9400	No
v_R	375	2100	No
v_3 or v_{av34}	1069 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 2027$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2027	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_{12} - 0.009 L_D$	= 18.1	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		B	

Speed Estimation

Intermediate speed variable,	$D_S = 0.332$	
Space mean speed in ramp influence area,	$S_R = 57.4$	mph
Space mean speed in outer lanes,	$S_0 = 71.0$	mph
Space mean speed for all vehicles,	$S = 63.7$	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: PM Peak Hour
Freeway/Dir of Travel: I 77 Southbound
Junction: Celanese/Cherry SB Off-Ramp
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 SB at Celanese Road/Cherry Road SB Off-Ramp Downstream

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	6639	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	2	
Free-Flow speed on ramp	50.0	mph
Volume on ramp	2568	vph
Length of first accel/decel lane	225	ft
Length of second accel/decel lane	1325	ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	616	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	5675	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	6639	2568	616	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1844	713	171	v
Trucks and buses	6	7	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.971	0.966	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	7598	2953	691	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

$$EQ$$

$$P = 0.260 \quad \text{Using Equation } 0$$

$$FD$$

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 4161 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	7598	9400	No
$v_{FO} = v_F - v_R$	4645	9400	No
v_R	2953	4200	No
v_3 or v_{av34}	1718 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700 \text{ pc/h?}$		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 4161$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4161	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	$= 24.1$	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		C	

Speed Estimation

Intermediate speed variable,	$D_S = 0.499$	
Space mean speed in ramp influence area,	$S_R = 53.5$	mph
Space mean speed in outer lanes,	$S_0 = 68.5$	mph
Space mean speed for all vehicles,	$S = 59.4$	mph

Phone: _____ Fax: _____
 E-mail: _____

----- Diverge Analysis -----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: PM Peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Dave Lyle Blvd SB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2023 Opening Year Build
 Description: I-77 SB at Dave Lyle Blvd SB Off-Ramp Upstream

----- Freeway Data -----

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	4933	vph

----- Off Ramp Data -----

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	1558	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	627	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2100	ft

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4933	1558	627	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1370	433	174	v
Trucks and buses	6	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.971	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5646	1748	704	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.436 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 3448 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5646	9400	No
$v_{FO} = v_F - v_R$	3898	9400	No
v_R	1748	2100	No
v_3 or v_{av34}	1099 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 3448$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3448	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_{12} - 0.009 L_D$	= 32.1	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		D	

Speed Estimation

Intermediate speed variable,	$D_S = 0.455$	
Space mean speed in ramp influence area,	$S_R = 54.5$	mph
Space mean speed in outer lanes,	$S_0 = 70.9$	mph
Space mean speed for all vehicles,	$S = 59.9$	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: PM Peak Hour
Freeway/Dir of Travel: I 77 Southbound
Junction: Dave Lyle Blvd SB Off-Ramp
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 SB at Dave Lyle Blvd SB Off-Ramp Downstream

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	4933	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	1558	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	137	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	3400	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4933	1558	137	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1370	433	38	v
Trucks and buses	6	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.971	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5646	1748	154	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.436 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 3448 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5646	9400	No
$v_{FO} = v_F - v_R$	3898	9400	No
v_R	1748	2100	No
v_3 or v_{av34}	1099 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 3448$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3448	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_{12} - 0.009 L_D$	= 32.1	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		D	

Speed Estimation

Intermediate speed variable,	$D_S = 0.455$	
Space mean speed in ramp influence area,	$S_R = 54.5$	mph
Space mean speed in outer lanes,	$S_0 = 70.9$	mph
Space mean speed for all vehicles,	$S = 59.9$	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: PM Peak Hour
Freeway/Dir of Travel: I 77 Southbound
Junction: Panthers SB Off-Ramp
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 SB at Panthers SB Off-Ramp Downstream

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	4687	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	2	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	381	vph
Length of first accel/decel lane	125	ft
Length of second accel/decel lane	800	ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	627	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	3775	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4687	381	627	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1302	106	174	v
Trucks and buses	6	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.971	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5364	428	704	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.260 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 1711 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5364	9400	No
$v_{FO} = v_F - v_R$	4936	9400	No
v_R	428	4200	No
v_3 or v_{av34}	1826 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		Yes	
If yes, $v_{12A} = 2145$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2145	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	= 13.2	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		B	

Speed Estimation

Intermediate speed variable,	$D_S = 0.337$	
Space mean speed in ramp influence area,	$S_R = 57.3$	mph
Space mean speed in outer lanes,	$S_0 = 68.9$	mph
Space mean speed for all vehicles,	$S = 63.7$	mph

Phone: Fax:
E-mail:

-----Diverge Analysis-----

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: PM Peak Hour
Freeway/Dir of Travel: I 77 Southbound
Junction: Panthers SB Off-Ramp
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 SB at Panthers SB Off-Ramp Upstream

-----Freeway Data-----

Type of analysis	Diverge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	4687	vph	

-----Off Ramp Data-----

Side of freeway	Right		
Number of lanes in ramp	2		
Free-Flow speed on ramp	45.0	mph	
Volume on ramp	381	vph	
Length of first accel/decel lane	125	ft	
Length of second accel/decel lane	800	ft	

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes		
Volume on adjacent ramp	616	vph	
Position of adjacent ramp	Upstream		
Type of adjacent ramp	On		
Distance to adjacent ramp	200	ft	

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4687		381		616	vph
Peak-hour factor, PHF	0.90		0.90		0.90	
Peak 15-min volume, v15	1302		106		171	v
Trucks and buses	6		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.971	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5364	428	691	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

$$EQ$$

$$P = 0.260 \quad \text{Using Equation } 0$$

$$FD$$

$$v_{12} = v_R + (v_F - v_R) P = 1711 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5364	9400	No
$v_{FO} = v_F - v_R$	4936	9400	No
v_R	428	4200	No
$v_3 \text{ or } v_{av34}$	1826 pc/h	(Equation 13-14 or 13-17)	
Is $v_3 \text{ or } v_{av34} > 2700 \text{ pc/h?}$		No	
Is $v_3 \text{ or } v_{av34} > 1.5 v_{12} / 2$		Yes	
If yes, $v_{12A} = 2145$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2145	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	= 13.2	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		B	

Speed Estimation

Intermediate speed variable,	$D_S = 0.337$	
Space mean speed in ramp influence area,	$S_R = 57.3$	mph
Space mean speed in outer lanes,	$S_0 = 68.9$	mph
Space mean speed for all vehicles,	$S = 63.7$	mph

HCS REPORTS
DIVERGE SEGMENTS
2043 HORIZON YEAR NO BUILD AM

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: AM Peak Hour
Freeway/Dir of Travel: I 77 Southbound
Junction: Celanese/Cherry Rd NB Off-Ramp
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year No build
Description: I-77 SB at Celanese Road/Cherry Road NB Off-Ramp Downstream

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	5715	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	1282	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	4276	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	6100	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	5715	1282	4276	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1588	356	1188	v
Trucks and buses	10	7	6	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.966	0.971	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	6668	1474	4894	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.436 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 3739 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	6668	9400	No
$v_{FO} = v_F - v_R$	5194	9400	No
v_R	1474	2000	No
v_3 or v_{av34}	1464 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 3739$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3739	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	= 33.7	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		D	

Speed Estimation

Intermediate speed variable,	$D_S = 0.561$	
Space mean speed in ramp influence area,	$S_R = 52.1$	mph
Space mean speed in outer lanes,	$S_0 = 69.5$	mph
Space mean speed for all vehicles,	$S = 58.5$	mph

Phone:
E-mail:

Fax:

Diverge Analysis

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: AM Peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Celanese/Cherry Rd NB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2043 Horizon Year No build
 Description: I-77 SB at Celanese Road/Cherry Road NB Off-Ramp Downstream

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	5715	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	1282	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	2465	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	7725	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	5715	1282	2465	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1588	356	685	v
Trucks and buses	10	7	3	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.966	0.985	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	6668	1474	2780	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.436 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 3739 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	6668	9400	No
$v_{FO} = v_F - v_R$	5194	9400	No
v_R	1474	2000	No
v_3 or v_{av34}	1464 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 3739$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3739	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_{12} - 0.009 L_D$	= 33.7	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		D	

Speed Estimation

Intermediate speed variable,	$D_S = 0.561$	
Space mean speed in ramp influence area,	$S_R = 52.1$	mph
Space mean speed in outer lanes,	$S_0 = 69.5$	mph
Space mean speed for all vehicles,	$S = 58.5$	mph

Phone: Fax:
E-mail:

-----Diverge Analysis-----

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: AM Peak Hour
Freeway/Dir of Travel: I 77 Southbound
Junction: Dave Lyle Blvd SB Off-Ramp
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year No Build
Description: I-77 NB at Dave Lyle Blvd NB Off-Ramp Downstream

-----Freeway Data-----

Type of analysis	Diverge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	4583	vph	

-----Off Ramp Data-----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-Flow speed on ramp	45.0	mph	
Volume on ramp	1333	vph	
Length of first accel/decel lane	475	ft	
Length of second accel/decel lane		ft	

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes		
Volume on adjacent ramp	2465	vph	
Position of adjacent ramp	Downstream		
Type of adjacent ramp	On		
Distance to adjacent ramp	2025	ft	

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4583		1333		2465	vph
Peak-hour factor, PHF	0.90		0.90		0.90	
Peak 15-min volume, v15	1273		370		685	v
Trucks and buses	10		5		3	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.952	0.976	0.985	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5347	1518	2780	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.436 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 3187 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5347	9400	No
$v_{FO} = v_F - v_R$	3829	9400	No
v_R	1518	2100	No
v_3 or v_{av34}	1080 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 3187$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3187	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	= 27.4	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		C	

Speed Estimation

Intermediate speed variable,	$D_S = 0.435$	
Space mean speed in ramp influence area,	$S_R = 55.0$	mph
Space mean speed in outer lanes,	$S_0 = 71.0$	mph
Space mean speed for all vehicles,	$S = 60.5$	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: AM Peak Hour
Freeway/Dir of Travel: I 77 Southbound
Junction: Celanese/Cherry Rd SB Off-Ramp
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year No Build
Description: I-77 SB at Celanese Road/Cherry Road SB Off-Ramp Downstream

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	6617	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	2	
Free-Flow speed on ramp	50.0	mph
Volume on ramp	4275	vph
Length of first accel/decel lane	225	ft
Length of second accel/decel lane	1325	ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1033	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	5675	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	6617	4275	1033	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1838	1188	287	v
Trucks and buses	11	9	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.948	0.957	0.980	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	7757	4964	1171	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

$$EQ$$

$$P = 0.260 \quad \text{Using Equation } 0$$

$$FD$$

$$v_{12} = v_R + (v_F - v_R) P = 5690 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	7757	9400	No
$v_{FO} = v_F - v_R$	2793	9400	No
v_R	4964	4200	Yes
v_3 or v_{av34}	1033 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 5690$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	5690	4400	Yes

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	= 37.2	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		F	

Speed Estimation

Intermediate speed variable,	$D_S = 0.680$	
Space mean speed in ramp influence area,	$S_R = 49.4$	mph
Space mean speed in outer lanes,	$S_0 = 71.2$	mph
Space mean speed for all vehicles,	$S = 53.8$	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: AM Peak Hour
Freeway/Dir of Travel: I 77 Southbound
Junction: Dave Lyle Blvd SB Off-Ramp
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year No Build
Description: I-77 SB at Dave Lyle Blvd SB Off-Ramp Downstream

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3375	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	815	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	438	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	3400	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3375	815	438	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	938	226	122	v
Trucks and buses	11	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.948	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3956	915	492	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

$$EQ$$

$$P = 0.436 \quad \text{Using Equation 0}$$

$$FD$$

$$v_{12} = v_R + (v_F - v_R) P = 2241 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3956	9400	No
$v_{FO} = v_F - v_R$	3041	9400	No
v_R	915	2100	No
v_3 or v_{av34}	857 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 2241$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2241	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	= 21.7	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		C	

Speed Estimation

Intermediate speed variable,	$D_S = 0.380$	
Space mean speed in ramp influence area,	$S_R = 56.3$	mph
Space mean speed in outer lanes,	$S_0 = 71.3$	mph
Space mean speed for all vehicles,	$S = 61.9$	mph

Phone: Fax:
E-mail:

-----Diverge Analysis-----

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: AM Peak Hour
Freeway/Dir of Travel: I 77 Southbound
Junction: Dave Lyle Blvd SB Off-Ramp
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year No Build
Description: I-77 SB at Dave Lyle Blvd SB Off-Ramp Upstream

-----Freeway Data-----

Type of analysis	Diverge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	3375	vph	

-----Off Ramp Data-----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-Flow speed on ramp	45.0	mph	
Volume on ramp	815	vph	
Length of first accel/decel lane	200	ft	
Length of second accel/decel lane		ft	

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes		
Volume on adjacent ramp	1033	vph	
Position of adjacent ramp	Upstream		
Type of adjacent ramp	On		
Distance to adjacent ramp	7900	ft	

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	3375		815		1033	vph
Peak-hour factor, PHF	0.90		0.90		0.90	
Peak 15-min volume, v15	938		226		287	v
Trucks and buses	11		2		4	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.948	0.990	0.980	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3956	915	1171	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

$$EQ$$

$$P = 0.436 \quad \text{Using Equation 0}$$

$$FD$$

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 2241 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3956	9400	No
$v_{FO} = v_F - v_R$	3041	9400	No
v_R	915	2100	No
v_3 or v_{av34}	857 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 2241$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2241	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	= 21.7	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		C	

Speed Estimation

Intermediate speed variable,	$D_S = 0.380$	
Space mean speed in ramp influence area,	$S_R = 56.3$	mph
Space mean speed in outer lanes,	$S_0 = 71.3$	mph
Space mean speed for all vehicles,	$S = 61.9$	mph

HCS REPORTS
DIVERGE SEGMENTS
2043 HORIZON YEAR NO BUILD PM

Phone:
E-mail:

Fax:

Diverge Analysis

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: PM Peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Celanese/Cherry Rd NB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2043 Horizon Year No build
 Description: I-77 SB at Celanese Road/Cherry Road NB Off-Ramp Downstream

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	4835	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	1324	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	4119	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	6100	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4835	1324	4119	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1343	368	1144	v
Trucks and buses	10	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5641	1486	4622	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

$$EQ$$

$$P = 0.436 \quad \text{Using Equation 0}$$

$$FD$$

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 3298 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5641	9400	No
$v_{FO} = v_F - v_R$	4155	9400	No
v_R	1486	2000	No
v_3 or v_{av34}	1171 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 3298$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3298	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_{12} - 0.009 L_D$	= 29.9	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		D	

Speed Estimation

Intermediate speed variable,	$D_S = 0.562$	
Space mean speed in ramp influence area,	$S_R = 52.1$	mph
Space mean speed in outer lanes,	$S_0 = 70.6$	mph
Space mean speed for all vehicles,	$S = 58.5$	mph

Phone: _____ Fax: _____
 E-mail: _____

----- Diverge Analysis -----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: PM Peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Celanese/Cherry Rd NB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2043 Horizon Year No build
 Description: I-77 SB at Celanese Road/Cherry Road NB Off-Ramp Upstream

----- Freeway Data -----

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	4835	vph

----- Off Ramp Data -----

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	1324	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	2325	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	7725	ft

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4835		1324		2325	vph
Peak-hour factor, PHF	0.90		0.90		0.90	
Peak 15-min volume, v15	1343		368		646	v
Trucks and buses	10		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5641	1486	2609	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.436 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 3298 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5641	9400	No
$v_{FO} = v_F - v_R$	4155	9400	No
v_R	1486	2000	No
v_3 or v_{av34}	1171 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 3298$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3298	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_{12} - 0.009 L_D$	= 29.9	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		D	

Speed Estimation

Intermediate speed variable,	$D_S = 0.562$	
Space mean speed in ramp influence area,	$S_R = 52.1$	mph
Space mean speed in outer lanes,	$S_0 = 70.6$	mph
Space mean speed for all vehicles,	$S = 58.5$	mph

Phone: _____ Fax: _____
 E-mail: _____

----- Diverge Analysis -----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: PM Peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Dave Lyle Blvd SB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2043 Horizon Year No Build
 Description: I-77 NB at Dave Lyle Blvd NB Off-Ramp Downstream

----- Freeway Data -----

Type of analysis	Diverge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	3728	vph	

----- Off Ramp Data -----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-Flow speed on ramp	45.0	mph	
Volume on ramp	1218	vph	
Length of first accel/decel lane	475	ft	
Length of second accel/decel lane		ft	

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes		
Volume on adjacent ramp	2325	vph	
Position of adjacent ramp	Downstream		
Type of adjacent ramp	On		
Distance to adjacent ramp	2025	ft	

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	3728		1218		2325	vph
Peak-hour factor, PHF	0.90		0.90		0.90	
Peak 15-min volume, v15	1036		338		646	v
Trucks and buses	10		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4349	1367	2609	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.436 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 2667 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4349	9400	No
$v_{FO} = v_F - v_R$	2982	9400	No
v_R	1367	2100	No
v_3 or v_{av34}	841 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 2667$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2667	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	= 22.9	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		C	

Speed Estimation

Intermediate speed variable,	$D_S = 0.421$	
Space mean speed in ramp influence area,	$S_R = 55.3$	mph
Space mean speed in outer lanes,	$S_0 = 71.3$	mph
Space mean speed for all vehicles,	$S = 60.6$	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: PM Peak Hour
Freeway/Dir of Travel: I 77 Southbound
Junction: Celanese/Cherry Rd SB Off-Ramp
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year No Build
Description: I-77 SB at Celanese Road/Cherry Road SB Off-Ramp Downstream

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	9242	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	2	
Free-Flow speed on ramp	50.0	mph
Volume on ramp	4839	vph
Length of first accel/decel lane	225	ft
Length of second accel/decel lane	1325	ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1242	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	5675	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	9242	4839	1242	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	2567	1344	345	v
Trucks and buses	6	7	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.971	0.966	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	10577	5565	1394	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

$$EQ$$

$$P = 0.260 \quad \text{Using Equation } 0$$

$$FD$$

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 6868 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	10577	9400	Yes
$v_{FO} = v_F - v_R$	5012	9400	No
v_R	5565	4200	Yes
v_3 or v_{av34}	1854 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700 \text{ pc/h?}$		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 6868$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	6868	4400	Yes

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	= 47.3	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		F	

Speed Estimation

Intermediate speed variable,	$D_S = 0.734$	
Space mean speed in ramp influence area,	$S_R = 48.1$	mph
Space mean speed in outer lanes,	$S_0 = 68.0$	mph
Space mean speed for all vehicles,	$S = 53.6$	mph

Phone: _____ Fax: _____
 E-mail: _____

-----Diverge Analysis-----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: PM Peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Dave Lyle Blvd SB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2043 Horizon Year No Build
 Description: I-77 SB at Dave Lyle Blvd SB Off-Ramp Downstream

-----Freeway Data-----

Type of analysis	Diverge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	5645	vph	

-----Off Ramp Data-----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-Flow speed on ramp	45.0	mph	
Volume on ramp	1622	vph	
Length of first accel/decel lane	200	ft	
Length of second accel/decel lane		ft	

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes		
Volume on adjacent ramp	1131	vph	
Position of adjacent ramp	Downstream		
Type of adjacent ramp	On		
Distance to adjacent ramp	3400	ft	

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	5645		1622		1131	vph
Peak-hour factor, PHF	0.90		0.90		0.90	
Peak 15-min volume, v15	1568		451		314	v
Trucks and buses	6		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.971	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	6460	1820	1269	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.436 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 3843 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	6460	9400	No
$v_{FO} = v_F - v_R$	4640	9400	No
v_R	1820	2100	No
v_3 or v_{av34}	1308 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 3843$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3843	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_{12} - 0.009 L_D$	= 35.5	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		E	

Speed Estimation

Intermediate speed variable,	$D_S = 0.462$	
Space mean speed in ramp influence area,	$S_R = 54.4$	mph
Space mean speed in outer lanes,	$S_0 = 70.1$	mph
Space mean speed for all vehicles,	$S = 59.8$	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: PM Peak Hour
Freeway/Dir of Travel: I 77 Southbound
Junction: Dave Lyle Blvd SB Off-Ramp
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year No Build
Description: I-77 SB at Dave Lyle Blvd SB Off-Ramp Upstream

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	5645	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	1622	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1242	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	7900	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	5645	1622	1242	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1568	451	345	v
Trucks and buses	6	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.971	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	6460	1820	1394	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

$$EQ$$

$$P = 0.436 \quad \text{Using Equation 0}$$

$$FD$$

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 3843 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	6460	9400	No
$v_{FO} = v_F - v_R$	4640	9400	No
v_R	1820	2100	No
v_3 or v_{av34}	1308 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700 \text{ pc/h?}$		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 3843$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3843	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	$= 35.5$	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		E	

Speed Estimation

Intermediate speed variable,	$D_S = 0.462$	
Space mean speed in ramp influence area,	$S_R = 54.4$	mph
Space mean speed in outer lanes,	$S_0 = 70.1$	mph
Space mean speed for all vehicles,	$S = 59.8$	mph

HCS REPORTS
DIVERGE SEGMENTS
2043 HORIZON YEAR BUILD AM

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: AM Peak Hour
Freeway/Dir of Travel: I 77 Northbound
Junction: Celanese/Cherry Rd NB Off-Ramp
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 NB at Celanese Road/Cherry Road NB Off-Ramp Downstream

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	6594	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	1282	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	3397	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	6100	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	6594	1282	3397	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1832	356	944	v
Trucks and buses	10	7	6	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.966	0.971	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	7693	1474	3888	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.436 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 4185 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	7693	9400	No
$v_{FO} = v_F - v_R$	6219	9400	No
v_R	1474	2000	No
$v_3 \text{ or } v_{av34}$	1754 pc/h	(Equation 13-14 or 13-17)	
Is $v_3 \text{ or } v_{av34} > 2700 \text{ pc/h?}$		No	
Is $v_3 \text{ or } v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 4185$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4185	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	= 37.5	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		E	

Speed Estimation

Intermediate speed variable,	$D_S = 0.561$	
Space mean speed in ramp influence area,	$S_R = 52.1$	mph
Space mean speed in outer lanes,	$S_0 = 68.4$	mph
Space mean speed for all vehicles,	$S = 58.4$	mph

Phone:
E-mail:

Fax:

-----Diverge Analysis-----

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: AM Peak Hour
Freeway/Dir of Travel: I 77 Southbound
Junction: Celanese/Cherry Rd NB Off-Ramp
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 NB at Celanese Road/Cherry Road NB Off-Ramp Upstream

-----Freeway Data-----

Type of analysis	Diverge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	6594	vph	

-----Off Ramp Data-----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-Flow speed on ramp	35.0	mph	
Volume on ramp	1282	vph	
Length of first accel/decel lane	300	ft	
Length of second accel/decel lane		ft	

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes		
Volume on adjacent ramp	879	vph	
Position of adjacent ramp	Upstream		
Type of adjacent ramp	On		
Distance to adjacent ramp	300	ft	

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	6594		1282		879	vph
Peak-hour factor, PHF	0.90		0.90		0.90	
Peak 15-min volume, v15	1832		356		244	v
Trucks and buses	10		7		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.952	0.966	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	7693	1474	986	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.436 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 4185 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	7693	9400	No
$v_{FO} = v_F - v_R$	6219	9400	No
v_R	1474	2000	No
$v_3 \text{ or } v_{av34}$	1754 pc/h	(Equation 13-14 or 13-17)	
Is $v_3 \text{ or } v_{av34} > 2700 \text{ pc/h?}$		No	
Is $v_3 \text{ or } v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 4185$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4185	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_{12} - 0.009 L_D$	= 37.5	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		E	

Speed Estimation

Intermediate speed variable,	$D_S = 0.561$	
Space mean speed in ramp influence area,	$S_R = 52.1$	mph
Space mean speed in outer lanes,	$S_0 = 68.4$	mph
Space mean speed for all vehicles,	$S = 58.4$	mph

Phone: _____ Fax: _____
 E-mail: _____

----- Diverge Analysis -----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: AM Peak Hour
 Freeway/Dir of Travel: I 77 Northbound
 Junction: Dave Lyle Blvd NB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2043 Horizon Year Build
 Description: I-77 NB at Dave Lyle Blvd NB Off-Ramp Downstream

----- Freeway Data -----

Type of analysis	Diverge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	4583	vph	

----- Off Ramp Data -----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-Flow speed on ramp	45.0	mph	
Volume on ramp	413	vph	
Length of first accel/decel lane	475	ft	
Length of second accel/decel lane		ft	

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes		
Volume on adjacent ramp	2465	vph	
Position of adjacent ramp	Downstream		
Type of adjacent ramp	On		
Distance to adjacent ramp	2025	ft	

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4583		413		2465	vph
Peak-hour factor, PHF	0.90		0.90		0.90	
Peak 15-min volume, v15	1273		115		685	v
Trucks and buses	10		5		3	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.952	0.976	0.985	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5347	470	2780	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.436 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 2596 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5347	9400	No
$v_{FO} = v_F - v_R$	4877	9400	No
v_R	470	2100	No
v_3 or v_{av34}	1375 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 2596$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2596	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	= 22.3	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		C	

Speed Estimation

Intermediate speed variable,	$D_S = 0.340$	
Space mean speed in ramp influence area,	$S_R = 57.2$	mph
Space mean speed in outer lanes,	$S_0 = 69.8$	mph
Space mean speed for all vehicles,	$S = 63.1$	mph

Phone: _____ Fax: _____
 E-mail: _____

----- Diverge Analysis -----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: AM Peak Hour
 Freeway/Dir of Travel: I 77 Northbound
 Junction: Panthers NB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2043 Horizon Year Build
 Description: I-77 NB at Panthers NB Off-Ramp Downstream

----- Freeway Data -----

Type of analysis	Diverge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	6635	vph	

----- Off Ramp Data -----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-Flow speed on ramp	45.0	mph	
Volume on ramp	920	vph	
Length of first accel/decel lane	400	ft	
Length of second accel/decel lane		ft	

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes		
Volume on adjacent ramp	879	vph	
Position of adjacent ramp	Downstream		
Type of adjacent ramp	On		
Distance to adjacent ramp	3675	ft	

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	6635		920		879	vph
Peak-hour factor, PHF	0.90		0.90		0.90	
Peak 15-min volume, v15	1843		256		244	v
Trucks and buses	10		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	7741	1032	986	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.436 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 3957 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	7741	9400	No
$v_{FO} = v_F - v_R$	6709	9400	No
v_R	1032	2100	No
v_3 or v_{av34}	1892 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 3957$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3957	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	= 34.7	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		D	

Speed Estimation

Intermediate speed variable,	$D_S = 0.391$	
Space mean speed in ramp influence area,	$S_R = 56.0$	mph
Space mean speed in outer lanes,	$S_0 = 67.8$	mph
Space mean speed for all vehicles,	$S = 61.2$	mph

Phone: _____ Fax: _____
 E-mail: _____

----- Diverge Analysis -----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: AM Peak Hour
 Freeway/Dir of Travel: I 77 Northbound
 Junction: Panthers NB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2043 Horizon Year Build
 Description: I-77 NB at Panthers NB Off-Ramp Upstream

----- Freeway Data -----

Type of analysis	Diverge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	6635	vph	

----- Off Ramp Data -----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-Flow speed on ramp	45.0	mph	
Volume on ramp	920	vph	
Length of first accel/decel lane	400	ft	
Length of second accel/decel lane		ft	

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes		
Volume on adjacent ramp	2465	vph	
Position of adjacent ramp	Upstream		
Type of adjacent ramp	On		
Distance to adjacent ramp	2600	ft	

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	6635		920		2465	vph
Peak-hour factor, PHF	0.90		0.90		0.90	
Peak 15-min volume, v15	1843		256		685	v
Trucks and buses	10		2		3	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.985	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	7741	1032	2780	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.436 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 3957 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	7741	9400	No
$v_{FO} = v_F - v_R$	6709	9400	No
v_R	1032	2100	No
v_3 or v_{av34}	1892 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 3957$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3957	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	$= 34.7$	pc/mi/ln
Level of service for ramp-freeway junction areas of influence D			

