

TRAFFIC IMPACT STUDY

For

**BHT Properties Group, LLC
Proposed Construction Equipment
& Materials Storage Facility**

Property Located at:

248 Stickles Pond Road
Block 151 - Lot 21
Township of Andover, Sussex County, NJ

Prepared by:



**DYNAMIC
TRAFFIC**

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3527-99-001TE

INTRODUCTION

It is proposed to construct a construction equipment and materials storage facility on a parcel of land currently occupied by a former airport runway, located along the westbound side of Stickles Pond Road east of US Route 206 in Andover Township, Sussex County, New Jersey, see Figure 1 in Appendix A. The site is designated as Block 151 - Lot 21 on the Township of Andover Tax Maps. It is proposed to develop the site with a construction materials and equipment storage facility, including the construction of a 12,860 SF office (The Project). The site will serve as an outdoor storage facility for special order construction materials and equipment with a construction business office and receiving area. The site is located within the C/I - Commercial Industrial District. Access to the site is proposed to be provided via a left/right turn in/right turn out driveway along Stickles Pond Road.

Dynamic Traffic LLC has been retained to prepare this study to assess the traffic impact associated with the construction of The Project on the adjacent roadway network. This study documents the methodology, analyses, findings and conclusions of our study and includes:

- A detailed field inspection was conducted to obtain an inventory of existing roadway geometry, traffic control, and location and geometry of existing driveways and intersections.
- Existing traffic data was collected via manual turning movement (MTM) counts during the weekday AM and weekday PM peak periods at the intersection of:
 - US Route 206 and Greendale Road (CR 611)/Stickles Pond Road
- Existing traffic volumes were normalized based on historical data to account for impacts caused by COVID-19.
- Projections of traffic to be generated by the proposed development were prepared based upon the operational characteristics of the facility as provided by the client. Site traffic was then assigned to the adjacent street system based upon the anticipated directional distribution.
- Capacity analyses were conducted for the Existing, No Build, and Build conditions for the study intersections.
- The proposed point of ingress and egress was inspected for adequacy of geometric design, spacing and/or alignment to streets and driveways on the opposite side of the street, relationship to other driveways adjacent to the development, and conformance with accepted design standards.
- The site plan as designed was reviewed for sufficiency in accommodating large wheel base vehicles such as delivery trucks, refuse trucks, and emergency vehicles.
- The parking layout and supply was assessed based on accepted design standards, local requirements, and operational characteristics.

EXISTING CONDITIONS

A review of the existing roadway conditions near the proposed site was conducted to provide the basis for assessing the traffic impact of the development. This included field investigations of the surrounding roadways and intersections, collection of traffic volume data, and extensive analyses.

Existing Roadway Conditions

The following are descriptions of the roadways in the study area:

US Route 206 is a Rural Principal Arterial roadway under New Jersey Department of Transportation (NJDOT) jurisdiction with a general north/south orientation. In the vicinity of the site the posted speed limit is 50 MPH and the roadway provides one travel lane in each direction. On-street parking is not permitted. Curbing is provided along the frontage of certain developments, while sidewalk is not provided along either side of the roadway. US Route 206 provides a slightly curved horizontal alignment and a rolling vertical alignment. The land uses along US Route 206 in the vicinity of The Project are primarily commercial.

Greendale Road (CR 611) is a Rural Minor Collector under Sussex County jurisdiction with a general east/west orientation. In the vicinity of the site the posted speed limit is 40 MPH and the roadway provides one travel lane in each direction. On-street parking is not permitted, and curb and sidewalk are not provided along either side of the roadway. Greendale Road provides a curved horizontal alignment and a downgrade from east to west. The land uses along Greendale Road in the vicinity of The Project are primarily residential.

Stickles Pond Road is an Urban Local roadway under Andover Township jurisdiction with a general east/west orientation. In the vicinity of the site the posted speed limit is 35 MPH and the roadway provides one travel lane in each direction. On-street parking is not permitted, and curb and sidewalk are not provided along either side of the roadway. Stickles Pond Road provides a curved horizontal alignment and a downgrade from east to west. The land uses along Stickles Pond Road in the vicinity of The Project are a mixture of industrial and residential.

Existing Traffic Volumes

Manual turning movement (MTM) counts were conducted on Thursday, July 30, 2020 from 7:00 to 9:00 AM and from 4:30 to 6:30 PM at the intersection of US Route 206 and Greendale Road (CR 611)/Stickles Pond Road. Review of the collected traffic data reveals that the weekday morning peak street hour (PSH) occurs between 7:30 - 8:30 AM and the weekday evening PSH occurs between 4:30 - 5:30 PM. Note that the 2020 counts were increased to better represent existing 2021 traffic volumes by applying a growth rate of 1.75% per year obtained from the NJDOT Annual Background Growth Rate Table for a period of one year. Figure 2, located in the Appendix, shows the existing peak hour traffic volumes at the study intersections. All traffic counts are contained in Appendix B.

It should be noted that various protocols associated with the COVID-19 pandemic were in effect as of the time of the traffic counts. As a result, current traffic volumes on the surrounding roadways are atypically low at this time and would not be representative of "existing" traffic conditions. Therefore, historical traffic volume data has been reviewed and compared with current traffic conditions. The following Automatic Traffic Recorder (ATR) counts have been obtained from the NJDOT count database:



- US Route 206 north of Stickles Pond Road - Tuesday, April 18, 2017
- Stickles Pond Road east of US Route 206 - Wednesday, August 15, 2018
- Greendale Road west of US Route 206 - Wednesday, August 15, 2018

In order to better represent 2021 traffic volumes, each NJDOT ATR count was grown utilizing its respective annual growth rate contained within the NJDOT Annual Background Growth Rate Table for the appropriate number of years. The historical traffic volumes representative of "existing" conditions were then compared to the MTM counts. The volumes along Route 206 were found to be higher than or representative of typical existing conditions, while the volumes along both Stickles Pond Road and Greendale Road were both found to be lower than the historical volumes representative of "existing" conditions. Adjustment factors of 1.51 and 1.17 were then applied to the eastbound approach weekday morning and weekday evening peak hour volumes, respectively, and adjustment factors of 2.07 and 1.34 were then applied to the westbound approach weekday morning and weekday evening peak hour volumes, respectively. Additionally, the movements that were still less than the highest peak hour volumes of the historical volumes representative of "existing" conditions were also factored to develop traffic volumes that best represent typical "existing" conditions. Located in Appendix A, Figure 3 shows the adjusted existing peak hour traffic volumes at the study intersections.

Existing Capacity Analysis

The methodology utilized in the capacity analyses is described in the *Highway Capacity Manual*, published by the Transportation Research Board. In general, the term Level of Service (LOS) is used to provide a "qualitative" evaluation of capacity based upon certain "quantitative" calculations related to empirical values, such as traffic volume and intersection control.

At signalized intersections, factors that affect the various approach capacities include width of approach, number of lanes, signal "green time", turning percentages, truck volumes, etc. However, delays cannot be related to capacity in a simple one-to-one fashion. For example, it is possible to have delays in the Level of Service "F" range without exceeding roadway capacity. Substantial delays can exist without exceeding capacity if one or more of the following conditions exist: long signal cycle lengths; a particular traffic movement experiences a long red time; or progressive movement for a particular lane group is poor. Table I describes the level of service ranges for signalized intersections.

An unsignalized (STOP sign controlled) driveway or side street along a through route is seldom critical from an overall capacity standpoint, however, it may be of great significance to the capacity of the minor cross-route, and it may influence the quality of traffic flow on both. When analyzing an unsignalized intersection, it is assumed that both the major street through and right turn movements are unimpeded and have the right-of-way over all side street traffic and left turns from the major street. All other turning movements in the intersection cross, merge with, or are otherwise impeded by major street movements. Traffic delays at unsignalized intersections are determined by sequentially processing these impeded movements. Table II describes the level of service ranges for unsignalized (stop controlled) intersections.

**Table I
Level of Service Criteria
for Signalized Intersections**

Level of Service	Average Control Delay (seconds per vehicle)
A	0.0 to 10.0
B	10.1 to 20.0
C	20.1 to 35.0
D	35.1 to 55.0
E	55.1 to 80.0
F	greater than 80.0

**Table II
Level of Service Criteria
for Unsignalized Intersections**

Level of Service	Average Control Delay (seconds per vehicle)
a	0.0 to 10.0
b	10.1 to 15.0
c	15.1 to 25.0
d	25.1 to 35.0
e	35.1 to 50.0
f	greater than 50.0

It should be noted that the analyses within the *Highway Capacity Manual* assume a random arrival for all the movements, which may not be the case if an adjacent traffic signal is present that platoons vehicles, such as the signalized intersection of Route 206 and Greendale Road (CR 611)/Stickles Pond Road.

All capacity analyses were performed utilizing Synchro 11 software. Table III summarizes the existing levels of service (LOS) and delays. All capacity analysis calculation worksheets are contained in Appendix C.

**Table III
Existing Levels of Service**

Intersection	Direction/ Movement		AM PSH	PM PSH
	Route 206 & Greendale Road/ Stickles Pond Road	EB	LT	D (47)
R			A (0)	A (2)
WB		LTR	C (30)	C (32)
NB		LTR	A (9)	B (13)
SB		LTR	B (13)	B (12)
Overall			B (17)	B (18)

A (#) - Signalized Intersection Level of Service (seconds of delay per vehicle)

The following are discussions pertaining to each of the existing intersections analyzed. It should be noted that the existing percentage of trucks and peak hour factors were used in the existing analysis.

Route 206 and Greendale Road/Stickles Pond Road

Greendale Road and Stickles Pond Road both intersect Route 206 to form a four-leg intersection controlled by a traffic signal. The signal timing directive was obtained from the New Jersey Department of Transportation which indicates that a two-phase variable background cycle is utilized (the traffic signal timing directive is included in Appendix B).

