

STIMMEL ENGINEERING

William P. Stimmel, P.E., P.P., PTOE

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March 12, 2024

Borough of Sayreville – Planning Board
167 Main Street
Sayreville, NJ 08872

Re: Masjid Sadar & Community Center
212 – 216 Ernston Road – Block 444.04, Lots 23-25, 28
Borough of Sayreville, Middlesex County, New Jersey

Honorable Board Members:

This addendum has been prepared to update the August 8, 2023 Traffic Impact Analysis (“TIA”) for the referenced property. Please note the following changes which are the focus of this addendum.

- The western driveway has been modified to eliminate left-turn egress movements, based on direction from Middlesex County.
- Updated traffic counts have been performed at the intersection of Ernston Road and Bordentown Avenue while school is in session, as recommended in the February 21, 2024 review letter from CME Associates.

Updated traffic counts were conducted at the intersection of Ernston Road and Bordentown Avenue on Friday, March 1, 2024 from 12:00 p.m. until 4:00 p.m. During the four-hour count period, overall intersection volumes were shown to be 6.9% higher than the June 16, 2023 traffic counts. Note also that the March 2024 counts were 8.2% higher than the June 2023 traffic counts when looking at the 1:00 p.m. to 2:00 p.m. period which was the focus of the traffic study

Traffic at a given location is expected to fluctuate within a range of +/- 10% on a daily basis without the impact of outside factors such as road construction, inclement weather, traffic accidents, etc. The updated traffic counts are within this range, however in order to address any concerns related to school traffic an updated analysis was performed using the same methodology as in the original TIA.

Updated Traffic Figures, HCS reports and Level of Service/Delay Tables are attached for your reference.

There are no changes to Levels of Service at the intersection of Ernston Road and Bordentown Avenue when comparing existing, no-build and build conditions. Further, there is no change in Levels of Service when comparing the Friday peak hour based on the June 2023 traffic counts and the March 2024 traffic counts with one exception. The egress movement at the western driveway improves from Level of Service "C" to Level of Service "B" due to the elimination of left-turn egress movements at this location.

Conclusion

As noted in the conclusion of the August 8, 2023 TIA, "The proposed development will have minimal impact on operations at the study intersection and site driveways." The changes to the access configuration required by the County Engineering Department and the updated traffic counts do not affect this conclusion.

Please feel free to contact the undersigned should you have any questions regarding this information.

Regards,
Stimmel Engineering



William P. Stimmel, P.E., P.P., PTOE
Principal

Attachments

March 1, 2024 Traffic Count Data
LOS/Delay Table
Traffic Figures
HCS Reports

Study Name 1- BORDENTOWN AVE AND ERNSTON RD

Start Date 03-01-2024

Start Time 12:00 PM

Site Code

Start Time	BORDENTOWN AVE Southbound			ERNSTON RD Westbound			BORDENTOWN AVE Northbound			ERNSTON RD Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
12:00 PM	12	78	18	28	121	39	0	40	78	50	30	95	
12:15 PM	14	70	22	36	123	26	0	29	76	33	37	107	
12:30 PM	14	72	27	41	95	27	0	48	97	49	26	95	
12:45 PM	11	70	26	39	91	27	0	32	93	29	31	91	
1:00 PM	11	67	18	41	125	22	0	35	87	43	37	94	
1:15 PM	11	76	27	51	103	43	0	43	86	44	35	94	
1:30 PM	12	81	35	34	123	19	0	55	85	55	36	100	
1:45 PM	9	94	43	31	106	15	0	40	96	39	36	91	
2:00 PM	9	85	45	28	113	21	0	54	100	51	41	92	
2:15 PM	16	91	42	56	88	14	0	47	99	44	33	99	
2:30 PM	15	111	27	42	97	19	0	53	88	63	41	90	
2:45 PM	16	109	39	37	107	20	0	45	116	50	38	88	
3:00 PM	19	93	12	42	88	36	0	49	97	58	45	102	
3:15 PM	9	78	44	34	116	35	0	38	109	55	35	93	
3:30 PM	14	108	27	43	95	19	0	38	113	57	39	76	
3:45 PM	15	92	28	40	95	23	0	47	106	53	31	103	
peak hour vol	43	318	123	157	457	99	0	173	354	181	144	379	
							0						107
							0						0

Levels of Service (Delay) – March 12, 2024
 Masjid Sadar
 216 Ernston Road
 Township of Sayreville, Middlesex County, New Jersey

		Friday		Sunday	
		Existing	No-Build	Existing	No-Build
Ernston Road / Bordentown Avenue	Northbound Left	C (24.3)	C (24.5)	C (23.6)	C (23.8)
	Through Right	D (41.3)	D (41.7)	D (43.1)	D (43.8)
	Southbound Left	D (36.0)	D (36.2)	D (35.0)	D (35.3)
	Through Right	C (22.7)	C (22.8)	C (23.3)	C (23.4)
	Eastbound Left	D (39.3)	D (39.6)	D (38.7)	D (39.1)
	Through Right	C (34.5)	C (34.5)	C (33.8)	C (33.9)
	Westbound Left	C (25.4)	C (25.6)	C (25.3)	C (25.4)
	Through Right	D (46.0)	D (46.8)	D (42.5)	D (43.1)
	Eastbound Left	D (35.9)	D (35.6)	C (32.4)	C (32.4)
	Through Right	C (27.2)	C (27.4)	C (27.0)	C (27.2)
	Westbound Left	D (39.9)	D (40.1)	D (37.0)	D (37.6)
	Through Right	D (40.1)	D (40.3)	D (37.1)	D (37.3)

Ernston Road / West Driveway	Southbound Left/Right	-	C (15.3)	-	B (13.7)
	Eastbound Left	-	A (9.4)	-	A (9.1)

