TRAFFIC IMPACT STUDY

PROPOSED THE LEARNING EXPERIENCE
Township of South Orange Village
Essex County, New Jersey

Prepared For:
The Learning Experience

Stonefield Engineering & Design, LLC
April 12, 2019
S-19051

Charles D. Olivo, PE, PP, PTOE
Principal
NJ P.E. License #46719

Matthew J. Seckler, PE, PP, PTOE
Principal
NJ P.E. License #48731

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INTRODUCTION

This Traffic Impact Study was prepared to investigate the potential impacts of the proposed The Learning Experience childcare center on the adjacent roadway network. The subject property is located at 109 and 115 South Orange Avenue in the Township of South Orange Village, Essex County, New Jersey. The site location is shown on appended **Figure 1**.

The subject property is designated as Block 1904, Lots 16 and 17 as depicted on the Township of South Orange Village Tax Map. The site has approximately 110 feet of frontage along South Orange Avenue. The existing site is occupied by a Michelin Automotive Tires retail store. Access is presently provided via one (1) full-movement driveway along South Orange Avenue. Under the proposed development program, the existing structure would be razed and a 16,327-square-foot, two (2)-story The Learning Experience childcare center would be constructed. The existing full-movement driveway along South Orange Avenue is proposed to remain as is.

METHODOLOGY

Stonefield Engineering & Design, LLC has prepared this Traffic Impact Study in accordance with the recommended guidelines and practices outlined by the Institute of Transportation Engineers (ITE) within Transportation Impact Analyses for Site Development. A detailed field investigation was performed to assess the existing conditions of the adjacent roadway network. A data collection effort was completed to identify the existing traffic volumes at the study intersections to serve as a base for the traffic analyses. Capacity analysis, a procedure used to estimate the traffic-carrying ability of roadway facilities over a range of defined operating conditions, was performed using the Highway Capacity Manual, 6th Edition (HCM) and the Highway Capacity Software (HCS 7) for all study conditions to assess the roadway operations.

For an unsignalized intersection, Level of Service (LOS) A indicates operations with delay of less than 10 seconds per vehicle, while LOS F describes operations with delay in excess of 50 seconds per vehicle. For a signalized intersection, LOS A indicates operations with delay of less than 10 seconds per vehicle, while LOS F describes operations with delay in excess of 80 seconds per vehicle. The Technical Appendix contains the Highway Capacity Analysis Detail Sheets for the study intersections analyzed in this assessment.

2019 EXISTING CONDITION

2019 EXISTING ROADWAY CONDITIONS

The proposed The Learning Experience childcare center is located at 109 and 115 South Orange Avenue in the Township of South Orange Village, Essex County, New Jersey. The subject property is designated as

Block 1904, Lots 16 and 17 as depicted on the Township of South Orange Village Tax Map. The site has approximately 110 feet of frontage along South Orange Avenue. Land uses in the area are a mix of residential, commercial, and educational uses.

South Orange Avenue (County Route 510) is classified as an Urban Principal Arterial roadway with a general east-west orientation and is under the jurisdiction of Essex County. Along the site frontage, the roadway generally provides one (1) lane of travel in each direction, intermittently separated by a two-way left-turn median and has a posted speed limit of 30 mph. Curb and sidewalk are provided along both sides of the roadway, shoulders are not provided, and metered on-street parking is provided along both sides of the roadway. South Orange Avenue provides east-west mobility within Essex County and provides access to the Garden State Parkway and NJSH Route 21 to the east and NJSH Route 24 to the west for a mix of residential and commercial uses along its length.

Church Street is a local roadway with a general north-south orientation and is under the jurisdiction of the Township of South Orange Village. In the vicinity of the site, the roadway provides one (1) lane of travel in each direction. Curb and sidewalk are provided along both sides of the roadway, shoulders are not provided, and on-street parking is permitted along the easterly side of the roadway with a two (2)-hour parking restriction in effect weekdays from 8:00 a.m. to 6:00 p.m. Church Street serves predominantly residential uses along its length.

South Orange Avenue and Church Street intersect to form an unsignalized T-intersection with the northbound approach of Church Street operating under stop control. The eastbound approach of South Orange Avenue provides one (1) shared through/right-turn lane and the westbound approach of South Orange Avenue provides one (1) exclusive left-turn lane and one (1) exclusive through lane. The northbound approach of Church Street provides one (1) shared left-turn/right-turn lane. Crosswalk is provided across the easterly and southerly legs of the intersection.

South Orange Avenue and the existing site driveway intersect to form an unsignalized T-intersection with the southbound approach of the site driveway operating under stop control. The eastbound approach of South Orange Avenue provides one (1) shared left-turn/through lane and the westbound approach of South Orange Avenue provides one (1) shared through/right-turn lane. The southbound approach of the site driveway provides one (1) shared left-turn/right-turn lane. Sidewalk is provided across the site driveway approach to accommodate pedestrian traffic along South Orange Avenue, and a crosswalk is provided across the westerly leg of the intersection.

2019 EXISTING TRAFFIC VOLUMES

Manual turning movement counts were collected during the typical weekday morning and weekday evening time periods to evaluate existing traffic conditions and identify the specific hours when traffic activity on the adjacent roadways is at a maximum and could be potentially impacted by the development of the site. Turning movement counts were collected at the intersection of South Orange Avenue and Church Street, and at the existing Michelin Automotive Tires driveway on Wednesday, March 27, from 7:00 a.m. to 9:00 a.m. and from 4:00 p.m. to 7:00 p.m.

The study time periods were chosen as they are representative of the peak periods of both the adjacent roadway network and the proposed development. The traffic volume data was collected and analyzed to identify the design peak hour in accordance with HCM and ITE guidelines. Based on the review of the count data the weekday morning peak hour occurred from 7:45 a.m. to 8:45 a.m. and the weekday evening peak hour occurred from 5:45 p.m. to 6:45 p.m. The Technical Appendix contains a summary of the turning movement count data. The 2019 Existing weekday morning and weekday evening peak-hour volumes are summarized on appended **Figure 2**.

2019 EXISTING LOS/CAPACITY ANALYSIS

A Level of Service and Volume/Capacity analysis was conducted for the 2019 Existing Condition during the weekday morning and weekday evening peak hours at the study intersection and site driveway. Under the existing condition, turning movements at the intersection of South Orange Avenue and Church Street are calculated to operate at Level of Service C or better during the weekday morning and weekday evening peak hours. Turning movements at the site driveway are calculated to operate at Level of Service C or better during the weekday morning and weekday evening peak hours.

2021 NO-BUILD CONDITION

BACKGROUND GROWTH

The 2019 Existing Condition traffic volume data was grown to a future horizon year of 2021, which is a conservative estimate for when the proposed The Learning Experience childcare center is expected to be fully constructed. In accordance with industry guidelines, the existing traffic volumes at the study intersections were increased by 2.00% annually for two (2) years. The 2.00% background growth rate was obtained from the New Jersey Department of Transportation (NJDOT) Annual Background Growth Rate Table.

OTHER PLANNED DEVELOPMENT PROJECTS

To evaluate the future traffic conditions, it is important to consider the potential site-generated traffic of other projects that could influence the traffic volume at the study intersections. Other planned development projects include those that are either in the entitlement process or have recently been approved for building permits in proximity to the proposed development. Based on consultations with the South Orange Village Engineer, Salvatore Renda, there are no planned development projects within the area of the subject site. As such, the application of the background growth rate would be adequate to account for background traffic growth.

2021 NO-BUILD TRAFFIC VOLUMES

The background growth rate was applied to the 2019 Existing Traffic Volumes to calculate the 2021 No-Build Traffic Volumes for the weekday morning and weekday evening peak hours. These volumes are summarized on appended **Figure 3**.

2021 NO-BUILD LOS/CAPACITY ANALYSIS

A Level of Service and Volume/Capacity analysis was also conducted for the 2021 No-Build Condition during the weekday morning and weekday evening peak periods at the study intersection and site driveway. Turning movements at the intersection of South Orange Avenue and Church Street are calculated to operate at acceptable Level of Service D or better during the weekday morning peak hour and generally consistently with the findings of the Existing Condition during the weekday evening peak hour. Turning movements at the site driveway are calculated to operate generally consistently with the Existing condition for the weekday morning and weekday evening peak hours.

2021 BUILD CONDITION

The site-generated traffic volume of the proposed The Learning Experience childcare center was estimated to identify the potential impacts of the project. For the purpose of this analysis, a complete project "build out" is assumed within two (2) years of the preparation of this study.

TRIP GENERATION

Trip generation projections for the proposed The Learning Experience childcare center were prepared utilizing the ITE's Trip Generation Manual, 10th Edition. Trip generation rates associated with Land Use 565 "Day Care Center" were cited for the proposed 16,327-square-foot The Learning Experience childcare center. **Table 1** provides the weekday morning and weekday evening trip generation volumes associated with the proposed development.

TABLE 1 – PROPOSED TRIP GENERATION

	Weekday Morning Peak Hour			Weekday Evening Peak Hour		
Land Use	**Enter**	**Exit**	**Total**	**Enter**	**Exit**	**Total**
16,327 SF Day Care Center *ITE Land Use 565*	95	85	180	86	96	182

It is important to note that the existing site is presently developed with a 12,253-square-foot Michelin Automotive Tires retail store that generates trips prior to the development of the proposed childcare center. As such, the anticipated increase of site-generated trips would be less than the ITE rates would suggest. **Table 2** provides the net trip increase during the weekday morning and weekday evening peak periods.