The eastbound approach of Greendale Road provides a shared left turn/through lane and a dedicated right turn lane, while the westbound approach of Stickles Pond Road provides a shared left turn/through/right turn lane. The northbound and southbound approaches of Route 206 both provide a shared left turn/through/right turn lane.

A review of the existing analysis reveals that the intersection operates at overall levels of service "B" and all movements operate at levels of service "D" or better during the analyzed peak periods. See Table III for the individual movement levels of service and delays.

FUTURE CONDITIONS

Traffic volumes and operational analyses were developed for both the 2023 No Build and Build conditions. The No Build conditions provide a baseline for assessing the impact of the site development traffic on the roadway system. The process of developing the No-Build and Build traffic volumes and the subsequent analyses is outlined below.

Regardless of whether the subject site is developed or not, traffic volumes on the surrounding roadways are expected to increase as a result of developments throughout the region. A growth rate for roadways within the study area was obtained from the NJDOT Annual Background Growth Rate Table, which indicates a growth rate of 1.75% per year.

Through consultation with the Andover Township Planning Board staff, there are no other developments in the vicinity of the site that have been approved but not yet constructed that are identified as significant traffic generators. It was assumed that the background growth rate was adequate to account for the traffic associated with all developments not listed.

Future 2023 No Build traffic volumes were developed by applying the background growth rate of 1.75% for two (2) years to the study area roadways existing traffic volumes. Figure 4, in Appendix A, shows the 2023 No-Build traffic volumes.

Traffic Generation

There is presently no data published for construction equipment and material storage facilities or uses of similar operation within the Institute of Transportation Engineers' (ITE) publication, *Trip Generation, 10th Edition*. Therefore, in order to provide the most accurate estimates for the use, trip generation for The Project was based upon operational characteristics as provided by the client. It is our understanding that the proposed facility will operate with a maximum of 20 full time employees and there will be approximately 150 trips per day associated with the pick-up and delivery of the equipment and materials. Conservatively, it was assumed that all employees enter and exit the site during the same peak hour. It should be noted that the hours of operation will be from 8:00 AM – 5:00 PM, which was considered when calculating the number of peak hour deliveries. The following table details the proposed trip generation for The Project:

**Table IV
Trip Generation**

Trip Type		Daily			AM PSH			PM PSH		
		In	Out	Total	In	Out	Total	In	Out	Total
Construction Equipment & Materials Storage Facility	Cars (Employees)	20	20	40	20	0	20	0	20	20
	Trucks (Deliveries)	75	75	150	9	8	17	8	9	17
	Total	95	95	190	29	8	37	8	29	37

As seen above, The Project is anticipated to generate a maximum of 37 new peak hour trips, which is below the industry accepted standard of a significant increase in traffic of 100 trips. Based on *Transportation Impact Analysis for Site Development*, published by the ITE "it is suggested that a transportation impact study be conducted whenever a proposed development will generate 100 or more added (new) trips during the adjacent roadways' peak hour or the development's peak hour." Additionally, NJDOT has determined that the same 100 vehicle threshold is considered a "significant increase in traffic," hence, it is not anticipated that The Project will have any perceptible impact on the traffic operation of the adjacent roadway network.

Once the magnitude of traffic to be generated by the site is known, it is necessary to assign that traffic to the adjacent street system. The distribution of new traffic to the surrounding roadways is based on the location of primary arterial roadways; major signalized intersections and existing traffic patterns. Table V below summarizes the anticipated trip distribution for The Project.

Table V
Trip Distribution

To/From	Percentage	
	In	Out
Greendale Road - East	10%	-
Greendale Road - West	10%	10%
Route 206 - North	40%	50%
Route 206 - South	40%	40%
Total	100%	100%

Located in Appendix A, Figure 5 illustrates the total site generated volumes assigned to the study area network. The site generated volumes were added to the No Build traffic volumes to generate the Build traffic volumes, which are shown in Figure 6.

Future Capacity Analysis

Operational conditions at the study intersections were analyzed under the No Build and Build conditions and are summarized in Table VI below.

Table VI
Future Levels of Service

Intersection	Direction/ Movement	AM PSH		PM PSH			
		No Build	Build	No Build	Build	Build w/ Mit.	
Route 206 & Greendale Road/ Stickles Pond Road	EB	LT	D (49)	D (49)	D (48)	D (51)	D (43)
		R	A (0)	A (0)	A (2)	A (2)	A (2)
	WB	LTR	C (31)	C (34)	C (32)	D (40)	C (35)
	NB	LTR	A (9)	A (10)	B (14)	B (14)	B (16)
	SB	LTR	B (14)	B (15)	B (14)	B (15)	B (16)
	Overall	B (18)	B (19)	B (19)	C (21)	C (21)	
Stickles Pond Road & Site Driveway	EB	L	-	a (8)	-	a (9)	-
	SB	R	-	b (11)	-	b (10)	-

a (#) - Unsignalized Intersection Level of Service (seconds of delay per vehicle)
A (#) - Signalized Intersection Level of Service (seconds of delay per vehicle).

Route 206 and Greendale Road/Stickles Pond Road

With the addition of site generated traffic, the intersection is anticipated to operate at overall intersection levels of service "C" or better during the analyzed peak hours. It should be noted that the westbound left turn/through/right turn movement is anticipated to degrade from No Build level of service "C" to Build level of service "D" during the weekday evening peak hour. However, with the reallocation of 3 seconds of green time from the Route 206 phase to the Greendale Road/Stickles Pond Road phase during the weekday evening peak hour, the No Build level of service can be maintained. See Table VI for the individual movement levels of service and delays.



Stickles Pond Road and Site Driveway

The site driveway is proposed to intersect Stickles Pond Road to form an unsignalized T-intersection with the southbound approach of the site driveway operating under stop control. The eastbound approach of Stickles Pond Road is proposed to provide a shared left turn/through lane, while the westbound approach is proposed to provide a shared through/right turn lane. The southbound approach of the site driveway is proposed to provide a right turn lane.

As designed, the driveway is anticipated to operate at levels of service "B" or better during the studied peak hours. See Table VI for the individual movement levels of service and delays.



SITE PLAN

Site Access and Circulation

The site plan was reviewed with respect to the site access and on-site circulation design. As noted previously, access to The Project will be provided via a left/right turn in/right turn out driveway along Stickles Pond Road.

The parking lot will be serviced by parking aisles with widths of 24', which does not meet the Ordinance's minimum requirement of 25'. These aisles will safely and efficiently allow for two-way circulation and 90 degree parking and are consistent with accepted engineering design standards. Review of the site plan design indicates that the site can sufficiently accommodate, within paved areas, a large wheel base vehicle, such as a single unit truck (SU), or a tractor with a 53' trailer, along with the automobile traffic anticipated.

Parking

The site as proposed provides 62 parking spaces. As previously mentioned, the site will operate with a maximum of 20 employees, and all other trip generation will consist of deliveries and pick-ups. Therefore, the 62 parking spaces will be more than sufficient to support the demand of The Project. Additionally, ITE sets forth a peak parking demand of 2.51 parking spaces per 1,000 SF for general office buildings. This equates to a parking demand of 33 parking spaces for the 12,860 SF construction office, which is met as designed.

It is proposed to provide parking stalls with dimensions of 9'x18'. It should be noted that industry standards recommend stall widths of 9' and a length of 18' for low to moderate turnover parking stalls, which is met as designed.

FINDINGS & CONCLUSIONS

Findings

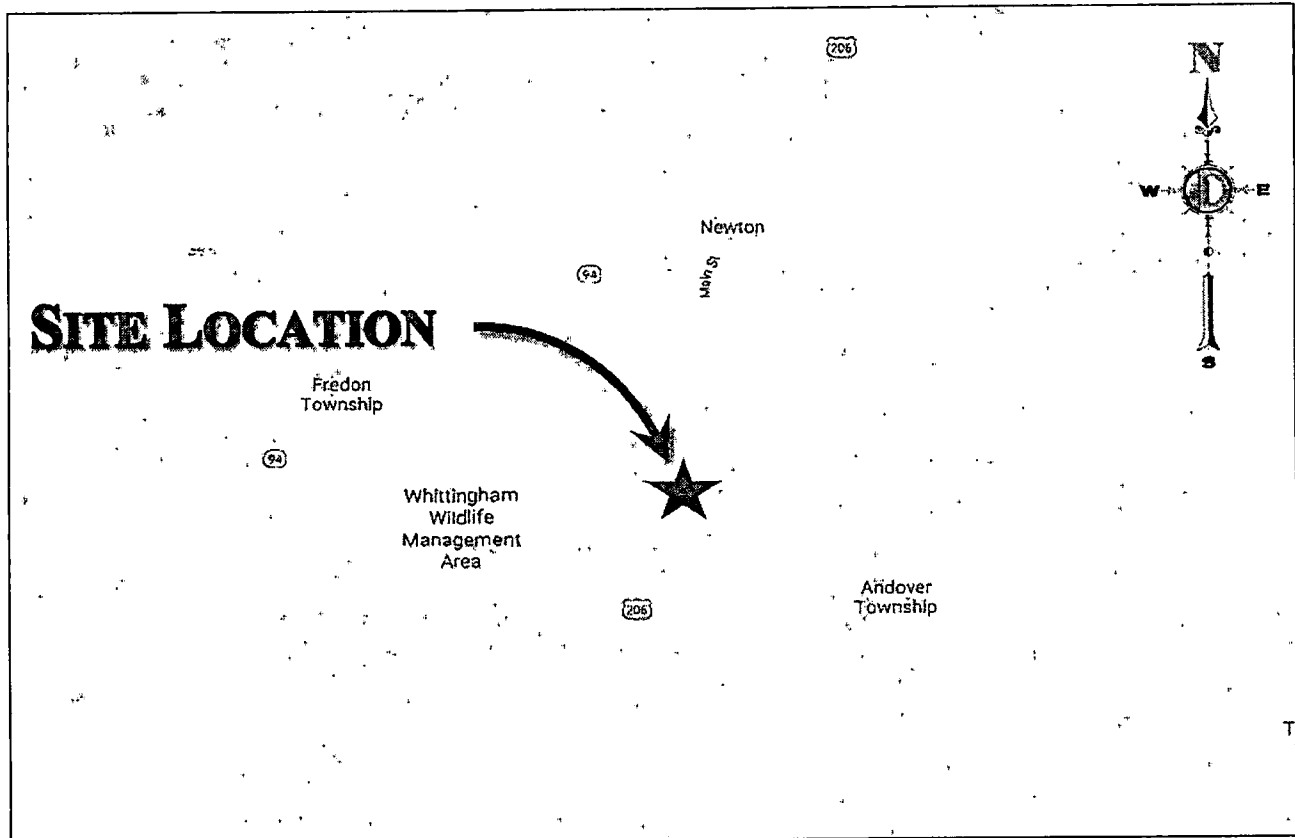
Based upon the detailed analyses as documented herein, the following findings are noted:

- The proposed construction equipment and materials storage facility will generate 29 entering trips and 8 exiting trips during the weekday morning peak hour and 8 entering trips and 29 exiting trips during the evening peak hour that are “new” to the adjacent roadway network.
- Access to the site is proposed to be provided via a left/right turn in/right turn out driveway along Stickles Pond Road.
- With the addition of site generated traffic, the intersection is anticipated to operate at overall intersection levels of service “C” or better during the analyzed peak hours. It should be noted that the westbound left turn/through/right turn movement is anticipated to degrade from No Build level of service “C” to Build level of service “D” during the weekday evening peak hour. However, with the reallocation of 3 seconds of green time from the Route 206 phase to the Greendale Road/Stickles Pond Road phase during the weekday evening peak hour, the No Build level of service can be maintained.
- As designed, the intersection of Stickles Pond Road and the site driveway is anticipated to operate at acceptable levels of service “B” or better during the peak hours studied.
- As proposed, The Project’s site driveways and internal circulation have been designed to provide for safe and efficient movement of automobiles and large wheel base vehicles.
- The proposed parking supply and design is sufficient to support the projected demand and exceeds ITE peak parking demand.

Conclusions

Based upon our Traffic Impact Study as detailed in the body of this report, it is the professional opinion of Dynamic Traffic LLC that the adjacent street system of the New Jersey Department of Transportation, Sussex County, and Andover Township will not experience any significant degradation in operating conditions with the construction of The Project. The site driveway is located to provide safe and efficient access to the adjacent roadway system. The site plan as proposed provides for good circulation throughout the site and provides adequate parking to accommodate The Project’s needs.

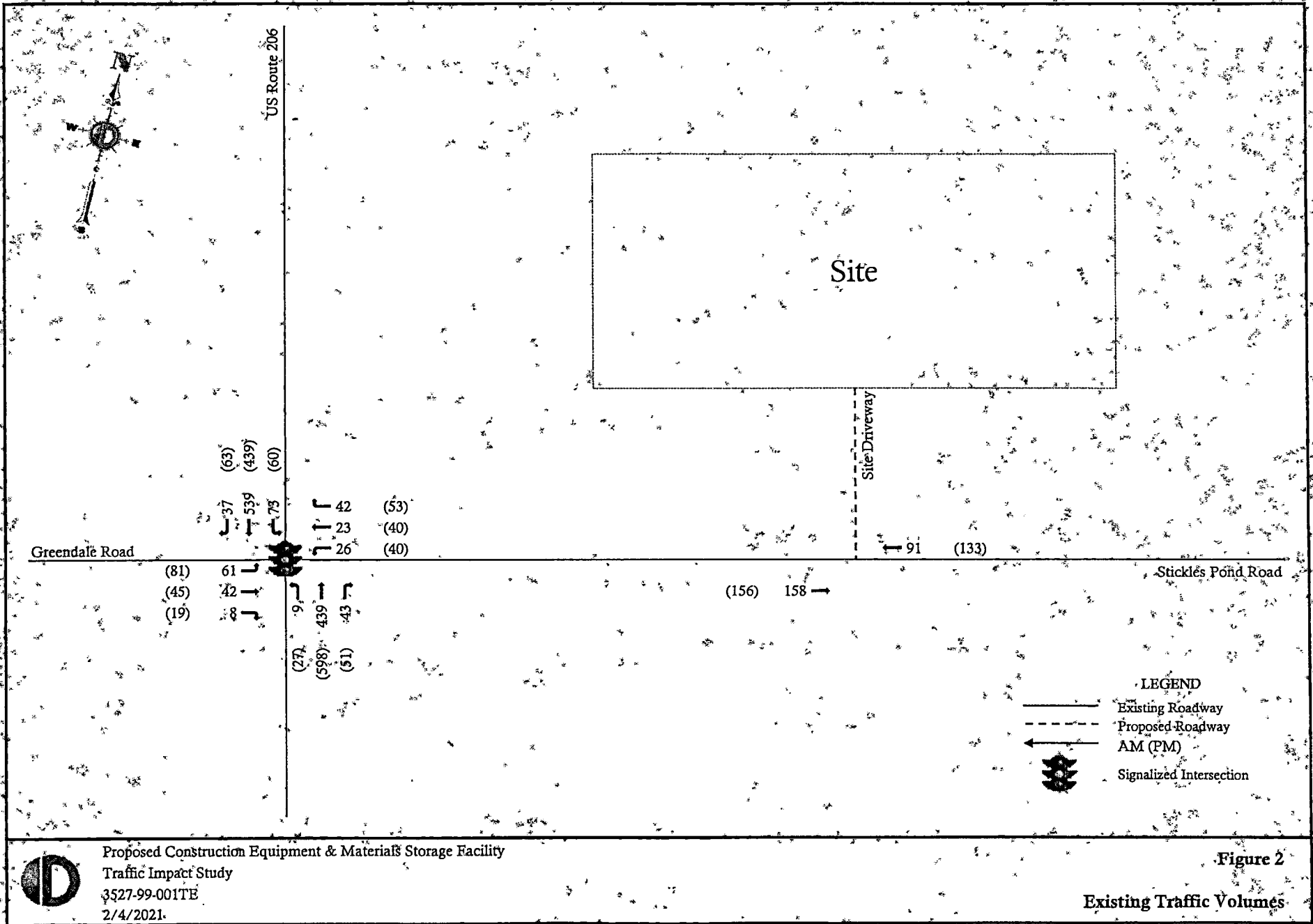
Appendix A
Traffic Volume Figures



Proposed Construction Equipment & Materials Storage Facility
 Traffic Impact Study
 3527-99-001TE
 2/4/2021

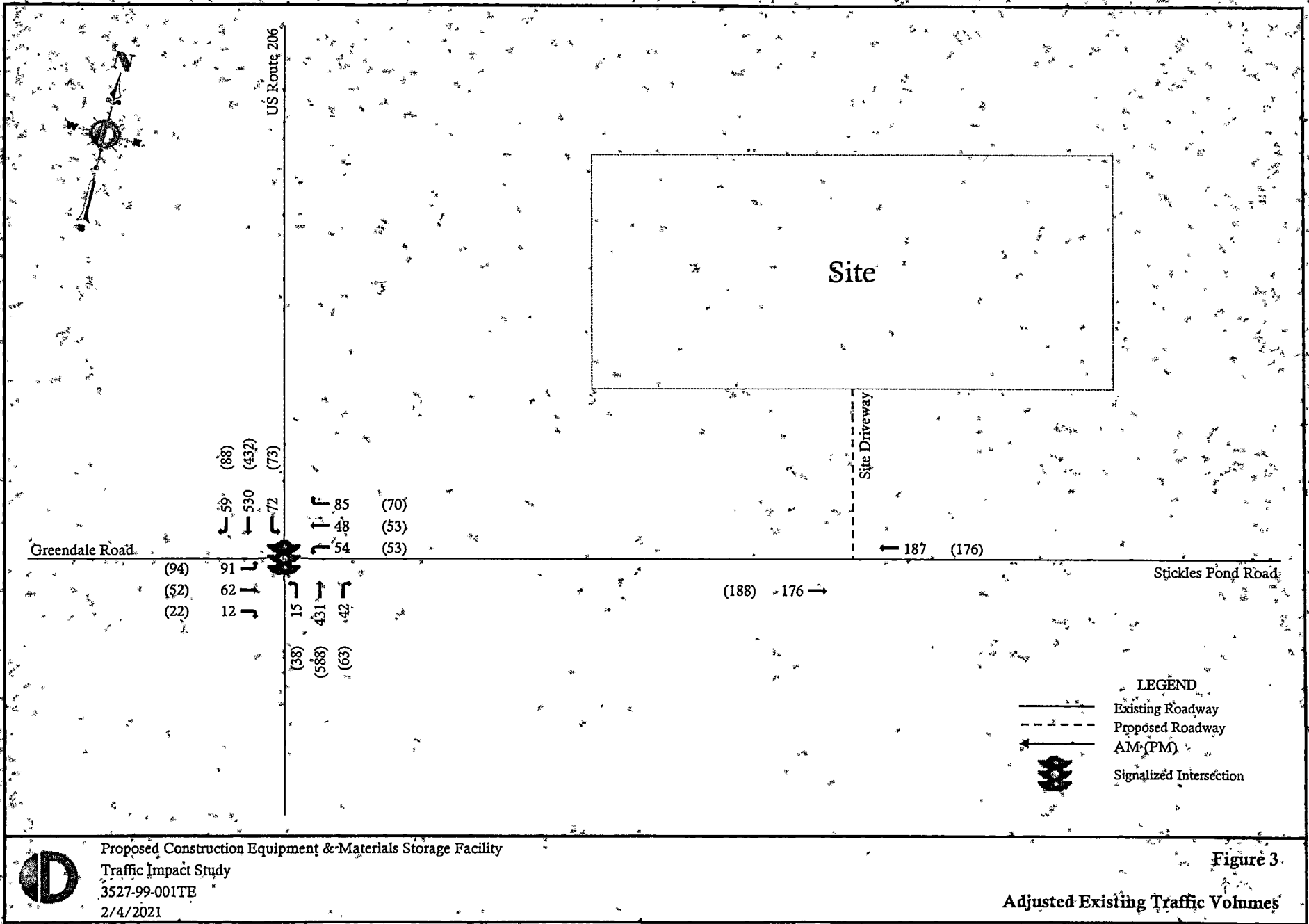
Figure 1

Site Location Map



Proposed Construction Equipment & Materials Storage Facility
 Traffic Impact Study
 3527-99-001TE
 2/4/2021.