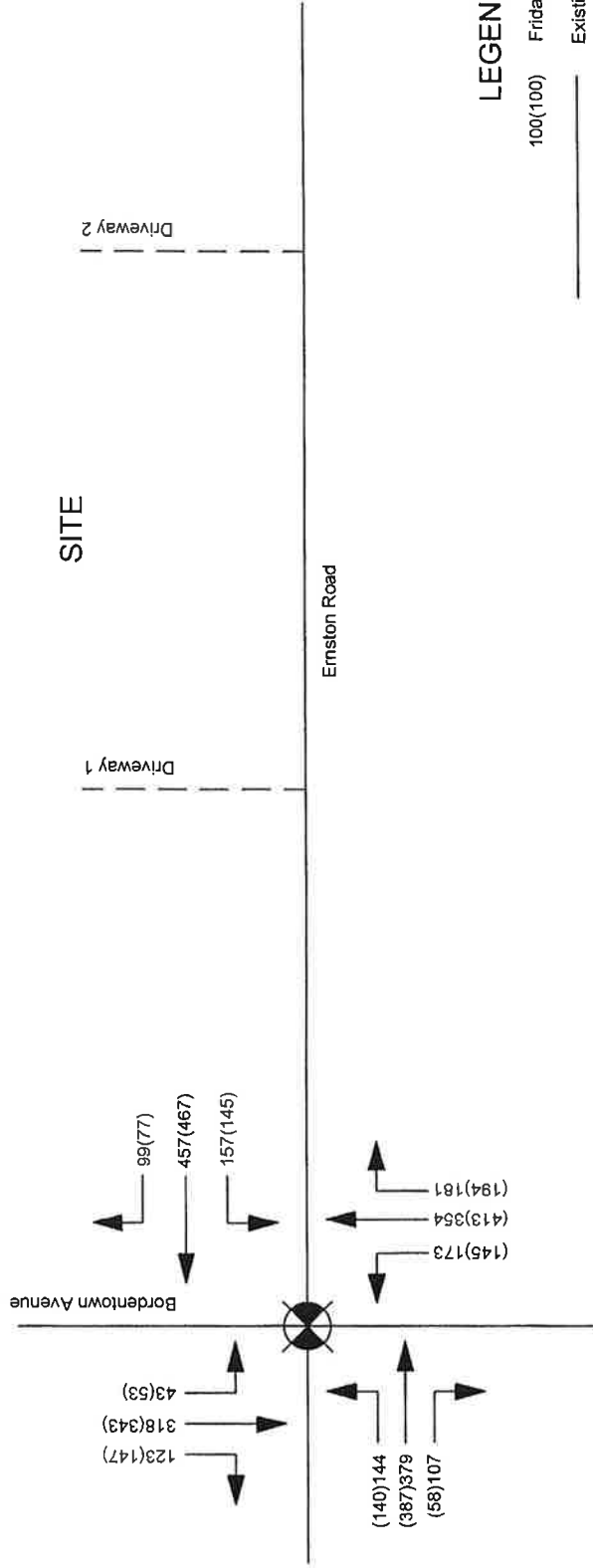
Ernston Road / East Driveway	Southbound Left/Right	-	C (23.1)	-	C (19.6)
	Eastbound Left	-	A (9.4)	-	A (9.1)

Note – Updated values are highlighted

Figure 2A
Existing Traffic Volumes
Friday (Sunday) Peak Hour

PO Box 280
 Rumorford, NJ 07070
 (201)836-2478
 NJDCA Authorization #: 28215

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LEGEND

- 100(100) Friday(Sunday) Peak Hour
- Existing Roadway
- Proposed Driveway

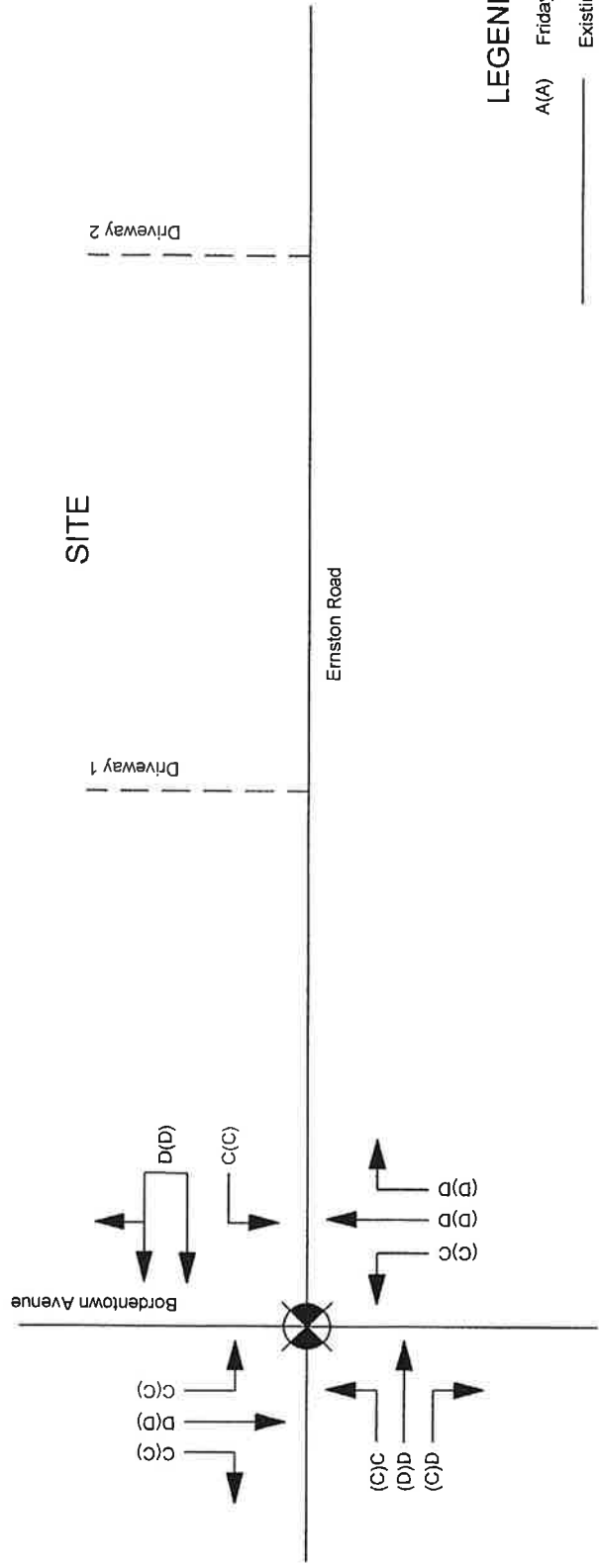
Masjid Sadar
212-216 Ernston Road
Borough of Sayreville
Middlesex County, New Jersey