TABLE 2 – NET TRIP GENERATION INCREASE

	Weekday Morning Peak Hour			Weekday Evening Peak Hour		
Land Use	**Enter**	**Exit**	**Total**	**Enter**	**Exit**	**Total**
Existing 12,253 SF Tire Store *As Counted*	5	3	8	1	3	4
Proposed 16,327 SF Day Care Center *ITE Land Use 565*	95	85	180	86	96	182
Net Trip Increase	**+90**	**+82**	**+172**	**+85**	**+93**	**+178**

As shown in Table 2, a net trip increase of 172 trips is anticipated during the weekday morning peak hour and a net trip increase of 178 trips is anticipated during the weekday evening peak hour.

TRIP ASSIGNMENT/DISTRIBUTION

The trips generated by the proposed childcare center were distributed based on the geometry of the surrounding roadway network, existing traffic patterns, and the access management plan of the site. The Net Increase in Site-Generated Traffic Volumes are illustrated on **Figure 4**.

2021 BUILD TRAFFIC VOLUMES

The site-generated trips were added to the 2021 No-Build Traffic Volumes to calculate the 2021 Build Traffic Volumes and are shown on appended **Figure 5**.

2021 BUILD LOS/CAPACITY ANALYSIS

A Level of Service and Volume/Capacity analysis was also conducted for the 2021 Build Condition during the weekday morning and weekday evening peak hours at the study intersection and proposed site driveway. **Tables 3** to **6** compare the Existing, No-Build, and Build Conditions Level of Service and delay values. Turning

movements at the intersection of South Orange Avenue and Church Street are calculated to operate generally consistently with the No-Build Condition at Level of Service D during the weekday morning peak hour and at Level of Service D or better during the weekday evening peak hour. Turning movements at the site driveway are calculated to operate generally consistently with the No-Build Condition at Level of Service C during the weekday morning peak hour and at Level of Service C or better during the weekday evening peak hour.

COMPARATIVE LEVEL OF SERVICE (DELAY) TABLES

SOUTH ORANGE AVENUE & CHURCH STREET

WB (Westbound) approach is the South Orange Avenue approach
NB (Northbound) approach is the Church Street approach
X (n) = Level of Service (seconds of delay)

TABLE 3 – WEEKDAY MORNING PEAK HOUR

Lane Group	2019 Existing	2021 No-Build	2021 Build
WB Left	A (8.8)	A (8.9)	A (9.1)
NB Left/Right	C (23.7)	D (26.1)	D (30.1)

TABLE 4 – WEEKDAY EVENING PEAK HOUR

Lane Group	2019 Existing	2021 No-Build	2021 Build
WB Left	A (9.1)	A (9.2)	A (9.4)
NB Left/Right	C (21.1)	C (22.8)	D (25.4)

SOUTH ORANGE AVENUE & SITE DRIVEWAY

EB (Eastbound) approach is the South Orange Avenue approach
SB (Southbound) approach is the site driveway approach
X (n) = Level of Service (seconds of delay)

TABLE 5 – WEEKDAY MORNING PEAK HOUR

Lane Group	2019 Existing	2021 No-Build	2021 Build
EB Left/Through	A (9.1)	A (9.2)	A (9.7)
SB Left/Right	C (16.3)	C (16.9)	C (22.8)

TABLE 6 – WEEKDAY EVENING PEAK HOUR

Lane Group	2019 Existing	2021 No-Build	2021 Build
EB Left/Through	A (8.9)	A (9.0)	A (9.4)
SB Left/Right	B (11.6)	B (11.8)	C (23.7)

SITE CIRCULATION/PARKING SUPPLY

A review was conducted of the proposed The Learning Experience childcare center using the Site Plan prepared by Jarmel Kizel Architects & Engineers, Inc., dated January 17, 2019. In completing this review, particular attention was focused on the site access, circulation, and parking supply.

The existing access is proposed to remain via the one (1) full-movement driveway along South Orange Avenue. Two-way vehicular circulation throughout the site and parking maneuvers would be facilitated via 24-foot-wide drive aisles. The proposed The Learning Experience childcare center would be located in the southeasterly portion of the property with the parking area located to the west and north of the building. The trash enclosure would be provided in the northwesterly corner of the property.

Regarding student drop-off, parents would park within the lot and walk their child into the building. Similarly, for student pick-up, parents would park within the lot and enter the building and walk their child back to their vehicle. Vehicles would not stack or queue on-site as part of the pick-up/drop-off process.

Regarding the parking requirement for the proposed The Learning Experience childcare center, the Township of South Orange Village Ordinance requires one (1) space per 800 square-feet for day care centers. For the proposed 16,327-square-foot childcare center, this equates to 21 required spaces. The site would provide 24 total parking spaces, inclusive of one (1) ADA accessible parking space, which meets the parking requirement and would be sufficient to support this project's parking demand. The spaces would be nine (9) feet wide by 18 feet deep in accordance with industry standards.

CONCLUSIONS

This report was prepared to examine the potential traffic impact of the proposed The Learning Experience childcare center. The analysis findings, which have been based on industry-standard guidelines, indicate that the proposed development would not have a significant impact on the traffic operations of the adjacent roadway network. The site driveways and on-site layout have been designed to provide for effective access to and from the subject property and the parking supply would be sufficient to support this project.

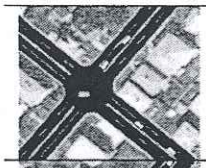
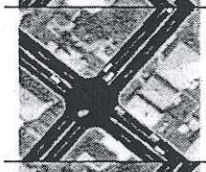
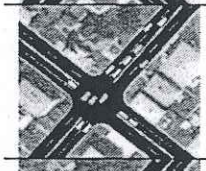
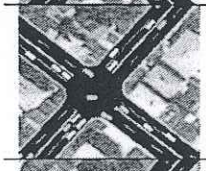
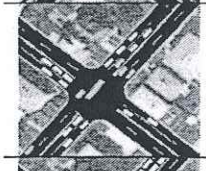
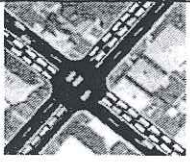
TECHNICAL APPENDIX

LEVEL OF SERVICE/AVERAGE CONTROL DELAY CRITERIA

LEVEL OF SERVICE /AVERAGE CONTROL DELAY CRITERIA

The ability of a roadway to effectively accommodate traffic demand is determined through an assessment of the volume-to-capacity ratio, delay and Level of Service of the lane group and/or intersection. The volume-to-capacity ratio is the ratio of traffic flow rate to capacity for a given transportation facility. As defined within the Highway Capacity Manual, 6th Edition (HCM), intersection delay is the total additional travel time experienced by drivers, passengers, or pedestrians as a result of control measures and interaction with other users of the facility, divided by the volume departing from the corresponding cross section of the facility. Level of service is a qualitative measure describing operational conditions within a traffic stream, based on service measures such as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience.

For an unsignalized intersection, LOS A indicates operations with delay less than 10 seconds per vehicle, while LOS F describes operations with delay in excess of 50 seconds per vehicle. For a signalized intersection, LOS A indicates operations with delay less than 10 seconds per vehicle and LOS F denotes operations with delay in excess of 80 seconds per vehicle.

	Level Of Service (LOS)	Signalized Delay Range (average control delay in sec/veh)	Unsignalized Delay Range (average control delay in sec/veh)
	A	<=10	<=10
	B	>10 and <=20	>10 and <=15
	C	>20 and <=35	>15 and <=25
	D	>35 and <=55	>25 and <=35
	E	>55 and <=80	>35 and <=50
	F	>80	>50

Source: Highway Capacity Manual, 6th Edition

TURNING MOVEMENT COUNT DATA

Stonefield Engineering & Design, LLC

92 Park Avenue, Rutherford, NJ 07070

201.340.4468 t. 201.340.4472 f.