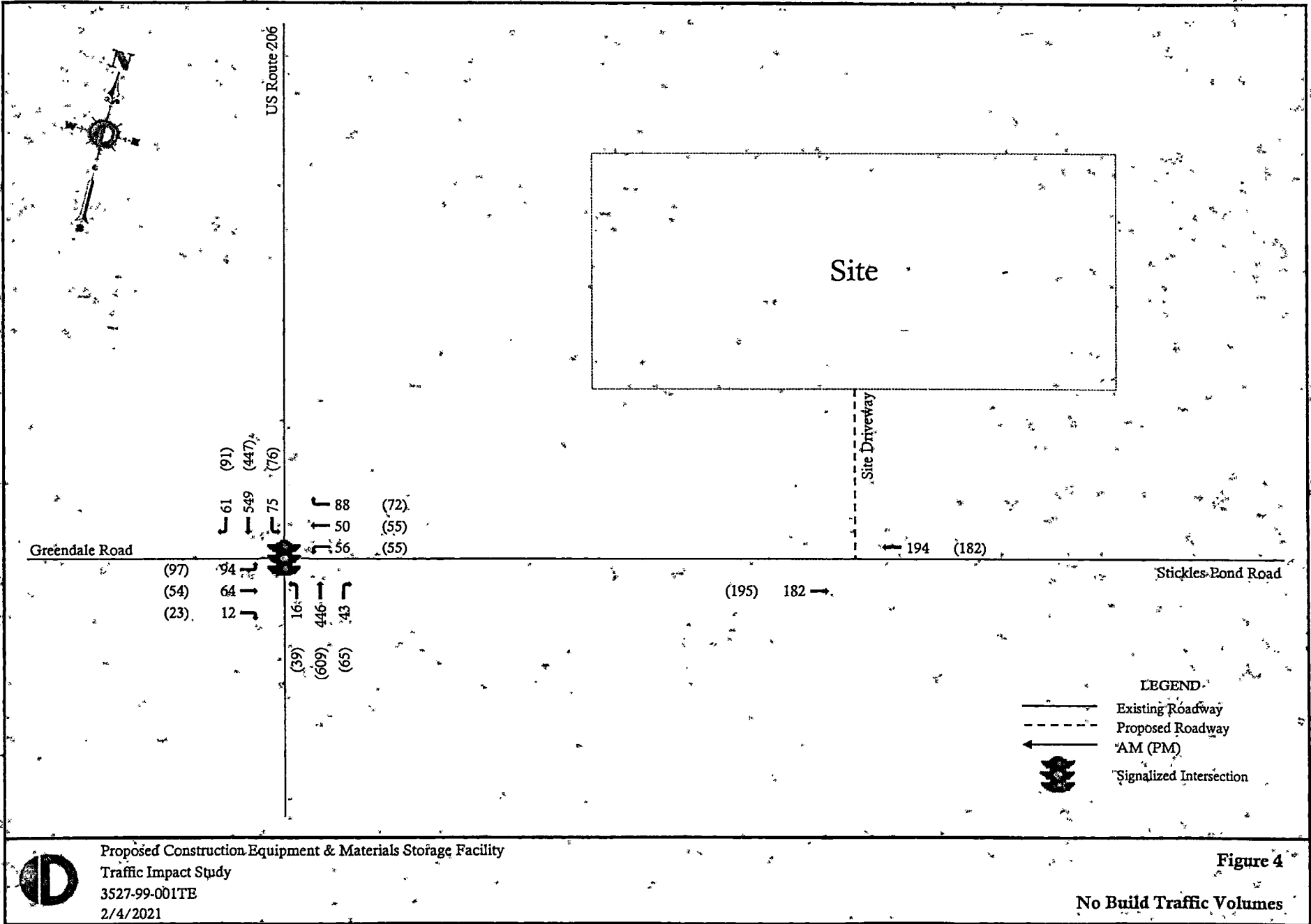
Figure 2
Existing Traffic Volumes

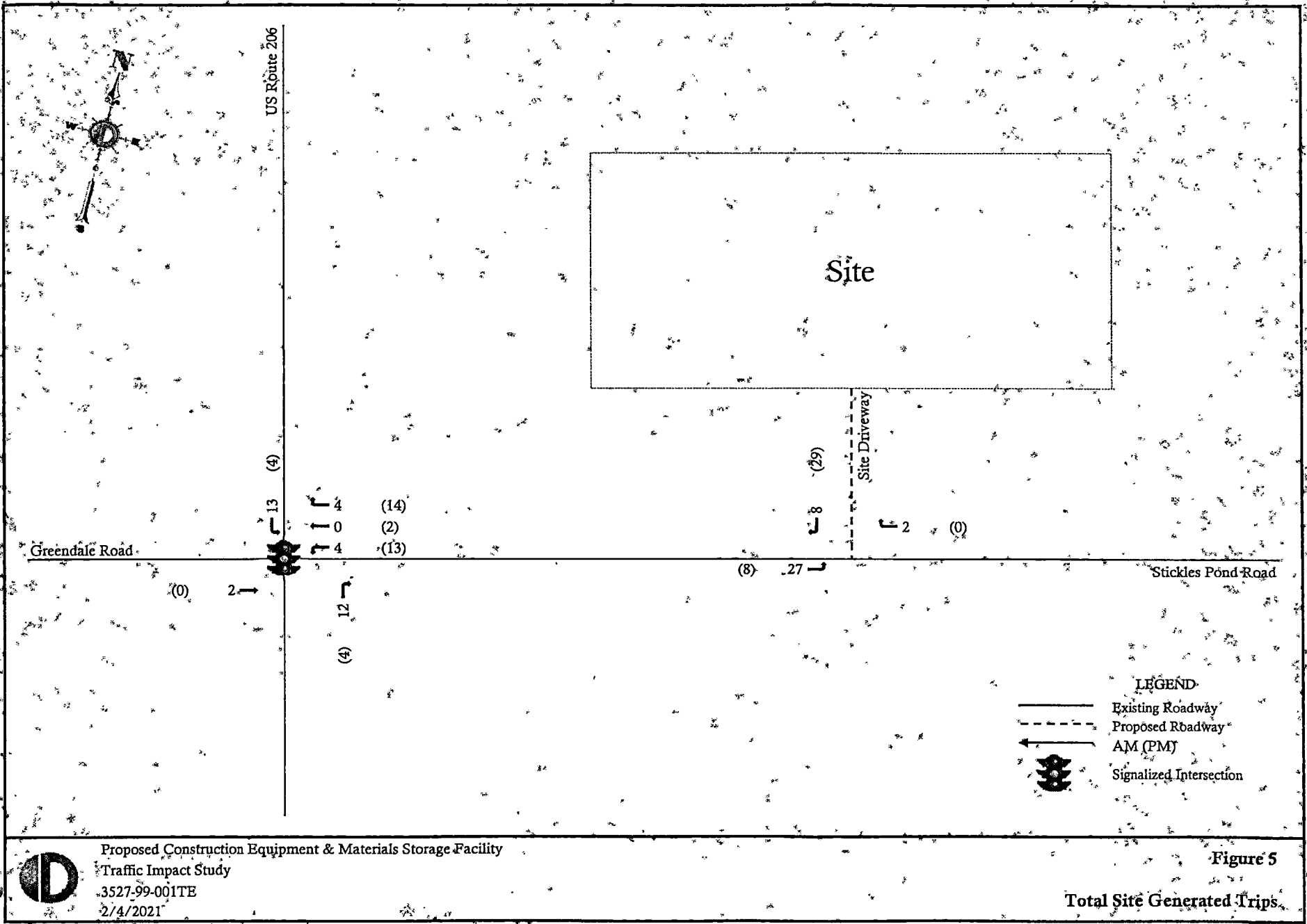


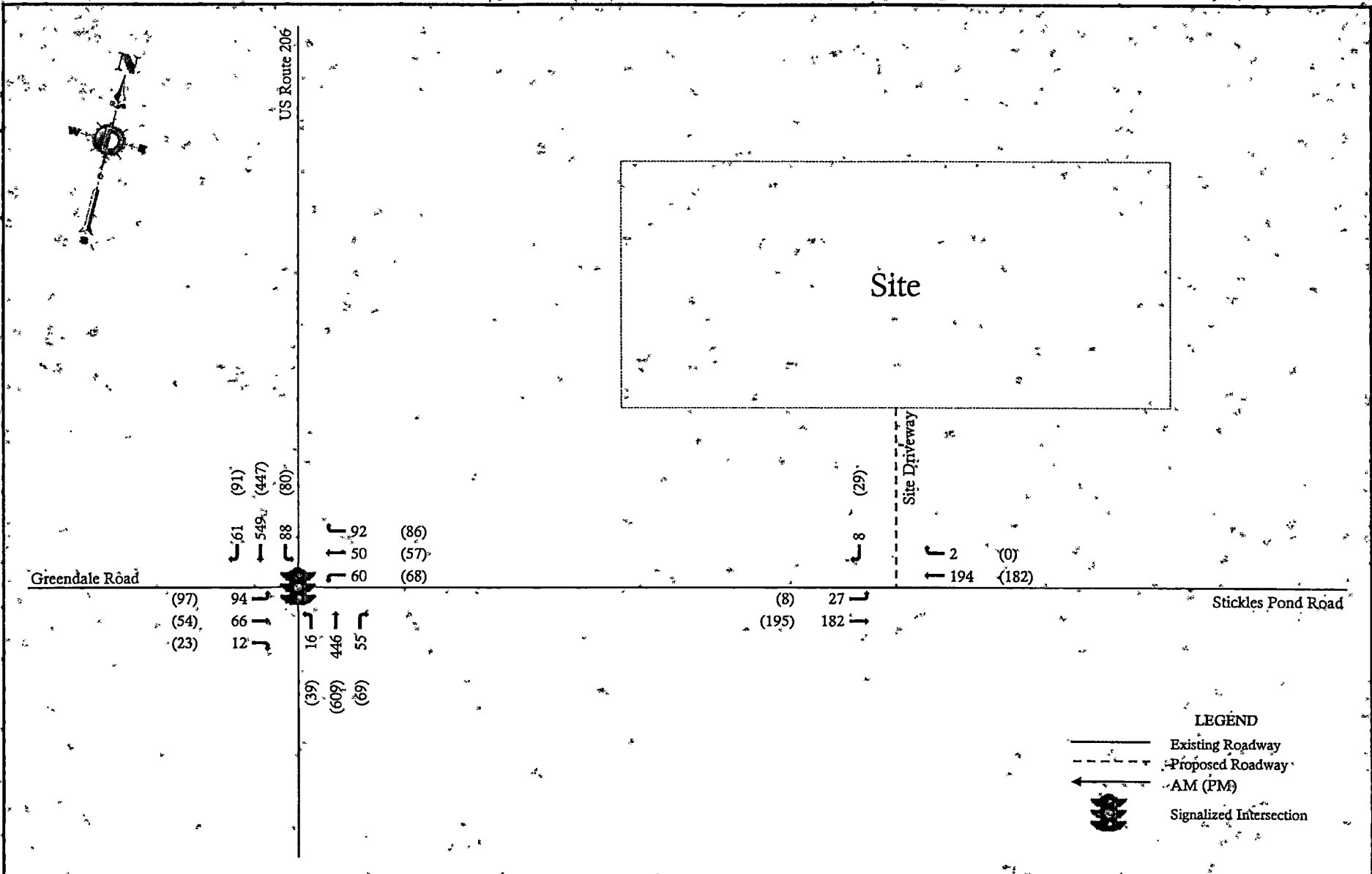
Proposed Construction Equipment & Materials Storage Facility
 Traffic Impact Study
 3527-99-001TE
 2/4/2021

Figure 3

Adjusted Existing Traffic Volumes







LEGEND
 — Existing Roadway
 - - - Proposed Roadway
 ← AM (PM)
 Signalized Intersection



Proposed Construction Equipment & Materials Storage Facility
 Traffic Impact Study
 3527-99-001TE.
 2/4/2021

Figure 6

Build Traffic Volumes

Appendix B
Project Information

Dynamic Traffic, LLC

1904 Main Street, Lake Como, NJ 07719
 245 Main Street - Suite 110, Chester, NJ 07930
 732-681-0760

E/W: Stickles Pond Rd
 N/S: Rt 206
 Town/County: Andover/Sussex
 Job #: 3527-99-001TE

File Name : Rt 206 and Stickles Pond Rd - AMPM
 Site Code : 00000000
 Start Date : 7/30/2020
 Page No : 1

Groups Printed- Cars - Trucks (SU) - Trucks (TT)

Start Time	Stickles Pond Road (CR 611) Eastbound					Stickles Pond Road (CR 611) Westbound					Route 206 Northbound					Route 206 Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
07:00 AM	10	5	3	0	18	2	6	5	0	13	2	65	10	0	77	7	116	6	1	130	238
07:15 AM	14	6	5	0	25	13	4	4	0	21	0	44	6	0	50	14	94	6	0	114	210
07:30 AM	17	12	3	0	32	4	5	9	0	18	3	104	14	0	121	16	137	10	0	163	334
07:45 AM	16	8	1	0	25	10	5	16	0	31	0	99	13	0	112	17	131	10	0	158	326
Total	57	31	12	0	100	29	20	34	0	83	5	312	43	0	360	54	478	32	1	565	1108
08:00 AM	11	12	3	0	26	4	7	8	0	19	5	115	6	0	126	23	118	11	0	152	323
08:15 AM	16	9	1	0	26	8	6	7	0	21	1	113	9	0	123	16	144	5	0	165	335
08:30 AM	13	12	3	0	28	7	3	8	1	19	1	92	5	0	98	21	126	13	0	160	305
08:45 AM	15	15	1	0	31	4	10	9	0	23	1	114	5	0	120	13	107	9	0	129	303
Total	55	48	8	0	111	23	26	32	1	82	8	434	25	0	467	73	495	38	0	606	1266
*** BREAK ***																					
04:30 PM	25	14	5	0	44	8	11	18	0	37	4	150	14	0	168	24	107	15	1	147	396
04:45 PM	18	13	7	0	38	12	10	7	0	29	6	164	10	0	180	9	112	12	0	133	380
Total	43	27	12	0	82	20	21	25	0	66	10	314	24	0	348	33	219	27	1	280	776
