

May 28, 2025

Zoning Board of Adjustment
Township of North Brunswick
710 Hermann Road
North Brunswick, NJ 08902

**Re: Traffic Study for
North Brunswick Executive Park
Use Variance Application
Route 1 Northbound
Langan Project No. 130239201**

Dear Board Members:

Langan Engineering & Environmental Services has prepared this traffic study for the use variance application to allow warehouse and flex space on a site along Route 1 northbound, next to Chamberlain University. Specifically, this traffic study reviews the traffic-related aspects of the proposed development and includes the following discussion topics:

- existing conditions,
- proposed development,
- trip generation and distribution,
- future traffic volumes,
- traffic operations analysis, and
- site plan review.

Based on this traffic study, we have concluded the proposed development will not significantly impact area traffic operations. Moreover, the proposed site design is consistent with current standards and provides adequate access, circulation, and parking.

EXISTING CONDITIONS

The site is located on the northbound side of Route 1 and is undeveloped. Township tax maps designate the site as Block 252, Lots 1.03 and 1.06. Route 1 is a six-lane divided highway in front of the site with auxiliary lanes running between on- and off-ramps. The site has frontage along mainline Route 1 and along the off-ramp to College Farm Road East. The posted speed limit is 55 mph near the site. On the following page, Figure 1 shows the site location.

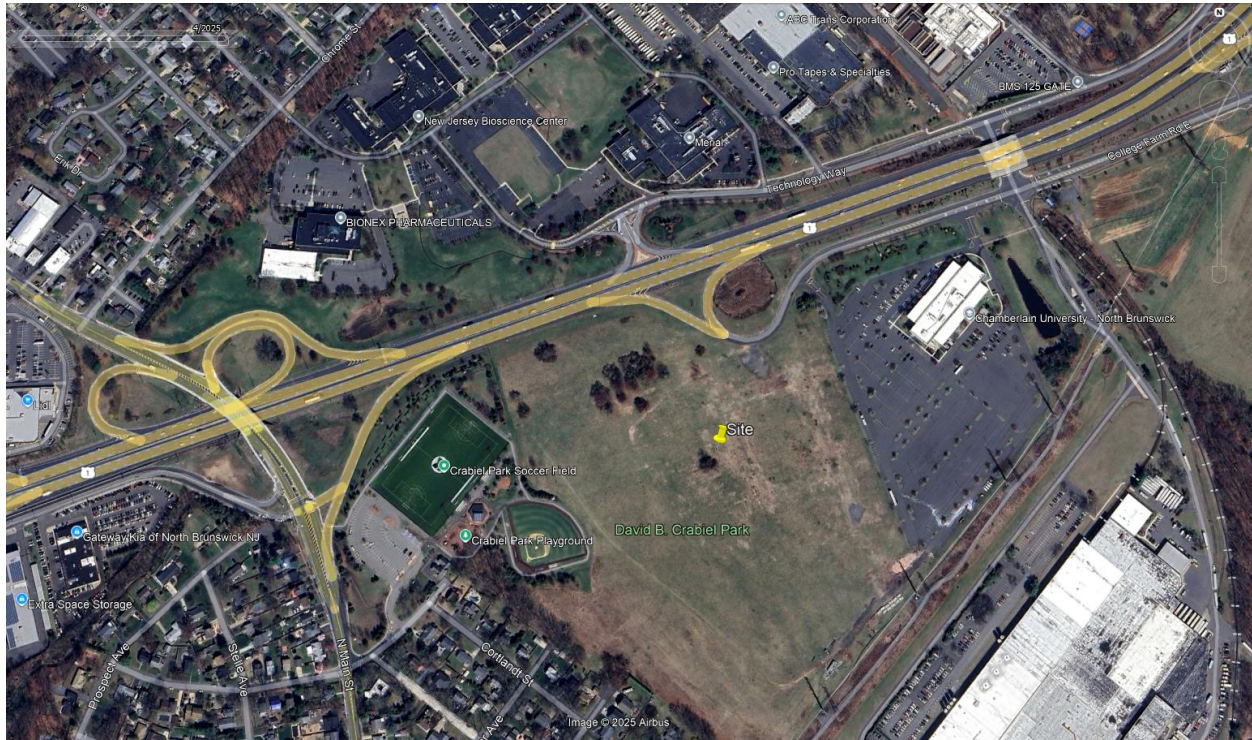


Figure 1 – Site Location

Traffic Volumes

Langan arranged for traffic counts at the following intersections:

- Route 1 Northbound and Off-Ramp to College Farm Road East,
- Route 1 Northbound and On-Ramp from College Farm Road East,
- College Farm Road East and Silverline Drive,
- Technology Way and Silverline Drive,
- Technology Way and Route 1 Southbound Ramps,
- Route 1 Southbound and Off-Ramp to Technology Way, and
- Route 1 Southbound and On-Ramp from Technology Way.

Attached are aerial figures of the traffic count intersections.

Video cameras or automatic traffic recorders (ATRs) recorded movements at each of the traffic count intersections on Tuesday, December 17, 2024, from 6:00 AM to 10:00 AM and 2:00 PM to 7:00 PM. Those counting periods also captured any school-related traffic on that day. Based on the traffic counts, for each intersection we conservatively identified the highest hourly intersection volumes for the morning and the evening rather than identify common peak hours for all the study intersections. As a result, traffic volumes between adjacent intersections might not balance. Attached are the traffic counts and a figure that shows the 2024 existing traffic volumes.

The applicant seeks approval to construct two flex space buildings and two warehouse buildings on the site. The two flex space buildings will each provide 50,142 square feet of building area. The two warehouse buildings will each provide 100,000 square feet of building area. The total proposed building area is 300,284 square feet. The applicant also proposes 414 car parking spaces. A full-movement site driveway along the Route 1 northbound off-ramp to College Farm Road East will provide site access. A stop sign will control the site driveway. Figure 2 shows the proposed site plan.



We used trip generation data contained in *Trip Generation Manual*, 11th edition, published by the Institute of Transportation Engineers (ITE), to estimate the trips for the proposed development. This publication is the authoritative source used by the traffic engineering profession to estimate trip generation for various land uses. We used the highest trip rates for land use code 770 (Business Park) for the proposed flex space and for land use code 150 (Warehousing) for the

proposed warehouse space to estimate trip generation for the proposed development. Table 1 shows the trip generation estimates for cars and trucks.

Please note there are no flex space truck trip rates. As such, we identified the ratio of truck trips to total trips for the warehouse space and applied those ratios to the flex space trip generation estimates to estimate the flex space truck trips.

Table 1 – Trip Generation Estimates

Vehicle Type	Weekday AM Peak Hour			Weekday PM Peak Hour		
	In	Out	Total	In	Out	Total
Flex Space (100,284 square feet)						
Cars	111	14	125	29	99	128
Trucks	6	6	12	9	9	18
Total Vehicles	117	20	137	38	108	146
Warehouse Space (200,000 square feet)						
Cars	35	9	44	11	33	44
Trucks	2	2	4	3	3	6
Total Vehicles	37	11	48	14	36	50
Total Development (300,284 square feet)						
Cars	146	23	169	40	132	172
Trucks	8	8	16	12	12	24
Total Vehicles	154	31	185	52	144	196

We used the travel patterns of the existing traffic volumes to establish trip distribution for the car trips. Given the proximity of the NJ Turnpike Exit 9 to the north of the site, we established the trip distribution for the truck trips favoring a to and from the north orientation. Table 2 shows the trip distribution.

Table 2 – Trip Distribution

Direction (To/From)	Cars	Trucks
	Arrival & Departure	Arrival & Departure
Route 1 (North)	40%	70%
Route 1 (South)	40%	30%
College Farm Road West (North)	20%	-
Total	100%	100%

Attached are figures that show the car and truck trip distributions and the corresponding site-generated trips.

FUTURE TRAFFIC VOLUMES

For analysis purposes, we have conservatively assumed the applicant will complete the proposed development by the end of 2028. We projected future 2028 no-build traffic volumes by including existing traffic and background traffic growth. We then added site-generated traffic to the 2028 no-build traffic volumes to derive the 2028 build traffic volumes. Attached are the traffic volume figures.

2028 No-Build Traffic Volumes

We increased the existing weekday peak hour traffic volumes by an annual 2.50% growth rate to account for background traffic growth and to derive the 2028 no-build traffic volumes. The NJDOT has published that 2.50% growth rate for roads in Middlesex County.

2028 Build Traffic Volumes

We derived the 2028 build traffic volumes by adding site-generated traffic to the 2028 no-build traffic volumes.

TRAFFIC OPERATIONS ANALYSIS

We conducted a traffic operations analysis with the Highway Capacity Software (HCS), which uses methodologies contained in the Highway Capacity Manual (HCM) published by the Transportation Research Board. The HCM uses the term Level of Service (LOS) to denote the operating condition of a road segment or intersection under prevailing conditions and reflects several factors such as number of travel lanes, traffic volume, speed, and vehicle delay. LOS designations range from A to F, with LOS A representing the best operating conditions and LOS F representing poor operating conditions.

LOS designations are different for signalized and unsignalized intersections. For signalized intersections, the methodology considers the operation of all traffic entering the intersection. For unsignalized intersections, the methodology considers the operation of all movements that conflict with other movements, such as major road left turns and traffic exiting a minor road.

The HCM defines LOS for signalized intersections as follows:

<u>LOS</u>	<u>Delay Range (sec/veh)</u>
A	<10 sec
B	≥10 and ≤20 sec
C	≥20 and ≤35 sec
D	≥35 and ≤55 sec
E	≥55 and ≤80 sec
F	>80 sec

The HCM defines LOS for unsignalized intersections as follows:

<u>LOS</u>	<u>Delay Range (sec/veh)</u>
A	<10 sec
B	≥10 and ≤15 sec
C	≥15 and ≤25 sec
D	≥25 and ≤35 sec
E	≥35 and ≤50 sec
F	>50 sec

LOS designations are also different for ramp merge and diverge segments. Rather than delay, LOS designations for ramp merge and diverge segments are based on the density of passenger cars per mile per lane (pc/mi/ln). The HCM defines LOS for ramp merge and diverge segments as follows:

<u>LOS</u>	<u>Density (pc/mi/ln)</u>
A	<10
B	≥10 and ≤20
C	≥20 and ≤28
D	≥28 and ≤35
E	≥35
F	Demand Exceeds Capacity

We analyzed the study intersections. For the signalized intersections, we used the attached NJDOT signal timing directives. Please note, for the Technology Way and Silverline Drive intersection during the evening peak hour, we adjusted the timing to give three more seconds of green time to the north-south approaches under the build condition. If the board grants the applicant approval, then we recommend both signalized intersections undergo evaluation to determine optimized operations as part of the NJDOT review of the access application needed for the proposed development. On the following page, Table 3 summarizes the Levels of Service and average vehicle delays for the weekday morning and evening peak hours for the analyzed signalized and unsignalized intersections. On page 8, Table 4 summarizes the Levels of Service for the ramp merge and diverge segments. As the analysis results show, the analyzed intersections and the proposed site driveway will operate acceptably during weekday peak hours under the build condition. Moreover, the proposed development will not significantly alter traffic operations at the analyzed intersections.

**Table 3 – Level of Service Analysis Summary
(Signalized and Unsignalized Intersections)**

Location	Movement	2028 No-Build Condition		2028 Build Condition		
		AM	PM	AM	PM	
Signalized Intersections						
College Farm Road East and Silverline Drive	EB	L	C (28.1)	C (29.0)	C (25.5)	C (28.8)
		T,R	C (27.4)	C (27.5)	C (24.9)	C (28.6)
	WB	L,T,R	C (24.5)	C (27.0)	C (20.2)	C (26.8)
	NB	L	A (6.5)	A (8.7)	A (9.9)	B (11.2)
		T,R	A (4.1)	A (3.7)	A (6.2)	A (3.8)
	SB	T	A (3.7)	A (3.0)	A (5.7)	A (3.1)
		R	A (3.9)	A (3.4)	A (5.9)	A (3.5)
	Overall		B (11.3)	A (9.3)	B (14.3)	B (11.3)
Technology Way and Silverline Drive	WB	L	B (19.3)	B (12.3)	B (19.2)	B (10.9)
		R	C (26.9)	F (70.8)	C (27.2)	D (49.6)
	NB	T	A (6.2)	B (12.0)	A (6.4)	B (13.9)
		R	A (6.2)	B (11.9)	A (6.9)	B (14.3)
	SB	L	A (8.2)	B (13.6)	A (8.7)	B (16.0)
		T	A (6.6)	B (12.2)	A (6.7)	B (14.2)
	Overall		B (17.6)	D (50.9)	B (16.7)	D (35.3)
	Unsignalized Intersections					
Technology Way and Route 1 SB Ramps	WB	L	B (10.6)	B (13.7)	B (10.8)	C (16.0)
		R	A (8.5)	A (8.8)	A (8.8)	A (9.0)
	SB	L	A (7.4)	A (7.7)	A (7.4)	A (7.9)
College Farm Road East and Site Driveway	WB	L	-	-	A (9.1)	A (9.9)
	NB	L	-	-	C (17.8)	C (24.6)
		R	-	-	B (12.3)	C (19.5)

*LOS (delay in seconds)

**Table 4 – Level of Service Analysis Summary
(Ramp Merge and Diverge Segments)**

Location	2028 No-Build Condition		2028 Build Condition	
	AM	PM	AM	PM
Route 1 NB and College Farm Road East Off-Ramp	D (30.3)	D (29.5)	D (30.5)	D (29.5)
Route 1 NB and College Farm Road East On-Ramp	C (24.4)	C (23.2)	C (24.6)	C (23.7)
Route 1 SB and Technology Way Off-Ramp	D (28.7)	D (31.6)	D (28.9)	D (31.6)
Route 1 SB and Technology Way On-Ramp	C (24.7)	D (28.9)	C (24.9)	D (29.4)

*LOS (density pc/mi/ln)

PLAN REVIEW

We have reviewed the site plan for the proposed development. Our review focused on access, circulation, and parking, which the following items address:

- The site plan shows one full-movement driveway will provide site access. That driveway will provide separate left-turn and right-turn exiting lanes. We expect the site driveway will operate efficiently and will facilitate vehicle turns into and out of the site.
- The proposed passenger car parking provides 9 feet wide and 18 feet deep perpendicular parking spaces served by a minimum of 25 feet wide aisles. The proposed warehouse loading docks provide 12.0 feet wide and 55 feet deep spaces served by two-way aisles with a minimum width of 90 feet. The flex space loading docks provide 12.0 feet wide and 45.0 feet deep spaces served by two-way aisles with a minimum width of 40.0 feet. These parking space dimensions are consistent with current parking design standards.
- The site plan isolates the passenger car parking from the truck courts, which minimizes the interaction of cars and trucks.

- We anticipate the proposed parking supply will accommodate the parking demands of the proposed development. The site plan shows 414 parking spaces. The township code requires 325 parking spaces.

Based on our review, we believe the proposed development will provide convenient access and circulation with sufficient parking.

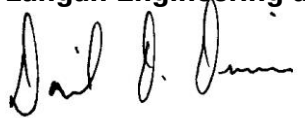
CONCLUSION

We have concluded that the proposed development will not significantly impact area traffic operations. In addition, the site design is consistent with current standards and provides adequate access, circulation, and parking.

Should you have any questions or comments concerning this traffic study please do not hesitate to contact our office.

Sincerely,

Langan Engineering and Environmental Services, LLC



Daniel D. Disario, PE, PTOE
Principal

TRAFFIC COUNTS



North Brunswick, NJ
Route 1 NB Off Ramp to College
Farm Rd
Tuesday, December 17, 2024
Location: 40.465963, -
74.443046

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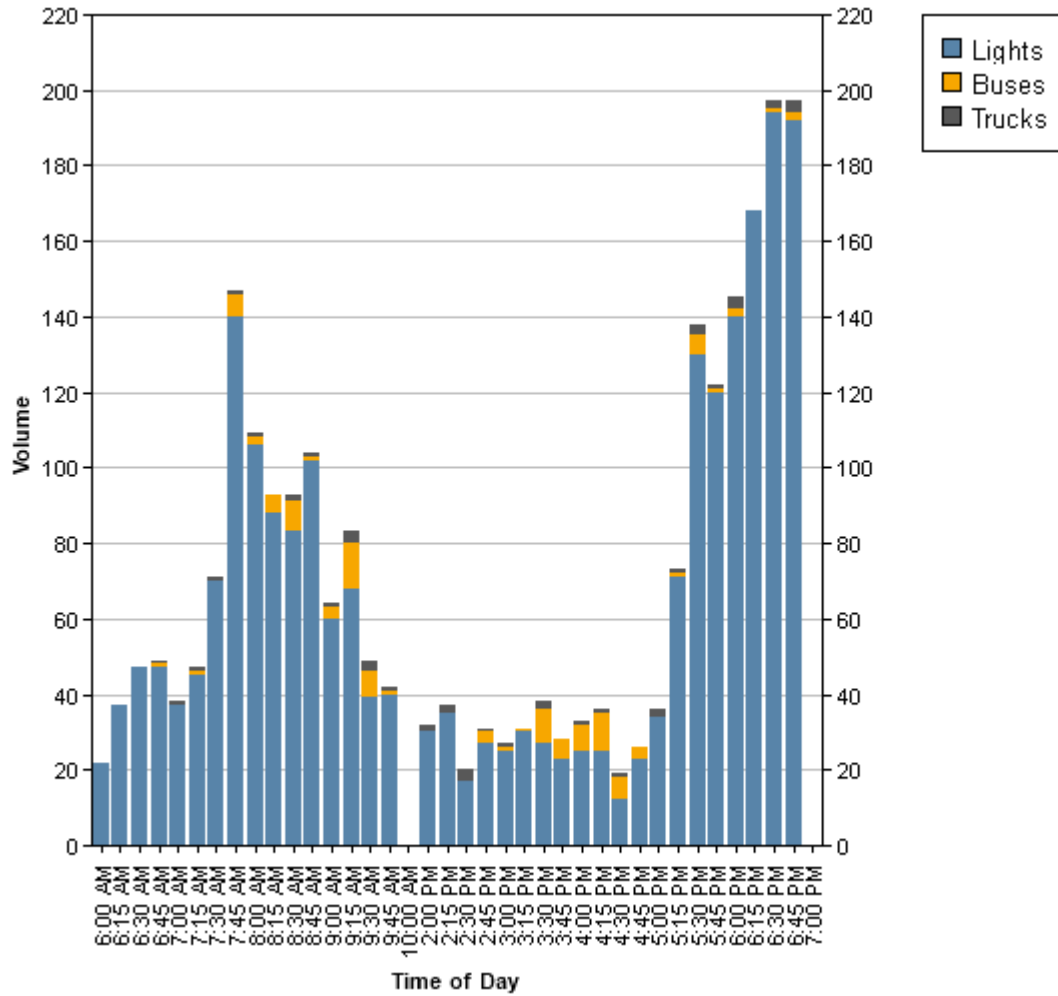
Direction (Northbound)

Start Time	Lights	Buses	Trucks	Total
6:00 AM	22	0	0	22
6:15 AM	37	0	0	37
6:30 AM	47	0	0	47
6:45 AM	47	1	1	49
7:00 AM	37	0	1	38
7:15 AM	45	1	1	47
7:30 AM	70	0	1	71
7:45 AM	140	6	1	147
8:00 AM	106	2	1	109
8:15 AM	88	5	0	93
8:30 AM	83	8	2	93
8:45 AM	102	1	1	104
9:00 AM	60	3	1	64
9:15 AM	68	12	3	83
9:30 AM	39	7	3	49
9:45 AM	40	1	1	42
10:00 AM	0	0	0	0
2:00 PM	30	0	2	32
2:15 PM	35	0	2	37
2:30 PM	17	0	3	20
2:45 PM	27	3	1	31
3:00 PM	25	1	1	27
3:15 PM	30	1	0	31
3:30 PM	27	9	2	38
3:45 PM	23	5	0	28
4:00 PM	25	7	1	33
4:15 PM	25	10	1	36
4:30 PM	12	6	1	19
4:45 PM	23	3	0	26
5:00 PM	34	0	2	36
5:15 PM	71	1	1	73
5:30 PM	130	5	3	138
5:45 PM	120	1	1	122
6:00 PM	140	2	3	145
6:15 PM	168	0	0	168
6:30 PM	194	1	2	197
6:45 PM	192	2	3	197
7:00 PM	0	0	0	0
Total	2379	104	46	2529
Total %	94.1	4.1	1.8	100.0
AM Times	7:45 AM	8:30 AM	8:45 AM	7:45 AM
AM Peaks	417	24	8	442
PM Times	6:00 PM	3:30 PM	2:00 PM	6:00 PM
PM Peaks	694	31	8	707

North Brunswick, NJ
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1 ATR)
Site Code:
Start Date: 12/17/2024
Page No: 1

Lane 1 (Northbound)

Start Time	Lights	Buses	Trucks	Total
6:00 AM	139	1	39	179
6:15 AM	144	1	23	168
6:30 AM	193	2	34	229
6:45 AM	221	2	40	263
7:00 AM	255	4	36	295
7:15 AM	322	1	41	364
7:30 AM	259	3	45	307
7:45 AM	239	3	30	272
8:00 AM	256	1	33	290
8:15 AM	268	2	50	320
8:30 AM	260	2	37	299
8:45 AM	197	5	45	247
9:00 AM	210	5	42	257
9:15 AM	240	1	43	284
9:30 AM	218	1	50	269
9:45 AM	224	0	40	264
10:00 AM	0	0	0	0
2:00 PM	270	5	39	314
2:15 PM	271	0	46	317
2:30 PM	281	0	32	313
2:45 PM	289	0	26	315
3:00 PM	263	5	41	309
3:15 PM	305	1	32	338
3:30 PM	297	1	24	322
3:45 PM	290	1	34	325
4:00 PM	299	2	25	326
4:15 PM	332	6	22	360
4:30 PM	311	2	32	345
4:45 PM	321	1	24	346
5:00 PM	303	0	28	331
5:15 PM	235	1	19	255
5:30 PM	217	1	13	231
5:45 PM	220	1	14	235
6:00 PM	131	1	12	144
6:15 PM	75	0	7	82
6:30 PM	55	0	13	68
6:45 PM	71	0	9	80
7:00 PM	0	0	0	0
Total	8481	62	1120	9663
Total %	87.8	0.6	11.6	100.0
AM Times	7:15 AM	8:30 AM	9:00 AM	8:00 AM
AM Peaks	1076	13	175	1156
PM Times	4:15 PM	3:45 PM	2:15 PM	4:15 PM
PM Peaks	1267	11	145	1382



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Lane 2 (Northbound)

Start Time	Lights	Buses	Trucks	Total
6:00 AM	190	3	15	208
6:15 AM	201	0	15	216
6:30 AM	250	1	20	271
6:45 AM	273	0	20	293
7:00 AM	293	2	26	321
7:15 AM	325	2	29	356
7:30 AM	295	2	25	322
7:45 AM	207	15	28	250
8:00 AM	290	3	34	327
8:15 AM	316	5	26	347
8:30 AM	307	5	37	349
8:45 AM	297	2	26	325
9:00 AM	239	1	37	277
9:15 AM	248	8	41	297
9:30 AM	229	0	31	260
9:45 AM	205	1	52	258
10:00 AM	0	0	0	0
2:00 PM	261	6	35	302
2:15 PM	239	1	43	283
2:30 PM	285	2	33	320
2:45 PM	261	3	33	297
3:00 PM	251	3	39	293
3:15 PM	301	1	39	341
3:30 PM	281	2	32	315
3:45 PM	292	4	23	319
4:00 PM	286	3	31	320
4:15 PM	296	7	27	330
4:30 PM	308	1	17	326
4:45 PM	320	0	17	337
5:00 PM	301	1	15	317
5:15 PM	237	0	13	250
5:30 PM	194	0	17	211
5:45 PM	225	0	12	237
6:00 PM	170	0	8	178
6:15 PM	103	0	10	113
6:30 PM	76	0	8	84
6:45 PM	84	0	9	93
7:00 PM	0	0	0	0
Total	8936	84	923	9943
Total %	89.9	0.8	9.3	100.0
AM Times	7:15 AM	8:30 AM	9:00 AM	8:00 AM
AM Peaks	1117	16	161	1348
PM Times	4:15 PM	3:45 PM	2:15 PM	4:15 PM
PM Peaks	1225	15	148	1310



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Lane 3 (Northbound)

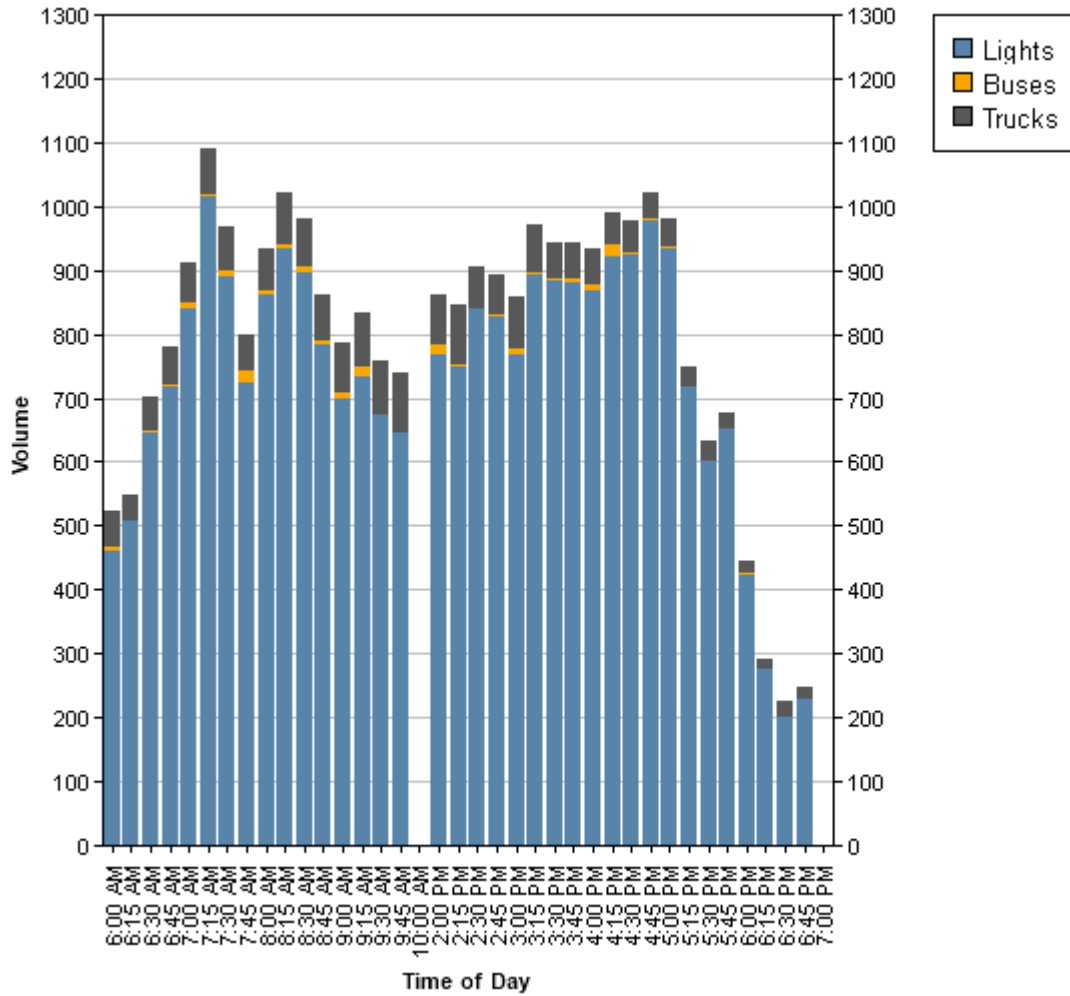
Start Time	Lights	Buses	Trucks	Total
6:00 AM	133	0	3	136
6:15 AM	162	0	1	163
6:30 AM	202	0	1	203
6:45 AM	222	1	1	224
7:00 AM	293	2	0	295
7:15 AM	369	0	2	371
7:30 AM	337	3	0	340
7:45 AM	277	0	1	278
8:00 AM	317	1	0	318
8:15 AM	349	0	4	353
8:30 AM	329	2	3	334
8:45 AM	288	1	2	291
9:00 AM	249	3	0	252
9:15 AM	246	6	1	253
9:30 AM	225	0	3	228
9:45 AM	215	0	2	217
10:00 AM	0	0	0	0
2:00 PM	238	2	4	244
2:15 PM	239	2	5	246
2:30 PM	272	0	1	273
2:45 PM	278	0	2	280
3:00 PM	253	1	1	255
3:15 PM	288	1	2	291
3:30 PM	304	0	2	306
3:45 PM	297	1	2	300
4:00 PM	283	3	3	289
4:15 PM	293	5	1	299
4:30 PM	305	1	1	307
4:45 PM	337	0	0	337
5:00 PM	329	2	0	331
5:15 PM	245	0	0	245
5:30 PM	190	0	2	192
5:45 PM	206	0	0	206
6:00 PM	121	2	1	124
6:15 PM	97	0	0	97
6:30 PM	69	0	3	72
6:45 PM	75	0	1	76
7:00 PM	0	0	0	0
Total	8932	39	55	9026
Total %	99.0	0.4	0.6	100.0
AM Times	7:15 AM	8:30 AM	9:00 AM	8:00 AM
AM Peaks	1300	12	6	1296
PM Times	4:15 PM	3:45 PM	2:15 PM	4:15 PM
PM Peaks	1264	10	9	1274

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North Brunswick, NJ
Route 1 NB on-ramp from Colleg
Farm Rd
Tuesday, December 17, 2024
Location: 40.466319, -
74.441674

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Count Name: 2 - Route 1 NB on-
ramp from College Farm Road
(Ramp ATR)
Site Code:
Start Date: 12/17/2024
Page No: 1

Direction (Northbound)

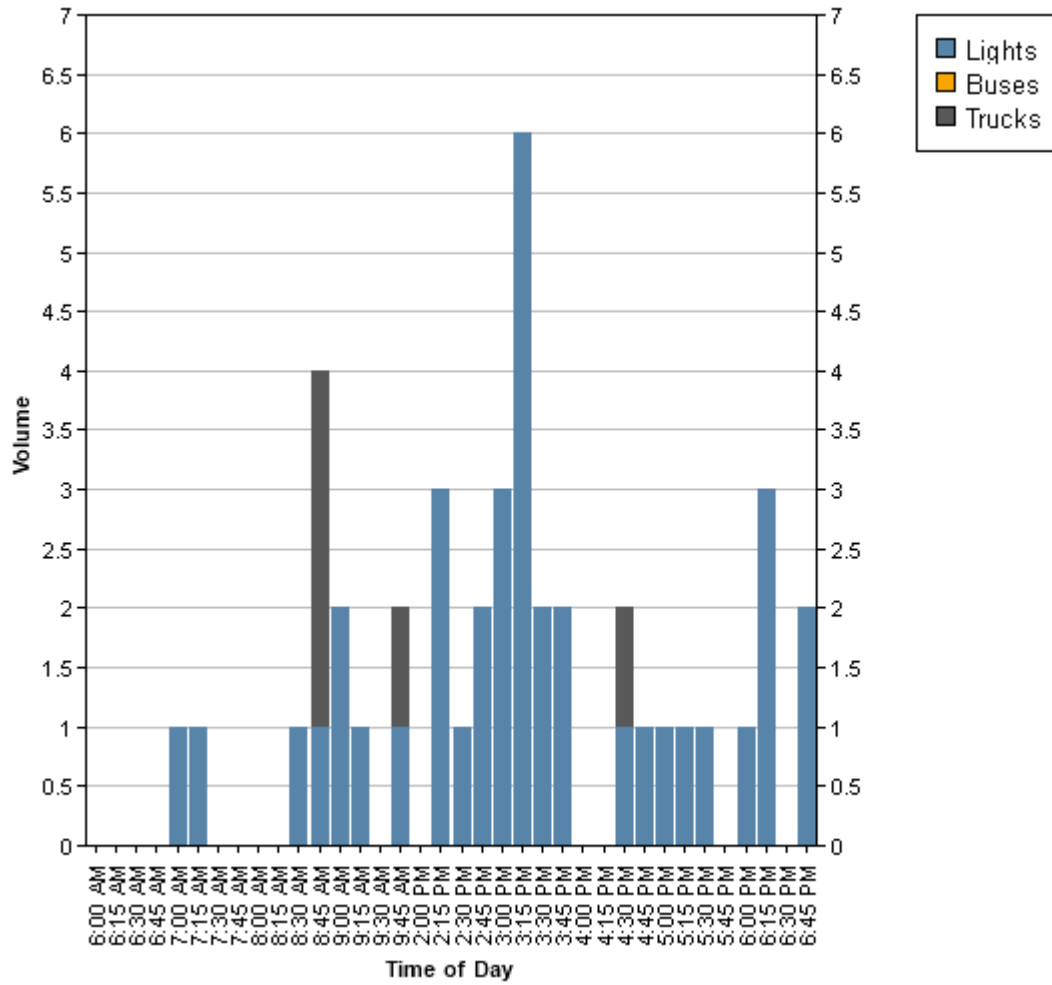
Start Time	Lights	Buses	Trucks	Total
6:00 AM	0	0	0	0
6:15 AM	0	0	0	0
6:30 AM	0	0	0	0
6:45 AM	0	0	0	0
7:00 AM	1	0	0	1
7:15 AM	1	0	0	1
7:30 AM	0	0	0	0
7:45 AM	0	0	0	0
8:00 AM	0	0	0	0
8:15 AM	0	0	0	0
8:30 AM	1	0	0	1
8:45 AM	1	0	3	4
9:00 AM	2	0	0	2
9:15 AM	1	0	0	1
9:30 AM	0	0	0	0
9:45 AM	1	0	1	2
2:00 PM	0	0	0	0
2:15 PM	3	0	0	3
2:30 PM	1	0	0	1
2:45 PM	2	0	0	2
3:00 PM	3	0	0	3
3:15 PM	6	0	0	6
3:30 PM	2	0	0	2
3:45 PM	2	0	0	2
4:00 PM	0	0	0	0
4:15 PM	0	0	0	0
4:30 PM	1	0	1	2
4:45 PM	1	0	0	1
5:00 PM	1	0	0	1
5:15 PM	1	0	0	1
5:30 PM	1	0	0	1
5:45 PM	0	0	0	0
6:00 PM	1	0	0	1
6:15 PM	3	0	0	3
6:30 PM	0	0	0	0
6:45 PM	2	0	0	2
Total	38	0	5	43
Total %	88.4	0.0	11.6	100.0
AM Times	8:30 AM	6:00 AM	8:00 AM	8:30 AM
AM Peaks	5	0	3	8
PM Times	2:45 PM	2:00 PM	3:45 PM	2:45 PM
PM Peaks	13	0	1	13

North Brunswick, NJ
Route 1 NB on-ramp from Colleg
Farm Rd
Tuesday, December 17, 2024
Location: 40.466319, -
74.441674

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Tri-State Traffic Data, Inc

Coatesville, PA, Pennsylvania, United States 19320
610-466-1469 TSTData@aol.com
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Count Name: 2 - Route 1 NB on-
ramp from College Farm Road
(Ramp ATR)
Site Code:
Start Date: 12/17/2024
Page No: 2



North Brunswick, NJ
College Farm Rd & Silverline Dr
Tuesday, December 17, 2024
Location: 40.467079, -
74.437862

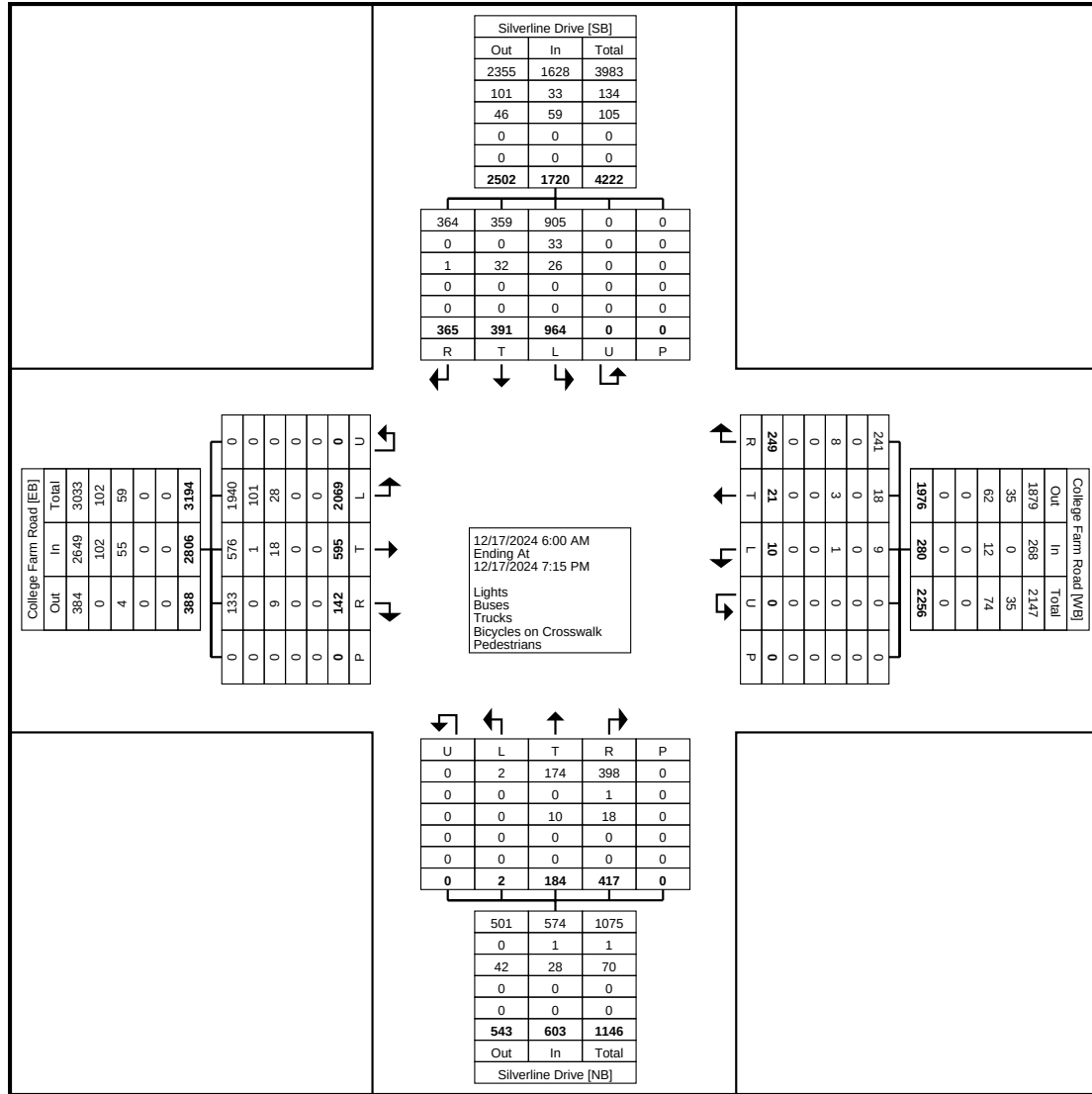
Coatesville, PA, Pennsylvania, United States 19320
610-466-1469
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Count Name: 5 - College Farm
Road and Silverline Drive
Site Code:
Start Date: 12/17/2024
Page No: 1