Intersection of South Orange Avenue (E/W)
& Church Street (N/S)
Township of South Orange Village. Essex County, New Jersey
Wednesday, March 27, 2019

File Name : S-19051.01
Site Code : 00019051
Start Date : 3/27/2019
Page No : 1

Groups Printed- Auto - HV - B/SB

	South Orange Avenue Eastbound				South Orange Avenue Westbound				Church Street Northbound				Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	58	12	70	0	95	0	95	3	0	2	5	0	0	0	0	170
07:15 AM	0	124	29	153	5	122	0	127	3	0	2	5	0	0	0	0	285
07:30 AM	0	73	8	81	9	163	0	172	6	0	2	8	0	0	0	0	261
07:45 AM	0	104	30	134	8	161	0	169	14	0	6	20	0	0	0	0	323
Total	0	359	79	438	22	541	0	563	26	0	12	38	0	0	0	0	1039
08:00 AM	0	93	26	119	19	172	0	191	29	0	18	47	0	0	0	0	357
08:15 AM	0	126	40	166	11	160	0	171	19	0	13	32	0	0	0	0	369
08:30 AM	0	116	16	132	1	149	0	150	6	0	6	12	0	0	0	0	294
08:45 AM	0	125	17	142	3	139	0	142	5	0	4	9	0	0	0	0	293
Total	0	460	99	559	34	620	0	654	59	0	41	100	0	0	0	0	1313
*** BREAK ***																	
04:00 PM	0	147	8	155	6	133	0	139	6	0	8	14	0	0	0	0	308
04:15 PM	0	130	10	140	7	111	0	118	1	0	6	7	0	0	0	0	265
04:30 PM	0	127	9	136	1	112	0	113	2	0	3	5	0	0	0	0	254
04:45 PM	0	141	13	154	4	117	0	121	3	0	8	11	0	0	0	0	286
Total	0	545	40	585	18	473	0	491	12	0	25	37	0	0	0	0	1113
05:00 PM	0	143	7	150	5	121	0	126	4	0	10	14	0	0	0	0	290
05:15 PM	0	146	11	157	6	139	0	145	6	0	11	17	0	0	0	0	319
05:30 PM	0	140	14	154	7	123	0	130	5	0	10	15	0	0	0	0	299
05:45 PM	0	145	17	162	6	164	0	170	7	0	12	19	0	0	0	0	351
Total	0	574	49	623	24	547	0	571	22	0	43	65	0	0	0	0	1259
06:00 PM	0	128	8	136	13	148	0	161	9	0	13	22	0	0	0	0	319
06:15 PM	0	140	24	164	9	163	0	172	21	0	12	33	0	0	0	0	369
06:30 PM	0	133	23	156	12	139	0	151	8	0	8	16	0	0	0	0	323
06:45 PM	0	132	13	145	7	112	0	119	6	0	13	19	0	0	0	0	283
Total	0	533	68	601	41	562	0	603	44	0	46	90	0	0	0	0	1294
Grand Total	0	2471	335	2806	139	2743	0	2882	163	0	167	330	0	0	0	0	6018
Apprch %	0	88.1	11.9		4.8	95.2	0		49.4	0	50.6		0	0	0		
Total %	0	41.1	5.6	46.6	2.3	45.6	0	47.9	2.7	0	2.8	5.5	0	0	0	0	
Auto	0	2459	333	2792	139	2724	0	2863	163	0	166	329	0	0	0	0	5984
% Auto	0	99.5	99.4	99.5	100	99.3	0	99.3	100	0	99.4	99.7	0	0	0	0	99.4
HV	0	4	0	4	0	3	0	3	0	0	1	1	0	0	0	0	8
% HV	0	0.2	0	0.1	0	0.1	0	0.1	0	0	0.6	0.3	0	0	0	0	0.1
B/SB	0	8	2	10	0	16	0	16	0	0	0	0	0	0	0	0	26
% B/SB	0	0.3	0.6	0.4	0	0.6	0	0.6	0	0	0	0	0	0	0	0	0.4

Stonefield Engineering & Design, LLC

92 Park Avenue, Rutherford, NJ 07070

201.340.4468 t. 201.340.4472 f.

Intersection of South Orange Avenue (E/W)
& Church Street (N/S)
Township of South Orange Village. Essex County, New Jersey
Wednesday, March 27, 2019

File Name : S-19051.01
Site Code : 00019051
Start Date : 3/27/2019
Page No : 2

	South Orange Avenue Eastbound				South Orange Avenue Westbound				Church Street Northbound				Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	0	104	30	134	8	161	0	169	14	0	6	20	0	0	0	0	323
08:00 AM	0	93	26	119	19	172	0	191	29	0	18	47	0	0	0	0	357
08:15 AM	0	126	40	166	11	160	0	171	19	0	13	32	0	0	0	0	369
08:30 AM	0	116	16	132	1	149	0	150	6	0	6	12	0	0	0	0	294
Total Volume	0	439	112	551	39	642	0	681	68	0	43	111	0	0	0	0	1343
% App. Total	0	79.7	20.3		5.7	94.3	0		61.3	0	38.7		0	0	0		
PHF	.000	.871	.700	.830	.513	.933	.000	.891	.586	.000	.597	.590	.000	.000	.000	.000	.910
Auto	0	437	111	548	39	632	0	671	68	0	43	111	0	0	0	0	1330
% Auto	0	99.5	99.1	99.5	100	98.4	0	98.5	100	0	100	100	0	0	0	0	99.0
HV	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
% HV	0	0	0	0	0	0.3	0	0.3	0	0	0	0	0	0	0	0	0.1
B/SB	0	2	1	3	0	8	0	8	0	0	0	0	0	0	0	0	11
% B/SB	0	0.5	0.9	0.5	0	1.2	0	1.2	0	0	0	0	0	0	0	0	0.8
Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:45 PM																	
05:45 PM	0	145	17	162	6	164	0	170	7	0	12	19	0	0	0	0	351
06:00 PM	0	128	8	136	13	148	0	161	9	0	13	22	0	0	0	0	319
06:15 PM	0	140	24	164	9	163	0	172	21	0	12	33	0	0	0	0	369
06:30 PM	0	133	23	156	12	139	0	151	8	0	8	16	0	0	0	0	323
Total Volume	0	546	72	618	40	614	0	654	45	0	45	90	0	0	0	0	1362
% App. Total	0	88.3	11.7		6.1	93.9	0		50	0	50		0	0	0		
PHF	.000	.941	.750	.942	.769	.936	.000	.951	.536	.000	.865	.682	.000	.000	.000	.000	.923
Auto	0	543	71	614	40	614	0	654	45	0	44	89	0	0	0	0	1357
% Auto	0	99.5	98.6	99.4	100	100	0	100	100	0	97.8	98.9	0	0	0	0	99.6
HV	0	1	0	1	0	0	0	0	0	0	1	1	0	0	0	0	2
% HV	0	0.2	0	0.2	0	0	0	0	0	0	2.2	1.1	0	0	0	0	0.1
B/SB	0	2	1	3	0	0	0	0	0	0	0	0	0	0	0	0	3
% B/SB	0	0.4	1.4	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0.2

Stonefield Engineering & Design, LLC

92 Park Avenue, Rutherford, NJ 07070
201.340.4468 t. 201.340.4472 f.

Intersection of South Orange Avenue (E/W)
& Site Driveway (N/S)
Township of South Orange Village, Essex County, New Jersey
Wednesday, March 27, 2019

File Name : S-19051.02
Site Code : 00019051
Start Date : 3/27/2019
Page No : 1

Groups Printed- Auto - HV - B/SB

	South Orange Avenue Eastbound				South Orange Avenue Westbound				Northbound				Site Driveway Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	60	0	60	0	94	0	94	0	0	0	0	1	0	1	2	156
07:15 AM	1	125	0	126	0	126	1	127	0	0	0	0	0	0	1	1	254
07:30 AM	1	74	0	75	0	170	2	172	0	0	0	0	0	0	2	2	249
07:45 AM	2	108	0	110	0	168	0	168	0	0	0	0	0	0	1	1	279
Total	4	367	0	371	0	558	3	561	0	0	0	0	1	0	5	6	938
08:00 AM	0	111	0	111	0	191	0	191	0	0	0	0	0	0	0	0	302
08:15 AM	2	137	0	139	0	171	0	171	0	0	0	0	2	0	0	2	312
08:30 AM	1	121	0	122	0	150	0	150	0	0	0	0	0	0	0	0	272
08:45 AM	0	129	0	129	0	142	0	142	0	0	0	0	0	0	0	0	271
Total	3	498	0	501	0	654	0	654	0	0	0	0	2	0	0	2	1157
*** BREAK ***																	
04:00 PM	0	155	0	155	0	139	0	139	0	0	0	0	1	0	0	1	295
04:15 PM	0	136	0	136	0	118	1	119	0	0	0	0	0	0	0	0	255
04:30 PM	0	130	0	130	0	113	0	113	0	0	0	0	0	0	0	0	243
04:45 PM	0	149	0	149	0	120	0	120	0	0	0	0	0	0	1	1	270
Total	0	570	0	570	0	490	1	491	0	0	0	0	1	0	1	2	1063
05:00 PM	1	152	0	153	0	126	0	126	0	0	0	0	0	0	0	0	279
05:15 PM	0	157	0	157	0	145	0	145	0	0	0	0	0	0	0	0	302
05:30 PM	0	150	0	150	0	130	2	132	0	0	0	0	0	0	0	0	282
05:45 PM	1	156	0	157	0	165	0	165	0	0	0	0	0	0	3	3	325
Total	2	615	0	617	0	566	2	568	0	0	0	0	0	0	3	3	1188
06:00 PM	0	141	0	141	0	162	0	162	0	0	0	0	0	0	0	0	303
06:15 PM	0	152	0	152	0	172	0	172	0	0	0	0	0	0	0	0	324
06:30 PM	0	141	0	141	0	152	0	152	0	0	0	0	0	0	0	0	293
06:45 PM	0	145	0	145	0	118	0	118	0	0	0	0	0	0	1	1	264
Total	0	579	0	579	0	604	0	604	0	0	0	0	0	0	1	1	1184
Grand Total	9	2629	0	2638	0	2872	6	2878	0	0	0	0	4	0	10	14	5530
Apprch %	0.3	99.7	0		0	99.8	0.2		0	0	0		28.6	0	71.4		
Total %	0.2	47.5	0	47.7	0	51.9	0.1	52	0	0	0	0	0.1	0	0.2	0.3	
Auto	9	2616	0	2625	0	2853	6	2859	0	0	0	0	4	0	10	14	5498
% Auto	100	99.5	0	99.5	0	99.3	100	99.3	0	0	0	0	100	0	100	100	99.4
HV	0	5	0	5	0	3	0	3	0	0	0	0	0	0	0	0	8
% HV	0	0.2	0	0.2	0	0.1	0	0.1	0	0	0	0	0	0	0	0	0.1
B/SB	0	8	0	8	0	16	0	16	0	0	0	0	0	0	0	0	24
% B/SB	0	0.3	0	0.3	0	0.6	0	0.6	0	0	0	0	0	0	0	0	0.4