05:00 PM	16	8	2	0	26	11	8	13	0	32	9	143	10	0	162	10	96	14	0	120	340
05:15 PM	21	9	5	0	35	8	10	14	0	32	8	131	16	0	155	16	116	21	0	153	375
05:30 PM	12	12	5	0	29	14	5	6	0	25	4	112	10	0	126	6	83	16	0	105	285
05:45 PM	17	13	0	0	30	7	9	13	0	29	1	98	8	0	107	4	63	11	0	78	244
Total	66	42	12	0	120	40	32	46	0	118	22	484	44	0	550	36	358	62	0	456	1244
06:00 PM	10	5	0	0	15	11	6	10	0	27	2	83	7	0	92	7	70	12	0	89	223
06:15 PM	24	10	3	0	37	4	7	18	0	29	4	89	9	0	102	7	54	13	0	74	242
Grand Total	255	163	47	0	465	127	112	165	1	405	51	1716	152	0	1919	210	1674	184	2	2070	4859
Approch %	54.8	35.1	10.1	0		31.4	27.7	40.7	0.2		2.7	89.4	7.9	0		10.1	80.9	8.9	0.1		
Total %	5.2	3.4	1	0	9.6	2.6	2.3	3.4	0	8.3	1	35.3	3.1	0	39.5	4.3	34.5	3.8	0	42.6	
Cars	251	159	45	0	455	124	110	161	1	396	47	1681	146	0	1874	205	1637	182	2	2026	4751
% Cars	98.4	97.5	95.7	0	97.8	97.6	98.2	97.6	100	97.8	92.2	98	96.1	0	97.7	97.6	97.8	98.9	100	97.9	97.8
Trucks (SU)	4	4	1	0	9	3	2	4	0	9	3	33	6	0	42	5	37	2	0	44	104
% Trucks (SU)	1.6	2.5	2.1	0	1.9	2.4	1.8	2.4	0	2.2	5.9	1.9	3.9	0	2.2	2.4	2.2	1.1	0	2.1	2.1
Trucks (TT)	0	0	1	0	1	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	4
% Trucks (TT)	0	0	2.1	0	0.2	0	0	0	0	0	2	0.1	0	0	0.2	0	0	0	0	0	0.1

1911118

Route US 206 and County Route 611
(Greendale Road)-Relocated Stickles
Pond Road
Andover Twp., Sussex Co.

VARIABLE CYCLES

<u>Movement</u>	<u>Signal Faces</u>		<u>Time</u>	
	<u>1-5</u>	<u>6-10</u>	<u>I</u>	<u>II</u>
A. Route US 206 Change Clearance	G Y R	R R R	45 Min. 5 2	30 Min. 5 2
B. County Route 611 - Relocated Stickles Pond Road Change Clearance	R R R	G Y R	7-17 4 2	7-15 4 2
Emergency Flash	Y	R	-	-

The vehicular memory is to be disconnected and the vehicle extension set at 2.0 seconds for Movement B.

Actuation of pedestrian push button is to provide a minimum green time of 15 seconds to Movement B.

The manual control is to be disconnected.

A detector call delay of 8 seconds is to be employed prior to placing a call for Movement B.

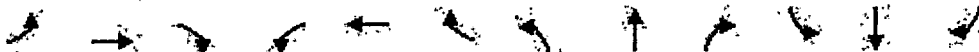
Hours of Operation: Time I: 7-9 A.M., 3:30-6:30 P.M., Monday - Friday

Time II: All Other Times.