Turning Movement Data

Start Time	College Farm Road Eastbound							College Farm Road Westbound							Silverline Drive Northbound							Silverline Drive Southbound							Int. Total
	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	
6:00 AM	17	0	5	0	0	0	22	0	0	1	0	0	0	1	0	0	1	0	0	0	1	4	17	0	0	0	0	21	45
6:15 AM	36	0	2	0	0	0	38	0	0	0	0	0	0	0	0	1	3	0	0	0	4	3	27	0	2	0	0	32	74
6:30 AM	45	0	7	2	0	0	54	0	0	0	0	0	0	0	0	1	4	1	0	0	6	2	27	1	0	0	0	30	90
6:45 AM	46	0	3	1	0	0	50	0	0	2	0	0	0	2	0	2	2	1	0	0	5	10	10	3	2	0	0	25	82
Hourly Total	144	0	17	3	0	0	164	0	0	3	0	0	0	3	0	4	10	2	0	0	16	19	81	4	4	0	0	108	291
7:00 AM	30	1	2	0	0	0	33	0	1	1	1	0	0	3	0	0	2	0	0	0	2	13	7	3	1	0	0	24	62
7:15 AM	39	3	1	2	0	0	45	0	0	3	0	0	0	3	0	0	3	2	0	0	5	12	7	5	11	0	0	35	88
7:30 AM	55	6	6	1	0	0	68	0	0	7	4	0	0	11	0	2	5	10	0	0	17	5	5	16	21	0	0	47	143
7:45 AM	93	34	11	0	0	0	138	0	0	1	2	0	0	3	0	1	1	0	0	0	2	5	6	19	26	0	0	56	199
Hourly Total	217	44	20	3	0	0	284	0	1	12	7	0	0	20	0	3	11	12	0	0	26	35	25	43	59	0	0	162	492
8:00 AM	82	13	6	4	0	0	105	0	0	6	2	0	0	8	0	1	2	0	0	0	3	5	16	20	15	0	0	56	172
8:15 AM	87	0	6	0	0	0	93	0	0	5	1	0	0	6	0	0	0	2	0	0	2	12	13	3	6	0	0	34	135
8:30 AM	81	4	4	0	0	0	89	0	3	1	0	0	0	4	0	0	0	0	0	0	0	8	10	4	4	0	0	26	119
8:45 AM	94	8	9	1	0	0	112	0	0	2	0	0	0	2	0	0	0	1	0	0	1	14	15	2	12	0	0	43	158
Hourly Total	344	25	25	5	0	0	399	0	3	14	3	0	0	20	0	1	2	3	0	0	6	39	54	29	37	0	0	159	584
9:00 AM	51	12	7	0	0	0	70	0	0	2	2	0	0	4	0	1	0	2	0	0	3	14	13	3	3	0	0	33	110
9:15 AM	81	7	7	0	0	0	95	1	0	1	0	0	0	2	0	2	0	2	0	0	4	7	4	2	0	0	0	13	114
9:30 AM	44	4	4	0	0	0	52	0	0	3	0	0	0	3	0	2	1	3	0	0	6	17	12	0	1	0	0	30	91
9:45 AM	43	10	5	1	0	0	59	0	1	2	1	0	0	4	0	5	1	3	0	0	9	13	12	2	0	0	0	27	99
Hourly Total	219	33	23	1	0	0	276	1	1	8	3	0	0	13	0	10	2	10	0	0	22	51	41	7	4	0	0	103	414
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	36	6	4	0	0	0	46	0	0	3	1	0	0	4	0	3	2	1	0	0	6	34	11	2	2	0	0	49	105
2:15 PM	28	5	4	2	0	0	39	1	0	1	0	0	0	2	0	4	4	7	0	0	15	27	10	0	1	0	0	38	94
2:30 PM	27	19	4	0	0	0	50	0	0	3	1	0	0	4	0	2	5	6	0	0	13	32	28	1	0	0	0	61	128
2:45 PM	30	33	2	0	0	0	65	0	0	2	1	0	0	3	0	3	1	1	0	0	5	34	21	3	0	0	0	58	131
Hourly Total	121	63	14	2	0	0	200	1	0	9	3	0	0	13	0	12	12	15	0	0	39	127	70	6	3	0	0	206	458
3:00 PM	31	40	4	0	0	0	75	0	0	1	2	0	0	3	0	4	3	10	0	0	17	69	19	3	3	0	0	94	189
3:15 PM	24	29	5	1	0	0	59	0	0	0	1	0	0	1	0	60	68	71	0	0	199	54	37	9	2	0	0	102	361
3:30 PM	35	10	5	0	0	0	50	0	1	2	0	0	0	3	0	17	14	52	0	0	83	81	28	3	1	0	0	113	249
3:45 PM	29	18	1	1	0	0	49	0	1	7	1	0	0	9	0	5	8	9	0	0	22	58	6	3	1	0	0	68	148
Hourly Total	119	97	15	2	0	0	233	0	2	10	4	0	0	16	0	86	93	142	0	0	321	262	90	18	7	0	0	377	947
4:00 PM	33	9	2	0	0	0	44	0	0	5	0	0	0	5	0	5	15	0	0	0	20	76	3	3	0	0	0	82	151
4:15 PM	37	3	2	0	0	0	42	0	0	2	0	0	0	2	0	11	14	1	0	0	26	67	2	4	3	0	0	76	146
4:30 PM	27	21	0	0	0	0	48	0	0	1	2	0	0	3	0	3	13	1	0	0	17	76	4	7	3	0	0	90	158
4:45 PM	26	7	0	0	0	0	33	0	1	2	0	0	0	3	0	9	6	2	0	0	17	46	0	6	3	0	0	55	108
Hourly Total	123	40	4	0	0	0	167	0	1	10	2	0	0	13	0	28	48	4	0	0	80	265	9	20	9	0	0	303	563
5:00 PM	25	7	1	0	0	0	33	0	1	2	1	0	0	4	0	7	6	3	0	0	16	48	8	10	5	0	0	71	124
5:15 PM	47	17	1	0	0	0	65	2	1	14	3	0	0	20	1	5	4	6	0	0	16	28	3	9	11	0	0	51	152
5:30 PM	110	29	1	0	0	0	140	0	1	11	3	0	0	15	0	9	3	4	0	0	16	27	1	12	7	0	0	47	218
5:45 PM	69	50	2	0	0	0	121	1	0	9	2	0	0	12	0	4	6	5	0	0	15	15	3	10	13	0	0	41	189
Hourly Total	251	103	5	0	0	0	359	3	3	36	9	0	0	51	1	25	19	18	0	0	63	118	15	41	36	0	0	210	683
6:00 PM	88	54	1	0	0	0	143	1	0	7	1	0	0	9	0	4	2	1	0	0	7	17	2	21	3	0	0	43	202
6:15 PM	143	31	1	0	0	0	175	1	4	18	1	0	0	24	0	3	3	2	0	0	8	8	1	3	2	0	0	14	221
6:30 PM	146	54	1	0	0	0	201	2	4	19	9	0	0	34	1	5	2	0	0	0	8	15	2	5	3	0	0	25	268
6:45 PM	154	51	0	0	0	0	205	1	2	56	5	0	0	64	0	3	3	1	0	0	7	8	1	0	1	0	0	10	286
Hourly Total	531	190	3	0	0	0	724	5	10	100	16	0	0	131	1	15	10	4	0	0	30	48	6	29	9	0	0	92	977
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	2069	595	126	16	0	0	2806	10	21	202	47	0	0	280	2	184	207	210	0	0	603	964	391	197	168	0	0	1720	5409
Approach %	73.7	21.2	4.5	0.6	0.0	-	-	3.6	7.5	72.1	16.8	0.0	-	-	0.3	30.5	34.3	34.8	0.0	-	-	56.0	22.7	11.5	9.8	0.0	-	-	-
Total %	38.3	11.0	2.3	0.3	0.0	-	51.9	0.2	0.4	3.7	0.9	0.0																	

[illegible]



Turning Movement Data Plot

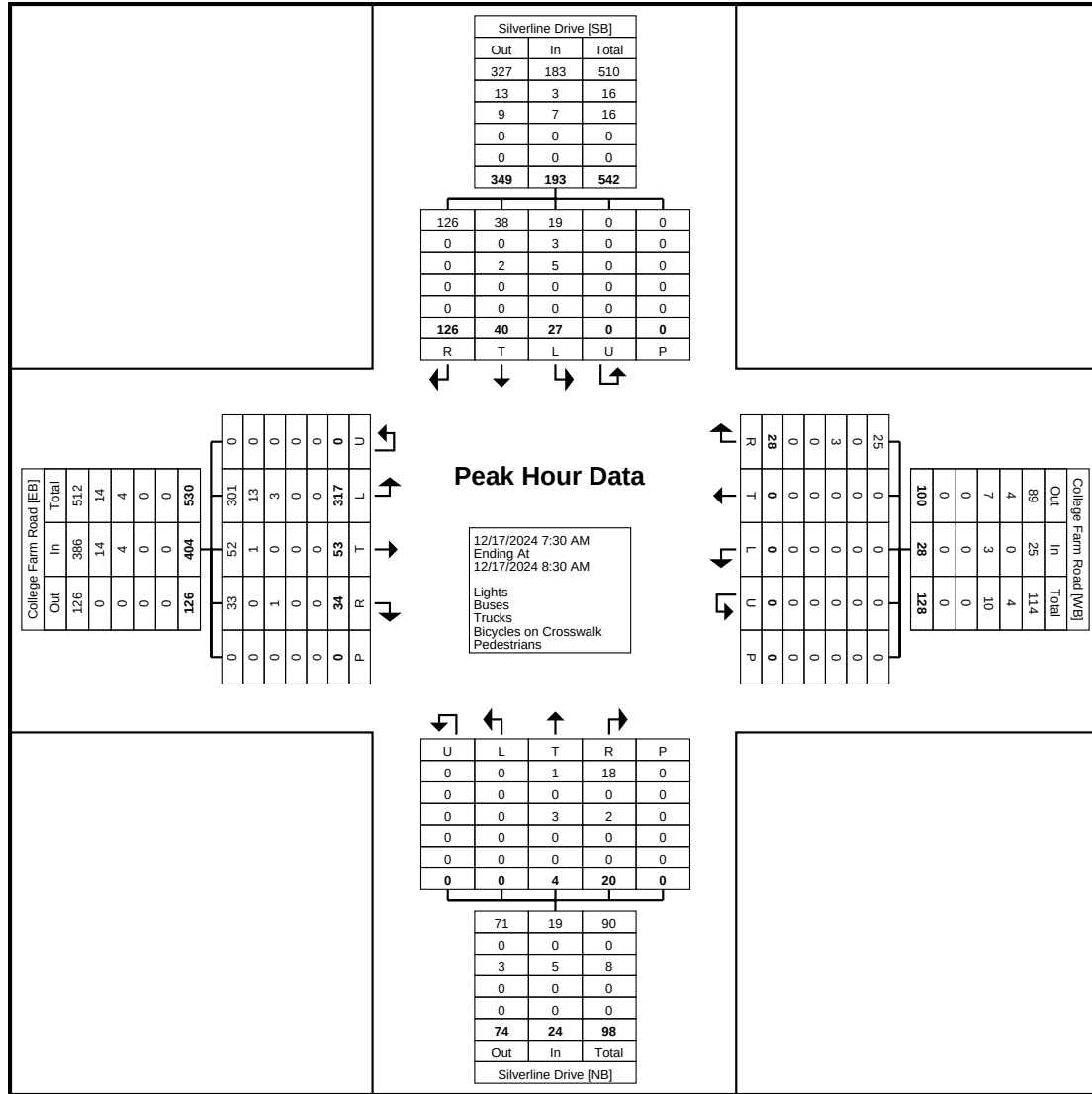
North Brunswick, NJ
College Farm Rd & Silverline Dr
Tuesday, December 17, 2024
Location: 40.467079, -
74.437862

Coatesville, PA, Pennsylvania, United States 19320
610-466-1469
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Count Name: 5 - College Farm
Road and Silverline Drive
Site Code:
Start Date: 12/17/2024
Page No: 4

Turning Movement Peak Hour Data (7:30 AM)

[illegible]



Turning Movement Peak Hour Data Plot (7:30 AM)

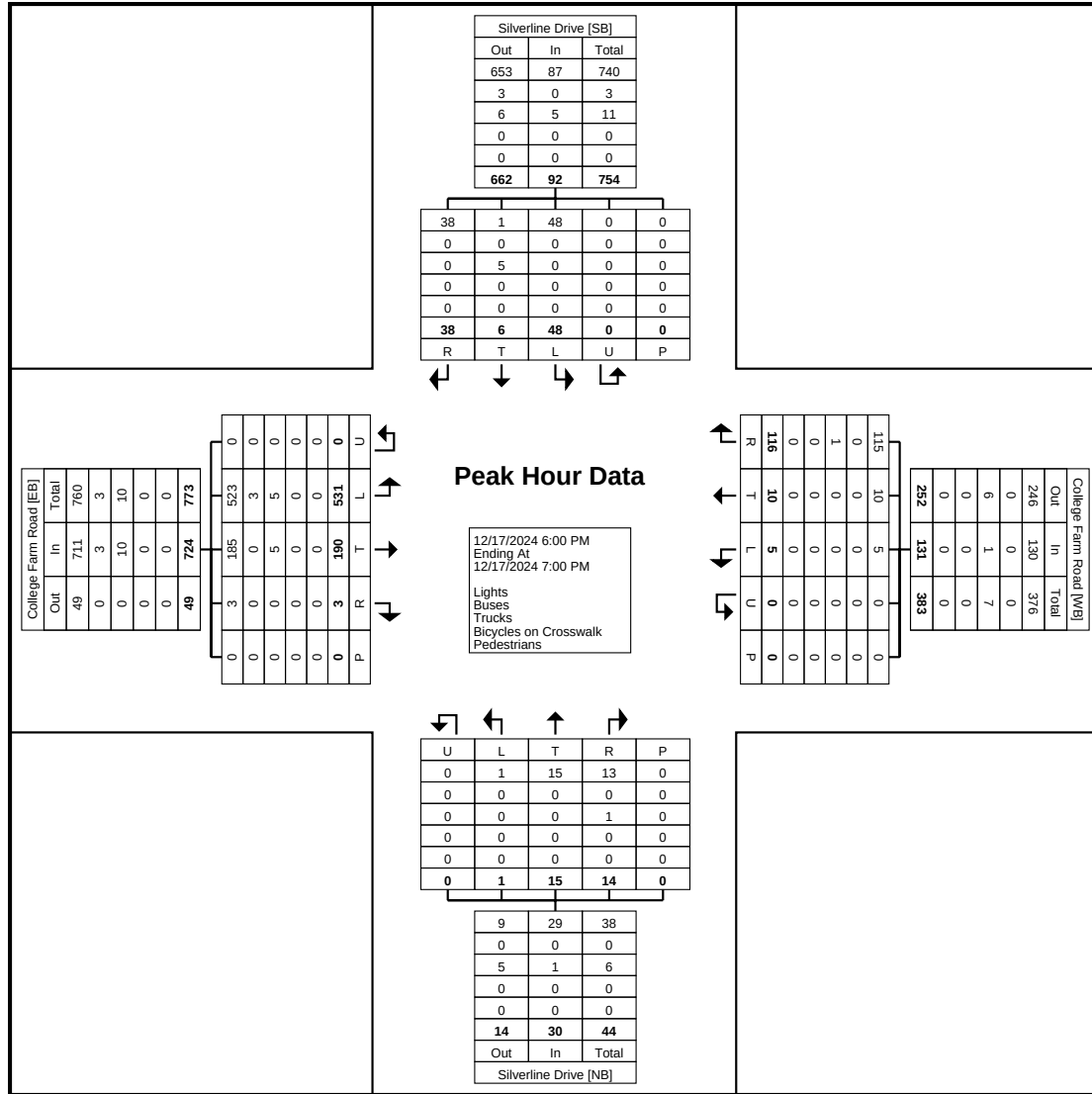
North Brunswick, NJ
College Farm Rd & Silverline Dr
Tuesday, December 17, 2024
Location: 40.467079, -
74.437862

Coatesville, PA, Pennsylvania, United States 19320
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Count Name: 5 - College Farm
Road and Silverline Drive
Site Code:
Start Date: 12/17/2024
Page No: 6

Turning Movement Peak Hour Data (6:00 PM)

[illegible]



Turning Movement Peak Hour Data Plot (6:00 PM)



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Tri-State Traffic Data, Inc

North Brunswick, NJ
Technology Way & Silverline Dr
Tuesday, December 17, 2024
Location: 40.467821, -
74.438177

Coatesville, PA, Pennsylvania, United States 19320
610-466-1469
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Count Name: 13 - Technology
Way and Silverline Drive
Site Code:
Start Date: 12/17/2024
Page No: 1

Turning Movement Data

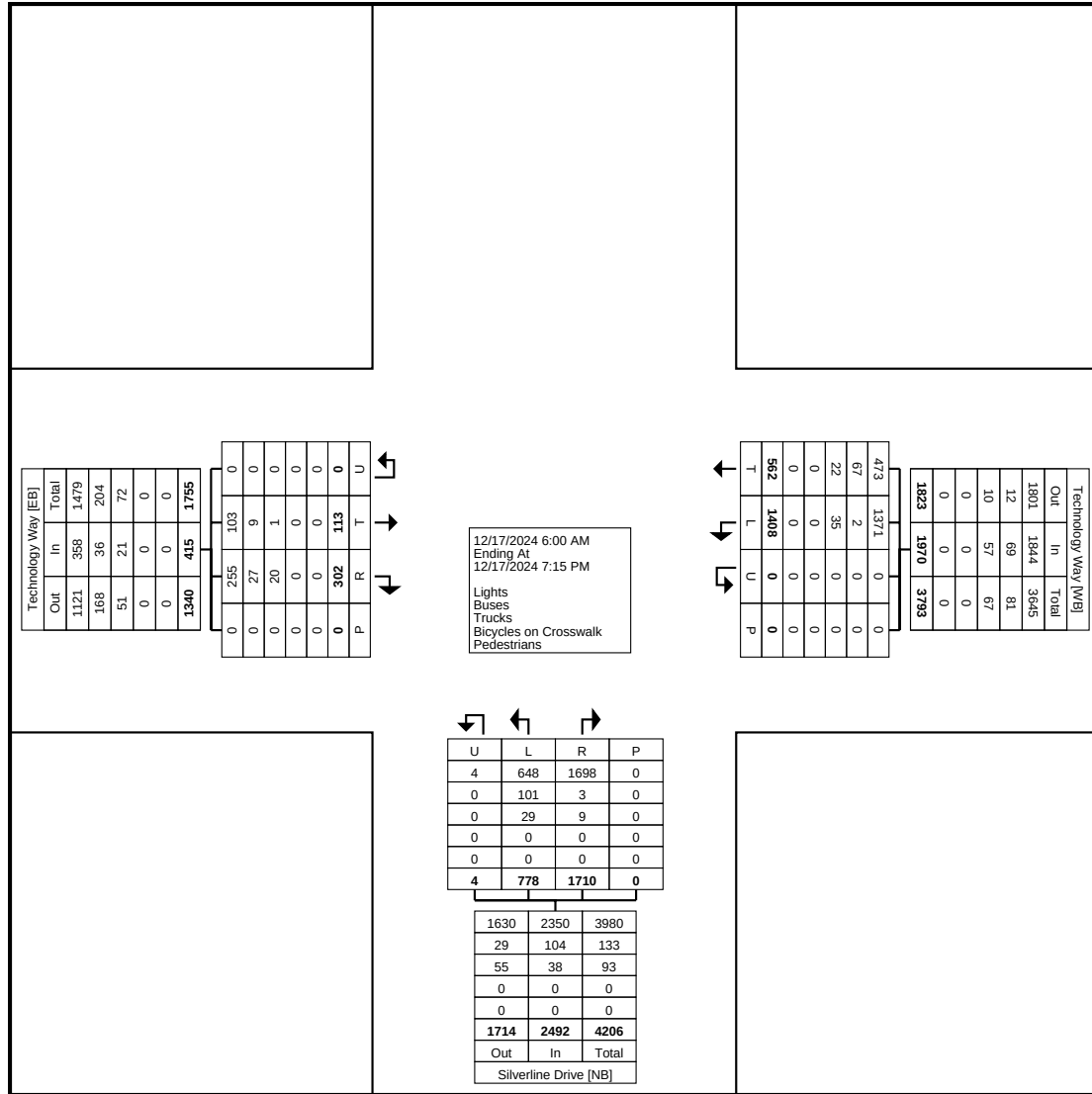
Start Time	Technology Way Eastbound						Technology Way Westbound					Silverline Drive Northbound							Int. Total
	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	Right on Red	U-Turn	Peds	App. Total		
6:00 AM	1	1	1	0	0	3	19	29	0	0	48	10	5	1	0	0	16	67	
6:15 AM	3	1	1	0	0	5	28	27	0	0	55	21	11	3	0	0	35	95	
6:30 AM	3	0	0	0	0	3	33	18	0	0	51	9	18	13	0	0	40	94	
6:45 AM	2	8	0	0	0	10	15	17	0	0	32	12	16	19	0	0	47	89	
Hourly Total	9	10	2	0	0	21	95	91	0	0	186	52	50	36	0	0	138	345	
7:00 AM	2	8	2	0	0	12	13	13	0	0	26	9	12	15	0	0	36	74	
7:15 AM	3	1	1	0	0	5	35	7	0	0	42	11	20	9	0	0	40	87	
7:30 AM	1	1	1	0	0	3	44	15	0	0	59	12	38	20	0	0	70	132	
7:45 AM	5	0	0	0	0	5	60	15	0	0	75	18	51	27	0	0	96	176	
Hourly Total	11	10	4	0	0	25	152	50	0	0	202	50	121	71	0	0	242	469	
8:00 AM	3	3	1	0	0	7	45	19	0	0	64	18	38	38	0	0	94	165	
8:15 AM	0	3	1	0	0	4	33	16	0	0	49	22	48	21	0	0	91	144	
8:30 AM	3	0	1	0	0	4	24	15	0	0	39	20	32	31	0	0	83	126	
8:45 AM	2	4	1	0	0	7	35	22	0	0	57	29	32	34	0	0	95	159	
Hourly Total	8	10	4	0	0	22	137	72	0	0	209	89	150	124	0	0	363	594	
9:00 AM	2	6	5	0	0	13	22	29	0	0	51	15	27	13	0	0	55	119	
9:15 AM	3	5	2	0	0	10	11	14	0	0	25	27	31	22	0	0	80	115	
9:30 AM	8	5	2	0	0	15	20	11	0	0	31	21	20	10	0	0	51	97	
9:45 AM	0	2	2	0	0	4	22	6	0	0	28	25	21	5	0	0	51	83	
Hourly Total	13	18	11	0	0	42	75	60	0	0	135	88	99	50	0	0	237	414	
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:00 PM	3	1	4	0	0	8	44	14	0	0	58	29	13	2	0	0	44	110	
2:15 PM	0	9	1	0	0	10	30	5	0	0	35	15	18	1	0	0	34	79	
2:30 PM	0	6	3	0	0	9	50	14	0	0	64	22	5	6	0	0	33	106	
2:45 PM	1	4	5	0	0	10	49	15	0	0	64	19	11	7	0	0	37	111	
Hourly Total	4	20	13	0	0	37	173	48	0	0	221	85	47	16	0	0	148	406	
3:00 PM	9	11	9	0	0	29	70	14	0	0	84	23	12	4	0	0	39	152	
3:15 PM	0	5	5	0	0	10	101	16	0	0	117	50	16	20	0	0	86	213	
3:30 PM	1	6	7	0	0	14	92	16	0	0	108	31	8	12	0	0	51	173	
3:45 PM	3	5	6	0	0	14	58	21	0	0	79	19	16	9	0	0	44	137	
Hourly Total	13	27	27	0	0	67	321	67	0	0	388	123	52	45	0	0	220	675	
4:00 PM	6	23	1	0	0	30	60	26	0	0	86	20	8	14	0	0	42	158	
4:15 PM	6	22	3	0	0	31	48	20	0	0	68	31	14	7	0	0	52	151	
4:30 PM	4	29	1	0	0	34	58	17	0	0	75	25	5	3	0	0	33	142	
4:45 PM	4	10	0	0	0	14	43	25	0	0	68	17	14	6	0	0	37	119	
Hourly Total	20	84	5	0	0	109	209	88	0	0	297	93	41	30	0	0	164	570	
5:00 PM	1	19	0	0	0	20	52	13	0	0	65	10	11	13	0	0	34	119	
5:15 PM	2	5	1	0	0	8	47	10	0	0	57	12	30	27	0	0	69	134	
5:30 PM	4	11	0	0	0	15	36	15	0	0	51	25	66	37	0	0	128	194	
5:45 PM	5	6	0	0	0	11	35	12	0	0	47	28	32	23	0	0	83	141	
Hourly Total	12	41	1	0	0	54	170	50	0	0	220	75	139	100	0	0	314	588	
6:00 PM	6	9	1	0	0	16	37	6	0	0	43	19	34	47	0	0	100	159	
6:15 PM	9	2	1	0	0	12	8	10	0	0	18	26	89	51	0	0	166	196	
6:30 PM	4	0	1	0	0	5	24	11	0	0	35	37	94	46	2	0	179	219	
6:45 PM	4	1	0	0	0	5	7	9	0	0	16	41	120	58	2	0	221	242	
Hourly Total	23	12	3	0	0	38	76	36	0	0	112	123	337	202	4	0	666	816	
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Grand Total	113	232	70	0	0	415	1408	562	0	0	1970	778	1036	674	4	0	2492	4877	
Approach %	27.2	55.9	16.9	0.0	-	-	71.5	28.5	0.0	-	-	31.2	41.6	27.0	0.2	-	-	-	
Total %	2.3	4.8	1.4	0.0	-	8.5	28.9	11.5	0.0	-	40.4	16.0	21.2	13.8	0.1	-	51.1	-	
Lights	103	199	56	0	-	358	1371	473	0	-	1844	648	1033	665	4	-	2350	4552	
% Lights	91.2	85.8	80.0	-	-	86.3	97.4	84.2	-	-	93.6	83.3	99.7	98.7	100.0	-	94.3	93.3	
Buses	9	19	8	0	-	36	2	67	0	-	69	101	1	2	0	-	104	209	
% Buses	8.0	8.2	11.4	-	-	8.7	0.1	11.9	-	-	3.5	13.0	0.1	0.3	0.0	-	4.2	4.3	
Trucks	1	14	6	0	-	21	35	22	0	-	57	29	2	7	0	-	38	116	
% Trucks	0.9	6.0	8.6	-	-	5.1	2.5	3.9	-	-	2.9	3.7	0.2	1.0	0.0	-	1.5	2.4	
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	0	-	-	

[illegible]

North Brunswick, NJ
Technology Way & Silverline Dr
Tuesday, December 17, 2024
Location: 40.467821, -
74.438177

Coatesville, PA, Pennsylvania, United States 19320
610-466-1469
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Count Name: 13 - Technology
Way and Silverline Drive
Site Code:
Start Date: 12/17/2024
Page No: 3



Turning Movement Data Plot

North Brunswick, NJ
Technology Way & Silverline Dr
Tuesday, December 17, 2024
Location: 40.467821, -
74.438177

Coatesville, PA, Pennsylvania, United States 19320
610-466-1469
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Count Name: 13 - Technology
Way and Silverline Drive
Site Code:
Start Date: 12/17/2024
Page No: 4

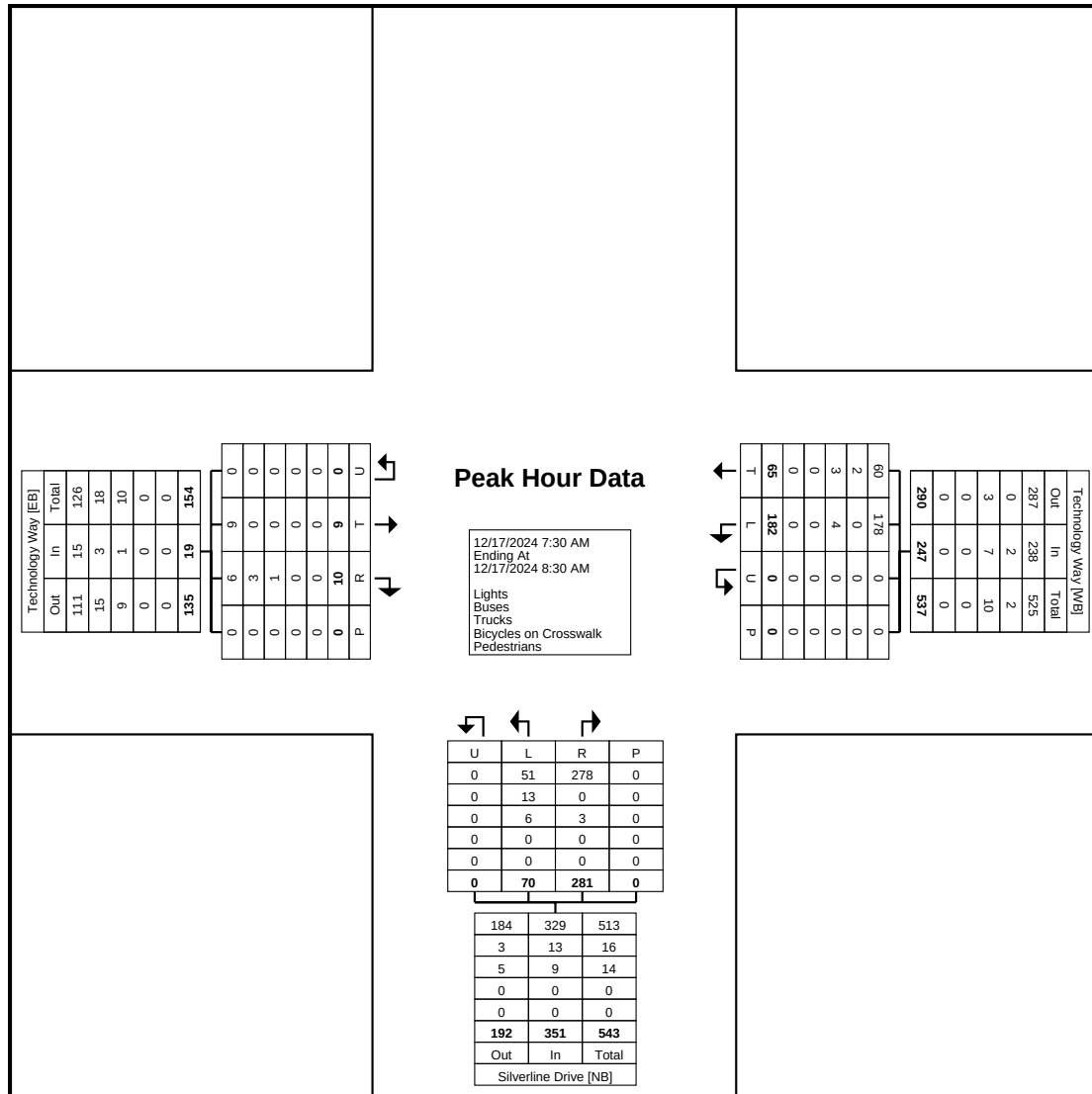
Turning Movement Peak Hour Data (7:30 AM)

[illegible]

North Brunswick, NJ
Technology Way & Silverline Dr
Tuesday, December 17, 2024
Location: 40.467821, -
74.438177

Coatesville, PA, Pennsylvania, United States 19320
610-466-1469
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Count Name: 13 - Technology
Way and Silverline Drive
Site Code:
Start Date: 12/17/2024
Page No: 5



Turning Movement Peak Hour Data Plot (7:30 AM)

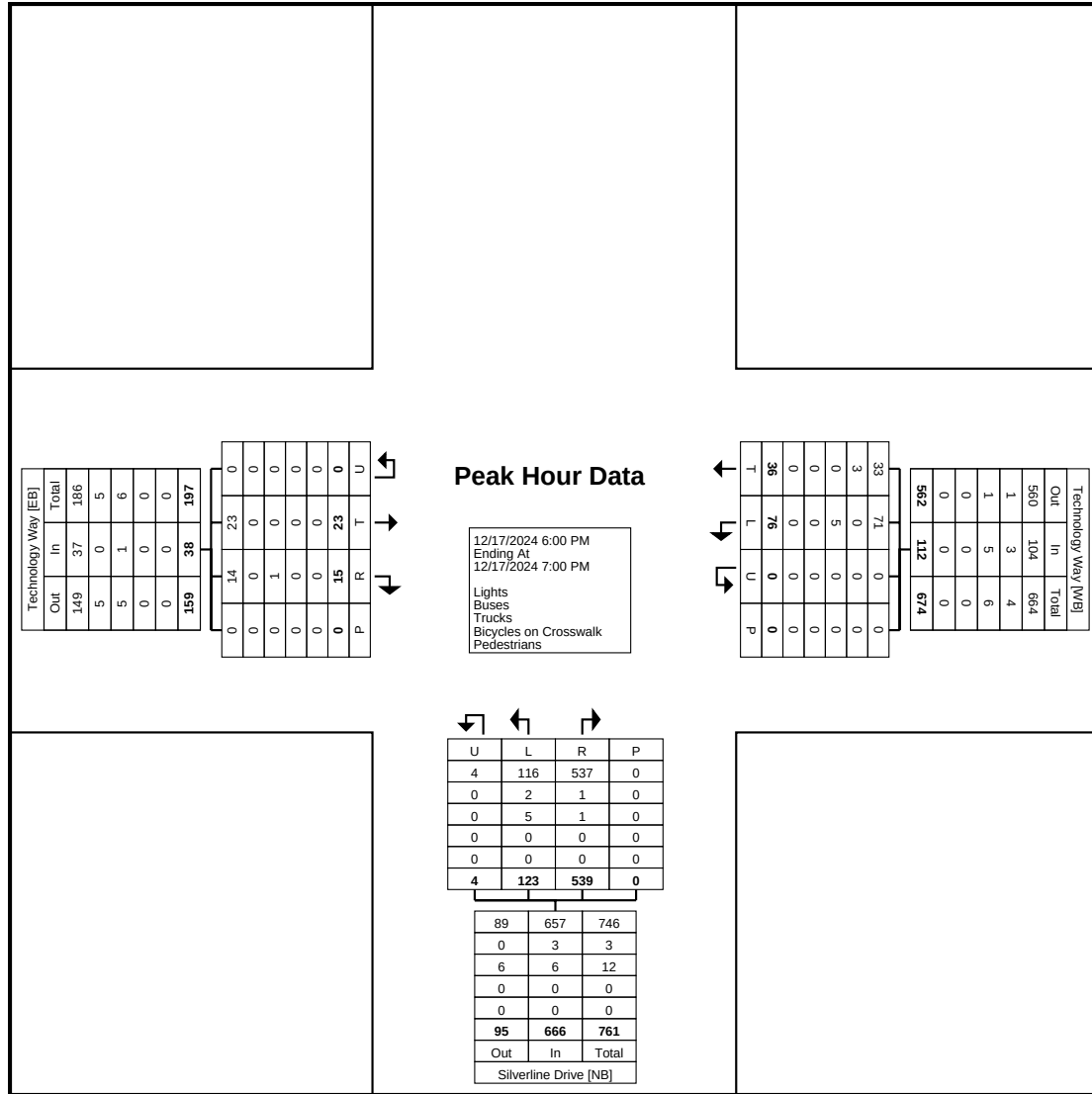
North Brunswick, NJ
Technology Way & Silverline Dr
Tuesday, December 17, 2024
Location: 40.467821, -
74.438177

Coatesville, PA, Pennsylvania, United States 19320
610-466-1469
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Count Name: 13 - Technology
Way and Silverline Drive
Site Code:
Start Date: 12/17/2024
Page No: 6

Turning Movement Peak Hour Data (6:00 PM)

[illegible]



Turning Movement Peak Hour Data Plot (6:00 PM)



North Brunswick, NJ
Technology Way & Route 1 SB
Ramps
Tuesday, December 17, 2024
Location: 40.466744, -
74.443091

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Coatesville, PA, Pennsylvania, United States 19320
610-466-1469
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Count Name: 16 - Technology
Way and Route 1 SB Ramps
Site Code:
Start Date: 12/17/2024
Page No: 1