Stonefield Engineering & Design, LLC

92 Park Avenue, Rutherford, NJ 07070

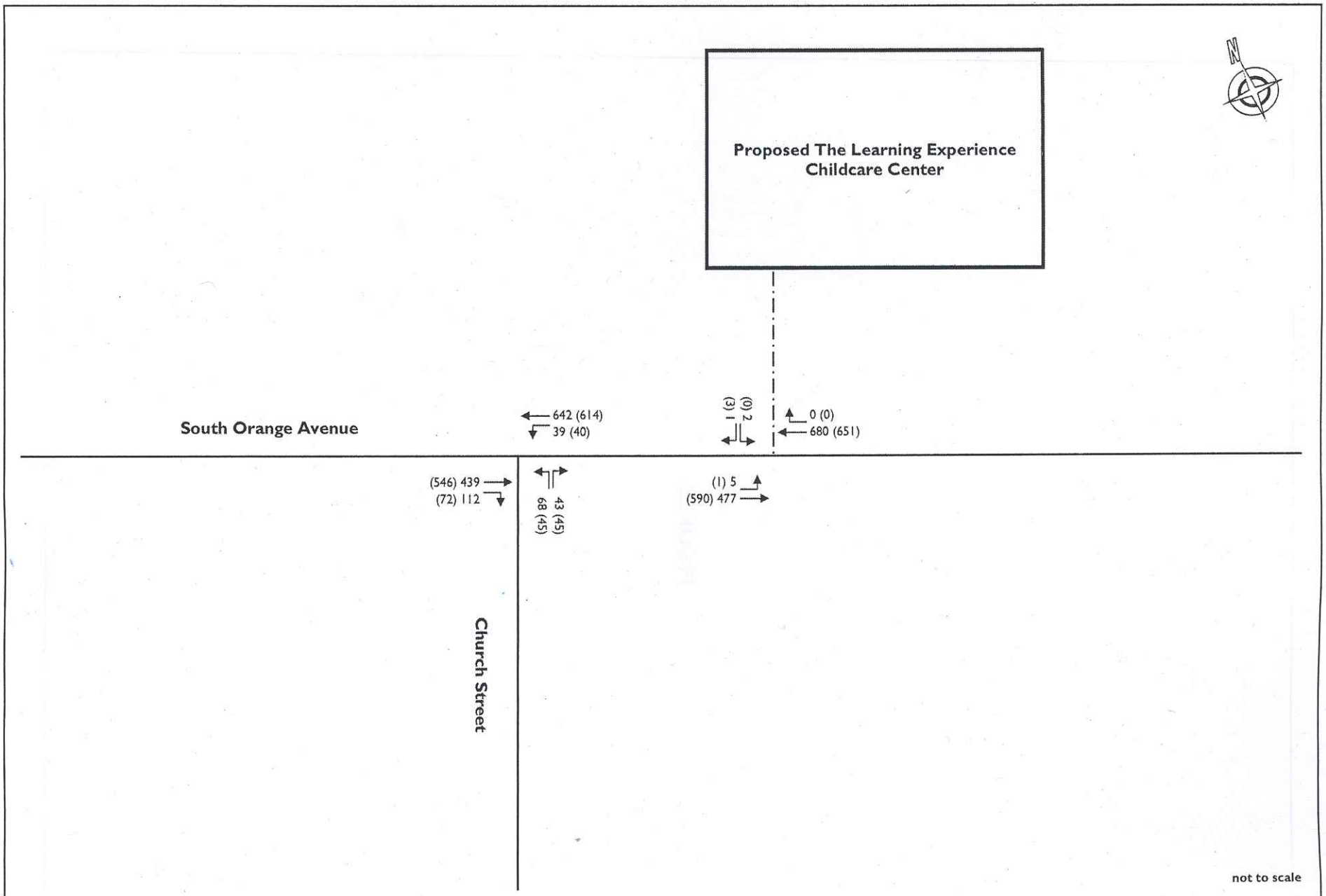
201.340.4468 t. 201.340.4472 f.

Intersection of South Orange Avenue (E/W)
& Site Driveway (N/S)
Township of South Orange Village, Essex County, New Jersey
Wednesday, March 27, 2019

File Name : S-19051.02
Site Code : 00019051
Start Date : 3/27/2019
Page No : 2

	South Orange Avenue Eastbound				South Orange Avenue Westbound				Northbound				Site Driveway Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	2	108	0	110	0	168	0	168	0	0	0	0	0	0	1	1	279
08:00 AM	0	111	0	111	0	191	0	191	0	0	0	0	0	0	0	0	302
08:15 AM	2	137	0	139	0	171	0	171	0	0	0	0	2	0	0	2	312
08:30 AM	1	121	0	122	0	150	0	150	0	0	0	0	0	0	0	0	272
Total Volume	5	477	0	482	0	680	0	680	0	0	0	0	2	0	1	3	1165
% App. Total	1	99	0		0	100	0		0	0	0		66.7	0	33.3		
PHF	.625	.870	.000	.867	.000	.890	.000	.890	.000	.000	.000	.000	.250	.000	.250	.375	.933
Auto	5	475	0	480	0	670	0	670	0	0	0	0	2	0	1	3	1153
% Auto	100	99.6	0	99.6	0	98.5	0	98.5	0	0	0	0	100	0	100	100	99.0
HV	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
% HV	0	0	0	0	0	0.3	0	0.3	0	0	0	0	0	0	0	0	0.2
B/SB	0	2	0	2	0	8	0	8	0	0	0	0	0	0	0	0	10
% B/SB	0	0.4	0	0.4	0	1.2	0	1.2	0	0	0	0	0	0	0	0	0.9
Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:45 PM																	
05:45 PM	1	156	0	157	0	165	0	165	0	0	0	0	0	0	3	3	325
06:00 PM	0	141	0	141	0	162	0	162	0	0	0	0	0	0	0	0	303
06:15 PM	0	152	0	152	0	172	0	172	0	0	0	0	0	0	0	0	324
06:30 PM	0	141	0	141	0	152	0	152	0	0	0	0	0	0	0	0	293
Total Volume	1	590	0	591	0	651	0	651	0	0	0	0	0	0	3	3	1245
% App. Total	0.2	99.8	0		0	100	0		0	0	0		0	0	100		
PHF	.250	.946	.000	.941	.000	.946	.000	.946	.000	.000	.000	.000	.000	.000	.250	.250	.958
Auto	1	586	0	587	0	651	0	651	0	0	0	0	0	0	3	3	1241
% Auto	100	99.3	0	99.3	0	100	0	100	0	0	0	0	0	0	100	100	99.7
HV	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
% HV	0	0.3	0	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0.2
B/SB	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
% B/SB	0	0.3	0	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0.2