Speed Estimation

Intermediate speed variable,	$D_S = 0.391$	
Space mean speed in ramp influence area,	$S_R = 56.0$	mph
Space mean speed in outer lanes,	$S_0 = 67.8$	mph
Space mean speed for all vehicles,	$S = 61.2$	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: AM Peak Hour
Freeway/Dir of Travel: I 77 Southbound
Junction: Celanese/Cherry Rd SB Off-Ramp
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 SB at Celanese Road/Cherry Road SB Off-Ramp Downstream

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	6617	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	2	
Free-Flow speed on ramp	50.0	mph
Volume on ramp	2163	vph
Length of first accel/decel lane	225	ft
Length of second accel/decel lane	1325	ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1033	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	5675	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	6617	2163	1033	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1838	601	287	v
Trucks and buses	11	9	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.948	0.957	0.980	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	7757	2511	1171	pcph

Estimation of V12 Diverge Areas

L = (Equation 13-12 or 13-13)

EQ

P = 0.260 Using Equation 0

FD

$v_{12} = v_R + (v_F - v_R) P_{FD} = 3875 \text{ pc/h}$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	7757	9400	No
$v_{FO} = v_F - v_R$	5246	9400	No
v_R	2511	4200	No
v_3 or v_{av34}	1941 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700 \text{ pc/h?}$		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 3875$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3875	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086 v_{12} - 0.009 L_D = 21.6 \text{ pc/mi/ln}$

Level of service for ramp-freeway junction areas of influence **C**

Speed Estimation

Intermediate speed variable,	$D_S = 0.459$	
Space mean speed in ramp influence area,	$S_R = 54.4$	mph
Space mean speed in outer lanes,	$S_0 = 67.6$	mph
Space mean speed for all vehicles,	$S = 60.3$	mph

Phone: _____ Fax: _____
 E-mail: _____

----- Diverge Analysis -----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: AM Peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Dave Lyle Blvd SB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2043 Horizon Year Build
 Description: I-77 SB at Dave Lyle Blvd SB Off-Ramp Downstream

----- Freeway Data -----

Type of analysis	Diverge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	3738	vph	

----- Off Ramp Data -----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-Flow speed on ramp	45.0	mph	
Volume on ramp	815	vph	
Length of first accel/decel lane	200	ft	
Length of second accel/decel lane		ft	

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes		
Volume on adjacent ramp	75	vph	
Position of adjacent ramp	Downstream		
Type of adjacent ramp	On		
Distance to adjacent ramp	3400	ft	

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	3738		815		75	vph
Peak-hour factor, PHF	0.90		0.90		0.90	
Peak 15-min volume, v15	1038		226		21	v
Trucks and buses	11		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.948	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4382	915	84	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

$$EQ$$

$$P = 0.436 \quad \text{Using Equation 0}$$

$$FD$$

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 2427 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4382	9400	No
$v_{FO} = v_F - v_R$	3467	9400	No
v_R	915	2100	No
v_3 or v_{av34}	977 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 2427$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2427	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	$= 23.3$	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		C	

Speed Estimation

Intermediate speed variable,	$D_S = 0.380$	
Space mean speed in ramp influence area,	$S_R = 56.3$	mph
Space mean speed in outer lanes,	$S_0 = 71.3$	mph
Space mean speed for all vehicles,	$S = 62.1$	mph

Phone: _____ Fax: _____
 E-mail: _____

----- Diverge Analysis -----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: AM Peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Dave Lyle Blvd SB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2043 Horizon Year Build
 Description: I-77 SB at Dave Lyle Blvd SB Off-Ramp Upstream

----- Freeway Data -----

Type of analysis	Diverge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	3738	vph	

----- Off Ramp Data -----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-Flow speed on ramp	45.0	mph	
Volume on ramp	815	vph	
Length of first accel/decel lane	200	ft	
Length of second accel/decel lane		ft	

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes		
Volume on adjacent ramp	363	vph	
Position of adjacent ramp	Upstream		
Type of adjacent ramp	On		
Distance to adjacent ramp	2100	ft	

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	3738		815		363	vph
Peak-hour factor, PHF	0.90		0.90		0.90	
Peak 15-min volume, v15	1038		226		101	v
Trucks and buses	11		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.948	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4382	915	407	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.436 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 2427 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4382	9400	No
$v_{FO} = v_F - v_R$	3467	9400	No
v_R	915	2100	No
v_3 or v_{av34}	977 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 2427$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2427	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	=	23.3	pc/mi/ln
Level of service for ramp-freeway junction areas of influence	C			

Speed Estimation

Intermediate speed variable,	$D_S = 0.380$	
Space mean speed in ramp influence area,	$S_R = 56.3$	mph
Space mean speed in outer lanes,	$S_0 = 71.3$	mph
Space mean speed for all vehicles,	$S = 62.1$	mph

Phone: _____ Fax: _____
 E-mail: _____

----- Diverge Analysis -----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: AM Peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Panthers SB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2043 Horizon Year Build
 Description: I-77 SB at Panthers SB Off-Ramp Downstream

----- Freeway Data -----

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	5487	vph

----- Off Ramp Data -----

Side of freeway	Right	
Number of lanes in ramp	2	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	2112	vph
Length of first accel/decel lane	125	ft
Length of second accel/decel lane	800	ft

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	363	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	3775	ft

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	5487		2112		363	vph
Peak-hour factor, PHF	0.90		0.90		0.90	
Peak 15-min volume, v15	1524		587		101	v
Trucks and buses	11		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.948	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	6432	2370	407	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.260 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 3426 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	6432	9400	No
$v_{FO} = v_F - v_R$	4062	9400	No
v_R	2370	4200	No
v_3 or v_{av34}	1503 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 3426$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3426	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	$= 24.3$	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		C	

Speed Estimation

Intermediate speed variable,	$D_S = 0.511$	
Space mean speed in ramp influence area,	$S_R = 53.2$	mph
Space mean speed in outer lanes,	$S_0 = 69.3$	mph
Space mean speed for all vehicles,	$S = 59.7$	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: AM Peak Hour
Freeway/Dir of Travel: I 77 Southbound
Junction: Panthers SB Off-Ramp
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 SB at Panthers SB Off-Ramp Upstream

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	5487	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	2	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	2112	vph
Length of first accel/decel lane	125	ft
Length of second accel/decel lane	800	ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1033	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	5487	2112	1033	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1524	587	287	v
Trucks and buses	11	2	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.948	0.990	0.980	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	6432	2370	1171	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.260 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 3426 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	6432	9400	No
$v_{FO} = v_F - v_R$	4062	9400	No
v_R	2370	4200	No
v_3 or v_{av34}	1503 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 3426$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3426	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	= 24.3	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		C	

Speed Estimation

Intermediate speed variable,	$D_S = 0.511$	
Space mean speed in ramp influence area,	$S_R = 53.2$	mph
Space mean speed in outer lanes,	$S_0 = 69.3$	mph
Space mean speed for all vehicles,	$S = 59.7$	mph

HCS REPORTS
DIVERGE SEGMENTS
2043 HORIZON YEAR BUILD PM

Phone: _____ Fax: _____
 E-mail: _____

----- Diverge Analysis -----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: PM Peak Hour
 Freeway/Dir of Travel: I 77 Northbound
 Junction: Celanese/Cherry Rd NB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2043 Horizon Year Build
 Description: I-77 NB at Celanese Road/Cherry Road NB Off-Ramp Upstream

----- Freeway Data -----

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	6806	vph

----- Off Ramp Data -----

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	1324	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1971	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	300	ft

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	6806		1324		1971	vph
Peak-hour factor, PHF	0.90		0.90		0.90	
Peak 15-min volume, v15	1891		368		548	v
Trucks and buses	10		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	7940	1486	2212	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.436 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 4300 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	7940	9400	No
$v_{FO} = v_F - v_R$	6454	9400	No
v_R	1486	2000	No
$v_3 \text{ or } v_{av34}$	1820 pc/h	(Equation 13-14 or 13-17)	
Is $v_3 \text{ or } v_{av34} > 2700 \text{ pc/h?}$		No	
Is $v_3 \text{ or } v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 4300$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4300	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	= 38.5	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		E	

Speed Estimation

Intermediate speed variable,	$D_S = 0.562$	
Space mean speed in ramp influence area,	$S_R = 52.1$	mph
Space mean speed in outer lanes,	$S_0 = 68.1$	mph
Space mean speed for all vehicles,	$S = 58.4$	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: PM Peak Hour
Freeway/Dir of Travel: I 77 Northbound
Junction: Celanese/Cherry Rd NB Off-Ramp
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 NB at Celanese Road/Cherry Road NB Off-Ramp Downstream

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	6806	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	1324	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	2148	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	6100	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	6806	1324	2148	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1891	368	597	v
Trucks and buses	10	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	7940	1486	2411	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

$$EQ$$

$$P = 0.436 \quad \text{Using Equation 0}$$

$$FD$$

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 4300 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	7940	9400	No
$v_{FO} = v_F - v_R$	6454	9400	No
v_R	1486	2000	No
v_3 or v_{av34}	1820 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700 \text{ pc/h?}$		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 4300$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4300	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	= 38.5	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		E	

Speed Estimation

Intermediate speed variable,	$D_S = 0.562$	
Space mean speed in ramp influence area,	$S_R = 52.1$	mph
Space mean speed in outer lanes,	$S_0 = 68.1$	mph
Space mean speed for all vehicles,	$S = 58.4$	mph

Phone: _____ Fax: _____
 E-mail: _____

----- Diverge Analysis -----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: PM Peak Hour
 Freeway/Dir of Travel: I 77 Northbound
 Junction: Dave Lyle Blvd NB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2043 Horizon Year Build
 Description: I-77 NB at Dave Lyle Blvd NB Off-Ramp Downstream

----- Freeway Data -----

Type of analysis	Diverge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	3728	vph	

----- Off Ramp Data -----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-Flow speed on ramp	45.0	mph	
Volume on ramp	450	vph	
Length of first accel/decel lane	475	ft	
Length of second accel/decel lane		ft	

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes		
Volume on adjacent ramp	2325	vph	
Position of adjacent ramp	Downstream		
Type of adjacent ramp	On		
Distance to adjacent ramp	2025	ft	

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	3728		450		2325	vph
Peak-hour factor, PHF	0.90		0.90		0.90	
Peak 15-min volume, v15	1036		125		646	v
Trucks and buses	10		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4349	505	2609	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.436 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 2181 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4349	9400	No
$v_{FO} = v_F - v_R$	3844	9400	No
v_R	505	2100	No
v_3 or v_{av34}	1084 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 2181$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2181	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_{12} - 0.009 L_D$	= 18.7	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		B	

Speed Estimation

Intermediate speed variable,	$D_S = 0.343$	
Space mean speed in ramp influence area,	$S_R = 57.1$	mph
Space mean speed in outer lanes,	$S_0 = 71.0$	mph
Space mean speed for all vehicles,	$S = 63.3$	mph

Phone: _____ Fax: _____
 E-mail: _____

----- Diverge Analysis -----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: PM Peak Hour
 Freeway/Dir of Travel: I 77 Northbound
 Junction: Panthers NB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2043 Horizon Year Build
 Description: I-77 NB at Panthers NB Off-Ramp Downstream

----- Freeway Data -----

Type of analysis	Diverge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	5603	vph	

----- Off Ramp Data -----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-Flow speed on ramp	45.0	mph	
Volume on ramp	768	vph	
Length of first accel/decel lane	400	ft	
Length of second accel/decel lane		ft	

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes		
Volume on adjacent ramp	1971	vph	
Position of adjacent ramp	Downstream		
Type of adjacent ramp	On		
Distance to adjacent ramp	3675	ft	

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	5603		768		1971	vph
Peak-hour factor, PHF	0.90		0.90		0.90	
Peak 15-min volume, v15	1556		213		548	v
Trucks and buses	10		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	6537	862	2212	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.436 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 3336 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	6537	9400	No
$v_{FO} = v_F - v_R$	5675	9400	No
v_R	862	2100	No
v_3 or v_{av34}	1600 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 3336$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3336	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_{12} - 0.009 L_D$	= 29.3	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		D	

Speed Estimation

Intermediate speed variable,	$D_S = 0.376$	
Space mean speed in ramp influence area,	$S_R = 56.4$	mph
Space mean speed in outer lanes,	$S_0 = 69.0$	mph
Space mean speed for all vehicles,	$S = 61.9$	mph

Phone: _____ Fax: _____
 E-mail: _____

----- Diverge Analysis -----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: PM Peak Hour
 Freeway/Dir of Travel: I 77 Northbound
 Junction: Panthers NB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2043 Horizon Year Build
 Description: I-77 NB at Panthers NB Off-Ramp Upstream

----- Freeway Data -----

Type of analysis	Diverge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	5603	vph	

----- Off Ramp Data -----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-Flow speed on ramp	45.0	mph	
Volume on ramp	768	vph	
Length of first accel/decel lane	400	ft	
Length of second accel/decel lane		ft	

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes		
Volume on adjacent ramp	2325	vph	
Position of adjacent ramp	Upstream		
Type of adjacent ramp	On		
Distance to adjacent ramp	2600	ft	

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	5603		768		2325	vph
Peak-hour factor, PHF	0.90		0.90		0.90	
Peak 15-min volume, v15	1556		213		646	v
Trucks and buses	10		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	6537	862	2609	pcph

Estimation of V12 Diverge Areas

L = (Equation 13-12 or 13-13)

EQ

P = 0.436 Using Equation 0

FD

$v_{12} = v_R + (v_F - v_R) P_{FD} = 3336 \text{ pc/h}$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	6537	9400	No
$v_{FO} = v_F - v_R$	5675	9400	No
v_R	862	2100	No
v_3 or v_{av34}	1600 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700 \text{ pc/h?}$		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 3336$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3336	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086 v_R - 0.009 L_D = 29.3 \text{ pc/mi/ln}$

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	$D_S = 0.376$	
Space mean speed in ramp influence area,	$S_R = 56.4$	mph
Space mean speed in outer lanes,	$S_0 = 69.0$	mph
Space mean speed for all vehicles,	$S = 61.9$	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: PM Peak Hour
Freeway/Dir of Travel: I 77 Southbound
Junction: Celanese/Cherry Rd SB Off-Ramp
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 SB at Celanese Road/Cherry Road SB Off-Ramp Downstream

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	9242	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	2	
Free-Flow speed on ramp	50.0	mph
Volume on ramp	3773	vph
Length of first accel/decel lane	225	ft
Length of second accel/decel lane	1325	ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	761	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	5675	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	9242	3773	761	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	2567	1048	211	v
Trucks and buses	6	7	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.971	0.966	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	10577	4339	854	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

$$EQ$$

$$P = 0.260 \quad \text{Using Equation } 0$$

$$FD$$

$$v_{12} = v_R + (v_F - v_R) P = 5961 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	10577	9400	Yes
$v_{FO} = v_F - v_R$	6238	9400	No
v_R	4339	4200	Yes
v_3 or v_{av34}	2308 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700 \text{ pc/h?}$		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 5961$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	5961	4400	Yes

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	$= 39.5$	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		F	

Speed Estimation

Intermediate speed variable,	$D_S = 0.624$	
Space mean speed in ramp influence area,	$S_R = 50.7$	mph
Space mean speed in outer lanes,	$S_0 = 66.2$	mph
Space mean speed for all vehicles,	$S = 56.4$	mph

Phone: _____ Fax: _____
 E-mail: _____

----- Diverge Analysis -----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: PM Peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Dave Lyle Blvd SB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2043 Horizon Year Build
 Description: I-77 SB at Dave Lyle Blvd SB Off-Ramp Downstream

----- Freeway Data -----

Type of analysis	Diverge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	6644	vph	

----- Off Ramp Data -----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-Flow speed on ramp	45.0	mph	
Volume on ramp	1622	vph	
Length of first accel/decel lane	200	ft	
Length of second accel/decel lane		ft	

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes		
Volume on adjacent ramp	132	vph	
Position of adjacent ramp	Downstream		
Type of adjacent ramp	On		
Distance to adjacent ramp	3400	ft	

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	6644		1622		132	vph
Peak-hour factor, PHF	0.90		0.90		0.90	
Peak 15-min volume, v15	1846		451		37	v
Trucks and buses	6		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.971	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	7604	1820	148	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.436 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 4342 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_F = v_{Fi}$	7604	9400	No
$v_F = v_F - v_R$	5784	9400	No
v_R	1820	2100	No
v_3 or v_{av34}	1631 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 4342$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4342	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_{12} - 0.009 L_D$	= 39.8	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		E	

Speed Estimation

Intermediate speed variable,	$D_S = 0.462$	
Space mean speed in ramp influence area,	$S_R = 54.4$	mph
Space mean speed in outer lanes,	$S_0 = 68.8$	mph
Space mean speed for all vehicles,	$S = 59.8$	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: PM Peak Hour
Freeway/Dir of Travel: I 77 Southbound
Junction: Dave Lyle Blvd SB Off-Ramp
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 SB at Dave Lyle Blvd SB Off-Ramp Upstream

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	6644	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	1622	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1480	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2100	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	6644	1622	1480	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1846	451	411	v
Trucks and buses	6	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.971	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	7604	1820	1661	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

$$P = 0.436 \quad \text{Using Equation 0}$$

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 4342 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	7604	9400	No
$v_{FO} = v_F - v_R$	5784	9400	No
v_R	1820	2100	No
v_3 or v_{av34}	1631 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 4342$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4342	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_{12} - 0.009 L_D$	= 39.8	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		E	

Speed Estimation

Intermediate speed variable,	$D_S = 0.462$	
Space mean speed in ramp influence area,	$S_R = 54.4$	mph
Space mean speed in outer lanes,	$S_0 = 68.8$	mph
Space mean speed for all vehicles,	$S = 59.8$	mph

Phone: _____ Fax: _____
 E-mail: _____

----- Diverge Analysis -----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: PM Peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Panthers SB Off-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2043 Horizon Year Build
 Description: I-77 SB at Panthers SB Off-Ramp Downstream

----- Freeway Data -----

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	6230	vph

----- Off Ramp Data -----

Side of freeway	Right	
Number of lanes in ramp	2	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	1066	vph
Length of first accel/decel lane	125	ft
Length of second accel/decel lane	800	ft

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1480	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	3775	ft

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	6230	1066	1480	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1731	296	411	v
Trucks and buses	6	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.971	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	7130	1196	1661	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

$$EQ$$

$$P = 0.260 \quad \text{Using Equation 0}$$

$$FD$$

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 2739 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	7130	9400	No
$v_{FO} = v_F - v_R$	5934	9400	No
v_R	1196	4200	No
v_3 or v_{av34}	2195 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		Yes	
If yes, $v_{12A} = 2852$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2852	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	$= 19.3$	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		B	

Speed Estimation

Intermediate speed variable,	$D_S = 0.406$	
Space mean speed in ramp influence area,	$S_R = 55.7$	mph
Space mean speed in outer lanes,	$S_0 = 66.9$	mph
Space mean speed for all vehicles,	$S = 61.9$	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: PM Peak Hour
Freeway/Dir of Travel: I 77 Southbound
Junction: Panthers SB Off-Ramp
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 SB at Panthers SB Off-Ramp Upstream

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	6230	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	2	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	1066	vph
Length of first accel/decel lane	125	ft
Length of second accel/decel lane	800	ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	761	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	6230	1066	761	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1731	296	211	v
Trucks and buses	6	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.971	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	7130	1196	854	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

$$EQ$$

$$P = 0.260 \quad \text{Using Equation } 0$$

$$FD$$

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 2739 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	7130	9400	No
$v_{FO} = v_F - v_R$	5934	9400	No
v_R	1196	4200	No
v_3 or v_{av34}	2195 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700 \text{ pc/h?}$		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		Yes	
If yes, $v_{12A} = 2852$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2852	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	= 19.3	pc/mi/ln
Level of service for ramp-freeway junction areas of influence		B	

Speed Estimation

Intermediate speed variable,	$D_S = 0.406$	
Space mean speed in ramp influence area,	$S_R = 55.7$	mph
Space mean speed in outer lanes,	$S_0 = 66.9$	mph
Space mean speed for all vehicles,	$S = 61.9$	mph

HCS REPORTS
MERGE SEGMENTS
2019 EXISTING AM

Phone: Fax:
E-mail:

Merge Analysis

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: AM Peak Hour
Freeway/Dir of Travel: I 77 Northbound
Junction: Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2019 Existing
Description: I-77 NB at CDave Lyle Blvd NB On-Ramp Downstream

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2432	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1019	vph
Length of first accel/decel lane	1250	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	797	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	7725	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2432	1019	797	vph
Peak-hour factor, PHF	0.97	0.93	0.94	
Peak 15-min volume, v15	627	274	212	v
Trucks and buses	10	3	7	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.985	0.966	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2633	1112	878	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.389 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 1023 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	3745	9400	No
v ₃ or v _{av34}	805 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		No	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 1053		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	2165	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 14.0 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M _S = 0.242	
Space mean speed in ramp influence area,	S _R = 59.4	mph
Space mean speed in outer lanes,	S ₀ = 64.0	mph
Space mean speed for all vehicles,	S = 61.3	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: AM Peak Hour
Freeway/Dir of Travel: I 77 Northbound
Junction: Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2019 Existing
Description: I-77 NB at Dave Lyle Blvd NB On-Ramp Upstream

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2432	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1019	vph
Length of first accel/decel lane	1250	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	228	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2025	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2432	1019	228	vph
Peak-hour factor, PHF	0.97	0.93	0.93	
Peak 15-min volume, v15	627	274	61	v
Trucks and buses	10	3	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.985	0.976	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2633	1112	251	pcph

Estimation of V12 Merge Areas

$L =$ (Equation 13-6 or 13-7)

EQ

$P = 0.389$ Using Equation 0

FM

$v_{12} = v_F (P) = 1023$ pc/h

FM

Capacity Checks

		Actual	Maximum	LOS F?
v_{FO}		3745	9400	No
v_3 or v_{av34}		805 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?			No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$			Yes	
If yes, $v_{12A} = 1053$			(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2165	4600	No

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 14.0$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	$M_S = 0.242$	
Space mean speed in ramp influence area,	$S_R = 59.4$	mph
Space mean speed in outer lanes,	$S_0 = 64.0$	mph
Space mean speed for all vehicles,	$S = 61.3$	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: AM Peak Hour
Freeway/Dir of Travel: I 77 Northbound
Junction: Celanese/Cherry Rd
Jurisdiction: SCDOT
Analysis Year: 2019 Existing
Description: I-77 NB at Celanese Road / Cherry Road NB On-Ramp Upstream

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2654	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	2	
Free-flow speed on ramp	45.0	mph
Volume on ramp	2454	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane	1000	ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	797	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	6100	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2654	2454	797	vph
Peak-hour factor, PHF	0.97	0.94	0.94	
Peak 15-min volume, v15	684	653	212	v
Trucks and buses	10	6	7	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.971	0.966	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2873	2689	878	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.209 \quad \text{Using Equation } 0$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 600 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	5562	9400	No
v ₃ or v _{av34}	1136 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		No	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 1149		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	3838	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 9.1 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence A

Speed Estimation

Intermediate speed variable,	M _S = 0.142	
Space mean speed in ramp influence area,	S _R = 61.7	mph
Space mean speed in outer lanes,	S ₀ = 63.7	mph
Space mean speed for all vehicles,	S = 62.3	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: AM peak Hour
Freeway/Dir of Travel: I 77 Southbound
Junction: Celanese/Cherry Rd SB On Ramp
Jurisdiction: SCDOT
Analysis Year: 2019 Existing
Description: I-77 SB at Celanese Road / Cherry Road SB On-Ramp Downstream

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1849	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	642	vph
Length of first accel/decel lane	800	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	723	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	7900	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1849	642	723	vph
Peak-hour factor, PHF	0.97	0.95	0.91	
Peak 15-min volume, v15	477	169	199	v
Trucks and buses	11	4	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.948	0.980	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2011	689	802	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.330 \quad \text{Using Equation } 0$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 663 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	2700	9400	No
v ₃ or v _{av34}	674 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		No	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 804		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	1493	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 11.8 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M _S = 0.266	
Space mean speed in ramp influence area,	S _R = 58.9	mph
Space mean speed in outer lanes,	S ₀ = 64.6	mph
Space mean speed for all vehicles,	S = 61.3	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: AM peak Hour
Freeway/Dir of Travel: I 77 Southbound
Junction: Celanese/Cherry Rd SB On Ramp
Jurisdiction: SCDOT
Analysis Year: 2019 Existing
Description: I-77 SB at Celanese Road / Cherry Road SB On-Ramp Upstream

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1849	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	642	vph
Length of first accel/decel lane	800	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1687	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	5675	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1849	642	1687	vph
Peak-hour factor, PHF	0.97	0.95	0.95	
Peak 15-min volume, v15	477	169	444	v
Trucks and buses	11	4	9	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.948	0.980	0.957	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2011	689	1856	pcph

Estimation of V12 Merge Areas

L = (Equation 13-6 or 13-7)

EQ

P = 0.330 Using Equation 0

FM

v = v (P) = 663 pc/h

12 F FM

Capacity Checks

	v	Actual	Maximum	LOS F?
	FO	2700	9400	No
	v or v	674 pc/h	(Equation 13-14 or 13-17)	
	3 av34			
Is	v or v	> 2700 pc/h?	No	
	3 av34			
Is	v or v	> 1.5 v /2	Yes	
	3 av34	12		
If yes, v	= 804		(Equation 13-15, 13-16, 13-18, or 13-19)	
	12A			

Flow Entering Merge Influence Area

	v	Actual	Max Desirable	Violation?
	12A	1493	4600	No

Level of Service Determination (if not F)

Density, D = 5.475 + 0.00734 v + 0.0078 v - 0.00627 L = 11.8 pc/mi/ln

R R 12 A

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M	= 0.266	
	S		
Space mean speed in ramp influence area,	S	= 58.9	mph
	R		
Space mean speed in outer lanes,	S	= 64.6	mph
	0		
Space mean speed for all vehicles,	S	= 61.3	mph

Phone:
E-mail:

Fax:

Merge Analysis

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: AM peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Dave Lyle Blvd SB On Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2019 Existing
 Description: I-77 SB at Dave Lyle Blvd SB On-Ramp Upstream

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1768	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	243	vph
Length of first accel/decel lane	600	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	723	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	3400	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1768	243	723	vph
Peak-hour factor, PHF	0.97	0.91	0.91	
Peak 15-min volume, v15	456	67	199	v
Trucks and buses	11	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.948	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1923	270	802	pcph

Estimation of V12 Merge Areas

L = (Equation 13-6 or 13-7)

EQ

P = 0.333 Using Equation 0

FM

v = v (P) = 640 pc/h

12 F FM

Capacity Checks

		Actual	Maximum	LOS F?
v		2193	9400	No
FO				
v or v		641 pc/h	(Equation 13-14 or 13-17)	
3 av34				
Is v or v	> 2700 pc/h?		No	
3 av34				
Is v or v	> 1.5 v /2		Yes	
3 av34	12			
If yes, v	= 769		(Equation 13-15, 13-16, 13-18, or 13-19)	
12A				

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v	1039	4600	No
12A			

Level of Service Determination (if not F)

Density, D = 5.475 + 0.00734 v_R + 0.0078 v₁₂ - 0.00627 L_A = 9.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence A

Speed Estimation

Intermediate speed variable,	M	= 0.278	
	S		
Space mean speed in ramp influence area,	S	= 58.6	mph
	R		
Space mean speed in outer lanes,	S	= 64.7	mph
	0		
Space mean speed for all vehicles,	S	= 61.7	mph

HCS REPORTS
MERGE SEGMENTS
2019 EXISTING PM

Phone:
E-mail:

Fax:

Merge Analysis

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: PM Peak Hour
 Freeway/Dir of Travel: I 77 Northbound
 Junction: Dave Lyle Blvd
 Jurisdiction: SCDOT
 Analysis Year: 2019 Existing
 Description: I-77 NB at Dave Lyle Blvd NB On-Ramp Downstream

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2017	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	961	vph
Length of first accel/decel lane	1250	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	823	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	7725	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2017	961	823	vph
Peak-hour factor, PHF	0.98	0.95	0.93	
Peak 15-min volume, v15	515	253	221	v
Trucks and buses	10	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2161	1022	894	pcph

Estimation of V12 Merge Areas

L = (Equation 13-6 or 13-7)

EQ

P = 0.400 Using Equation 0

FM

v = v (P) = 864 pc/h

12 F FM

Capacity Checks

		Actual	Maximum	LOS F?
v		3183	9400	No
FO				
v or v		648 pc/h	(Equation 13-14 or 13-17)	
3 av34				
Is v or v	> 2700 pc/h?		No	
3 av34				
Is v or v	> 1.5 v /2		Yes	
3 av34	12			
If yes, v	= 864		(Equation 13-15, 13-16, 13-18, or 13-19)	
12A				