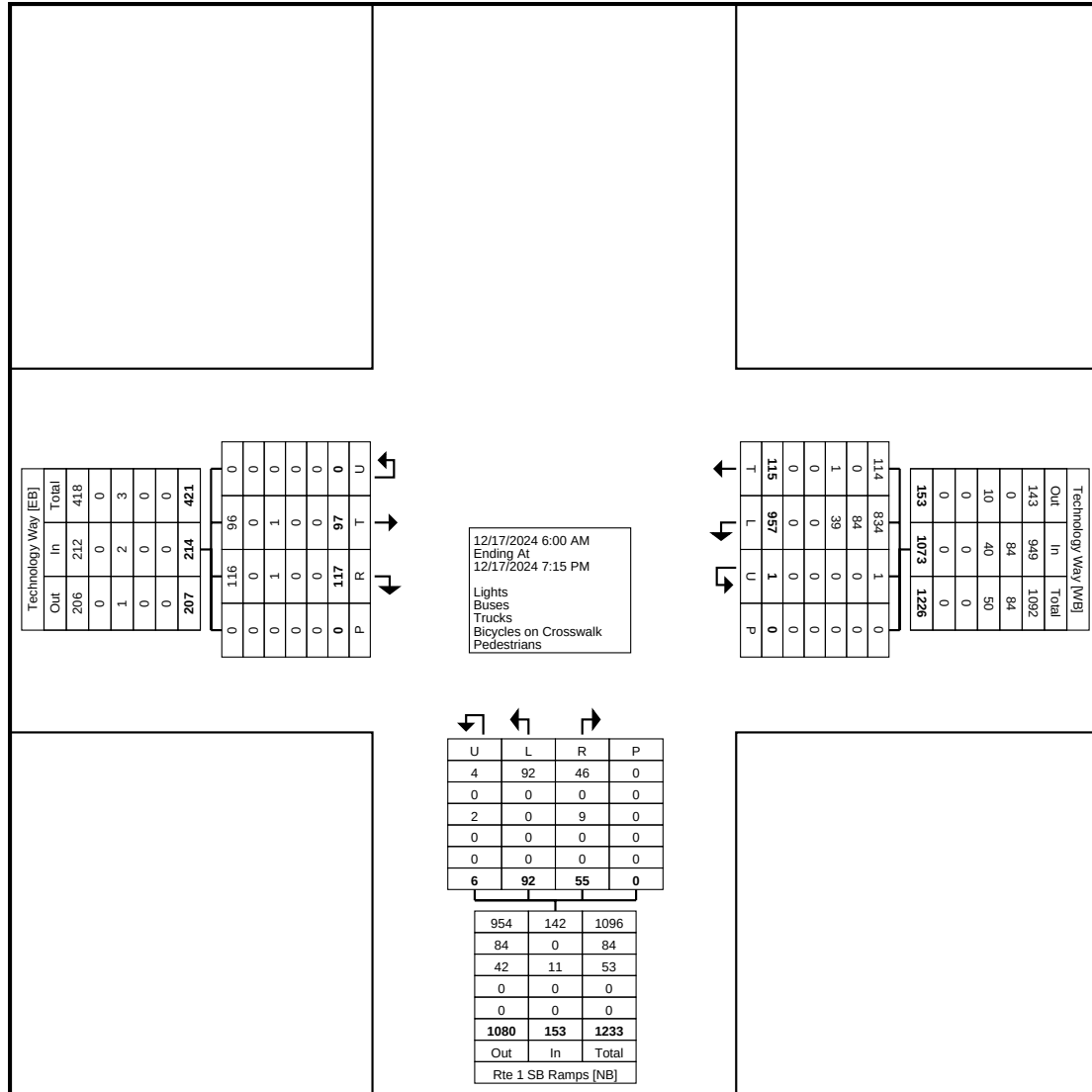
Turning Movement Data

Start Time	Technology Way Eastbound					Technology Way Westbound					Rte 1 SB Ramps Northbound					Int. Total
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	
6:00 AM	0	0	0	0	0	6	0	0	0	6	0	2	0	0	2	8
6:15 AM	0	0	0	0	0	16	0	0	0	16	1	0	1	0	2	18
6:30 AM	0	0	0	0	0	13	0	0	0	13	0	0	0	0	0	13
6:45 AM	0	0	0	0	0	14	0	0	0	14	1	0	0	0	1	15
Hourly Total	0	0	0	0	0	49	0	0	0	49	2	2	1	0	5	54
7:00 AM	0	0	0	0	0	11	6	0	0	17	3	5	0	0	8	25
7:15 AM	0	0	0	0	0	7	1	0	0	8	0	1	0	0	1	9
7:30 AM	0	1	0	0	1	12	5	0	0	17	6	0	0	0	6	24
7:45 AM	2	0	0	0	2	6	2	0	0	8	6	2	0	0	8	18
Hourly Total	2	1	0	0	3	36	14	0	0	50	15	8	0	0	23	76
8:00 AM	0	1	0	0	1	11	5	0	0	16	9	3	0	0	12	29
8:15 AM	1	1	0	0	2	13	6	0	0	19	5	4	0	0	9	30
8:30 AM	1	0	0	0	1	12	3	0	0	15	15	7	1	0	23	39
8:45 AM	0	1	0	0	1	14	14	0	0	28	8	3	0	0	11	40
Hourly Total	2	3	0	0	5	50	28	0	0	78	37	17	1	0	55	138
9:00 AM	1	3	0	0	4	15	8	1	0	24	10	1	0	0	11	39
9:15 AM	1	3	0	0	4	21	10	0	0	31	6	8	0	0	14	49
9:30 AM	1	3	0	0	4	23	3	0	0	26	3	4	0	0	7	37
9:45 AM	0	2	0	0	2	17	6	0	0	23	5	1	0	0	6	31
Hourly Total	3	11	0	0	14	76	27	1	0	104	24	14	0	0	38	156
10:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
2:00 PM	3	3	0	0	6	35	5	0	0	40	0	0	0	0	0	46
2:15 PM	3	3	0	0	6	21	3	0	0	24	1	2	0	0	3	33
2:30 PM	4	1	0	0	5	34	1	0	0	35	0	1	1	0	2	42
2:45 PM	4	1	0	0	5	29	3	0	0	32	2	3	0	0	5	42
Hourly Total	14	8	0	0	22	119	12	0	0	131	3	6	1	0	10	163
3:00 PM	4	8	0	0	12	52	2	0	0	54	2	0	1	0	3	69
3:15 PM	5	3	0	0	8	67	1	0	0	68	1	0	0	0	1	77
3:30 PM	5	2	0	0	7	35	3	0	0	38	0	0	0	0	0	45
3:45 PM	5	3	0	0	8	32	0	0	0	32	1	0	0	0	1	41
Hourly Total	19	16	0	0	35	186	6	0	0	192	4	0	1	0	5	232
4:00 PM	12	9	0	0	21	41	2	0	0	43	1	0	0	0	1	65
4:15 PM	12	2	0	0	14	44	1	0	0	45	0	1	0	0	1	60
4:30 PM	11	10	0	0	21	43	2	0	0	45	0	1	0	0	1	67
4:45 PM	4	9	0	0	13	46	1	0	0	47	0	0	0	0	0	60
Hourly Total	39	30	0	0	69	174	6	0	0	180	1	2	0	0	3	252
5:00 PM	3	6	0	0	9	28	2	0	0	30	1	0	1	0	2	41
5:15 PM	1	9	0	0	10	21	2	0	0	23	2	0	1	0	3	36
5:30 PM	5	10	0	0	15	32	0	0	0	32	2	1	0	0	3	50
5:45 PM	2	1	0	0	3	42	1	0	0	43	0	0	0	0	0	46
Hourly Total	11	26	0	0	37	123	5	0	0	128	5	1	2	0	8	173
6:00 PM	2	6	0	0	8	26	2	0	0	28	0	2	0	0	2	38
6:15 PM	2	4	0	0	6	34	3	0	0	37	0	1	0	0	1	44
6:30 PM	2	10	0	0	12	40	6	0	0	46	0	1	0	0	1	59
6:45 PM	1	2	0	0	3	43	6	0	0	49	0	1	0	0	1	53
Hourly Total	7	22	0	0	29	143	17	0	0	160	0	5	0	0	5	194
7:00 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
Grand Total	97	117	0	0	214	957	115	1	0	1073	92	55	6	0	153	1440
Approach %	45.3	54.7	0.0	-	-	89.2	10.7	0.1	-	-	60.1	35.9	3.9	-	-	-
Total %	6.7	8.1	0.0	-	14.9	66.5	8.0	0.1	-	74.5	6.4	3.8	0.4	-	10.6	-
Lights	96	116	0	-	212	834	114	1	-	949	92	46	4	-	142	1303
% Lights	99.0	99.1	-	-	99.1	87.1	99.1	100.0	-	88.4	100.0	83.6	66.7	-	92.8	90.5
Buses	0	0	0	-	0	84	0	0	-	84	0	0	0	-	0	84
% Buses	0.0	0.0	-	-	0.0	8.8	0.0	0.0	-	7.8	0.0	0.0	0.0	-	0.0	5.8
Trucks	1	1	0	-	2	39	1	0	-	40	0	9	2	-	11	53
% Trucks	1.0	0.9	-	-	0.9	4.1	0.9	0.0	-	3.7	0.0	16.4	33.3	-	7.2	3.7
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-

[illegible]

North Brunswick, NJ
Technology Way & Route 1 SB
Ramps
Tuesday, December 17, 2024
Location: 40.466744, -
74.443091

Count Name: 16 - Technology
Way and Route 1 SB Ramps
Site Code:
Start Date: 12/17/2024
Page No: 3



Turning Movement Data Plot

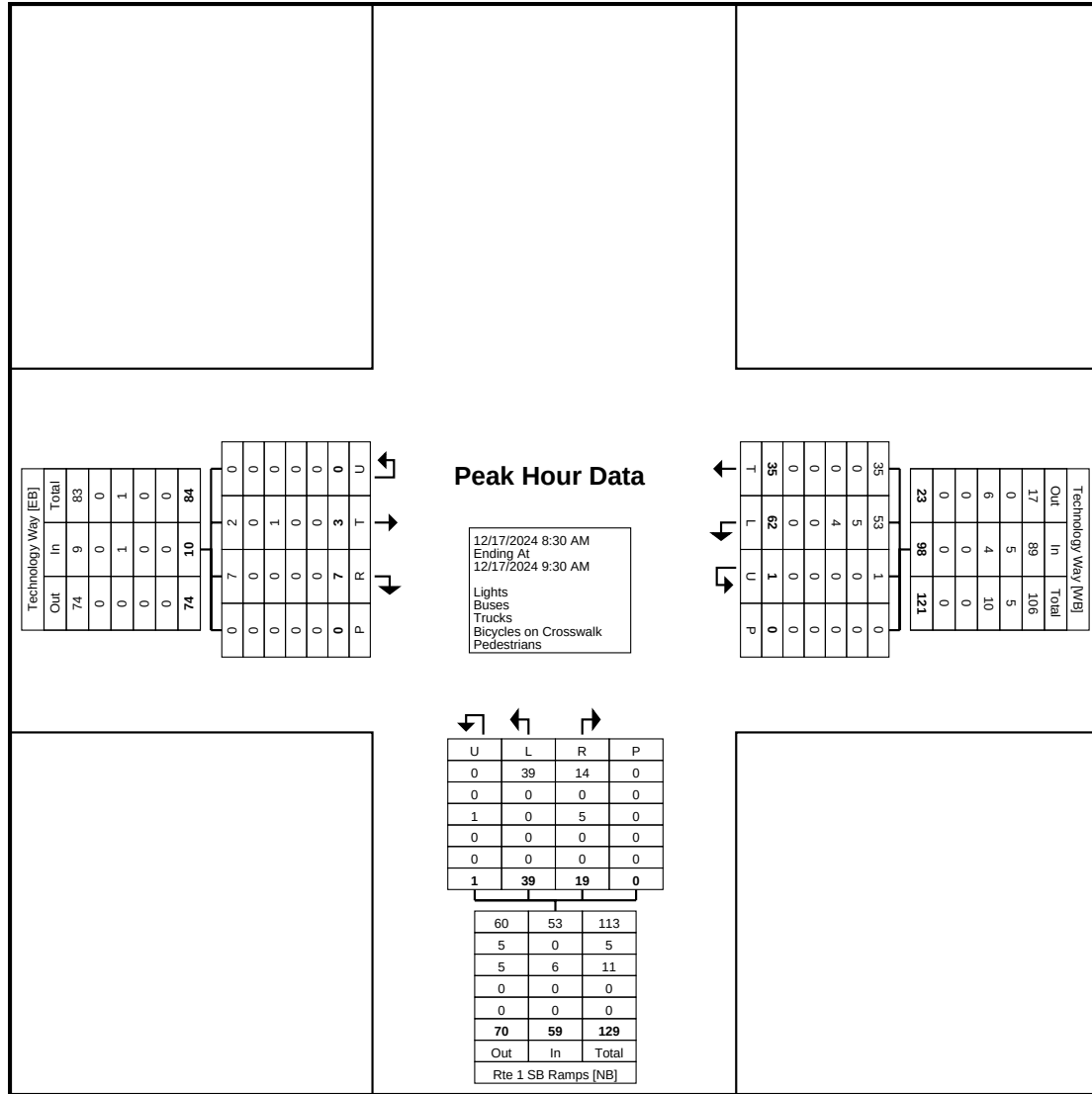
North Brunswick, NJ
Technology Way & Route 1 SB
Ramps
Tuesday, December 17, 2024
Location: 40.466744, -
74.443091

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Count Name: 16 - Technology
Way and Route 1 SB Ramps
Site Code:
Start Date: 12/17/2024
Page No: 4

Turning Movement Peak Hour Data (8:30 AM)

[illegible]



Turning Movement Peak Hour Data Plot (8:30 AM)

North Brunswick, NJ
Technology Way & Route 1 SB
Ramps
Tuesday, December 17, 2024
Location: 40.466744, -
74.443091

Coatesville, PA, Pennsylvania, United States 19320
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Count Name: 16 - Technology
Way and Route 1 SB Ramps
Site Code:
Start Date: 12/17/2024
Page No: 6

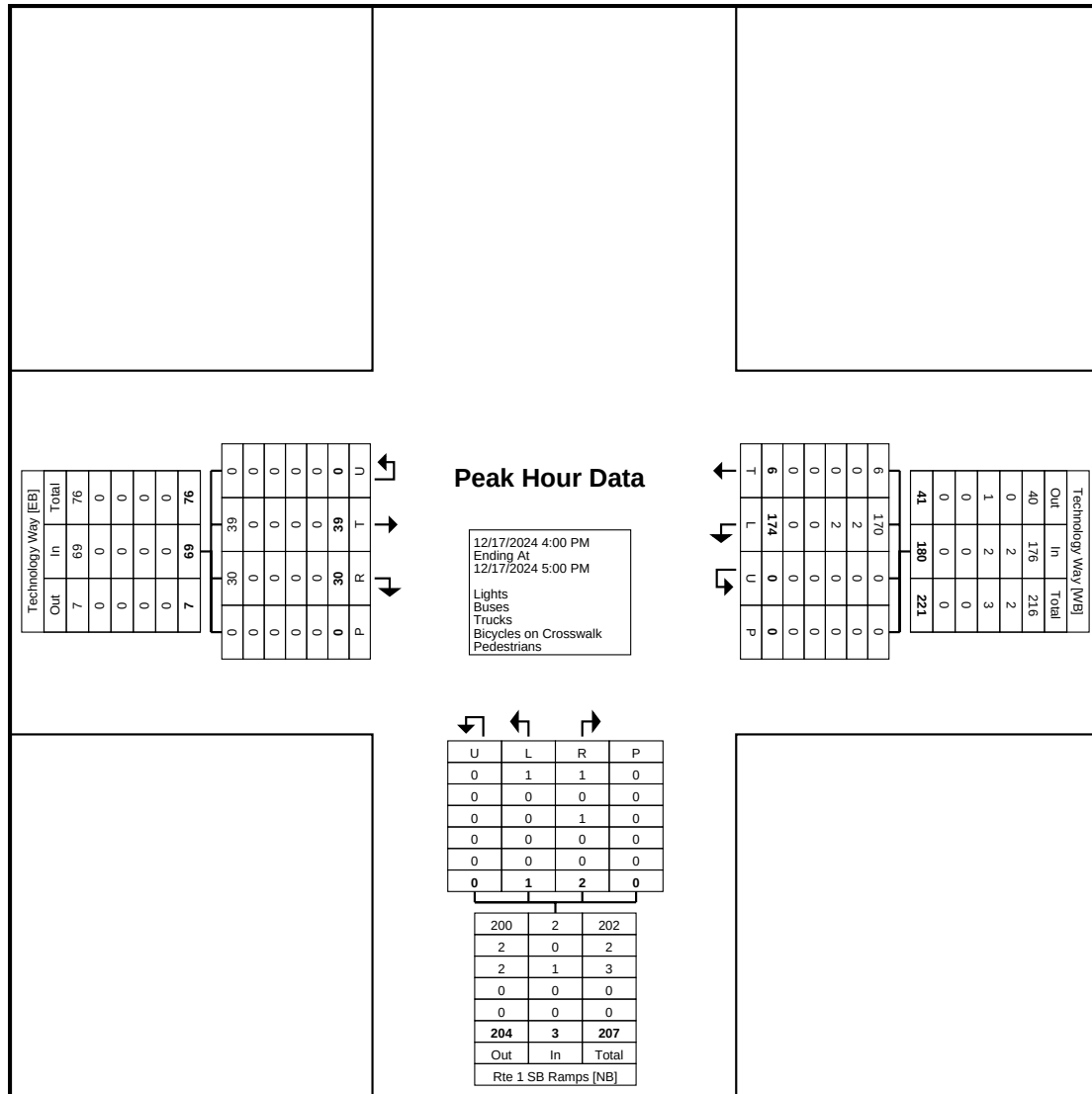
Turning Movement Peak Hour Data (4:00 PM)

Start Time	Technology Way Eastbound					Technology Way Westbound					Rte 1 SB Ramps Northbound					Int. Total
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	
4:00 PM	12	9	0	0	21	41	2	0	0	43	1	0	0	0	1	65
4:15 PM	12	2	0	0	14	44	1	0	0	45	0	1	0	0	1	60
4:30 PM	11	10	0	0	21	43	2	0	0	45	0	1	0	0	1	67
4:45 PM	4	9	0	0	13	46	1	0	0	47	0	0	0	0	0	60
Total	39	30	0	0	69	174	6	0	0	180	1	2	0	0	3	252
Approach %	56.5	43.5	0.0	-	-	96.7	3.3	0.0	-	-	33.3	66.7	0.0	-	-	-
Total %	15.5	11.9	0.0	-	27.4	69.0	2.4	0.0	-	71.4	0.4	0.8	0.0	-	1.2	-
PHF	0.813	0.750	0.000	-	0.821	0.946	0.750	0.000	-	0.957	0.250	0.500	0.000	-	0.750	0.940
Lights	39	30	0	-	69	170	6	0	-	176	1	1	0	-	2	247
% Lights	100.0	100.0	-	-	100.0	97.7	100.0	-	-	97.8	100.0	50.0	-	-	66.7	98.0
Buses	0	0	0	-	0	2	0	0	-	2	0	0	0	-	0	2
% Buses	0.0	0.0	-	-	0.0	1.1	0.0	-	-	1.1	0.0	0.0	-	-	0.0	0.8
Trucks	0	0	0	-	0	2	0	0	-	2	0	1	0	-	1	3
% Trucks	0.0	0.0	-	-	0.0	1.1	0.0	-	-	1.1	0.0	50.0	-	-	33.3	1.2
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

North Brunswick, NJ
Technology Way & Route 1 SB
Ramps
Tuesday, December 17, 2024
Location: 40.466744, -
74.443091

Coatesville, PA, Pennsylvania, United States 19320
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Count Name: 16 - Technology
Way and Route 1 SB Ramps
Site Code:
Start Date: 12/17/2024
Page No: 7



Turning Movement Peak Hour Data Plot (4:00 PM)



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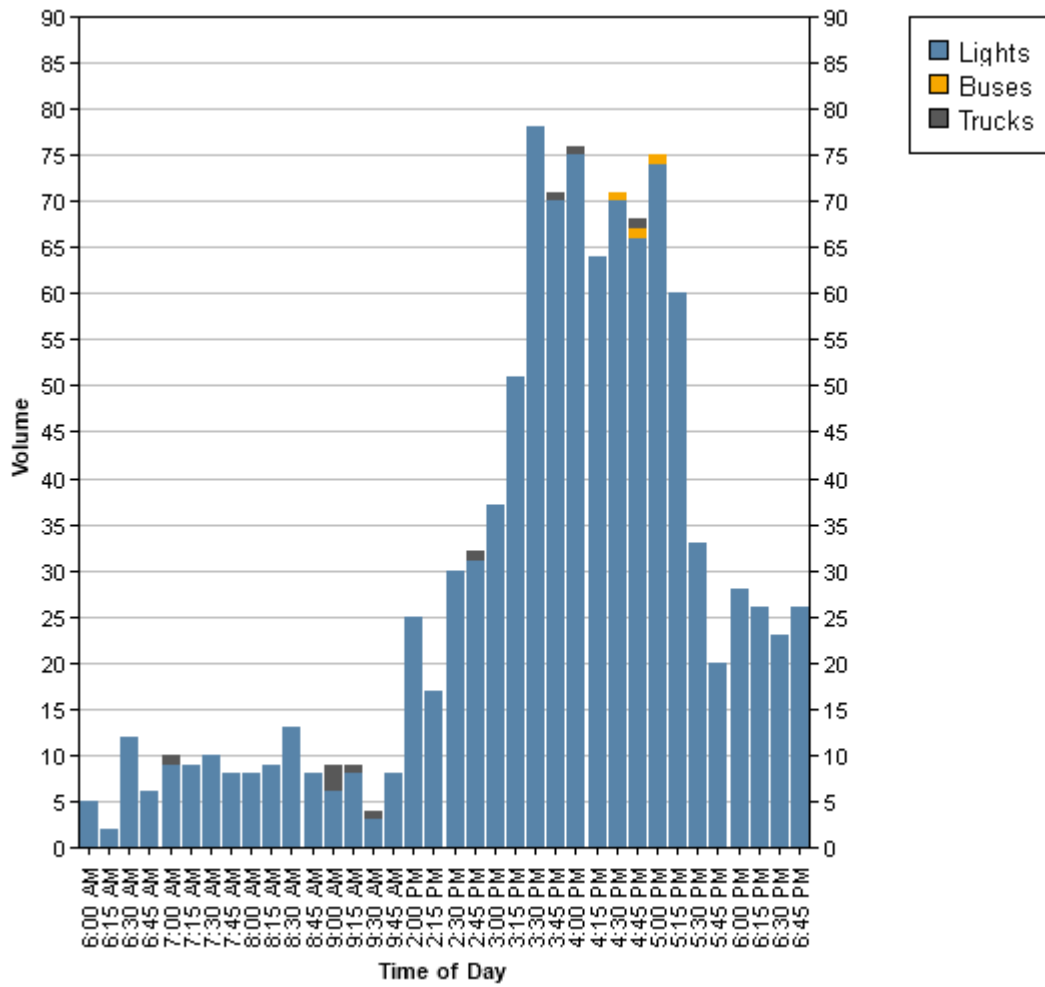
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610-466-1469 TSTData@aol.com
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Count Name: 10 - Route 1 SB
and on-ramp from Technology
Way (Ramp ATR)
Site Code:
Start Date: 12/17/2024
Page No: 1

North Brunswick, NJ
Route 1 SB and On Ramp from
Technology Way
Tuesday, December 17, 2024
Location: 40.46962, -74.434089

Direction (Southbound)

Start Time	Lights	Buses	Trucks	Total
6:00 AM	5	0	0	5
6:15 AM	2	0	0	2
6:30 AM	12	0	0	12
6:45 AM	6	0	0	6
7:00 AM	9	0	1	10
7:15 AM	9	0	0	9
7:30 AM	10	0	0	10
7:45 AM	8	0	0	8
8:00 AM	8	0	0	8
8:15 AM	9	0	0	9
8:30 AM	13	0	0	13
8:45 AM	8	0	0	8
9:00 AM	6	0	3	9
9:15 AM	8	0	1	9
9:30 AM	3	0	1	4
9:45 AM	8	0	0	8
2:00 PM	25	0	0	25
2:15 PM	17	0	0	17
2:30 PM	30	0	0	30
2:45 PM	31	0	1	32
3:00 PM	37	0	0	37
3:15 PM	51	0	0	51
3:30 PM	78	0	0	78
3:45 PM	70	0	1	71
4:00 PM	75	0	1	76
4:15 PM	64	0	0	64
4:30 PM	70	1	0	71
4:45 PM	66	1	1	68
5:00 PM	74	1	0	75
5:15 PM	60	0	0	60
5:30 PM	33	0	0	33
5:45 PM	20	0	0	20
6:00 PM	28	0	0	28
6:15 PM	26	0	0	26
6:30 PM	23	0	0	23
6:45 PM	26	0	0	26
Total	1028	3	10	1041
Total %	98.8	0.3	1.0	100.0
AM Times	7:45 AM	6:00 AM	8:45 AM	8:15 AM
AM Peaks	38	0	5	39
PM Times	3:30 PM	4:15 PM	3:15 PM	3:30 PM
PM Peaks	287	3	2	289





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Count Name: 10 - Route 1 SB
and on-ramp from Technology
Way (Rte 1 ATR)
Site Code:
Start Date: 12/17/2024
Page No: 1

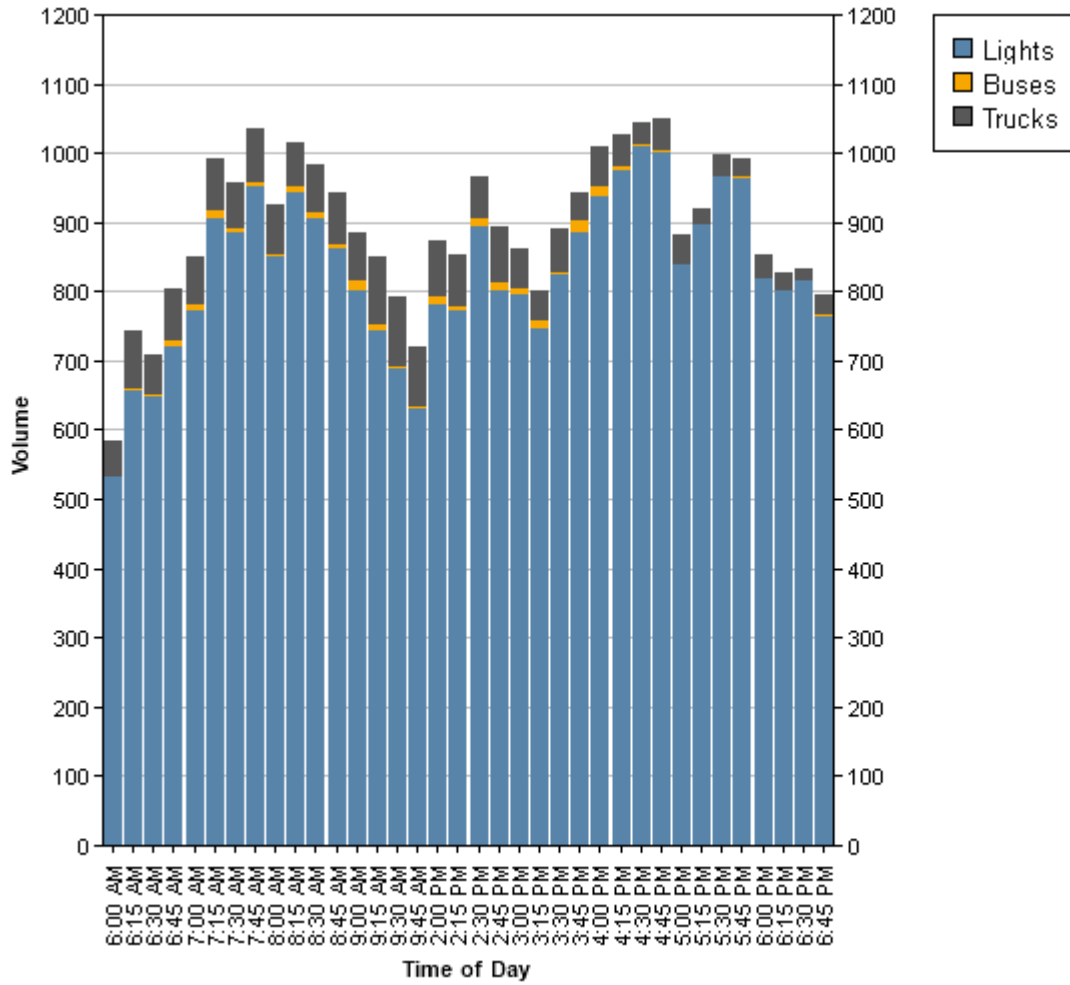
North Brunswick, NJ
Route 1 SB and On Ramp from
Technology Way
Tuesday, December 17, 2024
Location: 40.46962, -74.434089

Direction (Southbound)

Start Time	Lights	Buses	Trucks	Total
6:00 AM	532	1	52	585
6:15 AM	656	2	85	743
6:30 AM	648	2	57	707
6:45 AM	721	7	76	804
7:00 AM	773	8	69	850
7:15 AM	905	11	77	993
7:30 AM	885	6	66	957
7:45 AM	950	6	80	1036
8:00 AM	849	4	71	924
8:15 AM	944	7	63	1014
8:30 AM	905	10	68	983
8:45 AM	862	6	75	943
9:00 AM	800	14	72	886
9:15 AM	742	10	97	849
9:30 AM	687	4	102	793
9:45 AM	629	4	87	720
2:00 PM	780	11	82	873
2:15 PM	772	6	76	854
2:30 PM	894	10	62	966
2:45 PM	800	13	81	894
3:00 PM	796	9	56	861
3:15 PM	747	10	44	801
3:30 PM	823	4	64	891
3:45 PM	886	15	43	944
4:00 PM	936	14	59	1009
4:15 PM	975	4	48	1027
4:30 PM	1008	3	33	1044
4:45 PM	1000	3	46	1049
5:00 PM	840	0	42	882
5:15 PM	895	1	24	920
5:30 PM	965	2	30	997
5:45 PM	964	2	25	991
6:00 PM	819	0	34	853
6:15 PM	800	2	26	828
6:30 PM	814	1	19	834
6:45 PM	764	1	30	795
Total	29766	213	2121	32100
Total %	92.7	0.7	6.6	100.0
AM Times	7:45 AM	8:30 AM	9:00 AM	7:45 AM
AM Peaks	3648	40	358	3957
PM Times	4:00 PM	3:15 PM	2:00 PM	4:00 PM
PM Peaks	3919	43	301	4129

North Brunswick, NJ
Route 1 SB and On Ramp from
Technology Way
Tuesday, December 17, 2024
Location: 40.46962, -74.434089

Count Name: 10 - Route 1 SB
and on-ramp from Technology
Way (Rte 1 ATR)
Site Code:
Start Date: 12/17/2024
Page No: 2



TRAFFIC VOLUME FIGURES

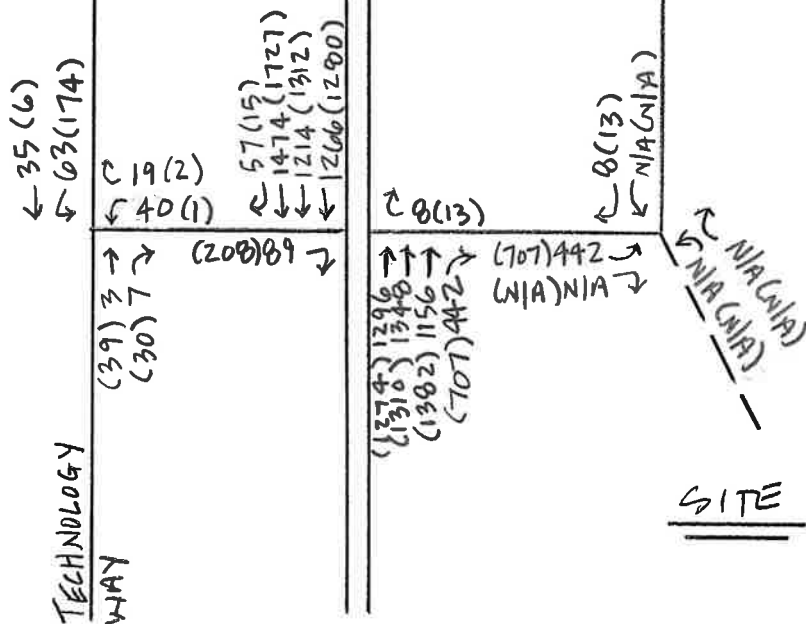
LEGEND

= DIVIDED ROAD

- UNDIVIDED ROAD

-- PROPOSED DRIVEWAY

← AM (CPM)



2024 EXISTING WEEKDAY

PEAK HOUR TRAFFIC VOLUMES

BY DDD

DATE 4/25

PROJ. NO. 130239201

CKD.

DATE

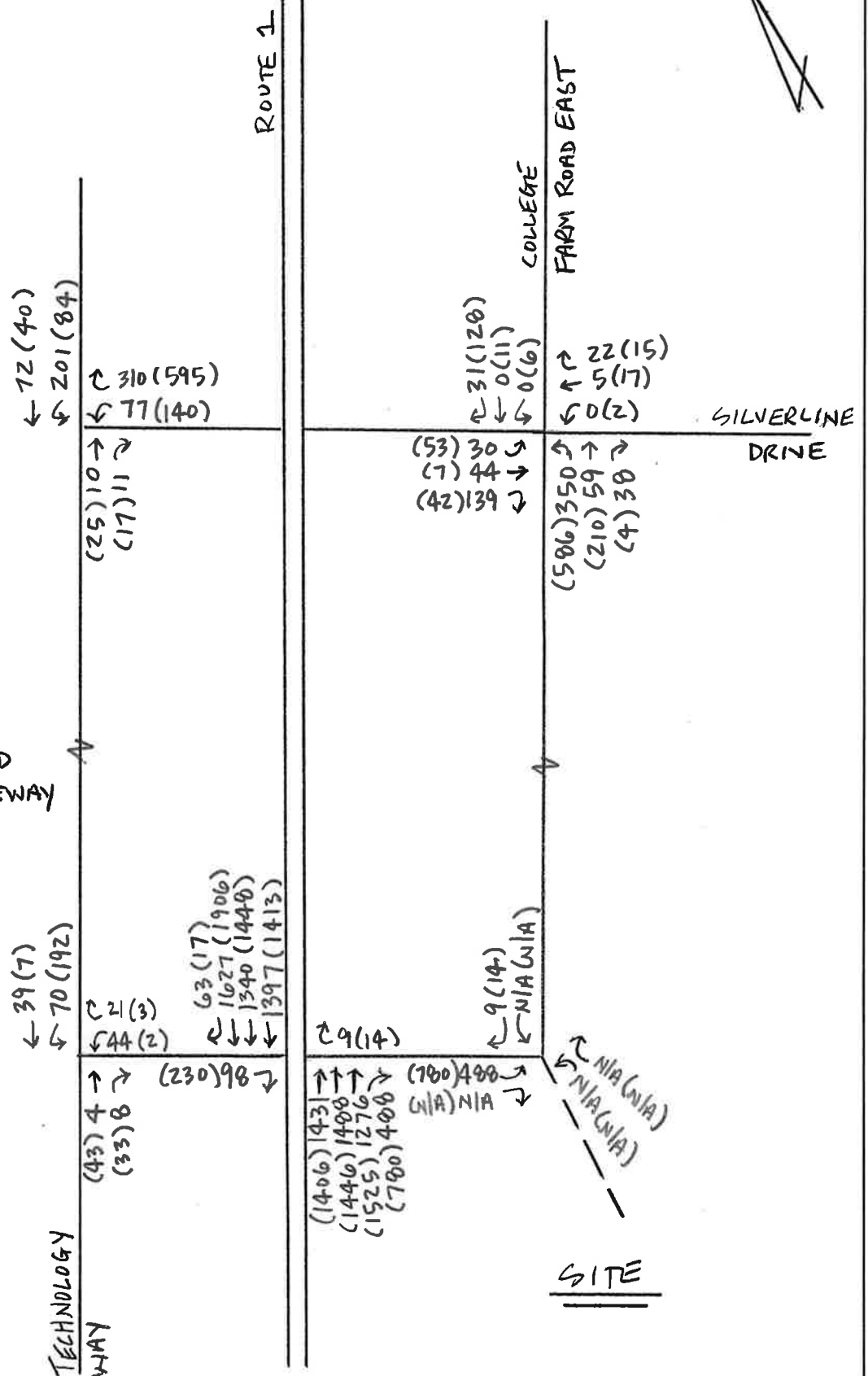
SHEET

OF

LANGAN

LEGEND

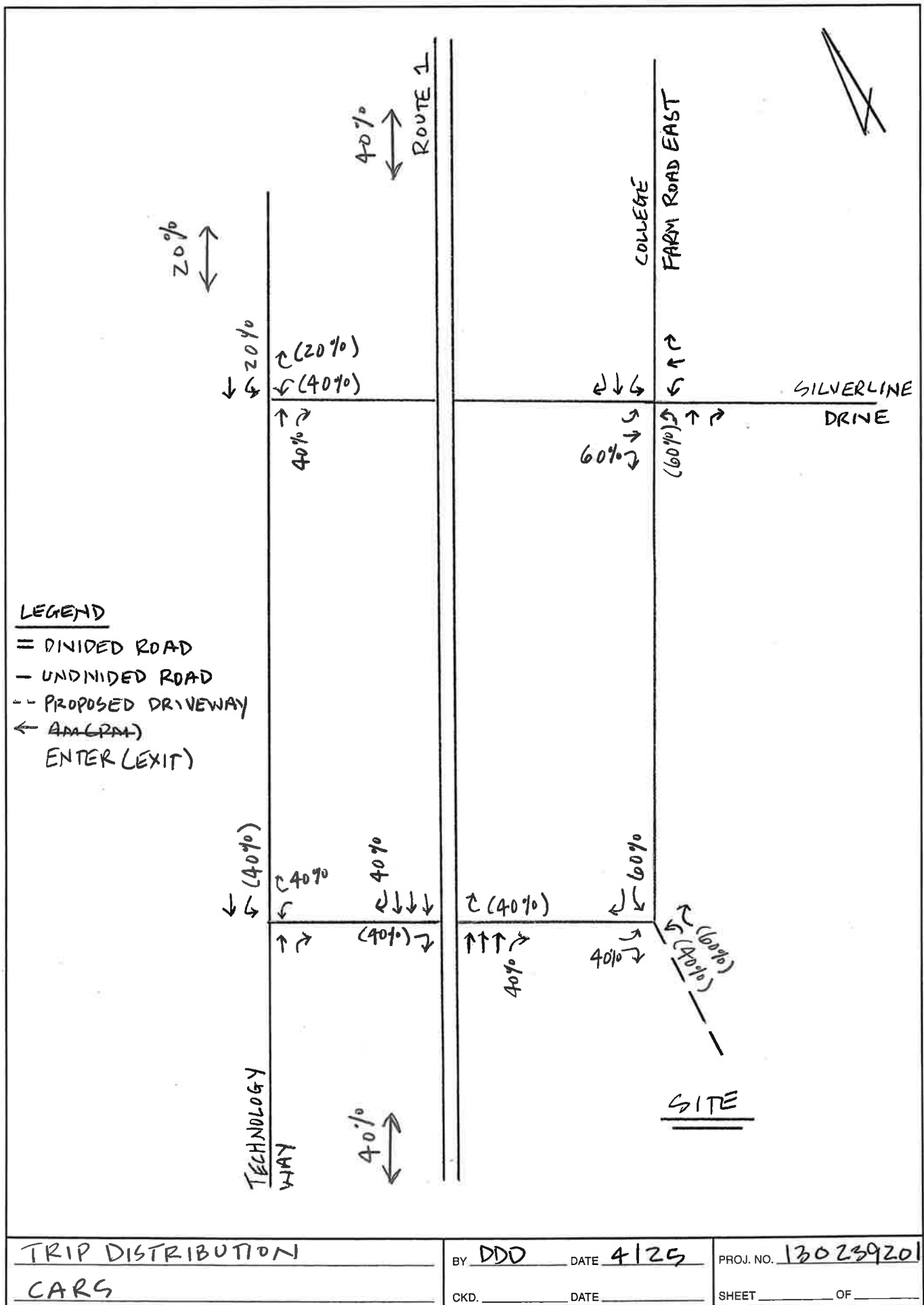
- = DIVIDED ROAD
- UNDIVIDED ROAD
- PROPOSED DRIVEWAY
- ← AM (LPM)



2028 NO-BUILD WEEKDAY
PEAK HOUR TRAFFIC VOLUMES

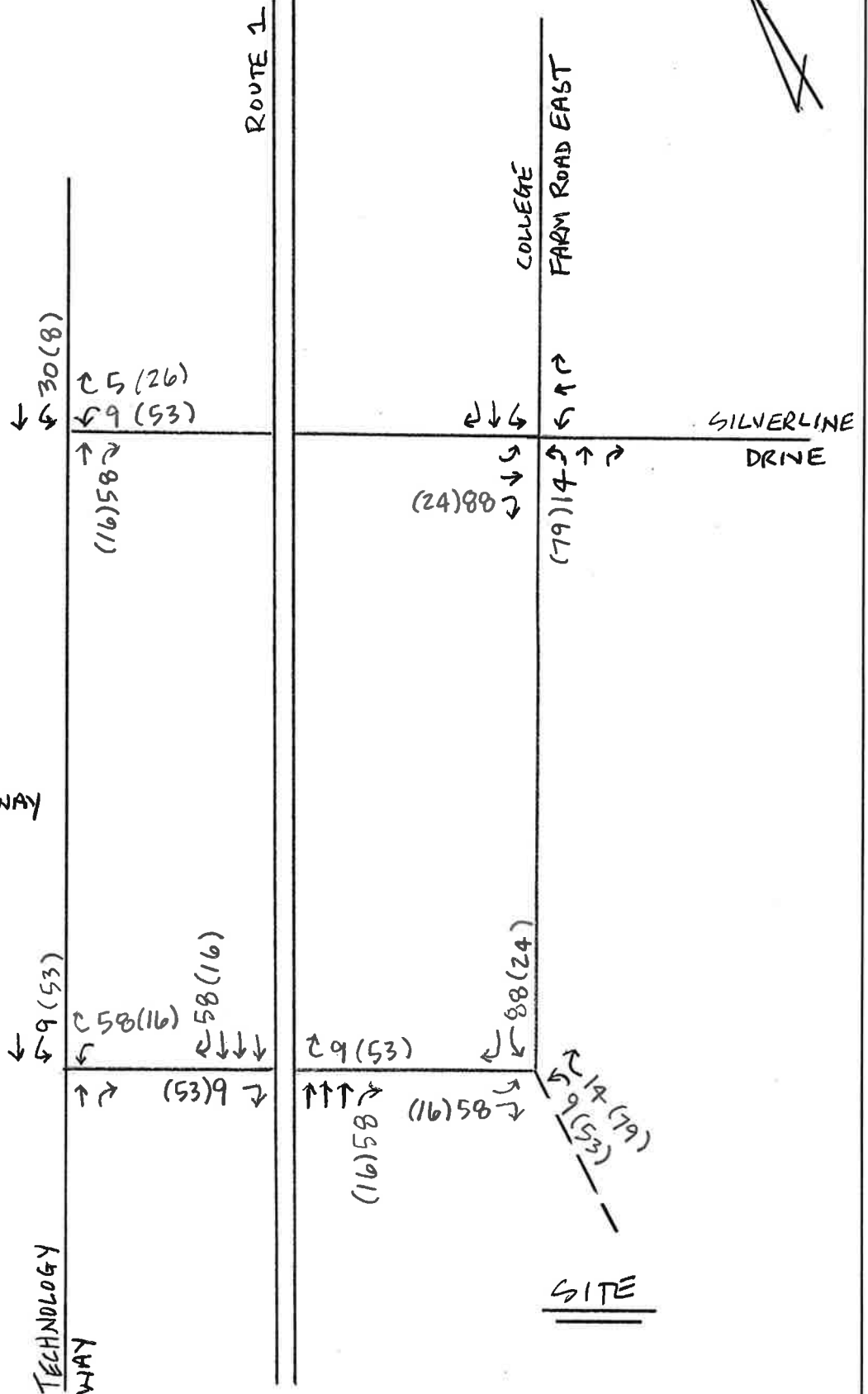
BY DDD DATE 4/25
CKD. DATE

PROJ. NO. 130239201
SHEET OF



LEGEND

- = DIVIDED ROAD
- UNDIVIDED ROAD
- PROPOSED DRIVEWAY
- ← AM (LPM)



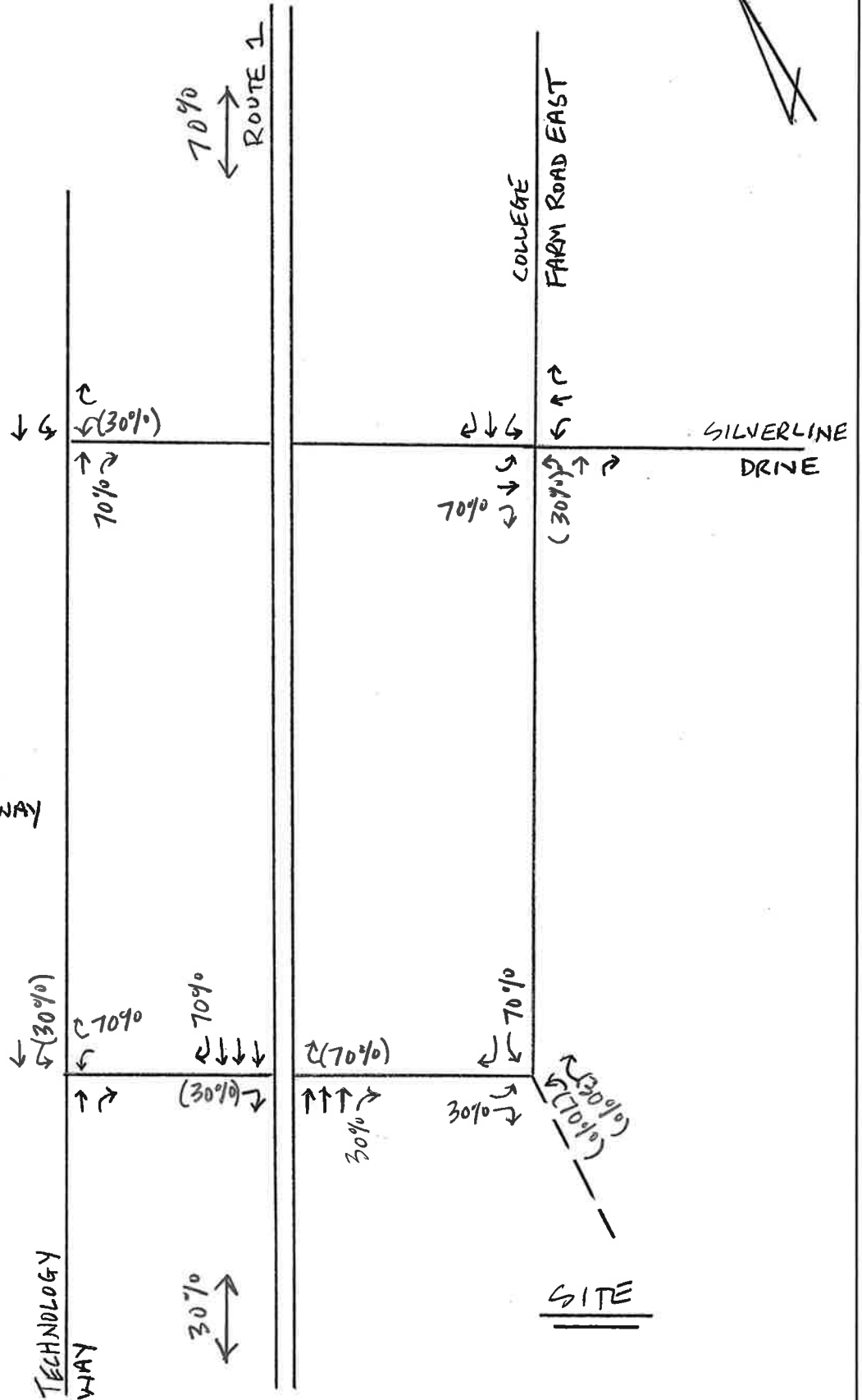
SITE-GENERATED TRAFFIC
CARS

BY DDD DATE 4/25
CKD. DATE

PROJ. NO. 130239201
SHEET OF

LEGEND

- = DIVIDED ROAD
- UNDIVIDED ROAD
- PROPOSED DRIVEWAY
- ← AM (PM) ENTER (EXIT)



TRIP DISTRIBUTION

TRUCKS

BY DDD

DATE

4/25

PROJ. NO.