Appendix C
Capacity Analysis



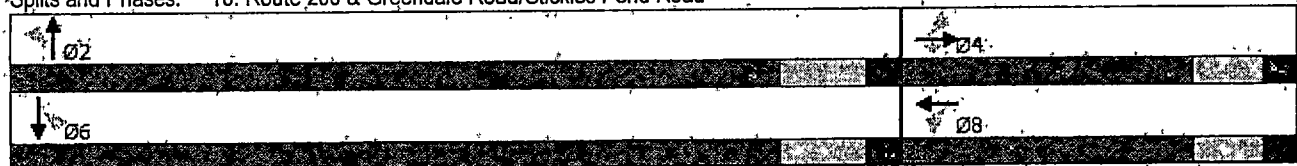
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕	↕		↕	↕		↕	↕
Traffic Volume (vph)	92	63	12	54	48	87	15	439	43	73	539	60
Future Volume (vph)	92	63	12	54	48	87	15	439	43	73	539	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	14	12	12	12	12	12	12	12	12	12
Grade (%)		-4%			-2%			4%				4%
Storage Length (ft)	0		30	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.938			0.988			0.988	
Flt Protected		0.971			0.986			0.999			0.995	
Satd. Flow (prot)	0	1813	1757	0	1699	0	0	1754	0	0	1780	0
Flt Permitted		0.668			0.849			0.976			0.898	
Satd. Flow (perm)	0	1247	1757	0	1463	0	0	1713	0	0	1606	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			58		53							12
Link Speed (mph)		40			35			50			50	
Link Distance (ft)		457			494			688			731	
Travel Time (s)		7.8			9.6			9.4			10.0	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	3%	5%	0%	4%	4%	5%	22%	4%	7%	4%	3%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	158	12	0	193	0	0	507	0	0	685	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		45.0	45.0		45.0	45.0	
Minimum Split (s)	13.0	13.0	13.0	13.0	13.0		52.0	52.0		52.0	52.0	
Total Split (s)	23.0	23.0	23.0	23.0	23.0		52.0	52.0		52.0	52.0	
Total Split (%)	30.7%	30.7%	30.7%	30.7%	30.7%		69.3%	69.3%		69.3%	69.3%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0	0.0		0.0			0.0			0.0	
Total Lost Time (s)		6.0	6.0		6.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		Max	Max		Max	Max	
Act Effect Green (s)		12.5	12.5		12.5			46.6			46.6	
Actuated g/C Ratio		0.17	0.17		0.17			0.65			0.65	
v/c Ratio		0.73	0.03		0.65			0.46			0.66	
Control Delay		47.3	0.2		29.9			8.8			12.5	
Queue Delay		0.0	0.0		0.0			0.0			0.0	
Total Delay		47.3	0.2		29.9			8.8			12.5	
LOS		D	A		C			A			B	
Approach Delay		44.0			29.9			8.8			12.5	
Approach LOS		D			C			A			B	

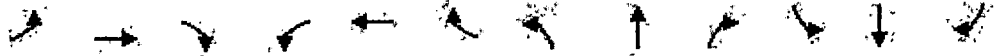


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		65	0		56			99			162	
Queue Length 95th (ft)		125	0		118			192			324	
Internal Link Dist (ft)		377			414			608			651	
Turn Bay Length (ft)			30									
Base Capacity (vph)		293	458		385			1106			1041	
Starvation Cap Reductn		0	0		0			0			0	
Spillback Cap Reductn		0	0		0			0			0	
Storage Cap Reductn		0	0		0			0			0	
Reduced v/c Ratio		0.54	0.03		0.50			0.46			0.66	

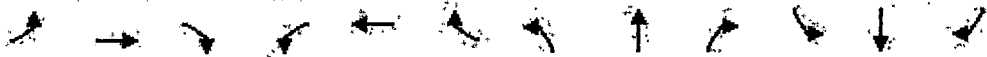
Intersection Summary
 Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 72.2
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay: 16.9
 Intersection LOS: B
 Intersection Capacity Utilization: 94.5%
 ICU Level of Service: F
 Analysis Period (min): 15

Splits and Phases: 10: Route 206 & Greendale Road/Stickles Pond Road





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔	↔		↔	↔		↔	↔
Traffic Volume (vph)	95	53	22	54	54	71	38	598	64	74	440	89
Future Volume (vph)	95	53	22	54	54	71	38	598	64	74	440	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	14	12	12	12	12	12	12	12	12	12
Grade (%)		-4%			2%			4%				4%
Storage Length (ft)	0		30	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.946			0.988			0.980	
Flt Protected		0.969			0.985			0.997			0.994	
Satd. Flow (prot)	0	1866	1757	0	1774	0	0	1815	0	0	1783	0
Flt Permitted		0.657			0.842			0.945			0.841	
Satd. Flow (perm)	0	1265	1757	0	1516	0	0	1721	0	0	1509	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			58		41							21
Link Speed (mph)		40			35			50			50	
Link Distance (ft)		457			494			688			731	
Travel Time (s)		7.8			9.6			9.4			10.0	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	0%	0%	0%	0%	2%	0%	1%	2%	2%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	157	23	0	190	0	0	744	0	0	642	10
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		45.0	45.0		45.0	45.0	
Minimum Split (s)	13.0	13.0	13.0	13.0	13.0		52.0	52.0		52.0	52.0	
Total Split (s)	23.0	23.0	23.0	23.0	23.0		52.0	52.0		52.0	52.0	
Total Split (%)	30.7%	30.7%	30.7%	30.7%	30.7%		69.3%	69.3%		69.3%	69.3%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0	0.0		0.0			0.0			0.0	
Total Lost Time (s)		6.0	6.0		6.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		Max	Max		Max	Max	
Act Effct Green (s)		12.4	12.4		12.4			46.7			46.7	
Actuated g/C Ratio		0.17	0.17		0.17			0.65			0.65	
v/c Ratio		0.72	0.07		0.64			0.67			0.65	
Control Delay		46.5	1.7		31.5			12.6			12.4	
Queue Delay		0.0	0.0		0.0			0.0			0.0	
Total Delay		46.5	1.7		31.5			12.6			12.4	
LOS		D	A		C			B			B	
Approach Delay		40.7			31.5			12.6			12.4	
Approach LOS		D			C			B			B	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		65	0		60			180			147	
Queue Length 95th (ft)		124	4		121			354			305	
Internal Link Dist (ft)		377			414			608			651	
Turn Bay Length (ft)			30									
Base Capacity (vph)		298	458		388			1114			984	
Starvation Cap Reductn		0	0		0			0			0	
Spillback Cap Reductn		0	0		0			0			0	
Storage Cap Reductn		0	0		0			0			0	
Reduced v/c Ratio		0.53	0.05		0.49			0.67			0.65	

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 72.2

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 17.5

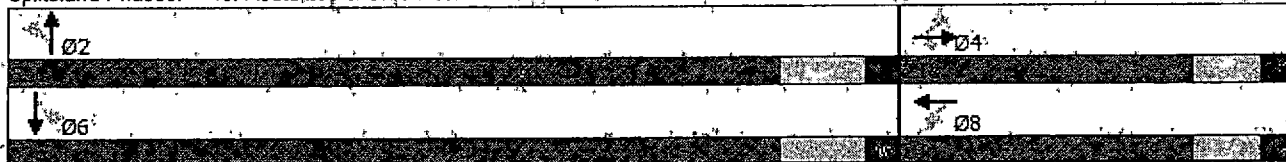
Intersection LOS: B

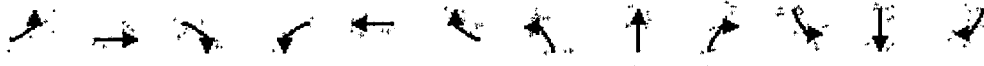
Intersection Capacity Utilization: 82.3%

ICU Level of Service: E

Analysis Period (min): 15

Splits and Phases: 10: Route 206 & Greendale Road/Stickles Pond Road





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↕			↕	
Traffic Volume (vph)	95	65	12	56	50	90	16	454	45	76	558	62
Future Volume (vph)	95	65	12	56	50	90	16	454	45	76	558	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	14	12	12	12	12	12	12	12	12	12
Grade (%)		4%			-2%			4%			4%	
Storage Length (ft)	0		30	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t			0.850		0.938			0.988			0.988	
Fl _t Protected		0.971			0.986			0.998			0.995	
Satd. Flow (prot)	0	1813	1757	0	1699	0	0	1752	0	0	1780	0
Fl _t Permitted		0.659			0.847			0.974			0.892	
Satd. Flow (perm)	0	1230	1757	0	1460	0	0	1710	0	0	1596	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			58		53						12	
Link Speed (mph)		40			35			50			50	
Link Distance (ft)		457			494			688			731	
Travel Time (s)		7.8			9.6			9.4			10.0	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	3%	5%	0%	4%	4%	5%	22%	4%	7%	4%	3%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	163	12	0	200	0	0	525	0	0	710	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		45.0	45.0		45.0	45.0	
Minimum Split (s)	13.0	13.0	13.0	13.0	13.0		52.0	52.0		52.0	52.0	
Total Split (s)	23.0	23.0	23.0	23.0	23.0		52.0	52.0		52.0	52.0	
Total Split (%)	30.7%	30.7%	30.7%	30.7%	30.7%		69.3%	69.3%		69.3%	69.3%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0	0.0		0.0			0.0			0.0	
Total Lost Time (s)		6.0	6.0		6.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		Max	Max		Max	Max	
Act Effct Green (s)		12.9	12.9		12.9			46.4			46.4	
Actuated g/C Ratio		0.18	0.18		0.18			0.64			0.64	
v/c Ratio		0.75	0.03		0.66			0.48			0.69	
Control Delay		48.5	0.2		30.6			9.2			13.6	
Queue Delay		0.0	0.0		0.0			0.0			0.0	
Total Delay		48.5	0.2		30.6			9.2			13.6	
LOS		D	A		C			A			B	
Approach Delay		45.2			30.6			9.2			13.6	
Approach LOS		D			C			A			B	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		68	0		59			107			178	
Queue Length 95th (ft)		130	0		123			201			350	
Internal Link Dist (ft)		377			414			608			651	
Turn Bay Length (ft)			30									
Base Capacity (vph)		289	458		384			1098			1029	
Starvation Cap Reductn		0	0		0			0			0	
Spillback Cap Reductn		0	0		0			0			0	
Storage Cap Reductn		0	0		0			0			0	
Reduced v/c Ratio		0.56	0.03		0.52			0.48			0.69	