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v	1886	4600	No
12A			

Level of Service Determination (if not F)

Density, D = $5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A$ = 11.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M	= 0.234	
	S		
Space mean speed in ramp influence area,	S	= 59.6	mph
	R		
Space mean speed in outer lanes,	S	= 64.5	mph
	0		
Space mean speed for all vehicles,	S	= 61.5	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: PM Peak Hour
Freeway/Dir of Travel: I 77 Northbound
Junction: Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2019 Existing
Description: I-77 NB at Dave Lyle Blvd NB On-Ramp Upstream

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2017	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	961	vph
Length of first accel/decel lane	1250	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	377	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2025	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	2017		961		377	vph
Peak-hour factor, PHF	0.98		0.95		0.95	
Peak 15-min volume, v15	515		253		99	v
Trucks and buses	10		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2161	1022	401	pcph

Estimation of V12 Merge Areas

L = (Equation 13-6 or 13-7)

EQ

P = 0.400 Using Equation 0

FM

v = v (P) = 864 pc/h

12 F FM

Capacity Checks

	v	Actual	Maximum	LOS F?
	FO	3183	9400	No
	v or v	648 pc/h	(Equation 13-14 or 13-17)	
	3 av34			
Is	v or v	> 2700 pc/h?	No	
	3 av34			
Is	v or v	> 1.5 v /2	Yes	
	3 av34	12		
If yes, v	= 864		(Equation 13-15, 13-16, 13-18, or 13-19)	
	12A			

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v	1886	4600	No
12A			

Level of Service Determination (if not F)

Density, D = 5.475 + 0.00734 v + 0.0078 v - 0.00627 L = 11.9 pc/mi/ln

R R 12 A

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M = 0.234	
	S	
Space mean speed in ramp influence area,	S = 59.6	mph
	R	
Space mean speed in outer lanes,	S = 64.5	mph
	0	
Space mean speed for all vehicles,	S = 61.5	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: PM Peak Hour
Freeway/Dir of Travel: I 77 Northbound
Junction: Celanese/Cherry Rd
Jurisdiction: SCDOT
Analysis Year: 2019 Existing
Description: I-77 NB at Celanese Road / Cherry Road NB On-Ramp Upstream

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2155	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	2	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1618	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane	1000	ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	823	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	6100	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2155	1618	823	vph
Peak-hour factor, PHF	0.98	0.94	0.93	
Peak 15-min volume, v15	550	430	221	v
Trucks and buses	10	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2309	1738	894	pcph

Estimation of V12 Merge Areas

L = (Equation 13-6 or 13-7)

EQ

P = 0.209 Using Equation 0

FM

v = v (P) = 483 pc/h

12 F FM

Capacity Checks

		Actual	Maximum	LOS F?
v		4047	9400	No
FO				
v or v		913 pc/h	(Equation 13-14 or 13-17)	
3 av34				
Is v or v	> 2700 pc/h?	No		
3 av34				
Is v or v	> 1.5 v /2	Yes		
3 av34	12			
If yes, v	= 923	(Equation 13-15, 13-16, 13-18, or 13-19)		
12A				

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v	2661	4600	No
12A			

Level of Service Determination (if not F)

Density, D = $5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A$ = 0.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence A

Speed Estimation

Intermediate speed variable,	M = 0.017	
	S	
Space mean speed in ramp influence area,	S = 64.6	mph
	R	
Space mean speed in outer lanes,	S = 64.3	mph
	0	
Space mean speed for all vehicles,	S = 64.5	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: PM peak Hour
Freeway/Dir of Travel: I 77 Southbound
Junction: Celanese/Cherry Rd SB On Ramp
Jurisdiction: SCDOT
Analysis Year: 2019 Existing
Description: I-77 SB at Celanese Road / Cherry Road SB On-Ramp Downstream

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3409	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	772	vph
Length of first accel/decel lane	800	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1439	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	7900	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3409	772	1439	vph
Peak-hour factor, PHF	0.98	0.96	0.94	
Peak 15-min volume, v15	870	201	383	v
Trucks and buses	6	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.971	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3583	812	1546	pcph

----- Estimation of V12 Merge Areas -----

L = (Equation 13-6 or 13-7)

EQ

P = 0.116 Using Equation 0

FM

v = v (P) = 417 pc/h

12 F FM

----- Capacity Checks -----

		Actual	Maximum	LOS F?
v		4395	9400	No
FO				
v or v		1583 pc/h	(Equation 13-14 or 13-17)	
3 av34				
Is v or v	> 2700 pc/h?	No		
3 av34				
Is v or v	> 1.5 v /2	Yes		
3 av34	12			
If yes, v	= 1433	(Equation 13-15, 13-16, 13-18, or 13-19)		
12A				

----- Flow Entering Merge Influence Area -----

	Actual	Max Desirable	Violation?
v	2245	4600	No
12A			

----- Level of Service Determination (if not F) -----

Density, D = 5.475 + 0.00734 v + 0.0078 v - 0.00627 L = 17.6 pc/mi/ln
R R 12 A
Level of service for ramp-freeway junction areas of influence B

----- Speed Estimation -----

Intermediate speed variable,	M = 0.286	
	S	
Space mean speed in ramp influence area,	S = 58.4	mph
	R	
Space mean speed in outer lanes,	S = 62.9	mph
	0	
Space mean speed for all vehicles,	S = 60.5	mph

Phone: Fax:
E-mail:

_____Merge Analysis_____

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: PM peak Hour
Freeway/Dir of Travel: I 77 Southbound
Junction: Celanese/Cherry Rd SB On Ramp
Jurisdiction: SCDOT
Analysis Year: 2019 Existing
Description: I-77 SB at Celanese Road / Cherry Road SB On-Ramp Upstream

_____Freeway Data_____

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3409	vph

_____On Ramp Data_____

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	772	vph
Length of first accel/decel lane	800	ft
Length of second accel/decel lane		ft

_____Adjacent Ramp Data (if one exists)_____

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	2628	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	5675	ft

_____Conversion to pc/h Under Base Conditions_____

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3409	772	2628	vph
Peak-hour factor, PHF	0.98	0.96	0.97	
Peak 15-min volume, v15	870	201	677	v
Trucks and buses	6	2	7	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.971	0.990	0.966	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3583	812	2804	pcph

Estimation of V12 Merge Areas

L = (Equation 13-6 or 13-7)

EQ

P = 0.116 Using Equation 0

FM

v = v (P) = 417 pc/h

12 F FM

Capacity Checks

		Actual	Maximum	LOS F?
v		4395	9400	No
FO				
v or v		1583 pc/h	(Equation 13-14 or 13-17)	
3 av34				
Is v or v	> 2700 pc/h?	No		
3 av34				
Is v or v	> 1.5 v /2	Yes		
3 av34	12			
If yes, v	= 1433	(Equation 13-15, 13-16, 13-18, or 13-19)		
12A				

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v	2245	4600	No
12A			

Level of Service Determination (if not F)

Density, D = 5.475 + 0.00734 v_R + 0.0078 v₁₂ - 0.00627 L_A = 17.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M	= 0.286	
	S		
Space mean speed in ramp influence area,	S	= 58.4	mph
	R		
Space mean speed in outer lanes,	S	= 62.9	mph
	0		
Space mean speed for all vehicles,	S	= 60.5	mph

Phone:
E-mail:

Fax:

-----Merge Analysis-----

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: PM peak Hour
Freeway/Dir of Travel: I 77 Southbound
Junction: Dave Lyle Blvd SB On Ramp
Jurisdiction: SCDOT
Analysis Year: 2019 Existing
Description: I-77 SB at Dave Lyle Blvd SB On-Ramp Upstream

-----Freeway Data-----

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2742	vph

-----On Ramp Data-----

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	330	vph
Length of first accel/decel lane	600	ft
Length of second accel/decel lane		ft

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1439	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	3400	ft

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2742	330	1439	vph
Peak-hour factor, PHF	0.98	0.94	0.94	
Peak 15-min volume, v15	699	88	383	v
Trucks and buses	6	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.971	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2882	355	1546	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.322 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 928 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	3237	9400	No
v ₃ or v _{av34}	977 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		No	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 1152		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	1507	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 13.3 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M _S = 0.285	
Space mean speed in ramp influence area,	S _R = 58.5	mph
Space mean speed in outer lanes,	S ₀ = 63.7	mph
Space mean speed for all vehicles,	S = 61.1	mph

HCS REPORTS
MERGE SEGMENTS
2023 OPENING YEAR NO BUILD AM

Phone: _____ Fax: _____
 E-mail: _____

----- Merge Analysis -----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: AM Peak Hour
 Freeway/Dir of Travel: I 77 Northbound
 Junction: Celanese/Cherry Rd
 Jurisdiction: SCDOT
 Analysis Year: 2023 Opening Year No Build
 Description: I-77 NB at Celanese Road / Cherry Road NB On-Ramp Upstream

----- Freeway Data -----

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2889	vph

----- On Ramp Data -----

Side of freeway	Right	
Number of lanes in ramp	2	
Free-flow speed on ramp	45.0	mph
Volume on ramp	2727	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane	1000	ft

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	863	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	6100	ft

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2889	2727	863	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	803	758	240	v
Trucks and buses	10	6	7	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.971	0.966	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3371	3121	992	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.209 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 705 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	6492	9400	No
v_3 or v_{av34}	1333 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12}/2$		Yes	
If yes, $v_{12A} = 1348$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	4469	4600	No

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 13.8$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence **B**

Speed Estimation

Intermediate speed variable,	$M_S = 0.301$	
Space mean speed in ramp influence area,	$S_R = 58.1$	mph
Space mean speed in outer lanes,	$S_0 = 63.2$	mph
Space mean speed for all vehicles,	$S = 59.6$	mph

Phone: Fax:
E-mail:

-----Merge Analysis-----

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: AM Peak Hour
Freeway/Dir of Travel: I 77 Northbound
Junction: Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year No Build
Description: I-77 NB at CDave Lyle Blvd NB On-Ramp Downstream

-----Freeway Data-----

Type of analysis	Merge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	2627	vph	

-----On Ramp Data-----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-flow speed on ramp	45.0	mph	
Volume on ramp	1125	vph	
Length of first accel/decel lane	1250	ft	
Length of second accel/decel lane		ft	

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes		
Volume on adjacent Ramp	863	vph	
Position of adjacent Ramp	Downstream		
Type of adjacent Ramp	Off		
Distance to adjacent Ramp	7725	ft	

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2627	1125	863	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	730	313	240	v
Trucks and buses	10	3	7	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.985	0.966	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3065	1269	992	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.369 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 1131 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	4334	9400	No
v ₃ or v _{av34}	967 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		No	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 1226		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	2495	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 16.5 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **B**

Speed Estimation

Intermediate speed variable,	M _S = 0.256	
Space mean speed in ramp influence area,	S _R = 59.1	mph
Space mean speed in outer lanes,	S ₀ = 63.5	mph
Space mean speed for all vehicles,	S = 60.9	mph

Phone: _____ Fax: _____
 E-mail: _____

-----Merge Analysis-----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: AM Peak Hour
 Freeway/Dir of Travel: I 77 Northbound
 Junction: Dave Lyle Blvd
 Jurisdiction: SCDOT
 Analysis Year: 2023 Opening Year No Build
 Description: I-77 NB at Dave Lyle Blvd NB On-Ramp Upstream

-----Freeway Data-----

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2627	vph

-----On Ramp Data-----

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1125	vph
Length of first accel/decel lane	1250	ft
Length of second accel/decel lane		ft

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	455	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2025	ft

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2627	1125	455	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	730	313	126	v
Trucks and buses	10	3	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.985	0.976	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3065	1269	518	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.369 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 1131 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4334	9400	No
v_3 or v_{av34}	967 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		Yes	
If yes, $v_{12A} = 1226$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2495	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 16.5 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **B**

Speed Estimation

Intermediate speed variable,	$M_S = 0.256$	
Space mean speed in ramp influence area,	$S_R = 59.1$	mph
Space mean speed in outer lanes,	$S_0 = 63.5$	mph
Space mean speed for all vehicles,	$S = 60.9$	mph

Phone: Fax:
E-mail:

----- Merge Analysis -----

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: AM peak Hour
Freeway/Dir of Travel: I 77 Southbound
Junction: Celanese/Cherry Rd SB On Ramp
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year No Build
Description: I-77 SB at Celanese Road / Cherry Road SB On-Ramp Downstream

----- Freeway Data -----

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2001	vph

----- On Ramp Data -----

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	695	vph
Length of first accel/decel lane	800	ft
Length of second accel/decel lane		ft

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	783	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	7900	ft

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2001	695	783	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	556	193	218	v
Trucks and buses	11	4	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.948	0.980	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2346	788	879	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.318 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 745 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3134	9400	No
v_3 or v_{av34}	800 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12}/2$		Yes	
If yes, $v_{12A} = 938$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	1726	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 13.6 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **B**

Speed Estimation

Intermediate speed variable,	$M_S = 0.271$	
Space mean speed in ramp influence area,	$S_R = 58.8$	mph
Space mean speed in outer lanes,	$S_0 = 64.3$	mph
Space mean speed for all vehicles,	$S = 61.1$	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: AM peak Hour
Freeway/Dir of Travel: I 77 Southbound
Junction: Celanese/Cherry Rd SB On Ramp
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year No Build
Description: I-77 SB at Celanese Road / Cherry Road SB On-Ramp Upstream

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2001	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	695	vph
Length of first accel/decel lane	800	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	2233	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	5675	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2001	695	2233	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	556	193	620	v
Trucks and buses	11	4	9	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.948	0.980	0.957	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2346	788	2593	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.318 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 745 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3134	9400	No
v_3 or v_{av34}	800 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		Yes	
If yes, $v_{12A} = 938$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	1726	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 13.6 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **B**

Speed Estimation

Intermediate speed variable,	$M_S = 0.271$	
Space mean speed in ramp influence area,	$S_R = 58.8$	mph
Space mean speed in outer lanes,	$S_0 = 64.3$	mph
Space mean speed for all vehicles,	$S = 61.1$	mph

Phone: _____ Fax: _____
 E-mail: _____

-----Merge Analysis-----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: AM peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Dave Lyle Blvd SB On Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2023 Opening Year No Build
 Description: I-77 SB at Dave Lyle Blvd SB On-Ramp Upstream

-----Freeway Data-----

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1913	vph

-----On Ramp Data-----

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	298	vph
Length of first accel/decel lane	600	ft
Length of second accel/decel lane		ft

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	783	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	3400	ft

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1913	298	783	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	531	83	218	v
Trucks and buses	11	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.948	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2242	334	879	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.325 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 728 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	2576	9400	No
v ₃ or v _{av34}	757 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		No	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 896		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	1230	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 11.2 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **B**

Speed Estimation

Intermediate speed variable,	M _S = 0.280	
Space mean speed in ramp influence area,	S _R = 58.6	mph
Space mean speed in outer lanes,	S ₀ = 64.4	mph
Space mean speed for all vehicles,	S = 61.5	mph

HCS REPORTS
MERGE SEGMENTS
2023 OPENING YEAR NO BUILD PM

Phone: Fax:
E-mail:

----- Merge Analysis -----

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: PM Peak Hour
Freeway/Dir of Travel: I 77 Northbound
Junction: Celanese/Cherry Rd
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year No Build
Description: I-77 NB at Celanese Road / Cherry Road NB On-Ramp Upstream

----- Freeway Data -----

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2345	vph

----- On Ramp Data -----

Side of freeway	Right	
Number of lanes in ramp	2	
Free-flow speed on ramp	45.0	mph
Volume on ramp	2125	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane	1000	ft

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	891	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	6100	ft

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2345	2125	891	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	651	590	248	v
Trucks and buses	10	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2736	2385	1000	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.209 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 572 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	5121	9400	No
v ₃ or v _{av34}	1082 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		No	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 1094		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	3479	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 6.4 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **A**

Speed Estimation

Intermediate speed variable,	M _S = 0.087	
Space mean speed in ramp influence area,	S _R = 63.0	mph
Space mean speed in outer lanes,	S ₀ = 63.8	mph
Space mean speed for all vehicles,	S = 63.3	mph

Phone: _____ Fax: _____
 E-mail: _____

-----Merge Analysis-----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: PM Peak Hour
 Freeway/Dir of Travel: I 77 Northbound
 Junction: Dave Lyle Blvd
 Jurisdiction: SCDOT
 Analysis Year: 2023 Opening Year No Build
 Description: I-77 NB at Dave Lyle Blvd NB On-Ramp Downstream

-----Freeway Data-----

Type of analysis	Merge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	2175	vph	

-----On Ramp Data-----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-flow speed on ramp	45.0	mph	
Volume on ramp	1061	vph	
Length of first accel/decel lane	1250	ft	
Length of second accel/decel lane		ft	

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes		
Volume on adjacent Ramp	891	vph	
Position of adjacent Ramp	Downstream		
Type of adjacent Ramp	Off		
Distance to adjacent Ramp	7725	ft	

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2175	1061	891	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	604	295	248	v
Trucks and buses	10	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	2.5	
Recreational vehicle PCE, ER	1.2	1.2	2.0	

Heavy vehicle adjustment, fHV	0.952	0.990	0.971	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2538	1191	1020	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.379 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 961 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3729	9400	No
v_3 or v_{av34}	788 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		Yes	
If yes, $v_{12A} = 1015$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2206	4600	No

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 14.3$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence **B**

Speed Estimation

Intermediate speed variable,	$M_S = 0.244$	
Space mean speed in ramp influence area,	$S_R = 59.4$	mph
Space mean speed in outer lanes,	$S_0 = 64.1$	mph
Space mean speed for all vehicles,	$S = 61.2$	mph

Phone: Fax:
E-mail:

----- Merge Analysis -----

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: PM Peak Hour
Freeway/Dir of Travel: I 77 Northbound
Junction: Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year No Build
Description: I-77 NB at Dave Lyle Blvd NB On-Ramp Upstream

----- Freeway Data -----

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2175	vph

----- On Ramp Data -----

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1061	vph
Length of first accel/decel lane	1250	ft
Length of second accel/decel lane		ft

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	468	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2025	ft

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2175	1061	468	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	604	295	130	v
Trucks and buses	10	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2538	1191	525	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.379 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 961 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	3729	9400	No
v ₃ or v _{av34}	788 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		No	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 1015		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	2206	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 14.3 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **B**

Speed Estimation

Intermediate speed variable,	M _S = 0.244	
Space mean speed in ramp influence area,	S _R = 59.4	mph
Space mean speed in outer lanes,	S ₀ = 64.1	mph
Space mean speed for all vehicles,	S = 61.2	mph

Phone: _____ Fax: _____
 E-mail: _____

-----Merge Analysis-----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: PM peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Celanese/Cherry Rd SB On Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2023 Opening Year No Build
 Description: I-77 SB at Celanese Road / Cherry Road SB On-Ramp Downstream

-----Freeway Data-----

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3690	vph

-----On Ramp Data-----

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	836	vph
Length of first accel/decel lane	800	ft
Length of second accel/decel lane		ft

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1558	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	7900	ft

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3690	836	1558	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1025	232	433	v
Trucks and buses	6	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.971	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4223	938	1748	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.101 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 425 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5161	9400	No
v_3 or v_{av34}	1899 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		Yes	
If yes, $v_{12A} = 1689$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2627	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 20.5 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **C**

Speed Estimation

Intermediate speed variable,	$M_S = 0.303$	
Space mean speed in ramp influence area,	$S_R = 58.0$	mph
Space mean speed in outer lanes,	$S_0 = 62.2$	mph
Space mean speed for all vehicles,	$S = 60.0$	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: PM peak Hour
Freeway/Dir of Travel: I 77 Southbound
Junction: Celanese/Cherry Rd SB On Ramp
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year No Build
Description: I-77 SB at Celanese Road / Cherry Road SB On-Ramp Upstream

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3690	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	836	vph
Length of first accel/decel lane	800	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	2949	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	5675	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3690	836	2949	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1025	232	819	v
Trucks and buses	6	2	7	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.971	0.990	0.966	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4223	938	3391	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.101 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 425 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5161	9400	No
v_3 or v_{av34}	1899 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		Yes	
If yes, $v_{12A} = 1689$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2627	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 20.5 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **C**

Speed Estimation

Intermediate speed variable,	$M_S = 0.303$	
Space mean speed in ramp influence area,	$S_R = 58.0$	mph
Space mean speed in outer lanes,	$S_0 = 62.2$	mph
Space mean speed for all vehicles,	$S = 60.0$	mph

Phone: _____ Fax: _____
 E-mail: _____

-----Merge Analysis-----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: PM peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Dave Lyle Blvd SB On Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2023 Opening Year No Build
 Description: I-77 SB at Dave Lyle Blvd SB On-Ramp Upstream

-----Freeway Data-----

Type of analysis	Merge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	2968	vph	

-----On Ramp Data-----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-flow speed on ramp	45.0	mph	
Volume on ramp	544	vph	
Length of first accel/decel lane	600	ft	
Length of second accel/decel lane		ft	

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes		
Volume on adjacent Ramp	1558	vph	
Position of adjacent Ramp	Upstream		
Type of adjacent Ramp	Off		
Distance to adjacent Ramp	3400	ft	

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2968	544	1558	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	824	151	433	v
Trucks and buses	6	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.971	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3397	610	1748	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.142 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 481 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	4007	9400	No
v ₃ or v _{av34}	1458 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		No	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 1358		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	1968	4600	No

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 16.8$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence **B**

Speed Estimation

Intermediate speed variable,	M _S = 0.295	
Space mean speed in ramp influence area,	S _R = 58.2	mph
Space mean speed in outer lanes,	S ₀ = 63.1	mph
Space mean speed for all vehicles,	S = 60.6	mph

HCS REPORTS
MERGE SEGMENTS
2023 OPENING YEAR BUILD AM

Phone: _____ Fax: _____
 E-mail: _____

----- Merge Analysis -----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: AM Peak Hour
 Freeway/Dir of Travel: I 77 Northbound
 Junction: Celanese/Cherry Rd
 Jurisdiction: SCDOT
 Analysis Year: 2023 Opening Year Build
 Description: I-77 NB at Celanese Road / Cherry Road NB On-Ramp Upstream

----- Freeway Data -----

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3295	vph

----- On Ramp Data -----

Side of freeway	Right	
Number of lanes in ramp	2	
Free-flow speed on ramp	45.0	mph
Volume on ramp	2321	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane	1000	ft

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	863	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	6100	ft

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3295	2321	863	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	915	645	240	v
Trucks and buses	10	6	7	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.971	0.966	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3844	2656	992	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.209 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 803 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	6500	9400	No
v ₃ or v _{av34}	1520 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		No	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 1537		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	4193	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 11.9 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **B**

Speed Estimation

Intermediate speed variable,	M _S = 0.219	
Space mean speed in ramp influence area,	S _R = 60.0	mph
Space mean speed in outer lanes,	S ₀ = 62.6	mph
Space mean speed for all vehicles,	S = 60.9	mph

Phone: _____ Fax: _____
 E-mail: _____

----- Merge Analysis -----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: AM Peak Hour
 Freeway/Dir of Travel: I 77 Northbound
 Junction: Dave Lyle Blvd NB On-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2023 Opening Year Build
 Description: I-77 NB at Dave Lyle Blvd NB On-Ramp Downstream

----- Freeway Data -----

Type of analysis	Merge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	2915	vph	

----- On Ramp Data -----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-flow speed on ramp	45.0	mph	
Volume on ramp	1125	vph	
Length of first accel/decel lane	1250	ft	
Length of second accel/decel lane		ft	

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes		
Volume on adjacent Ramp	288	vph	
Position of adjacent Ramp	Downstream		
Type of adjacent Ramp	Off		
Distance to adjacent Ramp	2600	ft	

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2915	1125	288	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	810	313	80	v
Trucks and buses	10	3	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.985	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3401	1269	323	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.059 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 201 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	4670	9400	No
v ₃ or v _{av34}	1600 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		No	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 1360		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	2629	4600	No

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 17.6$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence **B**

Speed Estimation

Intermediate speed variable,	M _S = 0.263	
Space mean speed in ramp influence area,	S _R = 59.0	mph
Space mean speed in outer lanes,	S ₀ = 63.1	mph
Space mean speed for all vehicles,	S = 60.7	mph

Phone: Fax:
E-mail:

-----Merge Analysis-----

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: AM Peak Hour
Freeway/Dir of Travel: I 77 Northbound
Junction: Dave Lyle Blvd NB On-Ramp
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 NB at Dave Lyle Blvd NB On-Ramp Upstream

-----Freeway Data-----

Type of analysis	Merge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	2915	vph	

-----On Ramp Data-----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-flow speed on ramp	45.0	mph	
Volume on ramp	1125	vph	
Length of first accel/decel lane	1250	ft	
Length of second accel/decel lane		ft	

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes		
Volume on adjacent Ramp	167	vph	
Position of adjacent Ramp	Upstream		
Type of adjacent Ramp	Off		
Distance to adjacent Ramp	2025	ft	

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2915	1125	167	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	810	313	46	v
Trucks and buses	10	3	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.985	0.976	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3401	1269	190	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.059 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 201 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4670	9400	No
v_3 or v_{av34}	1600 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		Yes	
If yes, $v_{12A} = 1360$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2629	4600	No

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 17.6$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence **B**

Speed Estimation

Intermediate speed variable,	$M_S = 0.263$	
Space mean speed in ramp influence area,	$S_R = 59.0$	mph
Space mean speed in outer lanes,	$S_0 = 63.1$	mph
Space mean speed for all vehicles,	$S = 60.7$	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst: TA
Agency/Co.: Kimley-Horn
Date performed: 1/5/2020
Analysis time period: AM Peak
Freeway/Dir of Travel: I-77 Northbound
Junction: Panthers NB Merge
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: 2023_Build_Panthers NB Merge - Downstream

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3752	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	406	vph
Length of first accel/decel lane	900	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	863	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	300	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3752	406	863	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1042	113	240	v
Trucks and buses	10	2	7	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.966	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4377	456	992	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.161 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 704 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4833	9400	No
v_3 or v_{av34}	1836 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		Yes	
If yes, $v_{12A} = 1750$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2206	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 16.8 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **B**

Speed Estimation

Intermediate speed variable,	$M_S = 0.311$	
Space mean speed in ramp influence area,	$S_R = 57.8$	mph
Space mean speed in outer lanes,	$S_0 = 62.1$	mph
Space mean speed for all vehicles,	$S = 60.1$	mph

Phone: Fax:
E-mail:

-----Merge Analysis-----

Analyst: TA
Agency/Co.: Kimley-Horn
Date performed: 1/5/2020
Analysis time period: AM Peak
Freeway/Dir of Travel: I-77 Northbound
Junction: Panthers NB Merge
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: 2023 Build_Panthers NB Merge - Upstream

-----Freeway Data-----

Type of analysis	Merge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	3752	vph	

-----On Ramp Data-----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-flow speed on ramp	25.0	mph	
Volume on ramp	406	vph	
Length of first accel/decel lane	900	ft	
Length of second accel/decel lane		ft	

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes		
Volume on adjacent Ramp	288	vph	
Position of adjacent Ramp	Upstream		
Type of adjacent Ramp	Off		
Distance to adjacent Ramp	3675	ft	

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3752	406	288	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1042	113	80	v
Trucks and buses	10	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4377	456	323	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.161 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 704 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4833	9400	No
v_3 or v_{av34}	1836 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		Yes	
If yes, $v_{12A} = 1750$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2206	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 16.8 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **B**

Speed Estimation

Intermediate speed variable,	$M_S = 0.311$	
Space mean speed in ramp influence area,	$S_R = 57.8$	mph
Space mean speed in outer lanes,	$S_0 = 62.1$	mph
Space mean speed for all vehicles,	$S = 60.1$	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst: KHA
Agency/Co.: Kimley-Horn
Date performed: 1/5/2020
Analysis time period: AM Peak
Freeway/Dir of Travel: I-77 Southbound
Junction: Celanease/Cherry SB Merge
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: Celanease/Cherry SB Merge - AM Peak - Downstream