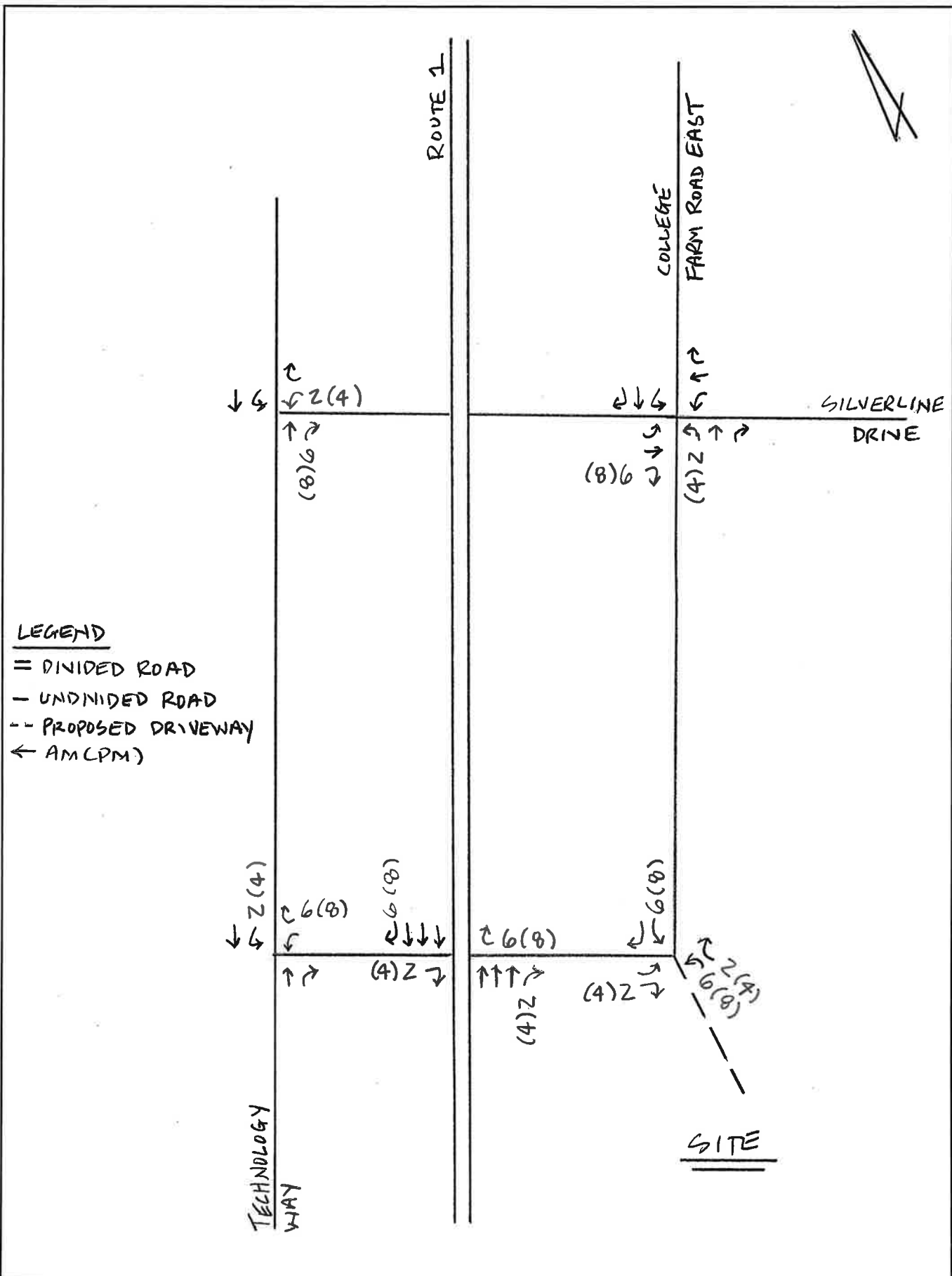
130239201

CKD.

DATE

SHEET

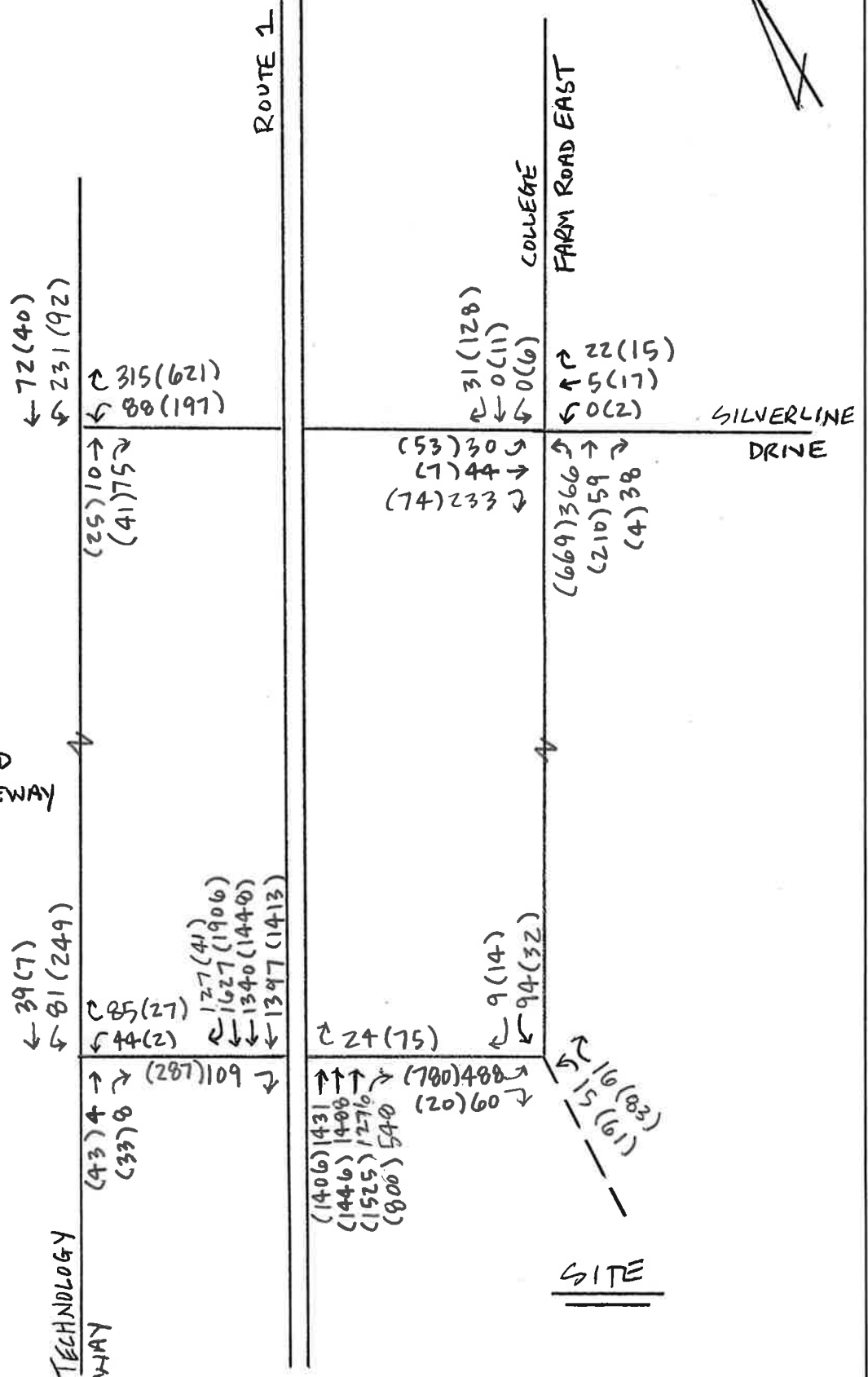
OF



SITE - GENERATED TRAFFIC TRUCKS	BY <u>DDD</u>	DATE <u>4/25</u>	PROJ. NO. <u>130239201</u>
	CKD. _____	DATE _____	SHEET _____ OF _____

LEGEND

- = DIVIDED ROAD
- UNDIVIDED ROAD
- PROPOSED DRIVEWAY
- ← AM (CPM)



2028 BUILD WEEKDAY

PEAK HOUR TRAFFIC VOLUMES

BY DDD DATE 4/25

CKD. DATE

PROJ. NO. 130239201

SHEET OF

LANGAN

TRAFFIC OPERATIONS ANALYSIS PRINTOUTS



Route 1 NB and College Farm Road East

HCS Freeway Diverge Report

Project Information

Analyst	DDD	Date	4/21/2025
Agency	Langan	Analysis Year	2028
Jurisdiction	State	Time Analyzed	AM
Project Description	No-Build	Units	U.S. Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (LD), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAFCAV)	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	4195	488
Peak Hour Factor (PHF)	0.86	0.74
Total Trucks, %	9.12	7.24
Heavy Vehicle Adjustment Factor (fHV)	0.916	0.932
Flow Rate (vi), pc/h	5325	708
Capacity (cmd), pc/h	7200	2000
Initial Adjusted Capacity (cmda), pc/h	7200	-
Final Adjusted Capacity (cmda), pc/h	7200	2000
Volume-to-Capacity Ratio (v/c)	0.74	0.35

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1875
Downstream Equilibrium Distance (LEQ), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	59.0
Flow in Lanes 1 and 2 (v12), pc/h	3450	Outer Lanes Freeway Speed (So), mi/h	79.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Ramp Junction Speed (S), mi/h	64.8
Number of Outer Lanes on Freeway (NO), ln	1	Average Density (D), pc/mi/ln	27.4
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	30.3

Service Volume Table

Target LOS	A	B	C	D	E
Freeway					
Max Service Flow Rate (MSF), pc/h/ln	478	1069	1609	2172	2150
Service Flow Rate (SF), veh/h	1314	2936	4421	5968	5908
Service Volume, veh/h	1130	2525	3802	5132	5081
One Direction DSV, 1000 veh/day	11.3	25.3	38.0	51.3	50.8
Bi-Directional DSV, 1000 veh/day	20.5	45.9	69.1	93.3	92.4
Ramp					
Max Service Flow Rate (MSF), pc/h/ln	164	367	552	745	737
Service Flow Rate (SF), veh/h	153	342	514	694	687
Service Volume, veh/h	113	253	381	514	509
One Direction DSV, 1000 veh/day	1.1	2.5	3.8	5.1	5.1

HCS Freeway Diverge Report

Project Information

Analyst	DDD	Date	4/21/2025
Agency	Langan	Analysis Year	2028
Jurisdiction	State	Time Analyzed	AM
Project Description	Build	Units	U.S. Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (LD), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAFCAV)	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	4195	548
Peak Hour Factor (PHF)	0.86	0.74
Total Trucks, %	9.12	7.24
Heavy Vehicle Adjustment Factor (fHV)	0.916	0.932
Flow Rate (vi), pc/h	5325	795
Capacity (cmd), pc/h	7200	2000
Initial Adjusted Capacity (cmda), pc/h	7200	-
Final Adjusted Capacity (cmda), pc/h	7200	2000
Volume-to-Capacity Ratio (v/c)	0.74	0.40

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1857
Downstream Equilibrium Distance (LEQ), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	58.7
Flow in Lanes 1 and 2 (v12), pc/h	3468	Outer Lanes Freeway Speed (So), mi/h	79.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Ramp Junction Speed (S), mi/h	64.6
Number of Outer Lanes on Freeway (NO), ln	1	Average Density (D), pc/mi/ln	27.5
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	30.5

Service Volume Table

Target LOS	A	B	C	D	E
Freeway					
Max Service Flow Rate (MSF), pc/h/ln	475	1061	1600	2159	2123
Service Flow Rate (SF), veh/h	1306	2914	4398	5932	5833
Service Volume, veh/h	1123	2506	3782	5101	5017
One Direction DSV, 1000 veh/day	11.2	25.1	37.8	51.0	50.2
Bi-Directional DSV, 1000 veh/day	20.4	45.6	68.8	92.8	91.2
Ramp					
Max Service Flow Rate (MSF), pc/h/ln	183	409	616	831	818
Service Flow Rate (SF), veh/h	171	381	575	775	762
Service Volume, veh/h	126	282	425	573	564
One Direction DSV, 1000 veh/day	1.3	2.8	4.3	5.7	5.6

HCS Freeway Diverge Report

Project Information

Analyst	DDD	Date	4/21/2025
Agency	Langan	Analysis Year	2028
Jurisdiction	State	Time Analyzed	PM
Project Description	No-Build	Units	U.S. Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (LD), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAFCAV)	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	4377	780
Peak Hour Factor (PHF)	0.94	0.88
Total Trucks, %	7.72	5.00
Heavy Vehicle Adjustment Factor (fHV)	0.928	0.952
Flow Rate (vi), pc/h	5018	931
Capacity (cmd), pc/h	7200	2000
Initial Adjusted Capacity (cmda), pc/h	7200	-
Final Adjusted Capacity (cmda), pc/h	7200	2000
Volume-to-Capacity Ratio (v/c)	0.70	0.47

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1667
Downstream Equilibrium Distance (LEQ), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	58.3
Flow in Lanes 1 and 2 (v12), pc/h	3351	Outer Lanes Freeway Speed (So), mi/h	80.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Ramp Junction Speed (S), mi/h	64.1
Number of Outer Lanes on Freeway (NO), ln	1	Average Density (D), pc/mi/ln	26.1
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	29.5

Service Volume Table

Target LOS	A	B	C	D	E
Freeway					
Max Service Flow Rate (MSF), pc/h/ln	468	1044	1574	2115	2037
Service Flow Rate (SF), veh/h	1303	2906	4381	5889	5671
Service Volume, veh/h	1225	2732	4118	5536	5331
One Direction DSV, 1000 veh/day	12.3	27.3	41.2	55.4	53.3
Bi-Directional DSV, 1000 veh/day	22.3	49.7	74.9	100.7	96.9
Ramp					
Max Service Flow Rate (MSF), pc/h/ln	244	544	820	1102	1062
Service Flow Rate (SF), veh/h	232	518	781	1050	1011
Service Volume, veh/h	204	456	687	924	889
One Direction DSV, 1000 veh/day	2.0	4.6	6.9	9.2	8.9

HCS Freeway Diverge Report

Project Information

Analyst	DDD	Date	4/21/2025
Agency	Langan	Analysis Year	2028
Jurisdiction	State	Time Analyzed	PM
Project Description	Build	Units	U.S. Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (LD), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAFCAV)	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	4377	800
Peak Hour Factor (PHF)	0.94	0.88
Total Trucks, %	7.72	5.00
Heavy Vehicle Adjustment Factor (fHV)	0.928	0.952
Flow Rate (vi), pc/h	5018	955
Capacity (cmd), pc/h	7200	2000
Initial Adjusted Capacity (cmda), pc/h	7200	-
Final Adjusted Capacity (cmda), pc/h	7200	2000
Volume-to-Capacity Ratio (v/c)	0.70	0.48

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1662
Downstream Equilibrium Distance (LEQ), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	58.2
Flow in Lanes 1 and 2 (v12), pc/h	3356	Outer Lanes Freeway Speed (So), mi/h	80.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Ramp Junction Speed (S), mi/h	64.0
Number of Outer Lanes on Freeway (NO), ln	1	Average Density (D), pc/mi/ln	26.1
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	29.5

Service Volume Table

Target LOS	A	B	C	D	E
Freeway					
Max Service Flow Rate (MSF), pc/h/ln	468	1044	1569	2110	2029
Service Flow Rate (SF), veh/h	1302	2906	4369	5875	5649
Service Volume, veh/h	1224	2732	4107	5522	5310
One Direction DSV, 1000 veh/day	12.2	27.3	41.1	55.2	53.1
Bi-Directional DSV, 1000 veh/day	22.3	49.7	74.7	100.4	96.5
Ramp					
Max Service Flow Rate (MSF), pc/h/ln	250	558	839	1128	1085
Service Flow Rate (SF), veh/h	238	531	799	1074	1033
Service Volume, veh/h	209	467	703	945	909
One Direction DSV, 1000 veh/day	2.1	4.7	7.0	9.4	9.1

HCS Freeway Merge Report

Project Information

Analyst	DDD	Date	4/22/2025
Agency	Langan	Analysis Year	2028
Jurisdiction	State	Time Analyzed	AM
Project Description	No-Build	Units	U.S. Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (LA), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAFCAV)	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	4195	9
Peak Hour Factor (PHF)	0.86	0.74
Total Trucks, %	9.12	7.24
Heavy Vehicle Adjustment Factor (fHV)	0.916	0.932
Demand Flow Rate (vi), pc/h Total Flow Rate (vFO), pc/h	5325 5338	13
Capacity (cmd), pc/h	7200	2000
Adjusted Capacity (cmda), pc/h	7200	2000
Volume-to-Capacity Ratio (v/c)	0.74	0.01

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	925.7	Flow Outer Lanes (vOA), pc/h/ln	2274
Downstream Equilibrium Distance (LEQ), ft	-	On-Ramp Influence Area Speed (SR), mi/h	63.7
Flow in Lanes 1 and 2 (v12), pc/h	3051	Outer Lanes Freeway Speed (SO), mi/h	69.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	3064	Ramp Junction Speed (S), mi/h	65.9
Number of Outer Lanes on Freeway (NO), ln	1	Average Density (D), pc/mi/ln	27.0
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	24.4

Service Volume Table

Target LOS	A	B	C	D	E
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Freeway					
Max Service Flow Rate (MSF), pc/h/ln	1581	1581	2395	2395	2395
Service Flow Rate (SF), veh/h	4344	4344	6581	6581	6581
Service Volume, veh/h	3736	3736	5660	5660	5660
One Direction DSV, 1000 veh/day	37.4	37.4	56.6	56.6	56.6
Bi-Directional DSV, 1000 veh/day	67.9	67.9	102.9	102.9	102.9
Ramp					
Max Service Flow Rate (MSF), pc/h/ln	10	10	15	15	15
Service Flow Rate (SF), veh/h	9	9	14	14	14
Service Volume, veh/h	7	7	10	10	10
One Direction DSV, 1000 veh/day	0.1	0.1	0.1	0.1	0.1

HCS Freeway Merge Report

Project Information

Analyst	DDD	Date	4/22/2025
Agency	Langan	Analysis Year	2028
Jurisdiction	State	Time Analyzed	AM
Project Description	Build	Units	U.S. Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (LA), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAFCAV)	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	4195	24
Peak Hour Factor (PHF)	0.86	0.74
Total Trucks, %	9.12	7.24
Heavy Vehicle Adjustment Factor (fHV)	0.916	0.932
Demand Flow Rate (vi), pc/h Total Flow Rate (vFO), pc/h	5325 5360	35
Capacity (cmd), pc/h	7200	2000
Adjusted Capacity (cmda), pc/h	7200	2000
Volume-to-Capacity Ratio (v/c)	0.74	0.02

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	930.4	Flow Outer Lanes (vOA), pc/h/ln	2274
Downstream Equilibrium Distance (LEQ), ft	-	On-Ramp Influence Area Speed (SR), mi/h	63.7
Flow in Lanes 1 and 2 (v12), pc/h	3051	Outer Lanes Freeway Speed (SO), mi/h	69.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	3086	Ramp Junction Speed (S), mi/h	65.8
Number of Outer Lanes on Freeway (NO), ln	1	Average Density (D), pc/mi/ln	27.2
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	24.6

Service Volume Table

Target LOS	A	B	C	D	E
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Freeway					
Max Service Flow Rate (MSF), pc/h/ln	1245	2386	2386	2386	2386
Service Flow Rate (SF), veh/h	3421	6558	6558	6558	6558
Service Volume, veh/h	2942	5640	5640	5640	5640
One Direction DSV, 1000 veh/day	29.4	56.4	56.4	56.4	56.4
Bi-Directional DSV, 1000 veh/day	53.5	102.5	102.5	102.5	102.5
Ramp					
Max Service Flow Rate (MSF), pc/h/ln	21	40	40	40	40
Service Flow Rate (SF), veh/h	20	38	38	38	38
Service Volume, veh/h	14	28	28	28	28
One Direction DSV, 1000 veh/day	0.1	0.3	0.3	0.3	0.3

HCS Freeway Merge Report

Project Information

Analyst	DDD	Date	4/22/2025
Agency	Langan	Analysis Year	2028
Jurisdiction	State	Time Analyzed	PM
Project Description	No-Build	Units	U.S. Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (LA), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAFCAV)	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	4377	14
Peak Hour Factor (PHF)	0.94	0.88
Total Trucks, %	7.72	5.00
Heavy Vehicle Adjustment Factor (fHV)	0.928	0.952
Demand Flow Rate (vi), pc/h Total Flow Rate (vFO), pc/h	5018 5035	17
Capacity (cmd), pc/h	7200	2000
Adjusted Capacity (cmda), pc/h	7200	2000
Volume-to-Capacity Ratio (v/c)	0.70	0.01

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	860.9	Flow Outer Lanes (vOA), pc/h/ln	2123
Downstream Equilibrium Distance (LEQ), ft	-	On-Ramp Influence Area Speed (SR), mi/h	64.1
Flow in Lanes 1 and 2 (v12), pc/h	2895	Outer Lanes Freeway Speed (SO), mi/h	69.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	2912	Ramp Junction Speed (S), mi/h	66.3
Number of Outer Lanes on Freeway (NO), ln	1	Average Density (D), pc/mi/ln	25.3
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	23.2

Service Volume Table

Target LOS	A	B	C	D	E
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Freeway					
Max Service Flow Rate (MSF), pc/h/ln	1069	2392	2392	2392	2392
Service Flow Rate (SF), veh/h	2976	6660	6660	6660	6660
Service Volume, veh/h	2798	6261	6261	6261	6261
One Direction DSV, 1000 veh/day	28.0	62.6	62.6	62.6	62.6
Bi-Directional DSV, 1000 veh/day	50.9	113.8	113.8	113.8	113.8
Ramp					
Max Service Flow Rate (MSF), pc/h/ln	10	22	22	22	22
Service Flow Rate (SF), veh/h	10	21	21	21	21
Service Volume, veh/h	8	19	19	19	19
One Direction DSV, 1000 veh/day	0.1	0.2	0.2	0.2	0.2

HCS Freeway Merge Report

Project Information

Analyst	DDD	Date	4/22/2025
Agency	Langan	Analysis Year	2028
Jurisdiction	State	Time Analyzed	PM
Project Description	Build	Units	U.S. Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (LA), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAFCAV)	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	4377	75
Peak Hour Factor (PHF)	0.94	0.88
Total Trucks, %	7.72	5.00
Heavy Vehicle Adjustment Factor (fHV)	0.928	0.952
Demand Flow Rate (vi), pc/h Total Flow Rate (vFO), pc/h	5018 5108	90
Capacity (cmd), pc/h	7200	2000
Adjusted Capacity (cmda), pc/h	7200	2000
Volume-to-Capacity Ratio (v/c)	0.71	0.05

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	876.5	Flow Outer Lanes (vOA), pc/h/ln	2128
Downstream Equilibrium Distance (LEQ), ft	-	On-Ramp Influence Area Speed (SR), mi/h	64.0
Flow in Lanes 1 and 2 (v12), pc/h	2890	Outer Lanes Freeway Speed (SO), mi/h	69.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	2980	Ramp Junction Speed (S), mi/h	66.2
Number of Outer Lanes on Freeway (NO), ln	1	Average Density (D), pc/mi/ln	25.7
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	23.7

Service Volume Table

Target LOS	A	B	C	D	E
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Freeway					
Max Service Flow Rate (MSF), pc/h/ln	1517	1387	2016	2332	2360
Service Flow Rate (SF), veh/h	4222	3861	5611	6492	6569
Service Volume, veh/h	3969	3630	5275	6103	6175
One Direction DSV, 1000 veh/day	39.7	36.3	52.7	61.0	61.7
Bi-Directional DSV, 1000 veh/day	72.2	66.0	95.9	111.0	112.3
Ramp					
Max Service Flow Rate (MSF), pc/h/ln	76	70	101	117	118
Service Flow Rate (SF), veh/h	72	66	96	111	113
Service Volume, veh/h	64	58	85	98	99
One Direction DSV, 1000 veh/day	0.6	0.6	0.8	1.0	1.0



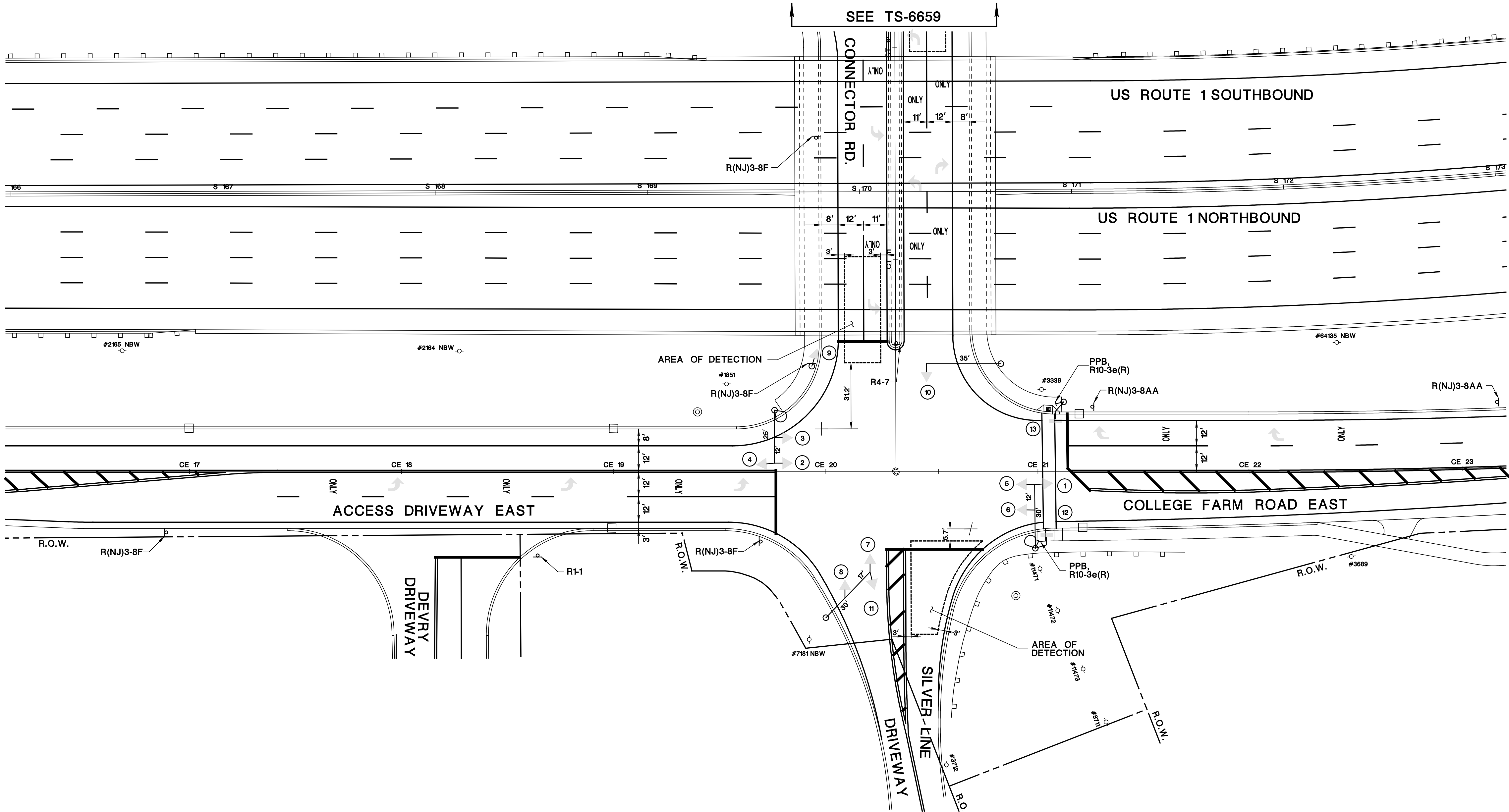
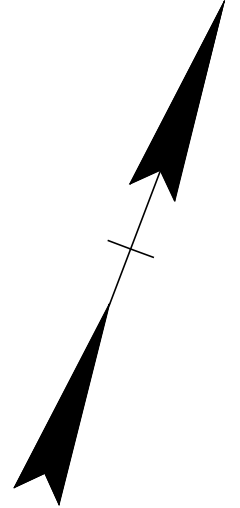
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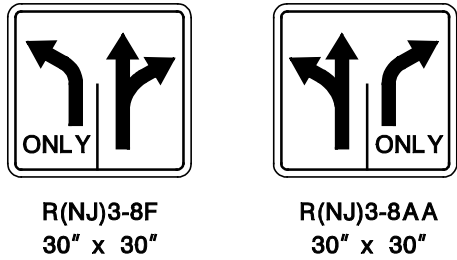
TOWNSHIP OF NORTH BRUNSWICK

COUNTY OF MIDDLESEX

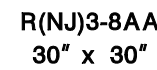
STATE	FEDERAL PROJECT NO.
N.J.	BRF-33(192)



SIGN LEGEND



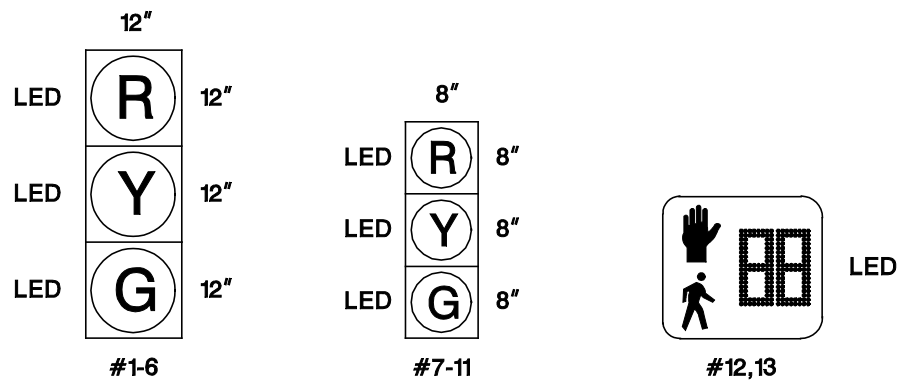
R(NJ)3-8F
30" x 30"



R(NJ)3-8AA
30" x 30"

- | | | |
|-----------|-----------------------------------|-----------|
| R1-1 | STOP | 36" x 36" |
| R4-7 | KEEP RIGHT (SYMBOL) | 24" x 30" |
| R10-3e(R) | COUNTDOWN PEDESTRIAN SIGN (RIGHT) | 9" x 15" |

SIGNAL LEGEND



NOTE:
SIGNAL HEAD #9 IS MOUNTED AT
A HEIGHT OF 8' ABOVE THE GROUND LEVEL.

ORIGINAL SIGNED BY
Chris Barretts
Manager, Traffic Engineering
December 7, 2011



NEW JERSEY DEPARTMENT OF TRANSPORTATION BUREAU OF TRAFFIC ENGINEERING TRAFFIC SIGNAL INSTALLATION		
(ROUTE US) ACCESS DRIVEWAY EAST / COLLEGE FARM RD. EAST AND CONNECTOR RD. / SILVER LINE DRIVEWAY MUNICIPALITY TOWNSHIP OF NORTH BRUNSWICK COUNTY MIDDLESEX		
DESIGN AUTHORIZED - BUREAU OF TRAFFIC ENGINEERING DATE		
SUBMITTED M.HANNA	DRAWN N.BARBOSA	SCALE: 1"=30'
CHECKED S.KAZMI	CHECKED	
AUTHORIZED C.BARRETTS		
TS-6658		

REVISION	DESCRIPTION	CADD	BY	C'D	DATE

Effective:

Directive No. 174-18
(Route US 1) Access Driveway East /
College Farm Rd. East & Connector
Rd. / Silver Line Driveway
North Brunswick Twp., Middlesex Co.

55 & 65 – SECOND BACKGROUND CYCLE

<u>Phase</u>	<u>Signal Indications</u>			<u>Timing Plans</u>		
	<u>1-6</u>	<u>7-11</u>	<u>12,13</u>	<u>I</u> <u>(65 sec.)</u>	<u>II</u> <u>(65 sec.)</u>	<u>III</u> <u>(55 sec.)</u>
<u>WITHOUT PEDESTRIAN ACTUATION</u>						
A) Access Driveway East / College Farm Rd. East ROW	G	R	DW	45 – 25	45 – 15	35 – 22
Change	Y	R	DW	5*	5*	5*
Clearance	R	R	DW	3	3	3
B) Connector Rd. / Silver Line Driveway ROW	R	G	DW	7 – 27	7 – 37	7 – 20
Change	R	Y	DW	3	3	3
Clearance	R	R	DW	2	2	2
<u>WITH PEDESTRIAN ACTUATION</u>						
A) Access Driveway East / College Farm Rd. East ROW	G	R	DW	30 – 25	30 – 15	20
Change	Y	R	DW	5*	5*	5*
Clearance	R	R	DW	3	3	3
B) Connector Rd. / Silver Line Driveway ROW	R	G	W	7	7	7
Pedestrian Clearance	R	G	FDW	15	15	15
Vehicle Extension	R	G	DW	0 – 5	0 – 15	0
Change	R	Y	DW	3	3	3
Clearance	R	R	DW	2	2	2
EMERGENCY FLASH	Y	R	DARK			
Offset				0	0	0

NOTES:

- 1) *Offset is to be measured from the beginning of yellow to Access Driveway East / College Farm Rd. East at this intersection.
- 2) The signal is to rest in Phase A green.
- 3) The vehicle extension for Phases B is to be 2 seconds.
- 4) The memory circuit for Phase B is to be off.
- 5) The manual control is to be disconnected.

Effective:

Directive No. 174-18
(Route US 1) Access Driveway East /
College Farm Rd. East & Connector
Rd. / Silver Line Driveway
North Brunswick Twp., Middlesex Co.