FIGURES



LEGEND

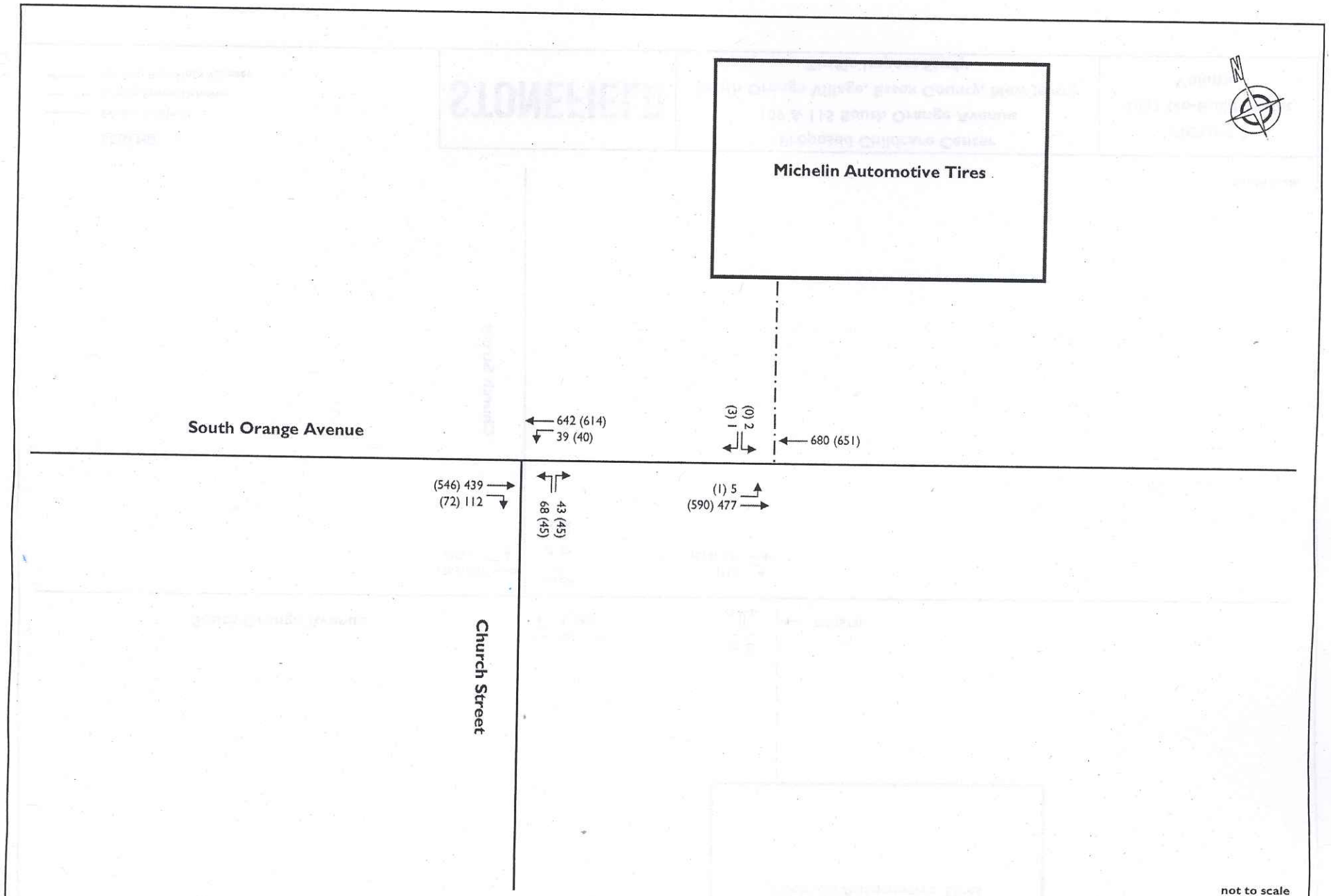
- Existing Roadway
- Existing Private Driveway
- AM (PM) Peak Hour Volumes

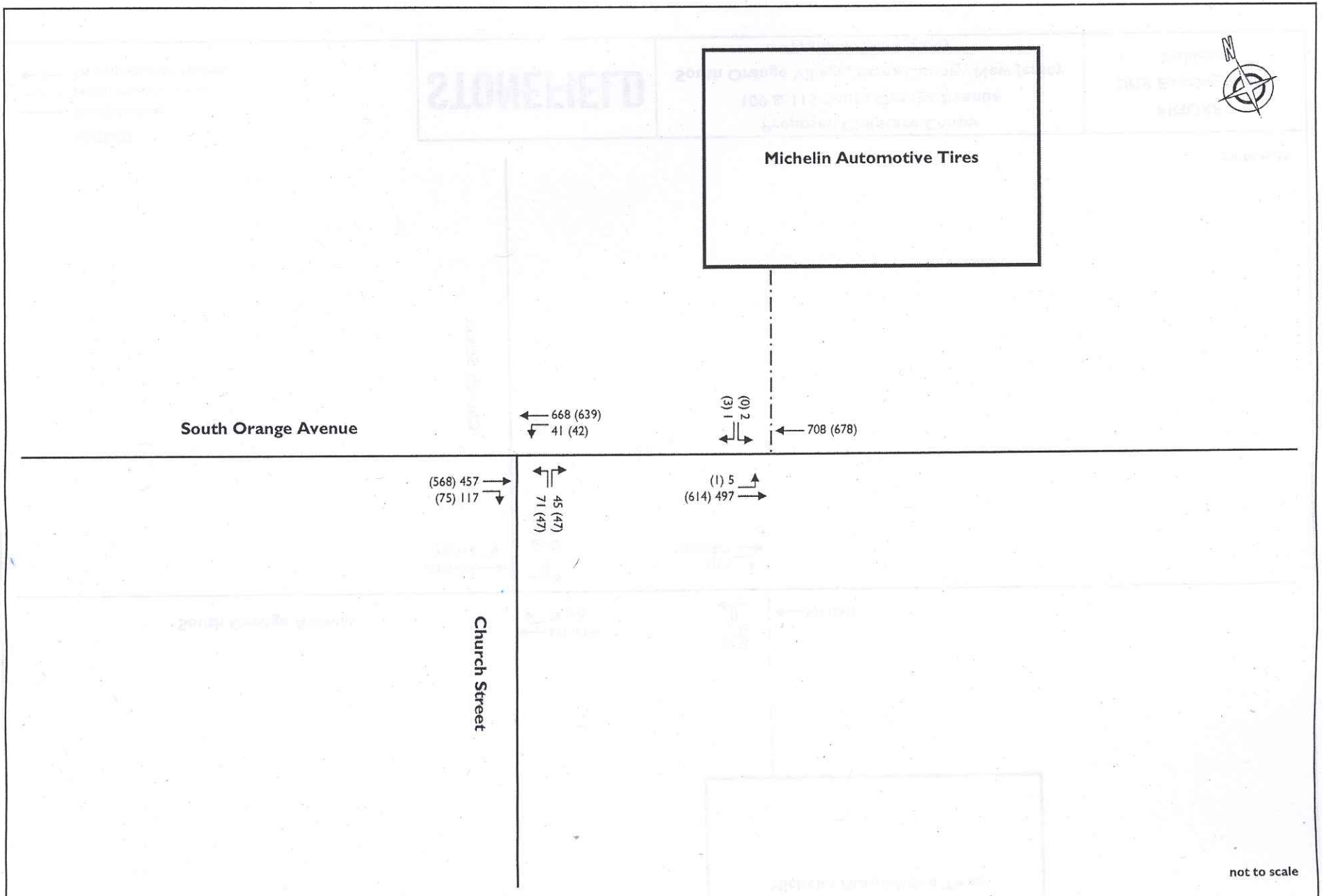
STONEFIELD

Proposed Childcare Center
109 & 115 South Orange Avenue
South Orange Village, Essex County, New Jersey
Traffic Impact Study

FIGURE [FIGURE #]
As Counted

A10


Michelin Automotive Tires
N
South Orange Avenue
642 (614)
39 (40)
(0) 2
(3) 1
680 (651)
(546) 439
(72) 112
43 (45)
68 (45)
(1) 5
(590) 477
Church Street
not to scale
LEGEND
Existing Roadway
Existing Private Driveway
AM (PM) Peak Hour Volumes
STONEFIELD
Proposed Childcare Center
109 & 115 South Orange Avenue
South Orange Village, Essex County, New Jersey
Traffic Impact Study
FIGURE 2
2019 Existing Traffic Volumes