Designed by:	Scale:	Sheet #:
Drawn by:	Date:	
Checked by:	Project #:	1 of 1

PO Box 280
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 (201)636-2478
 N.J.DCA Authorization #: 28215



Figure 3A
Existing Levels of Service
Friday (Sunday) Peak Hour



LEGEND

- A(A) Friday(Sunday) Peak Hour
- Existing Roadway
- Proposed Driveway

Masjid Sadar
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Borough of Sayreville
Middlesex County, New Jersey

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 Rutherford, NJ 07070
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 NJDCA Authorization #: 28215

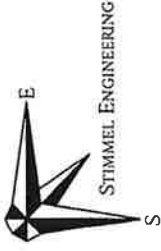
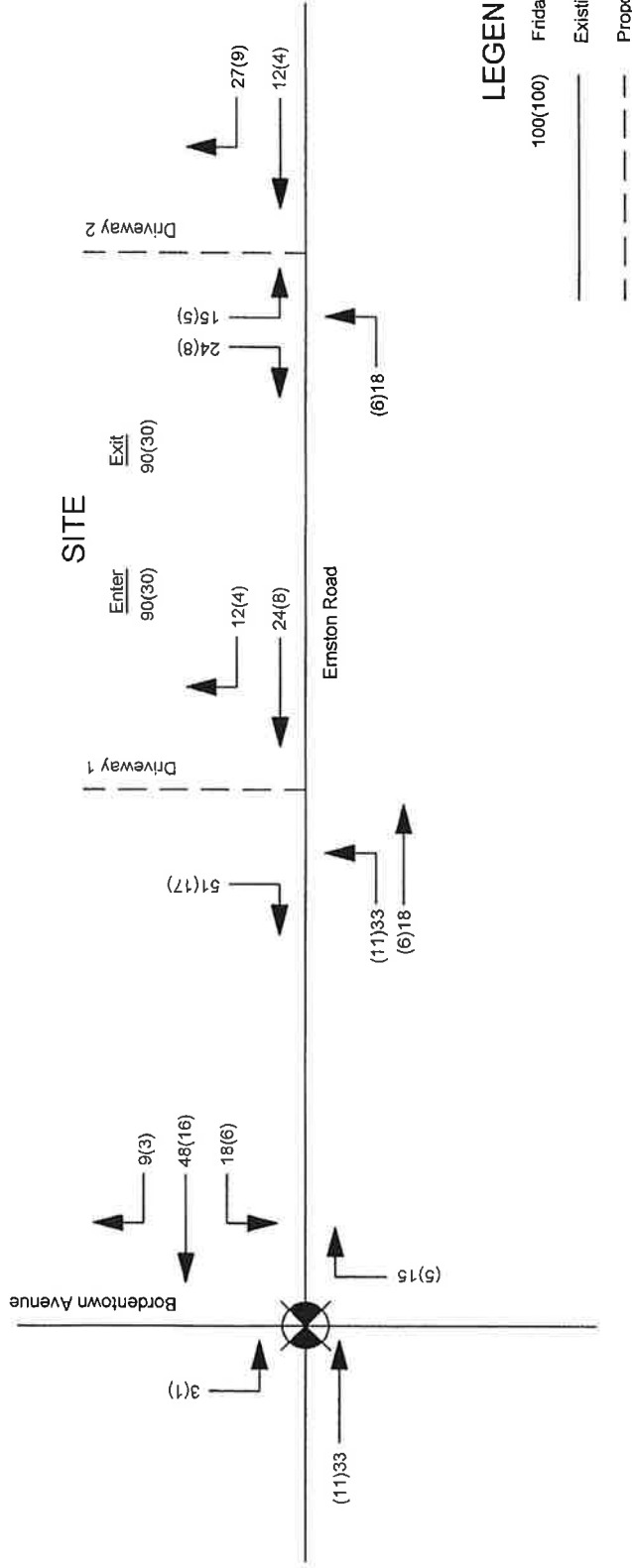