Hours of Operation:

<u>Timing Plan I:</u>	65 Second Background Cycle	Monday – Friday, 6:30 A.M. – 9:30 A.M.
<u>Timing Plan II:</u>	65 Second Background Cycle	Monday – Friday, 3:00 P.M. – 7:00 P.M.
<u>Timing Plan III:</u>	55 Second Background Cycle	All Other Times

HCS Signalized Intersection Input Data

General Information						Intersection Information							
Agency	Langan					Duration, h	0.250						
Analyst	DDD		Analysis Date	4/22/2025		Area Type	Other						
Jurisdiction	State		Time Period	AM		PHF	0.82						
Urban Street	College Farm Road East		Analysis Year	2028		Analysis Period	1> 7:00						
Intersection	Silverline Drive		File Name	3na.xus									
Project Description	No-Build												

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	30	44	139	1	5	22	350	59	38	1	1	31

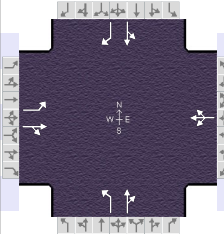
Signal Information														
Cycle, s	65.0	Reference Phase	2	Green	43.8	8.2	0.0	0.0	0.0	0.0	1	2	3	4
Offset, s	0	Reference Point	End	Yellow	5.0	3.0	0.0	0.0	0.0	0.0	5	6	7	8
Uncoordinated	No	Simult. Gap E/W	On	Red	3.0	2.0	0.0	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On											

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	30	44	139	1	5	22	350	59	38	1	1	31
Initial Queue (Q_0), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_0), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	4	4			21		1	1			11	11
Ped / Bike / RTOR, /h	0	0	68	0	0	12	0	0	5	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft	12.0	12.0			12.0		12.0	12.0			12.0	12.0
Turn Bay Length, ft	200	200			1000		250	1000			1000	200
Grade (P_g), %		2			2			2			2	
Speed Limit, mi/h	35	35	35	35	35	35	35	35	35	35	35	35

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		32.0		32.0		33.0		33.0
Yellow Change Interval (Y), s		3.0		3.0		5.0		5.0
Red Clearance Interval (R_c), s		2.0		2.0		3.0		3.0
Minimum Green (G_{min}), s		7		7		7		7
Start-Up Lost Time (l_t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (PT), s		2.0		2.0		2.0		2.0
Recall Mode		Off		Off		Min		Min
Dual Entry		Yes		Yes		Yes		Yes
Walk ($Walk$), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (PC), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No		0.50	No		0.50	No		0.50	No		0.50

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	Langan			Duration, h	0.250	
Analyst	DDD	Analysis Date	4/22/2025	Area Type	Other	
Jurisdiction	State	Time Period	AM	PHF	0.82	
Urban Street	College Farm Road East	Analysis Year	2028	Analysis Period	1> 7:00	
Intersection	Silverline Drive	File Name	3na.xus			
Project Description	No-Build					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	30	44	139	1	5	22	350	59	38	1	1	31

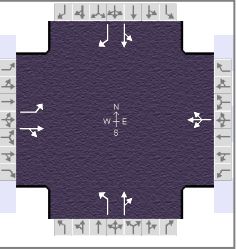
Signal Information															
Cycle, s	65.0	Reference Phase	2												
Offset, s	0	Reference Point	End	Green	43.8	8.2	0.0	0.0	0.0	0.0					
Uncoordinated	No	Simult. Gap E/W	On	Yellow	5.0	3.0	0.0	0.0	0.0	0.0					
Force Mode	Fixed	Simult. Gap N/S	On	Red	3.0	2.0	0.0	0.0	0.0	0.0					

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		8.0		6.0		7.0
Phase Duration, s		13.2		13.2		51.8		51.8
Change Period, ($Y+R_c$), s		5.0		5.0		8.0		8.0
Max Allow Headway (MAH), s		3.2		3.2		0.0		0.0
Queue Clearance Time (g_s), s		7.3		2.8				
Green Extension Time (g_e), s		0.3		0.4		0.0		0.0
Phase Call Probability		0.97		0.97				
Max Out Probability		0.00		0.00				

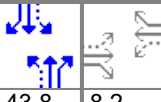
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	37	140			20		427	112			2	38
Adjusted Saturation Flow Rate (s), veh/h/ln	1372	1635			1396		1427	1749			1408	1452
Queue Service Time (g_s), s	1.6	5.3			0.0		9.4	1.5			0.0	0.6
Cycle Queue Clearance Time (g_c), s	5.1	5.3			0.8		9.4	1.5			0.0	0.6
Green Ratio (g/C)	0.13	0.13			0.13		0.67	0.67			0.67	0.67
Capacity (c), veh/h	228	227			252		1055	1157			1014	960
Volume-to-Capacity Ratio (X)	0.161	0.619			0.077		0.405	0.097			0.002	0.039
Back of Queue (Q), ft/ln (95 th percentile)	24	92			13		99	19			0	7
Back of Queue (Q), veh/ln (95 th percentile)	0.9	3.6			0.4		3.9	0.7			0.0	0.2
Queue Storage Ratio (RQ) (95 th percentile)	0.12	0.46			0.01		0.39	0.02			0.00	0.03
Uniform Delay (d_1), s/veh	27.9	26.4			24.5		5.3	4.0			3.7	3.8
Incremental Delay (d_2), s/veh	0.1	1.0			0.0		1.2	0.2			0.0	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0		0.0	0.0			0.0	0.0
Control Delay (d), s/veh	28.1	27.4			24.5		6.5	4.1			3.7	3.9
Level of Service (LOS)	C	C			C		A	A			A	A
Approach Delay, s/veh / LOS	27.5	C		24.5	C		6.0	A		3.9	A	
Intersection Delay, s/veh / LOS	11.3						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.93	B	1.93	B	1.64	B	1.94	B
Bicycle LOS Score / LOS	0.78	A	0.52	A	1.38	A	0.55	A

HCS Signalized Intersection Intermediate Values

General Information						Intersection Information		
Agency	Langan					Duration, h	0.250	
Analyst	DDD	Analysis Date	4/22/2025			Area Type	Other	
Jurisdiction	State	Time Period	AM			PHF	0.82	
Urban Street	College Farm Road East	Analysis Year	2028			Analysis Period	1> 7:00	
Intersection	Silverline Drive	File Name	3na.xus					
Project Description	No-Build							

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	30	44	139	1	5	22	350	59	38	1	1	31

Signal Information															
Cycle, s	65.0	Reference Phase	2									1	2	3	4
Offset, s	0	Reference Point	End		Green	43.8	8.2	0.0	0.0	0.0	0.0				
Uncoordinated	No	Simult. Gap E/W	On		Yellow	5.0	3.0	0.0	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On		Red	3.0	2.0	0.0	0.0	0.0	0.0	5	6	7	8

Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVG})	0.969	0.956	0.988	1.000	0.824	0.988	0.992	0.980	0.988	1.000	0.902	0.902
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.722	0.000		0.991	0.892		0.751	0.000		0.822	0.822	
Right-Turn Adjustment Factor (f_{RT})		0.900	0.900		0.000	0.892		0.939	0.939		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f_{LPB})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{RPB})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{WZ})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)												
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)	1.00			1.00			1.00			1.00		
Movement Saturation Flow Rate (s), veh/h	1372	626	1010	87	436	872	1427	1121	627	704	704	1452
Proportion of Vehicles Arriving on Green (P)	0.14	0.14	0.14	0.14	0.14	0.14	0.66	0.66	0.66	0.66	0.66	0.66
Incremental Delay Factor (k)	0.04	0.04			0.04		0.50	0.50			0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		5.0		5.0		8.0		8.0
Green Ratio (g/C)		0.13		0.13		0.67		0.67
Permitted Saturation Flow Rate (s_p), veh/h/ln		1372		1268		1427		1301
Shared Saturation Flow Rate (s_{sh}), veh/h/ln				0				0
Permitted Effective Green Time (g_p), s		9.0		9.0		43.0		43.0
Permitted Service Time (g_u), s		5.5		3.3		43.3		41.9
Permitted Queue Service Time (g_{ps}), s		1.6		0.0		9.4		0.0
Time to First Blockage (g_t), s		0.0		6.3		0.0		2.0
Queue Service Time Before Blockage (g_s), s				1.6				0.0
Protected Right Saturation Flow (s_R), veh/h/ln								0
Protected Right Effective Green Time (g_R), s								0.0

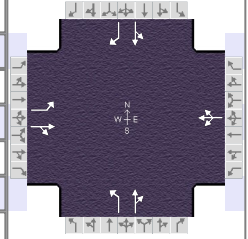
Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.198	0.007	1.198	0.000	0.972	0.017	1.198	0.097
Pedestrian F_s / F_{delay}	0.000	0.129	0.000	0.129	0.000	0.050	0.000	0.050
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	252.06	24.82	252.06	24.82	1347.94	3.45	1347.94	3.45
Bicycle F_w / F_v	-3.64	0.29	-3.64	0.03	-3.64	0.89	-3.64	0.07

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	Langan		
Analyst	DDD	Analysis Date	4/22/2025
Jurisdiction	State	Time Period	AM
Urban Street	College Farm Road East	Analysis Year	2028
Intersection	Silverline Drive	File Name	3na.xus
Project Description	No-Build		

Intersection Information



Demand Information

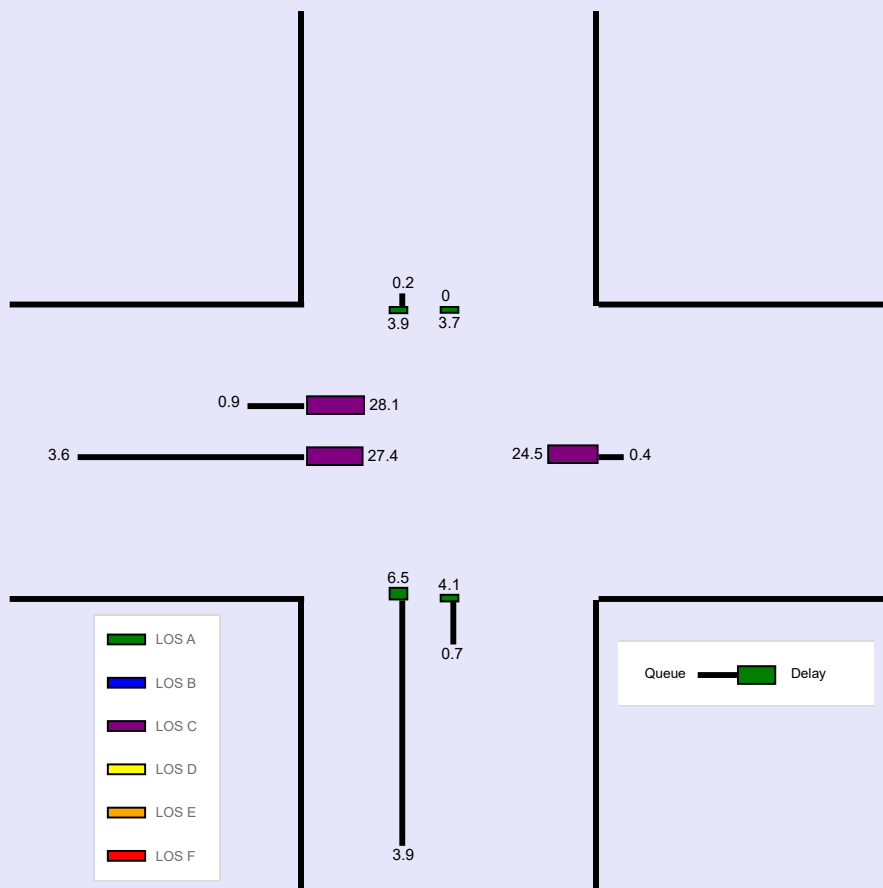
	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	30	44	139	1	5	22	350	59	38	1	1	31

Signal Information

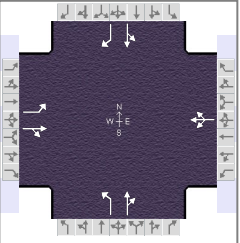
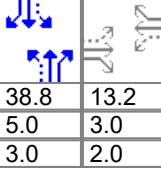
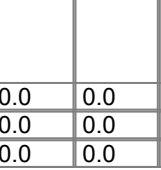
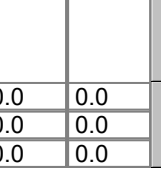
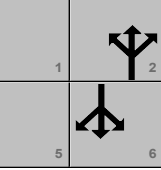
Cycle, s	65.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	43.8	8.2	0.0	0.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	5.0	3.0	0.0	0.0	0.0	0.0		
				Red	3.0	2.0	0.0	0.0	0.0	0.0		

Movement Group Results

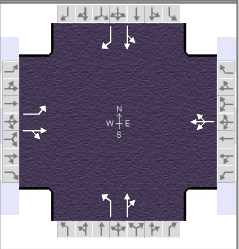
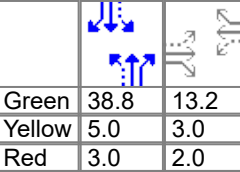
	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)	24	92			13		99	19			0	7
Back of Queue (Q), veh/ln (95 th percentile)	0.9	3.6			0.4		3.9	0.7			0.0	0.2
Queue Storage Ratio (RQ) (95 th percentile)	0.12	0.46			0.01		0.39	0.02			0.00	0.03
Control Delay (d), s/veh	28.1	27.4			24.5		6.5	4.1			3.7	3.9
Level of Service (LOS)	C	C			C		A	A			A	A
Approach Delay, s/veh / LOS	27.5		C	24.5		C	6.0		A	3.9		A
Intersection Delay, s/veh / LOS	11.3						B					



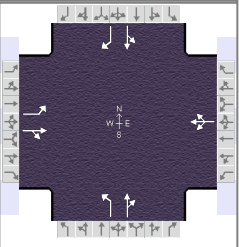
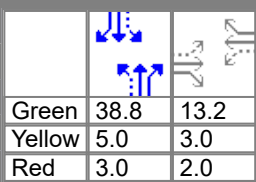
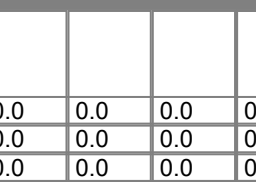
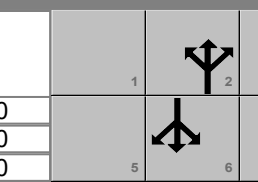
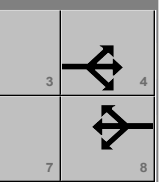
HCS Signalized Intersection Input Data

General Information						Intersection Information																	
Agency	Langan					Duration, h	0.250																
Analyst	DDD	Analysis Date	4/22/2025			Area Type	Other																
Jurisdiction	State	Time Period	AM			PHF	0.82																
Urban Street	College Farm Road East	Analysis Year	2028			Analysis Period	1> 7:00																
Intersection	Silverline Drive	File Name	3ba.xus																				
Project Description	Build W/Timing Adjustment																						
Demand Information				EB			WB			NB			SB										
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R								
Demand (v), veh/h				30	44	233	1	5	22	366	59	38	1	1	31								
Signal Information																							
Cycle, s	65.0	Reference Phase	2	Green	38.8	13.2	0.0	0.0	0.0	0.0													
Offset, s	0	Reference Point	End	Yellow	5.0	3.0	0.0	0.0	0.0	0.0													
Uncoordinated	No	Simult. Gap E/W	On	Red	3.0	2.0	0.0	0.0	0.0	0.0													
Force Mode	Fixed	Simult. Gap N/S	On																				
Traffic Information				EB			WB			NB			SB										
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R								
Demand (v), veh/h				30	44	233	1	5	22	366	59	38	1	1	31								
Initial Queue (Q_0), veh/h				0	0	0	0	0	0	0	0	0	0	0	0								
Base Saturation Flow Rate (s_0), veh/h				1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900								
Parking (N_m), man/h					None			None			None			None									
Heavy Vehicles (P_{HV}), %				4	4			21		1	1			11	11								
Ped / Bike / RTOR, /h				0	0	68	0	0	12	0	0	5	0	0	0								
Buses (N_b), buses/h				0	0	0	0	0	0	0	0	0	0	0	0								
Arrival Type (AT)				3	3	3	3	3	3	3	3	3	3	3	3								
Upstream Filtering (I)				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
Lane Width (W), ft				12.0	12.0			12.0		12.0	12.0			12.0	12.0								
Turn Bay Length, ft				200	200			1000		250	1000			1000	200								
Grade (P_g), %					2			2			2			2									
Speed Limit, mi/h				35	35	35	35	35	35	35	35	35	35	35	35								
Phase Information				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT												
Maximum Green (G_{max}) or Phase Split, s					32.0		32.0		33.0		33.0												
Yellow Change Interval (Y), s					3.0		3.0		5.0		5.0												
Red Clearance Interval (R_c), s					2.0		2.0		3.0		3.0												
Minimum Green (G_{min}), s					7		7		7		7												
Start-Up Lost Time (lt), s				2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0												
Extension of Effective Green (e), s				2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0												
Passage (PT), s					2.0		2.0		2.0		2.0												
Recall Mode					Off		Off		Min		Min												
Dual Entry					Yes		Yes		Yes		Yes												
Walk ($Walk$), s					0.0		0.0		0.0		0.0												
Pedestrian Clearance Time (PC), s					0.0		0.0		0.0		0.0												
Multimodal Information				EB			WB			NB			SB										
85th % Speed / Rest in Walk / Corner Radius				0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0								
Walkway / Crosswalk Width / Length, ft				9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0								
Street Width / Island / Curb, ft				0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No								
Width Outside / Bike Lane / Shoulder, ft				12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0								
Pedestrian Signal / Occupied Parking				No		0.50	No		0.50	No		0.50	No		0.50								

HCS Signalized Intersection Results Summary

General Information						Intersection Information													
Agency		Langan				Duration, h		0.250											
Analyst		DDD		Analysis Date		4/22/2025		Area Type		Other									
Jurisdiction		State		Time Period		AM		PHF		0.82									
Urban Street		College Farm Road East		Analysis Year		2028		Analysis Period		1> 7:00									
Intersection		Silverline Drive		File Name		3ba.xus													
Project Description		Build W/Timing Adjustment																	
Demand Information				EB			WB			NB			SB						
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R				
Demand (v), veh/h				30	44	233	1	5	22	366	59	38	1	1	31				
Signal Information																			
Cycle, s	65.0	Reference Phase	2																
Offset, s	0	Reference Point	End																
Uncoordinated	No	Simult. Gap E/W	On																
Force Mode	Fixed	Simult. Gap N/S	On																
				Green	38.8	13.2	0.0	0.0	0.0	0.0									
				Yellow	5.0	3.0	0.0	0.0	0.0	0.0									
				Red	3.0	2.0	0.0	0.0	0.0	0.0									
Timer Results				EBL		EBT		WBL		WBT		NBL		NBT		SBL		SBT	
Assigned Phase						4				8				2				6	
Case Number						6.0				8.0				6.0				7.0	
Phase Duration, s						18.2				18.2				46.8				46.8	
Change Period, (Y+R c), s						5.0				5.0				8.0				8.0	
Max Allow Headway (MAH), s						3.3				3.3				0.0				0.0	
Queue Clearance Time (g s), s						11.7				2.7									
Green Extension Time (g e), s						0.6				0.6				0.0				0.0	
Phase Call Probability						1.00				1.00									
Max Out Probability						0.00				0.00									
Movement Group Results				EB			WB			NB			SB						
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R				
Assigned Movement				7	4	14	3	8	18	5	2	12	1	6	16				
Adjusted Flow Rate (v), veh/h				37	255			20		446	112			2	38				
Adjusted Saturation Flow Rate (s), veh/h/ln				1372	1591			1396		1427	1749			1410	1452				
Queue Service Time (g s), s				1.6	9.7			0.0		12.3	1.9			0.0	0.7				
Cycle Queue Clearance Time (g c), s				7.3	9.7			0.7		12.3	1.9			0.0	0.7				
Green Ratio (g/C)				0.20	0.20			0.20		0.60	0.60			0.60	0.60				
Capacity (c), veh/h				287	345			361		943	1020			905	847				
Volume-to-Capacity Ratio (X)				0.128	0.739			0.054		0.473	0.110			0.003	0.045				
Back of Queue (Q), ft/ln (95 th percentile)				22	161			12		150	27			1	10				
Back of Queue (Q), veh/ln (95 th percentile)				0.9	6.2			0.4		6.0	1.1			0.0	0.4				
Queue Storage Ratio (RQ) (95 th percentile)				0.11	0.80			0.01		0.60	0.03			0.00	0.05				
Uniform Delay (d 1), s/veh				25.4	23.7			20.2		8.2	6.0			5.7	5.8				
Incremental Delay (d 2), s/veh				0.1	1.2			0.0		1.7	0.2			0.0	0.1				
Initial Queue Delay (d 3), s/veh				0.0	0.0			0.0		0.0	0.0			0.0	0.0				
Control Delay (d), s/veh				25.5	24.9			20.2		9.9	6.2			5.7	5.9				
Level of Service (LOS)				C	C			C		A	A			A	A				
Approach Delay, s/veh / LOS				25.0		C		20.2		C		9.2		A		5.9		A	
Intersection Delay, s/veh / LOS				14.3						B									
Multimodal Results				EB			WB			NB			SB						
Pedestrian LOS Score / LOS				1.93		B		1.92		B		1.66		B		1.96		B	
Bicycle LOS Score / LOS				0.97		A		0.52		A		1.41		A		0.55		A	

HCS Signalized Intersection Intermediate Values

General Information						Intersection Information																
Agency	Langan					Duration, h	0.250															
Analyst	DDD	Analysis Date	4/22/2025			Area Type	Other															
Jurisdiction	State	Time Period	AM			PHF	0.82															
Urban Street	College Farm Road East	Analysis Year	2028			Analysis Period	1> 7:00															
Intersection	Silverline Drive	File Name	3ba.xus																			
Project Description	Build W/Timing Adjustment																					
Demand Information						EB			WB			NB			SB							
Approach Movement						L	T	R	L	T	R	L	T	R	L	T	R					
Demand (v), veh/h						30	44	233	1	5	22	366	59	38	1	1	31					
Signal Information								1		2		3		4								
Cycle, s	65.0	Reference Phase	2					Green	38.8	13.2	0.0	0.0	0.0	0.0	5		6		7		8	
Offset, s	0	Reference Point	End					Yellow	5.0	3.0	0.0	0.0	0.0	0.0								
Uncoordinated	No	Simult. Gap E/W	On					Red	3.0	2.0	0.0	0.0	0.0	0.0								
Force Mode	Fixed	Simult. Gap N/S	On																			
Saturation Flow / Delay				L	T	R	L	T	R	L	T	R	L	T	R							
Lane Width Adjustment Factor (f_w)				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000							
Heavy Vehicles and Grade Factor (f_{HVg})				0.969	0.956	0.988	1.000	0.824	0.988	0.992	0.980	0.988	1.000	0.902	0.902							
Parking Activity Adjustment Factor (f_p)				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000							
Bus Blockage Adjustment Factor (f_{bb})				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000							
Area Type Adjustment Factor (f_a)				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000							
Lane Utilization Adjustment Factor (f_{LU})				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000							
Left-Turn Adjustment Factor (f_{LT})				0.722	0.000		0.991	0.892		0.751	0.000		0.823	0.823								
Right-Turn Adjustment Factor (f_{RT})					0.876	0.876		0.000	0.892		0.939	0.939		0.000	0.847							
Left-Turn Pedestrian Adjustment Factor (f_{LPb})				1.000			1.000			1.000			1.000									
Right-Turn Ped-Bike Adjustment Factor (f_{RPb})						1.000			1.000			1.000			1.000							
Work Zone Adjustment Factor (f_{wz})				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000							
DDI Factor (f_{DDI})				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000							
Left-Turn Prot. CAV Adj. Factor (f_{CAV,prot})																						
Left-Turn Perm. CAV Adj. Factor (f_{CAV,perm})				1.00			1.00			1.00			1.00									
Movement Saturation Flow Rate (s), veh/h				1372	335	1256	87	436	872	1427	1121	627	705	705	1452							
Proportion of Vehicles Arriving on Green (P)				0.22	0.22	0.22	0.22	0.22	0.22	0.58	0.58	0.58	0.58	0.58	0.58							
Incremental Delay Factor (k)				0.04	0.04			0.04		0.50	0.50			0.50	0.50							
Signal Timing / Movement Groups				EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R											
Lost Time (t_L)					5.0		5.0		8.0		8.0											
Green Ratio (g/C)					0.20		0.20		0.60		0.60											
Permitted Saturation Flow Rate (s_p), veh/h/ln					1372		1143		1427		1301											
Shared Saturation Flow Rate (s_{sh}), veh/h/ln							0				0											
Permitted Effective Green Time (g_p), s					14.1		14.1		37.9		37.9											
Permitted Service Time (g_u), s					8.3		3.8		38.3		36.5											
Permitted Queue Service Time (g_{ps}), s					1.6		0.0		12.3		0.0											
Time to First Blockage (g_t), s					0.0		11.0		0.0		2.0											
Queue Service Time Before Blockage (g_{ts}), s							2.0				0.0											
Protected Right Saturation Flow (s_R), veh/h/ln											0											
Protected Right Effective Green Time (g_R), s											0.0											
Multimodal				EB		WB		NB		SB												
Pedestrian F_w / F_v				1.198	0.007	1.198	0.000	0.972	0.017	1.198	0.097											
Pedestrian F_s / F_{delay}				0.000	0.121	0.000	0.121	0.000	0.067	0.000	0.067											
Pedestrian M_{corner} / M_{cw}				0.00		0.00		0.00		0.00												
Bicycle c_b / d_b				404.99	20.67	404.99	20.67	1195.01	5.27	1195.01	5.27											
Bicycle F_w / F_v				-3.64	0.48	-3.64	0.03	-3.64	0.92	-3.64	0.07											

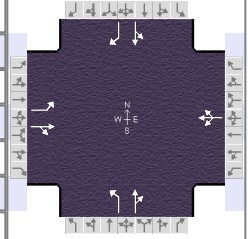
HCS Signalized Intersection Results Graphical Summary

General Information

Agency	Langan		
Analyst	DDD	Analysis Date	4/22/2025
Jurisdiction	State	Time Period	AM
Urban Street	College Farm Road East	Analysis Year	2028
Intersection	Silverline Drive	File Name	3ba.xus
Project Description	Build W/Timing Adjustment		

Intersection Information

Duration, h	0.250
Area Type	Other
PHF	0.82
Analysis Period	1> 7:00

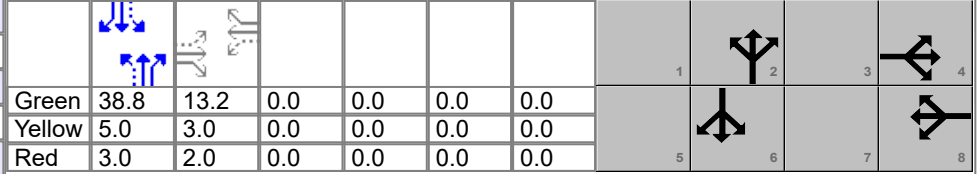


Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	30	44	233	1	5	22	366	59	38	1	1	31

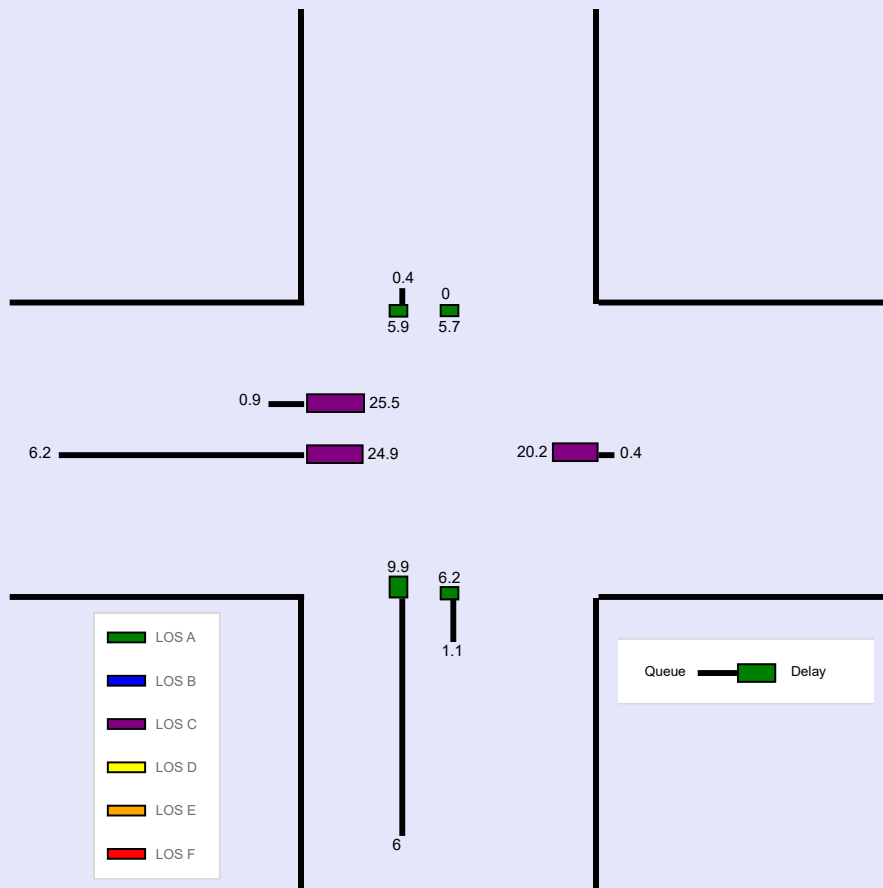
Signal Information

Cycle, s	65.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Movement Group Results

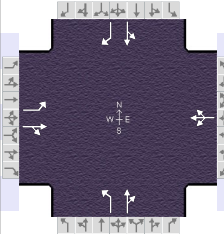
	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)	22	161			12		150	27			1	10
Back of Queue (Q), veh/ln (95 th percentile)	0.9	6.2			0.4		6.0	1.1			0.0	0.4
Queue Storage Ratio (RQ) (95 th percentile)	0.11	0.80			0.01		0.60	0.03			0.00	0.05
Control Delay (d), s/veh	25.5	24.9			20.2		9.9	6.2			5.7	5.9
Level of Service (LOS)	C	C			C		A	A			A	A
Approach Delay, s/veh / LOS	25.0	C		20.2	C		9.2	A		5.9	A	
Intersection Delay, s/veh / LOS	14.3						B					



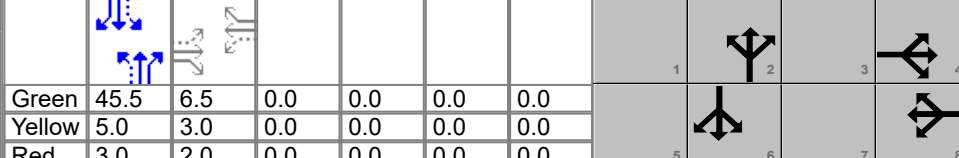
HCS Signalized Intersection Input Data

General Information						Intersection Information											
Agency	Langan					Duration, h	0.250										
Analyst	DDD	Analysis Date	4/22/2025			Area Type	Other										
Jurisdiction	State	Time Period	PM			PHF	0.85										
Urban Street	College Farm Road East	Analysis Year	2028			Analysis Period	1> 7:00										
Intersection	Silverline Drive	File Name	3np.xus														
Project Description	No-Build																
Demand Information						EB			WB			NB			SB		
Approach Movement						L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h						53	7	42	2	17	15	586	210	4	6	11	128
Signal Information																	
Cycle, s	65.0	Reference Phase	2			Green	45.5	6.5	0.0	0.0	0.0	0.0	1	2	3	4	
Offset, s	0	Reference Point	End			Yellow	5.0	3.0	0.0	0.0	0.0	0.0	5	6	7	8	
Uncoordinated	No	Simult. Gap E/W	On			Red	3.0	2.0	0.0	0.0	0.0	0.0					
Force Mode	Fixed	Simult. Gap N/S	On														
Traffic Information						EB			WB			NB			SB		
Approach Movement						L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h						53	7	42	2	17	15	586	210	4	6	11	128
Initial Queue (Q_0), veh/h						0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_0), veh/h						1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h							None			None			None			None	
Heavy Vehicles (P_{HV}), %						5	5			3		1	1			1	1
Ped / Bike / RTOR, /h						0	0	9	0	0	4	0	0	0	0	0	16
Buses (N_b), buses/h						0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)						3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)						1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft						12.0	12.0			12.0		12.0	12.0			12.0	12.0
Turn Bay Length, ft						200	200			1000		250	1000			1000	200
Grade (P_g), %							2			2			2			2	
Speed Limit, mi/h						35	35	35	35	35	35	35	35	35	35	35	35
Phase Information						EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT				
Maximum Green (G_{max}) or Phase Split, s							42.0		42.0		23.0		23.0				
Yellow Change Interval (Y), s							3.0		3.0		5.0		5.0				
Red Clearance Interval (R_c), s							2.0		2.0		3.0		3.0				
Minimum Green (G_{min}), s							7		7		7		7				
Start-Up Lost Time (l_t), s						2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0				
Extension of Effective Green (e), s						2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0				
Passage (PT), s							2.0		2.0		2.0		2.0				
Recall Mode							Off		Off		Min		Min				
Dual Entry							Yes		Yes		Yes		Yes				
Walk ($Walk$), s							0.0		0.0		0.0		0.0				
Pedestrian Clearance Time (PC), s							0.0		0.0		0.0		0.0				
Multimodal Information						EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius						0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft						9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft						0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft						12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking						No	0.50	No	0.50	No	0.50	No	0.50	No	0.50		

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	Langan			Duration, h	0.250	
Analyst	DDD	Analysis Date	4/22/2025	Area Type	Other	
Jurisdiction	State	Time Period	PM	PHF	0.85	
Urban Street	College Farm Road East	Analysis Year	2028	Analysis Period	1> 7:00	
Intersection	Silverline Drive	File Name	3np.xus			
Project Description	No-Build					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	53	7	42	2	17	15	586	210	4	6	11	128

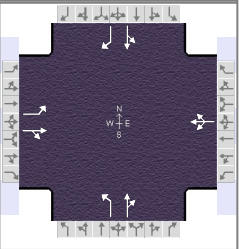
Signal Information													
Cycle, s	65.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	45.5	6.5	0.0	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	5.0	3.0	0.0	0.0	0.0	0.0			
				Red	3.0	2.0	0.0	0.0	0.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		8.0		6.0		7.0
Phase Duration, s		11.5		11.5		53.5		53.5
Change Period, ($Y+R_c$), s		5.0		5.0		8.0		8.0
Max Allow Headway (MAH), s		3.2		3.2		0.0		0.0
Queue Clearance Time (g_s), s		6.1		3.2				
Green Extension Time (g_e), s		0.3		0.3		0.0		0.0
Phase Call Probability		0.93		0.93				
Max Out Probability		0.00		0.00				

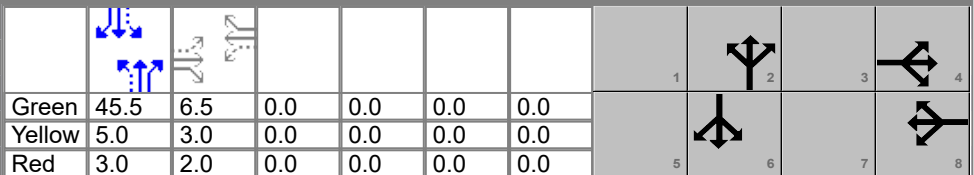
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	62	47			35		689	252			20	132
Adjusted Saturation Flow Rate (s), veh/h/ln	1343	1569			1702		1412	1855			1539	1578
Queue Service Time (g_s), s	2.9	1.8			0.0		18.9	3.1			0.0	1.8
Cycle Queue Clearance Time (g_c), s	4.1	1.8			1.2		19.3	3.1			0.2	1.8
Green Ratio (g/C)	0.10	0.10			0.10		0.70	0.70			0.70	0.70
Capacity (c), veh/h	220	157			229		1092	1299			1152	1105
Volume-to-Capacity Ratio (X)	0.284	0.300			0.154		0.632	0.194			0.017	0.119
Back of Queue (Q), ft/ln (95 th percentile)	42	31			22		185	36			2	18
Back of Queue (Q), veh/ln (95 th percentile)	1.6	1.2			0.9		7.3	1.4			0.1	0.7
Queue Storage Ratio (RQ) (95 th percentile)	0.21	0.15			0.02		0.74	0.04			0.00	0.09
Uniform Delay (d_1), s/veh	28.8	27.1			26.9		5.9	3.4			3.0	3.2
Incremental Delay (d_2), s/veh	0.3	0.4			0.1		2.8	0.3			0.0	0.2
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0		0.0	0.0			0.0	0.0
Control Delay (d), s/veh	29.0	27.5			27.0		8.7	3.7			3.0	3.4
Level of Service (LOS)	C	C			C		A	A			A	A
Approach Delay, s/veh / LOS	28.4	C		27.0	C		7.4	A		3.4	A	
Intersection Delay, s/veh / LOS	9.3						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.93	B	1.95	B	1.62	B	1.85	B
Bicycle LOS Score / LOS	0.67	A	0.55	A	2.04	B	0.74	A

HCS Signalized Intersection Intermediate Values

General Information				Intersection Information		
Agency	Langan			Duration, h	0.250	
Analyst	DDD	Analysis Date	4/22/2025	Area Type	Other	
Jurisdiction	State	Time Period	PM	PHF	0.85	
Urban Street	College Farm Road East	Analysis Year	2028	Analysis Period	1> 7:00	
Intersection	Silverline Drive	File Name	3np.xus			
Project Description	No-Build					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	53	7	42	2	17	15	586	210	4	6	11	128

Signal Information																				
Cycle, s	65.0	Reference Phase	2																	
Offset, s	0	Reference Point	End		Green	45.5	6.5	0.0	0.0	0.0	0.0	1		2	3		4			
Uncoordinated	No	Simult. Gap E/W	On		Yellow	5.0	3.0	0.0	0.0	0.0	0.0			5		6		7		8
Force Mode	Fixed	Simult. Gap N/S	On		Red	3.0	2.0	0.0	0.0	0.0	0.0									

Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.961	0.949	0.988	1.000	0.964	0.988	0.992	0.980	0.988	1.000	0.980	0.980
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.707	0.000		0.990	0.929		0.743	0.000		0.827	0.827	
Right-Turn Adjustment Factor (f_{RT})		0.871	0.871		0.000	0.929		0.997	0.997		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f_{LPB})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{RPB})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{WZ})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)												
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)	1.00			1.00			1.00			1.00		
Movement Saturation Flow Rate (s), veh/h	1343	275	1295	113	964	624	1412	1821	35	543	996	1578
Proportion of Vehicles Arriving on Green (P)	0.10	0.10	0.10	0.10	0.10	0.10	0.70	0.70	0.70	0.70	0.70	0.70
Incremental Delay Factor (k)	0.04	0.04			0.04		0.50	0.50			0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		5.0		5.0		8.0		8.0
Green Ratio (g/C)		0.10		0.10		0.70		0.70
Permitted Saturation Flow Rate (s_p), veh/h/ln		1343		1380		1412		1146
Shared Saturation Flow Rate (s_{sh}), veh/h/ln				0				0
Permitted Effective Green Time (g_p), s		6.5		6.5		45.5		45.5
Permitted Service Time (g_u), s		5.3		4.7		45.2		42.4
Permitted Queue Service Time (g_{ps}), s		2.9		0.0		18.9		0.0
Time to First Blockage (g_t), s		0.0		3.8		0.0		3.7
Queue Service Time Before Blockage (g_s), s				0.6				0.2
Protected Right Saturation Flow (s_R), veh/h/ln								0
Protected Right Effective Green Time (g_R), s								0.0

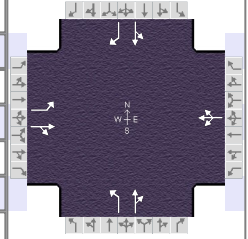
Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.198	0.000	1.198	0.023	0.972	0.006	1.198	0.013
Pedestrian F_s / F_{delay}	0.000	0.131	0.000	0.131	0.000	0.043	0.000	0.043
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	199.62	26.34	199.62	26.34	1400.38	2.92	1400.38	2.92
Bicycle F_w / F_v	-3.64	0.18	-3.64	0.06	-3.64	1.55	-3.64	0.25

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	Langan		
Analyst	DDD	Analysis Date	4/22/2025
Jurisdiction	State	Time Period	PM
Urban Street	College Farm Road East	Analysis Year	2028
Intersection	Silverline Drive	File Name	3np.xus
Project Description	No-Build		