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 72.3

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 17.7

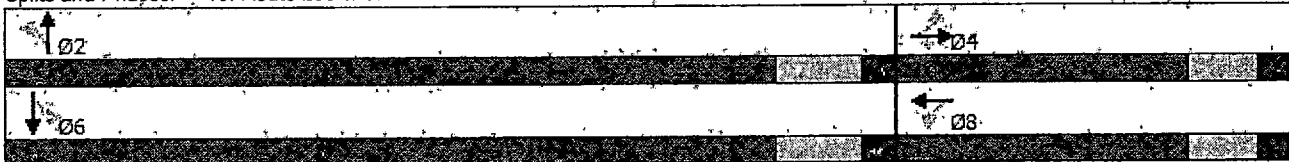
Intersection LOS: B

Intersection Capacity Utilization 97.0%

ICU Level of Service F

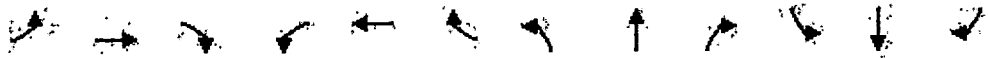
Analysis Period (min): 15

Splits and Phases: 10: Route 206 & Greendale Road/Stickles Pond Road





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4	7		4			4			4	
Traffic Volume (vph)	98	55	23	56	56	74	39	619	66	77	456	92
Future Volume (vph)	98	55	23	56	56	74	39	619	66	77	456	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	14	12	12	12	12	12	12	12	12	12
Grade (%)		-4%			-2%			4%			4%	
Storage Length (ft)	0		30	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr			0.850		0.946			0.988			0.980	
Flt Protected		0.969			0.985			0.997			0.994	
Satd. Flow (prot)	0	1866	1757	0	1774	0	0	1815	0	0	1783	0
Flt Permitted		0.648			0.839			0.943			0.834	
Satd. Flow (perm)	0	1248	1757	0	1511	0	0	1717	0	0	1496	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			58		41						21	
Link Speed (mph)		40			35			50			50	
Link Distance (ft)		457			494			688			731	
Travel Time (s)		7.8			9.6			9.4			10.0	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	0%	0%	0%	0%	2%	0%	1%	2%	2%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	163	24	0	199	0	0	770	0	0	665	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		45.0	45.0		45.0	45.0	
Minimum Split (s)	13.0	13.0	13.0	13.0	13.0		52.0	52.0		52.0	52.0	
Total Split (s)	23.0	23.0	23.0	23.0	23.0		52.0	52.0		52.0	52.0	
Total Split (%)	30.7%	30.7%	30.7%	30.7%	30.7%		69.3%	69.3%		69.3%	69.3%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0	0.0		0.0			0.0			0.0	
Total Lost Time (s)		6.0	6.0		6.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		Max	Max		Max	Max	
Act Effct Green (s)		12.8	12.8		12.8			46.4			46.4	
Actuated g/C Ratio		0.18	0.18		0.18			0.64			0.64	
v/c Ratio		0.74	0.07		0.66			0.70			0.69	
Control Delay		47.9	2.0		32.4			13.6			13.6	
Queue Delay		0.0	0.0		0.0			0.0			0.0	
Total Delay		47.9	2.0		32.4			13.6			13.6	
LOS		D	A		C			B			B	
Approach Delay		42.0			32.4			13.6			13.6	
Approach LOS		D			C			B			B	

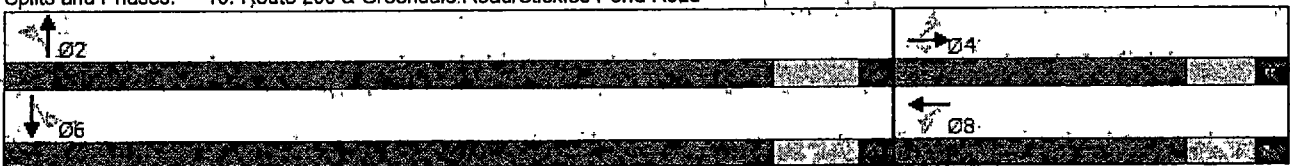


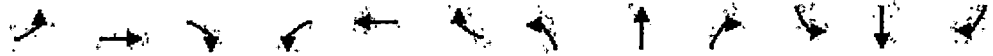
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		68	0		64			197			162	
Queue Length 95th (ft)		129	5		128			379			330	
Internal Link Dist (ft)		377			414			608			651	
Turn Bay Length (ft)			30									
Base Capacity (vph)		293	458		387			1104			969	
Starvation Cap Reductn		0	0		0			0			0	
Spillback Cap Reductn		0	0		0			0			0	
Storage Cap Reductn		0	0		0			0			0	
Reduced v/c Ratio		0.56	0.05		0.51			0.70			0.69	

Intersection Summary

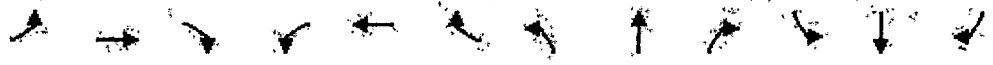
Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 72.2
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.74
 Intersection Signal Delay: 18.6
 Intersection LOS: B
 Intersection Capacity Utilization 84.9%
 ICU Level of Service E
 Analysis Period (min): 15

Splits and Phases: 10: Route 206 & Greendale Road/Stickles Pond Road





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		←	↑		←	↑		←	↑		←	↑
Traffic Volume (vph)	95	67	12	60	50	94	16	454	57	89	558	62
Future Volume (vph)	95	67	12	60	50	94	16	454	57	89	558	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	14	12	12	12	12	12	12	12	12	12
Grade (%)		4%			2%			4%			4%	
Storage Length (ft)	0		30	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.938			0.985			0.988	
Flt Protected		0.971			0.986			0.999			0.994	
Satd. Flow (prot)	0	1820	1757	0	1635	0	0	1738	0	0	1767	0
Flt Permitted		0.653			0.842			0.974			0.871	
Satd. Flow (perm)	0	1224	1757	0	1397	0	0	1695	0	0	1548	0
Right Turn on Red			Yes		Yes			No			No	Yes
Satd. Flow (RTOR)			58		53			50			50	
Link Speed (mph)		40			35			50			50	
Link Distance (ft)		457			494			688			731	
Travel Time (s)		7.8			9.6			9.4			10.0	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	3%	4%	0%	10%	4%	10%	22%	4%	12%	9%	3%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	165	12	0	208	0	0	537	0	0	723	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		45.0	45.0		45.0	45.0	
Minimum Split (s)	13.0	13.0	13.0	13.0	13.0		52.0	52.0		52.0	52.0	
Total Split (s)	23.0	23.0	23.0	23.0	23.0		52.0	52.0		52.0	52.0	
Total Split (%)	30.7%	30.7%	30.7%	30.7%	30.7%		69.3%	69.3%		69.3%	69.3%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		Max	Max		Max	Max	
Act Effect Green (s)		13.0	13.0		13.0			46.2			46.2	
Actuated d/C Ratio		0.18	0.18		0.18			0.64			0.64	
v/c Ratio		0.75	0.03		0.71			0.49			0.73	
Control Delay		49.0	0.2		33.8			9.6			15.3	
Queue Delay		0.0	0.0		0.0			0.0			0.0	
Total Delay		49.0	0.2		33.8			9.6			15.3	
LOS		D	A		C			A			B	
Approach Delay		45.7			33.8			9.6			15.3	
Approach LOS		D			C			A			B	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		69	0		63			113				191
Queue Length 95th (ft)		#133	0		131			210				379
Internal Link Dist (ft)		377			414			608				651
Turn Bay Length (ft)			30									
Base Capacity (vph)		288	458		369			1085				994
Starvation Cap Reductn		0	0		0			0				0
Spillback Cap Reductn		0	0		0			0				0
Storage Cap Reductn		0	0		0			0				0
Reduced v/c Ratio		0.57	0.03		0.56			0.49				0.73