Figure 4A
Site-Generated Traffic Volumes
Friday (Sunday) Peak Hour



LEGEND

- 100(100) Friday(Sunday) Peak Hour
- Existing Roadway
- Proposed Driveway

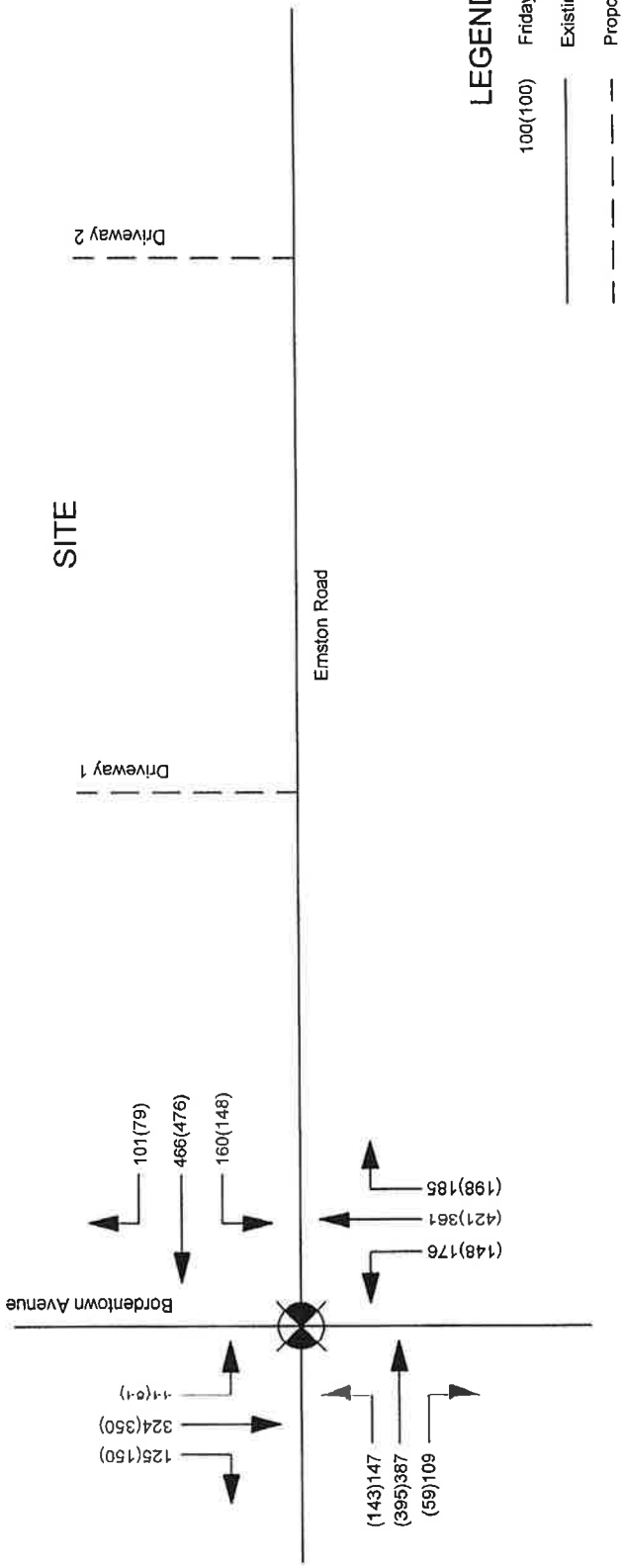
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 Middlesex County, New Jersey

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Figure 5A
"No-Build" Traffic Volumes
Friday (Sunday) Peak Hour



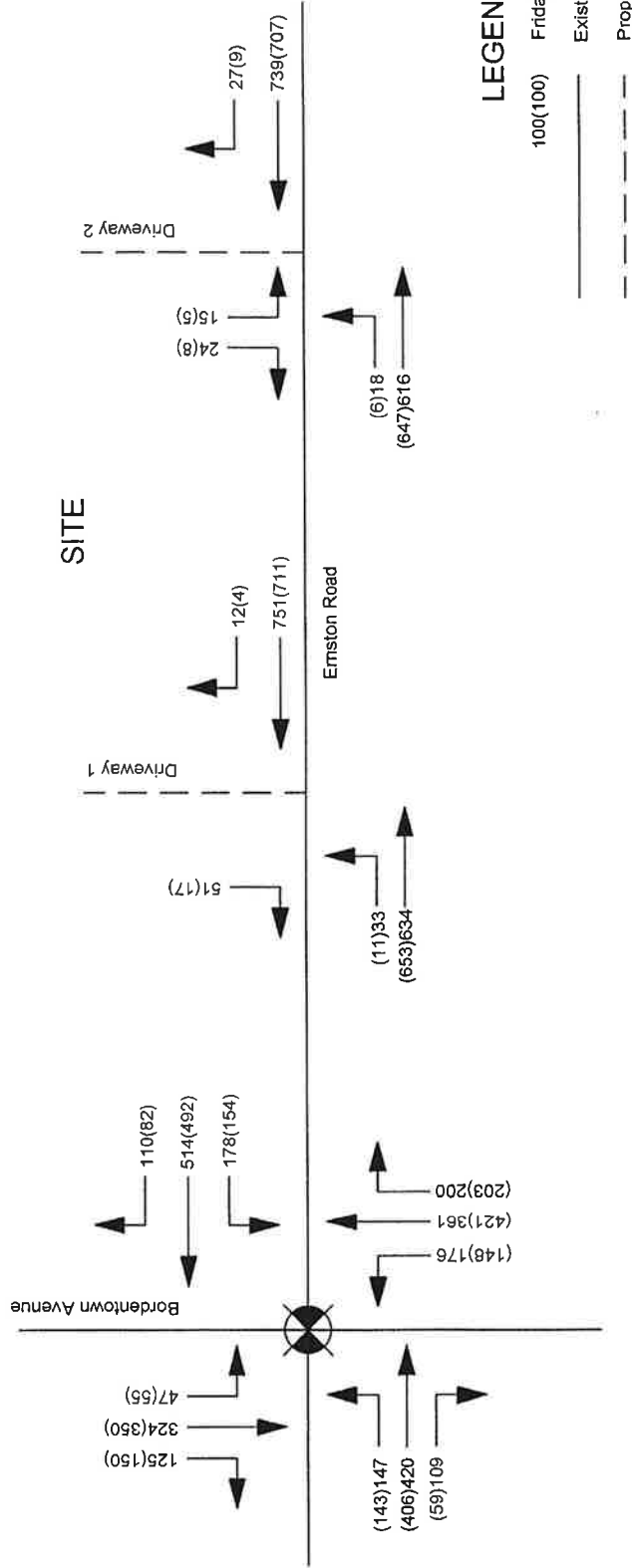
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Middlesex County, New Jersey

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Figure 6A
"Build" Traffic Volumes
Friday (Sunday) Peak Hour