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2743	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	695	vph
Length of first accel/decel lane	800	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	742	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2743	695	742	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	762	193	206	v
Trucks and buses	11	4	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.948	0.980	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3215	788	833	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.318 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P) = 1021 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	4003	9400	No
v ₃ or v _{av34}	1097 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		No	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 1286		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	2074	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 16.3 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **B**

Speed Estimation

Intermediate speed variable,	M _S = 0.280	
Space mean speed in ramp influence area,	S _R = 58.6	mph
Space mean speed in outer lanes,	S ₀ = 63.3	mph
Space mean speed for all vehicles,	S = 60.8	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst: KHA
Agency/Co.: Kimley-Horn
Date performed: 1/5/2020
Analysis time period: AM Peak
Freeway/Dir of Travel: I-77 Southbound
Junction: Celanese/Cherry SB Merge
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: Cherry/Celanease SB Merge - AM Peak - Upstream

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2743	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	695	vph
Length of first accel/decel lane	800	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1491	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	5675	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2743	695	1491	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	762	193	414	v
Trucks and buses	11	4	9	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.948	0.980	0.957	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3215	788	1731	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.318 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 1021 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4003	9400	No
v_3 or v_{av34}	1097 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		Yes	
If yes, $v_{12A} = 1286$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2074	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 16.3 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **B**

Speed Estimation

Intermediate speed variable,	$M_S = 0.280$	
Space mean speed in ramp influence area,	$S_R = 58.6$	mph
Space mean speed in outer lanes,	$S_0 = 63.3$	mph
Space mean speed for all vehicles,	$S = 60.8$	mph

Phone: Fax:
E-mail:

-----Merge Analysis-----

Analyst: TA
Agency/Co.: Kimley-Horn
Date performed: 1/5/2020
Analysis time period: AM Peak
Freeway/Dir of Travel: I-77 Southbound
Junction: Dave Lyle SB Merge
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: 2023_Build_DaveLyle SB Merge - Upstream

-----Freeway Data-----

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2069	vph

-----On Ramp Data-----

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	142	vph
Length of first accel/decel lane	600	ft
Length of second accel/decel lane		ft

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	783	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	3400	ft

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2069	142	783	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	575	39	218	v
Trucks and buses	11	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.948	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2425	159	879	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.347 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 840 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	2584	9400	No
v ₃ or v _{av34}	792 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		No	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 970		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	1129	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 10.4 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **B**

Speed Estimation

Intermediate speed variable,	M _S = 0.279	
Space mean speed in ramp influence area,	S _R = 58.6	mph
Space mean speed in outer lanes,	S ₀ = 64.2	mph
Space mean speed for all vehicles,	S = 61.6	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst: TA
Agency/Co.: Kimley-Horn
Date performed: 1/5/2020
Analysis time period: AM Peak
Freeway/Dir of Travel: I-77 Southbound
Junction: Panthers SB Merge
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: 2023_Build_Panthers SB Merge - Downstream

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2696	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	156	vph
Length of first accel/decel lane	900	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	783	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2100	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2696	156	783	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	749	43	218	v
Trucks and buses	11	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.948	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3160	175	879	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.196 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 619 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	3335	9400	No
v ₃ or v _{av34}	1270 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		No	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 1264		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	1439	4600	No

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 11.0$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence **B**

Speed Estimation

Intermediate speed variable,	M _S = 0.292	
Space mean speed in ramp influence area,	S _R = 58.3	mph
Space mean speed in outer lanes,	S ₀ = 63.4	mph
Space mean speed for all vehicles,	S = 61.1	mph

Phone: Fax:
E-mail:

-----Merge Analysis-----

Analyst: TA
Agency/Co.: Kimley-Horn
Date performed: 1/5/2020
Analysis time period: AM Peak
Freeway/Dir of Travel: I-77 Southbound
Junction: Panthers SB Merge
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: 2023_Build_Panthers SB Merge - Upstream

-----Freeway Data-----

Type of analysis	Merge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	2696	vph	

-----On Ramp Data-----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-flow speed on ramp	25.0	mph	
Volume on ramp	156	vph	
Length of first accel/decel lane	900	ft	
Length of second accel/decel lane		ft	

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes		
Volume on adjacent Ramp	695	vph	
Position of adjacent Ramp	Upstream		
Type of adjacent Ramp	Off		
Distance to adjacent Ramp	3775	ft	

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2696	156	695	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	749	43	193	v
Trucks and buses	11	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.948	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3160	175	780	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.196 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 619 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3335	9400	No
v_3 or v_{av34}	1270 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		Yes	
If yes, $v_{12A} = 1264$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	1439	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 11.0 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **B**

Speed Estimation

Intermediate speed variable,	$M_S = 0.292$	
Space mean speed in ramp influence area,	$S_R = 58.3$	mph
Space mean speed in outer lanes,	$S_0 = 63.4$	mph
Space mean speed for all vehicles,	$S = 61.1$	mph

HCS REPORTS
MERGE SEGMENTS
2023 OPENING YEAR BUILD PM

Phone: Fax:
E-mail:

-----Merge Analysis-----

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: PM Peak Hour
Freeway/Dir of Travel: I 77 Northbound
Junction: Celanese/Cherry Rd
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: I-77 NB at Celanese Road / Cherry Road NB On-Ramp Upstream

-----Freeway Data-----

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2996	vph

-----On Ramp Data-----

Side of freeway	Right	
Number of lanes in ramp	2	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1474	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane	1000	ft

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	891	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	6100	ft

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2996	1474	891	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	832	409	248	v
Trucks and buses	10	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3495	1654	1000	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.209 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 730 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	5149	9400	No
v ₃ or v _{av34}	1382 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		No	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 1398		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	3052	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 3.4 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **A**

Speed Estimation

Intermediate speed variable,	M _S = 0.044	
Space mean speed in ramp influence area,	S _R = 64.0	mph
Space mean speed in outer lanes,	S ₀ = 63.0	mph
Space mean speed for all vehicles,	S = 63.6	mph

Phone: _____ Fax: _____
 E-mail: _____

----- Merge Analysis -----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: PM Peak Hour
 Freeway/Dir of Travel: I 77 Northbound
 Junction: Dave Lyle Blvd NB On-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2023 Opening Year Build
 Description: I-77 NB at Dave Lyle Blvd NB On-Ramp Downstream

----- Freeway Data -----

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2509	vph

----- On Ramp Data -----

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1061	vph
Length of first accel/decel lane	1250	ft
Length of second accel/decel lane		ft

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	334	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2600	ft

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2509	1061	334	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	697	295	93	v
Trucks and buses	10	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2927	1191	375	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.379 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 1108 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4118	9400	No
v_3 or v_{av34}	909 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		Yes	
If yes, $v_{12A} = 1170$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2361	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 15.5 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **B**

Speed Estimation

Intermediate speed variable,	$M_S = 0.250$	
Space mean speed in ramp influence area,	$S_R = 59.3$	mph
Space mean speed in outer lanes,	$S_0 = 63.6$	mph
Space mean speed for all vehicles,	$S = 61.0$	mph

Phone: _____ Fax: _____
 E-mail: _____

----- Merge Analysis -----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: PM Peak Hour
 Freeway/Dir of Travel: I 77 Northbound
 Junction: Dave Lyle Blvd NB On-Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2023 Opening Year Build
 Description: I-77 NB at Dave Lyle Blvd NB On-Ramp Upstream

----- Freeway Data -----

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2509	vph

----- On Ramp Data -----

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1061	vph
Length of first accel/decel lane	1250	ft
Length of second accel/decel lane		ft

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	134	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2025	ft

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2509	1061	134	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	697	295	37	v
Trucks and buses	10	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2927	1191	150	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.379 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 1108 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4118	9400	No
v_3 or v_{av34}	909 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		Yes	
If yes, $v_{12A} = 1170$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2361	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 15.5 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **B**

Speed Estimation

Intermediate speed variable,	$M_S = 0.250$	
Space mean speed in ramp influence area,	$S_R = 59.3$	mph
Space mean speed in outer lanes,	$S_0 = 63.6$	mph
Space mean speed for all vehicles,	$S = 61.0$	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst: TA
Agency/Co.: Kimley-Horn
Date performed: 1/5/2020
Analysis time period: PM Peak
Freeway/Dir of Travel: I-77 Northbound
Junction: Panthers NB Merge
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: 2023_Build_Panthers NB Merge - Downstream

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3236	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	651	vph
Length of first accel/decel lane	900	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	891	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	300	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3236	651	891	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	899	181	248	v
Trucks and buses	10	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3775	731	1000	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.126 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 477 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4506	9400	No
v_3 or v_{av34}	1649 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		Yes	
If yes, $v_{12A} = 1510$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2241	4600	No

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 17.0$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence **B**

Speed Estimation

Intermediate speed variable,	$M_S = 0.313$	
Space mean speed in ramp influence area,	$S_R = 57.8$	mph
Space mean speed in outer lanes,	$S_0 = 62.7$	mph
Space mean speed for all vehicles,	$S = 60.2$	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst: KHA
Agency/Co.: Kimley-Horn
Date performed: 1/5/2020
Analysis time period: PM Peak
Freeway/Dir of Travel: I-77 Northbound
Junction: Panthers NB Merge
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: 2023 Build_Panthers NB Merge - Upstream

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3236	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	651	vph
Length of first accel/decel lane	900	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	334	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	3675	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3236	651	334	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	899	181	93	v
Trucks and buses	10	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3775	731	375	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.126 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 477 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	4506	9400	No
v ₃ or v _{av34}	1649 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		No	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 1510		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	2241	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 17.0 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **B**

Speed Estimation

Intermediate speed variable,	M _S = 0.313	
Space mean speed in ramp influence area,	S _R = 57.8	mph
Space mean speed in outer lanes,	S ₀ = 62.7	mph
Space mean speed for all vehicles,	S = 60.2	mph

Phone: _____ Fax: _____
 E-mail: _____

----- Merge Analysis -----

Analyst: KHA
 Agency/Co.: Kimley-Horn
 Date performed: 1/5/2020
 Analysis time period: PM Peak
 Freeway/Dir of Travel: I-77 Southbound
 Junction: Celanease/Cherry SB Merge
 Jurisdiction: SCDOT
 Analysis Year: 2023 Opening Year Build
 Description: Celanease/Cherry SB Merge - PM Peak - Downstream

----- Freeway Data -----

Type of analysis	Merge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	4071	vph	

----- On Ramp Data -----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-flow speed on ramp	45.0	mph	
Volume on ramp	616	vph	
Length of first accel/decel lane	800	ft	
Length of second accel/decel lane		ft	

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes		
Volume on adjacent Ramp	381	vph	
Position of adjacent Ramp	Downstream		
Type of adjacent Ramp	Off		
Distance to adjacent Ramp	200	ft	

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4071	616	381	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1131	171	106	v
Trucks and buses	6	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.971	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4659	691	428	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.131 \text{ Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 612 \text{ pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	5350	9400	No
v ₃ or v _{av34}	2023 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		No	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 1863		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	2554	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D_R = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 20.1 \text{ pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M _S = 0.299	
Space mean speed in ramp influence area,	S _R = 58.1	mph
Space mean speed in outer lanes,	S ₀ = 61.8	mph
Space mean speed for all vehicles,	S = 60.0	mph

Phone: Fax:
E-mail:

----- Merge Analysis -----

Analyst: KHA
Agency/Co.: Kimley-Horn
Date performed: 1/5/2020
Analysis time period: PM Peak
Freeway/Dir of Travel: I-77 Southbound
Junction: Celanease/Cherry SB Merge
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: Celanease/Cherry SB Merge - PM Peak - Upstream

----- Freeway Data -----

Type of analysis	Merge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	4071	vph	

----- On Ramp Data -----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-flow speed on ramp	45.0	mph	
Volume on ramp	616	vph	
Length of first accel/decel lane	800	ft	
Length of second accel/decel lane		ft	

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes		
Volume on adjacent Ramp	2568	vph	
Position of adjacent Ramp	Upstream		
Type of adjacent Ramp	Off		
Distance to adjacent Ramp	5675	ft	

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4071	616	2568	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1131	171	713	v
Trucks and buses	6	2	7	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.971	0.990	0.966	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4659	691	2953	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.131 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 612 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	5350	9400	No
v ₃ or v _{av34}	2023 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		No	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 1863		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	2554	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 20.1 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **C**

Speed Estimation

Intermediate speed variable,	M _S = 0.299	
Space mean speed in ramp influence area,	S _R = 58.1	mph
Space mean speed in outer lanes,	S ₀ = 61.8	mph
Space mean speed for all vehicles,	S = 60.0	mph

Phone: Fax:
E-mail:

-----Merge Analysis-----

Analyst: TA
Agency/Co.: Kimley-Horn
Date performed: 1/5/2020
Analysis time period: PM Peak
Freeway/Dir of Travel: I-77 Southbound
Junction: Dave Lyle SB Merge
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: 2023_Build_DaveLyle SB Merge - Upstream

-----Freeway Data-----

Type of analysis	Merge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	3375	vph	

-----On Ramp Data-----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-flow speed on ramp	45.0	mph	
Volume on ramp	137	vph	
Length of first accel/decel lane	600	ft	
Length of second accel/decel lane		ft	

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes		
Volume on adjacent Ramp	1558	vph	
Position of adjacent Ramp	Upstream		
Type of adjacent Ramp	Off		
Distance to adjacent Ramp	3400	ft	

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3375	137	1558	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	938	38	433	v
Trucks and buses	6	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.971	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3863	154	1748	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.199 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 767 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	4017	9400	No
v ₃ or v _{av34}	1548 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		No	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 1545		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	1699	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 14.9 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **B**

Speed Estimation

Intermediate speed variable,	M _S = 0.288	
Space mean speed in ramp influence area,	S _R = 58.4	mph
Space mean speed in outer lanes,	S ₀ = 62.6	mph
Space mean speed for all vehicles,	S = 60.8	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst: TA
Agency/Co.: Kimley-Horn
Date performed: 1/5/2020
Analysis time period: PM Peak
Freeway/Dir of Travel: I-77 Southbound
Junction: Panthers SB Merge
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: 2023_Build_Panthers SB Merge - Upstream

Freeway Data

Type of analysis	Merge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	4306	vph	

On Ramp Data

Side of freeway	Right		
Number of lanes in ramp	1		
Free-flow speed on ramp	25.0	mph	
Volume on ramp	627	vph	
Length of first accel/decel lane	900	ft	
Length of second accel/decel lane		ft	

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes		
Volume on adjacent Ramp	381	vph	
Position of adjacent Ramp	Upstream		
Type of adjacent Ramp	Off		
Distance to adjacent Ramp	3775	ft	

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4306	627	381	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1196	174	106	v
Trucks and buses	6	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.971	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4928	704	428	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.130 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 640 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5632	9400	No
v_3 or v_{av34}	2144 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		Yes	
If yes, $v_{12A} = 1971$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2675	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 20.4 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	$M_S = 0.333$	
Space mean speed in ramp influence area,	$S_R = 57.4$	mph
Space mean speed in outer lanes,	$S_0 = 61.5$	mph
Space mean speed for all vehicles,	$S = 59.4$	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst: TA
Agency/Co.: Kimley-Horn
Date performed: 1/5/2020
Analysis time period: PM Peak
Freeway/Dir of Travel: I-77 Southbound
Junction: Panthers SB Merge
Jurisdiction: SCDOT
Analysis Year: 2023 Opening Year Build
Description: 2023_Build_Panthers SB Merge - Downstream

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	4306	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	627	vph
Length of first accel/decel lane	900	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1558	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2100	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4306	627	1558	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1196	174	433	v
Trucks and buses	6	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.971	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4928	704	1748	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.130 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 640 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5632	9400	No
v_3 or v_{av34}	2144 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		Yes	
If yes, $v_{12A} = 1971$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2675	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 20.4 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	$M_S = 0.333$	
Space mean speed in ramp influence area,	$S_R = 57.4$	mph
Space mean speed in outer lanes,	$S_0 = 61.5$	mph
Space mean speed for all vehicles,	$S = 59.4$	mph

HCS REPORTS
MERGE SEGMENTS
2043 HORIZON YEAR NO BUILD AM

Phone: _____ Fax: _____
 E-mail: _____

-----Merge Analysis-----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: AM Peak Hour
 Freeway/Dir of Travel: I 77 Northbound
 Junction: Celanese/Cherry Rd
 Jurisdiction: SCDOT
 Analysis Year: 2043 Horizon Year No Build
 Description: I-77 NB at Celanese Road / Cherry Road NB On-Ramp Upstream

-----Freeway Data-----

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	4433	vph

-----On Ramp Data-----

Side of freeway	Right	
Number of lanes in ramp	2	
Free-flow speed on ramp	45.0	mph
Volume on ramp	4276	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane	1000	ft

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1282	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	6100	ft

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4433	4276	1282	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1231	1188	356	v
Trucks and buses	10	6	7	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.971	0.966	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5172	4894	1474	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.209 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 1081 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	10066	9400	Yes
v_3 or v_{av34}	2045 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12}/2$		Yes	
If yes, $v_{12A} = 2068$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	6962	4600	Yes

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 32.4 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **F**

Speed Estimation

Intermediate speed variable,	$M_S = 4.078$	
Space mean speed in ramp influence area,	$S_R = -28.8$	mph
Space mean speed in outer lanes,	$S_0 = 61.2$	mph
Space mean speed for all vehicles,	$S =$	mph

Phone: _____ Fax: _____
 E-mail: _____

-----Merge Analysis-----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: AM Peak Hour
 Freeway/Dir of Travel: I 77 Northbound
 Junction: Dave Lyle Blvd
 Jurisdiction: SCDOT
 Analysis Year: 2043 Horizon Year No Build
 Description: I-77 NB at CDave Lyle Blvd NB On-Ramp Downstream

-----Freeway Data-----

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3250	vph

-----On Ramp Data-----

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	2465	vph
Length of first accel/decel lane	1250	ft
Length of second accel/decel lane		ft

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1282	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	7725	ft

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3250	2465	1282	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	903	685	356	v
Trucks and buses	10	3	7	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.985	0.966	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3792	2780	1474	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = -0.130 \text{ Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = -491 \text{ pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	6572	9400	No
v_3 or v_{av34}	2141 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		Yes	
If yes, $v_{12A} = 1516$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	4296	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 29.9 \text{ pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **D**

Speed Estimation

Intermediate speed variable,	$M_S = 0.495$	
Space mean speed in ramp influence area,	$S_R = 53.6$	mph
Space mean speed in outer lanes,	$S_0 = 62.7$	mph
Space mean speed for all vehicles,	$S = 56.5$	mph

Phone: Fax:
E-mail:

-----Merge Analysis-----

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: AM Peak Hour
Freeway/Dir of Travel: I 77 Northbound
Junction: Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year No Build
Description: I-77 NB at Dave Lyle Blvd NB On-Ramp Upstream

-----Freeway Data-----

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3250	vph

-----On Ramp Data-----

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	2465	vph
Length of first accel/decel lane	1250	ft
Length of second accel/decel lane		ft

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1333	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2025	ft

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3250	2465	1333	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	903	685	370	v
Trucks and buses	10	3	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.985	0.976	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3792	2780	1518	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = -0.130 \text{ Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = -491 \text{ pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	6572	9400	No
v ₃ or v _{av34}	2141 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		No	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 1516		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	4296	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 29.9 \text{ pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **D**

Speed Estimation

Intermediate speed variable,	M _S = 0.495	
Space mean speed in ramp influence area,	S _R = 53.6	mph
Space mean speed in outer lanes,	S ₀ = 62.7	mph
Space mean speed for all vehicles,	S = 56.5	mph

Phone: _____ Fax: _____
 E-mail: _____

----- Merge Analysis -----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: AM peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Celanese/Cherry Rd SB On Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2043 Horizon Year No Build
 Description: I-77 SB at Celanese Road / Cherry Road SB On-Ramp Downstream

----- Freeway Data -----

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2342	vph

----- On Ramp Data -----

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1033	vph
Length of first accel/decel lane	800	ft
Length of second accel/decel lane		ft

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	815	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	7900	ft

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2342	1033	815	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	651	287	226	v
Trucks and buses	11	4	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.948	0.980	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2745	1171	915	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.270 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 740 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	3916	9400	No
v ₃ or v _{av34}	1002 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		No	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 1098		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	2269	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 17.6 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **B**

Speed Estimation

Intermediate speed variable,	M _S = 0.287	
Space mean speed in ramp influence area,	S _R = 58.4	mph
Space mean speed in outer lanes,	S ₀ = 63.8	mph
Space mean speed for all vehicles,	S = 60.6	mph

Phone: _____ Fax: _____
 E-mail: _____

----- Merge Analysis -----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: AM peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Celanese/Cherry Rd SB On Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2043 Horizon Year No Build
 Description: I-77 SB at Celanese Road / Cherry Road SB On-Ramp Upstream

----- Freeway Data -----

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2342	vph

----- On Ramp Data -----

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1033	vph
Length of first accel/decel lane	800	ft
Length of second accel/decel lane		ft

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	4275	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	5675	ft

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2342	1033	4275	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	651	287	1188	v
Trucks and buses	11	4	9	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.948	0.980	0.957	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2745	1171	4964	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.270 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 740 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	3916	9400	No
v ₃ or v _{av34}	1002 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		No	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 1098		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	2269	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 17.6 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **B**

Speed Estimation

Intermediate speed variable,	M _S = 0.287	
Space mean speed in ramp influence area,	S _R = 58.4	mph
Space mean speed in outer lanes,	S ₀ = 63.8	mph
Space mean speed for all vehicles,	S = 60.6	mph

Phone: _____ Fax: _____
 E-mail: _____

-----Merge Analysis-----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: AM peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Dave Lyle Blvd SB On Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2043 Horizon Year No Build
 Description: I-77 SB at Dave Lyle Blvd SB On-Ramp Upstream

-----Freeway Data-----

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2560	vph

-----On Ramp Data-----

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	438	vph
Length of first accel/decel lane	600	ft
Length of second accel/decel lane		ft

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	815	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	3400	ft

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2560	438	815	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	711	122	226	v
Trucks and buses	11	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.948	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3001	492	915	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.305 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 915 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3493	9400	No
v_3 or v_{av34}	1043 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12}/2$		Yes	
If yes, $v_{12A} = 1200$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	1692	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 14.7 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **B**

Speed Estimation

Intermediate speed variable,	$M_S = 0.288$	
Space mean speed in ramp influence area,	$S_R = 58.4$	mph
Space mean speed in outer lanes,	$S_0 = 63.6$	mph
Space mean speed for all vehicles,	$S = 60.9$	mph

HCS REPORTS
MERGE SEGMENTS
2043 HORIZON YEAR NO BUILD PM

Phone: Fax:
E-mail:

Merge Analysis

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: PM Peak Hour
Freeway/Dir of Travel: I 77 Northbound
Junction: Celanese/Cherry Rd
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year No Build
Description: I-77 NB at Celanese Road / Cherry Road NB On-Ramp Upstream

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3511	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	2	
Free-flow speed on ramp	45.0	mph
Volume on ramp	4119	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane	1000	ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1324	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	6100	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3511	4119	1324	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	975	1144	368	v
Trucks and buses	10	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4096	4622	1486	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.209 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 856 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	8718	9400	No
v ₃ or v _{av34}	1620 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		No	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 1638		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	6260	4600	Yes

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 27.1 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M _S = 2.002	
Space mean speed in ramp influence area,	S _R = 19.0	mph
Space mean speed in outer lanes,	S ₀ = 62.4	mph
Space mean speed for all vehicles,	S = 23.6	mph

Phone: Fax:
E-mail:

-----Merge Analysis-----

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: PM Peak Hour
Freeway/Dir of Travel: I 77 Northbound
Junction: Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year No Build
Description: I-77 NB at Dave Lyle Blvd NB On-Ramp Upstream

-----Freeway Data-----

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2510	vph

-----On Ramp Data-----

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	2325	vph
Length of first accel/decel lane	1250	ft
Length of second accel/decel lane		ft

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1218	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2025	ft

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2510	2325	1218	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	697	646	338	v
Trucks and buses	10	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2928	2609	1367	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.201 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 590 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5537	9400	No
v_3 or v_{av34}	1169 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		Yes	
If yes, $v_{12A} = 1171$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3780	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 25.9 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	$M_S = 0.379$	
Space mean speed in ramp influence area,	$S_R = 56.3$	mph
Space mean speed in outer lanes,	$S_0 = 63.6$	mph
Space mean speed for all vehicles,	$S = 58.4$	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: PM peak Hour
Freeway/Dir of Travel: I 77 Southbound
Junction: Celanese/Cherry Rd SB On Ramp
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year No Build
Description: I-77 SB at Celanese Road / Cherry Road SB On-Ramp Downstream

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	4403	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1242	vph
Length of first accel/decel lane	800	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1622	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	7900	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4403	1242	1622	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1223	345	451	v
Trucks and buses	6	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.971	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5039	1394	1820	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.044 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 219 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	6433	9400	No
v ₃ or v _{av34}	2410 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		No	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 2015		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	3409	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 26.4 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M _S = 0.367	
Space mean speed in ramp influence area,	S _R = 56.6	mph
Space mean speed in outer lanes,	S ₀ = 61.4	mph
Space mean speed for all vehicles,	S = 58.7	mph

Phone: _____ Fax: _____
 E-mail: _____

----- Merge Analysis -----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: PM peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Celanese/Cherry Rd SB On Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2043 Horizon Year No Build
 Description: I-77 SB at Celanese Road / Cherry Road SB On-Ramp Upstream

----- Freeway Data -----

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	4403	vph

----- On Ramp Data -----

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1242	vph
Length of first accel/decel lane	800	ft
Length of second accel/decel lane		ft

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	4839	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	5675	ft

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4403	1242	4839	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1223	345	1344	v
Trucks and buses	6	2	7	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.971	0.990	0.966	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5039	1394	5565	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.044 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 219 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	6433	9400	No
v ₃ or v _{av34}	2410 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		No	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 2015		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	3409	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 26.4 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M _S = 0.367	
Space mean speed in ramp influence area,	S _R = 56.6	mph
Space mean speed in outer lanes,	S ₀ = 61.4	mph
Space mean speed for all vehicles,	S = 58.7	mph

Phone: _____ Fax: _____
 E-mail: _____

-----Merge Analysis-----

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: PM peak Hour
 Freeway/Dir of Travel: I 77 Southbound
 Junction: Dave Lyle Blvd SB On Ramp
 Jurisdiction: SCDOT
 Analysis Year: 2043 Horizon Year No Build
 Description: I-77 SB at Dave Lyle Blvd SB On-Ramp Upstream

-----Freeway Data-----

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	4023	vph

-----On Ramp Data-----

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1131	vph
Length of first accel/decel lane	600	ft
Length of second accel/decel lane		ft

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1622	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	3400	ft

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4023	1131	1622	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1118	314	451	v
Trucks and buses	6	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.971	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4604	1269	1820	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.059 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 272 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	5873	9400	No
v ₃ or v _{av34}	2166 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		No	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 1841		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	3110	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 25.4 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **C**

Speed Estimation

Intermediate speed variable,	M _S = 0.354	
Space mean speed in ramp influence area,	S _R = 56.8	mph
Space mean speed in outer lanes,	S ₀ = 61.8	mph
Space mean speed for all vehicles,	S = 59.1	mph

HCS REPORTS
MERGE SEGMENTS
2043 HORIZON YEAR BUILD AM

Phone: Fax:
E-mail:

Merge Analysis

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: AM Peak Hour
Freeway/Dir of Travel: I 77 Northbound
Junction: Celanese/Cherry Rd
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 NB at Celanese Road / Cherry Road NB On-Ramp Upstream

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	5312	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	2	
Free-flow speed on ramp	45.0	mph
Volume on ramp	3397	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane	1000	ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1282	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	6100	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	5312	3397	1282	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1476	944	356	v
Trucks and buses	10	6	7	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.971	0.966	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	6197	3888	1474	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.209 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 1295 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	10085	9400	Yes
v ₃ or v _{av34}	2451 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		No	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 2478		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	6366	4600	Yes

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 28.3 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **F**

Speed Estimation

Intermediate speed variable,	M _S = 2.230	
Space mean speed in ramp influence area,	S _R = 13.7	mph
Space mean speed in outer lanes,	S ₀ = 60.1	mph
Space mean speed for all vehicles,	S = 19.2	mph

Phone: Fax:
E-mail:

-----Merge Analysis-----

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: AM Peak Hour
Freeway/Dir of Travel: I 77 Northbound
Junction: Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 NB at Dave Lyle Blvd NB On-Ramp Downstream