Intersection Information



Demand Information

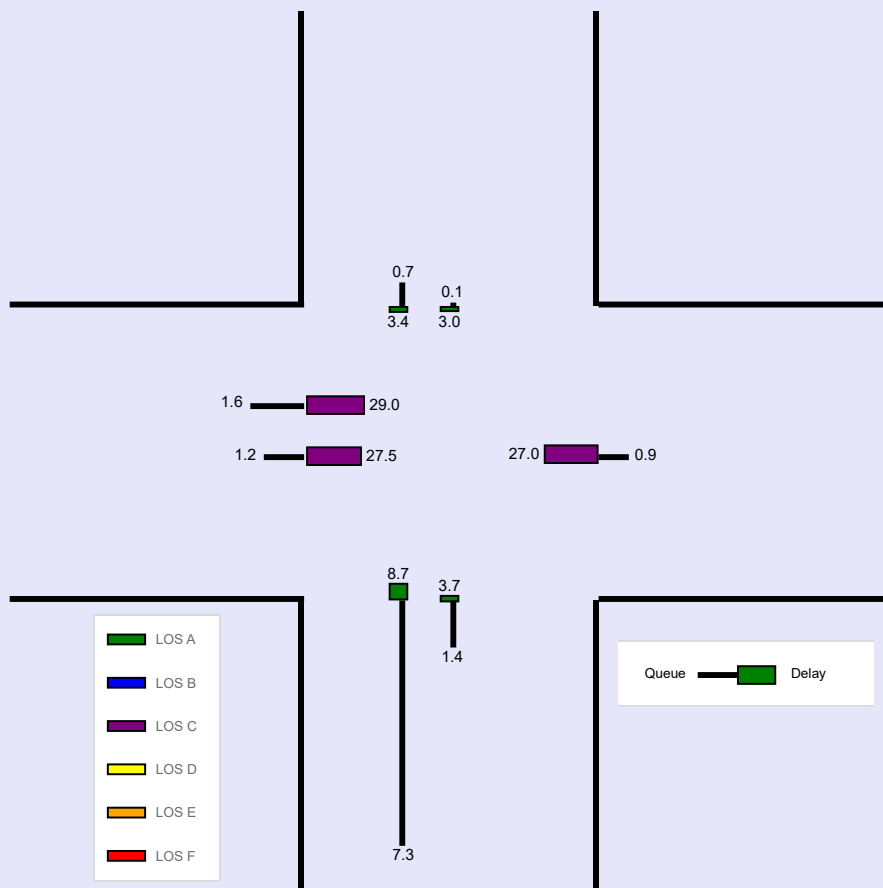
	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	53	7	42	2	17	15	586	210	4	6	11	128

Signal Information

Cycle, s	65.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	45.5	6.5	0.0	0.0	0.0	0.0	0.0	1	2
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	5.0	3.0	0.0	0.0	0.0	0.0	0.0	3	4
				Red	3.0	2.0	0.0	0.0	0.0	0.0	0.0	5	6

Movement Group Results

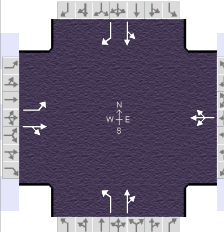
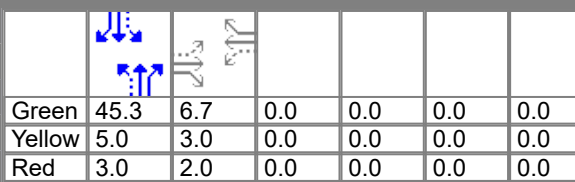
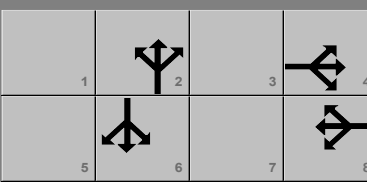
	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)	42	31			22		185	36			2	18
Back of Queue (Q), veh/ln (95 th percentile)	1.6	1.2			0.9		7.3	1.4			0.1	0.7
Queue Storage Ratio (RQ) (95 th percentile)	0.21	0.15			0.02		0.74	0.04			0.00	0.09
Control Delay (d), s/veh	29.0	27.5			27.0		8.7	3.7			3.0	3.4
Level of Service (LOS)	C	C			C		A	A			A	A
Approach Delay, s/veh / LOS	28.4		C	27.0		C	7.4		A	3.4		A
Intersection Delay, s/veh / LOS	9.3						A					



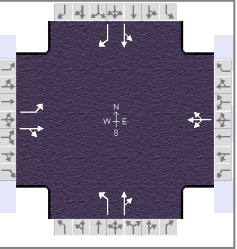
HCS Signalized Intersection Input Data

General Information						Intersection Information									
Agency	Langan					Duration, h	0.250								
Analyst	DDD	Analysis Date	4/22/2025			Area Type	Other								
Jurisdiction	State	Time Period	PM			PHF	0.85								
Urban Street	College Farm Road East	Analysis Year	2028			Analysis Period	1> 7:00								
Intersection	Silverline Drive	File Name	3bp.xus												
Project Description	Build														
Demand Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				53	7	74	2	17	15	669	210	4	6	11	128
Signal Information															
Cycle, s	65.0	Reference Phase	2	Green	45.3	6.7	0.0	0.0	0.0	0.0	1	2	3	4	
Offset, s	0	Reference Point	End	Yellow	5.0	3.0	0.0	0.0	0.0	0.0	5	6	7	8	
Uncoordinated	No	Simult. Gap E/W	On	Red	3.0	2.0	0.0	0.0	0.0	0.0					
Force Mode	Fixed	Simult. Gap N/S	On												
Traffic Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				53	7	74	2	17	15	669	210	4	6	11	128
Initial Queue (Q_0), veh/h				0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_0), veh/h				1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h					None			None			None			None	
Heavy Vehicles (P_{HV}), %				5	5			3		1	1			1	1
Ped / Bike / RTOR, /h				0	0	9	0	0	4	0	0	0	0	0	16
Buses (N_b), buses/h				0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)				3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft				12.0	12.0			12.0		12.0	12.0			12.0	12.0
Turn Bay Length, ft				200	200			1000		250	1000			1000	200
Grade (P_g), %					2			2			2			2	
Speed Limit, mi/h				35	35	35	35	35	35	35	35	35	35	35	35
Phase Information				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT				
Maximum Green (G_{max}) or Phase Split, s					42.0		42.0		23.0		23.0				
Yellow Change Interval (Y), s					3.0		3.0		5.0		5.0				
Red Clearance Interval (R_c), s					2.0		2.0		3.0		3.0				
Minimum Green (G_{min}), s					7		7		7		7				
Start-Up Lost Time (l_t), s				2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0				
Extension of Effective Green (e), s				2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0				
Passage (PT), s					2.0		2.0		2.0		2.0				
Recall Mode					Off		Off		Min		Min				
Dual Entry					Yes		Yes		Yes		Yes				
Walk ($Walk$), s					0.0		0.0		0.0		0.0				
Pedestrian Clearance Time (PC), s					0.0		0.0		0.0		0.0				
Multimodal Information				EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius				0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft				9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft				0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft				12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking				No	0.50		No	0.50		No	0.50		No	0.50	

HCS Signalized Intersection Results Summary

General Information						Intersection Information													
Agency		Langan				Duration, h		0.250											
Analyst		DDD		Analysis Date		4/22/2025		Area Type		Other									
Jurisdiction		State		Time Period		PM		PHF		0.85									
Urban Street		College Farm Road East		Analysis Year		2028		Analysis Period		1> 7:00									
Intersection		Silverline Drive		File Name		3bp.xus													
Project Description		Build																	
Demand Information				EB			WB			NB			SB						
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R				
Demand (v), veh/h				53	7	74	2	17	15	669	210	4	6	11	128				
Signal Information																			
Cycle, s	65.0	Reference Phase	2																
Offset, s	0	Reference Point	End																
Uncoordinated	No	Simult. Gap E/W	On			Green	45.3	6.7	0.0	0.0	0.0	0.0							
Force Mode	Fixed	Simult. Gap N/S	On			Yellow	5.0	3.0	0.0	0.0	0.0	0.0							
				Red	3.0	2.0	0.0	0.0	0.0	0.0									
Timer Results				EBL		EBT		WBL		WBT		NBL		NBT		SBL		SBT	
Assigned Phase						4				8				2				6	
Case Number						6.0				8.0				6.0				7.0	
Phase Duration, s						11.7				11.7				53.3				53.3	
Change Period, (Y+R c), s						5.0				5.0				8.0				8.0	
Max Allow Headway (MAH), s						3.3				3.3				0.0				0.0	
Queue Clearance Time (g s), s						6.1				3.2									
Green Extension Time (g e), s						0.3				0.4				0.0				0.0	
Phase Call Probability						0.96				0.96									
Max Out Probability						0.00				0.00									
Movement Group Results				EB			WB			NB			SB						
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R				
Assigned Movement				7	4	14	3	8	18	5	2	12	1	6	16				
Adjusted Flow Rate (v), veh/h				62	85			35		787	252			20	132				
Adjusted Saturation Flow Rate (s), veh/h/ln				1343	1550			1700		1412	1855			1539	1578				
Queue Service Time (g s), s				2.9	3.4			0.0		25.3	3.1			0.0	1.8				
Cycle Queue Clearance Time (g c), s				4.1	3.4			1.2		25.7	3.1			0.2	1.8				
Green Ratio (g/C)				0.10	0.10			0.10		0.70	0.70			0.70	0.70				
Capacity (c), veh/h				225	161			235		1086	1292			1147	1098				
Volume-to-Capacity Ratio (X)				0.277	0.527			0.150		0.725	0.195			0.017	0.120				
Back of Queue (Q), ft/ln (95 th percentile)				42	57			22		243	37			3	18				
Back of Queue (Q), veh/ln (95 th percentile)				1.6	2.2			0.9		9.6	1.5			0.1	0.7				
Queue Storage Ratio (RQ) (95 th percentile)				0.21	0.28			0.02		0.97	0.04			0.00	0.09				
Uniform Delay (d 1), s/veh				28.5	27.6			26.7		7.0	3.5			3.0	3.3				
Incremental Delay (d 2), s/veh				0.2	1.0			0.1		4.2	0.3			0.0	0.2				
Initial Queue Delay (d 3), s/veh				0.0	0.0			0.0		0.0	0.0			0.0	0.0				
Control Delay (d), s/veh				28.8	28.6			26.8		11.2	3.8			3.1	3.5				
Level of Service (LOS)				C	C			C		B	A			A	A				
Approach Delay, s/veh / LOS				28.7	C		26.8	C		9.4	A		3.4	A					
Intersection Delay, s/veh / LOS				11.3						B									
Multimodal Results				EB			WB			NB			SB						
Pedestrian LOS Score / LOS				1.93	B		1.95	B		1.62	B		1.85	B					
Bicycle LOS Score / LOS				0.73	A		0.55	A		2.20	B		0.74	A					

HCS Signalized Intersection Intermediate Values

General Information						Intersection Information		
Agency	Langan					Duration, h	0.250	
Analyst	DDD	Analysis Date	4/22/2025			Area Type	Other	
Jurisdiction	State	Time Period	PM			PHF	0.85	
Urban Street	College Farm Road East	Analysis Year	2028			Analysis Period	1> 7:00	
Intersection	Silverline Drive	File Name	3bp.xus					
Project Description	Build							

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	53	7	74	2	17	15	669	210	4	6	11	128

Signal Information															
Cycle, s	65.0	Reference Phase	2												
Offset, s	0	Reference Point	End												
Uncoordinated	No	Simult. Gap E/W	On	Green	45.3	6.7	0.0	0.0	0.0	0.0					
				Yellow	5.0	3.0	0.0	0.0	0.0	0.0					
Force Mode	Fixed	Simult. Gap N/S	On	Red	3.0	2.0	0.0	0.0	0.0	0.0					

Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.961	0.949	0.988	1.000	0.964	0.988	0.992	0.980	0.988	1.000	0.980	0.980
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.707	0.000		0.989	0.928		0.743	0.000		0.827	0.827	
Right-Turn Adjustment Factor (f_{RT})		0.860	0.860		0.000	0.928		0.997	0.997		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f_{LPB})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{RPB})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{WZ})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)												
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)	1.00			1.00			1.00			1.00		
Movement Saturation Flow Rate (s), veh/h	1343	151	1400	113	964	623	1412	1821	35	543	996	1578
Proportion of Vehicles Arriving on Green (P)	0.10	0.10	0.10	0.10	0.10	0.10	0.70	0.70	0.70	0.70	0.70	0.70
Incremental Delay Factor (k)	0.04	0.04			0.04		0.50	0.50			0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		5.0		5.0		8.0		8.0
Green Ratio (g/C)		0.10		0.10		0.70		0.70
Permitted Saturation Flow Rate (s_p), veh/h/ln		1343		1334		1412		1146
Shared Saturation Flow Rate (s_{sh}), veh/h/ln				0				0
Permitted Effective Green Time (g_p), s		6.7		6.7		45.3		45.3
Permitted Service Time (g_u), s		5.5		3.4		44.9		42.1
Permitted Queue Service Time (g_{ps}), s		2.9		0.0		25.3		0.0
Time to First Blockage (g_t), s		0.0		4.0		0.0		3.7
Queue Service Time Before Blockage (g_s), s				0.6				0.2
Protected Right Saturation Flow (s_R), veh/h/ln								0
Protected Right Effective Green Time (g_R), s								0.0

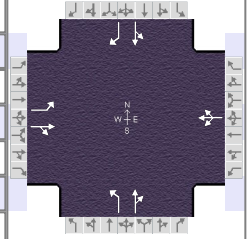
Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.198	0.000	1.198	0.023	0.972	0.006	1.198	0.013
Pedestrian F_s / F_{delay}	0.000	0.131	0.000	0.131	0.000	0.044	0.000	0.044
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	207.41	26.11	207.41	26.11	1392.59	3.00	1392.59	3.00
Bicycle F_w / F_v	-3.64	0.24	-3.64	0.06	-3.64	1.71	-3.64	0.25

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	Langan		
Analyst	DDD	Analysis Date	4/22/2025
Jurisdiction	State	Time Period	PM
Urban Street	College Farm Road East	Analysis Year	2028
Intersection	Silverline Drive	File Name	3bp.xus
Project Description	Build		

Intersection Information



Demand Information

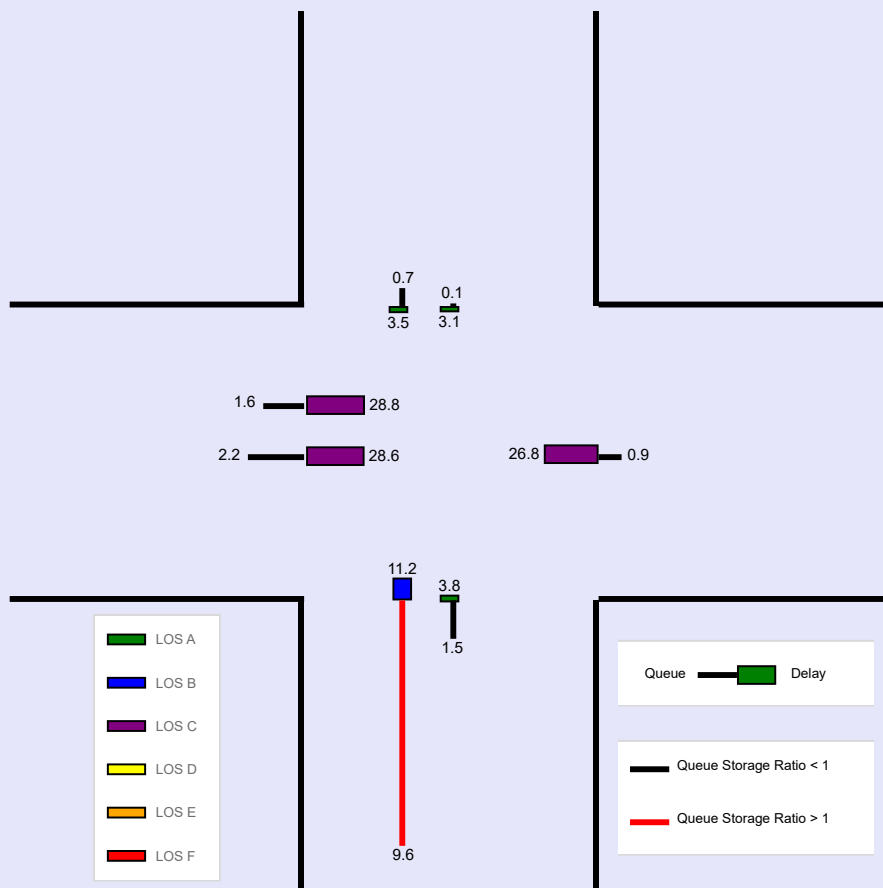
	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	53	7	74	2	17	15	669	210	4	6	11	128

Signal Information

Cycle, s	65.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	45.3	6.7	0.0	0.0	0.0	0.0	1	2
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	5.0	3.0	0.0	0.0	0.0	0.0	3	4
				Red	3.0	2.0	0.0	0.0	0.0	0.0	5	6

Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)	42	57			22		243	37			3	18
Back of Queue (Q), veh/ln (95 th percentile)	1.6	2.2			0.9		9.6	1.5			0.1	0.7
Queue Storage Ratio (RQ) (95 th percentile)	0.21	0.28			0.02		0.97	0.04			0.00	0.09
Control Delay (d), s/veh	28.8	28.6			26.8		11.2	3.8			3.1	3.5
Level of Service (LOS)	C	C			C		B	A			A	A
Approach Delay, s/veh / LOS	28.7	C		26.8	C		9.4	A		3.4	A	
Intersection Delay, s/veh / LOS	11.3						B					





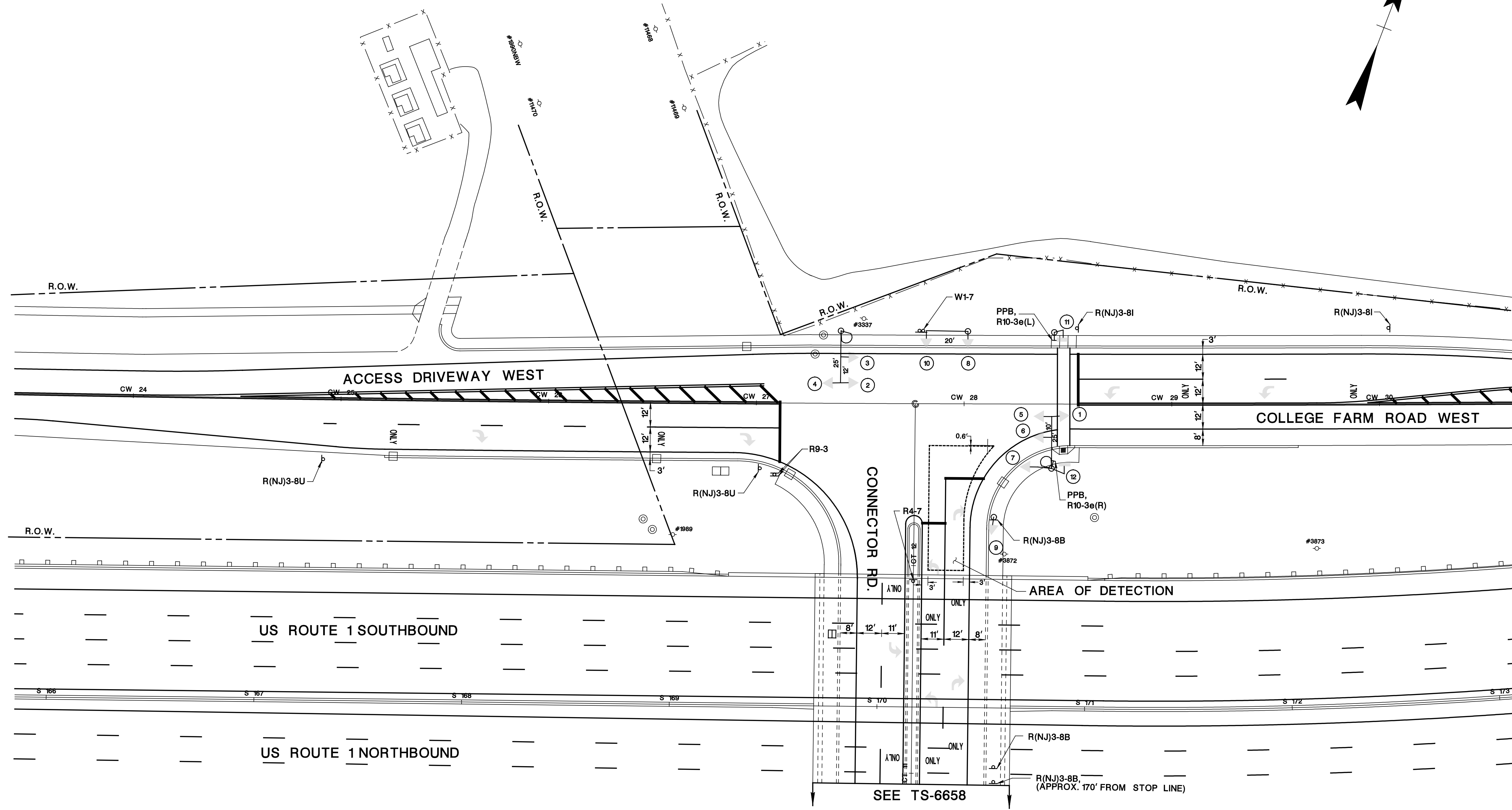
Technology Way and Silverline Drive

file = _Traffic Signals by RouteRoute 00100102569 RI 1 SB College Farm Rd West MP 25.69ApprovedTechnical\02020412225 13:28 pen table = \\ndotpwjw\8system\dotw\projects\NJDOTEng\plot\TBLA\Non-Roadway\elec.tbl ID = 000764873

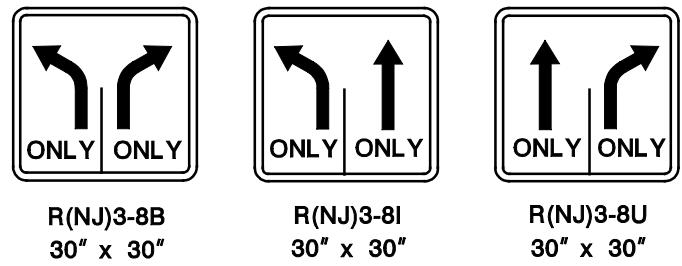
TOWNSHIP OF NORTH BRUNSWICK

COUNTY OF MIDDLESEX

STATE	FEDERAL PROJECT NO.
N.J.	BRF-33(192)

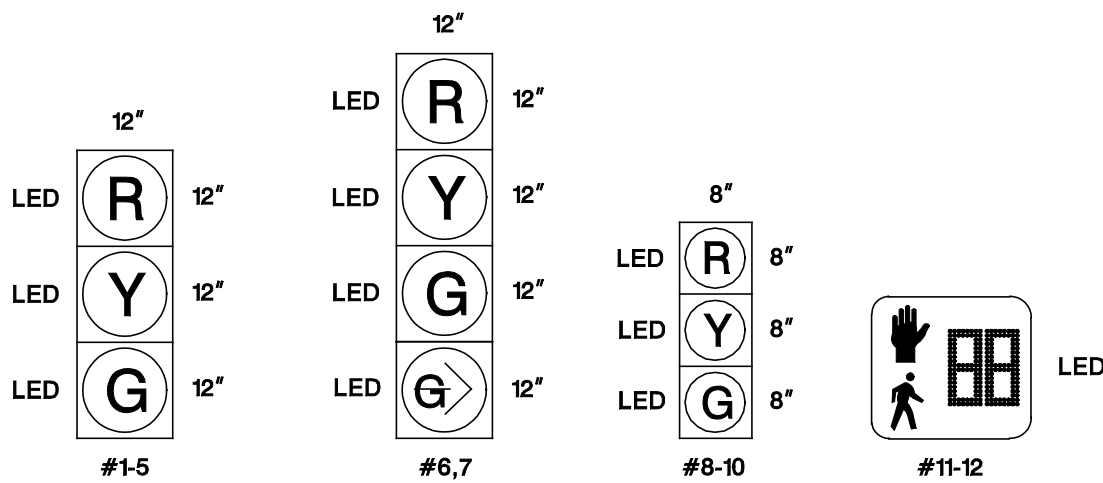


SIGN LEGEND



- | | | |
|-------------|---|-----------|
| R4-7 | KEEP RIGHT (SYMBOL) | 24" x 30" |
| R10-3e(L/R) | COUNT DOWN PEDESTRIAN SIGN (LEFT/RIGHT) | 9" x 15" |
| R9-3 | NO PEDESTRIAN CROSSING (SYMBOL) | 24" x 24" |
| W1-7 | TWO DIRECTION LARGE ARROW SIGN | 48" x 24" |

SIGNAL LEGEND



NOTES:

- SIGNAL HEAD #7 AND 8 ARE MOUNTED AT A HEIGHT OF 10' ABOVE GROUND LEVEL.
- SIGNAL HEAD #9 IS MOUNTED AT A HEIGHT OF 8' ABOVE GROUND LEVEL.

ORIGINAL SIGNED BY
Chris Barretts
Manager, Traffic Engineering
December 7, 2011



NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF TRAFFIC ENGINEERING
TRAFFIC SIGNAL INSTALLATION

(ROUTE US1) ACCESS DRIVEWAY WEST / COLLEGE FARM RD. WEST
AND CONNECTOR RD.

MUNICIPALITY TOWNSHIP OF NORTH BRUNSWICK COUNTY MIDDLESEX

DESIGN AUTHORIZED - BUREAU OF TRAFFIC ENGINEERING

DATE

SUBMITTED M.HANNA

DRAWN N.BARBOSA

SCALE:

CHECKED S.KAZMI

CHECKED

1"=30'

AUTHORIZED C.BARRETTIS

TS-6659

REVISION	DESCRIPTION	CADD	BY	C'K'D	DATE

1202104

Directive No. 275-11
(Route US1) Access Driveway West / College Farm Rd. West &
Connector Rd.
North Brunswick Township, Middlesex County

Without Pedestrian Actuation

Phase	Highway & Cross Street Name	Signal Faces				Timing		II
		1-5	6,7	8-10	11,12	Schedule	Schedule	
A	Access Driveway West / College Farm Rd. West R.O.W. Change Clearance	G	G	R	DW	1 65 sec. 46-26	55 sec. 36-23	
		Y	Y	R	DW	5*	5*	
		R	R/-G>	R	DW	2	2	
B	Connector Rd. R.O.W. Change Clearance Emergency Flash	R	R/-G>	G	DW	7-27	7-20	
		R	R/-G>	Y	DW	3	3	
		R	R/-G>	R	DW	2	2	
		Y	Y	R	DARK	-		

With Pedestrian Actuation

Phase	Highway & Cross Street Name	Signal Faces				Timing		II
		1-5	6,7	8-10	11,12	Schedule I	Schedule	
A	Access Driveway West / College Farm Rd. West R.O.W. Change Clearance	G	G	R	DW	65 sec. 33-26	55 sec. 23	
		Y	Y	R	DW	5*	5*	
		R	R/-G>	R	DW	2	2	
B	Connector Rd. R.O.W. Pedestrian Clearance Vehicle Extension Change Clearance	R	R/-G>	G	w	7	7	
		R	R/-G>	G	FDW	13	13	
		R	R/-G>	G	DW	0-7	0	
		R	R/-G>	Y	DW	3	3	
		R	R/-G>	R	DW	2	2	

1202104

Directive No. 275-11
(Route US1) Access Driveway West / College Farm Rd. West &
Connector Rd.
North Brunswick Township, Middlesex County

Notes:

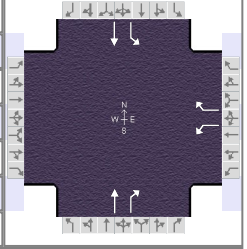
1. *An offset of 32 seconds is to be measured from the beginning of yellow to Access Driveway East / College Farm Road East at Connector Road / Silver Line Driveway to the beginning of yellow to Access Driveway West / College Farm Road West traffic at this intersection.
2. The signal is to rest in Phase A green time.
3. The memory circuit for Phase B is to be off.
4. The vehicle extension for Phases B is to be 2 seconds.
5. The manual control is to be disconnected.

Times of Operation:

Timing Schedule I: Monday-Friday, 6:30 AM - 9:30 AM and 3:00 PM - 7:00 PM.
Timing Schedule II: All Other Times.

HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	Langan			Duration, h	0.250
Analyst	DDD	Analysis Date	4/22/2025	Area Type	Other
Jurisdiction	State	Time Period	AM	PHF	0.88
Urban Street	Technology Way	Analysis Year	2028	Analysis Period	1> 7:00
Intersection	Silverline Drive	File Name	4na.xus		
Project Description	No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				77		310		10	11	201	72	

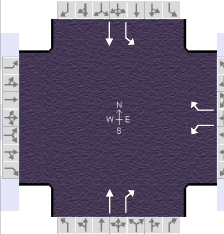
Signal Information											
Cycle, s	65.0	Reference Phase	2								
Offset, s	0	Reference Point	End								
Uncoordinated	No	Simult. Gap E/W	On								
Force Mode	Fixed	Simult. Gap N/S	On								
				Green	36.7	16.3	0.0	0.0	0.0	0.0	
				Yellow	5.0	3.0	0.0	0.0	0.0	0.0	
				Red	2.0	2.0	0.0	0.0	0.0	0.0	

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				77		310		10	11	201	72	
Initial Queue (Q_0), veh/h				0		0		0	0	0	0	
Base Saturation Flow Rate (s_0), veh/h				1900		1900		1900	1900	1900	1900	
Parking (N_m), man/h					None			None			None	
Heavy Vehicles (P_{HV}), %				3		3		5	5	3	3	
Ped / Bike / RTOR, /h	0	0		0	0		0	0	3	0	0	
Buses (N_b), buses/h				0	0	0	0	0	0	0	0	0
Arrival Type (AT)				3		3		3	3	3	3	
Upstream Filtering (I)				1.00		1.00		1.00	1.00	1.00	1.00	
Lane Width (W), ft				12.0		12.0		12.0	12.0	12.0	12.0	
Turn Bay Length, ft				200		200		1000	200	150	1000	
Grade (P_g), %		2			2			2			2	
Speed Limit, mi/h				35		35		35	35	35	35	

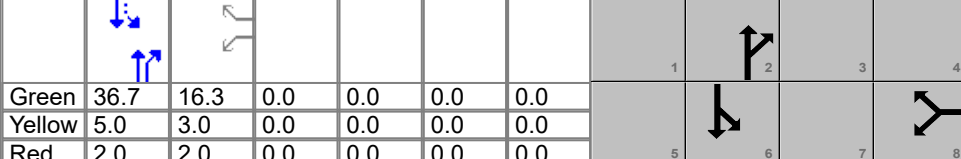
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s				32.0		33.0		33.0
Yellow Change Interval (Y), s				3.0		5.0		5.0
Red Clearance Interval (R_c), s				2.0		2.0		2.0
Minimum Green (G_{min}), s				7		7		7
Start-Up Lost Time (l_t), s			2.0			2.0	2.0	2.0
Extension of Effective Green (e), s			2.0			2.0	2.0	2.0
Passage (PT), s				2.0		2.0		2.0
Recall Mode				Off		Min		Min
Dual Entry				Yes		Yes		Yes
Walk ($Walk$), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (PC), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0			
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0			
Street Width / Island / Curb, ft		0		0.0	0	No	0.0	0	No	0.0		No
Width Outside / Bike Lane / Shoulder, ft				12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No			No	0.50		No	0.50				0.50

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	Langan			Duration, h	0.250	
Analyst	DDD	Analysis Date	4/22/2025	Area Type	Other	
Jurisdiction	State	Time Period	AM	PHF	0.88	
Urban Street	Technology Way	Analysis Year	2028	Analysis Period	1> 7:00	
Intersection	Silverline Drive	File Name	4na.xus			
Project Description	No-Build					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				77		310		10	11	201	72	

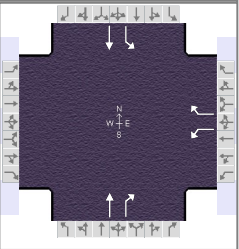
Signal Information											
Cycle, s	65.0	Reference Phase	2		Green	36.7	16.3	0.0	0.0	0.0	0.0
Offset, s	0	Reference Point	End								
Uncoordinated	No	Simult. Gap E/W	On								
Force Mode	Fixed	Simult. Gap N/S	On								
				Yellow	5.0	3.0	0.0	0.0	0.0	0.0	0.0
				Red	2.0	2.0	0.0	0.0	0.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2		6
Case Number				9.0		7.0		6.0
Phase Duration, s				21.3		43.7		43.7
Change Period, ($Y+R_c$), s				5.0		7.0		7.0
Max Allow Headway (MAH), s				3.3		0.0		0.0
Queue Clearance Time (g_s), s				15.6				
Green Extension Time (g_e), s				0.8		0.0		0.0
Phase Call Probability				1.00				
Max Out Probability				0.01				

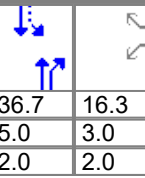
Movement Group Results	EB			WB			NB			SB			
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement				3		18		2	12	1	6		
Adjusted Flow Rate (v), veh/h				88		339		11	9	228	82		
Adjusted Saturation Flow Rate (s), veh/h/ln				1745		1553		1802	1527	1392	1832		
Queue Service Time (g_s), s				2.6		13.6		0.2	0.2	5.6	1.3		
Cycle Queue Clearance Time (g_c), s				2.6		13.6		0.2	0.2	5.8	1.3		
Green Ratio (g/C)				0.25		0.25		0.56	0.56	0.56	0.56		
Capacity (c), veh/h				439		390		1016	861	892	1033		
Volume-to-Capacity Ratio (X)				0.199		0.867		0.011	0.011	0.256	0.079		
Back of Queue (Q), ft/ln (95 th percentile)				45		218		3	2	69	21		
Back of Queue (Q), veh/ln (95 th percentile)				1.7		8.5		0.1	0.1	2.7	0.8		
Queue Storage Ratio (RQ) (95 th percentile)				0.22		1.09		0.00	0.01	0.46	0.02		
Uniform Delay (d_1), s/veh				19.2		23.3		6.2	6.2	7.5	6.5		
Incremental Delay (d_2), s/veh				0.1		3.6		0.0	0.0	0.7	0.1		
Initial Queue Delay (d_3), s/veh				0.0		0.0		0.0	0.0	0.0	0.0		
Control Delay (d), s/veh				19.3		26.9		6.2	6.2	8.2	6.6		
Level of Service (LOS)				B		C		A	A	A	A		
Approach Delay, s/veh / LOS	0.0			25.3		C	6.2		A		7.8		A
Intersection Delay, s/veh / LOS	17.6						B						

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.94	B	1.94	B	1.89	B	0.77	A
Bicycle LOS Score / LOS	0.00	A		F	0.52	A	1.00	A

HCS Signalized Intersection Intermediate Values

General Information				Intersection Information		
Agency	Langan			Duration, h	0.250	
Analyst	DDD	Analysis Date	4/22/2025	Area Type	Other	
Jurisdiction	State	Time Period	AM	PHF	0.88	
Urban Street	Technology Way	Analysis Year	2028	Analysis Period	1> 7:00	
Intersection	Silverline Drive	File Name	4na.xus			
Project Description	No-Build					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				77		310		10	11	201	72	

Signal Information															
Cycle, s	65.0	Reference Phase	2									1	2	3	4
Offset, s	0	Reference Point	End		Green	36.7	16.3	0.0	0.0	0.0	0.0				
Uncoordinated	No	Simult. Gap E/W	On		Yellow	5.0	3.0	0.0	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On		Red	2.0	2.0	0.0	0.0	0.0	0.0	5	6	7	8

Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})				0.964	0.824	0.964	0.992	0.949	0.949	0.977	0.964	0.902
Parking Activity Adjustment Factor (f_p)	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})				0.952	0.000		1.000	1.000		0.733	0.000	
Right-Turn Adjustment Factor (f_{RT})					0.000	0.847		0.000	0.847		1.000	1.000
Left-Turn Pedestrian Adjustment Factor (f_{LPb})				1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{RPb})						1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)												
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)							1.00			1.00		
Movement Saturation Flow Rate (s), veh/h				1745	0	1553	0	1802	1527	1392	1832	0
Proportion of Vehicles Arriving on Green (P)	0.00	0.00	0.00	0.25	0.00	0.25	0.00	0.56	0.56	0.56	0.56	0.00
Incremental Delay Factor (k)				0.04		0.06		0.50	0.50	0.50	0.50	

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)				4.0		7.0		7.0
Green Ratio (g/C)				0.25		0.56		0.56
Permitted Saturation Flow Rate (s_p), veh/h/ln				1745		1337		1392
Shared Saturation Flow Rate (s_{sh}), veh/h/ln						0		
Permitted Effective Green Time (g_p), s				0.0		0.0		36.7
Permitted Service Time (g_u), s				0.0		0.0		36.5
Permitted Queue Service Time (g_{ps}), s								5.6
Time to First Blockage (g_t), s				0.0		36.7		0.0
Queue Service Time Before Blockage (g_s), s								
Protected Right Saturation Flow (s_R), veh/h/ln				0		0		
Protected Right Effective Green Time (g_R), s				0.0		0.0		

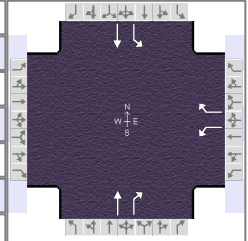
Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.198	0.004	1.198	0.000	1.198	0.017	0.000	0.097
Pedestrian F_s / F_{delay}	0.000	0.140	0.000	0.140	0.000	0.073	0.000	0.073
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b		37.69		38.78	1127.83	6.18	1127.83	6.18
Bicycle F_w / F_v	-3.64	-Infinity	-3.64	Infinity	-3.64	0.03	-3.64	0.51

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	Langan		
Analyst	DDD	Analysis Date	4/22/2025
Jurisdiction	State	Time Period	AM
Urban Street	Technology Way	Analysis Year	2028
Intersection	Silverline Drive	File Name	4na.xus
Project Description	No-Build		

Intersection Information



Demand Information

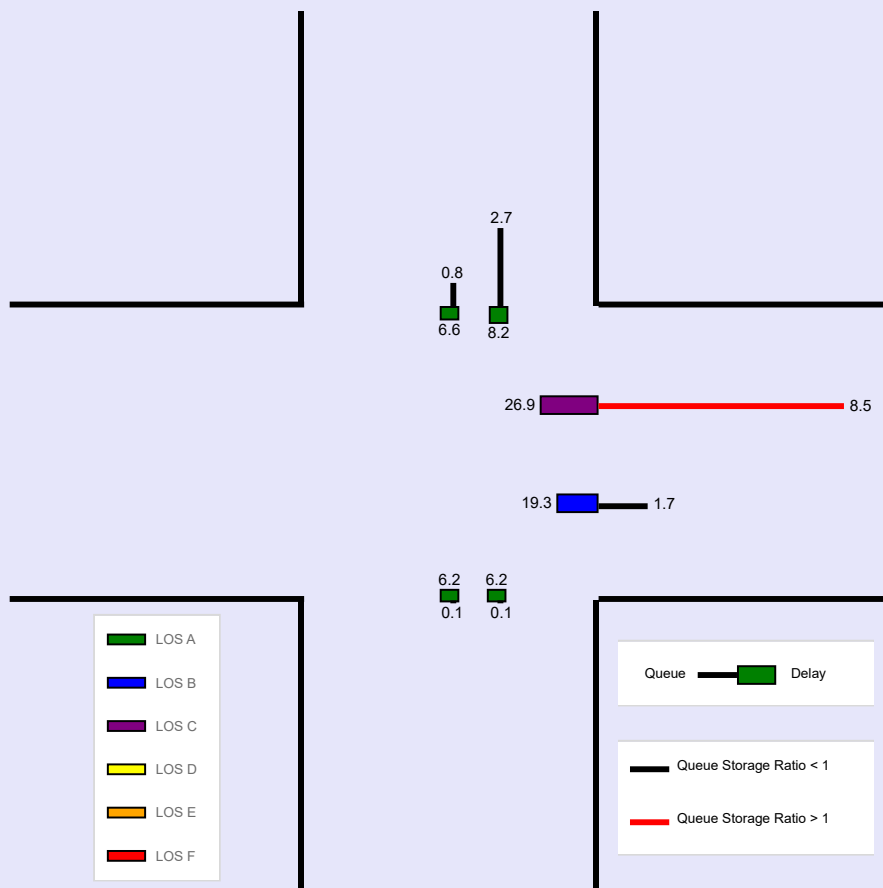
	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				77		310		10	11	201	72	