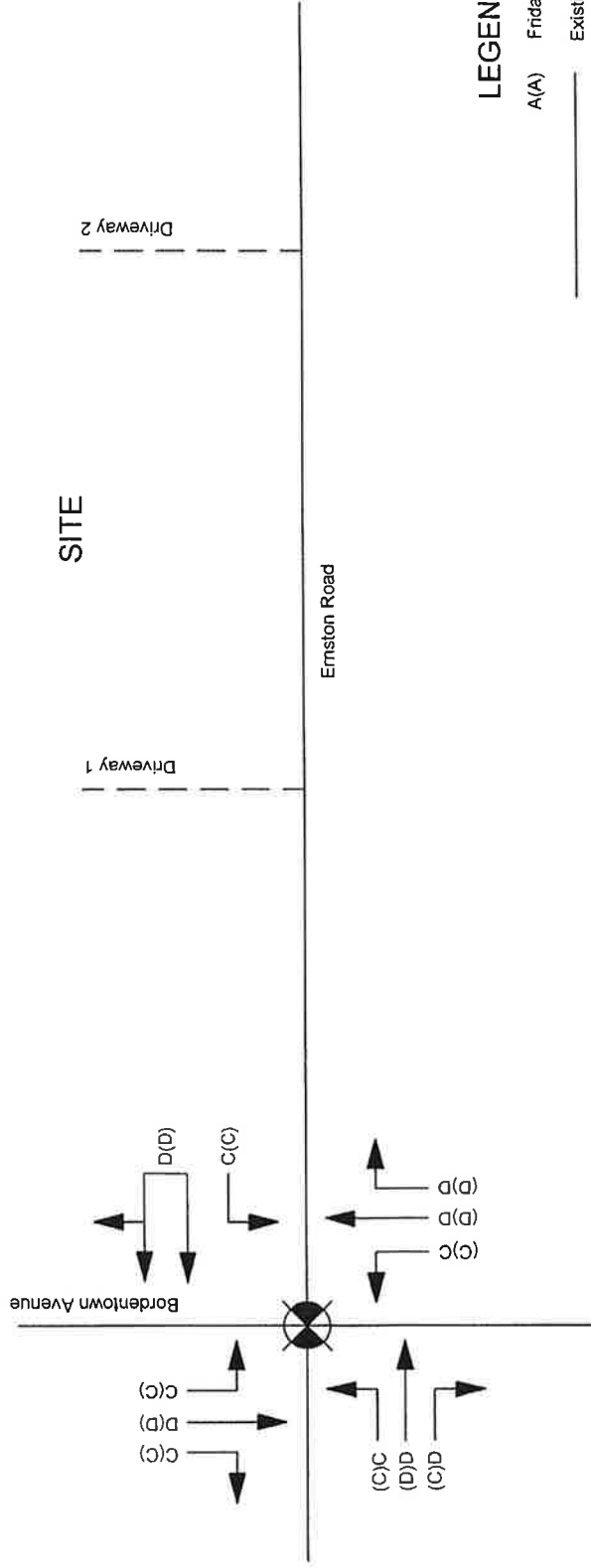
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Middlesex County, New Jersey

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Drawn by:	Date:	1 of 1
Checked by:	Project #:	

Figure 7A
"No-Build" Levels of Service
Friday (Sunday) Peak Hour



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 (201)635-2478
 NJDCA Authorization #: 28215



LEGEND

- A(A) Friday(Sunday) Peak Hour
- Existing Roadway
- - - Proposed Driveway

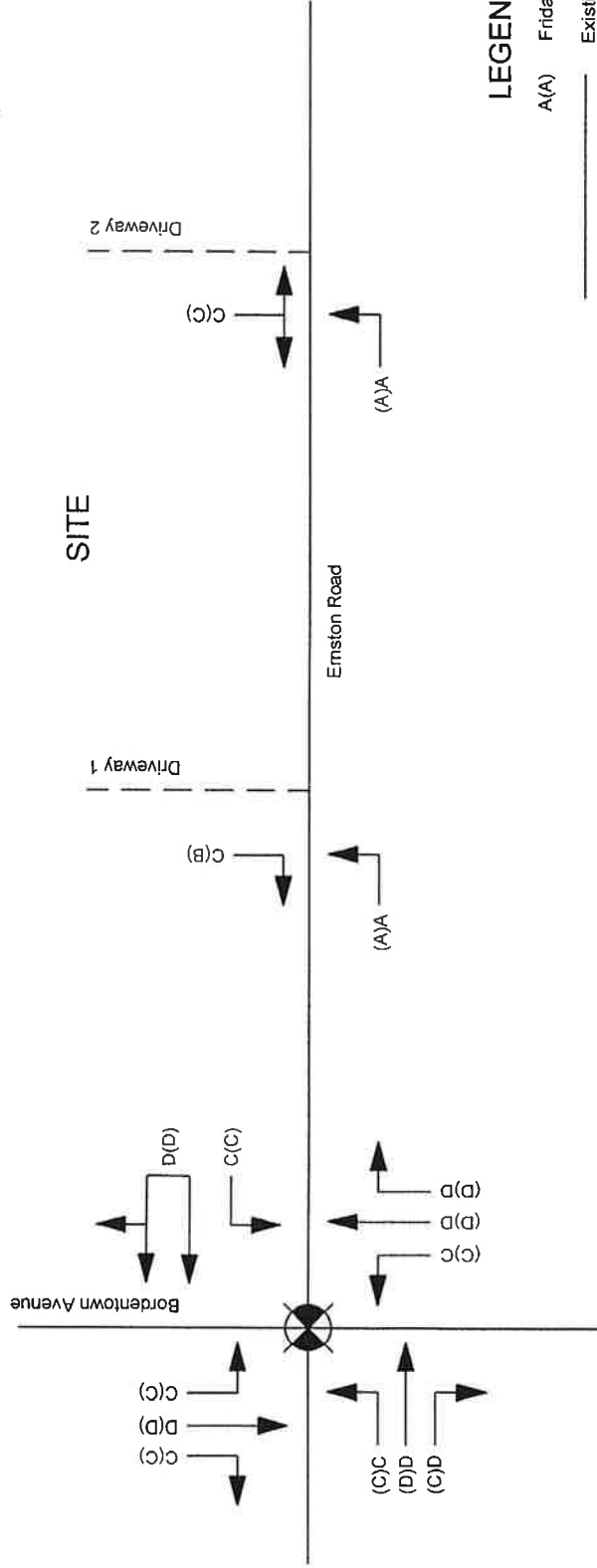
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Middlesex County, New Jersey

Designed by:	Scale:	Sheet #:
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Checked by:	Project #:	

Figure 8A
"Build" Levels of Service
Friday (Sunday) Peak Hour



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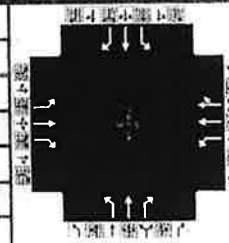


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 Borough of Sayreville
 Middlesex County, New Jersey

Designed by:	Scale:	Sheet #:
Drawn by:	Date:	1 of 1
Checked by:	Project #:	