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 72.2

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 19.0

Intersection LOS: B

Intersection Capacity Utilization 104.4%

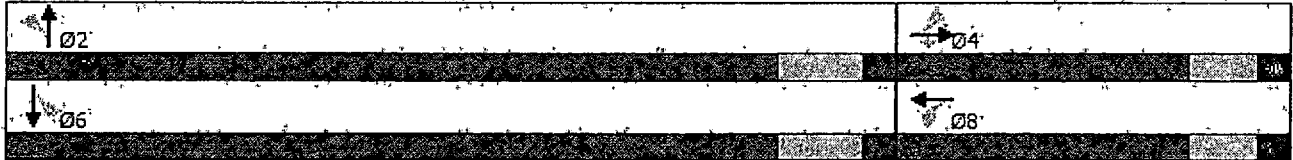
ICU Level of Service G

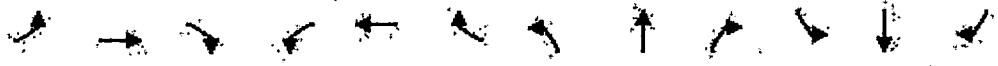
Analysis Period (min): 15

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

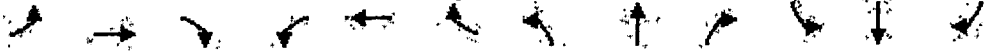
Queue shown is maximum after two cycles

Splits and Phases: 10: Route 206 & Greendale Road/Stickles Pond Road





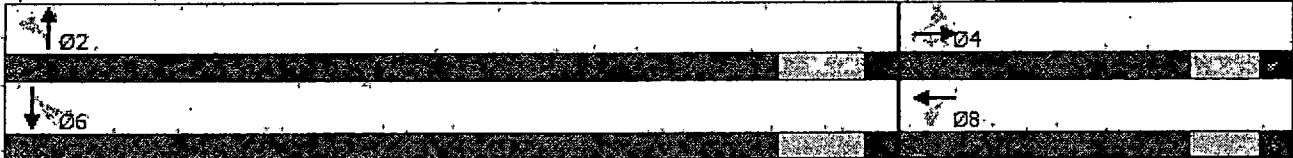
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕	↕		↕	↕		↕	↕
Traffic Volume (vph)	98	55	23	69	58	88	39	619	70	81	456	92
Future Volume (vph)	98	55	23	69	58	88	39	619	70	81	456	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	14	12	12	12	12	12	12	12	12	12
Grade (%)		-4%			-2%			4%			4%	
Storage Length (ft)	0		30	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Friction			0.850		0.945			0.987			0.980	
Flt Protected		0.969			0.984			0.997			0.994	
Satd. Flow (prot)	0	1866	1757	0	1704	0	0	1805	0	0	1772	0
Flt Permitted		0.612			0.832			0.943			0.825	
Satd. Flow (perm)	0	1179	1757	0	1441	0	0	1707	0	0	1471	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			58		43						21	
Link Speed (mph)		40			35			50			50	
Link Distance (ft)		457			494			688			731	
Travel Time (s)		7.8			9.6			9.4			10.0	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	0%	0%	7%	0%	6%	0%	1%	7%	7%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	163	24	0	229	0	0	774	0	0	669	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		45.0	45.0		45.0	45.0	
Minimum Split (s)	13.0	13.0	13.0	13.0	13.0		52.0	52.0		52.0	52.0	
Total Split (s)	23.0	23.0	23.0	23.0	23.0		52.0	52.0		52.0	52.0	
Total Split (%)	30.7%	30.7%	30.7%	30.7%	30.7%		69.3%	69.3%		69.3%	69.3%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0	0.0		0.0			0.0			0.0	
Total Lost Time (s)		6.0	6.0		6.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		Max	Max		Max	Max	
Act Effect Green (s)		13.1	13.1		13.1			45.9			45.9	
Actuated g/C Ratio		0.18	0.18		0.18			0.64			0.64	
v/c Ratio		0.76	0.07		0.77			0.71			0.71	
Control Delay		50.5	2.0		40.2			14.3			14.6	
Queue Delay		0.0	0.0		0.0			0.0			0.0	
Total Delay		50.5	2.0		40.2			14.3			14.6	
LOS		D	A		D			B			B	
Approach Delay		44.3			40.2			14.3			14.6	
Approach LOS		D			D			B			B	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		.68	0		.78			206				171
Queue Length 95th (ft)		#142	5		#152			386				343
Internal Link Dist (ft)		377			414			608				651
Turn Bay Length (ft)			30									
Base Capacity (vph)		278	459		373			1087				945
Starvation Cap Reductn		0	0		0			0				0
Spillback Cap Reductn		0	0		0			0				0
Storage Cap Reductn		0	0		0			0				0
Reduced v/c Ratio		0.59	0.05		0.61			0.71				0.71

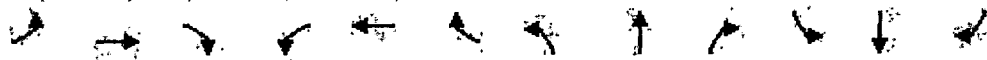
Intersection Summary
 Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 72
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.77
 Intersection Signal Delay: 20.6
 Intersection LOS: C
 Intersection Capacity Utilization 88.2%
 ICU Level of Service E
 Analysis Period (min) 15
 # .95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 10: Route 206 & Greendale Road/Stickles Pond Road





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		←	↑		↔			↔			↔	
Traffic Volume (vph)	98	55	23	69	58	88	39	619	70	81	456	92
Future Volume (vph)	98	55	23	69	58	88	39	619	70	81	456	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	14	12	12	12	12	12	12	12	12	12
Grade (%)		-4%			-2%			4%			4%	
Storage Length (ft)	0		30	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.945			0.987			0.980	
Flt Protected		0.969			0.984			0.997			0.994	
Satd. Flow (prot)	0	1866	1757	0	1704	0	0	1805	0	0	1772	0
Flt Permitted		0.626			0.832			0.943			0.829	
Satd. Flow (perm)	0	1205	1757	0	1441	0	0	1707	0	0	1478	0
Right Turn on Red			Yes		Yes			No			No	Yes
Satd. Flow (RTOR)			58		46							19
Link Speed (mph)		40			35			50			50	
Link Distance (ft)		457			494			688			731	
Travel Time (s)		7.8			9.6			9.4			10.0	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	0%	0%	7%	0%	6%	0%	1%	7%	7%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	163	24	0	229	0	0	774	0	0	669	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		42.0	42.0		42.0	42.0	
Minimum Split (s)	13.0	13.0	13.0	13.0	13.0		49.0	49.0		49.0	49.0	
Total Split (s)	26.0	26.0	26.0	26.0	26.0		49.0	49.0		49.0	49.0	
Total Split (%)	34.7%	34.7%	34.7%	34.7%	34.7%		65.3%	65.3%		65.3%	65.3%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0	0.0		0.0			0.0			0.0	
Total Lost Time (s)		6.0	6.0		6.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		Max	Max		Max	Max	
Act Effct Green (s)		13.2	13.2		13.2			43.0			43.0	
Actuated g/C Ratio		0.19	0.19		0.19			0.62			0.62	
v/c Ratio		0.71	0.06		0.73			0.73			0.72	
Control Delay		42.9	1.8		34.8			16.0			16.2	
Queue Delay		0.0	0.0		0.0			0.0			0.0	
Total Delay		42.9	1.8		34.8			16.0			16.2	
LOS		D	A		C			B			B	
Approach Delay		37.6			34.8			16.0			16.2	
Approach LOS		D			C			B			B	

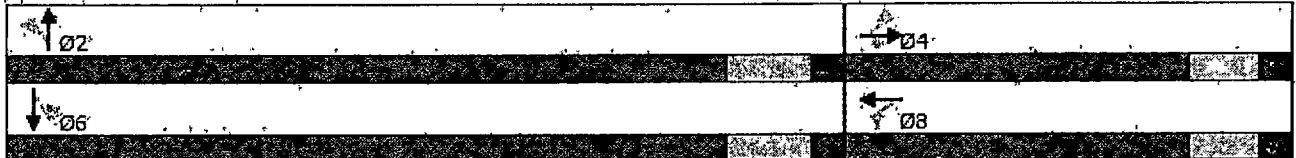


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		64	0		72			199				165
Queue Length 95th (ft)		123	5		141			#462				#441
Internal Link Dist (ft)		377			414			608				651
Turn Bay Length (ft)			80									
Base Capacity (vph)		349	550		450			1059				924
Starvation Cap Reductn		0	0		0			0				0
Spillback Cap Reductn		0	0		0			0				0
Storage Cap Reductn		0	0		0			0				0
Reduced v/c Ratio		0.47	0.04		0.51			0.73				0.72

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 69.2
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay: 20.6
 Intersection LOS: C
 Intersection Capacity Utilization 88.2%
 ICU Level of Service E
 Analysis Period (min): 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 10; Route 206 & Greendale Road/Stickles Pond Road



Intersection

Int Delay, s/veh 0.7

Movement EBL EBT WBT WBR SBL SBR

Lane Configurations		←	→			↑
Traffic Vol, veh/h	27	186	196	2	0	8
Future Vol, veh/h	27	186	196	2	0	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized		None		None		None
Storage Length						0
Veh in Median Storage, #		0	0		0	
Grade, %		4	4		0	
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	33	4	2	0	2	100
Mvmt Flow	31	211	223	2	0	9

Major/Minor Major1 Major2 Minor2

Conflicting Flow All	225	0	0	224
Stage 1				
Stage 2				
Critical Hdwy	4.43			7.2
Critical Hdwy Stg 1				
Critical Hdwy Stg 2				
Follow-up Hdwy	2.497			4.2
Pot Cap-1 Maneuver	1181		0	622
Stage 1			0	
Stage 2			0	
Platoon blocked, %				
Mov Cap-1 Maneuver	1181			622
Mov Cap-2 Maneuver				
Stage 1				
Stage 2				

Approach EB WB SB

HCM Control Delay, s	4	0	10.9
HCM LOS			B

Minor Lane/Major Mvmt EBL EBT WBT WBR SBL1

Capacity (veh/h)	1181			622
HCM Lane V/C Ratio	0.026			0.015
HCM Control Delay (s)	8.1	0		10.9
HCM Lane LOS	A	A		B
HCM 95th %ile Q(veh)	0.1			0

Intersection

Int Delay, s/veh 0.8

Movement EBL EBT WBT WBR SBL SBR

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		←	↑			↑
Traffic Vol, veh/h	8	198	186	0	0	29
Future Vol, veh/h	8	198	186	0	0	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	None			None	None	
Storage Length						0
Veh in Median Storage, #		0	0		0	
Grade, %		4	-4		0	
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	100	1	-1	0	2	31
Mvmt Flow	10	251	235	0	0	37

Major/Minor Major1 Major2 Minor2

Conflicting Flow All	235	0	-	0	-	235
Stage 1						
Stage 2						
Critical Hdwy	5.1					6.51
Critical Hdwy Stg 1						
Critical Hdwy Stg 2						
Follow-up Hdwy	3.1					3.579
Pot Cap-1 Maneuver	920				0	737
Stage 1					0	
Stage 2					0	
Platoon blocked, %						
Mov Cap-1 Maneuver	920					737
Mov Cap-2 Maneuver						
Stage 1						
Stage 2						

Approach EB WB SB

HCM Control Delay, s	0.3	0	10.1
HCM LOS			B

Minor Lane/Major Mvmt EBL EBT WBT WBR SBL1

Capacity (veh/h)	920				737
HCM Lane V/C Ratio	0.011				0.05
HCM Control Delay (s)	9	0			10.1
HCM Lane LOS	A	A			B
HCM 95th %tile Q(veh)	0				0.2