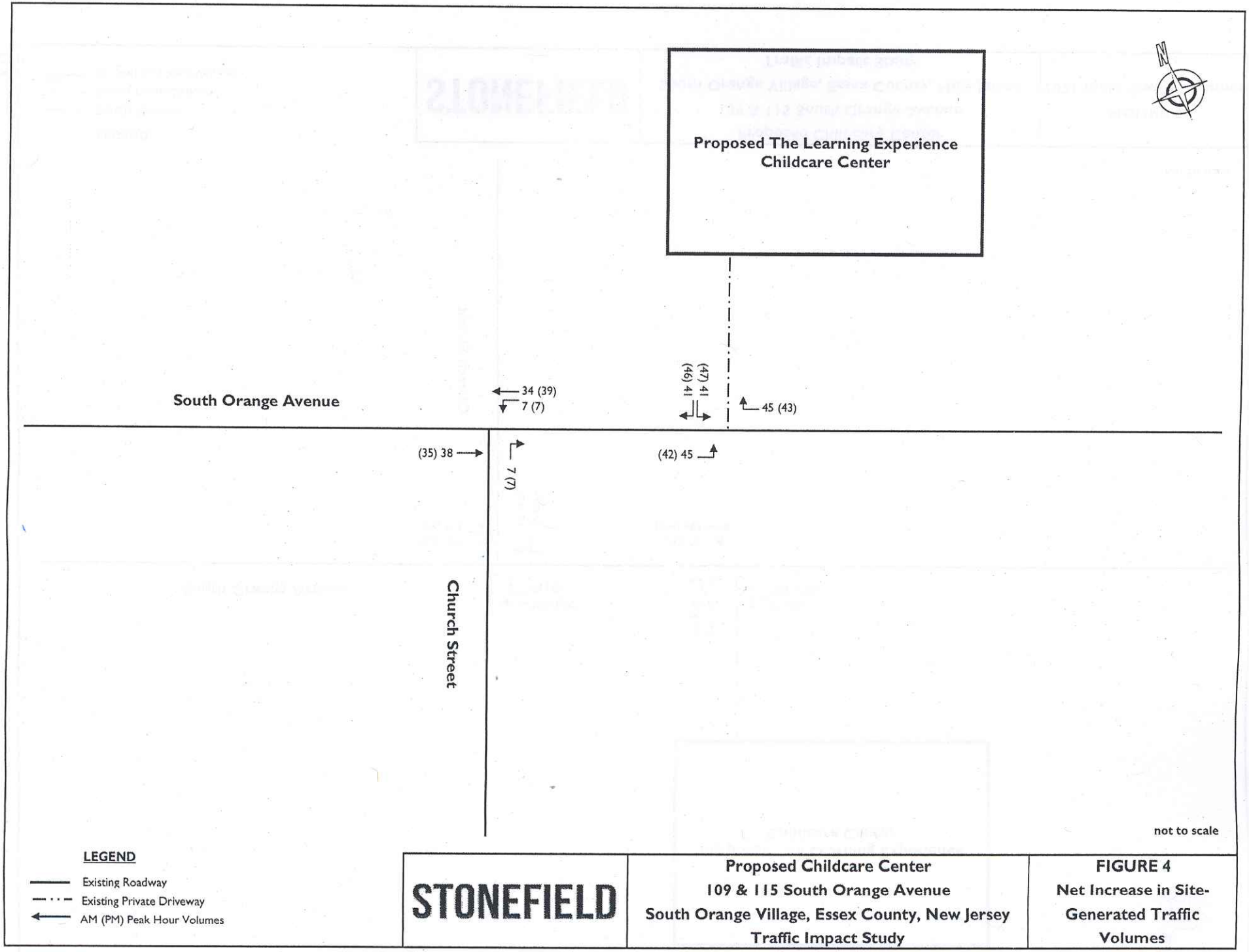
LEGEND

- Existing Roadway
- Existing Private Driveway
- AM (PM) Peak Hour Volumes

STONEFIELD

Proposed Childcare Center
109 & 115 South Orange Avenue
South Orange Village, Essex County, New Jersey
Traffic Impact Study

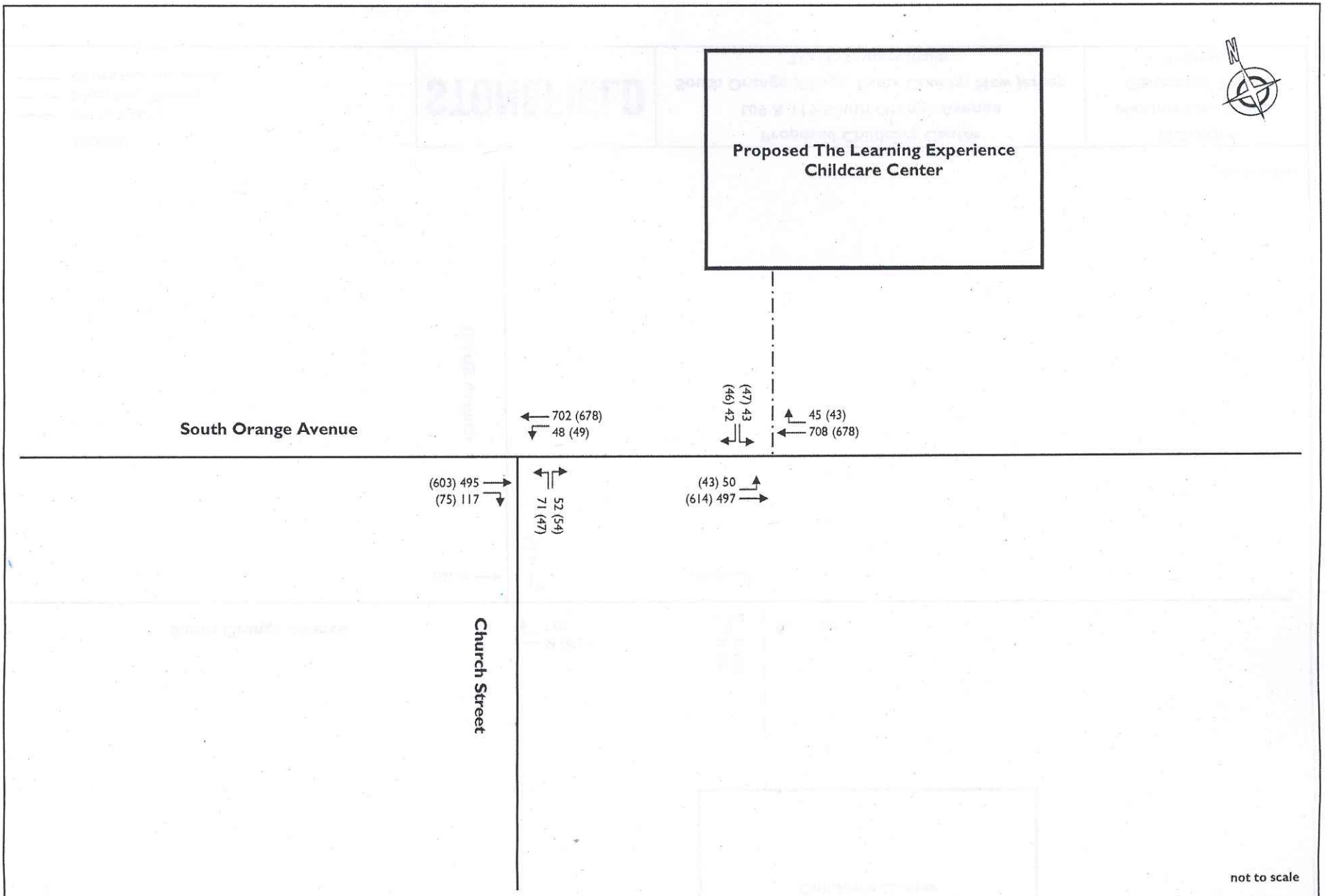
FIGURE 3
2021 No-Build Traffic Volumes



STONEFIELD

Proposed Childcare Center
109 & 115 South Orange Avenue
South Orange Village, Essex County, New Jersey
Traffic Impact Study

FIGURE 4
Net Increase in Site-Generated Traffic Volumes



LEGEND

- Existing Roadway
- Existing Private Driveway
- AM (PM) Peak Hour Volumes

STONEFIELD

Proposed Childcare Center
109 & 115 South Orange Avenue
South Orange Village, Essex County, New Jersey
Traffic Impact Study

FIGURE 5
2021 Build Traffic Volumes

CAPACITY ANALYSIS DETAIL SHEETS

HCS7 Two-Way Stop-Control Report

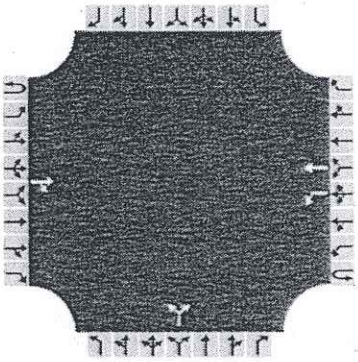
General Information

Analyst	CP
Agency/Co.	SE&D
Date Performed	3/27/2019
Analysis Year	2019
Time Analyzed	Existing AM
Intersection Orientation	East-West
Project Description	S-19051 The Learning Experience Childcare Center

Site Information

Intersection	1EXAM
Jurisdiction	Essex County
East/West Street	South Orange Avenue
North/South Street	Church Street
Peak Hour Factor	0.91
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

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	1	1	0		0	1	0		0	0	0
Configuration				TR		L	T				LR					
Volume, V (veh/h)			439	112		39	642			68		43				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized		No				No				No				No		
Median Type/Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				6.1		5.2				
Critical Headway (sec)						4.10				5.40		5.20				
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)						43					122					
Capacity, c (veh/h)						983					313					
v/c Ratio						0.04					0.39					
95% Queue Length, Q_{95} (veh)						0.1					1.8					
Control Delay (s/veh)						8.8					23.7					
Level of Service, LOS						A					C					
Approach Delay (s/veh)						0.5					23.7					
Approach LOS											C					

HCS7 Two-Way Stop-Control Report

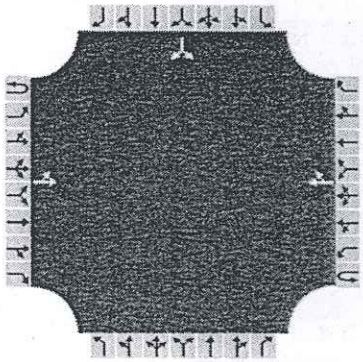
General Information

Analyst	CP
Agency/Co.	SE&D
Date Performed	3/27/2019
Analysis Year	2019
Time Analyzed	Existing AM
Intersection Orientation	East-West
Project Description	S-19051 The Learning Experience Childcare Center

Site Information

Intersection	2EXAM
Jurisdiction	Essex County
East/West Street	South Orange Avenue
North/South Street	Site Driveway
Peak Hour Factor	0.93
Analysis Time Period (hrs)	0.25

Lanes



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		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume, V (veh/h)		5	477				680	0						2		1
Percent Heavy Vehicles (%)		0												0		0
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized		No				No				No				No		
Median Type/Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												6.1		5.2
Critical Headway (sec)		4.10												5.40		5.20
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)		5													3	
Capacity, c (veh/h)		883													321	
v/c Ratio		0.01													0.01	
95% Queue Length, Q_{95} (veh)		0.0													0.0	
Control Delay (s/veh)		9.1													16.3	
Level of Service, LOS		A													C	
Approach Delay (s/veh)		0.2												16.3		
Approach LOS														C		