-----Freeway Data-----

Type of analysis	Merge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	4170	vph	

-----On Ramp Data-----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-flow speed on ramp	45.0	mph	
Volume on ramp	2465	vph	
Length of first accel/decel lane	1250	ft	
Length of second accel/decel lane		ft	

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes		
Volume on adjacent Ramp	920	vph	
Position of adjacent Ramp	Downstream		
Type of adjacent Ramp	Off		
Distance to adjacent Ramp	2600	ft	

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4170	2465	920	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1158	685	256	v
Trucks and buses	10	3	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.985	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4865	2780	1032	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = -0.130 \text{ Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = -630 \text{ pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	7645	9400	No
v ₃ or v _{av34}	2747 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		Yes	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 1946		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	4726	4600	Yes

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 33.2$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence **D**

Speed Estimation

Intermediate speed variable,	M _S = 0.649	
Space mean speed in ramp influence area,	S _R = 50.1	mph
Space mean speed in outer lanes,	S ₀ = 61.5	mph
Space mean speed for all vehicles,	S = 53.9	mph

Phone: Fax:
E-mail:

-----Merge Analysis-----

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: AM Peak Hour
Freeway/Dir of Travel: I 77 Northbound
Junction: Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 NB at Dave Lyle Blvd NB On-Ramp Upstream

-----Freeway Data-----

Type of analysis	Merge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	4170	vph	

-----On Ramp Data-----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-flow speed on ramp	45.0	mph	
Volume on ramp	2465	vph	
Length of first accel/decel lane	1250	ft	
Length of second accel/decel lane		ft	

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes		
Volume on adjacent Ramp	413	vph	
Position of adjacent Ramp	Upstream		
Type of adjacent Ramp	Off		
Distance to adjacent Ramp	2025	ft	

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4170	2465	413	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1158	685	115	v
Trucks and buses	10	3	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.985	0.976	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4865	2780	470	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = -0.130 \text{ Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = -630 \text{ pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	7645	9400	No
v ₃ or v _{av34}	2747 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		Yes	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 1946		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	4726	4600	Yes

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 33.2 \text{ pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **D**

Speed Estimation

Intermediate speed variable,	M _S = 0.649	
Space mean speed in ramp influence area,	S _R = 50.1	mph
Space mean speed in outer lanes,	S ₀ = 61.5	mph
Space mean speed for all vehicles,	S = 53.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst: TA
Agency/Co.: Kimley-Horn
Date performed: 1/5/2020
Analysis time period: AM Peak
Freeway/Dir of Travel: I-77 Northbound
Junction: Panthers NB Merge
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: 2043_Build_Panthers NB Merge - Downstream

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	5715	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	879	vph
Length of first accel/decel lane	900	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1282	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	300	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	5715	879	1282	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1588	244	356	v
Trucks and buses	10	2	7	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.966	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	6668	986	1474	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.095 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 630 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	7654	9400	No
v_3 or v_{av34}	3019 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		Yes	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		Yes	
If yes, $v_{12A} = 2667$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3653	4600	No

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 27.9$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	$M_S = 0.427$	
Space mean speed in ramp influence area,	$S_R = 55.2$	mph
Space mean speed in outer lanes,	$S_0 = 59.6$	mph
Space mean speed for all vehicles,	$S = 57.4$	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst: TA
Agency/Co.: Kimley-Horn
Date performed: 1/5/2020
Analysis time period: AM Peak
Freeway/Dir of Travel: I-77 Northbound
Junction: Panthers NB Merge
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: 2043_Build_Panthers NB Merge - Upstream

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	5715	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	879	vph
Length of first accel/decel lane	900	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	920	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	3675	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	5715	879	920	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1588	244	256	v
Trucks and buses	10	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	6668	986	1032	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.095 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 630 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	7654	9400	No
v_3 or v_{av34}	3019 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		Yes	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		Yes	
If yes, $v_{12A} = 2667$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3653	4600	No

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 27.9$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	$M_S = 0.427$	
Space mean speed in ramp influence area,	$S_R = 55.2$	mph
Space mean speed in outer lanes,	$S_0 = 59.6$	mph
Space mean speed for all vehicles,	$S = 57.4$	mph

Phone: Fax:
E-mail:

----- Merge Analysis -----

Analyst: KHA
Agency/Co.: Kimley-Horn
Date performed: 1/5/2020
Analysis time period: AM Peak
Freeway/Dir of Travel: I-77 Southbound
Junction: Celanease/Cherry SB Merge
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: Celanease/Cherry SB Merge - AM Peak - Downstream

----- Freeway Data -----

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	4454	vph

----- On Ramp Data -----

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1033	vph
Length of first accel/decel lane	800	ft
Length of second accel/decel lane		ft

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	2112	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4454	1033	2112	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1237	287	587	v
Trucks and buses	11	4	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.948	0.980	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5221	1171	2370	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.071 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 373 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	6392	9400	No
v_3 or v_{av34}	2424 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		Yes	
If yes, $v_{12A} = 2088$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3259	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 25.3 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	$M_S = 0.350$	
Space mean speed in ramp influence area,	$S_R = 56.9$	mph
Space mean speed in outer lanes,	$S_0 = 61.2$	mph
Space mean speed for all vehicles,	$S = 58.9$	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst: KHA
Agency/Co.: Kimley-Horn
Date performed: 1/5/2020
Analysis time period: AM Peak
Freeway/Dir of Travel: I-77 Southbound
Junction: Celanese/Cherry SB Merge
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: Cherry/Celanease SB Merge - AM Peak - Upstream

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	4454	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1033	vph
Length of first accel/decel lane	800	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	2163	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	5675	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4454	1033	2163	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1237	287	601	v
Trucks and buses	11	4	9	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.948	0.980	0.957	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5221	1171	2511	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.071 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 373 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	6392	9400	No
v ₃ or v _{av34}	2424 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		No	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 2088		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	3259	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 25.3 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **C**

Speed Estimation

Intermediate speed variable,	M _S = 0.350	
Space mean speed in ramp influence area,	S _R = 56.9	mph
Space mean speed in outer lanes,	S ₀ = 61.2	mph
Space mean speed for all vehicles,	S = 58.9	mph

Phone: Fax:
E-mail:

----- Merge Analysis -----

Analyst: TA
Agency/Co.: Kimley-Horn
Date performed: 1/5/2020
Analysis time period: AM Peak
Freeway/Dir of Travel: I-77 Southbound
Junction: Dave Lyle SB Merge
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: 2043_Build_Dave Lyle SB Merge - Upstream

----- Freeway Data -----

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2923	vph

----- On Ramp Data -----

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	75	vph
Length of first accel/decel lane	600	ft
Length of second accel/decel lane		ft

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	815	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	3400	ft

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2923	75	815	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	812	21	226	v
Trucks and buses	11	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.948	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3426	84	915	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.207 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 710 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	3510	9400	No
v ₃ or v _{av34}	1358 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		No	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 1370		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	1454	4600	No

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 13.0$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence **B**

Speed Estimation

Intermediate speed variable,	M _S = 0.284	
Space mean speed in ramp influence area,	S _R = 58.5	mph
Space mean speed in outer lanes,	S ₀ = 63.1	mph
Space mean speed for all vehicles,	S = 61.1	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst: TA
Agency/Co.: Kimley-Horn
Date performed: 1/5/2020
Analysis time period: AM Peak
Freeway/Dir of Travel: I-77 Southbound
Junction: Panthers SB Merge
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: 2043_Build_Panthers SB Merge - Downstream

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3375	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	363	vph
Length of first accel/decel lane	900	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	815	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2100	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3375	363	815	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	938	101	226	v
Trucks and buses	11	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.948	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3956	407	915	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.167 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 660 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4363	9400	No
v_3 or v_{av34}	1648 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		Yes	
If yes, $v_{12A} = 1582$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	1989	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 15.2 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **B**

Speed Estimation

Intermediate speed variable,	$M_S = 0.305$	
Space mean speed in ramp influence area,	$S_R = 58.0$	mph
Space mean speed in outer lanes,	$S_0 = 62.5$	mph
Space mean speed for all vehicles,	$S = 60.4$	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst: TA
Agency/Co.: Kimley-Horn
Date performed: 1/5/2020
Analysis time period: AM Peak
Freeway/Dir of Travel: I-77 Southbound
Junction: Panthers SB Merge
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: 2043_Build_Panthers SB Merge - Upstream

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3375	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	363	vph
Length of first accel/decel lane	900	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	2112	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	3775	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3375	363	2112	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	938	101	587	v
Trucks and buses	11	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.948	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3956	407	2370	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.167 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 660 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	4363	9400	No
v ₃ or v _{av34}	1648 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		No	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 1582		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	1989	4600	No

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 15.2$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence **B**

Speed Estimation

Intermediate speed variable,	M _S = 0.305	
Space mean speed in ramp influence area,	S _R = 58.0	mph
Space mean speed in outer lanes,	S ₀ = 62.5	mph
Space mean speed for all vehicles,	S = 60.4	mph

HCS REPORTS
MERGE SEGMENTS
2043 HORIZON YEAR BUILD PM

Phone: _____ Fax: _____
 E-mail: _____

_____ Merge Analysis _____

Analyst: Kimley Horn
 Agency/Co.:
 Date performed: 1/5/2020
 Analysis time period: PM Peak Hour
 Freeway/Dir of Travel: I 77 Northbound
 Junction: Celanese/Cherry Rd
 Jurisdiction: SCDOT
 Analysis Year: 2043 Horizon Year Build
 Description: I-77 NB at Celanese Road / Cherry Road NB On-Ramp Upstream

_____ Freeway Data _____

Type of analysis	Merge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	5482	vph	

_____ On Ramp Data _____

Side of freeway	Right		
Number of lanes in ramp	2		
Free-flow speed on ramp	45.0	mph	
Volume on ramp	2148	vph	
Length of first accel/decel lane	1500	ft	
Length of second accel/decel lane	1000	ft	

_____ Adjacent Ramp Data (if one exists) _____

Does adjacent ramp exist?	Yes		
Volume on adjacent Ramp	1324	vph	
Position of adjacent Ramp	Upstream		
Type of adjacent Ramp	Off		
Distance to adjacent Ramp	6100	ft	

_____ Conversion to pc/h Under Base Conditions _____

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	5482	2148	1324	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1523	597	368	v
Trucks and buses	10	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	6396	2411	1486	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.209 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 1337 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	8807	9400	No
v ₃ or v _{av34}	2529 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		No	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 2558		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	4969	4600	Yes

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 18.0 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **B**

Speed Estimation

Intermediate speed variable,	M _S = 0.522	
Space mean speed in ramp influence area,	S _R = 53.0	mph
Space mean speed in outer lanes,	S ₀ = 59.9	mph
Space mean speed for all vehicles,	S = 55.8	mph

Phone: Fax:
E-mail:

-----Merge Analysis-----

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: PM Peak Hour
Freeway/Dir of Travel: I 77 Northbound
Junction: Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 NB at Dave Lyle Blvd NB On-Ramp Downstream

-----Freeway Data-----

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3278	vph

-----On Ramp Data-----

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	2325	vph
Length of first accel/decel lane	1250	ft
Length of second accel/decel lane		ft

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	768	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2600	ft

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3278	2325	768	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	911	646	213	v
Trucks and buses	10	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3824	2609	862	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = -0.108 \text{ Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = -413 \text{ pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	6433	9400	No
$v_3 \text{ or } v_{av34}$	2118 pc/h	(Equation 13-14 or 13-17)	
Is $v_3 \text{ or } v_{av34} > 2700 \text{ pc/h?}$		No	
Is $v_3 \text{ or } v_{av34} > 1.5 v_{12} / 2$		Yes	
If yes, $v_{12A} = 1529$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	4138	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 28.7 \text{ pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **D**

Speed Estimation

Intermediate speed variable,	$M_S = 0.453$	
Space mean speed in ramp influence area,	$S_R = 54.6$	mph
Space mean speed in outer lanes,	$S_0 = 62.7$	mph
Space mean speed for all vehicles,	$S = 57.2$	mph

Phone: Fax:
E-mail:

-----Merge Analysis-----

Analyst: Kimley Horn
Agency/Co.:
Date performed: 1/5/2020
Analysis time period: PM Peak Hour
Freeway/Dir of Travel: I 77 Northbound
Junction: Dave Lyle Blvd
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: I-77 NB at Dave Lyle Blvd NB On-Ramp Upstream

-----Freeway Data-----

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3278	vph

-----On Ramp Data-----

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	2325	vph
Length of first accel/decel lane	1250	ft
Length of second accel/decel lane		ft

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	450	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2025	ft

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3278	2325	450	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	911	646	125	v
Trucks and buses	10	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3824	2609	505	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = -0.108 \text{ Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = -413 \text{ pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	6433	9400	No
v_3 or v_{av34}	2118 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700 \text{ pc/h?}$		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		Yes	
If yes, $v_{12A} = 1529$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	4138	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 28.7 \text{ pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **D**

Speed Estimation

Intermediate speed variable,	$M_S = 0.453$	
Space mean speed in ramp influence area,	$S_R = 54.6$	mph
Space mean speed in outer lanes,	$S_0 = 62.7$	mph
Space mean speed for all vehicles,	$S = 57.2$	mph

Phone: Fax:
E-mail:

-----Merge Analysis-----

Analyst: TA
Agency/Co.: Kimley-Horn
Date performed: 1/5/2020
Analysis time period: PM Peak
Freeway/Dir of Travel: I-77 Northbound
Junction: Panthers NB Merge
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: 2043_Build_Panthers NB Merge - Downstream

-----Freeway Data-----

Type of analysis	Merge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	4835	vph	

-----On Ramp Data-----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-flow speed on ramp	25.0	mph	
Volume on ramp	1971	vph	
Length of first accel/decel lane	900	ft	
Length of second accel/decel lane		ft	

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes		
Volume on adjacent Ramp	1324	vph	
Position of adjacent Ramp	Downstream		
Type of adjacent Ramp	Off		
Distance to adjacent Ramp	300	ft	

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4835	1971	1324	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1343	548	368	v
Trucks and buses	10	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5641	2212	1486	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = -0.059 \text{ Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = -330 \text{ pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	7853	9400	No
v ₃ or v _{av34}	2985 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		Yes	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 2256		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	4468	4600	No

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 33.7$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence **D**

Speed Estimation

Intermediate speed variable,	M _S = 0.616	
Space mean speed in ramp influence area,	S _R = 50.8	mph
Space mean speed in outer lanes,	S ₀ = 60.7	mph
Space mean speed for all vehicles,	S = 54.7	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst: KHA
Agency/Co.: Kimley-Horn
Date performed: 1/5/2020
Analysis time period: PM Peak
Freeway/Dir of Travel: I-77 Southbound
Junction: Panthers NB Merge
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: 2043_Build_Panthers NB Merge - Upstream

Freeway Data

Type of analysis	Merge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	4835	vph	

On Ramp Data

Side of freeway	Right		
Number of lanes in ramp	1		
Free-flow speed on ramp	25.0	mph	
Volume on ramp	1971	vph	
Length of first accel/decel lane	900	ft	
Length of second accel/decel lane		ft	

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes		
Volume on adjacent Ramp	768	vph	
Position of adjacent Ramp	Upstream		
Type of adjacent Ramp	Off		
Distance to adjacent Ramp	3675	ft	

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4835	1971	768	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1343	548	213	v
Trucks and buses	10	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.952	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5641	2212	862	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = -0.059 \text{ Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = -330 \text{ pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	7853	9400	No
v ₃ or v _{av34}	2985 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		Yes	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 2256		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	4468	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 33.7 \text{ pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **D**

Speed Estimation

Intermediate speed variable,	M _S = 0.616	
Space mean speed in ramp influence area,	S _R = 50.8	mph
Space mean speed in outer lanes,	S ₀ = 60.7	mph
Space mean speed for all vehicles,	S = 54.7	mph

Phone: _____ Fax: _____
 E-mail: _____

----- Merge Analysis -----

Analyst: KHA
 Agency/Co.: Kimley-Horn
 Date performed: 1/5/2020
 Analysis time period: PM Peak
 Freeway/Dir of Travel: I-77 Southbound
 Junction: Celanease/Cherry SB Merge
 Jurisdiction: SCDOT
 Analysis Year: 2043 Horizon Year Build
 Description: Celanease/Cherry SB Merge - PM Peak - Upstream

----- Freeway Data -----

Type of analysis	Merge		
Number of lanes in freeway	4		
Free-flow speed on freeway	65.0	mph	
Volume on freeway	5469	vph	

----- On Ramp Data -----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-flow speed on ramp	45.0	mph	
Volume on ramp	761	vph	
Length of first accel/decel lane	800	ft	
Length of second accel/decel lane		ft	

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes		
Volume on adjacent Ramp	3773	vph	
Position of adjacent Ramp	Upstream		
Type of adjacent Ramp	Off		
Distance to adjacent Ramp	5675	ft	

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	5469	761	3773	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1519	211	1048	v
Trucks and buses	6	2	7	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.971	0.990	0.966	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	6259	854	4339	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.111 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 695 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	7113	9400	No
v ₃ or v _{av34}	2782 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		Yes	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 2503		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	3357	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 26.3 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M _S = 0.361	
Space mean speed in ramp influence area,	S _R = 56.7	mph
Space mean speed in outer lanes,	S ₀ = 60.0	mph
Space mean speed for all vehicles,	S = 58.4	mph

Phone: _____ Fax: _____
 E-mail: _____

----- Merge Analysis -----

Analyst: KHA
 Agency/Co.: Kimley-Horn
 Date performed: 1/5/2020
 Analysis time period: PM Peak
 Freeway/Dir of Travel: I-77 Southbound
 Junction: Celanease/Cherry SB Merge
 Jurisdiction: SCDOT
 Analysis Year: 2043 Horizon Year Build
 Description: Celanease/Cherry SB Merge - PM Peak - Downstream

----- Freeway Data -----

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	5469	vph

----- On Ramp Data -----

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	761	vph
Length of first accel/decel lane	800	ft
Length of second accel/decel lane		ft

----- Adjacent Ramp Data (if one exists) -----

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1066	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

----- Conversion to pc/h Under Base Conditions -----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	5469	761	1066	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1519	211	296	v
Trucks and buses	6	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.971	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	6259	854	1196	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.111 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 695 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	7113	9400	No
v ₃ or v _{av34}	2782 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		Yes	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 2503		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	3357	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 26.3 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M _S = 0.361	
Space mean speed in ramp influence area,	S _R = 56.7	mph
Space mean speed in outer lanes,	S ₀ = 60.0	mph
Space mean speed for all vehicles,	S = 58.4	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst: TA
Agency/Co.: Kimley-Horn
Date performed: 1/5/2020
Analysis time period: PM Peak
Freeway/Dir of Travel: I-77 Southbound
Junction: Dave Lyle SB Merge
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: 2043_Build_DaveLyle SB Merge - Upstream

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	5022	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	132	vph
Length of first accel/decel lane	600	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1622	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	3400	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	5022	132	1622	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1395	37	451	v
Trucks and buses	6	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.971	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5747	148	1820	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.199 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 1145 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	5895	9400	No
v ₃ or v _{av34}	2301 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		No	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 2298		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	2446	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 20.7 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M _S = 0.312	
Space mean speed in ramp influence area,	S _R = 57.8	mph
Space mean speed in outer lanes,	S ₀ = 60.6	mph
Space mean speed for all vehicles,	S = 59.4	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst: TA
Agency/Co.: Kimley-Horn
Date performed: 1/5/2020
Analysis time period: PM Peak
Freeway/Dir of Travel: I-77 Southbound
Junction: Panthers SB Merge
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: 2043_Build_Panthers SB Merge - Downstream

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	5164	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	1480	vph
Length of first accel/decel lane	900	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1622	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2100	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	5164	1480	1622	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1434	411	451	v
Trucks and buses	6	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.971	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5910	1661	1820	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.010 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 60 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	7571	9400	No
v_3 or v_{av34}	2925 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		Yes	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		Yes	
If yes, $v_{12A} = 2364$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	4025	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 30.5 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **D**

Speed Estimation

Intermediate speed variable,	$M_S = 0.494$	
Space mean speed in ramp influence area,	$S_R = 53.6$	mph
Space mean speed in outer lanes,	$S_0 = 60.4$	mph
Space mean speed for all vehicles,	$S = 56.6$	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst: TA
Agency/Co.: Kimley-Horn
Date performed: 1/5/2020
Analysis time period: PM Peak
Freeway/Dir of Travel: I-77 Southbound
Junction: Panthers SB Merge
Jurisdiction: SCDOT
Analysis Year: 2043 Horizon Year Build
Description: 2043_Build_Panthers SB Merge - Upstream

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	65.0	mph
Volume on freeway	5164	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	1480	vph
Length of first accel/decel lane	900	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1066	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	3775	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	5164	1480	1066	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1434	411	296	v
Trucks and buses	6	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.971	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5910	1661	1196	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 0.010 \quad \text{Using Equation 0}$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 60 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	7571	9400	No
v ₃ or v _{av34}	2925 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		Yes	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		Yes	
If yes, v _{12A} = 2364		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{12A}	4025	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 30.5 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence **D**

Speed Estimation

Intermediate speed variable,	M _S = 0.494	
Space mean speed in ramp influence area,	S _R = 53.6	mph
Space mean speed in outer lanes,	S ₀ = 60.4	mph
Space mean speed for all vehicles,	S = 56.6	mph

HCS REPORTS
WEAVE SEGMENTS
2019 EXISTING AM

Phone:
E-mail:

Fax:

Operational Analysis

Analyst: Kimley Horn
 Agency/Co.:
 Date Performed: 1/7/2020
 Analysis Time Period: AM Peak Hour
 Freeway/Dir of Travel: I-77 Northbound
 Weaving Location: CD Road at Cherry Road
 Analysis Year: 2019 Existing
 Description: I-77 NB CD Road Weave at Cherry Road

Inputs

Segment Type	C-D Roadway/ Multilane Highways	
Weaving configuration	One-Sided	
Number of lanes, N	2	ln
Weaving segment length, LS	625	ft
Freeway free-flow speed, FFS	45	mi/h
Minimum segment speed, SMIN	15	mi/h
Freeway maximum capacity, cIFL	2250	pc/h/ln
Terrain type	Level	
Grade	0.00	%
Length	0.00	mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	325	805	158	0	veh/h
Peak hour factor, PHF	0.94	0.94	0.94	0.94	
Peak 15-min volume, v15	86	214	42	0	
Trucks and buses	7	12	4	0	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.966	0.943	0.980	1.000	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	358	908	171	0	pc/h
Volume ratio, VR	0.751				

Configuration Characteristics

Number of maneuver lanes, NWL	2	ln
Interchange density, ID	0.7	int/mi
Minimum RF lane changes, LCRF	1	lc/pc
Minimum FR lane changes, LCFR	1	lc/pc
Minimum RR lane changes, LCRR		lc/pc
Minimum weaving lane changes, LCMIN	1079	lc/h
Weaving lane changes, LCW	1122	lc/h
Non-weaving vehicle index, INW	16	
Non-weaving lane change, LCNW	27	lc/h
Total lane changes, LCALL	1149	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.365
-----------------------------	-------

Average weaving speed, SW	37.0	mi/h
Average non-weaving speed, SNW	33.8	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____

Weaving segment speed, S	36.1	mi/h
Weaving segment density, D	19.9	pc/mi/ln
Level of service, LOS	B	
Weaving segment v/c ratio	0.484	
Weaving segment flow rate, v	1371	veh/h
Weaving segment capacity, cW	2829	veh/h

_____Limitations on Weaving Segments_____

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	10903	625	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1464	c
		Maximum	Analyzed	
v/c ratio		1.00	0.484	d

Notes:

- In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
- Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
- The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
- Volumes exceed the weaving segment capacity. The level of service is F.

Phone:
E-mail:

Fax:

Operational Analysis

Analyst: Kimley Horn
 Agency/Co.:
 Date Performed: 1/7/2020
 Analysis Time Period: AM Peak Hour
 Freeway/Dir of Travel: I-77 Northbound
 Weaving Location: CD Road at Celanese Road
 Analysis Year: 2019 Existing
 Description: I-77 NB CD Road Weave at Celanese Road

Inputs

Segment Type	C-D Roadway/ Multilane Highways	
Weaving configuration	One-Sided	
Number of lanes, N	2	ln
Weaving segment length, LS	690	ft
Freeway free-flow speed, FFS	45	mi/h
Minimum segment speed, SMIN	15	mi/h
Freeway maximum capacity, cIFL	2250	pc/h/ln
Terrain type	Level	
Grade	0.00	%
Length	0.00	mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	805	1541	325	0	veh/h
Peak hour factor, PHF	0.94	0.94	0.94	0.94	
Peak 15-min volume, v15	214	410	86	0	
Trucks and buses	7	2	7	0	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.966	0.990	0.966	1.000	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	886	1656	358	0	pc/h
Volume ratio, VR	0.694				

Configuration Characteristics

Number of maneuver lanes, NWL	2	ln
Interchange density, ID	0.7	int/mi
Minimum RF lane changes, LCRF	0	lc/pc
Minimum FR lane changes, LCFR	2	lc/pc
Minimum RR lane changes, LCRR		lc/pc
Minimum weaving lane changes, LCMIN	716	lc/h
Weaving lane changes, LCW	763	lc/h
Non-weaving vehicle index, INW	43	
Non-weaving lane change, LCNW	171	lc/h
Total lane changes, LCALL	934	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.287
-----------------------------	-------

Average weaving speed, SW	38.3	mi/h
Average non-weaving speed, SNW	32.9	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____

Weaving segment speed, S	36.5	mi/h
Weaving segment density, D	39.8	pc/mi/ln
Level of service, LOS	E	
Weaving segment v/c ratio	0.966	
Weaving segment flow rate, v	2842	veh/h
Weaving segment capacity, cW	2943	veh/h

_____Limitations on Weaving Segments_____

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	10187	690	a,b
Density-based capacity, cIWL (pc/h/ln)		Maximum 2250	Analyzed 1523	c
v/c ratio		Maximum 1.00	Analyzed 0.966	d

Notes:

- In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
- Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
- The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
- Volumes exceed the weaving segment capacity. The level of service is F.

HCS REPORTS
WEAVE SEGMENTS
2019 EXISTING PM

Phone:
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Operational Analysis

Analyst: Kimley Horn
 Agency/Co.:
 Date Performed: 1/7/2020
 Analysis Time Period: PM Peak Hour
 Freeway/Dir of Travel: I-77 Northbound
 Weaving Location: CD Road at Cherry Road
 Analysis Year: 2019 Existing
 Description: I-77 NB CD Road Weave at Cherry Road

Inputs

Segment Type	C-D Roadway/ Multilane Highways	
Weaving configuration	One-Sided	
Number of lanes, N	2	ln
Weaving segment length, LS	625	ft
Freeway free-flow speed, FFS	45	mi/h
Minimum segment speed, SMIN	15	mi/h
Freeway maximum capacity, cIFL	2250	pc/h/ln
Terrain type	Level	
Grade	0.00	%
Length	0.00	mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	293	622	196	0	veh/h
Peak hour factor, PHF	0.93	0.92	0.92	0.92	
Peak 15-min volume, v15	79	169	53	0	
Trucks and buses	2	2	2	0	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	1.000	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	318	683	215	0	pc/h
Volume ratio, VR	0.738				

Configuration Characteristics

Number of maneuver lanes, NWL	2	ln
Interchange density, ID	0.7	int/mi
Minimum RF lane changes, LCRF	1	lc/pc
Minimum FR lane changes, LCFR	1	lc/pc
Minimum RR lane changes, LCRR		lc/pc
Minimum weaving lane changes, LCMIN	898	lc/h
Weaving lane changes, LCW	941	lc/h
Non-weaving vehicle index, INW	14	
Non-weaving lane change, LCNW	19	lc/h
Total lane changes, LCALL	960	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.317
-----------------------------	-------

Average weaving speed, SW	37.8	mi/h
Average non-weaving speed, SNW	35.6	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____

Weaving segment speed, S	37.2	mi/h
Weaving segment density, D	16.3	pc/mi/ln
Level of service, LOS	B	
Weaving segment v/c ratio	0.412	
Weaving segment flow rate, v	1205	veh/h
Weaving segment capacity, cW	2923	veh/h

_____Limitations on Weaving Segments_____

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	10744	625	a,b
Density-based capacity, cIWL (pc/h/ln)		Maximum 2250	Analyzed 1476	c
v/c ratio		Maximum 1.00	Analyzed 0.412	d

Notes:

- In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
- Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
- The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
- Volumes exceed the weaving segment capacity. The level of service is F.