Signal Information

Cycle, s	65.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	36.7	16.3	0.0	0.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	5.0	3.0	0.0	0.0	0.0	0.0		
				Red	2.0	2.0	0.0	0.0	0.0	0.0		

Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)				45		218		3	2	69	21	
Back of Queue (Q), veh/ln (95 th percentile)				1.7		8.5		0.1	0.1	2.7	0.8	
Queue Storage Ratio (RQ) (95 th percentile)				0.22		1.09		0.00	0.01	0.46	0.02	
Control Delay (d), s/veh				19.3		26.9		6.2	6.2	8.2	6.6	
Level of Service (LOS)				B		C		A	A	A	A	
Approach Delay, s/veh / LOS	0.0			25.3		C	6.2	A		7.8		A
Intersection Delay, s/veh / LOS	17.6						B					

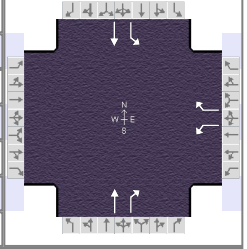


HCS Signalized Intersection Input Data

General Information						Intersection Information									
Agency	Langan					Duration, h	0.250								
Analyst	DDD	Analysis Date	4/22/2025			Area Type	Other								
Jurisdiction	State	Time Period	AM			PHF	0.88								
Urban Street	Technology Way	Analysis Year	2028			Analysis Period	1> 7:00								
Intersection	Silverline Drive	File Name	4ba.xus												
Project Description	Build														
Demand Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h							88		315		10	75	231	72	
Signal Information															
Cycle, s	65.0	Reference Phase	2												
Offset, s	0	Reference Point	End												
Uncoordinated	No	Simult. Gap E/W	On												
Force Mode	Fixed	Simult. Gap N/S	On												
Green	36.4	16.6	0.0	0.0	0.0	0.0									
Yellow	5.0	3.0	0.0	0.0	0.0	0.0									
Red	2.0	2.0	0.0	0.0	0.0	0.0									
Traffic Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h							88		315		10	75	231	72	
Initial Queue (Q_0), veh/h							0		0		0	0	0	0	
Base Saturation Flow Rate (s_0), veh/h							1900		1900		1900	1900	1900	1900	
Parking (N_m), man/h								None			None			None	
Heavy Vehicles (P_{HV}), %							3		3		5	5	3	3	
Ped / Bike / RTOR, /h				0	0		0	0		0	0	3	0	0	
Buses (N_b), buses/h							0	0	0	0	0	0	0	0	0
Arrival Type (AT)							3		3		3	3	3	3	
Upstream Filtering (I)							1.00		1.00		1.00	1.00	1.00	1.00	
Lane Width (W), ft							12.0		12.0		12.0	12.0	12.0	12.0	
Turn Bay Length, ft							200		200		1000	200	150	1000	
Grade (P_g), %					2			2			2			2	
Speed Limit, mi/h							35		35		35	35	35	35	
Phase Information				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT				
Maximum Green (G_{max}) or Phase Split, s							32.0		33.0		33.0				
Yellow Change Interval (Y), s							3.0		5.0		5.0				
Red Clearance Interval (R_c), s							2.0		2.0		2.0				
Minimum Green (G_{min}), s							7		7		7				
Start-Up Lost Time (l_t), s						2.0			2.0	2.0	2.0				
Extension of Effective Green (e), s						2.0			2.0	2.0	2.0				
Passage (PT), s							2.0		2.0		2.0				
Recall Mode							Off		Min		Min				
Dual Entry							Yes		Yes		Yes				
Walk ($Walk$), s					0.0		0.0		0.0		0.0				
Pedestrian Clearance Time (PC), s					0.0		0.0		0.0		0.0				
Multimodal Information				EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius				0.0	No	25.0	0.0	No	25.0	0.0	No	25.0			
Walkway / Crosswalk Width / Length, ft				9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0			
Street Width / Island / Curb, ft					0		0.0	0	No	0.0	0	No	0.0		No
Width Outside / Bike Lane / Shoulder, ft							12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking				No			No	0.50		No	0.50			0.50	

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Langan			Duration, h	0.250
Analyst	DDD	Analysis Date	4/22/2025	Area Type	Other
Jurisdiction	State	Time Period	AM	PHF	0.88
Urban Street	Technology Way	Analysis Year	2028	Analysis Period	1> 7:00
Intersection	Silverline Drive	File Name	4ba.xus		
Project Description	Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				88		315		10	75	231	72	

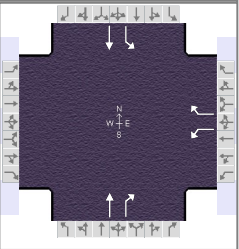
Signal Information											
Cycle, s	65.0	Reference Phase	2								
Offset, s	0	Reference Point	End								
Uncoordinated	No	Simult. Gap E/W	On	Green	36.4	16.6	0.0	0.0	0.0	0.0	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	5.0	3.0	0.0	0.0	0.0	0.0	
				Red	2.0	2.0	0.0	0.0	0.0	0.0	

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2		6
Case Number				9.0		7.0		6.0
Phase Duration, s				21.6		43.4		43.4
Change Period, ($Y+R_c$), s				5.0		7.0		7.0
Max Allow Headway (MAH), s				3.3		0.0		0.0
Queue Clearance Time (g_s), s				15.8				
Green Extension Time (g_e), s				0.8		0.0		0.0
Phase Call Probability				1.00				
Max Out Probability				0.01				

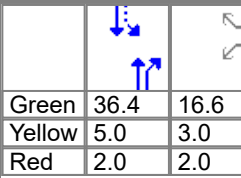
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18	2	12		1	6	
Adjusted Flow Rate (v), veh/h				100		344	11	82		263	82	
Adjusted Saturation Flow Rate (s), veh/h/ln				1745		1553	1802	1527		1392	1832	
Queue Service Time (g_s), s				2.9		13.8	0.2	1.6		6.7	1.3	
Cycle Queue Clearance Time (g_c), s				2.9		13.8	0.2	1.6		6.9	1.3	
Green Ratio (g/C)				0.26		0.26	0.56	0.56		0.56	0.56	
Capacity (c), veh/h				446		396	1009	855		886	1026	
Volume-to-Capacity Ratio (X)				0.224		0.868	0.011	0.096		0.296	0.080	
Back of Queue (Q), ft/ln (95 th percentile)				51		223	3	22		82	21	
Back of Queue (Q), veh/ln (95 th percentile)				2.0		8.7	0.1	0.8		3.2	0.8	
Queue Storage Ratio (RQ) (95 th percentile)				0.26		1.11	0.00	0.11		0.55	0.02	
Uniform Delay (d_1), s/veh				19.1		23.2	6.3	6.6		7.9	6.6	
Incremental Delay (d_2), s/veh				0.1		4.0	0.0	0.2		0.9	0.2	
Initial Queue Delay (d_3), s/veh				0.0		0.0	0.0	0.0		0.0	0.0	
Control Delay (d), s/veh				19.2		27.2	6.4	6.9		8.7	6.7	
Level of Service (LOS)				B		C	A	A		A	A	
Approach Delay, s/veh / LOS	0.0			25.4		C	6.8	A		8.2	A	
Intersection Delay, s/veh / LOS	16.7						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.94	B	1.94	B	1.89	B	0.77	A
Bicycle LOS Score / LOS	0.00	A		F	0.64	A	1.06	A

HCS Signalized Intersection Intermediate Values

General Information				Intersection Information		
Agency	Langan			Duration, h	0.250	
Analyst	DDD	Analysis Date	4/22/2025	Area Type	Other	
Jurisdiction	State	Time Period	AM	PHF	0.88	
Urban Street	Technology Way	Analysis Year	2028	Analysis Period	1> 7:00	
Intersection	Silverline Drive	File Name	4ba.xus			
Project Description	Build					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				88		315		10	75	231	72	

Signal Information															
Cycle, s	65.0	Reference Phase	2		Green	36.4	16.6	0.0	0.0	0.0	0.0	1	2	3	4
Offset, s	0	Reference Point	End												
Uncoordinated	No	Simult. Gap E/W	On												
Force Mode	Fixed	Simult. Gap N/S	On												
				Yellow	5.0	3.0	0.0	0.0	0.0	0.0	0.0	5	6	7	8
				Red	2.0	2.0	0.0	0.0	0.0	0.0	0.0				

Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})				0.964	0.824	0.964	0.992	0.949	0.949	0.977	0.964	0.902
Parking Activity Adjustment Factor (f_p)	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})				0.952	0.000		1.000	1.000		0.733	0.000	
Right-Turn Adjustment Factor (f_{RT})					0.000	0.847		0.000	0.847		1.000	1.000
Left-Turn Pedestrian Adjustment Factor (f_{LPB})				1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{RPB})						1.000			1.000			1.000
Work Zone Adjustment Factor (f_{WZ})				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)												
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)							1.00			1.00		
Movement Saturation Flow Rate (s), veh/h				1745	0	1553	0	1802	1527	1392	1832	0
Proportion of Vehicles Arriving on Green (P)	0.00	0.00	0.00	0.26	0.00	0.26	0.00	0.56	0.56	0.56	0.56	0.00
Incremental Delay Factor (k)				0.04		0.07		0.50	0.50	0.50	0.50	

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)				4.0		7.0		7.0
Green Ratio (g/C)				0.26		0.56		0.56
Permitted Saturation Flow Rate (s_p), veh/h/ln				1745		1337		1392
Shared Saturation Flow Rate (s_{sh}), veh/h/ln						0		
Permitted Effective Green Time (g_p), s				0.0		0.0		36.4
Permitted Service Time (g_u), s				0.0		0.0		36.2
Permitted Queue Service Time (g_{ps}), s								6.7
Time to First Blockage (g_t), s				0.0		36.4		0.0
Queue Service Time Before Blockage (g_s), s								
Protected Right Saturation Flow (s_R), veh/h/ln				0		0		
Protected Right Effective Green Time (g_R), s				0.0		0.0		

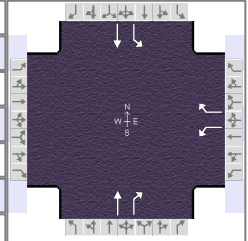
Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.198	0.004	1.198	0.000	1.198	0.017	0.000	0.097
Pedestrian F_s / F_{delay}	0.000	0.140	0.000	0.140	0.000	0.074	0.000	0.074
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b		37.69		38.78	1120.05	6.29	1120.05	6.29
Bicycle F_w / F_v	-3.64	-Infinity	-3.64	Infinity	-3.64	0.15	-3.64	0.57

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	Langan		
Analyst	DDD	Analysis Date	4/22/2025
Jurisdiction	State	Time Period	AM
Urban Street	Technology Way	Analysis Year	2028
Intersection	Silverline Drive	File Name	4ba.xus
Project Description	Build		

Intersection Information



Demand Information

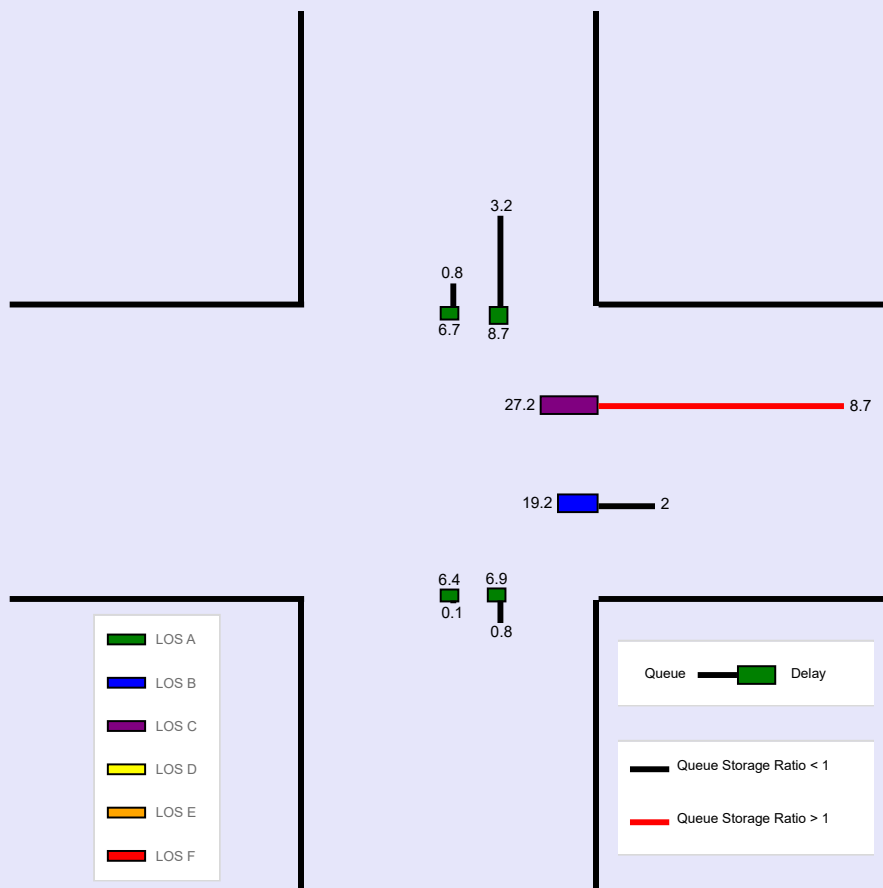
	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				88		315		10	75	231	72	

Signal Information

Cycle, s	65.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	36.4	16.6	0.0	0.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	5.0	3.0	0.0	0.0	0.0	0.0		
				Red	2.0	2.0	0.0	0.0	0.0	0.0		

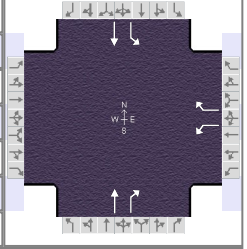
Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)				51		223		3	22	82	21	
Back of Queue (Q), veh/ln (95 th percentile)				2.0		8.7		0.1	0.8	3.2	0.8	
Queue Storage Ratio (RQ) (95 th percentile)				0.26		1.11		0.00	0.11	0.55	0.02	
Control Delay (d), s/veh				19.2		27.2		6.4	6.9	8.7	6.7	
Level of Service (LOS)				B		C		A	A	A	A	
Approach Delay, s/veh / LOS	0.0			25.4		C	6.8	A		8.2		A
Intersection Delay, s/veh / LOS	16.7						B					



HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	Langan			Duration, h	0.250
Analyst	DDD	Analysis Date	4/22/2025	Area Type	Other
Jurisdiction	State	Time Period	PM	PHF	0.84
Urban Street	Technology Way	Analysis Year	2028	Analysis Period	1> 7:00
Intersection	Silverline Drive	File Name	4np.xus		
Project Description	No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				140		595		25	17	84	40	

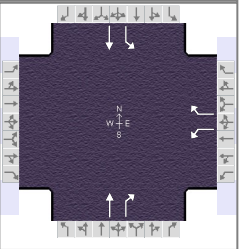
Signal Information											
Cycle, s	65.0	Reference Phase	2								
Offset, s	0	Reference Point	End								
Uncoordinated	No	Simult. Gap E/W	On	Green	26.0	27.0	0.0	0.0	0.0	0.0	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	5.0	3.0	0.0	0.0	0.0	0.0	
				Red	2.0	2.0	0.0	0.0	0.0	0.0	

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				140		595		25	17	84	40	
Initial Queue (Q_0), veh/h				0		0		0	0	0	0	
Base Saturation Flow Rate (s_0), veh/h				1900		1900		1900	1900	1900	1900	
Parking (N_m), man/h					None			None			None	
Heavy Vehicles (P_{HV}), %				1		1		3	3	5	5	
Ped / Bike / RTOR, /h	0	0		0	0		0	0	3	0	0	
Buses (N_b), buses/h				0	0	0	0	0	0	0	0	0
Arrival Type (AT)				3		3		3	3	3	3	
Upstream Filtering (I)				1.00		1.00		1.00	1.00	1.00	1.00	
Lane Width (W), ft				12.0		12.0		12.0	12.0	12.0	12.0	
Turn Bay Length, ft				200		200		1000	200	150	1000	
Grade (P_g), %		2			2			2			2	
Speed Limit, mi/h				35		35		35	35	35	35	

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s				32.0		33.0		33.0
Yellow Change Interval (Y), s				3.0		5.0		5.0
Red Clearance Interval (R_c), s				2.0		2.0		2.0
Minimum Green (G_{min}), s				7		7		7
Start-Up Lost Time (l_t), s			2.0			2.0	2.0	2.0
Extension of Effective Green (e), s			2.0			2.0	2.0	2.0
Passage (PT), s				2.0		2.0		2.0
Recall Mode				Off		Min		Min
Dual Entry				Yes		Yes		Yes
Walk ($Walk$), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (PC), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0			
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0			
Street Width / Island / Curb, ft		0		0.0	0	No	0.0	0	No	0.0		No
Width Outside / Bike Lane / Shoulder, ft				12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No			No	0.50		No	0.50				0.50

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	Langan			Duration, h	0.250	
Analyst	DDD	Analysis Date	4/22/2025	Area Type	Other	
Jurisdiction	State	Time Period	PM	PHF	0.84	
Urban Street	Technology Way	Analysis Year	2028	Analysis Period	1> 7:00	
Intersection	Silverline Drive	File Name	4np.xus			
Project Description	No-Build					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				140		595		25	17	84	40	

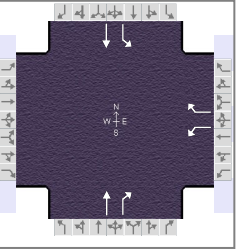
Signal Information																	
Cycle, s	65.0	Reference Phase	2														
Offset, s	0	Reference Point	End									1		2		3	
Uncoordinated	No	Simult. Gap E/W	On	Green	26.0	27.0	0.0	0.0	0.0	0.0							
				Yellow	5.0	3.0	0.0	0.0	0.0	0.0							
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.0	2.0	0.0	0.0	0.0	0.0	5		6		7		
																	

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2		6
Case Number				9.0		7.0		6.0
Phase Duration, s				32.0		33.0		33.0
Change Period, ($Y+R_c$), s				5.0		7.0		7.0
Max Allow Headway (MAH), s				3.3		0.0		0.0
Queue Clearance Time (g_s), s				29.0				
Green Extension Time (g_e), s				0.0		0.0		0.0
Phase Call Probability				1.00				
Max Out Probability				1.00				

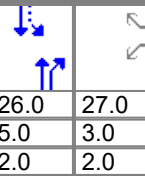
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18		2	12	1	6	
Adjusted Flow Rate (v), veh/h				167		694		30	17	100	48	
Adjusted Saturation Flow Rate (s), veh/h/ln				1773		1578		1832	1553	1347	1802	
Queue Service Time (g_s), s				3.9		27.0		0.6	0.4	3.2	1.1	
Cycle Queue Clearance Time (g_c), s				3.9		27.0		0.6	0.4	3.8	1.1	
Green Ratio (g/C)				0.42		0.42		0.40	0.40	0.40	0.40	
Capacity (c), veh/h				736		655		733	621	636	721	
Volume-to-Capacity Ratio (X)				0.226		1.059		0.041	0.027	0.157	0.066	
Back of Queue (Q), ft/ln (95 th percentile)				62		647		12	7	44	19	
Back of Queue (Q), veh/ln (95 th percentile)				2.5		25.7		0.5	0.3	1.7	0.7	
Queue Storage Ratio (RQ) (95 th percentile)				0.31		3.24		0.01	0.03	0.30	0.02	
Uniform Delay (d_1), s/veh				12.3		19.0		11.9	11.8	13.1	12.0	
Incremental Delay (d_2), s/veh				0.1		51.8		0.1	0.1	0.5	0.2	
Initial Queue Delay (d_3), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (d), s/veh				12.3		70.8		12.0	11.9	13.6	12.2	
Level of Service (LOS)				B		F		B	B	B	B	
Approach Delay, s/veh / LOS	0.0			59.5		E	12.0	B		13.1	B	
Intersection Delay, s/veh / LOS	50.9						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.94	B	1.94	B	1.91	B	0.80	A
Bicycle LOS Score / LOS	0.00	A		F	0.56	A	0.73	A

HCS Signalized Intersection Intermediate Values

General Information						Intersection Information		
Agency	Langan					Duration, h	0.250	
Analyst	DDD	Analysis Date	4/22/2025			Area Type	Other	
Jurisdiction	State	Time Period	PM			PHF	0.84	
Urban Street	Technology Way	Analysis Year	2028			Analysis Period	1> 7:00	
Intersection	Silverline Drive	File Name	4np.xus					
Project Description	No-Build							

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				140		595		25	17	84	40	

Signal Information															
Cycle, s	65.0	Reference Phase	2									1	2	3	4
Offset, s	0	Reference Point	End		Green	26.0	27.0	0.0	0.0	0.0	0.0				
Uncoordinated	No	Simult. Gap E/W	On		Yellow	5.0	3.0	0.0	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On		Red	2.0	2.0	0.0	0.0	0.0	0.0	5	6	7	8

Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})				0.980	0.824	0.980	0.992	0.964	0.964	0.961	0.949	0.902
Parking Activity Adjustment Factor (f_p)	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})				0.952	0.000		1.000	1.000		0.709	0.000	
Right-Turn Adjustment Factor (f_{RT})					0.000	0.847		0.000	0.847		1.000	1.000
Left-Turn Pedestrian Adjustment Factor (f_{LPB})				1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{RPB})						1.000			1.000			1.000
Work Zone Adjustment Factor (f_{WZ})				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)												
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)							1.00			1.00		
Movement Saturation Flow Rate (s), veh/h				1773	0	1578	0	1832	1553	1347	1802	0
Proportion of Vehicles Arriving on Green (P)	0.00	0.00	0.00	0.42	0.00	0.42	0.00	0.40	0.40	0.40	0.40	0.00
Incremental Delay Factor (k)				0.04		0.50		0.50	0.50	0.50	0.50	

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)				4.0		7.0		7.0
Green Ratio (g/C)				0.42		0.40		0.40
Permitted Saturation Flow Rate (s_p), veh/h/ln				1773		1379		1347
Shared Saturation Flow Rate (s_{sh}), veh/h/ln						0		
Permitted Effective Green Time (g_p), s				0.0		0.0		26.0
Permitted Service Time (g_u), s				0.0		0.0		25.4
Permitted Queue Service Time (g_{ps}), s								3.2
Time to First Blockage (g_t), s				0.0		26.0		0.0
Queue Service Time Before Blockage (g_{ts}), s								
Protected Right Saturation Flow (s_R), veh/h/ln				0		0		
Protected Right Effective Green Time (g_R), s				0.0		0.0		

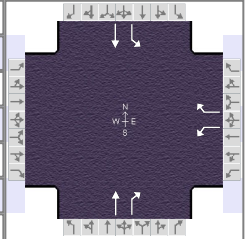
Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.198	0.004	1.198	0.000	1.198	0.017	0.000	0.097
Pedestrian F_s / F_{delay}	0.000	0.140	0.000	0.140	0.000	0.099	0.000	0.099
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b		37.69		38.78	800.00	11.70	800.00	11.70
Bicycle F_w / F_v	-3.64	-Infinity	-3.64	Infinity	-3.64	0.08	-3.64	0.24

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	Langan		
Analyst	DDD	Analysis Date	4/22/2025
Jurisdiction	State	Time Period	PM
Urban Street	Technology Way	Analysis Year	2028
Intersection	Silverline Drive	File Name	4np.xus
Project Description	No-Build		

Intersection Information



Demand Information

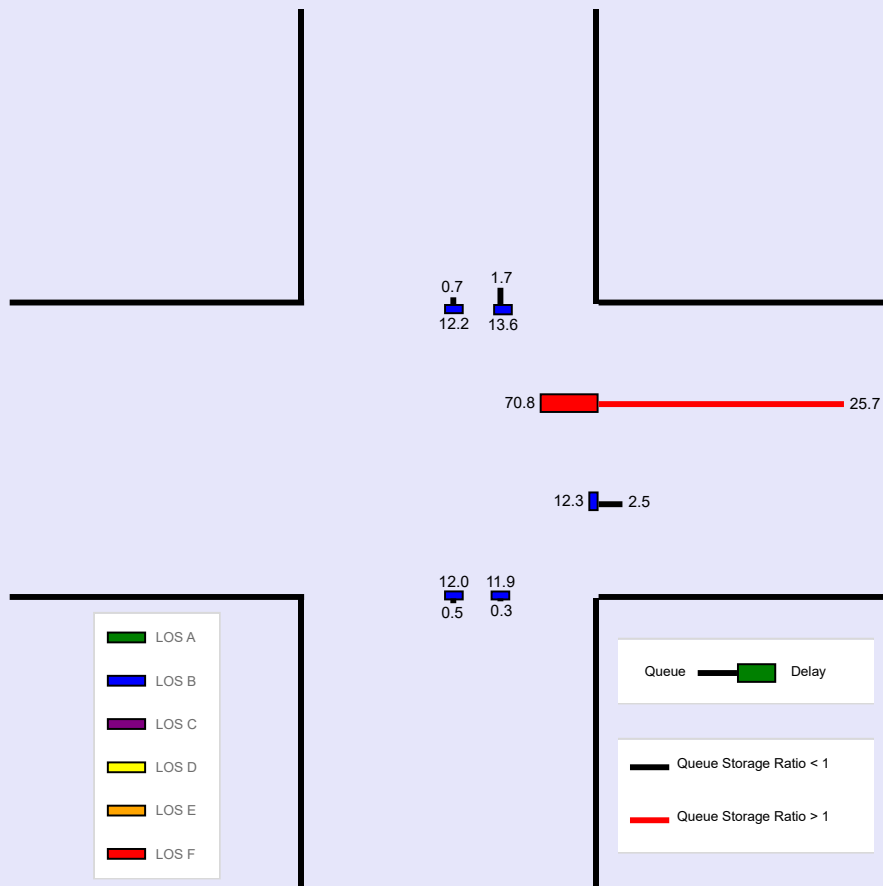
	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				140		595		25	17	84	40	

Signal Information

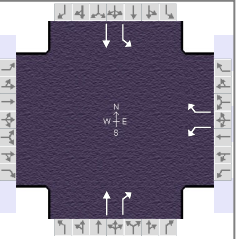
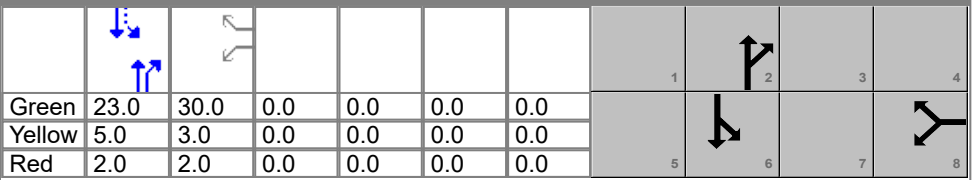
Cycle, s	65.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	26.0	27.0	0.0	0.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	5.0	3.0	0.0	0.0	0.0	0.0		
				Red	2.0	2.0	0.0	0.0	0.0	0.0		

Movement Group Results

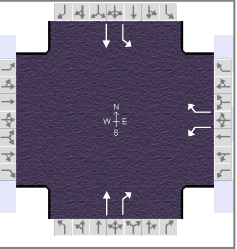
	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)				62		647		12	7	44	19	
Back of Queue (Q), veh/ln (95 th percentile)				2.5		25.7		0.5	0.3	1.7	0.7	
Queue Storage Ratio (RQ) (95 th percentile)				0.31		3.24		0.01	0.03	0.30	0.02	
Control Delay (d), s/veh				12.3		70.8		12.0	11.9	13.6	12.2	
Level of Service (LOS)				B		F		B	B	B	B	
Approach Delay, s/veh / LOS	0.0			59.5		E	12.0	B		13.1		B
Intersection Delay, s/veh / LOS	50.9						D					



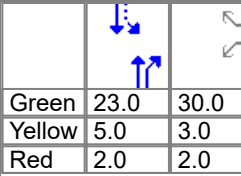
HCS Signalized Intersection Input Data

General Information						Intersection Information										
Agency	Langan					Duration, h	0.250									
Analyst	DDD	Analysis Date	4/22/2025			Area Type	Other									
Jurisdiction	State	Time Period	PM			PHF	0.84									
Urban Street	Technology Way	Analysis Year	2028			Analysis Period	1> 7:00									
Intersection	Silverline Drive	File Name	4bp.xus													
Project Description	Build With Timing Change															
Demand Information				EB			WB			NB			SB			
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R	
Demand (v), veh/h							197		621		25	41	92	40		
Signal Information										Cycle, s				65.0	Reference Phase	2
Offset, s										0	Reference Point	End				
Uncoordinated										No	Simult. Gap E/W	On				
Force Mode										Fixed	Simult. Gap N/S	On				
										Green	23.0	30.0	0.0	0.0	0.0	0.0
				Yellow	5.0	3.0	0.0	0.0	0.0	0.0						
				Red	2.0	2.0	0.0	0.0	0.0	0.0						
Traffic Information				EB			WB			NB			SB			
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R	
Demand (v), veh/h							197		621		25	41	92	40		
Initial Queue (Q_0), veh/h							0		0		0	0	0	0		
Base Saturation Flow Rate (s_0), veh/h							1900		1900		1900	1900	1900	1900		
Parking (N_m), man/h								None			None			None		
Heavy Vehicles (P_{HV}), %							1		1		3	3	5	5		
Ped / Bike / RTOR, /h				0	0		0	0		0	0	3	0	0		
Buses (N_b), buses/h							0	0	0	0	0	0	0	0	0	
Arrival Type (AT)							3		3		3	3	3	3		
Upstream Filtering (I)							1.00		1.00		1.00	1.00	1.00	1.00		
Lane Width (W), ft							12.0		12.0		12.0	12.0	12.0	12.0		
Turn Bay Length, ft							200		200		1000	200	150	1000		
Grade (P_g), %					2			2			2			2		
Speed Limit, mi/h							35		35		35	35	35	35		
Phase Information				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT					
Maximum Green (G_{max}) or Phase Split, s							35.0		30.0		30.0					
Yellow Change Interval (Y), s							3.0		5.0		5.0					
Red Clearance Interval (R_c), s							2.0		2.0		2.0					
Minimum Green (G_{min}), s							7		7		7					
Start-Up Lost Time (l_t), s						2.0			2.0	2.0	2.0					
Extension of Effective Green (e), s						2.0			2.0	2.0	2.0					
Passage (PT), s							2.0		2.0		2.0					
Recall Mode							Off		Min		Min					
Dual Entry							Yes		Yes		Yes					
Walk ($Walk$), s					0.0		0.0		0.0							
Pedestrian Clearance Time (PC), s					0.0		0.0		0.0							
Multimodal Information				EB			WB			NB			SB			
85th % Speed / Rest in Walk / Corner Radius				0.0	No	25.0	0.0	No	25.0	0.0	No	25.0				
Walkway / Crosswalk Width / Length, ft				9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0				
Street Width / Island / Curb, ft					0		0.0	0	No	0.0	0	No	0.0		No	
Width Outside / Bike Lane / Shoulder, ft							12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	
Pedestrian Signal / Occupied Parking				No			No	0.50		No	0.50			0.50		

HCS Signalized Intersection Results Summary

General Information						Intersection Information		
Agency	Langan					Duration, h	0.250	
Analyst	DDD	Analysis Date	4/22/2025			Area Type	Other	
Jurisdiction	State	Time Period	PM			PHF	0.84	
Urban Street	Technology Way	Analysis Year	2028			Analysis Period	1> 7:00	
Intersection	Silverline Drive	File Name	4bp.xus					
Project Description	Build With Timing Change							

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				197		621		25	41	92	40	

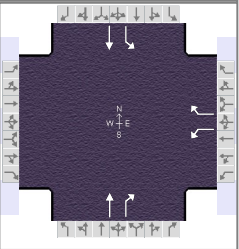
Signal Information											
Cycle, s	65.0	Reference Phase	2								
Offset, s	0	Reference Point	End								
Uncoordinated	No	Simult. Gap E/W	On								
Force Mode	Fixed	Simult. Gap N/S	On								
				Green	23.0	30.0	0.0	0.0	0.0	0.0	
				Yellow	5.0	3.0	0.0	0.0	0.0	0.0	
				Red	2.0	2.0	0.0	0.0	0.0	0.0	

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2		6
Case Number				9.0		7.0		6.0
Phase Duration, s				35.0		30.0		30.0
Change Period, ($Y+R_c$), s				5.0		7.0		7.0
Max Allow Headway (MAH), s				3.3		0.0		0.0
Queue Clearance Time (g_s), s				31.8				
Green Extension Time (g_e), s				0.0		0.0		0.0
Phase Call Probability				1.00				
Max Out Probability				1.00				

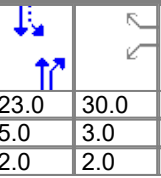
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18		2	12	1	6	
Adjusted Flow Rate (v), veh/h				235		725		30	45	110	48	
Adjusted Saturation Flow Rate (s), veh/h/ln				1773		1578		1832	1553	1347	1802	
Queue Service Time (g_s), s				5.3		29.8		0.7	1.3	3.8	1.1	
Cycle Queue Clearance Time (g_c), s				5.3		29.8		0.7	1.3	4.5	1.1	
Green Ratio (g/C)				0.46		0.46		0.35	0.35	0.35	0.35	
Capacity (c), veh/h				818		728		648	549	573	638	
Volume-to-Capacity Ratio (X)				0.287		0.996		0.046	0.082	0.191	0.075	
Back of Queue (Q), ft/ln (95 th percentile)				82		549		13	20	54	21	
Back of Queue (Q), veh/ln (95 th percentile)				3.2		21.8		0.5	0.8	2.1	0.8	
Queue Storage Ratio (RQ) (95 th percentile)				0.41		2.75		0.01	0.10	0.36	0.02	
Uniform Delay (d_1), s/veh				10.9		17.4		13.8	14.0	15.3	13.9	
Incremental Delay (d_2), s/veh				0.1		32.2		0.1	0.3	0.7	0.2	
Initial Queue Delay (d_3), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (d), s/veh				10.9		49.6		13.9	14.3	16.0	14.2	
Level of Service (LOS)				B		D		B	B	B	B	
Approach Delay, s/veh / LOS	0.0			40.2		D	14.1		B	15.4		B
Intersection Delay, s/veh / LOS	35.3						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.94	B	1.94	B	1.92	B	0.80	A
Bicycle LOS Score / LOS	0.00	A		F	0.61	A	0.75	A

HCS Signalized Intersection Intermediate Values

General Information					Intersection Information		
Agency	Langan				Duration, h	0.250	
Analyst	DDD	Analysis Date	4/22/2025		Area Type	Other	
Jurisdiction	State	Time Period	PM		PHF	0.84	
Urban Street	Technology Way	Analysis Year	2028		Analysis Period	1> 7:00	
Intersection	Silverline Drive	File Name	4bp.xus				
Project Description	Build With Timing Change						

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				197		621		25	41	92	40	

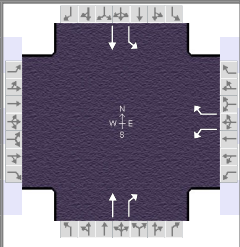
Signal Information															
Cycle, s	65.0	Reference Phase	2									1	2	3	4
Offset, s	0	Reference Point	End		Green	23.0	30.0	0.0	0.0	0.0	0.0				
Uncoordinated	No	Simult. Gap E/W	On		Yellow	5.0	3.0	0.0	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On		Red	2.0	2.0	0.0	0.0	0.0	0.0	5	6	7	8

Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})				0.980	0.824	0.980	0.992	0.964	0.964	0.961	0.949	0.902
Parking Activity Adjustment Factor (f_p)	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})				0.952	0.000		1.000	1.000		0.709	0.000	
Right-Turn Adjustment Factor (f_{RT})					0.000	0.847		0.000	0.847		1.000	1.000
Left-Turn Pedestrian Adjustment Factor (f_{LPB})				1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{RPB})						1.000			1.000			1.000
Work Zone Adjustment Factor (f_{WZ})				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)												
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)							1.00			1.00		
Movement Saturation Flow Rate (s), veh/h				1773	0	1578	0	1832	1553	1347	1802	0
Proportion of Vehicles Arriving on Green (P)	0.00	0.00	0.00	0.46	0.00	0.46	0.00	0.35	0.35	0.35	0.35	0.00
Incremental Delay Factor (k)				0.04		0.50		0.50	0.50	0.50	0.50	

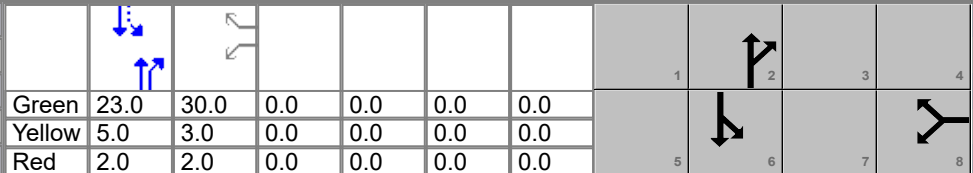
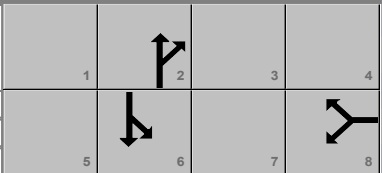
Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)				4.0		7.0		7.0
Green Ratio (g/C)				0.46		0.35		0.35
Permitted Saturation Flow Rate (s_p), veh/h/ln				1773		1379		1347
Shared Saturation Flow Rate (s_{sh}), veh/h/ln						0		
Permitted Effective Green Time (g_p), s				0.0		0.0		23.0
Permitted Service Time (g_u), s				0.0		0.0		22.3
Permitted Queue Service Time (g_{ps}), s								3.8
Time to First Blockage (g_t), s				0.0		23.0		0.0
Queue Service Time Before Blockage (g_s), s								
Protected Right Saturation Flow (s_R), veh/h/ln				0		0		
Protected Right Effective Green Time (g_R), s				0.0		0.0		

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.198	0.004	1.198	0.000	1.198	0.017	0.000	0.097
Pedestrian F_s / F_{delay}	0.000	0.140	0.000	0.140	0.000	0.105	0.000	0.105
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b		37.69		38.78	707.69	13.57	707.69	13.57
Bicycle F_w / F_v	-3.64	-Infinity	-3.64	Infinity	-3.64	0.12	-3.64	0.26