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency		Duration, h	0.250		
Analyst		Analysis Date	Mar 12, 2024		
Jurisdiction		Time Period			
Urban Street		Analysis Year			
Intersection	Ernston Road/Bordento...	File Name	i1 friday existing.xus		
Project Description	ernston road - friday existing				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	144	379	107	157	457	99	173	354	181	43	318	123

Signal Information														
Cycle, s	131.0	Reference Phase	2											
Offset, s	0	Reference Point	End											
Uncoordinated	Yes	Simult. Gap E/W	On	Green	18.0	38.0	19.0	40.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	4.0	0.0	0.0				
				Red	0.0	0.0	0.0	0.0	0.0	0.0				

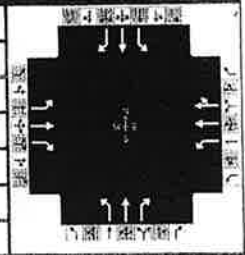
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	3.0	1.1	4.0	1.1	3.0	1.1	3.0
Phase Duration, s	22.0	42.0	22.0	42.0	23.0	44.0	23.0	44.0
Change Period, (Y+R _c), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Allow Headway (MAH), s	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
Queue Clearance Time (g _s), s	8.9	26.7	9.5	19.7	10.1	24.2	3.8	21.5
Green Extension Time (g _e), s	0.2	1.8	0.2	2.0	0.2	1.9	0.0	1.9
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	0.00	0.07	0.00	0.01	0.00	0.01	0.00	0.01

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	147	387	109	160	291	276	177	361	185	44	324	126
Adjusted Saturation Flow Rate (s), veh/h/ln	1753	1841	1404	1753	1841	1727	1753	1841	1560	1753	1841	1560
Queue Service Time (g _s), s	6.9	24.7	7.8	7.5	17.5	17.7	8.1	22.2	12.2	1.8	19.5	8.0
Cycle Queue Clearance Time (g _c), s	6.9	24.7	7.8	7.5	17.5	17.7	8.1	22.2	12.2	1.8	19.5	8.0
Green Ratio (g/C)	0.43	0.29	0.29	0.43	0.29	0.29	0.45	0.31	0.31	0.45	0.31	0.31
Capacity (c), veh/h	412	534	407	380	534	501	456	562	476	430	562	476
Volume-to-Capacity Ratio (X)	0.357	0.724	0.268	0.421	0.545	0.551	0.387	0.643	0.388	0.102	0.577	0.264
Back of Queue (Q), ft/ln (50 th percentile)												
Back of Queue (Q), veh/ln (50 th percentile)	2.9	11.7	2.7	3.1	8.0	7.6	3.3	10.3	4.7	0.8	8.9	3.0
Queue Storage Ratio (RQ) (50 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d ₁), s/veh	25.2	41.8	35.8	26.9	39.2	39.3	24.1	39.3	35.9	22.6	38.4	34.4
Incremental Delay (d ₂), s/veh	0.2	4.2	0.1	0.3	0.7	0.8	0.2	2.0	0.2	0.0	1.0	0.1
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	25.4	46.0	35.9	27.2	39.9	40.1	24.3	41.3	36.0	22.7	39.3	34.5
Level of Service (LOS)	C	D	D	C	D	D	C	D	D	C	D	C
Approach Delay, s/veh / LOS	39.6		D	37.1		D	35.8		D	36.6		D
Intersection Delay, s/veh / LOS	37.3						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.13	B	2.13	B	2.13	B	2.30	B
Bicycle LOS Score / LOS	1.55	B	1.09	A	1.68	B	1.30	A

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency		Duration, h	0.250			
Analyst		Analysis Date	Mar 12, 2024		Area Type	Other
Jurisdiction		Time Period			PHF	0.98
Urban Street		Analysis Year			Analysis Period	1> 7:00
Intersection	Ernston Road/Bordento...	File Name	i1 friday no build.xus			
Project Description	ernston road - friday no build					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	147	387	109	160	466	101	176	361	185	44	324	125

Signal Information				Signal Phases						Signal Diagram							
Cycle, s	131.0	Reference Phase	2	Green	18.0	38.0	19.0	40.0	0.0	0.0	Green	18.0	38.0	19.0	40.0	0.0	0.0
Offset, s	0	Reference Point	End	Yellow	4.0	4.0	4.0	4.0	0.0	0.0	Yellow	4.0	4.0	4.0	4.0	0.0	0.0
Uncoordinated	Yes	Simult. Gap E/W	On	Red	0.0	0.0	0.0	0.0	0.0	0.0	Red	0.0	0.0	0.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On														

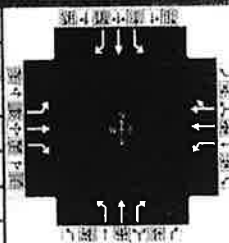
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	3.0	1.1	4.0	1.1	3.0	1.1	3.0
Phase Duration, s	22.0	42.0	22.0	42.0	23.0	44.0	23.0	44.0
Change Period, (Y+R _c), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Allow Headway (MAH), s	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
Queue Clearance Time (g _s), s	9.0	27.4	9.7	20.1	10.2	24.8	3.9	21.9
Green Extension Time (g _e), s	0.2	1.8	0.2	2.1	0.2	1.9	0.0	2.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	0.00	0.09	0.00	0.01	0.00	0.02	0.00	0.01