Phone:
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Operational Analysis

Analyst: Kimley Horn
 Agency/Co.:
 Date Performed: 1/7/2020
 Analysis Time Period: PM Peak Hour
 Freeway/Dir of Travel: I-77 Northbound
 Weaving Location: CD Road at Celanese Road
 Analysis Year: 2019 Existing
 Description: I-77 NB CD Road Weave at Celanese Road

Inputs

Segment Type	C-D Roadway/ Multilane Highways	
Weaving configuration	One-Sided	
Number of lanes, N	2	ln
Weaving segment length, LS	690	ft
Freeway free-flow speed, FFS	45	mi/h
Minimum segment speed, SMIN	15	mi/h
Freeway maximum capacity, cIFL	2250	pc/h/ln
Terrain type	Level	
Grade	0.00	%
Length	0.00	mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	622	805	293	0	veh/h
Peak hour factor, PHF	0.93	0.95	0.95	0.94	
Peak 15-min volume, v15	167	212	77	0	
Trucks and buses	2	2	2	0	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	1.000	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	676	856	312	0	pc/h
Volume ratio, VR	0.633				

Configuration Characteristics

Number of maneuver lanes, NWL	2	ln
Interchange density, ID	0.7	int/mi
Minimum RF lane changes, LCRF	0	lc/pc
Minimum FR lane changes, LCFR	2	lc/pc
Minimum RR lane changes, LCRR		lc/pc
Minimum weaving lane changes, LCMIN	624	lc/h
Weaving lane changes, LCW	671	lc/h
Non-weaving vehicle index, INW	33	
Non-weaving lane change, LCNW	128	lc/h
Total lane changes, LCALL	799	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.254
-----------------------------	-------

Average weaving speed, SW	38.9	mi/h
Average non-weaving speed, SNW	36.1	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____

Weaving segment speed, S	37.8	mi/h
Weaving segment density, D	24.4	pc/mi/ln
Level of service, LOS	C	
Weaving segment v/c ratio	0.582	
Weaving segment flow rate, v	1825	veh/h
Weaving segment capacity, cW	3133	veh/h

_____Limitations on Weaving Segments_____

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	9427	690	a,b
Density-based capacity, cIWL (pc/h/ln)		Maximum 2250	Analyzed 1582	c
v/c ratio		Maximum 1.00	Analyzed 0.582	d

Notes:

- In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
- Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
- The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
- Volumes exceed the weaving segment capacity. The level of service is F.

HCS REPORTS
WEAVE SEGMENTS
2023 OPENING YEAR NO BUILD AM

Phone:
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Operational Analysis

Analyst: Kimley Horn
 Agency/Co.:
 Date Performed: 1/7/2020
 Analysis Time Period: AM Peak Hour
 Freeway/Dir of Travel: I-77 Northbound
 Weaving Location: CD Road at Cherry Road
 Analysis Year: 2023 Opening Year No Build
 Description: I-77 NB CD Road Weave at Cherry Road

Inputs

Segment Type	C-D Roadway/ Multilane Highways
Weaving configuration	One-Sided
Number of lanes, N	2 ln
Weaving segment length, LS	625 ft
Freeway free-flow speed, FFS	45 mi/h
Minimum segment speed, S _{MIN}	15 mi/h
Freeway maximum capacity, c _{IFL}	2250 pc/h/ln
Terrain type	Level
Grade	0.00 %
Length	0.00 mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	352	938	171	0	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.94	
Peak 15-min volume, v ₁₅	98	261	48	0	
Trucks and buses	7	12	4	0	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, f _{HV}	0.966	0.943	0.980	1.000	
Driver population adjustment, f _P	1.00	1.00	1.00	1.00	
Flow rate, v	405	1105	194	0	pc/h
Volume ratio, VR	0.762				

Configuration Characteristics

Number of maneuver lanes, NWL	2	ln
Interchange density, ID	0.7	int/mi
Minimum RF lane changes, LCRF	1	lc/pc
Minimum FR lane changes, LCFR	1	lc/pc
Minimum RR lane changes, LCRR		lc/pc
Minimum weaving lane changes, LCMIN	1299	lc/h
Weaving lane changes, LCW	1342	lc/h
Non-weaving vehicle index, INW	18	
Non-weaving lane change, LCNW	37	lc/h
Total lane changes, LCALL	1379	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.422
-----------------------------	-------

Average weaving speed, SW	36.1	mi/h
Average non-weaving speed, SNW	31.6	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S	34.9	mi/h
Weaving segment density, D	24.4	pc/mi/ln
Level of service, LOS	C	
Weaving segment v/c ratio	0.579	
Weaving segment flow rate, v	1624	veh/h
Weaving segment capacity, cW	2806	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	11050	625	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1452	c
		Maximum	Analyzed	
v/c ratio		1.00	0.579	d

Notes:

- In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
- Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
- The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
- Volumes exceed the weaving segment capacity. The level of service is F.

Phone:
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Operational Analysis

Analyst: Kimley Horn
 Agency/Co.:
 Date Performed: 1/7/2020
 Analysis Time Period: AM Peak Hour
 Freeway/Dir of Travel: I-77 Northbound
 Weaving Location: CD Road at Celanese Road
 Analysis Year: 2023 Opening Year No Build
 Description: I-77 NB CD Road Weave at Celanese Road

Inputs

Segment Type	C-D Roadway/ Multilane Highways	
Weaving configuration	One-Sided	
Number of lanes, N	2	ln
Weaving segment length, LS	690	ft
Freeway free-flow speed, FFS	45	mi/h
Minimum segment speed, SMIN	15	mi/h
Freeway maximum capacity, cIFL	2250	pc/h/ln
Terrain type	Level	
Grade	0.00	%
Length	0.00	mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	938	1672	352	0	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.94	
Peak 15-min volume, v15	261	464	98	0	
Trucks and buses	7	2	7	0	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.966	0.990	0.966	1.000	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	1079	1876	405	0	pc/h
Volume ratio, VR	0.679				

Configuration Characteristics

Number of maneuver lanes, NWL	2	ln
Interchange density, ID	0.7	int/mi
Minimum RF lane changes, LCRF	0	lc/pc
Minimum FR lane changes, LCFR	2	lc/pc
Minimum RR lane changes, LCRR		lc/pc
Minimum weaving lane changes, LCMIN		lc/h
Weaving lane changes, LCW		lc/h
Non-weaving vehicle index, INW		
Non-weaving lane change, LCNW		lc/h
Total lane changes, LCALL		lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W

Average weaving speed, SW	mi/h
Average non-weaving speed, SNW	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S		mi/h
Weaving segment density, D		pc/mi/ln
Level of service, LOS	F	
Weaving segment v/c ratio	1.107	
Weaving segment flow rate, v	3292	veh/h
Weaving segment capacity, cW	2972	veh/h

_____Limitations on Weaving Segments_____	
If limit reached, see note.	

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	9991	690	a,b
Density-based capacity, cIWL (pc/h/ln)		Maximum 2250	Analyzed 1538	c
v/c ratio		Maximum 1.00	Analyzed 1.107	d

Notes:

- In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
- Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
- The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
- Volumes exceed the weaving segment capacity. The level of service is F.

HCS REPORTS
WEAVE SEGMENTS
2023 OPENING YEAR NO BUILD PM

Phone:
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Operational Analysis

Analyst: Kimley Horn
 Agency/Co.:
 Date Performed: 1/7/2020
 Analysis Time Period: PM Peak Hour
 Freeway/Dir of Travel: I-77 Northbound
 Weaving Location: CD Road at Cherry Road
 Analysis Year: 2023 Opening Year No Build
 Description: I-77 NB CD Road Weave at Cherry Road

Inputs

Segment Type C-D Roadway/ Multilane Highways
 Weaving configuration One-Sided
 Number of lanes, N 2 ln
 Weaving segment length, LS 625 ft
 Freeway free-flow speed, FFS 45 mi/h
 Minimum segment speed, SMIN 15 mi/h
 Freeway maximum capacity, cIFL 2250 pc/h/ln
 Terrain type Level
 Grade %
 Length mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	317	1028	212	0	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.92	
Peak 15-min volume, v15	88	286	59	0	
Trucks and buses	2	2	2	0	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	1.000	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	356	1154	238	0	pc/h
Volume ratio, VR	0.796				

Configuration Characteristics

Number of maneuver lanes, NWL	2	ln
Interchange density, ID	0.7	int/mi
Minimum RF lane changes, LCRF	1	lc/pc
Minimum FR lane changes, LCFR	1	lc/pc
Minimum RR lane changes, LCRR		lc/pc
Minimum weaving lane changes, LCMIN	1392	lc/h
Weaving lane changes, LCW	1435	lc/h
Non-weaving vehicle index, INW	16	
Non-weaving lane change, LCNW	27	lc/h
Total lane changes, LCALL	1462	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.442
-----------------------------	-------

Average weaving speed, SW	35.8	mi/h
Average non-weaving speed, SNW	30.8	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S	34.7	mi/h
Weaving segment density, D	25.2	pc/mi/ln
Level of service, LOS	C	
Weaving segment v/c ratio	0.616	
Weaving segment flow rate, v	1730	veh/h
Weaving segment capacity, cW	2810	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	11491	625	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1419	c
		Maximum	Analyzed	
v/c ratio		1.00	0.616	d

Notes:

- In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
- Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
- The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
- Volumes exceed the weaving segment capacity. The level of service is F.

Phone:
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Operational Analysis

Analyst: Kimley Horn
 Agency/Co.:
 Date Performed: 1/7/2020
 Analysis Time Period: PM Peak Hour
 Freeway/Dir of Travel: I-77 Northbound
 Weaving Location: CD Road at Celanese Road
 Analysis Year: 2023 Opening Year No Build
 Description: I-77 NB CD Road Weave at Celanese Road

Inputs

Segment Type	C-D Roadway/ Multilane Highways
Weaving configuration	One-Sided
Number of lanes, N	2 ln
Weaving segment length, LS	690 ft
Freeway free-flow speed, FFS	45 mi/h
Minimum segment speed, SMIN	15 mi/h
Freeway maximum capacity, cIFL	2250 pc/h/ln
Terrain type	Level
Grade	0.00 %
Length	0.00 mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	1028	890	317	0	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.94	
Peak 15-min volume, v15	286	247	88	0	
Trucks and buses	2	2	2	0	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	1.000	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	1154	999	356	0	pc/h
Volume ratio, VR	0.540				

Configuration Characteristics

Number of maneuver lanes, NWL	2	ln
Interchange density, ID	0.7	int/mi
Minimum RF lane changes, LCRF	0	lc/pc
Minimum FR lane changes, LCFR	2	lc/pc
Minimum RR lane changes, LCRR		lc/pc
Minimum weaving lane changes, LCMIN	712	lc/h
Weaving lane changes, LCW	759	lc/h
Non-weaving vehicle index, INW	56	
Non-weaving lane change, LCNW	227	lc/h
Total lane changes, LCALL	986	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.300
-----------------------------	-------

Average weaving speed, SW	38.1	mi/h
Average non-weaving speed, SNW	33.9	mi/h

Weaving Segment Speed, Density, Level of Service and Capacity		
Weaving segment speed, S	36.0	mi/h
Weaving segment density, D	34.8	pc/mi/ln
Level of service, LOS	D	
Weaving segment v/c ratio	0.752	
Weaving segment flow rate, v	2484	veh/h
Weaving segment capacity, cW	3303	veh/h

Limitations on Weaving Segments				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	8298	690	a,b
Density-based capacity, cIWL (pc/h/ln)		Maximum 2250	Analyzed 1668	c
v/c ratio		Maximum 1.00	Analyzed 0.752	d

Notes:

- In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
- Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
- The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
- Volumes exceed the weaving segment capacity. The level of service is F.

HCS REPORTS
WEAVE SEGMENTS
2023 OPENING YEAR BUILD AM

Phone:
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Operational Analysis

Analyst: Kimley Horn
 Agency/Co.:
 Date Performed: 1/7/2020
 Analysis Time Period: AM Peak Hour
 Freeway/Dir of Travel: I-77 Northbound
 Weaving Location: CD Road at Cherry Road
 Analysis Year: 2023 Opening Year Build
 Description: I-77 NB CD Road Weave at Cherry Road

Inputs

Segment Type	C-D Roadway/ Multilane Highways
Weaving configuration	One-Sided
Number of lanes, N	2 ln
Weaving segment length, LS	625 ft
Freeway free-flow speed, FFS	45 mi/h
Minimum segment speed, SMIN	15 mi/h
Freeway maximum capacity, cIFL	2250 pc/h/ln
Terrain type	Level
Grade	0.00 %
Length	0.00 mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	352	737	171	0	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.94	
Peak 15-min volume, v15	98	205	48	0	
Trucks and buses	7	12	4	0	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.966	0.943	0.980	1.000	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	405	868	194	0	pc/h
Volume ratio, VR	0.724				

Configuration Characteristics

Number of maneuver lanes, NWL	2	ln
Interchange density, ID	0.8	int/mi
Minimum RF lane changes, LCRF	1	lc/pc
Minimum FR lane changes, LCFR	1	lc/pc
Minimum RR lane changes, LCRR		lc/pc
Minimum weaving lane changes, LCMIN	1062	lc/h
Weaving lane changes, LCW	1107	lc/h
Non-weaving vehicle index, INW	20	
Non-weaving lane change, LCNW	37	lc/h
Total lane changes, LCALL	1144	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.364
-----------------------------	-------

Average weaving speed, SW	37.0	mi/h
Average non-weaving speed, SNW	33.8	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S	36.1	mi/h
Weaving segment density, D	20.3	pc/mi/ln
Level of service, LOS	B	
Weaving segment v/c ratio	0.486	
Weaving segment flow rate, v	1400	veh/h
Weaving segment capacity, cW	2879	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	10559	625	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1490	c
		Maximum	Analyzed	
v/c ratio		1.00	0.486	d

Notes:

- In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
- Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
- The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
- Volumes exceed the weaving segment capacity. The level of service is F.

Phone:
E-mail:

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Operational Analysis

Analyst: Kimley Horn
 Agency/Co.:
 Date Performed: 1/7/2020
 Analysis Time Period: AM Peak Hour
 Freeway/Dir of Travel: I-77 Northbound
 Weaving Location: CD Road at Celanese Road
 Analysis Year: 2023 Opening Year Build
 Description: I-77 NB CD Road Weave at Celanese Road

Inputs

Segment Type	C-D Roadway/ Multilane Highways
Weaving configuration	One-Sided
Number of lanes, N	2 ln
Weaving segment length, LS	690 ft
Freeway free-flow speed, FFS	45 mi/h
Minimum segment speed, SMIN	15 mi/h
Freeway maximum capacity, cIFL	2250 pc/h/ln
Terrain type	Level
Grade	0.00 %
Length	0.00 mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	737	1718	352	0	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.94	
Peak 15-min volume, v15	205	477	98	0	
Trucks and buses	7	2	7	0	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.966	0.990	0.966	1.000	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	848	1928	405	0	pc/h
Volume ratio, VR	0.733				

Configuration Characteristics

Number of maneuver lanes, NWL	2	ln
Interchange density, ID	0.8	int/mi
Minimum RF lane changes, LCRF	0	lc/pc
Minimum FR lane changes, LCFR	2	lc/pc
Minimum RR lane changes, LCRR		lc/pc
Minimum weaving lane changes, LCMIN		lc/h
Weaving lane changes, LCW		lc/h
Non-weaving vehicle index, INW		
Non-weaving lane change, LCNW		lc/h
Total lane changes, LCALL		lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W

Average weaving speed, SW	mi/h
Average non-weaving speed, SNW	mi/h

Weaving Segment Speed, Density, Level of Service and Capacity		
Weaving segment speed, S		mi/h
Weaving segment density, D		pc/mi/ln
Level of service, LOS	F	
Weaving segment v/c ratio	1.086	
Weaving segment flow rate, v	3119	veh/h
Weaving segment capacity, cW	2871	veh/h

Limitations on Weaving Segments				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	10680	690	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1486	c
		Maximum	Analyzed	
v/c ratio		1.00	1.086	d

- Notes:
- a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
 - b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
 - c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
 - d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS REPORTS
WEAVE SEGMENTS
2023 OPENING YEAR BUILD PM

Phone:
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Operational Analysis

Analyst: Kimley Horn
 Agency/Co.:
 Date Performed: 1/7/2020
 Analysis Time Period: PM Peak Hour
 Freeway/Dir of Travel: I-77 Northbound
 Weaving Location: CD Road at Cherry Road
 Analysis Year: 2023 Opening Year Build
 Description: I-77 NB CD Road Weave at Cherry Road

Inputs

Segment Type	C-D Roadway/ Multilane Highways	
Weaving configuration	One-Sided	
Number of lanes, N	2	ln
Weaving segment length, LS	625	ft
Freeway free-flow speed, FFS	45	mi/h
Minimum segment speed, SMIN	15	mi/h
Freeway maximum capacity, cIFL	2250	pc/h/ln
Terrain type	Level	
Grade	0.00	%
Length	0.00	mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	317	562	212	0	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.92	
Peak 15-min volume, v15	88	156	59	0	
Trucks and buses	2	2	2	0	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	1.000	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	356	631	238	0	pc/h
Volume ratio, VR	0.709				

Configuration Characteristics

Number of maneuver lanes, NWL	2	ln
Interchange density, ID	0.8	int/mi
Minimum RF lane changes, LCRF	1	lc/pc
Minimum FR lane changes, LCFR	1	lc/pc
Minimum RR lane changes, LCRR		lc/pc
Minimum weaving lane changes, LCMIN	869	lc/h
Weaving lane changes, LCW	914	lc/h
Non-weaving vehicle index, INW	18	
Non-weaving lane change, LCNW	27	lc/h
Total lane changes, LCALL	941	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.312
-----------------------------	-------

Average weaving speed, SW	37.9	mi/h
Average non-weaving speed, SNW	35.8	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S	37.2	mi/h
Weaving segment density, D	16.4	pc/mi/ln
Level of service, LOS	B	
Weaving segment v/c ratio	0.407	
Weaving segment flow rate, v	1213	veh/h
Weaving segment capacity, cW	2978	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	10375	625	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1504	c
		Maximum	Analyzed	
v/c ratio		1.00	0.407	d

Notes:

- In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
- Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
- The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
- Volumes exceed the weaving segment capacity. The level of service is F.

Phone:
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Operational Analysis

Analyst: Kimley Horn
 Agency/Co.:
 Date Performed: 1/7/2020
 Analysis Time Period: PM Peak Hour
 Freeway/Dir of Travel: I-77 Northbound
 Weaving Location: CD Road at Celanese Road
 Analysis Year: 2023 Opening Year Build
 Description: I-77 NB CD Road Weave at Celanese Road

Inputs

Segment Type	C-D Roadway/ Multilane Highways
Weaving configuration	One-Sided
Number of lanes, N	2 ln
Weaving segment length, LS	690 ft
Freeway free-flow speed, FFS	45 mi/h
Minimum segment speed, SMIN	15 mi/h
Freeway maximum capacity, cIFL	2250 pc/h/ln
Terrain type	Level
Grade	0.00 %
Length	0.00 mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	562	1023	317	0	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.94	
Peak 15-min volume, v15	156	284	88	0	
Trucks and buses	2	2	2	0	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	1.000	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	631	1148	356	0	pc/h
Volume ratio, VR	0.704				

Configuration Characteristics

Number of maneuver lanes, NWL	2	ln
Interchange density, ID	0.8	int/mi
Minimum RF lane changes, LCRF	0	lc/pc
Minimum FR lane changes, LCFR	2	lc/pc
Minimum RR lane changes, LCRR		lc/pc
Minimum weaving lane changes, LCMIN	712	lc/h
Weaving lane changes, LCW	761	lc/h
Non-weaving vehicle index, INW	35	
Non-weaving lane change, LCNW	119	lc/h
Total lane changes, LCALL	880	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.274
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Average weaving speed, SW	38.6	mi/h
Average non-weaving speed, SNW	34.7	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S	37.3	mi/h
Weaving segment density, D	28.6	pc/mi/ln
Level of service, LOS	C	
Weaving segment v/c ratio	0.705	
Weaving segment flow rate, v	2114	veh/h
Weaving segment capacity, cW	2998	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	10312	690	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1514	c
		Maximum	Analyzed	
v/c ratio		1.00	0.705	d

Notes:

- In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
- Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
- The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
- Volumes exceed the weaving segment capacity. The level of service is F.

HCS REPORTS
WEAVE SEGMENTS
2043 HORIZON YEAR NO BUILD AM

Phone:
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Operational Analysis

Analyst: Kimley Horn
 Agency/Co.:
 Date Performed: 1/7/2020
 Analysis Time Period: AM Peak Hour
 Freeway/Dir of Travel: I-77 Northbound
 Weaving Location: CD Road at Cherry Road
 Analysis Year: 2043 Horizon Year No Build
 Description: I-77 NB CD Road Weave at Cherry Road

Inputs

Segment Type	C-D Roadway/ Multilane Highways
Weaving configuration	One-Sided
Number of lanes, N	2 ln
Weaving segment length, LS	625 ft
Freeway free-flow speed, FFS	45 mi/h
Minimum segment speed, SMIN	15 mi/h
Freeway maximum capacity, cIFL	2250 pc/h/ln
Terrain type	Level
Grade	0.00 %
Length	0.00 mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	523	1608	254	0	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.94	
Peak 15-min volume, v15	145	447	71	0	
Trucks and buses	7	12	4	0	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.966	0.943	0.980	1.000	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	601	1894	288	0	pc/h
Volume ratio, VR	0.784				

Configuration Characteristics

Number of maneuver lanes, NWL	2	ln
Interchange density, ID	0.7	int/mi
Minimum RF lane changes, LCRF	1	lc/pc
Minimum FR lane changes, LCFR	1	lc/pc
Minimum RR lane changes, LCRR		lc/pc
Minimum weaving lane changes, LCMIN		lc/h
Weaving lane changes, LCW	2225	lc/h
Non-weaving vehicle index, INW	26	
Non-weaving lane change, LCNW	77	lc/h
Total lane changes, LCALL	2302	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.632
-----------------------------	-------

Average weaving speed, SW	33.4	mi/h
Average non-weaving speed, SNW	22.6	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S	30.3	mi/h
Weaving segment density, D	46.0	pc/mi/ln
Level of service, LOS	F	
Weaving segment v/c ratio	0.958	
Weaving segment flow rate, v	2650	veh/h
Weaving segment capacity, cW	2765	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	11331	625	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1431	c
		Maximum	Analyzed	
v/c ratio		1.00	0.958	d

Notes:

- In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
- Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
- The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
- Volumes exceed the weaving segment capacity. The level of service is F.

Phone:
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Operational Analysis

Analyst: Kimley Horn
 Agency/Co.:
 Date Performed: 1/7/2020
 Analysis Time Period: AM Peak Hour
 Freeway/Dir of Travel: I-77 Northbound
 Weaving Location: CD Road at Celanese Road
 Analysis Year: 2043 Horizon Year No Build
 Description: I-77 NB CD Road Weave at Celanese Road

Inputs

Segment Type	C-D Roadway/ Multilane Highways
Weaving configuration	One-Sided
Number of lanes, N	2 ln
Weaving segment length, LS	690 ft
Freeway free-flow speed, FFS	45 mi/h
Minimum segment speed, SMIN	15 mi/h
Freeway maximum capacity, cIFL	2250 pc/h/ln
Terrain type	Level
Grade	0.00 %
Length	0.00 mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	1608	2495	523	0	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.94	
Peak 15-min volume, v15	447	693	145	0	
Trucks and buses	7	2	7	0	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.966	0.990	0.966	1.000	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	1849	2800	601	0	pc/h
Volume ratio, VR	0.648				

Configuration Characteristics

Number of maneuver lanes, NWL	2	ln
Interchange density, ID	0.7	int/mi
Minimum RF lane changes, LCRF	0	lc/pc
Minimum FR lane changes, LCFR	2	lc/pc
Minimum RR lane changes, LCRR		lc/pc
Minimum weaving lane changes, LCMIN		lc/h
Weaving lane changes, LCW		lc/h
Non-weaving vehicle index, INW		
Non-weaving lane change, LCNW		lc/h
Total lane changes, LCALL		lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W

Average weaving speed, SW	mi/h
Average non-weaving speed, SNW	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S		mi/h
Weaving segment density, D		pc/mi/ln
Level of service, LOS	F	
Weaving segment v/c ratio	1.696	
Weaving segment flow rate, v	5140	veh/h
Weaving segment capacity, cW	3030	veh/h

_____Limitations on Weaving Segments_____	
If limit reached, see note.	

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	9605	690	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1568	c
		Maximum	Analyzed	
v/c ratio		1.00	1.696	d

Notes:

- In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
- Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
- The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
- Volumes exceed the weaving segment capacity. The level of service is F.

HCS REPORTS
WEAVE SEGMENTS
2043 HORIZON YEAR NO BUILD PM

Phone:
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Operational Analysis

Analyst: Kimley Horn
 Agency/Co.:
 Date Performed: 1/7/2020
 Analysis Time Period: PM Peak Hour
 Freeway/Dir of Travel: I-77 Northbound
 Weaving Location: CD Road at Cherry Road
 Analysis Year: 2043 Horizon Year No Build
 Description: I-77 NB CD Road Weave at Cherry Road

Inputs

Segment Type	C-D Roadway/ Multilane Highways	
Weaving configuration	One-Sided	
Number of lanes, N	2	ln
Weaving segment length, LS	625	ft
Freeway free-flow speed, FFS	45	mi/h
Minimum segment speed, SMIN	15	mi/h
Freeway maximum capacity, cIFL	2250	pc/h/ln
Terrain type	Level	
Grade	0.00	%
Length	0.00	mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	472	2441	315	0	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.92	
Peak 15-min volume, v15	131	678	88	0	
Trucks and buses	2	2	2	0	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	1.000	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	530	2739	354	0	pc/h
Volume ratio, VR	0.854				

Configuration Characteristics

Number of maneuver lanes, NWL	2	ln
Interchange density, ID	0.7	int/mi
Minimum RF lane changes, LCRF	1	lc/pc
Minimum FR lane changes, LCFR	1	lc/pc
Minimum RR lane changes, LCRR		lc/pc
Minimum weaving lane changes, LCMIN		lc/h
Weaving lane changes, LCW		lc/h
Non-weaving vehicle index, INW	23	
Non-weaving lane change, LCNW		lc/h
Total lane changes, LCALL		lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W

Average weaving speed, SW	mi/h
Average non-weaving speed, SNW	mi/h

Weaving Segment Speed, Density, Level of Service and Capacity		
Weaving segment speed, S		mi/h
Weaving segment density, D		pc/mi/ln
Level of service, LOS	F	
Weaving segment v/c ratio	1.331	
Weaving segment flow rate, v	3587	veh/h
Weaving segment capacity, cW	2695	veh/h

Limitations on Weaving Segments				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	12245	625	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1361	c
		Maximum	Analyzed	
v/c ratio		1.00	1.331	d

- Notes:
- In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
 - Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
 - The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
 - Volumes exceed the weaving segment capacity. The level of service is F.

Phone:
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Operational Analysis

Analyst: Kimley Horn
 Agency/Co.:
 Date Performed: 1/7/2020
 Analysis Time Period: PM Peak Hour
 Freeway/Dir of Travel: I-77 Northbound
 Weaving Location: CD Road at Celanese Road
 Analysis Year: 2043 Horizon Year No Build
 Description: I-77 NB CD Road Weave at Celanese Road

Inputs

Segment Type	C-D Roadway/ Multilane Highways	
Weaving configuration	One-Sided	
Number of lanes, N	2	ln
Weaving segment length, LS	690	ft
Freeway free-flow speed, FFS	45	mi/h
Minimum segment speed, SMIN	15	mi/h
Freeway maximum capacity, cIFL	2250	pc/h/ln
Terrain type	Level	
Grade	0.00	%
Length	0.00	mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	2442	1371	471	0	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.94	
Peak 15-min volume, v15	678	381	131	0	
Trucks and buses	2	2	2	0	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	1.000	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	2740	1539	529	0	pc/h
Volume ratio, VR	0.430				

Configuration Characteristics

Number of maneuver lanes, NWL	2	ln
Interchange density, ID	0.7	int/mi
Minimum RF lane changes, LCRF	0	lc/pc
Minimum FR lane changes, LCFR	2	lc/pc
Minimum RR lane changes, LCRR		lc/pc
Minimum weaving lane changes, LCMIN		lc/h
Weaving lane changes, LCW		lc/h
Non-weaving vehicle index, INW		
Non-weaving lane change, LCNW		lc/h
Total lane changes, LCALL		lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W

Average weaving speed, SW	mi/h
Average non-weaving speed, SNW	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S		mi/h
Weaving segment density, D		pc/mi/ln
Level of service, LOS	F	
Weaving segment v/c ratio	1.361	
Weaving segment flow rate, v	4760	veh/h
Weaving segment capacity, cW	3497	veh/h

_____Limitations on Weaving Segments_____	
If limit reached, see note.	

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	7021	690	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1766	c
		Maximum	Analyzed	
v/c ratio		1.00	1.361	d

Notes:

- In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
- Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
- The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
- Volumes exceed the weaving segment capacity. The level of service is F.