HCS7 Two-Way Stop-Control Report

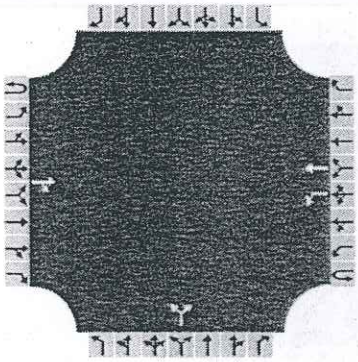
General Information

Analyst	CP
Agency/Co.	SE&D
Date Performed	3/27/2019
Analysis Year	2019
Time Analyzed	Existing PM
Intersection Orientation	East-West
Project Description	S-19051 The Learning Experience Childcare Center

Site Information

Intersection	1EXPM
Jurisdiction	Essex County
East/West Street	South Orange Avenue
North/South Street	Church Street
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

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	1	1	0		0	1	0		0	0	0
Configuration				TR		L	T				LR					
Volume, V (veh/h)			546	72		40	614			45		45				
Percent Heavy Vehicles (%)						0				0		2				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized		No				No				No				No		
Median Type/Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				6.1		5.2				
Critical Headway (sec)						4.10				5.40		5.22				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.32				

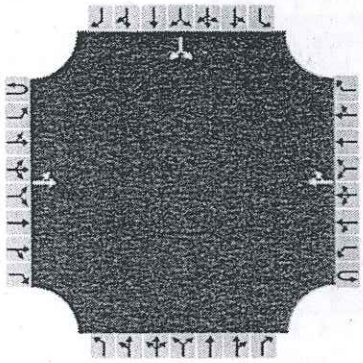
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						43					98					
Capacity, c (veh/h)						928					321					
v/c Ratio						0.05					0.30					
95% Queue Length, Q_{95} (veh)						0.1					1.3					
Control Delay (s/veh)						9.1					21.1					
Level of Service, LOS						A					C					
Approach Delay (s/veh)						0.6					21.1					
Approach LOS											C					

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	CP	Intersection	2EXPM
Agency/Co.	SE&D	Jurisdiction	Essex County
Date Performed	3/27/2019	East/West Street	South Orange Avenue
Analysis Year	2019	North/South Street	Site Driveway
Time Analyzed	Existing PM	Peak Hour Factor	0.95
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	S-19051 The Learning Experience Childcare Center		

Lanes



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		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume, V (veh/h)		1	590				651	0						0		3
Percent Heavy Vehicles (%)		0												0		0
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized		No				No				No				No		
Median Type/Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												6.1		5.2
Critical Headway (sec)		4.10												5.40		5.20
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)		1													3	
Capacity, c (veh/h)		918													546	
v/c Ratio		0.00													0.01	
95% Queue Length, Q_{95} (veh)		0.0													0.0	
Control Delay (s/veh)		8.9													11.6	
Level of Service, LOS		A													B	
Approach Delay (s/veh)		0.0												11.6		
Approach LOS														B		

HCS7 Two-Way Stop-Control Report

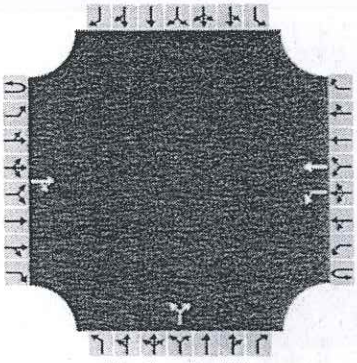
General Information

Analyst	CP
Agency/Co.	SE&D
Date Performed	3/27/2019
Analysis Year	2019
Time Analyzed	No-Build AM
Intersection Orientation	East-West
Project Description	S-19051 The Learning Experience Childcare Center

Site Information

Intersection	1NBAM
Jurisdiction	Essex County
East/West Street	South Orange Avenue
North/South Street	Church Street
Peak Hour Factor	0.91
Analysis Time Period (hrs)	0.25

Lanes



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	1	1	0		0	1	0		0	0	0
Configuration				TR		L	T				LR					
Volume, V (veh/h)			457	117		41	668			71		45				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized			No				No				No				No	
Median Type/Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				6.1		5.2				
Critical Headway (sec)						4.10				5.40		5.20				
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)						45					127					
Capacity, c (veh/h)						961					295					
v/c Ratio						0.05					0.43					
95% Queue Length, Q_{95} (veh)						0.1					2.1					
Control Delay (s/veh)						8.9					26.1					
Level of Service, LOS						A					D					
Approach Delay (s/veh)						0.5				26.1						
Approach LOS										D						

HCS7 Two-Way Stop-Control Report

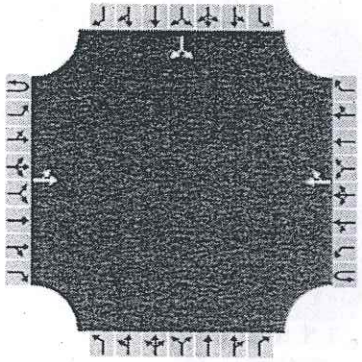
General Information

Analyst	CP
Agency/Co.	SE&D
Date Performed	3/27/2019
Analysis Year	2019
Time Analyzed	No-Build AM
Intersection Orientation	East-West
Project Description	S-19051 The Learning Experience Childcare Center

Site Information

Intersection	2NBAM
Jurisdiction	Essex County
East/West Street	South Orange Avenue
North/South Street	Site Driveway
Peak Hour Factor	0.93
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

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		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume, V (veh/h)		5	497				708	0						2		1
Percent Heavy Vehicles (%)		0												0		0
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized		No				No				No				No		
Median Type/Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												6.1		5.2
Critical Headway (sec)		4.10												5.40		5.20
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)		5													3	
Capacity, c (veh/h)		860													305	
v/c Ratio		0.01													0.01	
95% Queue Length, Q_{95} (veh)		0.0													0.0	
Control Delay (s/veh)		9.2													16.9	
Level of Service, LOS		A													C	
Approach Delay (s/veh)		0.2												16.9		
Approach LOS														C		

HCS7 Two-Way Stop-Control Report

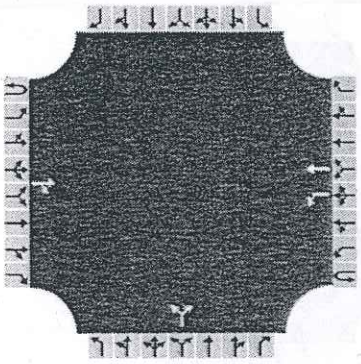
General Information

Analyst	CP
Agency/Co.	SE&D
Date Performed	3/27/2019
Analysis Year	2019
Time Analyzed	No-Build PM
Intersection Orientation	East-West
Project Description	S-19051 The Learning Experience Childcare Center

Site Information

Intersection	1NBPM
Jurisdiction	Essex County
East/West Street	South Orange Avenue
North/South Street	Church Street
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

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	1	1	0		0	1	0		0	0	0
Configuration				TR		L	T				LR					
Volume, V (veh/h)			568	75		42	639			47		47				
Percent Heavy Vehicles (%)						0				0		2				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized			No				No				No				No	
Median Type/Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				6.1		5.2				
Critical Headway (sec)						4.10				5.40		5.22				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.32				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						46					102					
Capacity, c (veh/h)						907					303					
v/c Ratio						0.05					0.34					
95% Queue Length, Q_{95} (veh)						0.2					1.4					
Control Delay (s/veh)						9.2					22.8					
Level of Service, LOS						A					C					
Approach Delay (s/veh)						0.6					22.8					
Approach LOS											C					

HCS7 Two-Way Stop-Control Report

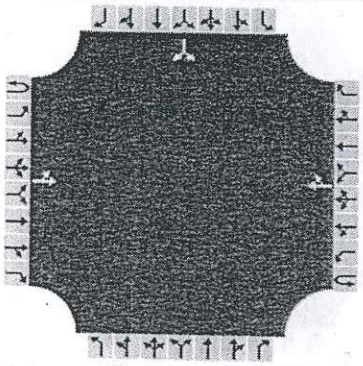
General Information

Analyst	CP
Agency/Co.	SE&D
Date Performed	3/27/2019
Analysis Year	2019
Time Analyzed	No-Build PM
Intersection Orientation	East-West
Project Description	S-19051 The Learning Experience Childcare Center

Site Information

Intersection	2NBPM
Jurisdiction	Essex County
East/West Street	South Orange Avenue
North/South Street	Site Driveway
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

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		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume, V (veh/h)		1	614				678	0						0		3
Percent Heavy Vehicles (%)		0												0		0
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized		No				No				No				No		
Median Type/Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												6.1		5.2
Critical Headway (sec)		4.10												5.40		5.20
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)		1													3	
Capacity, c (veh/h)		896													530	
v/c Ratio		0.00													0.01	
95% Queue Length, Q_{95} (veh)		0.0													0.0	
Control Delay (s/veh)		9.0													11.8	
Level of Service, LOS		A													B	
Approach Delay (s/veh)		0.0												11.8		
Approach LOS														B		

HCS7 Two-Way Stop-Control Report

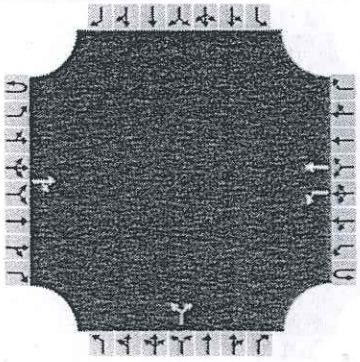
General Information

Analyst	CP
Agency/Co.	SE&D
Date Performed	3/27/2019
Analysis Year	2019
Time Analyzed	Build AM
Intersection Orientation	East-West
Project Description	S-19051 The Learning Experience Childcare Center