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	150	395	111	163	297	282	180	368	189	45	331	128
Adjusted Saturation Flow Rate (s), veh/h/ln	1753	1841	1560	1753	1841	1727	1753	1841	1560	1753	1841	1560
Queue Service Time (g _s), s	7.0	25.4	7.1	7.7	17.9	18.1	8.2	22.8	12.5	1.9	19.9	8.1
Cycle Queue Clearance Time (g _c), s	7.0	25.4	7.1	7.7	17.9	18.1	8.2	22.8	12.5	1.9	19.9	8.1
Green Ratio (g/C)	0.43	0.29	0.29	0.43	0.29	0.29	0.45	0.31	0.31	0.45	0.31	0.31
Capacity (c), veh/h	408	534	452	375	534	501	452	562	476	425	562	476
Volume-to-Capacity Ratio (X)	0.368	0.740	0.246	0.436	0.556	0.562	0.398	0.655	0.396	0.106	0.588	0.268
Back of Queue (Q), ft/ln (50 th percentile)												
Back of Queue (Q), veh/ln (50 th percentile)	2.9	12.1	2.7	3.2	8.2	7.8	3.4	10.5	4.8	0.8	9.1	3.1
Queue Storage Ratio (RQ) (50 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d ₁), s/veh	25.4	42.0	35.5	27.1	39.4	39.4	24.3	39.5	36.0	22.8	38.5	34.4
Incremental Delay (d ₂), s/veh	0.2	4.8	0.1	0.3	0.8	0.9	0.2	2.2	0.2	0.0	1.1	0.1
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	25.6	46.8	35.6	27.4	40.1	40.3	24.5	41.7	36.2	22.8	39.6	34.5
Level of Service (LOS)	C	D	D	C	D	D	C	D	D	C	D	C
Approach Delay, s/veh / LOS	40.1	D		37.4	D		36.1	D			36.8	D
Intersection Delay, s/veh / LOS	37.6						D					

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS	2.13	B	2.13	B
Bicycle LOS Score / LOS	1.57	B	1.10	A

HCS Signalized Intersection Results Summary

General Information				Intersection Information			
Agency		Duration, h	0.250				
Analyst		Analysis Date	Mar 12, 2024				
Jurisdiction		Time Period					
Urban Street		Analysis Year					
Intersection	Ernston Road/Bordento...	File Name	i1 friday build.xus				
Project Description	ernston road - friday build						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	147	420	109	178	514	110	176	361	200	47	324	125

Signal Information				Signal Timing (s)							Signal Phases				
Cycle, s	131.0	Reference Phase	2	Green	18.0	38.0	19.0	40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Offset, s	0	Reference Point	End	Yellow	4.0	4.0	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uncoordinated	Yes	Simult. Gap E/W	On	Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On												

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	3.0	1.1	4.0	1.1	3.0	1.1	3.0
Phase Duration, s	22.0	42.0	22.0	42.0	23.0	44.0	23.0	44.0
Change Period, (Y+R _c), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Allow Headway (MAH), s	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
Queue Clearance Time (g _s), s	9.0	30.2	10.7	22.3	10.2	24.8	4.0	21.9
Green Extension Time (g _e), s	0.2	1.8	0.2	2.2	0.2	1.9	0.0	2.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	0.00	0.25	0.01	0.02	0.00	0.02	0.00	0.01

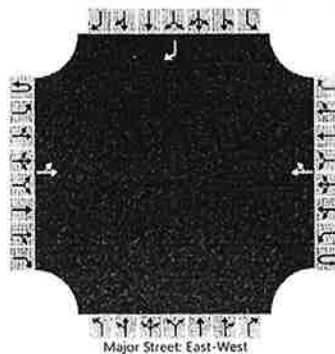
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	150	429	111	182	327	309	180	368	204	48	331	128
Adjusted Saturation Flow Rate (s), veh/h/ln	1753	1841	1560	1753	1841	1728	1753	1841	1560	1753	1841	1560
Queue Service Time (g _s), s	7.0	28.2	7.1	8.7	20.1	20.3	8.2	22.8	13.7	2.0	19.9	8.1
Cycle Queue Clearance Time (g _c), s	7.0	28.2	7.1	8.7	20.1	20.3	8.2	22.8	13.7	2.0	19.9	8.1
Green Ratio (g/C)	0.43	0.29	0.29	0.43	0.29	0.29	0.45	0.31	0.31	0.45	0.31	0.31
Capacity (c), veh/h	389	534	452	352	534	501	452	562	476	425	562	476
Volume-to-Capacity Ratio (X)	0.385	0.803	0.246	0.516	0.613	0.617	0.398	0.655	0.428	0.113	0.588	0.268
Back of Queue (Q), ft/ln (50 th percentile)												
Back of Queue (Q), veh/ln (50 th percentile)	2.9	13.9	2.7	3.6	9.3	8.8	3.4	10.5	5.2	0.8	9.1	3.1
Queue Storage Ratio (RQ) (50 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d ₁), s/veh	25.8	43.0	35.5	28.3	40.1	40.2	24.3	39.5	36.4	22.8	38.5	34.4
Incremental Delay (d ₂), s/veh	0.2	8.0	0.1	0.6	1.5	1.7	0.2	2.2	0.2	0.0	1.1	0.1
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	26.1	51.0	35.6	28.9	41.7	41.9	24.5	41.7	36.6	22.8	39.6	34.5
Level of Service (LOS)	C	D	D	C	D	D	C	D	D	C	D	C
Approach Delay, s/veh / LOS	43.1	D		38.9	D		36.2	D		36.8	D	
Intersection Delay, s/veh / LOS	38.8						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.13	B	2.13	B	2.13	B	2.30	B
Bicycle LOS Score / LOS	1.63	B	1.16	A	1.73	B	1.32	A

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	W Stimmel			Intersection	Ernston-West Drive (d1)		
Agency/Co.				Jurisdiction			
Date Performed	3/12/24			East/West Street	Ernston Road		
Analysis Year	2024			North/South Street	West Driveway		
Time Analyzed				Peak Hour Factor	0.98		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	ernston road - friday build						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	0	1
Configuration		LT						TR								R
Volume (veh/h)		33	634				751	12								51
Percent Heavy Vehicles (%)		0														0
Proportion Time Blocked																
Percent Grade (%)																0
Right Turn Channelized																No
Median Type Storage	Undivided															