HCS REPORTS
WEAVE SEGMENTS
2043 HORIZON YEAR BUILD AM

Phone:
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Operational Analysis

Analyst: Kimley Horn
 Agency/Co.:
 Date Performed: 1/7/2020
 Analysis Time Period: AM Peak Hour
 Freeway/Dir of Travel: I-77 Northbound
 Weaving Location: CD Road at Cherry Road
 Analysis Year: 2043 Horizon Year Build
 Description: I-77 NB CD Road Weave at Cherry Road

Inputs

Segment Type	C-D Roadway/ Multilane Highways
Weaving configuration	One-Sided
Number of lanes, N	2 ln
Weaving segment length, LS	625 ft
Freeway free-flow speed, FFS	45 mi/h
Minimum segment speed, SMIN	15 mi/h
Freeway maximum capacity, cIFL	2250 pc/h/ln
Terrain type	Level
Grade	0.00 %
Length	0.00 mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	523	1075	254	0	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.94	
Peak 15-min volume, v15	145	299	71	0	
Trucks and buses	7	12	4	0	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.966	0.943	0.980	1.000	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	601	1266	288	0	pc/h
Volume ratio, VR	0.721				

Configuration Characteristics

Number of maneuver lanes, NWL	2	ln
Interchange density, ID	0.8	int/mi
Minimum RF lane changes, LCRF	1	lc/pc
Minimum FR lane changes, LCFR	1	lc/pc
Minimum RR lane changes, LCRR		lc/pc
Minimum weaving lane changes, LCMIN	1554	lc/h
Weaving lane changes, LCW	1599	lc/h
Non-weaving vehicle index, INW	30	
Non-weaving lane change, LCNW	77	lc/h
Total lane changes, LCALL	1676	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.492
-----------------------------	-------

Average weaving speed, SW	35.1	mi/h
Average non-weaving speed, SNW	28.6	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S	33.0	mi/h
Weaving segment density, D	32.6	pc/mi/ln
Level of service, LOS	D	
Weaving segment v/c ratio	0.713	
Weaving segment flow rate, v	2058	veh/h
Weaving segment capacity, cW	2885	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	10523	625	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1493	c
		Maximum	Analyzed	
v/c ratio		1.00	0.713	d

Notes:

- In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
- Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
- The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
- Volumes exceed the weaving segment capacity. The level of service is F.

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Fax:

Operational Analysis

Analyst: Kimley Horn
 Agency/Co.:
 Date Performed: 1/7/2020
 Analysis Time Period: AM Peak Hour
 Freeway/Dir of Travel: I-77 Northbound
 Weaving Location: CD Road at Celanese Road
 Analysis Year: 2043 Horizon Year Build
 Description: I-77 NB CD Road Weave at Celanese Road

Inputs

Segment Type	C-D Roadway/ Multilane Highways
Weaving configuration	One-Sided
Number of lanes, N	2 ln
Weaving segment length, LS	690 ft
Freeway free-flow speed, FFS	45 mi/h
Minimum segment speed, SMIN	15 mi/h
Freeway maximum capacity, cIFL	2250 pc/h/ln
Terrain type	Level
Grade	0.00 %
Length	0.00 mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	1075	2369	523	0	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.94	
Peak 15-min volume, v15	299	658	145	0	
Trucks and buses	7	2	7	0	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.966	0.990	0.966	1.000	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	1236	2659	601	0	pc/h
Volume ratio, VR	0.725				

Configuration Characteristics

Number of maneuver lanes, NWL	2	ln
Interchange density, ID	0.8	int/mi
Minimum RF lane changes, LCRF	0	lc/pc
Minimum FR lane changes, LCFR	2	lc/pc
Minimum RR lane changes, LCRR		lc/pc
Minimum weaving lane changes, LCMIN		lc/h
Weaving lane changes, LCW		lc/h
Non-weaving vehicle index, INW		
Non-weaving lane change, LCNW		lc/h
Total lane changes, LCALL		lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W

Average weaving speed, SW	mi/h
Average non-weaving speed, SNW	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S		mi/h
Weaving segment density, D		pc/mi/ln
Level of service, LOS	F	
Weaving segment v/c ratio	1.527	
Weaving segment flow rate, v	4408	veh/h
Weaving segment capacity, cW	2887	veh/h

_____Limitations on Weaving Segments_____	
If limit reached, see note.	

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	10574	690	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1494	c
		Maximum	Analyzed	
v/c ratio		1.00	1.527	d

Notes:

- In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
- Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
- The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
- Volumes exceed the weaving segment capacity. The level of service is F.

HCS REPORTS
WEAVE SEGMENTS
2043 HORIZON YEAR BUILD PM

Phone:
E-mail:

Fax:

Operational Analysis

Analyst: Kimley Horn
 Agency/Co.:
 Date Performed: 1/7/2020
 Analysis Time Period: PM Peak Hour
 Freeway/Dir of Travel: I-77 Northbound
 Weaving Location: CD Road at Cherry Road
 Analysis Year: 2043 Horizon Year Build
 Description: I-77 NB CD Road Weave at Cherry Road

Inputs

Segment Type	C-D Roadway/ Multilane Highways	
Weaving configuration	One-Sided	
Number of lanes, N	2	ln
Weaving segment length, LS	625	ft
Freeway free-flow speed, FFS	45	mi/h
Minimum segment speed, SMIN	15	mi/h
Freeway maximum capacity, cIFL	2250	pc/h/ln
Terrain type	Level	
Grade	0.00	%
Length	0.00	mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	472	818	315	0	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.92	
Peak 15-min volume, v15	131	227	88	0	
Trucks and buses	2	2	2	0	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	1.000	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	530	918	354	0	pc/h
Volume ratio, VR	0.706				

Configuration Characteristics

Number of maneuver lanes, NWL	2	ln
Interchange density, ID	0.8	int/mi
Minimum RF lane changes, LCRF	1	lc/pc
Minimum FR lane changes, LCFR	1	lc/pc
Minimum RR lane changes, LCRR		lc/pc
Minimum weaving lane changes, LCMIN	1272	lc/h
Weaving lane changes, LCW	1317	lc/h
Non-weaving vehicle index, INW	27	
Non-weaving lane change, LCNW	63	lc/h
Total lane changes, LCALL	1380	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.422
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Average weaving speed, SW	36.1	mi/h
Average non-weaving speed, SNW	31.5	mi/h

Weaving Segment Speed, Density, Level of Service and Capacity		
Weaving segment speed, S	34.6	mi/h
Weaving segment density, D	26.0	pc/mi/ln
Level of service, LOS	C	
Weaving segment v/c ratio	0.597	
Weaving segment flow rate, v	1784	veh/h
Weaving segment capacity, cW	2986	veh/h

Limitations on Weaving Segments				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	10330	625	a,b
Density-based capacity, cIWL (pc/h/ln)		Maximum 2250	Analyzed 1508	c
v/c ratio		Maximum 1.00	Analyzed 0.597	d

Notes:

- In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
- Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
- The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
- Volumes exceed the weaving segment capacity. The level of service is F.

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Operational Analysis

Analyst: Kimley Horn
 Agency/Co.:
 Date Performed: 1/7/2020
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Inputs

Segment Type	C-D Roadway/ Multilane Highways
Weaving configuration	One-Sided
Number of lanes, N	2 ln
Weaving segment length, LS	690 ft
Freeway free-flow speed, FFS	45 mi/h
Minimum segment speed, SMIN	15 mi/h
Freeway maximum capacity, cIFL	2250 pc/h/ln
Terrain type	Level
Grade	0.00 %
Length	0.00 mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	819	1204	471	0	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.94	
Peak 15-min volume, v15	228	334	131	0	
Trucks and buses	2	2	2	0	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	1.000	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	919	1351	529	0	pc/h
Volume ratio, VR	0.672				

Configuration Characteristics

Number of maneuver lanes, NWL	2	ln
Interchange density, ID	0.8	int/mi
Minimum RF lane changes, LCRF	0	lc/pc
Minimum FR lane changes, LCFR	2	lc/pc
Minimum RR lane changes, LCRR		lc/pc
Minimum weaving lane changes, LCMIN		lc/h
Weaving lane changes, LCW	1107	lc/h
Non-weaving vehicle index, INW	51	
Non-weaving lane change, LCNW	178	lc/h
Total lane changes, LCALL	1285	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.369
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Average weaving speed, SW	36.9	mi/h
Average non-weaving speed, SNW	30.7	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S	34.6	mi/h
Weaving segment density, D	40.5	pc/mi/ln
Level of service, LOS	F	
Weaving segment v/c ratio	0.906	
Weaving segment flow rate, v	2772	veh/h
Weaving segment capacity, cW	3059	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	9901	690	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1545	c
		Maximum	Analyzed	
v/c ratio		1.00	0.906	d

Notes:

- In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
- Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
- The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
- Volumes exceed the weaving segment capacity. The level of service is F.

Appendix H

Crash Analysis Summary

Crash Summary

I- 77 (INTERSTATE 77) from MPT 78.000 to MPT 82.000

YORK COUNTY

01/01/2016 - 06/30/2019 (3.5 years)

Length = 4.000 miles

AADT = 87,799

Functional Class = Urban -- Principal Arterial - Interstate

Crashes by Injury Class

Fatality Crashes	5
Injury Crashes	122
PDO Crashes	393
Total Crashes	520

Crashes by Manner Of Collision

Rear End	251
Angle	30
Sideswipe	107
Head On	1
Run Off Road	88
Animal	4
Bicycle	0
Pedestrian	2
Other	37
Total Crashes	520

Special Contributing Factors

Night	160
Day	360
Wet	79
Dry	441

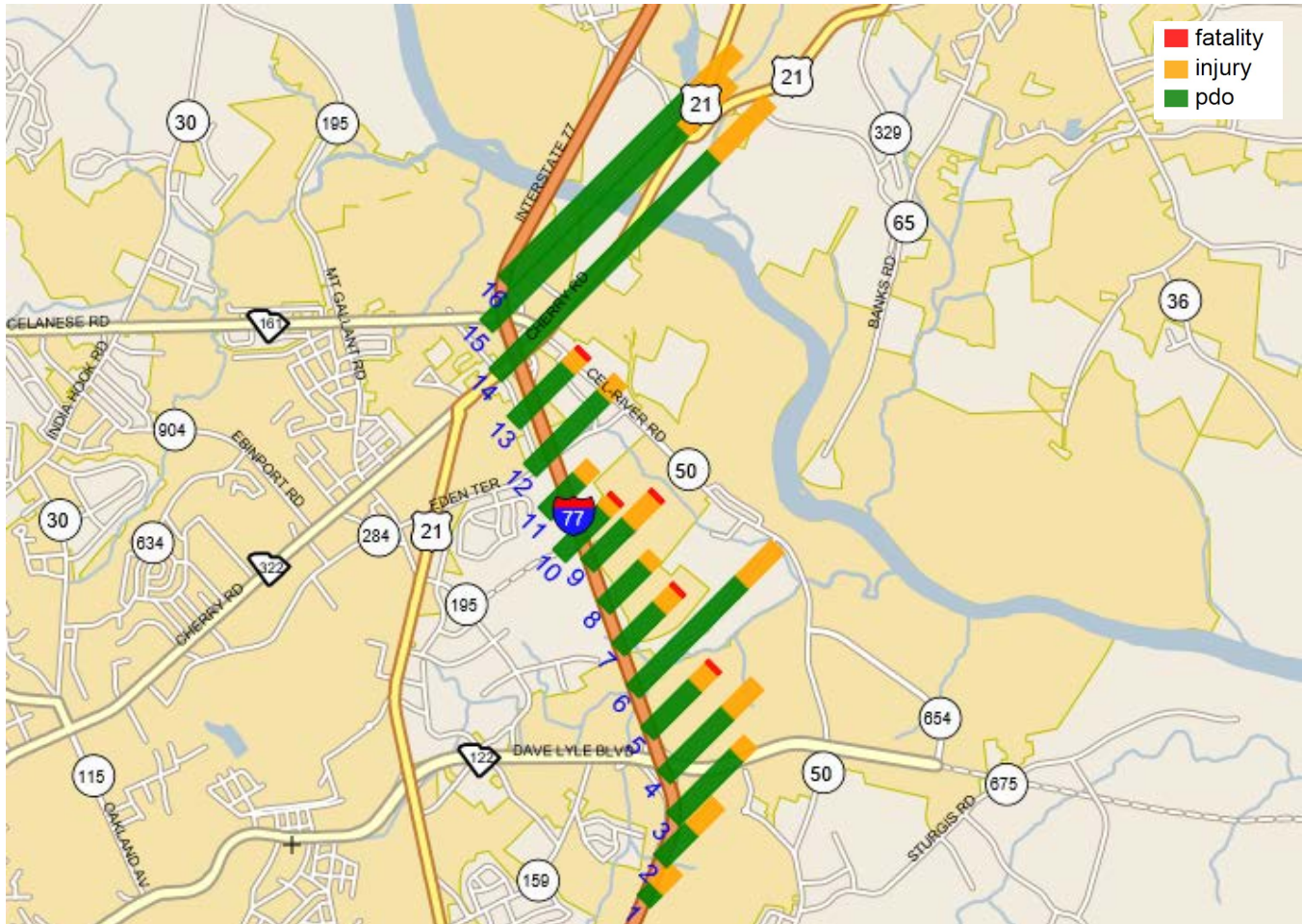
I- 77 (INTERSTATE 77) from MPT 78.000 to MPT 82.000

YORK COUNTY

01/01/2016 - 06/30/2019 (3.5 years)

Length = 4.000 miles AADT = 87,799

Functional Class = Urban -- Principal Arterial - Interstate



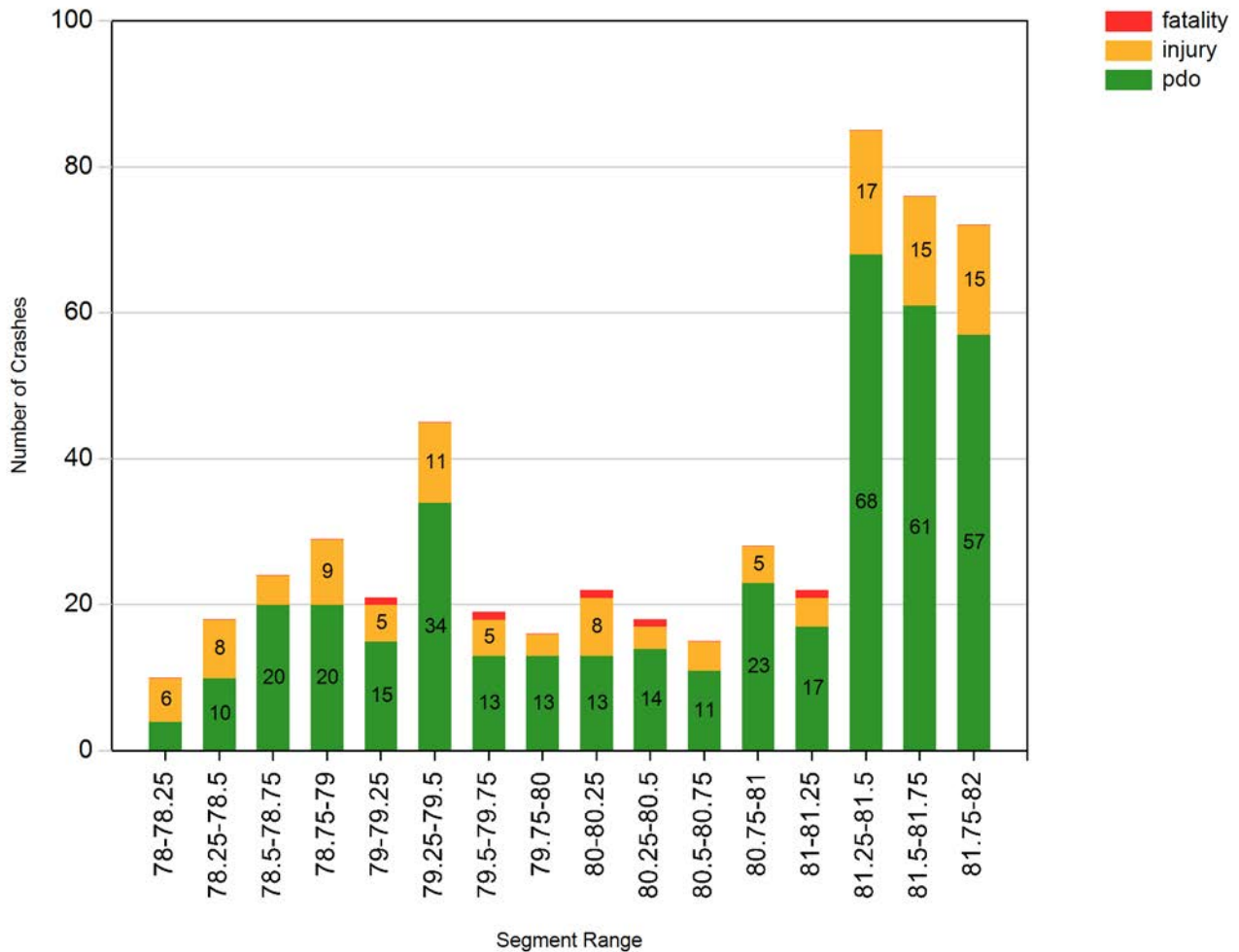
I- 77 (INTERSTATE 77) from MPT 78.000 to MPT 82.000

YORK COUNTY

01/01/2016 - 06/30/2019 (3.5 years)

Length = 4.000 miles AADT = 87,799

Functional Class = Urban -- Principal Arterial - Interstate



I- 77 (INTERSTATE 77) from MPT 78.000 to MPT 82.000

YORK COUNTY

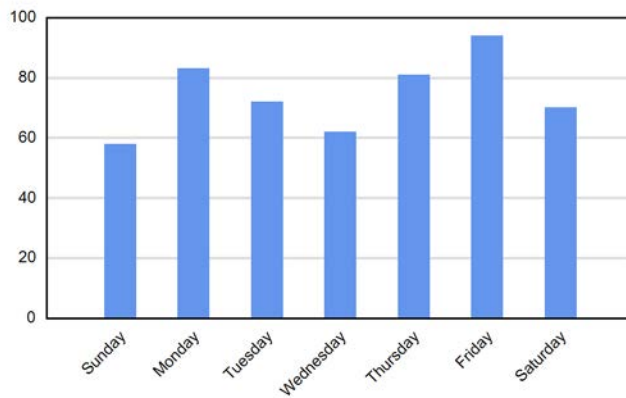
01/01/2016 - 06/30/2019 (3.5 years)

Length = 4.000 miles AADT = 87,799

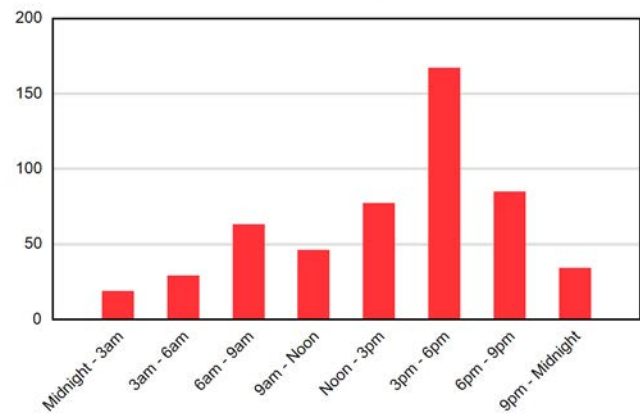
Functional Class = Urban -- Principal Arterial - Interstate

Year	2016	2017	2018	2019	Total
Rear End	107	84	38	22	251
Angle	11	7	9	3	30
Sideswipe	41	23	29	14	107
Head On	1	0	0	0	1
Run Off Road	38	18	18	14	88
Animal	1	1	2	0	4
Bicycle	0	0	0	0	0
Pedestrian	0	2	0	0	2
Other	12	7	9	9	37
	211	142	105	62	520

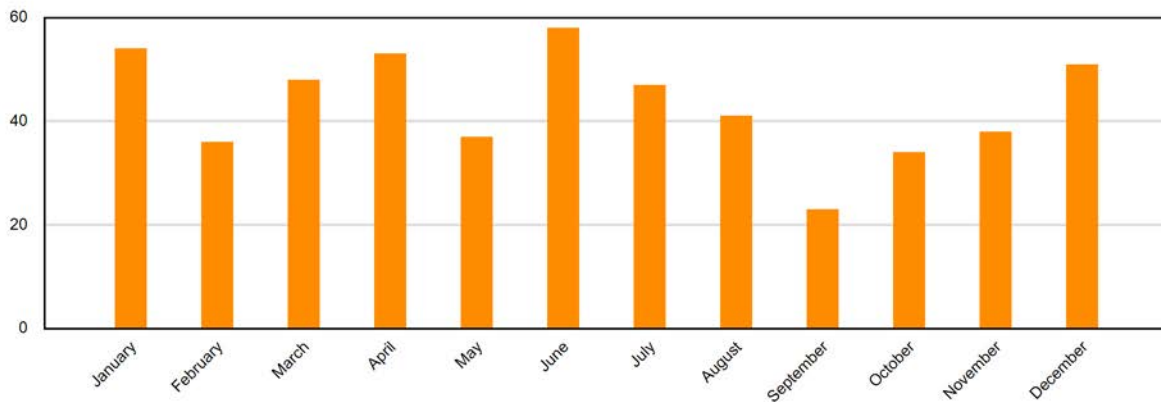
Day of the Week



Time of Day



Month of the Year



Section Crashes

MPT 78.000 to 78.250 (Stack #1)

Total Crashes: 10		Light: 6	Dark: 4	Dry: 7	Wet: 3	Fatalities: 0	Injuries: 6	PDO: 4
1	16501305	78.214	INJ1	DAY	DRY	MOTOR VEHICLE (STOPPED)		REAR END
2	16556830	78.206	INJ1	DARK	WET	MOTOR VEHICLE (IN TRANSPORT)		SIDESWIPE SAME
3	17578010	78.140	INJ1	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)		REAR END
4	17669012	78.220	INJ0	DARK	WET	MOTOR VEHICLE (STOPPED)		REAR END
5	17670205	78.090	INJ1	DARK	WET	MOTOR VEHICLE (STOPPED)		REAR END
6	18521855	78.095	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)		SIDESWIPE SAME
7	18598565	78.072	INJ0	DAY	DRY	OTHER MOVABLE OBJECT		NO COLLISION W/MV
8	19548042	78.235	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)		REAR END
9	19554945	78.210	INJ2	DAY	DRY	MEDIAN BARRIER		NO COLLISION W/MV
10	19583298	78.176	INJ0	DAY	DRY	OTHER MOVABLE OBJECT		NO COLLISION W/MV

MPT 78.250 to 78.500 (Stack #2)

Total Crashes: 18		Light: 9	Dark: 9	Dry: 16	Wet: 2	Fatalities: 0	Injuries: 8	PDO: 10
1	16512799	78.459	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)		SIDESWIPE SAME
2	16513542	78.421	INJ1	DAY	DRY	MEDIAN BARRIER		NO COLLISION W/MV
3	16514280	78.440	INJ0	DARK	DRY	MEDIAN BARRIER		NO COLLISION W/MV
4	16524808	78.357	INJ1	DAY	DRY	MEDIAN BARRIER		NO COLLISION W/MV
5	16573221	78.455	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)		ANGLE
6	16615377	78.464	INJ1	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)		REAR END
7	16621074	78.471	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)		SIDESWIPE SAME
8	16640473	78.344	INJ1	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)		REAR END
9	16642695	78.320	INJ1	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)		SIDESWIPE SAME
10	17557587	78.390	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)		REAR END
11	18550756	78.287	INJ0	DAY	DRY	MEDIAN BARRIER		NO COLLISION W/MV
12	18604025	78.355	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)		SIDESWIPE SAME
13	18641875	78.422	INJ0	DARK	DRY	ANIMAL (DEER ONLY)		NO COLLISION W/MV
14	18681140	78.263	INJ0	DARK	WET	MOTOR VEHICLE (IN TRANSPORT)		SIDESWIPE SAME
15	19502443	78.316	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)		SIDESWIPE SAME
16	19525267	78.394	INJ1	DUSK	DRY	UNKNOWN MOVABLE OBJECT		NO COLLISION W/MV
17	19547759	78.347	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)		SIDESWIPE SAME
18	19548137	78.304	INJ1	DAY	WET	MEDIAN BARRIER		NO COLLISION W/MV

MPT 78.500 to 78.750 (Stack #3)

Total Crashes: 24		Light: 16	Dark: 8	Dry: 19	Wet: 5	Fatalities: 0	Injuries: 4	PDO: 20
1	16567083	78.654	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)		REAR END

Section Crashes

2	16575515	78.594	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
3	16581152	78.552	INJ1	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
4	16585192	78.571	INJ1	DAY	DRY	MEDIAN BARRIER	NO COLLISION W/MV
5	16604371	78.613	INJ0	DARK	DRY	EQUIPMENT FAILURE	NO COLLISION W/MV
6	16619357	78.525	INJ2	DAY	DRY	MEDIAN BARRIER	NO COLLISION W/MV
7	17505127	78.520	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
8	17518700	78.640	INJ0	DARK	DRY	MEDIAN BARRIER	NO COLLISION W/MV
9	17541470	78.590	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
10	17597938	78.690	INJ0	DAY	DRY	MEDIAN BARRIER	NO COLLISION W/MV
11	17607018	78.617	INJ1	DARK	DRY	PEDESTRIAN	SIDESWIPE SAME
12	17648745	78.620	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
13	18575892	78.675	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
14	18575894	78.641	INJ0	DARK	DRY	ANIMAL (DEER ONLY)	NO COLLISION W/MV
15	18617418	78.600	INJ0	DAY	DRY	MEDIAN BARRIER	ANGLE
16	18617426	78.685	INJ0	DAY	WET	HIGHWAY TRAFFIC SIGN POST	NO COLLISION W/MV
17	18673692	78.527	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
18	19511212	78.695	INJ0	DAY	WET	GUARDRAIL FACE	NO COLLISION W/MV
19	19547793	78.667	INJ0	DAY	WET	MEDIAN BARRIER	NO COLLISION W/MV
20	19547797	78.644	INJ0	DAY	WET	MEDIAN BARRIER	NO COLLISION W/MV
21	19548046	78.637	INJ0	DAY	DRY	MEDIAN BARRIER	SIDESWIPE SAME
22	19564563	78.647	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
23	19569935	78.675	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	UNKNOWN
24	19581474	78.656	INJ0	DAY	WET	MEDIAN BARRIER	NO COLLISION W/MV

MPT 78.750 to 79.000 (Stack #4)

Total Crashes: 29 Light: 22 Dark: 7 Dry: 22 Wet: 7 Fatalities: 0 Injuries: 9 PDO: 20

1	16525295	78.803	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
2	16535185	78.921	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
3	16544403	78.890	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
4	16552848	78.890	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	ANGLE
5	16558500	78.890	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
6	16560738	78.870	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
7	16563593	78.937	INJ1	DAY	WET	TREE	NO COLLISION W/MV
8	16588247	78.890	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
9	16591413	78.890	INJ0	DAY	WET	EMBANKMENT	NO COLLISION W/MV
10	16594943	78.890	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
11	16608142	78.890	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
12	16609663	78.937	INJ1	DAY	WET	TREE	NO COLLISION W/MV