Site Information

Intersection	1BAM
Jurisdiction	Essex County
East/West Street	South Orange Avenue
North/South Street	Church Street
Peak Hour Factor	0.91
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

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	1	1	0		0	1	0		0	0	0
Configuration				TR		L	T				LR					
Volume, V (veh/h)			495	117		48	702			71		52				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized		No				No				No				No		
Median Type/Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				6.1		5.2				
Critical Headway (sec)						4.10				5.40		5.20				
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)						53					135					
Capacity, c (veh/h)						928					275					
v/c Ratio						0.06					0.49					
95% Queue Length, Q_{95} (veh)						0.2					2.5					
Control Delay (s/veh)						9.1					30.1					
Level of Service, LOS						A					D					
Approach Delay (s/veh)						0.6				30.1						
Approach LOS										D						

HCS7 Two-Way Stop-Control Report

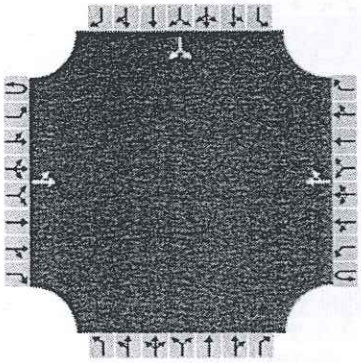
General Information

Analyst	CP
Agency/Co.	SE&D
Date Performed	3/27/2019
Analysis Year	2019
Time Analyzed	Build AM
Intersection Orientation	East-West
Project Description	S-19051 The Learning Experience Childcare Center

Site Information

Intersection	2BAM
Jurisdiction	Essex County
East/West Street	South Orange Avenue
North/South Street	Site Driveway
Peak Hour Factor	0.93
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

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		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume, V (veh/h)		50	497				708	45						43		42
Percent Heavy Vehicles (%)		0												0		0
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized		No				No				No				No		
Median Type/Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												6.1		5.2
Critical Headway (sec)		4.10												5.40		5.20
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)		54													91	
Capacity, c (veh/h)		825													292	
v/c Ratio		0.07													0.31	
95% Queue Length, Q_{95} (veh)		0.2													1.3	
Control Delay (s/veh)		9.7													22.8	
Level of Service, LOS		A													C	
Approach Delay (s/veh)		1.7												22.8		
Approach LOS														C		

HCS7 Two-Way Stop-Control Report

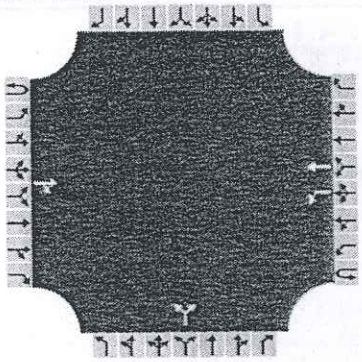
General Information

Analyst	CP
Agency/Co.	SE&D
Date Performed	3/27/2019
Analysis Year	2019
Time Analyzed	Build PM
Intersection Orientation	East-West
Project Description	S-19051 The Learning Experience Childcare Center

Site Information

Intersection	1BPM
Jurisdiction	Essex County
East/West Street	South Orange Avenue
North/South Street	Church Street
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



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	1	1	0		0	1	0		0	0	0
Configuration				TR		L	T				LR					
Volume, V (veh/h)			603	75		49	678			47		54				
Percent Heavy Vehicles (%)						0				0		2				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized		No				No				No				No		
Median Type/Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				6.1		5.2				
Critical Headway (sec)						4.10				5.40		5.22				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.32				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						53					110					
Capacity, c (veh/h)						878					285					
v/c Ratio						0.06					0.39					
95% Queue Length, Q_{95} (veh)						0.2					1.7					
Control Delay (s/veh)						9.4					25.4					
Level of Service, LOS						A					D					
Approach Delay (s/veh)						0.6				25.4						
Approach LOS										D						

HCS7 Two-Way Stop-Control Report

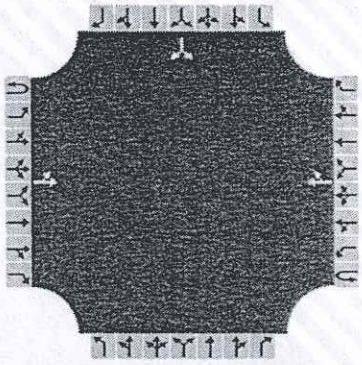
General Information

Analyst	CP
Agency/Co.	SE&D
Date Performed	3/27/2019
Analysis Year	2019
Time Analyzed	Build PM
Intersection Orientation	East-West
Project Description	S-19051 The Learning Experience Childcare Center

Site Information

Intersection	2BPM
Jurisdiction	Essex County
East/West Street	South Orange Avenue
North/South Street	Site Driveway
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

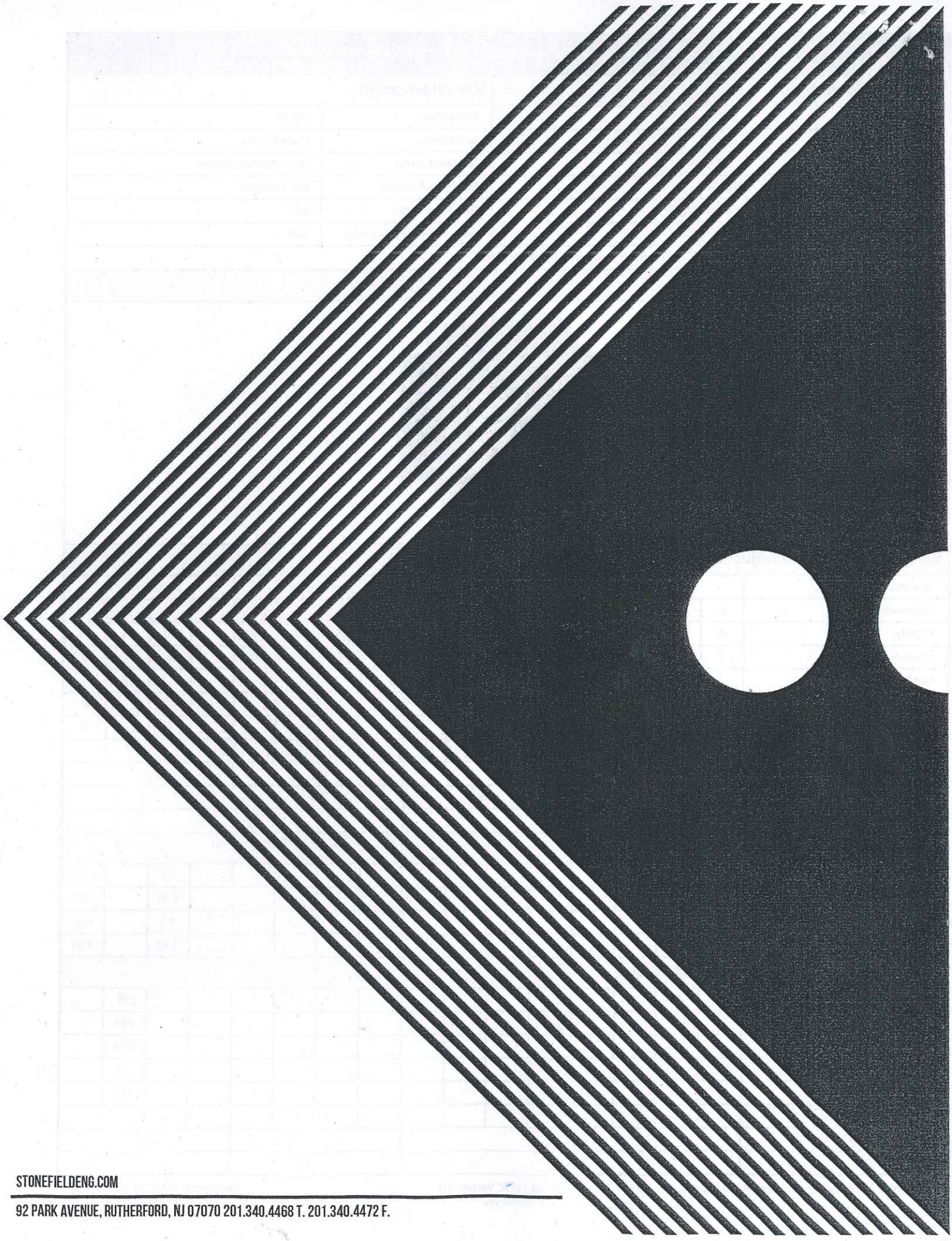
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume, V (veh/h)		43	614				678	43						47		46
Percent Heavy Vehicles (%)		0												0		0
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized		No				No				No				No		
Median Type/Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												6.1		5.2
Critical Headway (sec)		4.10												5.40		5.20
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)		45													98	
Capacity, c (veh/h)		862													289	
v/c Ratio		0.05													0.34	
95% Queue Length, Q_{95} (veh)		0.2													1.5	
Control Delay (s/veh)		9.4													23.7	
Level of Service, LOS		A													C	
Approach Delay (s/veh)		1.3												23.7		
Approach LOS														C		



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