Critical and Follow-up Headways

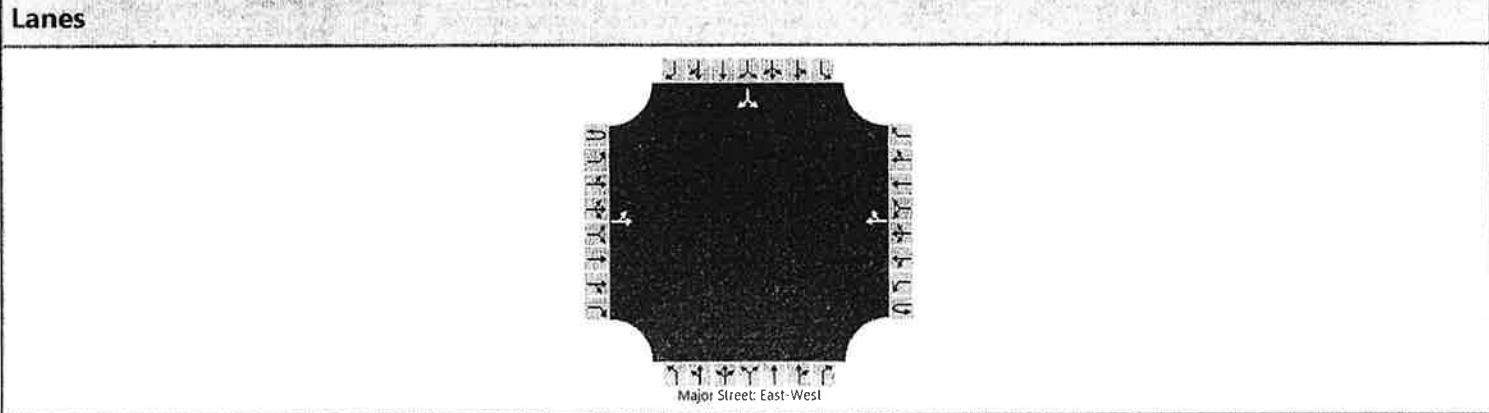
Base Critical Headway (sec)		4.1															6.2
Critical Headway (sec)		4.10															6.20
Base Follow-Up Headway (sec)		2.2															3.3
Follow-Up Headway (sec)		2.20															3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		34															52
Capacity, c (veh/h)		847															402
v/c Ratio		0.04															0.13
95% Queue Length, Q ₉₅ (veh)		0.1															0.4
Control Delay (s/veh)		9.4	0.6														15.3
Level of Service (LOS)		A	A														C
Approach Delay (s/veh)		1.0														15.3	
Approach LOS		A														C	

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	W Stimmel	Intersection	Ernston-East Drive (d2)
Agency/Co.		Jurisdiction	
Date Performed	3/12/24	East/West Street	Ernston Road
Analysis Year	2024	North/South Street	East Driveway
Time Analyzed		Peak Hour Factor	0.98
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	ernston road - friday build		



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12	
Priority																	
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0	
Configuration		LT						TR								LR	
Volume (veh/h)		18	616				739	27						15		24	
Percent Heavy Vehicles (%)		0												0		0	
Proportion Time Blocked																	
Percent Grade (%)														0			
Right Turn Channelized																	
Median Type Storage	Undivided																

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.10												6.40		6.20
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.20												3.50		3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		18														40	
Capacity, c (veh/h)		845														239	
v/c Ratio		0.02														0.17	
95% Queue Length, Q ₉₅ (veh)		0.1														0.6	
Control Delay (s/veh)		9.4	0.3													23.1	
Level of Service (LOS)		A	A													C	
Approach Delay (s/veh)		0.6												23.1			
Approach LOS		A												C			

HCS Two-Way Stop-Control Report

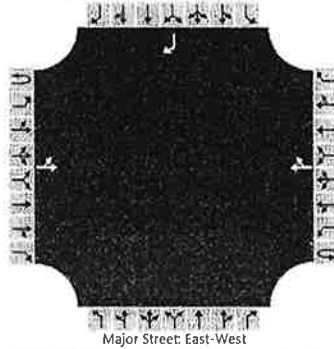
General Information

Analyst	W Stimmel
Agency/Co.	
Date Performed	3/12/24
Analysis Year	2024
Time Analyzed	
Intersection Orientation	East-West
Project Description	ernston road - sunday build

Site Information

Intersection	Ernston-West Drive (d1)
Jurisdiction	
East/West Street	Ernston Road
North/South Street	West Driveway
Peak Hour Factor	0.99
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	0	1
Configuration		LT						TR								R
Volume (veh/h)		11	653				711	4								17
Percent Heavy Vehicles (%)		0														0
Proportion Time Blocked																
Percent Grade (%)																0
Right Turn Channelized																No
Median Type Storage																Undivided

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1														6.2
Critical Headway (sec)		4.10														6.20
Base Follow-Up Headway (sec)		2.2														3.3
Follow-Up Headway (sec)		2.20														3.30

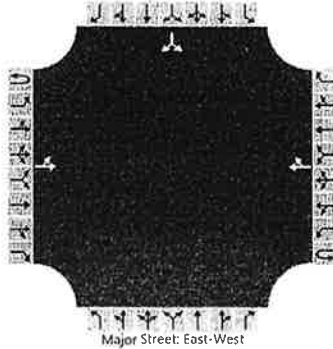
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11														17	
Capacity, c (veh/h)		889														431	
v/c Ratio		0.01														0.04	
95% Queue Length, Q ₉₅ (veh)		0.0														0.1	
Control Delay (s/veh)		9.1	0.2													13.7	
Level of Service (LOS)		A	A													B	
Approach Delay (s/veh)		0.3												13.7			
Approach LOS		A												B			

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	W Stimmel			Intersection	Ernston-East Drive (d2)		
Agency/Co.				Jurisdiction			
Date Performed	3/12/24			East/West Street	Ernston Road		
Analysis Year	2024			North/South Street	East Driveway		
Time Analyzed				Peak Hour Factor	0.99		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	ernston road - sunday build						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		6	647				707	9						5		8
Percent Heavy Vehicles (%)		0												0		0
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.10												6.40		6.20
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.20												3.50		3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		6														13	
Capacity, c (veh/h)		888														259	
v/c Ratio		0.01														0.05	
95% Queue Length, Q ₉₅ (veh)		0.0														0.2	
Control Delay (s/veh)		9.1	0.1													19.6	
Level of Service (LOS)		A	A													C	
Approach Delay (s/veh)		0.2												19.6			
Approach LOS		A												C			