Section Crashes

13	16611526	78.870	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
14	16612839	78.955	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
15	16649576	78.890	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
16	16652664	78.890	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
17	17506477	78.870	INJ3	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
18	17512737	78.890	INJ0	DAWN	WET	MOTOR VEHICLE (STOPPED)	REAR END
19	17513927	78.890	INJ1	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
20	17519603	78.890	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
21	17524026	78.890	INJ1	DAY	DRY	MEDIAN BARRIER	NO COLLISION W/MV
22	17535031	78.890	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
23	17550014	78.770	INJ1	DARK	WET	MEDIAN BARRIER	NO COLLISION W/MV
24	17565303	78.770	INJ0	DARK	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV
25	17674012	78.950	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
26	17680864	78.890	INJ0	DUSK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
27	18676126	78.996	INJ0	DAY	WET	OVERTURN/ROLLOVER	NO COLLISION W/MV
28	19547805	78.836	INJ0	DAWN	WET	OVERTURN/ROLLOVER	NO COLLISION W/MV
29	19575376	78.811	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	UNKNOWN

MPT 79.000 to 79.250 (Stack #5)

Total Crashes: 21 Light: 12 Dark: 9 Dry: 20 Wet: 1 Fatalities: 1 Injuries: 5 PDO: 15

1	16508065	79.114	INJ0	DARK	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV
2	16559162	79.163	INJ3	DARK	WET	MOTOR VEHICLE (IN TRANSPORT)	REAR END
3	16564742	79.207	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
4	16565525	79.038	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
5	16570380	79.149	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
6	16587967	79.125	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
7	16587968	79.126	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
8	16587987	79.143	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
9	16633280	79.120	INJ0	DAY	DRY	DITCH	NO COLLISION W/MV
10	16634021	79.127	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
11	16646669	79.026	INJ0	DUSK	DRY	MOTOR VEHICLE (STOPPED)	REAR END
12	17600601	79.085	INJ1	DAY	DRY	GUARDRAIL END	NO COLLISION W/MV
13	17648790	79.140	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
14	17665327	79.140	INJ0	DARK	DRY	MOTOR VEHICLE (STOPPED)	REAR END
15	17673773	79.130	INJ0	DARK	DRY	MOTOR VEHICLE (STOPPED)	REAR END
16	18597767	79.041	INJ1	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
17	18603930	79.181	INJ4	DARK	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV
18	18676627	79.056	INJ1	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END

Section Crashes

19	18677381	79.004	INJ1	DAY	DRY	TREE	NO COLLISION W/MV
20	19548934	79.140	INJ0	DAY	DRY	CARGO/EQUIP LOSS OR SHIFT	NO COLLISION W/MV
21	19566149	79.048	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END

MPT 79.250 to 79.500 (Stack #6)

Total Crashes: 45 Light: 32 Dark: 13 Dry: 39 Wet: 6 Fatalities: 0 Injuries: 11 PDO: 34

1	16501774	79.312	INJ0	DAWN	DRY	GUARDRAIL FACE	NO COLLISION W/MV
2	16509384	79.370	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
3	16521237	79.465	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
4	16560741	79.287	INJ0	DAY	DRY	MEDIAN BARRIER	NO COLLISION W/MV
5	16575526	79.364	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
6	16586235	79.285	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
7	16598168	79.421	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
8	16628799	79.442	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
9	16642133	79.260	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
10	16642921	79.357	INJ0	DARK	DRY	MOTOR VEHICLE (STOPPED)	REAR END
11	16646356	79.372	INJ0	DAY	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV
12	16656237	79.285	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	REAR END
13	16658905	79.311	INJ0	DARK	DRY	UNKNOWN MOVABLE OBJECT	NO COLLISION W/MV
14	17519202	79.390	INJ0	DAY	DRY	MEDIAN BARRIER	NO COLLISION W/MV
15	17528940	79.450	INJ0	DAY	DRY	MEDIAN BARRIER	NO COLLISION W/MV
16	17543097	79.390	INJ0	DARK	DRY	ANIMAL (DEER ONLY)	NO COLLISION W/MV
17	17546186	79.390	INJ1	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
18	17591096	79.370	INJ0	DAY	DRY	MEDIAN BARRIER	NO COLLISION W/MV
19	17592766	79.339	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
20	17605671	79.390	INJ2	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
21	17605674	79.390	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
22	17608950	79.350	INJ0	DARK	WET	MOTOR VEHICLE (IN TRANSPORT)	REAR END
23	17610861	79.250	INJ1	DARK	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV
24	17661618	79.340	INJ1	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
25	18506430	79.481	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
26	18506432	79.378	INJ0	DAY	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV
27	18511049	79.498	INJ0	DUSK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
28	18536426	79.280	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
29	18543105	79.350	INJ0	DAY	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV
30	18550583	79.375	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
31	18559235	79.271	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
32	18569103	79.436	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END

Section Crashes

33	18578814	79.304	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
34	18617427	79.339	INJ1	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	REAR END
35	18625547	79.406	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
36	18638467	79.339	INJ2	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
37	18639752	79.290	INJ3	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
38	18661745	79.303	INJ0	DARK	WET	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
39	18661762	79.450	INJ0	DARK	WET	MOTOR VEHICLE (IN TRANSPORT)	REAR END
40	18673020	79.416	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
41	18684548	79.343	INJ1	DARK	WET	MOTOR VEHICLE (STOPPED)	REAR END
42	19503571	79.333	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
43	19512443	79.360	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
44	19516401	79.267	INJ0	DAY	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV
45	19541195	79.356	INJ0	DARK	DRY	MEDIAN BARRIER	NO COLLISION W/MV

MPT 79.500 to 79.750 (Stack #7)

Total Crashes: 19 Light: 14 Dark: 5 Dry: 17 Wet: 2 Fatalities: 1 Injuries: 5 PDO: 13

1	16533014	79.506	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
2	16533908	79.655	INJ2	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
3	16557861	79.679	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
4	16573222	79.715	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
5	16576901	79.633	INJ1	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
6	16576904	79.590	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
7	16576910	79.690	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
8	17644114	79.710	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
9	17661198	79.710	INJ4	DARK	DRY	PEDESTRIAN	NO COLLISION W/MV
10	18537403	79.531	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
11	18550760	79.725	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
12	18604094	79.535	INJ0	DARK	DRY	MOTOR VEHICLE (PARKED)	SIDESWIPE SAME
13	18632334	79.663	INJ1	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
14	18643038	79.573	INJ2	DARK	DRY	TREE	NO COLLISION W/MV
15	18661427	79.603	INJ0	DUSK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
16	19505046	79.583	INJ0	DAWN	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
17	19545907	79.559	INJ2	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	REAR END
18	19575388	79.585	INJ0	DAY	DRY	CARGO/EQUIP LOSS OR SHIFT	NO COLLISION W/MV
19	19585744	79.522	INJ0	DAY	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV

Section Crashes

MPT 79.750 to 80.000 (Stack #8)

Total Crashes: 16 Light: 8 Dark: 8 Dry: 12 Wet: 4 Fatalities: 0 Injuries: 3 PDO: 13

1	16012454	79.994	INJ2	DARK	DRY	MOTOR VEHICLE (STOPPED)	REAR END
2	16520981	79.993	INJ0	DARK	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV
3	16575969	79.902	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
4	16614938	79.968	INJ0	DAY	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV
5	16663076	79.767	INJ0	DUSK	DRY	MOTOR VEHICLE (STOPPED)	REAR END
6	17509862	79.890	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
7	17582334	79.890	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
8	17604214	79.890	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
9	17657735	79.870	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
10	17661269	79.980	INJ0	DARK	WET	MEDIAN BARRIER	NO COLLISION W/MV
11	17676931	79.909	INJ0	DUSK	WET	MOTOR VEHICLE (IN TRANSPORT)	REAR END
12	18545360	79.846	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
13	18553059	79.787	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
14	18570795	79.780	INJ0	DAY	DRY	MEDIAN BARRIER	NO COLLISION W/MV
15	18684535	79.855	INJ0	DAY	SNOW	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
16	18686202	79.809	INJ0	DUSK	WET	MOTOR VEHICLE (IN TRANSPORT)	REAR END

MPT 80.000 to 80.250 (Stack #9)

Total Crashes: 22 Light: 15 Dark: 7 Dry: 20 Wet: 2 Fatalities: 1 Injuries: 8 PDO: 13

1	16508639	80.241	INJ0	DAY	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV
2	16527083	80.177	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
3	16568083	80.023	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
4	16572161	80.122	INJ4	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
5	16578904	80.208	INJ0	DAY	DRY	MEDIAN BARRIER	NO COLLISION W/MV
6	16620932	80.159	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
7	16622280	80.199	INJ1	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
8	16649114	80.210	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
9	17552311	80.210	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
10	17563628	80.110	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
11	17675784	80.210	INJ2	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
12	18511998	80.146	INJ1	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
13	18540110	80.155	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
14	18569105	80.006	INJ0	DUSK	WET	MEDIAN BARRIER	NO COLLISION W/MV
15	18595190	80.101	INJ1	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
16	18601134	80.182	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END

Section Crashes

17	18644852	80.148	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
18	18646470	80.179	INJ3	DARK	DRY	EMBANKMENT	NO COLLISION W/MV
19	18682973	80.075	INJ1	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
20	19515416	80.193	INJ1	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
21	19515454	80.066	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
22	19553745	80.202	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME

MPT 80.250 to 80.500 (Stack #10)

Total Crashes: 18 Light: 9 Dark: 9 Dry: 14 Wet: 4 Fatalities: 1 Injuries: 3 PDO: 14

1	17558680	80.320	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
2	17569164	80.320	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
3	17597564	80.280	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
4	17620215	80.320	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
5	17675789	80.430	INJ1	DARK	DRY	MOTOR VEHICLE (STOPPED)	REAR END
6	18507581	80.467	INJ0	DARK	WET	OTHER MOVABLE OBJECT	NO COLLISION W/MV
7	18536419	80.422	INJ0	DARK	WET	OTHER MOVABLE OBJECT	NO COLLISION W/MV
8	18555627	80.389	INJ0	DARK	DRY	MEDIAN BARRIER	NO COLLISION W/MV
9	18600186	80.489	INJ0	DAY	DRY	DITCH	NO COLLISION W/MV
10	18652136	80.268	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
11	18675260	80.313	INJ4	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	REAR END
12	18677380	80.272	INJ0	DAY	ICE	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
13	18684941	80.348	INJ0	DAY	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV
14	19507885	80.406	INJ1	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
15	19507886	80.463	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
16	19509441	80.451	INJ0	DARK	DRY	MEDIAN BARRIER	NO COLLISION W/MV
17	19541191	80.358	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
18	19592586	80.261	INJ2	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END

MPT 80.500 to 80.750 (Stack #11)

Total Crashes: 15 Light: 7 Dark: 8 Dry: 11 Wet: 4 Fatalities: 0 Injuries: 4 PDO: 11

1	16555538	80.734	INJ1	DAY	DRY	MEDIAN BARRIER	NO COLLISION W/MV
2	16569337	80.525	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
3	16624145	80.526	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
4	17512933	80.710	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
5	17529562	80.710	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
6	17543474	80.650	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
7	17576039	80.710	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
8	17659777	80.560	INJ1	DARK	WET	TREE	NO COLLISION W/MV

Section Crashes

9	17663988	80.710	INJ0	DUSK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
10	17663989	80.710	INJ0	DUSK	DRY	MOTOR VEHICLE (STOPPED)	REAR END
11	17675470	80.710	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
12	18527218	80.668	INJ1	DARK	WET	TREE	NO COLLISION W/MV
13	18536421	80.547	INJ0	DARK	WET	UNKNOWN MOVABLE OBJECT	NO COLLISION W/MV
14	18595218	80.600	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
15	19591029	80.566	INJ0	DAY	DRY	TREE	NO COLLISION W/MV

MPT 80.750 to 81.000 (Stack #12)

Total Crashes: 28 Light: 18 Dark: 10 Dry: 23 Wet: 5 Fatalities: 0 Injuries: 5 PDO: 23

1	16518895	80.778	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
2	16544423	80.828	INJ0	DAY	DRY	MOTOR VEHICLE (PARKED)	SIDESWIPE SAME
3	16546188	80.981	INJ0	DARK	DRY	HIGHWAY TRAFFIC SIGN POST	NO COLLISION W/MV
4	16567084	80.809	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
5	16572349	80.972	INJ0	DAY	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV
6	16573664	80.890	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
7	16579455	80.822	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
8	16585193	80.884	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
9	16586085	80.889	INJ1	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
10	16586093	80.881	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
11	16637606	80.850	INJ0	DARK	DRY	ANIMAL (DEER ONLY)	NO COLLISION W/MV
12	16661207	80.769	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	REAR END
13	17597543	80.870	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
14	18506389	80.766	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
15	18513436	80.790	INJ2	DARK	DRY	MEDIAN BARRIER	NO COLLISION W/MV
16	18536422	80.750	INJ0	DARK	WET	GUARDRAIL END	NO COLLISION W/MV
17	18601694	80.781	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
18	18604024	80.905	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
19	18638466	80.780	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
20	18655483	80.765	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
21	18671387	80.945	INJ0	DARK	WET	MEDIAN BARRIER	NO COLLISION W/MV
22	18685245	80.773	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
23	19521876	80.952	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
24	19527242	80.797	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
25	19571419	80.810	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
26	19571468	80.873	INJ2	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
27	19576705	80.865	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
28	19587419	80.955	INJ0	DAY	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV

Section Crashes

MPT 81.000 to 81.250 (Stack #13)

Total Crashes: 22 Light: 12 Dark: 10 Dry: 18 Wet: 4 Fatalities: 1 Injuries: 4 PDO: 17

1	16501582	81.062	INJ0	DAY	DRY	MEDIAN BARRIER	NO COLLISION W/MV
2	16501814	81.246	INJ0	DAWN	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
3	16503917	81.245	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
4	16503928	81.230	INJ0	DAY	WET	GUARDRAIL FACE	NO COLLISION W/MV
5	16517132	81.243	INJ0	DARK	WET	MEDIAN BARRIER	NO COLLISION W/MV
6	16521427	81.249	INJ2	DARK	WET	GUARDRAIL FACE	NO COLLISION W/MV
7	16530695	81.181	INJ0	DAWN	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
8	16533022	81.043	INJ0	DAY	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV
9	16549467	81.246	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
10	16603751	81.203	INJ0	DARK	WET	OTHER NONCOLLISION	NO COLLISION W/MV
11	16609413	81.154	INJ0	DAY	DRY	MOTOR VEHICLE (PARKED)	SIDESWIPE SAME
12	16641369	81.147	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
13	16641389	81.242	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
14	16670942	81.232	INJ2	DARK	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV
15	17533022	81.150	INJ0	DAY	DRY	MEDIAN BARRIER	NO COLLISION W/MV
16	17542241	81.200	INJ0	DAY	DRY	HIGHWAY TRAFFIC SIGN POST	NO COLLISION W/MV
17	17591251	81.248	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	BACKED INTO
18	17672611	81.100	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
19	18511062	81.040	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
20	18547450	81.193	INJ0	DARK	DRY	UNKNOWN MOVABLE OBJECT	NO COLLISION W/MV
21	19501024	81.227	INJ2	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
22	19588569	81.097	INJ4	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END

MPT 81.250 to 81.500 (Stack #14)

Total Crashes: 85 Light: 67 Dark: 18 Dry: 75 Wet: 10 Fatalities: 0 Injuries: 17 PDO: 68

1	16500185	81.277	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
2	16503882	81.477	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
3	16503938	81.419	INJ0	DAY	WET	GUARDRAIL FACE	NO COLLISION W/MV
4	16510470	81.479	INJ0	DARK	WET	MOTOR VEHICLE (STOPPED)	REAR END
5	16510987	81.468	INJ0	DAY	WET	GUARDRAIL FACE	NO COLLISION W/MV
6	16513074	81.477	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
7	16515616	81.400	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
8	16525022	81.283	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
9	16526867	81.397	INJ1	DARK	DRY	OTHER (WALL, BUILDING, TUNNEL, ETC)	NO COLLISION W/MV
10	16531888	81.250	INJ0	DAY	WET	GUARDRAIL FACE	NO COLLISION W/MV

Section Crashes

11	16531891	81.256	INJ0	DARK	WET	OTHER (WALL, BUILDING, TUNNEL, ETC)	HEAD ON
12	16532150	81.375	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
13	16533018	81.442	INJ0	DAY	DRY	EMBANKMENT	NO COLLISION W/MV
14	16537137	81.491	INJ2	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
15	16539317	81.260	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
16	16540495	81.478	INJ0	DARK	DRY	MOTOR VEHICLE (STOPPED)	REAR END
17	16541584	81.261	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
18	16543911	81.479	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
19	16546471	81.270	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
20	16550070	81.300	INJ1	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
21	16560792	81.361	INJ0	DARK	DRY	TREE	NO COLLISION W/MV
22	16560821	81.251	INJ0	DAY	WET	MEDIAN BARRIER	NO COLLISION W/MV
23	16570844	81.477	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
24	16570867	81.289	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
25	16580063	81.300	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
26	16581398	81.478	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
27	16591451	81.478	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
28	16593889	81.260	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
29	16598880	81.477	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
30	16598889	81.478	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
31	16608377	81.265	INJ0	DAWN	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
32	16619439	81.433	INJ0	DAWN	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
33	16619459	81.477	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
34	16620694	81.497	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	UNKNOWN
35	16621540	81.478	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
36	16628153	81.317	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
37	16629888	81.454	INJ0	DAWN	DRY	MOTOR VEHICLE (STOPPED)	REAR END
38	16635334	81.288	INJ2	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
39	16639138	81.447	INJ0	DARK	WET	MEDIAN BARRIER	NO COLLISION W/MV
40	16639149	81.479	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
41	16640350	81.321	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	SIDESWIPE SAME
42	16642186	81.416	INJ1	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
43	16648966	81.450	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
44	16650289	81.310	INJ0	DAWN	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
45	16655842	81.493	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
46	16659892	81.456	INJ0	DAY	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
47	16659928	81.260	INJ1	DUSK	DRY	MOTOR VEHICLE (STOPPED)	REAR END
48	16662881	81.478	INJ0	DAY	WET	MOTOR VEHICLE (STOPPED)	REAR END

Section Crashes

49	16667312	81.477	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
50	16667335	81.260	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
51	16667341	81.293	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
52	16668429	81.477	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
53	16671420	81.482	INJ0	DAY	DRY	OTHER	NO COLLISION W/MV
54	17502288	81.380	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	REAR END
55	17508106	81.300	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
56	17511028	81.251	INJ1	DARK	DRY	MOTOR VEHICLE (STOPPED)	REAR END
57	17512314	81.260	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
58	17513919	81.360	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
59	17515163	81.400	INJ0	DARK	DRY	MOTOR VEHICLE (STOPPED)	REAR END
60	17518651	81.440	INJ2	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
61	17521585	81.481	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
62	17529036	81.475	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
63	17529711	81.288	INJ1	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
64	17536796	81.477	INJ1	DAY	DRY	OTHER NONCOLLISION	NO COLLISION W/MV
65	17540092	81.260	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
66	17554343	81.300	INJ0	DARK	DRY	MOTOR VEHICLE (STOPPED)	REAR END
67	17561361	81.300	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
68	17561969	81.478	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
69	17561970	81.478	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
70	17568224	81.300	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
71	17573773	81.300	INJ1	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
72	17581283	81.371	INJ1	DAY	DRY	OTHER (WALL, BUILDING, TUNNEL, ETC)	NO COLLISION W/MV
73	17588387	81.440	INJ0	DAY	WET	DITCH	NO COLLISION W/MV
74	17610192	81.440	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
75	17614903	81.269	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
76	17636215	81.270	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
77	18509280	81.306	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
78	18642041	81.476	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
79	18672946	81.311	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
80	19503293	81.282	INJ1	DAY	DRY	MEDIAN BARRIER	NO COLLISION W/MV
81	19504446	81.303	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
82	19528837	81.268	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
83	19530247	81.476	INJ1	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
84	19571463	81.323	INJ0	DAY	DRY	MOTOR VEHICLE (PARKED)	SIDESWIPE SAME
85	19583635	81.479	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END

Section Crashes

MPT 81.500 to 81.750 (Stack #15)

Total Crashes: 76 Light: 55 Dark: 21 Dry: 67 Wet: 9 Fatalities: 0 Injuries: 15 PDO: 61

1	16500435	81.702	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
2	16501438	81.649	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
3	16503878	81.533	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
4	16508486	81.669	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
5	16532266	81.501	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
6	16533089	81.640	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
7	16540471	81.508	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
8	16543919	81.540	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
9	16556834	81.730	INJ2	DARK	WET	MEDIAN BARRIER	NO COLLISION W/MV
10	16572662	81.540	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
11	16581144	81.630	INJ0	DARK	DRY	MEDIAN BARRIER	NO COLLISION W/MV
12	16588225	81.701	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
13	16588625	81.582	INJ2	DARK	DRY	MEDIAN BARRIER	NO COLLISION W/MV
14	16588799	81.706	INJ1	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
15	16596653	81.748	INJ3	DAY	DRY	GUARDRAIL FACE	NO COLLISION W/MV
16	16598175	81.690	INJ2	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
17	16601554	81.549	INJ2	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
18	16601826	81.607	INJ3	DAY	DRY	SPILL (TWO-WHEELED VEH)	NO COLLISION W/MV
19	16602548	81.611	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
20	16612849	81.702	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
21	16617894	81.611	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
22	16618022	81.502	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
23	16619434	81.507	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	REAR END
24	16629100	81.582	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
25	16662478	81.727	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
26	16663549	81.576	INJ0	DARK	DRY	MOTOR VEHICLE (STOPPED)	REAR END
27	16663564	81.525	INJ1	DARK	ICE	GUARDRAIL FACE	NO COLLISION W/MV
28	16667285	81.523	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
29	17505623	81.540	INJ0	DAY	DRY	MEDIAN BARRIER	NO COLLISION W/MV
30	17508105	81.732	INJ0	DAY	DRY	OTHER NONCOLLISION	NO COLLISION W/MV
31	17509842	81.600	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
32	17511023	81.540	INJ0	DUSK	DRY	MOTOR VEHICLE (STOPPED)	ANGLE
33	17511476	81.540	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
34	17515174	81.540	INJ0	DUSK	DRY	MOTOR VEHICLE (STOPPED)	REAR END
35	17515602	81.540	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END

Section Crashes

36	17516309	81.640	INJ1	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
37	17523701	81.540	INJ0	DARK	DRY	MOTOR VEHICLE (STOPPED)	REAR END
38	17525620	81.540	INJ0	DARK	DRY	MEDIAN BARRIER	NO COLLISION W/MV
39	17530750	81.540	INJ1	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
40	17540090	81.540	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
41	17541692	81.540	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
42	17548057	81.640	INJ0	DAY	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV
43	17553134	81.540	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
44	17556217	81.540	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
45	17556763	81.740	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
46	17563658	81.540	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
47	17579348	81.540	INJ0	DARK	DRY	DITCH	NO COLLISION W/MV
48	17581280	81.540	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
49	17582601	81.540	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
50	17587379	81.540	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
51	17592738	81.540	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
52	17594030	81.540	INJ3	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
53	17594637	81.740	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
54	17598549	81.740	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
55	17599883	81.540	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
56	17601005	81.540	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	REAR END
57	17603624	81.540	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
58	17604382	81.702	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
59	17609269	81.640	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
60	17611452	81.540	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
61	17617244	81.540	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
62	17623579	81.540	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
63	17628372	81.540	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
64	17632510	81.540	INJ0	DAY	WET	DITCH	NO COLLISION W/MV
65	17636216	81.540	INJ0	DAY	WET	MOTOR VEHICLE (STOPPED)	REAR END
66	17641678	81.540	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
67	17648776	81.690	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
68	17651211	81.540	INJ0	DARK	WET	MOTOR VEHICLE (IN TRANSPORT)	REAR END
69	17655424	81.640	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
70	18521865	81.532	INJ0	DARK	WET	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
71	18660331	81.538	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
72	18677830	81.602	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
73	19509536	81.725	INJ0	DARK	DRY	MOTOR VEHICLE (STOPPED)	REAR END

Section Crashes

74	19552507	81.611	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
75	19552509	81.523	INJ0	DUSK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
76	19577643	81.664	INJ0	DAY	DRY	HIGHWAY TRAFFIC SIGN POST	NO COLLISION W/MV

MPT 81.750 to 82.000 (Stack #16)

Total Crashes: 72 Light: 58 Dark: 14 Dry: 61 Wet: 11 Fatalities: 0 Injuries: 15 PDO: 57

1	16506201	81.920	INJ0	DAY	ICE	MEDIAN BARRIER	NO COLLISION W/MV
2	16513550	81.932	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
3	16513559	81.912	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
4	16525298	81.961	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
5	16540306	81.852	INJ0	DAY	DRY	MEDIAN BARRIER	NO COLLISION W/MV
6	16540320	81.963	INJ2	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
7	16570849	81.755	INJ1	DAY	DRY	MOTOR VEHICLE (STOPPED)	SIDESWIPE SAME
8	16571888	81.918	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
9	16573665	81.992	INJ1	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
10	16573667	81.913	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
11	16578442	81.790	INJ3	DAY	DRY	MEDIAN BARRIER	NO COLLISION W/MV
12	16587205	81.950	INJ1	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
13	16589208	81.924	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
14	16590421	81.876	INJ0	DAY	DRY	MEDIAN BARRIER	SIDESWIPE SAME
15	16597677	81.814	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
16	16598170	81.955	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
17	16604077	81.861	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
18	16606136	81.809	INJ1	DARK	DRY	GUARDRAIL END	NO COLLISION W/MV
19	16617147	81.975	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
20	16624839	81.769	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
21	16630064	81.887	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
22	16636991	81.887	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
23	16641390	81.835	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
24	16642139	81.906	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
25	17510631	81.930	INJ0	DAY	DRY	UNKNOWN MOVABLE OBJECT	NO COLLISION W/MV
26	17527392	81.790	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
27	17543427	81.840	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
28	17560743	81.800	INJ1	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
29	17576529	81.840	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
30	17576553	81.800	INJ0	DAY	WET	MOTOR VEHICLE (STOPPED)	REAR END
31	17576981	81.790	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
32	17608983	81.828	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END

Section Crashes

33	17641449	81.913	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
34	17641524	81.790	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
35	17646902	81.790	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
36	17646903	81.970	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
37	17675140	81.967	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
38	17677847	81.840	INJ0	DARK	DRY	MOTOR VEHICLE (STOPPED)	REAR END
39	18503555	81.941	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
40	18506421	81.990	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
41	18506422	81.750	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
42	18515045	81.898	INJ0	DARK	DRY	GUARDRAIL END	NO COLLISION W/MV
43	18525953	81.913	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
44	18527228	81.931	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
45	18532279	81.893	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
46	18536437	81.905	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
47	18543098	81.899	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
48	18550580	81.927	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
49	18553461	81.970	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	REAR END
50	18574575	81.894	INJ0	DUSK	DRY	MOTOR VEHICLE (STOPPED)	REAR END
51	18590852	81.855	INJ0	DAY	DRY	MEDIAN BARRIER	NO COLLISION W/MV
52	18598578	81.972	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
53	18606088	81.915	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
54	18616714	81.916	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
55	18643468	81.921	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
56	18656849	81.991	INJ1	DAY	WET	MOTOR VEHICLE (STOPPED)	REAR END
57	18660322	81.900	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
58	18670667	81.915	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
59	18671383	81.762	INJ0	DARK	WET	GUARDRAIL FACE	NO COLLISION W/MV
60	18671446	81.896	INJ0	DUSK	DRY	MOTOR VEHICLE (STOPPED)	REAR END
61	18681836	81.795	INJ0	DAY	ICE	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
62	18682975	81.946	INJ0	DARK	WET	MOTOR VEHICLE (IN TRANSPORT)	REAR END
63	18687819	81.897	INJ2	DAY	DRY	GUARDRAIL END	NO COLLISION W/MV
64	19501012	81.960	INJ0	DARK	WET	MOTOR VEHICLE (IN TRANSPORT)	REAR END
65	19505016	81.906	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
66	19507918	81.925	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
67	19519397	81.972	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
68	19528830	81.888	INJ2	DARK	WET	GUARDRAIL END	NO COLLISION W/MV
69	19554395	81.954	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
70	19570830	81.751	INJ1	DAY	DRY	MEDIAN BARRIER	NO COLLISION W/MV

Section Crashes

71	19582795	81.918	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
72	19588486	81.908	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END