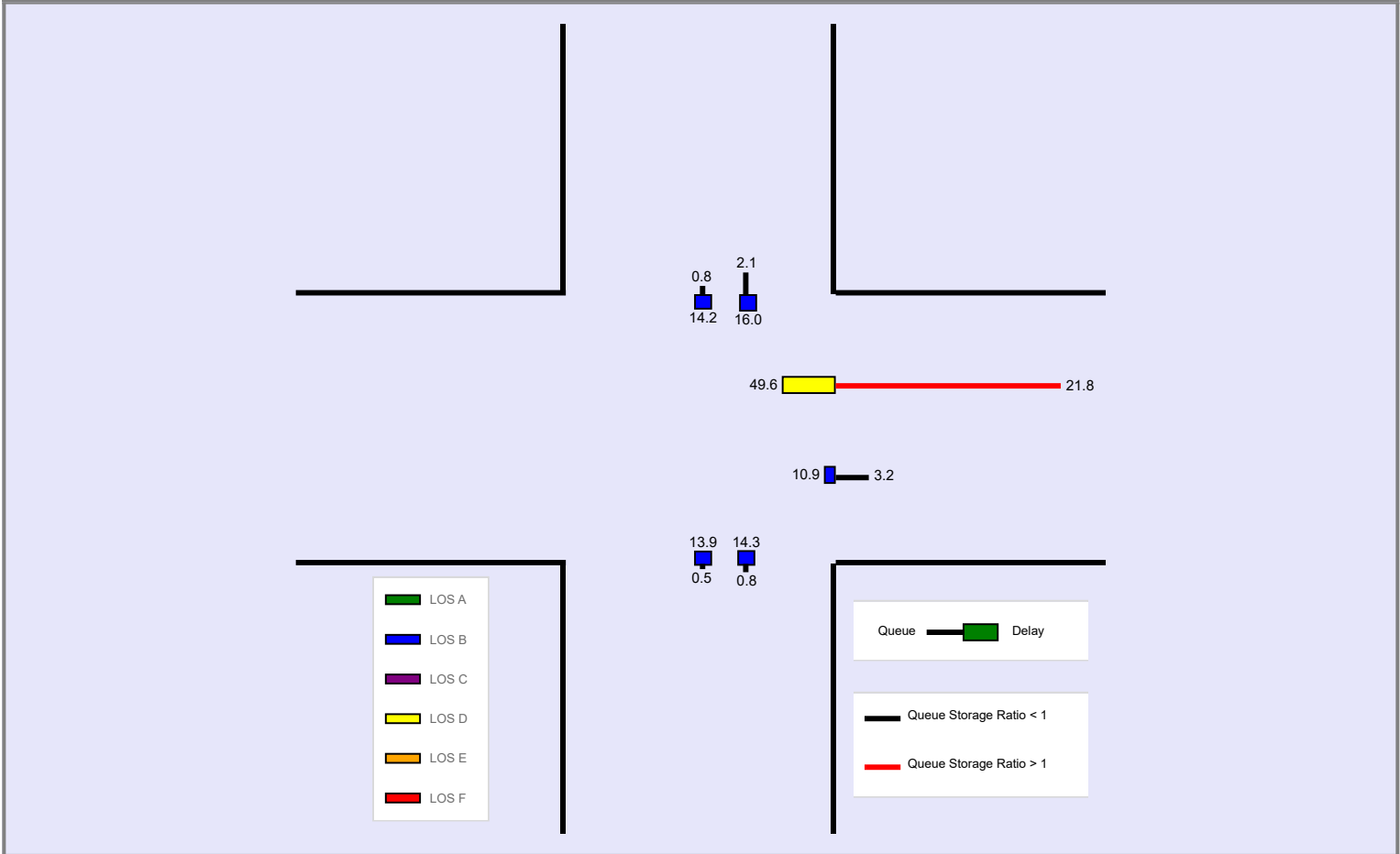
HCS Signalized Intersection Results Graphical Summary

General Information				Intersection Information		
Agency	Langan			Duration, h	0.250	
Analyst	DDD	Analysis Date	4/22/2025	Area Type	Other	
Jurisdiction	State	Time Period	PM	PHF	0.84	
Urban Street	Technology Way	Analysis Year	2028	Analysis Period	1> 7:00	
Intersection	Silverline Drive	File Name	4bp.xus			
Project Description	Build With Timing Change					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				197		621		25	41	92	40	

Signal Information					Green	23.0	30.0	0.0	0.0	0.0	0.0																				
Cycle, s	65.0	Reference Phase	2																												
Offset, s	0	Reference Point	End																												
Uncoordinated	No	Simult. Gap E/W	On																												
Force Mode	Fixed	Simult. Gap N/S	On																												
				Yellow								5	6	7	8																
				Red																											

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)				82		549		13	20	54	21	
Back of Queue (Q), veh/ln (95 th percentile)				3.2		21.8		0.5	0.8	2.1	0.8	
Queue Storage Ratio (RQ) (95 th percentile)				0.41		2.75		0.01	0.10	0.36	0.02	
Control Delay (d), s/veh				10.9		49.6		13.9	14.3	16.0	14.2	
Level of Service (LOS)				B		D		B	B	B	B	
Approach Delay, s/veh / LOS	0.0			40.2		D	14.1		B	15.4		B
Intersection Delay, s/veh / LOS	35.3						D					

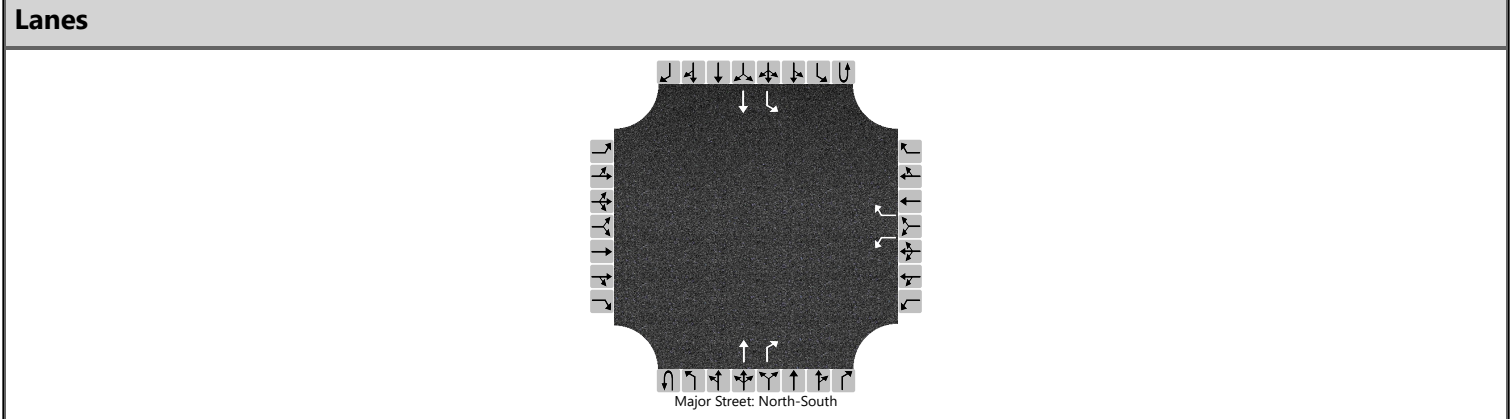




Route 1 SB and Technology Way

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DDD	Intersection	Technology Way/Route 1 SB Ramps
Agency/Co.	Langan	Jurisdiction	State
Date Performed	4/22/2025	East/West Street	Route 1 SB Ramps
Analysis Year	2028	North/South Street	Technology Way
Time Analyzed	AM	Peak Hour Factor	0.85
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	No-Build		



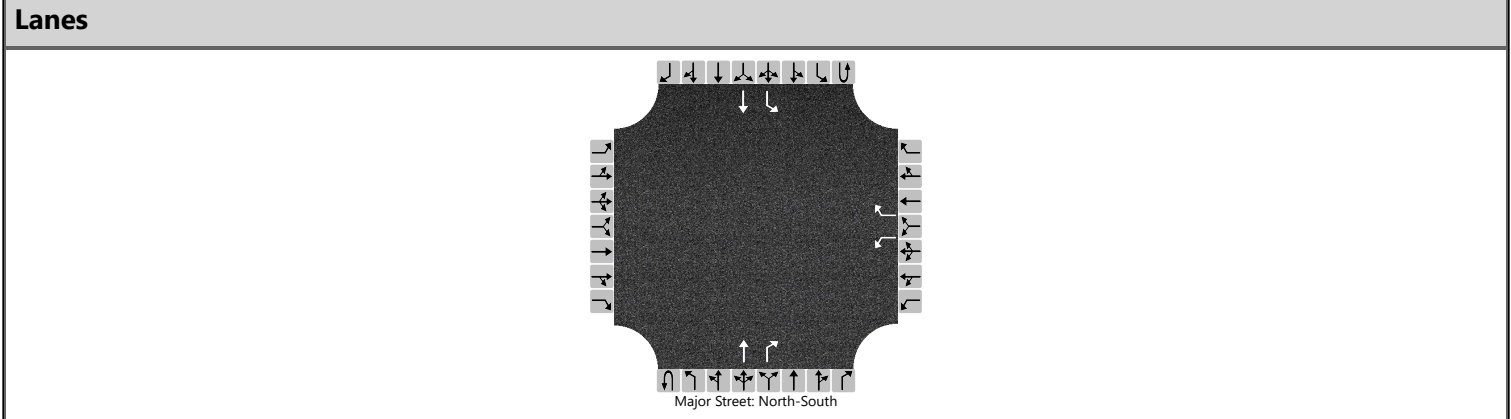
Vehicle Volumes and Adjustments																
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	1	0	0	1	1	0	1	1	0
Configuration						L		R			T	R		L	T	
Volume (veh/h)						44		21			4	8		70	39	
Percent Heavy Vehicles (%)						10		10						4		
Proportion Time Blocked																
Percent Grade (%)					2											
Right Turn Channelized					Yes				No							
Median Type Storage	Undivided															

Critical and Follow-up Headways																
Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.90		6.50						4.14		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.59		3.39						2.24		

Delay, Queue Length, and Level of Service																
Flow Rate, v (veh/h)						52		25						82		
Capacity, c (veh/h)						699		1055						1591		
v/c Ratio						0.07		0.02						0.05		
95% Queue Length, Q ₉₅ (veh)						0.2		0.1						0.2		
95% Queue Length, Q ₉₅ (ft)						5.4		2.7						5.2		
Control Delay (s/veh)						10.6		8.5						7.4		
Level of Service (LOS)						B		A						A		
Approach Delay (s/veh)					9.9								4.7			
Approach LOS					A								A			

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DDD	Intersection	Technology Way/Route 1 SB Ramps
Agency/Co.	Langan	Jurisdiction	State
Date Performed	4/22/2025	East/West Street	Route 1 SB Ramps
Analysis Year	2028	North/South Street	Technology Way
Time Analyzed	AM	Peak Hour Factor	0.85
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Build		



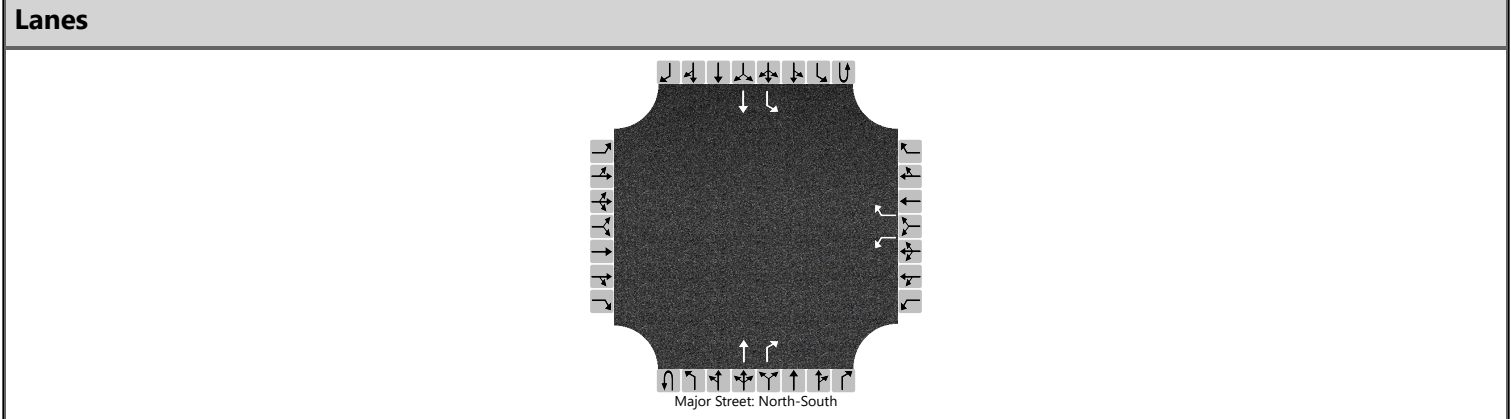
Vehicle Volumes and Adjustments																
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	1	0	0	1	1	0	1	1	0
Configuration						L		R			T	R		L	T	
Volume (veh/h)						44		85			4	8		81	39	
Percent Heavy Vehicles (%)						10		10						4		
Proportion Time Blocked																
Percent Grade (%)					2											
Right Turn Channelized					Yes				No							
Median Type Storage	Undivided															

Critical and Follow-up Headways																
Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.90		6.50						4.14		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.59		3.39						2.24		

Delay, Queue Length, and Level of Service																
Flow Rate, v (veh/h)						52		100						95		
Capacity, c (veh/h)						668		1055						1591		
v/c Ratio						0.08		0.09						0.06		
95% Queue Length, Q ₉₅ (veh)						0.3		0.3						0.2		
95% Queue Length, Q ₉₅ (ft)						8.1		8.1						5.2		
Control Delay (s/veh)						10.8		8.8						7.4		
Level of Service (LOS)						B		A						A		
Approach Delay (s/veh)					9.5								5.0			
Approach LOS					A								A			

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DDD	Intersection	Technology Way/Route 1 SB Ramps
Agency/Co.	Langan	Jurisdiction	State
Date Performed	4/22/2025	East/West Street	Route 1 SB Ramps
Analysis Year	2028	North/South Street	Technology Way
Time Analyzed	PM	Peak Hour Factor	0.94
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	No-Build		



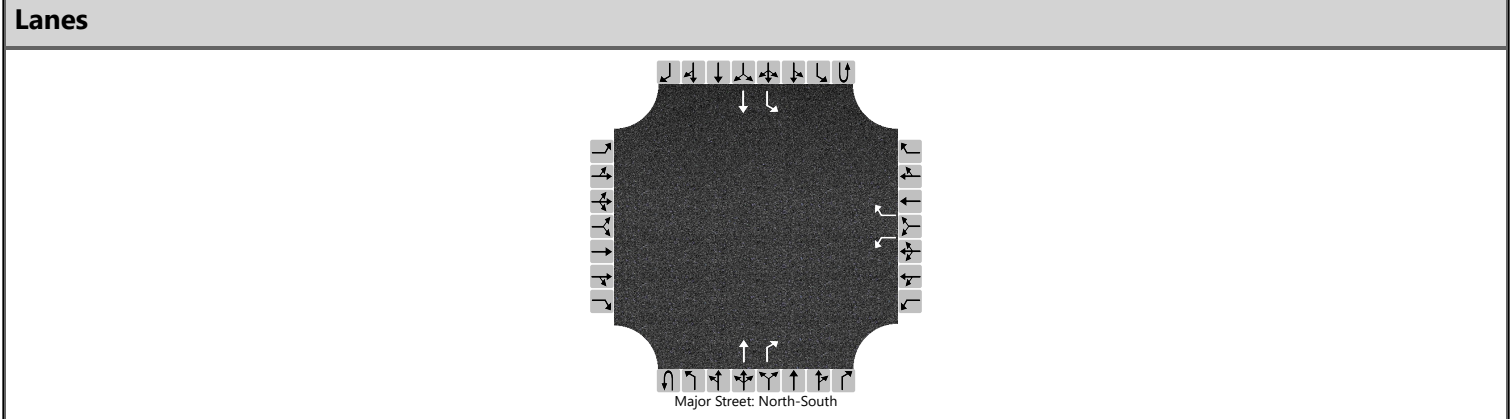
Vehicle Volumes and Adjustments																
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	1	0	0	1	1	0	1	1	0
Configuration						L		R			T	R		L	T	
Volume (veh/h)						2		3			43	33		192	7	
Percent Heavy Vehicles (%)						33		33						1		
Proportion Time Blocked																
Percent Grade (%)					2											
Right Turn Channelized					Yes				No							
Median Type Storage	Undivided															

Critical and Follow-up Headways																
Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						7.13		6.73						4.11		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.80		3.60						2.21		

Delay, Queue Length, and Level of Service																
Flow Rate, v (veh/h)						2		3						204		
Capacity, c (veh/h)						416		940						1523		
v/c Ratio						0.01		0.00						0.13		
95% Queue Length, Q ₉₅ (veh)						0.0		0.0						0.5		
95% Queue Length, Q ₉₅ (ft)						0.0		0.0						12.6		
Control Delay (s/veh)						13.7		8.8						7.7		
Level of Service (LOS)						B		A						A		
Approach Delay (s/veh)					10.8								7.5			
Approach LOS					B								A			

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DDD	Intersection	Technology Way/Route 1 SB Ramps
Agency/Co.	Langan	Jurisdiction	State
Date Performed	4/22/2025	East/West Street	Route 1 SB Ramps
Analysis Year	2028	North/South Street	Technology Way
Time Analyzed	PM	Peak Hour Factor	0.94
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Build		



Vehicle Volumes and Adjustments																
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	1	0	0	1	1	0	1	1	0
Configuration						L		R			T	R		L	T	
Volume (veh/h)						2		27			43	33		249	7	
Percent Heavy Vehicles (%)						33		33						1		
Proportion Time Blocked																
Percent Grade (%)					2											
Right Turn Channelized					Yes				No							
Median Type Storage	Undivided															

Critical and Follow-up Headways																
Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						7.13		6.73						4.11		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.80		3.60						2.21		

Delay, Queue Length, and Level of Service																
Flow Rate, v (veh/h)						2		29						265		
Capacity, c (veh/h)						330		940						1523		
v/c Ratio						0.01		0.03						0.17		
95% Queue Length, Q ₉₅ (veh)						0.0		0.1						0.6		
95% Queue Length, Q ₉₅ (ft)						0.0		3.2						15.1		
Control Delay (s/veh)						16.0		9.0						7.9		
Level of Service (LOS)						C		A						A		
Approach Delay (s/veh)					9.4								7.6			
Approach LOS					A								A			

HCS Freeway Diverge Report

Project Information

Analyst	DDD	Date	4/22/2025
Agency	Langan	Analysis Year	2028
Jurisdiction	State	Time Analyzed	AM
Project Description	No-Build	Units	U.S. Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (LD), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAFCAV)	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	4364	63
Peak Hour Factor (PHF)	0.94	0.65
Total Trucks, %	11.00	10.00
Heavy Vehicle Adjustment Factor (fHV)	0.901	0.909
Flow Rate (vi), pc/h	5153	107
Capacity (cmd), pc/h	7200	2000
Initial Adjusted Capacity (cmda), pc/h	7200	-
Final Adjusted Capacity (cmda), pc/h	7200	2000
Volume-to-Capacity Ratio (v/c)	0.72	0.05

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1887
Downstream Equilibrium Distance (LEQ), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	60.8
Flow in Lanes 1 and 2 (v12), pc/h	3266	Outer Lanes Freeway Speed (So), mi/h	79.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Ramp Junction Speed (S), mi/h	66.5
Number of Outer Lanes on Freeway (NO), ln	1	Average Density (D), pc/mi/ln	25.8
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	28.7

Service Volume Table

Target LOS	A	B	C	D	E
Freeway					
Max Service Flow Rate (MSF), pc/h/ln	1374	1118	1672	2233	2366
Service Flow Rate (SF), veh/h	3715	3022	4520	6036	6395
Service Volume, veh/h	3492	2841	4249	5674	6011
One Direction DSV, 1000 veh/day	34.9	28.4	42.5	56.7	60.1
Bi-Directional DSV, 1000 veh/day	63.5	51.7	77.3	103.2	109.3
Ramp					
Max Service Flow Rate (MSF), pc/h/ln	59	48	72	96	102
Service Flow Rate (SF), veh/h	54	44	65	87	92
Service Volume, veh/h	35	28	42	57	60
One Direction DSV, 1000 veh/day	0.3	0.3	0.4	0.6	0.6

HCS Freeway Diverge Report

Project Information

Analyst	DDD	Date	4/22/2025
Agency	Langan	Analysis Year	2028
Jurisdiction	State	Time Analyzed	AM
Project Description	Build	Units	U.S. Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (LD), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAFCAV)	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	4364	127
Peak Hour Factor (PHF)	0.94	0.65
Total Trucks, %	11.00	10.00
Heavy Vehicle Adjustment Factor (fHV)	0.901	0.909
Flow Rate (vi), pc/h	5153	215
Capacity (cmd), pc/h	7200	2000
Initial Adjusted Capacity (cmda), pc/h	7200	-
Final Adjusted Capacity (cmda), pc/h	7200	2000
Volume-to-Capacity Ratio (v/c)	0.72	0.11

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1872
Downstream Equilibrium Distance (LEQ), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	60.5
Flow in Lanes 1 and 2 (v12), pc/h	3281	Outer Lanes Freeway Speed (So), mi/h	79.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Ramp Junction Speed (S), mi/h	66.2
Number of Outer Lanes on Freeway (NO), ln	1	Average Density (D), pc/mi/ln	25.9
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	28.9

Service Volume Table

Target LOS	A	B	C	D	E
Freeway					
Max Service Flow Rate (MSF), pc/h/ln	982	1098	1662	2234	2332
Service Flow Rate (SF), veh/h	2655	2967	4491	6037	6304
Service Volume, veh/h	2496	2789	4222	5675	5926
One Direction DSV, 1000 veh/day	25.0	27.9	42.2	56.8	59.3
Bi-Directional DSV, 1000 veh/day	45.4	50.7	76.8	103.2	107.7
Ramp					
Max Service Flow Rate (MSF), pc/h/ln	85	95	144	193	202
Service Flow Rate (SF), veh/h	77	86	131	176	183
Service Volume, veh/h	50	56	85	114	119
One Direction DSV, 1000 veh/day	0.5	0.6	0.8	1.1	1.2

HCS Freeway Diverge Report

Project Information

Analyst	DDD	Date	4/22/2025
Agency	Langan	Analysis Year	2028
Jurisdiction	State	Time Analyzed	PM
Project Description	No-Build	Units	U.S. Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (LD), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAFCAV)	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	4767	17
Peak Hour Factor (PHF)	0.88	0.90
Total Trucks, %	8.00	20.00
Heavy Vehicle Adjustment Factor (fHV)	0.926	0.833
Flow Rate (vi), pc/h	5850	23
Capacity (cmd), pc/h	7200	2000
Initial Adjusted Capacity (cmda), pc/h	7200	-
Final Adjusted Capacity (cmda), pc/h	7200	2000
Volume-to-Capacity Ratio (v/c)	0.81	0.01

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2255
Downstream Equilibrium Distance (LEQ), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	61.0
Flow in Lanes 1 and 2 (v12), pc/h	3595	Outer Lanes Freeway Speed (So), mi/h	77.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Ramp Junction Speed (S), mi/h	66.5
Number of Outer Lanes on Freeway (NO), ln	1	Average Density (D), pc/mi/ln	29.3
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	31.6

Service Volume Table

Target LOS	A	B	C	D	E
Freeway					
Max Service Flow Rate (MSF), pc/h/ln	841	2400	-	-	-
Service Flow Rate (SF), veh/h	2336	6667	-	-	-
Service Volume, veh/h	2056	5867	-	-	-
One Direction DSV, 1000 veh/day	20.6	58.7	-	-	-
Bi-Directional DSV, 1000 veh/day	37.4	106.7	-	-	-
Ramp					
Max Service Flow Rate (MSF), pc/h/ln	10	26	-	-	-
Service Flow Rate (SF), veh/h	8	21	-	-	-
Service Volume, veh/h	7	19	-	-	-
One Direction DSV, 1000 veh/day	0.1	0.2	-	-	-

HCS Freeway Diverge Report

Project Information

Analyst	DDD	Date	4/22/2025
Agency	Langan	Analysis Year	2028
Jurisdiction	State	Time Analyzed	PM
Project Description	Build	Units	U.S. Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (LD), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAFCAV)	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	4767	41
Peak Hour Factor (PHF)	0.88	0.90
Total Trucks, %	8.00	20.00
Heavy Vehicle Adjustment Factor (fHV)	0.926	0.833
Flow Rate (vi), pc/h	5850	55
Capacity (cmd), pc/h	7200	2000
Initial Adjusted Capacity (cmda), pc/h	7200	-
Final Adjusted Capacity (cmda), pc/h	7200	2000
Volume-to-Capacity Ratio (v/c)	0.81	0.03

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2254
Downstream Equilibrium Distance (LEQ), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	60.9
Flow in Lanes 1 and 2 (v12), pc/h	3596	Outer Lanes Freeway Speed (So), mi/h	77.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Ramp Junction Speed (S), mi/h	66.5
Number of Outer Lanes on Freeway (NO), ln	1	Average Density (D), pc/mi/ln	29.3
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	31.6

Service Volume Table

Target LOS	A	B	C	D	E
Freeway					
Max Service Flow Rate (MSF), pc/h/ln	1290	2400	-	-	-
Service Flow Rate (SF), veh/h	3584	6667	-	-	-
Service Volume, veh/h	3153	5867	-	-	-
One Direction DSV, 1000 veh/day	31.5	58.7	-	-	-
Bi-Directional DSV, 1000 veh/day	57.3	106.7	-	-	-
Ramp					
Max Service Flow Rate (MSF), pc/h/ln	37	62	-	-	-
Service Flow Rate (SF), veh/h	31	52	-	-	-
Service Volume, veh/h	28	46	-	-	-
One Direction DSV, 1000 veh/day	0.3	0.5	-	-	-

HCS Freeway Merge Report

Project Information

Analyst	DDD	Date	4/22/2025
Agency	Langan	Analysis Year	2028
Jurisdiction	State	Time Analyzed	AM
Project Description	No-Build	Units	U.S. Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (LA), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAFCAV)	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	4364	98
Peak Hour Factor (PHF)	0.94	0.65
Total Trucks, %	11.00	10.00
Heavy Vehicle Adjustment Factor (fHV)	0.901	0.909
Demand Flow Rate (vi), pc/h Total Flow Rate (vFO), pc/h	5153 5319	166
Capacity (cmd), pc/h	7200	2000
Adjusted Capacity (cmda), pc/h	7200	2000
Volume-to-Capacity Ratio (v/c)	0.74	0.08

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	921.7	Flow Outer Lanes (vOA), pc/h/ln	2208
Downstream Equilibrium Distance (LEQ), ft	-	On-Ramp Influence Area Speed (SR), mi/h	63.6
Flow in Lanes 1 and 2 (v12), pc/h	2945	Outer Lanes Freeway Speed (SO), mi/h	69.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	3111	Ramp Junction Speed (S), mi/h	65.8
Number of Outer Lanes on Freeway (NO), ln	1	Average Density (D), pc/mi/ln	26.9
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	24.7

Service Volume Table

Target LOS	A	B	C	D	E
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Freeway					
Max Service Flow Rate (MSF), pc/h/ln	1348	1415	1989	2323	2347
Service Flow Rate (SF), veh/h	3643	3825	5375	6280	6345
Service Volume, veh/h	3424	3596	5052	5903	5964
One Direction DSV, 1000 veh/day	34.2	36.0	50.5	59.0	59.6
Bi-Directional DSV, 1000 veh/day	62.3	65.4	91.9	107.3	108.4
Ramp					
Max Service Flow Rate (MSF), pc/h/ln	90	95	133	155	157
Service Flow Rate (SF), veh/h	82	86	121	141	142
Service Volume, veh/h	53	56	78	92	93
One Direction DSV, 1000 veh/day	0.5	0.6	0.8	0.9	0.9

HCS Freeway Merge Report

Project Information

Analyst	DDD	Date	4/22/2025
Agency	Langan	Analysis Year	2028
Jurisdiction	State	Time Analyzed	AM
Project Description	Build	Units	U.S. Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (LA), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAFCAV)	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	4364	109
Peak Hour Factor (PHF)	0.94	0.65
Total Trucks, %	11.00	10.00
Heavy Vehicle Adjustment Factor (fHV)	0.901	0.909
Demand Flow Rate (vi), pc/h Total Flow Rate (vFO), pc/h	5153 5337	184
Capacity (cmd), pc/h	7200	2000
Adjusted Capacity (cmda), pc/h	7200	2000
Volume-to-Capacity Ratio (v/c)	0.74	0.09

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	925.5	Flow Outer Lanes (vOA), pc/h/ln	2208
Downstream Equilibrium Distance (LEQ), ft	-	On-Ramp Influence Area Speed (SR), mi/h	63.6
Flow in Lanes 1 and 2 (v12), pc/h	2945	Outer Lanes Freeway Speed (SO), mi/h	69.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	3129	Ramp Junction Speed (S), mi/h	65.8
Number of Outer Lanes on Freeway (NO), ln	1	Average Density (D), pc/mi/ln	27.0
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	24.9

Service Volume Table

Target LOS	A	B	C	D	E
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Freeway					
Max Service Flow Rate (MSF), pc/h/ln	646	1400	1967	2320	2342
Service Flow Rate (SF), veh/h	1747	3785	5316	6270	6329
Service Volume, veh/h	1642	3558	4997	5894	5949
One Direction DSV, 1000 veh/day	16.4	35.6	50.0	58.9	59.5
Bi-Directional DSV, 1000 veh/day	29.9	64.7	90.9	107.2	108.2
Ramp					
Max Service Flow Rate (MSF), pc/h/ln	48	104	146	172	174
Service Flow Rate (SF), veh/h	44	95	133	157	158
Service Volume, veh/h	28	61	86	102	103
One Direction DSV, 1000 veh/day	0.3	0.6	0.9	1.0	1.0

HCS Freeway Merge Report

Project Information

Analyst	DDD	Date	4/22/2025
Agency	Langan	Analysis Year	2028
Jurisdiction	State	Time Analyzed	PM
Project Description	No-Build	Units	U.S. Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (LA), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAFCAV)	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	4767	230
Peak Hour Factor (PHF)	0.88	0.90
Total Trucks, %	8.00	20.00
Heavy Vehicle Adjustment Factor (fHV)	0.926	0.833
Demand Flow Rate (vi), pc/h Total Flow Rate (vFO), pc/h	5850 6157	307
Capacity (cmd), pc/h	7200	2000
Adjusted Capacity (cmda), pc/h	7200	2000
Volume-to-Capacity Ratio (v/c)	0.86	0.15

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	1101.0	Flow Outer Lanes (vOA), pc/h/ln	2507
Downstream Equilibrium Distance (LEQ), ft	-	On-Ramp Influence Area Speed (SR), mi/h	61.5
Flow in Lanes 1 and 2 (v12), pc/h	3343	Outer Lanes Freeway Speed (SO), mi/h	67.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	3650	Ramp Junction Speed (S), mi/h	63.8
Number of Outer Lanes on Freeway (NO), ln	1	Average Density (D), pc/mi/ln	32.2
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	28.9

Service Volume Table

Target LOS	A	B	C	D	E
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Freeway					
Max Service Flow Rate (MSF), pc/h/ln	621	1336	1890	2260	2277
Service Flow Rate (SF), veh/h	1726	3712	5250	6277	6326
Service Volume, veh/h	1519	3267	4620	5524	5567
One Direction DSV, 1000 veh/day	15.2	32.7	46.2	55.2	55.7
Bi-Directional DSV, 1000 veh/day	27.6	59.4	84.0	100.4	101.2
Ramp					
Max Service Flow Rate (MSF), pc/h/ln	100	215	304	364	368
Service Flow Rate (SF), veh/h	83	179	253	303	307
Service Volume, veh/h	75	161	228	273	276
One Direction DSV, 1000 veh/day	0.7	1.6	2.3	2.7	2.8

HCS Freeway Merge Report

Project Information

Analyst	DDD	Date	4/22/2025
Agency	Langan	Analysis Year	2028
Jurisdiction	State	Time Analyzed	PM
Project Description	Build	Units	U.S. Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (LA), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAFCAV)	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	4767	287
Peak Hour Factor (PHF)	0.88	0.90
Total Trucks, %	8.00	20.00
Heavy Vehicle Adjustment Factor (fHV)	0.926	0.833
Demand Flow Rate (vi), pc/h Total Flow Rate (vFO), pc/h	5850 6233	383
Capacity (cmd), pc/h	7200	2000
Adjusted Capacity (cmda), pc/h	7200	2000
Volume-to-Capacity Ratio (v/c)	0.87	0.19

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	1117.3	Flow Outer Lanes (vOA), pc/h/ln	2507
Downstream Equilibrium Distance (LEQ), ft	-	On-Ramp Influence Area Speed (SR), mi/h	61.1
Flow in Lanes 1 and 2 (v12), pc/h	3343	Outer Lanes Freeway Speed (SO), mi/h	67.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	3726	Ramp Junction Speed (S), mi/h	63.6
Number of Outer Lanes on Freeway (NO), ln	1	Average Density (D), pc/mi/ln	32.7
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	29.4

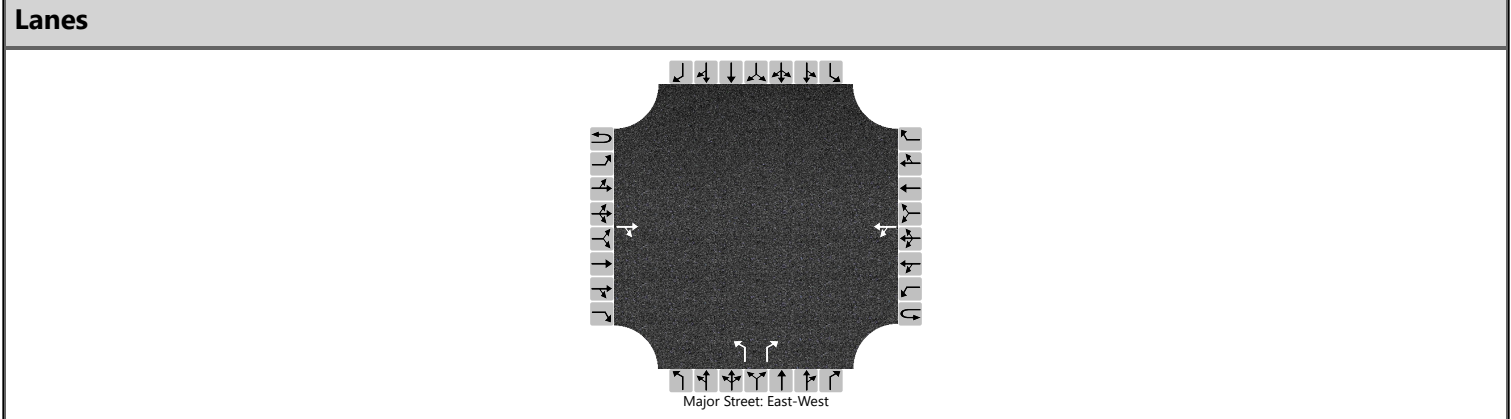
Service Volume Table

Target LOS	A	B	C	D	E
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Freeway					
Max Service Flow Rate (MSF), pc/h/ln	603	1312	1847	2232	2248
Service Flow Rate (SF), veh/h	1674	3646	5132	6200	6246
Service Volume, veh/h	1473	3208	4516	5456	5497
One Direction DSV, 1000 veh/day	14.7	32.1	45.2	54.6	55.0
Bi-Directional DSV, 1000 veh/day	26.8	58.3	82.1	99.2	99.9
Ramp					
Max Service Flow Rate (MSF), pc/h/ln	121	264	371	448	455
Service Flow Rate (SF), veh/h	101	219	309	373	379
Service Volume, veh/h	91	198	278	336	341
One Direction DSV, 1000 veh/day	0.9	2.0	2.8	3.4	3.4

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DDD	Intersection	College Farm Road East/Site Driveway
Agency/Co.	Langan	Jurisdiction	State
Date Performed	4/22/2025	East/West Street	College Farm Road East
Analysis Year	2028	North/South Street	Site Driveway
Time Analyzed	AM	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Build		



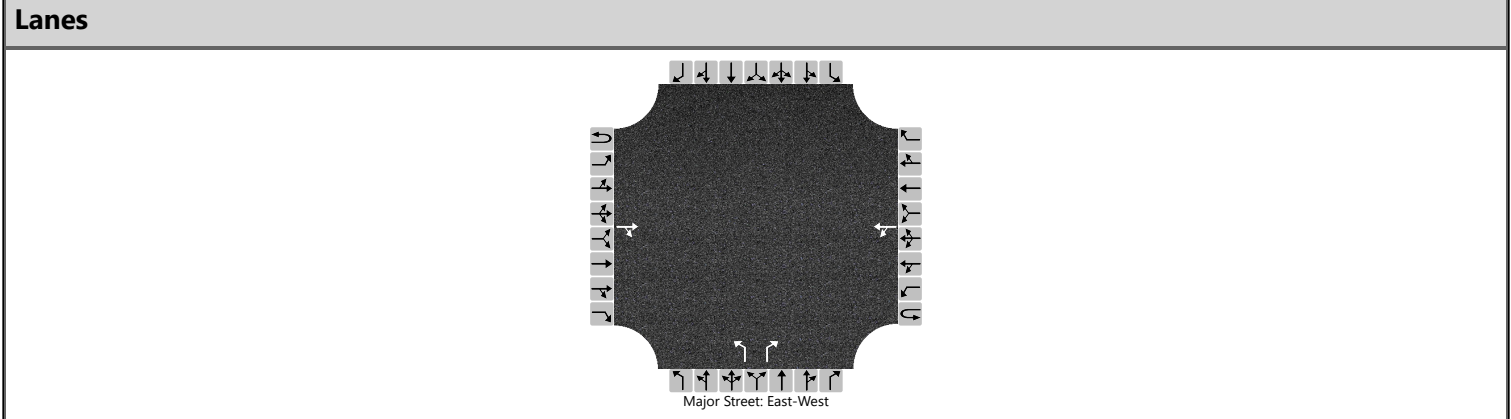
Vehicle Volumes and Adjustments																
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		1	0	1		0	0	0
Configuration				TR		LT				L		R				
Volume (veh/h)			488	60		94	9			15		16				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)									2							
Right Turn Channelized									No							
Median Type Storage	Undivided															

Critical and Follow-up Headways																
Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.13				6.83		6.43				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.23				3.53		3.33				

Delay, Queue Length, and Level of Service																
Flow Rate, v (veh/h)						102				16		17				
Capacity, c (veh/h)						976				299		508				
v/c Ratio						0.10				0.05		0.03				
95% Queue Length, Q ₉₅ (veh)						0.3				0.2		0.1				
95% Queue Length, Q ₉₅ (ft)						7.7				5.1		2.6				
Control Delay (s/veh)						9.1	1.0			17.8		12.3				
Level of Service (LOS)						A	A			C		B				
Approach Delay (s/veh)					8.4				15.0							
Approach LOS					A				B							

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DDD	Intersection	College Farm Road East/Site Driveway
Agency/Co.	Langan	Jurisdiction	State
Date Performed	4/22/2025	East/West Street	College Farm Road East
Analysis Year	2028	North/South Street	Site Driveway
Time Analyzed	PM	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Build		



Vehicle Volumes and Adjustments																
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		1	0	1		0	0	0
Configuration				TR		LT				L		R				
Volume (veh/h)			780	20		32	14			61		83				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)									2							
Right Turn Channelized									No							
Median Type Storage	Undivided															

Critical and Follow-up Headways																
Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.13				6.83		6.43				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.23				3.53		3.33				

Delay, Queue Length, and Level of Service																
Flow Rate, v (veh/h)						35				66		90				
Capacity, c (veh/h)						771				249		338				
v/c Ratio						0.05				0.27		0.27				
95% Queue Length, Q ₉₅ (veh)						0.1				1.0		1.1				
95% Queue Length, Q ₉₅ (ft)						2.6				25.6		28.2				
Control Delay (s/veh)						9.9	0.5			24.6		19.5				
Level of Service (LOS)						A	A			C		C				
Approach Delay (s/veh)					7.0				21.6							
Approach LOS					A				C							